Microsoft 365 and SharePoint Online Cookbook

A complete guide to Microsoft Office 365 apps including SharePoint, Power Platform, Copilot and more

With an accompanying eBook for Copilot Studio, Viva, Planner, and beyond!

Foreword by:

Mark Kashman

Senior Product Manager – Microsoft

Second Edition

Gaurav Mahajan
Sudeep Ghatak

Nate Chamberlain
Scott Brewster

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BIRMINGHAM—MUMBAI

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Foreword

This book is a "recipes to success" publication. If you are looking for practical guidance on Microsoft 365, you have picked the right book with the right authors. Microsoft 365, SharePoint, Teams, Viva, Power Platform, and more give you the ingredients; this 2nd edition provides over 100 recipes to mix and blend with confidence. Whether you are a beginner or an expert, you will find something useful and interesting on your way to becoming a top Microsoft 365 chef. Now you're cookin'!

The authors are all Microsoft experts with years of real-world experience designing and building Microsoft 365-based solutions (big and small) – and they're gracious enough to point out all the gotchas. Each recipe ensures it is easy to follow and navigates toward photo-worthy results. You will learn how to configure, customize, automate, and integrate Microsoft 365 workloads to enhance your productivity and collaboration. Plus, you'll get tips and tricks along the way.

So, grab your apron and get ready to explore the delicious possibilities of Microsoft 365. Bon appétit! Chefs Gaurav, Sudeep, Nate, and Scott await.

Mark Kashman,
Senior Product Manager - Microsoft

Contributors

About the authors

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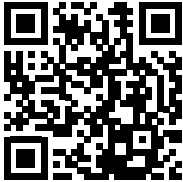
About the reviewers

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Yves is passionate about sharing his knowledge and experience with the wider Microsoft community, by participating in many sessions as a speaker and posting regularly on his blog.

Learn more on Discord

To join the Discord community for this book – where you can share feedback, ask questions to the author, and learn about new releases – follow the QR code below:

https://packt.link/powerusers

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Term Store and Content Types in SharePoint Online

Metadata is data about data, in the sense that it gives more information about other data. Examples of such metadata for documents are the document's author, creation date, size, or security classification. SharePoint enables the following types of metadata:

- **Automatically generated metadata:** When you upload a document or create a list item in SharePoint, it automatically tracks who created the document or list item and when, and who modified it and when, and accordingly adds the information to the document or list item.

- **Metadata that users can freely create in place:** In addition to autogenerated metadata, users can also add information to each list item or document by entering values against the columns created for the corresponding list or library.

- **Metadata that is maintained centrally for the entire organization:** The third type of metadata is one that is defined and managed centrally but can be used to tag list items and documents across multiple lists/libraries or even sites within the entire organization. Some examples of such metadata could be the organization's office locations, departments, products, and so on. You will still need to create columns within various lists and libraries in order to tag them with this metadata but you would manage the metadata only from one central location called the **term store**.

Users with appropriate access can use the term store management tool to manage terms in the term store. Site or list and library owners can then create managed metadata columns that allow users to tag information and documents accordingly with this centrally managed metadata. Doing so gives you the following benefits:

- **Consistent metadata definition across the organization:** Instead of the site, list, or library owner creating their own classification, users across the entire organization use the standard enterprise terms. This helps ensure uniformity and accuracy. For example, HR, H.R., H. R., and Human Resources all mean the same department.

Allowing users to enter the department name through a *free-flow* text field, even if it's defined at the site level, could lead to inconsistencies (which result in downstream issues with search and data aggregation). On the other hand, if there was a single department defined at the enterprise level, which users would simply select, all documents and list items would then be tagged with the same department name.

- **Improved content organization and discovery**: Being able to tag documents using the same consistent terms leads to improved content discovery. As an example, you would be able to easily search for and discover all documents tagged with *Report* as the `Document Type` and *Finance* as the `Department`. The search would still continue to return permission-trimmed results, so you would only see what you have access to, but you would not need to go to every single site, list, or library to discover this content. Also, managed metadata columns help you to better filter and sort information in the corresponding lists and libraries.

- **Central management of metadata:** The term store enables you to centrally manage metadata. You can add new terms or update the old ones as needed and the changes will be reflected across all sites, lists, and libraries across the enterprise. You can also define synonyms and multilingual terms centrally through the term store. So, for example, you can set up departments in the term store so that `HR` and `Human Resources` both point to the same term.

- **Navigation:** Metadata navigation for sites enables a site owner to create navigation based on metadata terms. We discussed list views in the *Creating a custom list view* recipe in *Chapter 4, Lists and Libraries in SharePoint Online*. There's a flavor of metadata navigation for lists and libraries that enables the creation of dynamic metadata-based views. This support article explains the steps to do so: `https://packt.link/list-metadata-navigation`.

The recipes in this chapter will show you how to first create and manage **terms** in the **term store** and then use them to enrich the content within your site. We will also look at the concept of a **content type**, which is basically a reusable collection of pre-defined site columns that let you standardize the information that is captured in the lists and libraries within your site.

But before we dive into the recipes, it is important to understand the terminology:

- **Term**: A term is the specific tag/metadata/word/phrase that you would assign to an item or document within a list or library in SharePoint. Terms are contained within term sets.

- **Term set**: A term set is a grouping of logical terms. As an example, `Departments` is a commonly used term set and would contain a listing of the organization's departments as individual terms. Term sets are stored within groups.

- **Group:** A term group (not to be confused with an Office 365 group) is a security container for term sets. You can specify who has access to manage and contribute to the term sets and terms with the group. Groups are the highest containers within the term store.

- **Term store:** The term store is the global repository of all terms within your organization. You can interact with the term store using the **term store management** tool built into Office 365.

The entire hierarchy is also depicted in the following image:
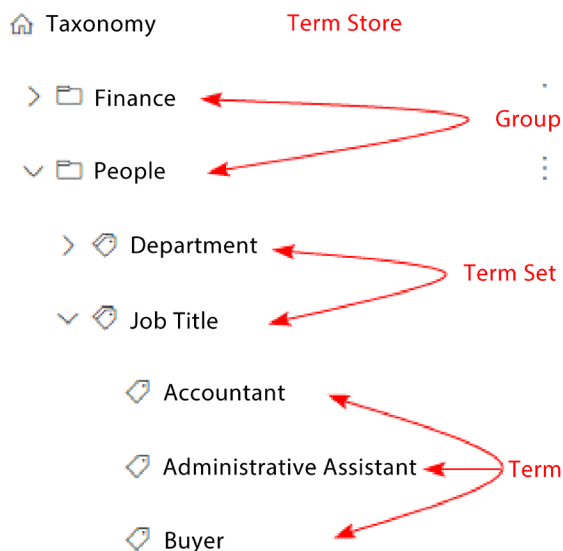
Figure 13.1: Term store hierarchy

Now that we understand the terminology, let's dive deeper into the topic through the following recipes:

- Browsing to the term store
- Creating a new group for term sets
- Creating term sets and terms
- Creating a managed metadata site column within a site
- Creating a content type within a site
- Creating site columns and content types through the SharePoint admin center
- Adding a content type to a list or library
- Tagging a document

Browsing to the term store

As of writing, there are two different places from where you can access the term store.

The SharePoint admin center allows you to centrally manage *Global term groups*, term sets, and terms across the entire organization. Groups, term sets, and terms that you create from here are available across the organization.

You can also access the term store from a SharePoint site where you have **Design** permission level or higher. Please refer to the *Determining and revoking permissions in a site* recipe in *Chapter 3*, *Modern Sites in SharePoint Online*, for details on the different permission levels in SharePoint.

In addition to the global term groups and term sets, you can create and manage site-level metadata here, as shown in the image below:
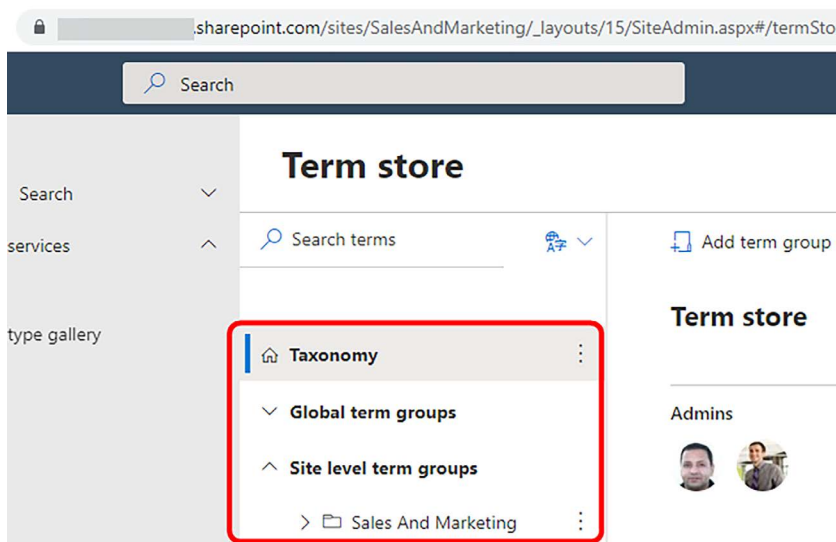
Figure 13.2: Site-level term groups

Site level term groups, term sets, and terms created here are only available for tagging content within your site. They are not visible outside the site where they were created.

> At the time of writing, you can only create one **site-level term group** per site.
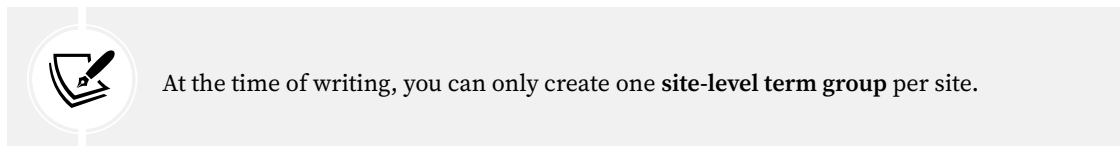
We will see below how to access both the global and site-level term stores in this recipe.

Getting ready

You will need **Global admin** or **SharePoint admin** rights within your tenant to browse to the *global* term store from the SharePoint admin center.

You will need a **Design** permission level or higher on your site to be able to browse to the term store from your site.

How to do it...

To browse to the global term store:

1. Browse to the Microsoft 365 admin center located at: `https://admin.microsoft.com`.

2. Then either select **SharePoint** if it's visible or click **Show all | SharePoint** or **All admin centers | SharePoint,** as shown in the following image:
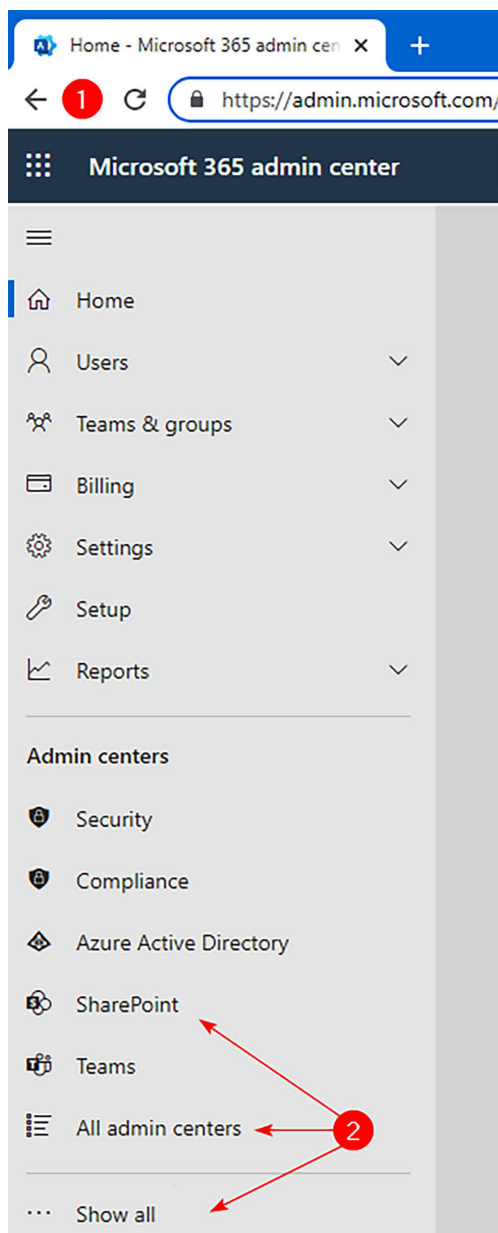
Figure 13.3: Selecting all admin centers

3. This will take you to the SharePoint admin center. From here, expand **Content services** and then click **Term store.**

4. Browse to the **Site settings** page.

> Please visit *Viewing and changing site settings*, in *Chapter 3, Modern Sites in Share-Point Online*, if you are not familiar with how to browse to the **Site Settings** page.

5. Click the **Term store management** link under the **Site Administration** heading.

That's it! You just learned how to browse to the global term store when you have Office 365 admin rights, and the site term store when you have appropriate permissions for your site.

How it works...

The **term store**, at its core, is a way to organize and group a hierarchy of terms (also called taxonomy and managed metadata). The term store management tool lets you centrally manage the taxonomy for your organization.

A big purpose of the term store is to be able to centrally manage your organization's metadata. Using the site term store defeats the purpose since the terms we create in the site term store are limited to just that site and are not reusable across other sites. We therefore do not recommend using the site term store and are only going to discuss the global term store in this chapter.

Note, however, that the recipes in this chapter can also be carried out using the site term store, given you have appropriate access. You will still need global term store administrator rights to create a term group within a site, site owner rights to create term sets and terms within the site, and contributor access or higher to be able to use site-level terms within your site.

Further, a very reasonable middle approach is to create term groups in the global term store and then add site or team owners as the **Group Managers** or **Contributors**, as shown below:
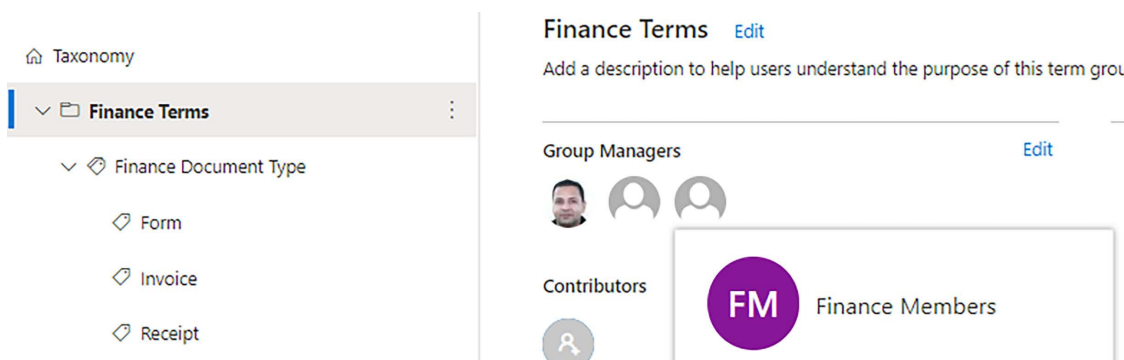
Figure 13.4: Group managers of term groups

This way, a term store admin will still need to create the term group, but appropriate team members will be able to manage terms in that group from within their site. Please see the *How to do it...* section of the *Creating a new group for term sets* recipe in this chapter for details about these two group permissions.

See also

- The *Creating a new group for term sets* recipe, next in this chapter
- The *Determining and revoking permissions in a site* recipe, in *Chapter 3*, *Modern Sites in SharePoint Online*
- The *Viewing and changing site settings* recipe in *Chapter 3*, *Modern Sites in SharePoint Online*

Creating a new group for term sets

A term group is a logical container under which all terms are stored. To create terms, you first need to create a term group.

Terms in SharePoint are organized in **groups** and **term sets**. A term store group is a container for term sets, which in turn contain various terms. All term sets in a group follow a common security setup. Your organization could have defined multiple groups within the term store, with each group typically targeting a different set of owners and contributors.

In this recipe, we will see how to use the term store management tool to create a new group in the global SharePoint term store.

Getting ready

You should have been granted **Term Store admin** rights to be able to create a new term group.

In addition, you will need permission to browse to the appropriate term store (global or site), as described in the previous recipe, *Browsing to the term store*.

How to do it...

To create a new group using the *global* term store, do the following:

1. Browse to the term store using the steps described in the previous recipe, *Browsing to the term store*.
2. Click **Add term group**.

3. Enter the name for your term group, as shown below, and hit the *Enter* key:
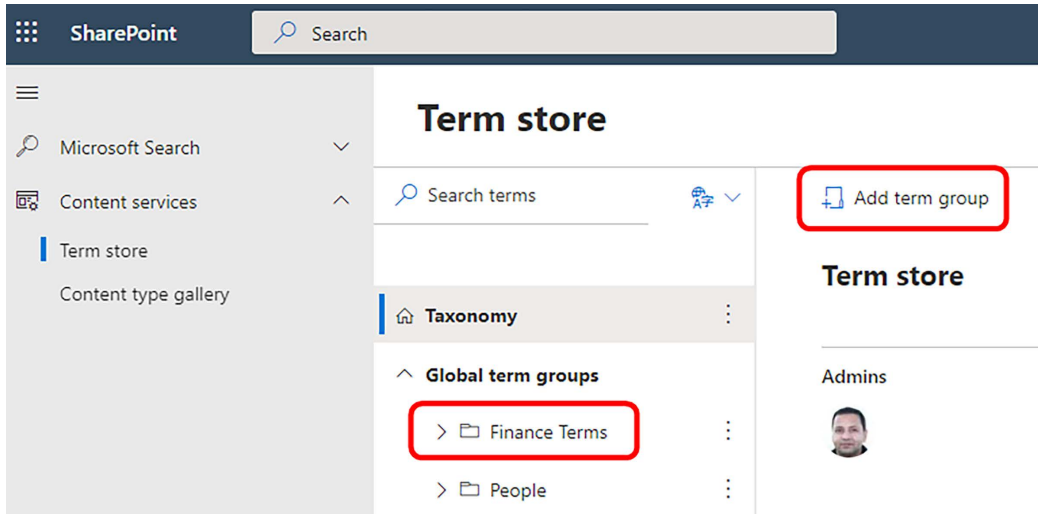
Figure 13.5: Naming a term group

4. If you are creating a site-level term group, you will need to click the **Add term group** button below the **Site level term groups** option, as shown in the following image:
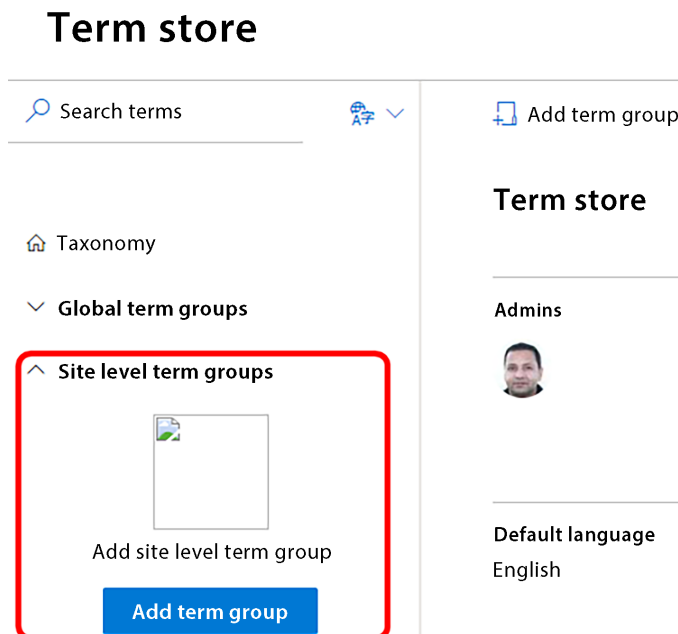
Figure 13.6: Adding a site-level term group

Clicking the **Add term group** link toward the top right will create the term group within the global term store instead. Also note that at the time of writing, you can only create one site-level term group per site. So, this button only shows up the first time you create a site-level term group.

5. This will create the group and then will allow you to edit the group properties. You can provide a description for your group here. You can also enter or select the *managers* and *contributors* for the group. You can further rename or delete the group and add or import term sets for the group. This is shown in the following screenshot:
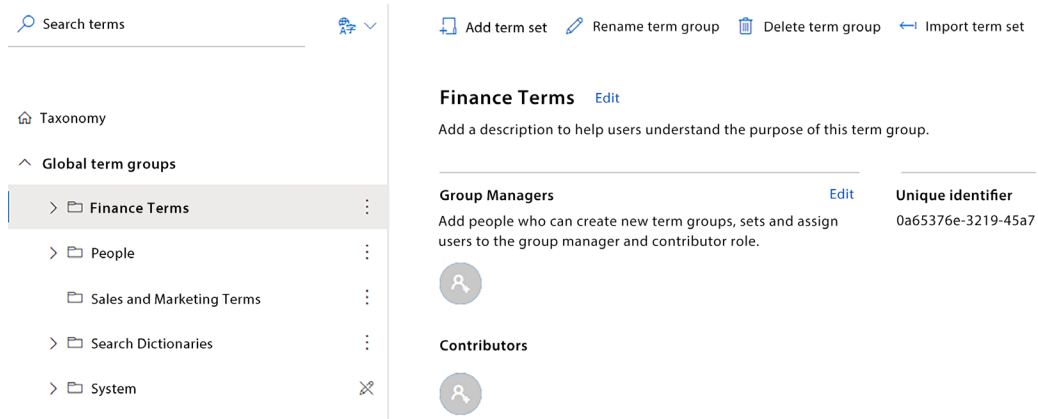
Figure 13.7: Setting a term group description

The group **Contributors** can create and edit term sets and terms within the group.

The group **Managers** have **Contributor** permissions and can additionally manage users in the **Contributors** role.

The permissions that you grant to a group are applied to all the underlying term sets and terms for that group. You cannot set or alter permissions for individual term sets or terms within the group.

Congratulations! You just created a new group in the global SharePoint term store. This means that anyone with appropriate access to the term store or the group will be able to view/edit this group in the term store. Typically, this should only be a few users. Additionally, other users from across your organization will be able to tag items on their sites using the terms from within this group.

How it works...

As discussed in the chapter introduction, the term store is a hierarchy of term groups, term sets, and terms. The highest node in the term store hierarchy (called **Taxonomy**) is that of the service instance itself.

As shown in the following screenshot, clicking on this node allows you to manage the term store's properties:
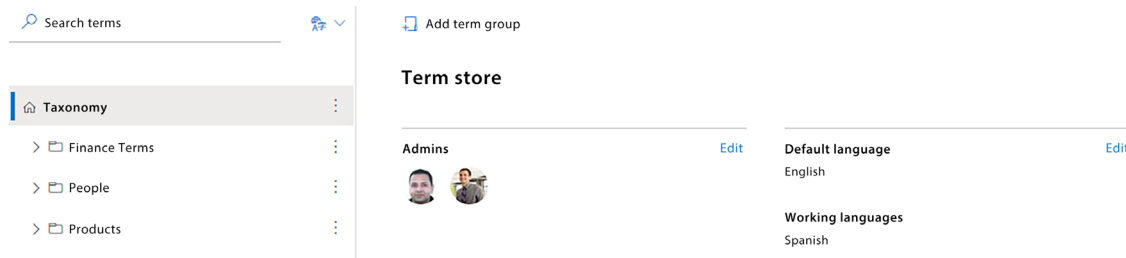
Figure 13.8: Term store properties

In addition to adding term groups, you carry out the following actions through this screen:

- **Manage** term store admins: This setting lets you specify users who can create and manage term groups and the underlying term sets. Please note that these users also need to be SharePoint admins or global admins to be able to access the global term store from the SharePoint admin center. Alternatively, they will need **Design** permissions or higher on a site to access the global term store from within a SharePoint site.

- **Edit the term store** languages and set the default language: The term store allows terms to be defined in multiple languages. This setting enables you to select the languages allowed for the terms in the term store. You will also need to select the default language for the terms. Then, you can define each term in the default language and specify additional translations (or *labels*) in each allowed language. SharePoint allows you to make your site content available in more than one language. The multilingual terms defined in the term store then become available for sites that match the language or the user's preferred language. You can read more about the multilingual capabilities of SharePoint here: `https://packt.link/SP-multilingual`.

    - **Rename or delete term groups**: In addition to creating term groups, as outlined in the recipe, you can also rename or delete them from this screen. Simply click the three dots next to the term group and then click **Rename term group** or **Delete term group** to rename or delete the term. You can alternatively click on the term group and rename or delete the term group from the ensuing screen. You can also edit the group managers or contributors from this screen. You will need **Term Store admin** rights to be able to delete or rename a term group. Alternatively, **Manager** access to a group allows you to rename it (but not delete it).

> If you are not a term store admin but are still able to browse to the term store due to the permission granted to you within a site, you will only be able to edit groups or add terms within those groups to which you were granted access as a *Group Manager* or *Contributor*. You will still be able to see other global term groups, but they will be read-only for you, like so:
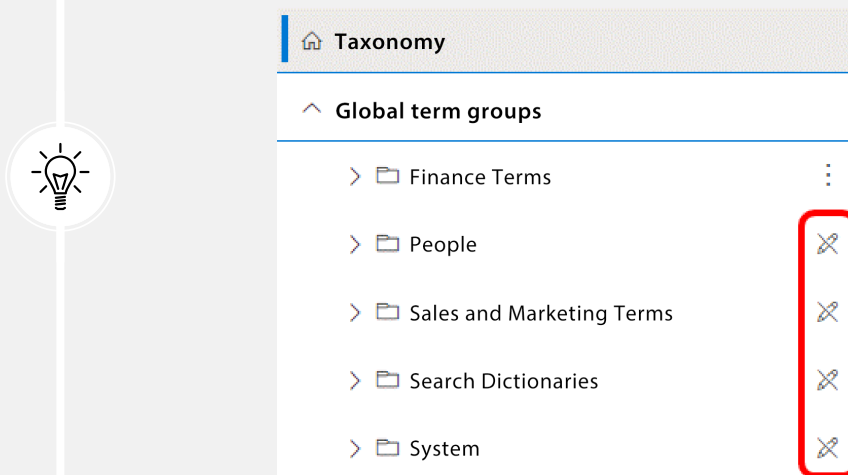
Figure 13.9: Read-only permissions icon

See also

- The *Browsing to the term store* recipe, earlier in this chapter
- The *Viewing and changing site settings* recipe in *Chapter 3, Modern Sites in SharePoint Online*

Creating term sets and terms

A term set is a way to group all related terms. Some examples of term sets are:

- **Departments:** A term set containing a list of departments so content can be tagged by/associated with departments
- **Office Locations:** A term set to tag content by office locations
- **Products:** A term set to tag content by products offered by your organization

The term store allows you to create term sets and then add terms to them. Alternatively, you can import a term set complete with all its terms using a **Comma-Separated Values** (**CSV**) file. The second approach is a tad easier. This recipe will show you how to create term sets using both these approaches.

Getting ready

You will need *Contribute* or *Manager* access to the term group to be able to add and update term sets and terms within that group.

How to do it...

To create a new term set and terms from scratch, do the following:

1. Browse to the term store using the steps described in the *Browsing to the term store* recipe.

2. Click the three dots to the right of the group under which you would like to create the new term set and then click **Add term set**, as shown in the following screenshot:
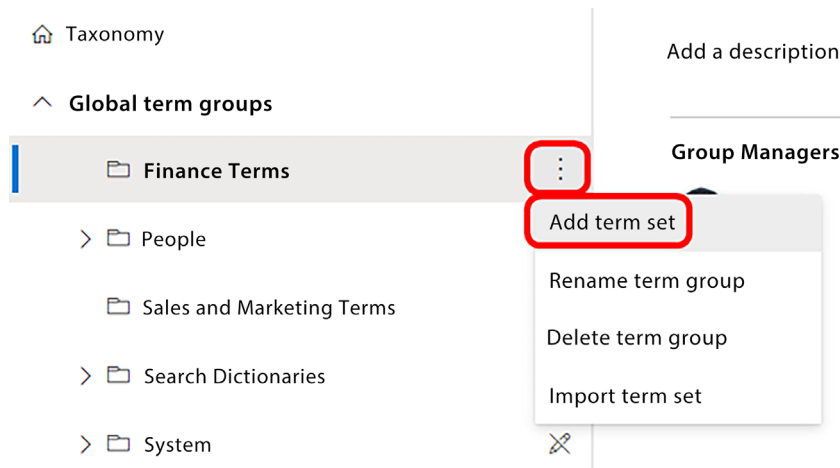
Figure 13.10: Adding a new term set

3. Enter a name for your term set and then press the *Enter* key outside the box. We will create the **Finance Document Type** term set under the **Finance Terms** term group for our example.

4. This will create the term set and show you the **Term set** properties screen.

5. Click the three dots next to the term set and then click **Add term**, as shown in the following screenshot:
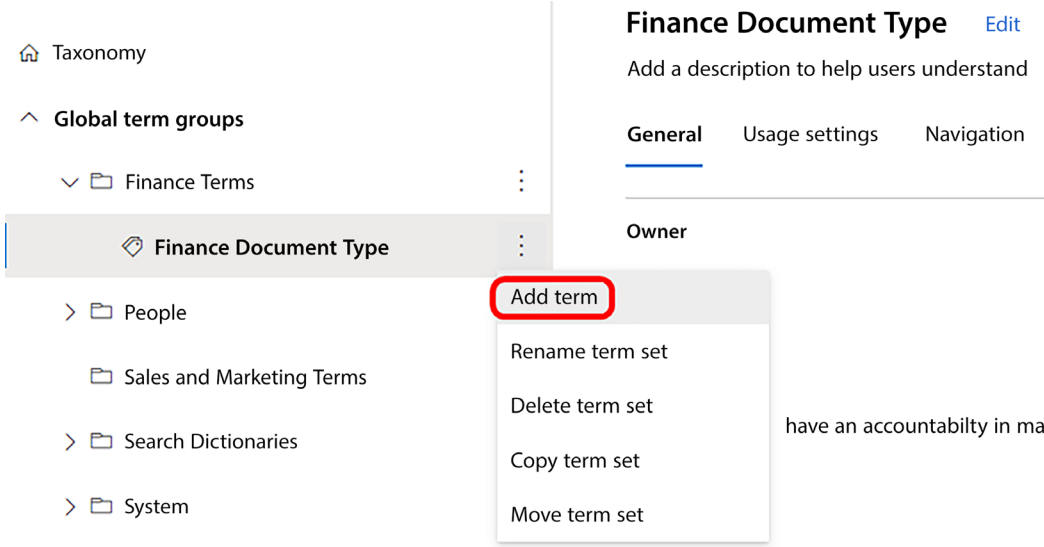
Figure 13.11: Adding a term to the new term set

6. Enter a name for your term and then press the *Enter* key. We will enter **Form** for our example. This will create the term and show you the term properties screen.

   Next, we will add a child term to the term that we just created. To do that, click the down arrow next to the term and then click **Create term**.

7. Enter a name for your term set and then press *Enter* or click anywhere outside the box. We will enter `Expense Reimbursement` for our example.

8. Like before, this will create the new term and then show you the properties screen for it. The entire structure is shown in the following screenshot:
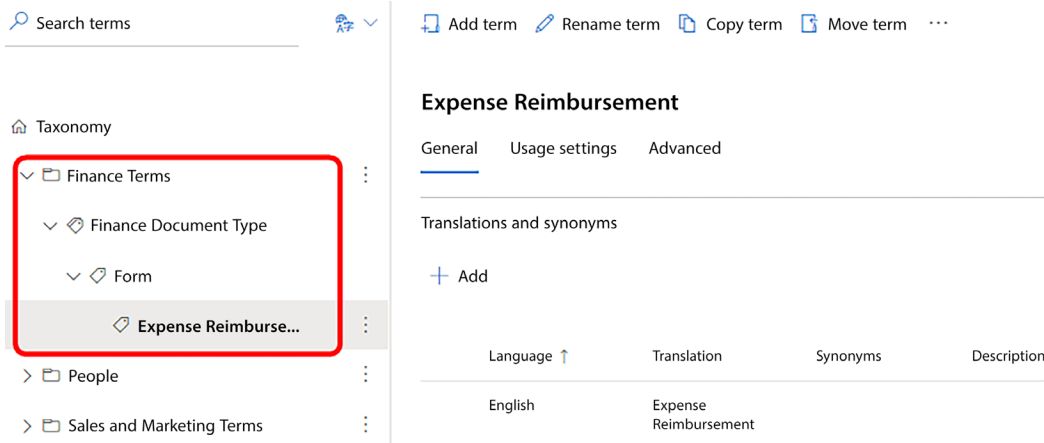
Figure 13.12: Properties screen for the new term

To import a new term set and underlying terms from a CSV file, do the following:

1. Browse to the term group for which you would like to import the terms.
2. Click **Import term set**, as shown below:
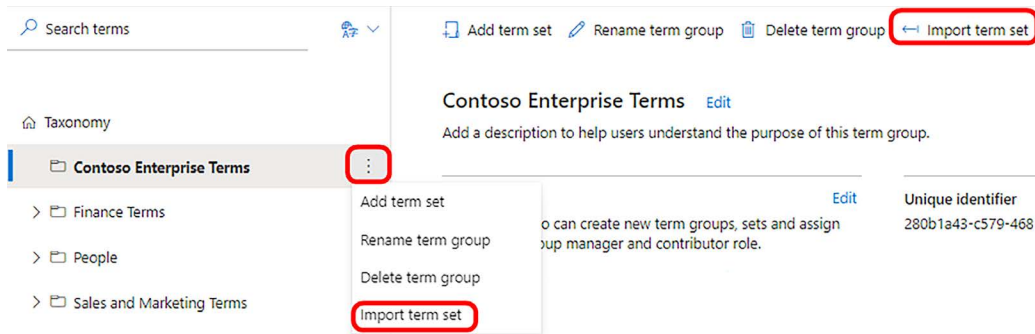
Figure 13.13: Option to import a term set

3. Click the `sample-metadata.csv` link to download a sample file, which we can use as a guideline to input hierarchical metadata.
4. Open the downloaded file. This file contains columns in the format required by the term store to create the new term set and underlying terms. It also contains sample data that helps illustrate the file structure. We will populate this sample file with the details for the term set that we are going to create.
5. Replace the sample data with the term set and hierarchical terms, as shown in the following screenshot:

	A	B	C	D	E	F	G	H
1	Term Set Name	Term Set Description	LCID	Available for Tagging	Term Description	Level 1 Term	Level 2 Term	Level 3 Term
2	Contoso Departments	These are all the Contoso Departments		TRUE	The Engineering department and its sub-departments	Engineering		
3				TRUE	The HR department and its sub-departments	Human Resources		
4				TRUE		Human Resources	Compensation and	
5				TRUE		Human Resources	Recruiting	
6				TRUE		Human Resources	Training and Development	
7				TRUE	The IT department and its sub-	IT		
8				TRUE	The Legal department and its sub-departments	Legal		
9				TRUE	The Operations department and its sub-departments	Operations		
10				TRUE	The R&D department and its sub-departments	R&D		
11				TRUE	The Sales department and its sub-departments	Sales & Marketing		

Figure 13.14: Replacing sample data

6.   Save the file. Make sure you save the file preserving the original CSV format.

7.   Back in the term store, follow the earlier steps to click **Import term set** again, and this time, click the **Browse** button to upload the CSV file created in the previous step.

8.   Then click the **Import** button toward the bottom of the screen.

9.   This results in the new term set being created under the selected group. This is also shown in the following screenshot:
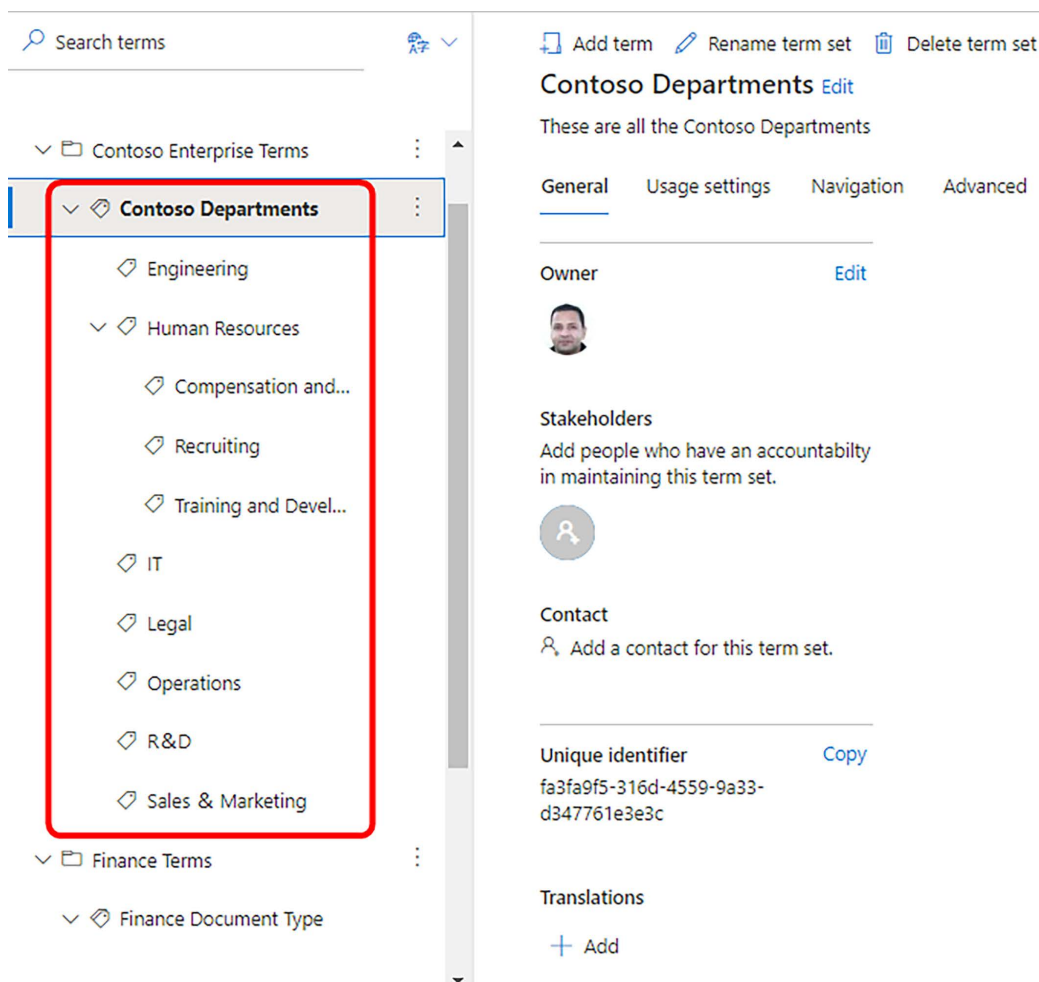
Figure 13.15: New term set imported under a term group

Congratulations! You just learned how to create a new term set and then add hierarchical terms to it.

How it works...

Term sets help prevent the repetition of metadata definitions across multiple sites, thus ensuring consistency. By maintaining and managing this information in a central place, we also ensure additional governance for this metadata. Once created, the term sets and corresponding terms will be available for use across all sites in your organization.

Term set properties

The term set properties pages enable the management of the term set. Following is a set of lists describing such properties.

The **General** tab:

- **Owner, Contact, and Stakeholders:** You can use these properties to specify users that get listed as contacts, stakeholders, and an owner for the term set. Please note that while SharePoint lets you specify these properties, they do not grant any additional permissions to the term set and are just a way to track the business owners or stakeholders for it. The permissions for all term sets within a group are controlled through the group's properties. You can read more about term store permissions here: `https://m365book.page.link/termStore-Permissions`.

- **Translations:** You can use translations to define term sets in other languages allowed for your term store. Please refer to the *Creating a new group for term sets* recipe earlier in the chapter to see where term store administrators can enable multiple languages.

The **Usage settings** tab:

- **Submission Policy:** This property specifies whether users using a term set can freely add terms to it. When it's set to **Closed**, only group managers and group contributors can add terms to it. When set to **Open**, users can add in-line terms while they are tagging content.

- The **Allow Fill-in** column-level property will also need to be set along with this value to enable end users to add new inline tags. We will look at the **Allow Fill-in** property as part of the next recipe, *Creating a managed metadata site column*.

- It is a good idea to keep the term set closed. This helps maintain consistency and control over your data. There may be scenarios where you would want your term set to be open, especially when the classification is more informal. This article discusses formal and informal classification in greater detail: `https://packt.link/folksonomy-taxonomy`.

- **Available for tagging:** Uncheck this option if for any reason you would like to disable terms from this term set from being available for tagging.

- **Sort order:** By default, terms in a term set are sorted alphabetically. If the need arises, however, you can specify a custom sort order for your terms. This can be useful in certain scenarios where you would like to have a non-standard sort, say, for example, a list of the products sorted by the newest product first.

The **Navigation** tab:

- **Use this Term Set for Site Navigation:** On-premises versions of SharePoint let you use term sets and their underlying terms to drive the global (top) navigation. In fact, at the time of writing, this is the preferred method for the on-prem installations of SharePoint. This method of managing global navigation is now deprecated in the modern version of SharePoint Online. You can refer to the following link to understand managed navigation and how to enable it for the on-prem versions of SharePoint: `https://packt.link/managed-navigation` and `https://packt.link/managed-navigation-SP`.

- The following link explains how to plan navigation for the modern SharePoint Online experience: `https://packt.link/plan-modern-navigation`.

- **Use this Term Set for Faceted Navigation:** The term **faceted navigation** is used to describe filters or refiners that can be added to certain pages to make it easier to get to the content. Just like managed navigation, this feature is now deprecated in SharePoint Online and is only available for on-prem versions of SharePoint. You can read more about configuring faceted navigation and refiners here: `https://packt.link/faceted-navigation`.

The **Advanced** tab:

- **Translation:** You can use this feature to generate automatic language translations for all terms in your term set. Note that you may need to refresh the page after the translations are generated to be able to view them.

- **Custom properties:** This feature allows you to specify custom properties for your term. These properties are not visible to the end users but can be useful for development/automation scenarios.

Term properties

Some of the notable properties of a **term** are the following:

The **General** tab:

- **Translations and synonyms:** Just like the term set, you can maintain language translations for your terms through this section.

Additionally, you can define synonyms for each translation, as shown below:

Edit translation and synonyms

Language
English

Translation *

> Human Resources

Description

> The HR department and its sub-departments

Synonyms
Edit synonyms for this term.

> H. R.   Add

> H. R. ✕   HR ✕

Figure 13.16: Adding synonyms for a term

- Your site users will then be able to select such terms either using the default term or one of the synonyms, as shown in the following screenshot:

H

Human Resources
in Contoso Departments
▪ H. R.
▪ HR

Figure 13.17: Selecting a synonym

The **Usage settings** tab:

- **Available for Tagging:** If unchecked, the term will be visible but cannot be used by end users. An example use of this property is if you have hierarchical terms and you want the users to select only the child terms and not the parent terms. To achieve this, you would uncheck this value for the parent term and leave it checked for the children.
- **Member of:** Terms can be shared across term sets (see the *There's more...* section for more details). This section shows you a list of all term sets where this term is shared.

The **Advanced** tab:

Just like custom properties for term sets, you can define custom properties for the selected term here.

There's more...

You can carry out a few contextual actions in addition to maintaining the term set and term properties through a term store. We will discuss these actions in the following section.

Organizing the term store

Term sets allow for the following contextual actions in addition to the **Create Term** action we saw as part of this recipe:

- **Copy term set:** Clicking this option duplicates the entire term set and its underlying terms. Note that the underlying terms are *reused* (you will read below about term reuse) when a term set is copied.
- **Move term set:** Clicking this action moves the selected term set and its underlying terms to another group.
- **Delete term set:** This deletes the selected term set and its terms. Note that, unlike most other SharePoint information types, deleted term sets or terms are not stored in the Recycle Bin and hence cannot be recovered.

You can perform the following actions on terms within a term set:

- **Copy term:** Clicking this option creates a duplicate of the term. The copied term can be independently managed from this point on.
- **Reuse terms:** This action creates a linked copy of the term under a destination term or term set. If you make changes to the source term (such as renaming the term), the changes are also reflected at the destination. Note that when you add new child terms to the source or destination, the new terms are not synced.
- **Pin term:** Lets you *pin* the selected term to a different term or term set. Just like reusing a term, pinning a term results in a linked copy of the original term. The difference is that any changes made to the source are also reflected in the destination, but the destination term is now read-only (you cannot make any changes to it). New child terms from the source also automatically get pinned to the destination.
- **Merge terms:** Adds the source term as a synonym of the selected destination term. The destination term is then reused in place of the source term.

- **Deprecate term**: This makes the selected term unavailable for tagging going forward. Existing items that use the term continue to remain tagged with the term. You should almost always deprecate terms instead of deleting them. This will prevent orphaned tags if the term is being used somewhere.
- **Move term**: Click this action to move the selected term and its underlying terms to another term set or term.
- **Delete term**: Delete the selected term altogether.

The following links provide more details regarding these actions:

- `https://m365book.page.link/termSet-Actions`
- `https://m365book.page.link/term-Actions`

Exporting and importing terms using PnP

In addition to creating a taxonomy from scratch, you can also import the entire taxonomy tree, just a few term groups within the taxonomy, or individual term sets within those groups. You can achieve this by creating a CSV file of your groups, term sets, and terms and then using PnP commands to import them into the term store.

> **PnP** is short for **Patterns and Practices**. You can read more about it in the *SharePoint PnP* subsection of the *Office development frameworks* section in the *Appendix*.

Once you have the taxonomy changes defined in the CSV file, you can import them into your organization's term store using the `Import-PnPtermSet` command, as described here: `https://m365book.page.link/Import-PnPtermSet`.

Similarly, you can use the `Export-PnPTaxonomy` command to export the taxonomy tree to a CSV file of your choice, as documented here: `https://packt.link/export-PnP-taxonomy`.

See also

- The *Creating a new group for term sets* recipe in this chapter
- The *SharePoint PnP* topic in the *Office development frameworks* section of the *Appendix*

Creating a managed metadata site column within a site

In the previous recipe, we saw how to create term sets and terms in the term store. In this recipe, we will see how to create a `Contoso Department` column that utilizes these terms and makes them available to end users for tagging. The purpose of this column will be for users to tag documents with the associated department.

Please note that while this method of creating site columns is supported, it is not the recommended method since the metadata you create here can only be used for your site. We are covering this recipe so you can still create the site-level managed metadata column if you don't have access to the central term store (even then, the first recommendation is to reach out to your organization's SharePoint admins/IT if possible). The now recommended method to create site columns is described in the *Creating site columns and content types through the SharePoint admin center* recipe later in this chapter.

Getting ready

You will need *Design* permissions or higher on the site where you would like to create the new column. Alternately, you will need to be a member of the *Site owners* group to create site columns in your site.

How to do it...

To create a new column that utilizes the taxonomy from the term store, do the following:

1. Browse to the **Site Settings** page for the site, as described in the *Viewing and changing site settings* recipe in *Chapter 3*, *Modern Sites in SharePoint Online*.

2. Then click **Site columns** under the **Web Designer Galleries** heading.

    Click **Create** to be taken to the **Create Column** screen. You can enter various details for your column on this screen.

3. We will begin by entering the column name and selecting **Managed Metadata** as the column type. We will use Contoso Department as the column name for our example.

4. We will then enter or select the following additional properties:

    *   **Group**: This is just a way to group your custom columns. Select an existing group if you previously created one or create a new one by entering its name. Since we are creating a site column, this group could be named after your site. For our example, we will create a new group called Sales and Marketing Columns since we are creating it in the *Sales and Marketing* site.

    *   **Additional Column Settings – Description**: Enter a meaningful description that explains the purpose of your column.

    *   **Additional Column Settings – Require that this column contains information**: We will set this to **Yes** since we would like users to enter a value for this column.

    *   **Multiple Value field – Allow multiple values**: If selected, this will enable users to enter or select multiple terms for this column. We will leave this unchecked for our example.

> You will want to make sure that the column name reflects whether the column allows multiple values or not. For our example, we called the column `Contoso Department` because we anticipate that the users will only select a single department when tagging documents and listing items with it. We would have called it `Contoso Departments` if the business need was to allow documents and list items to be tagged with multiple departments. Either way, you should discuss business, governance, and information architecture requirements before selecting various properties for the column, including the `Multiple Value field` property for the managed metadata columns.

- **Display format – Display Value:** This property specifies whether to display the entire hierarchy for the selected term. It is usually best to leave this value to the default setting, which only displays the term name, instead of the entire hierarchy, which can get lengthy and confusing for most scenarios.
- **Term Set Settings – Use a managed term set:** This is where we will select the term set to associate with the column. Users will then be able to tag list items and documents with the terms from the selected term set. To select the desired term set, expand the first `Taxonomy_` node to find the appropriate group. Then expand the group to view all the term sets in that group and select the term set:
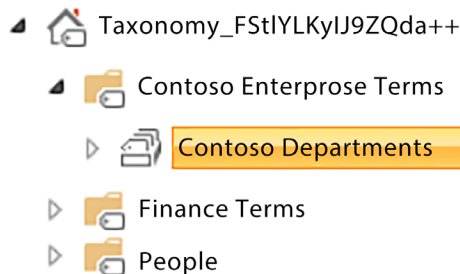
Figure 13.18: Selecting a term set from a group

- **Allow Fill-in:** If your term set is an open term set, meaning it allows users to enter new values instead of just selecting existing ones, you can choose to disable or enable that feature specifically for your column.
- **Default Value:** You can enter or select a default term for this column. Selecting such defaults is a good idea in some scenarios. As an example, if this column is being added for an HR site, it may be a good idea to select **Human Resources** as the default value for this column. That way, all items added to a list or library containing this column will automatically get tagged by the **Human Resources** term. Contributors to your list will still be able to change the default values if there are exceptions to this rule. For our example, we will *not* select a default value here.

5. Click **OK** to create your new column with the preceding properties. After creating your column, SharePoint will take you to the **Site Columns** page and show the new column under the appropriate group, as shown in the following screenshot:

Site Column	Type	Source
Sales and Marketing Columns		
Contoso Department	Managed Metadata	Sales and Marketing

Figure 13.19: New column with term store properties

Congratulations! You just learned how to create a new **Managed Metadata** column and associate a term set to it.

How it works...

We briefly discussed site columns in the *There's more...* section of the *Adding a column* recipe in *Chapter 4*, *Lists and Libraries in SharePoint Online*. The **Managed Metadata** column type is just like any other site column, except that it lets you associate metadata from the term store. Note that managed metadata columns will almost always get created as site columns versus lists or library columns. This is because they connect to the term store, which contains *reusable* enterprise metadata versus something that would be used just once.

See also

*   The *Adding a column* recipe in *Chapter 4*, *Lists and Libraries in SharePoint Online*
*   The *Creating term sets and terms* recipe in this chapter
*   The *Creating site columns and content types through the SharePoint admin center* recipe later in this chapter

Creating a content type within a site

In the simplest terms, a **SharePoint content type** is a collection of columns for items or files in a list or library. More specifically, a content type is a blueprint for the properties that get associated with a type of list item or file within the corresponding list or library, thus making the information more meaningful. A content type ties an item or file to its properties. Further, content types are reusable and therefore offer the ability to standardize the type of information that gets collected across multiple lists and/or libraries within your site. In turn, among other numerous benefits, this leads to consistent content with better searchability.

> You will almost always want to create content types through the content type gallery in the SharePoint admin center. However, not every site owner has access to the SharePoint admin center, and therefore, this recipe shows you how to create a content type as a site owner.

In this recipe, we will see how to create a new **content type** for your site and add columns to it.

Getting ready

You will need **Design** permissions or higher for the site where you would like to create the new content type. Alternately, you will need to be a member of the *Site owners* group to create site columns in your site.

Additionally, it is recommended to create a few site columns using the previous recipe. We created the following example columns:

- `Document Type`: A managed metadata column containing a list of the different types of documents across the organization. Some example values are **Case Study**, **Product Overview**, **Campaign**, and so on. Please note that the corresponding term set will also first need to be created.
- `Document Purpose`: A single line of text column to describe the document or its purpose.
- `Product`: A managed metadata column containing a list of all products across the organization. Please note that the corresponding term set will also first need to be created.
- `Product Line`: A managed metadata column containing a list of all the organization-wide product lines. Some examples are `Audio`, `Cameras`, `Gaming`, and so on. Please note that the corresponding term set will also first need to be created.
- `Document Contact`: A `Person` or `Group` column allowing the document author to select a point of contact for that document.

How to do it...

To create a new content type, do the following:

1. Browse to the **Site Settings** page for the site, as described in the *Viewing and changing site settings* recipe in *Chapter 3*, *Modern Sites in SharePoint Online*.

   Then click **Site content** types under the **Web Designer Galleries** heading. This will take you to the **Content type gallery**, which shows you the currently available content types for your site.

2. Click **Create content type**, as shown in the following screenshot:

Figure 13.20: Option for creating a new content type

3. Here, we will enter the following properties for the content type being created:

   - **Name:** A descriptive name for the content type. This name will show up on the **New** menu for your list or library. We will use `Contoso Document` as the name of the content type for our example.

   - **Description:** Enter a description for this content type. This is just for your internal/tracking purposes and is not shown anywhere.

   - **Group:** It is recommended to place custom content types in a separate group. You can select an existing group or create a new one. We will create a new group called `Sales and Marketing Content Types` as an example.

   - **Parent content type:** We will be applying this content type to documents so we will select **Document Content Types** for **Parent category** and **Document** for **Content type.** The *Content type inheritance* topic in the *There's more...* section of this recipe explains these settings in more detail.

4. Click **Create** to create the new content type.

5. You will now be taken to a screen that displays information for the newly created content type, as shown in the following screenshot:

Content type gallery > **Contoso Document**

    ✏ Edit   ⚙ Advanced settings   🗑 Delete content type

Contoso Document
Create a new Contoso document. Use of this content type enables standard information collection across all sites and results in a better display and search experience

Category
Sales and Marketing Content Types

Parent
Document ⓘ

Content Type ID
0x01010074E5A1F8DB448E4DA9E89E5C6FD3A128

Site columns
Add and manage the site columns that are a part of this content type.

   + Add site column ⌄

Name	Type	Required	Source
Name	File	Yes	Document
Title	Single line of text	No	Item

Figure 13.21: Content type properties

6. Notice the **Site columns** section for this content type. Since this content type was created based on the **Document** site content type, it came with the **Title** field to capture the title of the uploaded documents. We will now add more columns to this content type.

7. Click **Add site** column and then **Add from existing site columns** to be taken to the **Add Columns** screen.

Since we already created our site column in the previous recipe, we chose to add the existing site column here. You can click **Create new site column** if you would like to create a new site column instead.

On the screen that shows next, either select a category to filter the column selection based on the group name we provided while creating the column, or directly select the columns from the available columns list. For this recipe, we will select the following custom columns we created or recommended creating earlier: `Contoso Department`, `Document Type`, `Product`, `Product Line`, `Document Purpose`, and `Document Contact`.

8. Select the columns and click **Save**.

    Keep the **Update sites and lists** box selected and click **Save**. If you are editing a content type that is already being used in lists and/or libraries within your site, selecting this option will make sure that the new column is propagated to those lists and/or libraries.

    The only time you might need to set this value to **No** is if this content type were being used in existing lists or libraries and someone made direct changes to the list or library content type. That is not a good practice anyway and beats the whole purpose of maintaining information consistency by using content types. Changing this setting to **No** would mean that the new column(s) would not be propagated to existing lists or libraries and would only show up in new lists and libraries using this content type.

9. As shown in the following screenshot, you will now see the columns you've added in the list of columns against the content type:

Name	Type	Required	Source
Name	File	Yes	Document
Title	Single line of text	No	Item
Document Purpose	Single line of text	Yes	Contoso Document
Document Type	Managed Metadata	Yes	Contoso Document
Contoso Department	Managed Metadata	Yes	Contoso Document
Product	Managed Metadata	Yes	Contoso Document
Product Line	Managed Metadata	Yes	Contoso Document
Document Contact	Person or Group	Yes	Contoso Document

Figure 13.22: Content types shown in a site

Congratulations! You just learned how to create a new content type for your site and add columns to it.

How it works...

As you saw through this recipe, a content type creates a schema or specification for the type of content that will eventually be associated with it. It does this by letting you define a set of columns or metadata that go together with it. Content types exist at the site level and get reused across the different lists and libraries within the site (and its subsites, if there are any). Better yet, they exist centrally in the **Content type gallery** of the SharePoint admin center.

We'll read more about such content types and site columns in the next recipe. Please also note that we can only add site columns to a content type. Site columns and content types help to ensure data consistency since they are created centrally and are then reused across many lists/libraries and sites. Any changes to the columns within a content type or to its properties get reflected in all places where the content type is used.

Next, we will look at how to edit the content type properties and properties of columns included within the content type. We will then review the concept of content type inheritance.

Content type properties

We saw some basic properties of content types in the previous recipe. We will look at some additional properties in this section.

Advanced settings

You can access these settings through the **Advanced settings** option toward the top:
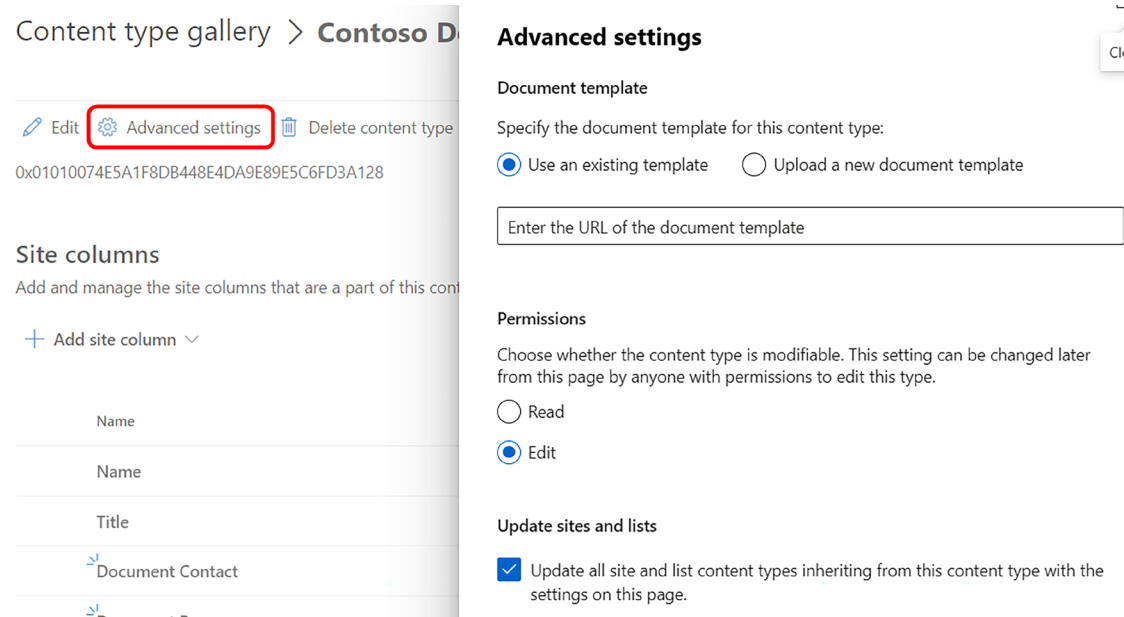
Figure 13.23: Option for Advanced settings

- **Document template:** This is similar to the document templates that we saw in the *Associating a document template* recipe in *Chapter 5*, *Document Management in SharePoint Online*. Once you associate a document template with a **Document content type**, new documents that get created in a library that uses this content type will follow the default structure and styling defined by this template.

  Please note that users can still directly upload other documents to the library instead of using the **New** menu to create them. Such uploaded documents will end up not using the content type document template. Depending on the purpose of the **Document content type**, it still may be a good idea to associate a document template with it.

- **Permissions:** Selecting the **Read** option ensures that lists or libraries using the content type are unable to change the properties or even columns when using the content type.

  Note that the list or library owners can still set this flag to **Edit** just for that list and/or library. That then gives them the ability to modify the content type for their list or library only. As a governance rule, you would typically want to set this value to **Read** to help maintain consistency across all lists and libraries that use this content type.

- **Update sites and lists:** This setting helps control whether or not the changes made on this screen get propagated to the lists and libraries already using this content type. You will also see this setting on some of the other settings screens for the content type when making changes to it.

  For example, you will notice this setting on the **Add/edit column** screens. You will typically want to select this option (which is the default). An example scenario, though, where you may want to deselect this option is if you made a breaking change that could affect the existing lists and libraries that are already using this content type.

Column settings

In addition to general content type settings, you can also edit certain settings for individual columns in the content type:

Figure 13.24: Column settings

- **Edit site column settings:** Through this setting, you can choose to hide the column in the list or library and make it required or optional.

> Please note that the modern site column and content type experience is still evolving at the time of writing and you will need to use the classic experience to edit the traditional column properties (such as the number of characters allowed for text columns):
>
> ## Edit site column settings
>
> Show or hide site column
>
> ☑ Show this column in lists
>
> ○ Optional (may contain information)
>
> ◉ Required (must contain information)
>
> Update sites and lists
>
> ☑ Update all site and list content types inheriting from this content type with the settings on this page.
>
> To edit site columns, go to the classic experience.

Figure 13.25: Option to revert to classic experience

- **Format the site column:** You can use JSON formatting to change the display of the column in the list or library views. We read about column formatting in the *There's more...* section of the *Adding a column* recipe of *Chapter 4*, *Lists and Libraries in SharePoint Online*.
- **Reorder site columns:** You can change the order of the columns as they are displayed in the list or library forms. Please also note that you can also simply drag and drop the columns in the content type to do so.
- **Remove site columns:** Click this option to completely remove the site column from your content type. Note that since columns within a site exist independently of the content types, removing the column from this content type does not delete the actual site column.

Content type inheritance

Just like in real life, where children inherit certain behaviors and traits from their parents, in the software world, the term "inheritance" is used to define the parent-child relationships of software **objects.** The child object acquires and then adds to the traits and properties that it *inherits* from its parent. In the world of SharePoint, this concept applies to content types.

As an example, let's say we create a content type called `Contract` for the legal department. Also assume that this content type contains the following custom columns: `Product Line`, `Product`, `Company Contact`, `Contract Status`, and `Execution Date` (optional). We could potentially have the following content types inheriting from it:

- `Sale Contract`: This content type would contain the following columns in addition to those in the parent `Contract` content type: `Sales Person`, `Client Name`, `Units`, `Sale Amount`, and so on.

- `Vendor Contract`: This content type would instead contain the following additional columns: `Vendor Name`, `Part Id`, `Part Name`, `Quantity`, and so on.

Both the `Sale Contract` and `Vendor Contract` content types would automatically inherit the columns that we defined earlier for the `Contract` content type. This lets us define the common columns and set various column properties only in one place (for the `Contract` content type), and then simply reuse them for one or more child content types. If it's required to add, change, or remove a common column, we make that change only in a single place and the change gets propagated to the children. This enables greater control, better governance, and the scalability of content types and the related information architecture for your sites.

Note that, in SharePoint, you will always select one of the existing content types as a parent and never create a content type from scratch. The `Contract` custom content type that we used for our example would have inherited the built-in `Document` content type. The `Document` content type, in turn, inherits the built-in `Item` content type, as shown in the following screenshot:

Site Content Types › Site Content Type

Site Content Type Information

Name:	Document
Description:	Create a new document.
Parent:	Item
Group:	Document Content Types
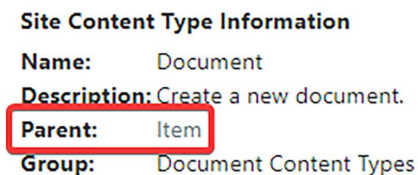
Figure 13.26: Content types inheriting properties from other content types

The `Item` content type is the *base* content type for all practical purposes (although it inherits from a hidden `System` content type). These links discuss the content type hierarchy and, specifically, content type inheritance in greater detail:

- **Content type inheritance:** `https://packt.link/SP-content-type-inheritance`
- **Content type hierarchy:** `https://packt.link/content-type-hierarchy`
- **Content type hierarchy diagram:** `https://m365book.page.link/content-type-heirarchy-diagram`
- **Creating content types:** `https://packt.link/creating-content-types`

Please note that even though some of these articles were written for SharePoint 2010, these concepts continue to apply to all modern versions of SharePoint.

See also

- The *Creating a new document* recipe in *Chapter 5, Document Management in SharePoint Online*
- The *Creating a managed metadata site column within a site* recipe earlier in this chapter
- The *Creating site columns and content types through the SharePoint admin center* recipe, next in this chapter
- The *Viewing and editing documents in the client* recipe in *Chapter 5, Document Management in SharePoint Online*
- The *Creating a modern site* recipe in *Chapter 2, Introduction to SharePoint Online*

Creating site columns and content types through the SharePoint admin center

We just reviewed site-level content types and the fact that they are available to all lists, libraries, and subsites within that site. Further, we learned, in the *Creating a subsite* recipe in *Chapter 3, Modern Sites in SharePoint Online*, that Microsoft discourages the creation of subsites in SharePoint online and that the modern architecture is *flat* (or that of a single site). The usability of content types created in the site, therefore, becomes very limited, especially in the more modern SharePoint Online.

Additionally, in a true enterprise scenario, you would want to be able to use content types across multiple sites within the enterprise. This capability is accomplished in SharePoint using the **Content type gallery**, which is accessible from the SharePoint admin center.

In this recipe, we will review how to create site columns and content types through the content type gallery in the SharePoint admin center.

Getting ready

You will need to have *SharePoint admin* or *Global admin* permissions to be able to access the content type gallery through the SharePoint admin center.

If you created site columns and content types as part of the previous recipe, it is recommended to first delete them from the corresponding site to avoid duplicates since we will be creating site columns and content types with the same name in this recipe. While deleting, please note that you will first need to remove the site columns from the content types before deleting the columns. SharePoint does not allow site columns to be deleted if they are being used in content types or lists and libraries.

How to do it...

To create a site column through the admin center, do the following:

1. Browse to the Microsoft 365 admin center located at `https://admin.microsoft.com`

2.   Then either select **SharePoint** if it's visible or click **Show all | SharePoint** or **All admin centers | SharePoint**, as shown in the following image:
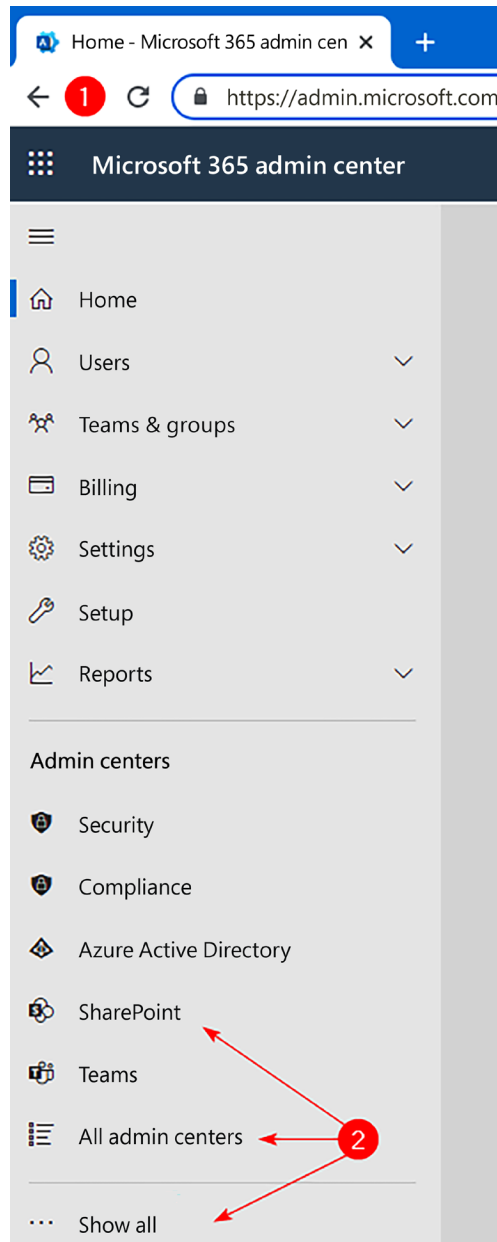

Figure 13.27: Navigating to the admin center

This will take you to the SharePoint admin center. From here, expand **Content services** and then click **Content type gallery.**

From here, click **Create content type.**

3. Next, we will enter the following properties for the content type being created:

   - **Name:** A descriptive name for the content type. This name will show up on the **New** menu for your list or library. We will use `Contoso Document` as the name of the content type for our example.

   - **Description:** Enter a description for this content type. This is just for your internal tracking purposes and is not shown anywhere.

   - **Group:** It is recommended to place custom content types in a separate group. You can select an existing group or create a new one. We will create a new group called **Contoso Content Types** as an example.

   - **Parent content type:** We will be applying this content type to documents so we will select **Document Content Types** for **Parent category** and **Document** for **Content type.** The *Content type inheritance* topic in the *There's more...* section of this recipe explains these settings in more detail.

4. Click **Create** to create the new content type.

5. You will now be taken to a screen that displays information for the newly created content type, as shown in the following screenshot:
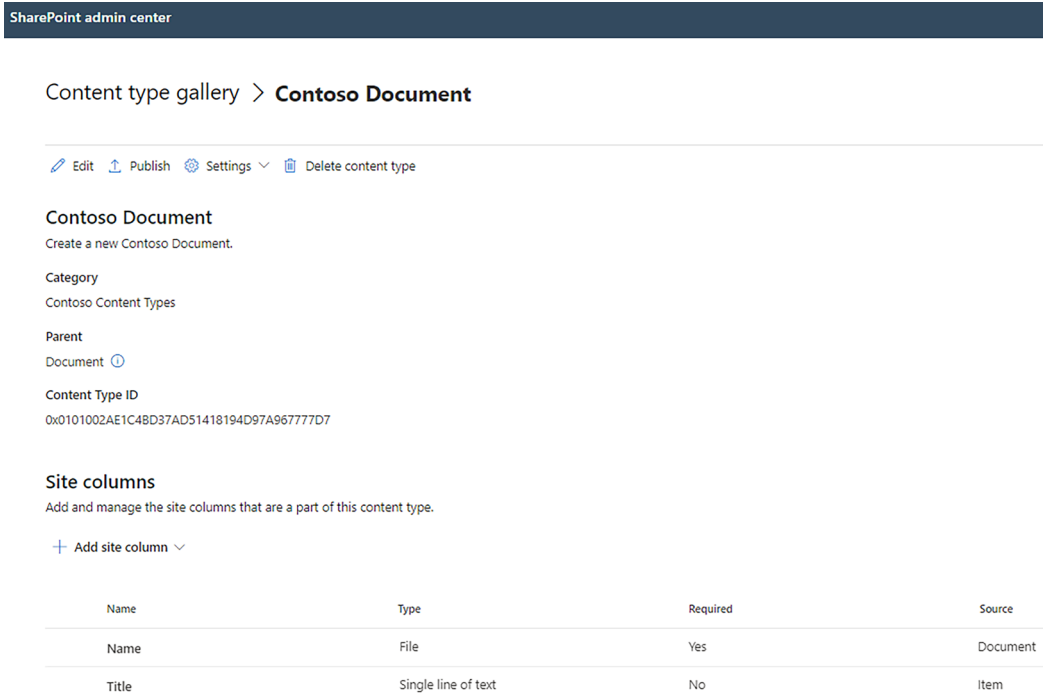
Figure 13.28: Content type properties

6. Notice the **Site columns** section for this content type. Since this content type was created based on the **Document** site content type, it came with the **Title** field to capture the title of the uploaded documents. We will now add more columns to this content type.

7. Click **Add site column** and then **Create new site column.**

8. This will open the **Create new site column** panel.

9. Here, we will enter or select various properties for our first enterprise site column, called `Contoso Department`, as shown in the following screenshot:

Figure 13.29: New column configuration

10. We will then click **Save** to create the site column. We will similarly create the following site columns and make them required:

- **Document Type:** A managed metadata column containing a list of the different types of documents across the organization. Some example values are `Case Study`, `Product Overview`, `Campaign`, and so on. Please note that the corresponding term set will also first need to be created.

- **Document Purpose:** A single line of text column to describe the document or its purpose.

- **Product:** A managed metadata column containing a list of all products across the organization. Please note that the corresponding term set will also first need to be created.

- **Product Line:** A managed metadata column containing a list of all the organization-wide product lines. Some examples are `Audio`, `Cameras`, `Gaming`, and so on. Please note that the corresponding term set will also first need to be created.

- **Document Contact:** A `Person` or `Group` column allowing the document author to select a point of contact for that document.

As shown in the following screenshot, you will now see the columns you've added in the list of columns against the content type:

Name	Type	Required	Source
Name	File	Yes	Document
Title	Single line of text	No	Item
Document Purpose	Single line of text	Yes	Contoso Document
Document Type	Managed Metadata	Yes	Contoso Document
Contoso Department	Managed Metadata	Yes	Contoso Document
Product	Managed Metadata	Yes	Contoso Document
Product Line	Managed Metadata	Yes	Contoso Document
Document Contact	Person or Group	Yes	Contoso Document

Figure 13.30: New columns shown in a site

Every time a content type is created or edited from the SharePoint admin center, it needs to be published for the changes to be visible to other sites. To do so, simply click the **Publish** menu option toward the top of the page, as shown in this screenshot:
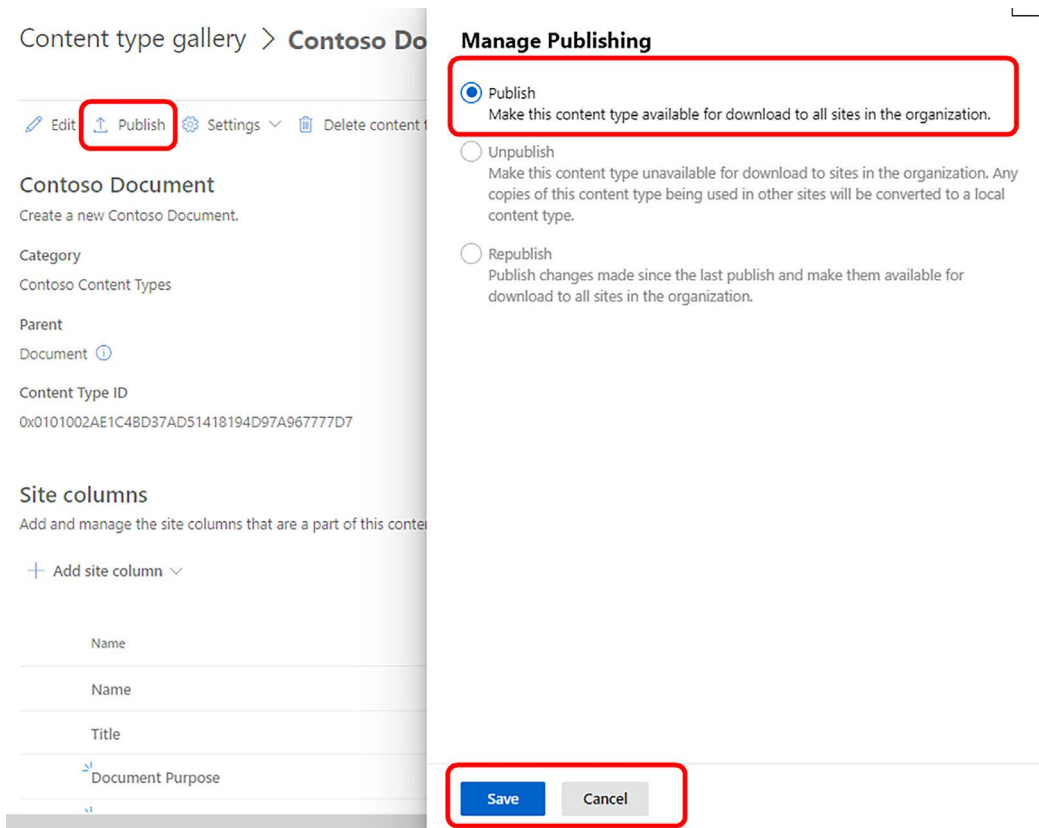
Figure 13.31: Publish option

That's it! You just created and published a content type for use across all libraries in all sites in your organization.

How it works...

Creating a content type through the SharePoint admin center is similar to creating one from within the site. If you have not already done so, you are encouraged to review the previous recipe, and especially the *How it works...* section, to get an understanding of some key concepts.

See also

- The *Creating a new document* recipe, in *Chapter 5, Document Management in SharePoint Online*
- The *Creating a managed metadata site column within a site* recipe earlier in this chapter
- The *Creating a content type within a site* recipe earlier in this chapter
- The *Viewing and editing documents in the client* recipe in *Chapter 5, Document Management in SharePoint Online*
- The *Creating a modern site* recipe in *Chapter 2, Introduction to SharePoint Online*

Adding a content type to a list or library

Content types coupled with site columns drive consistency across the lists and libraries on your site. In the previous recipes, we saw how to create a content type and add site columns to it.

This recipe will show you how to associate the content type we created earlier with a library so that the content in the library adheres to the metadata requirements defined by the content type. Note that even though this recipe uses a library as an example, the concepts and outlined steps work equally well with lists.

Getting ready

You will need **Edit** access or higher to the library for which you would like to add the content type. You likely already have this access if you are a site member or owner.

How to do it...

To add a content type to a library, do the following:

1. Browse to the library and then click **Add column.**
2. You are presented with a list of column types. Scroll all the way toward the bottom of this list, click **Add a content type**, and then click **Next**, as shown here:
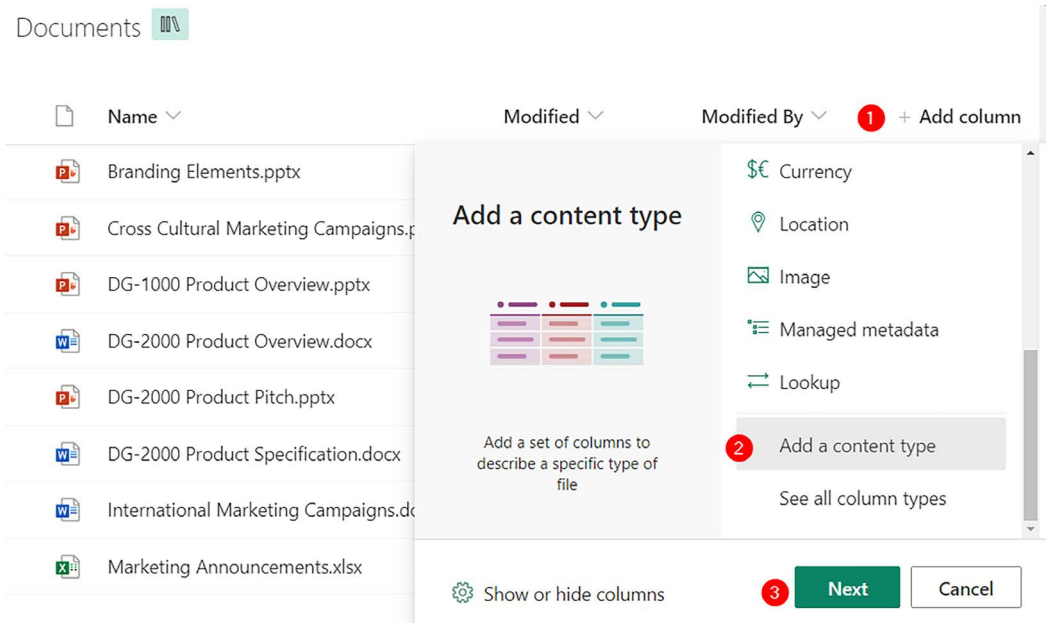

Figure 13.32: Adding a new content type to a library

3. Doing so will take you to the **Add content type** page. Here you can select one or more published content types. We will select the newly created **Contoso Document** content type and click **Apply**.

Since we are working with a library, the only content types that you will see in the *Select site content types from list* are the library content types. You will not see content types that derive from the `Item`-based content type. Conversely, if you were working with a SharePoint list (instead of a library), you would only see content types that are based on the `Item` content type. We discussed content type inheritance in more detail in the *Adding columns to a content type* recipe earlier in this chapter.

4.　SharePoint will add the content type to the library and provide you with a confirmation message:

Added 1 content type to Documents
Done

Contoso Document
Added successfully

Figure 13.33: Confirmation message

Congratulations! You just configured your library to use a new content type.

How it works...

As you saw in this recipe, a content type groups a list item, or in this case, a document with its metadata. You can view the newly added content type and its associated columns in a few places:

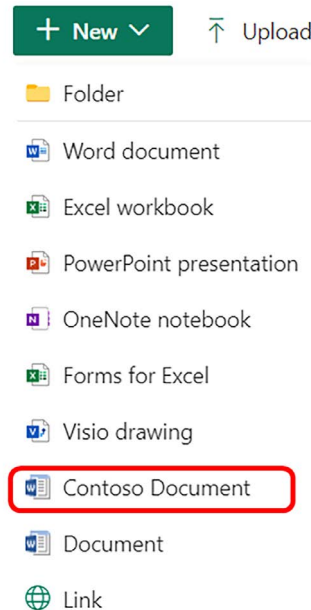• In the **New** menu for the library:

Figure 13.34: Content type shown in a library

- In the view settings of the list or library:
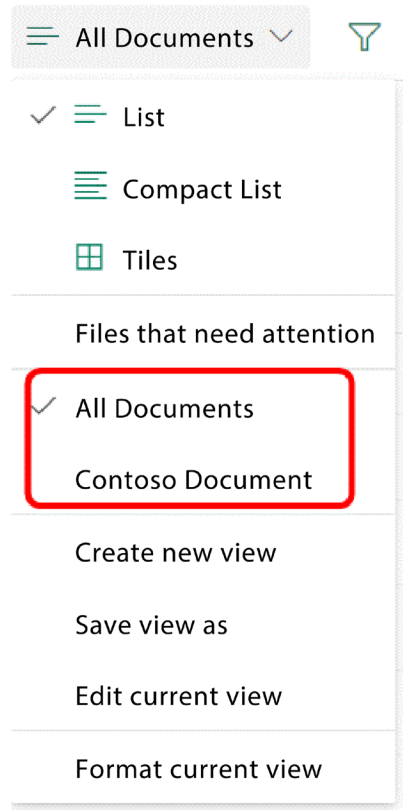

Figure 13.35: Content type shown in view settings

- In the list of columns for the list:

✓ Apply   ✕

Edit view columns

Select the columns to display in the list view. To
change ordering, use drag-and-drop or the "up"
and "down" buttons next to each column.

☑ Type

☑ Name

☑ Modified

☑ Modified By

☐ Compliance Asset Id

☐ Description

☐ KeyPoints

☐ Image Tags

☐ Document Purpose

☐ Document Type

☐ Contoso Department

☐ Product

☐ Product Line

☐ Document Contact

Figure 13.36: Content type shown in Edit view columns

- In the library settings for the list or library:

> The *Viewing and changing document library settings* recipe in *Chapter 5, Document Management in SharePoint Online*, shows you how to browse to the library settings page.

Content Types

This document library is configured to allow multiple content types. Use content types to specify the inforr about an item, in addition to its policies, workflows, or other behavior. The following content types are cur library:

Content Type	Visible on New Button	Default Conter
Document	✔	✔
Contoso Document	✔	

- ▫ Add from existing site content types
- ▫ Change new button order and default content type

Columns

A column stores information about each document in the document library. Because this document library types, some column settings, such as whether information is required or optional for a column, are now sp of the document. The following columns are currently available in this document library:

Column (click to edit)	Type	Used in
Contoso Department	Managed Metadata	Contoso Document
Created	Date and Time	Document, Contoso Document
Description	Multiple lines of text	
Document Contact	Person or Group	Contoso Document
Document Purpose	Single line of text	Contoso Document
Document Type	Managed Metadata	Contoso Document
Modified	Date and Time	Document, Contoso Document
Product	Managed Metadata	Contoso Document
Product Line	Managed Metadata	Contoso Document
Title	Single line of text	Document, Contoso Document

Figure 13.37: Content type shown in library properties

Every list or library in SharePoint has at least one content type associated with it. This default content type often varies depending on the type of list or library. The `Document` content type is the default content type for document libraries and the `Item` content type is the default content type for lists. Specialized lists or libraries have more custom content types. The `Site Pages` library has many custom page content types that capture metadata related to pages. Similarly, the items in an `Announcements` list are based on the `Announcement` content type. This means that any time you create an item in a list or a document in a library, you are associating that item with the columns defined by that default content type.

There's more...

You can also associate more than one content type with a list or library. We will discuss this and other concepts next.

Multiple content types

SharePoint lets you associate multiple content types with your list or library. For such libraries, users will need to consciously choose the content type that they would like to associate with the item being created. A classic example of such a scenario is the `Site Pages` library. You will notice the following content types if you browse to the settings page of this library:

Content Types

This document library is configured to allow multiple content types. Use content types to specify the information about an item, in addition to its policies, workflows, or other behavior. The following content types are current library.

Content Type	Visible on New Button	Default Content Type
Wiki Page	✔	✔
Web Part Page	✔	
Site Page	✔	
Repost Page	✔	
Space	✔	

Figure 13.38: Multiple content types in library settings

Now if you go back to a view in the library, and if you have permission to add items to this library, you will notice that clicking the **New** menu option enables you to create items from one of these content types:
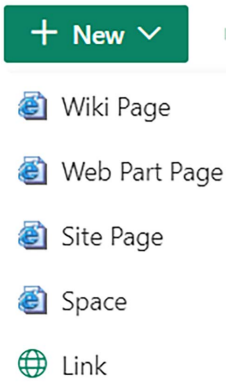

Figure 13.39: Creating items from a content type

Changing the default content type

You will notice in the prior screenshot that **Wiki Page** is selected as the default content type for the library. Uploading a document to the library automatically associates the document with the default content type and will prompt you to enter the necessary metadata for that content type. To change the default content type for a list or library, simply browse to its settings page, click **Change new button order and default content type**, and then change the position of your content type to be the first from the top.

Changing the item content type

If you have multiple content types enabled on a library and you need to change the content type for an item, you can do so through the details pane for that item:
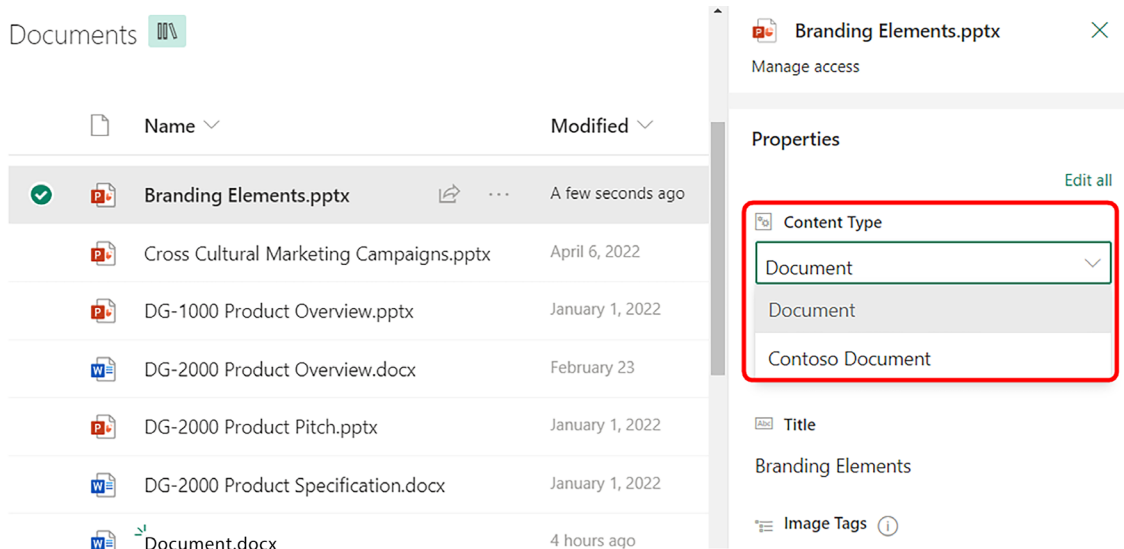

Figure 13.40: Changing the content type for an item

Note that changing the content type associated with the item will also mean that you will now need to enter information for the newly selected content type:

Figure 13.41: Content type metadata

Removing a content type

Multiple content types sometimes make it difficult to work with lists and libraries, especially for the not-so-savvy end user. It is therefore usually not recommended to enable multiple content types on a single library. If you have a need for two different content types, you are almost always better off creating separate lists or libraries that contain items for the separate content types. To remove an existing content type, browse to **Library settings**, click on the appropriate content type name under the **Content Types** list, and then click **Delete this content type** on the content type details page.

Please note that the following criteria will need to be satisfied before you can remove a content type:

- The content type should not be associated with any documents or items in that list or library
- It should not be the default content type for that list or library

See also

- The *Viewing and changing list settings* recipe in *Chapter 4*, *Lists and Libraries in SharePoint Online*
- The *Viewing and changing document library settings* recipe in *Chapter 5*, *Document Management in SharePoint Online*

Tagging a document

We have seen two different ways of adding columns to a library so far:

- The *Adding a column* recipe in *Chapter 4*, *Lists and Libraries in SharePoint Online*, showed you how to directly add columns to lists and libraries.
- The *Creating a managed metadata site column within a site* and *Creating site columns and content types through the SharePoint admin center* recipes earlier in this chapter showed you how to associate content types with a library, thereby also associating the corresponding columns from such content types.

Adding a managed metadata column to a list or library is just like adding any other column type in SharePoint. Once you have added managed metadata columns to a library, you can tag documents with the terms from those columns. The steps to do this are no different than carrying out similar steps for other column types in SharePoint.

This recipe will show you specifically how to tag your documents with terms from managed metadata columns. Note that the steps for updating items in lists containing the managed metadata columns are also going to be the same. For the purposes of illustration in this recipe, we will use the Contoso Department column that we created earlier.

Getting ready

You will need **Contribute** access or higher to the corresponding list or library.

How to do it...

Follow these steps to tag a document with terms from the managed metadata columns in your library:

1. Select the row containing the document by clicking anywhere on it.

2. Click the ⓘ icon in the right-hand corner of the library menu to open the details pane, as shown in the following screenshot:
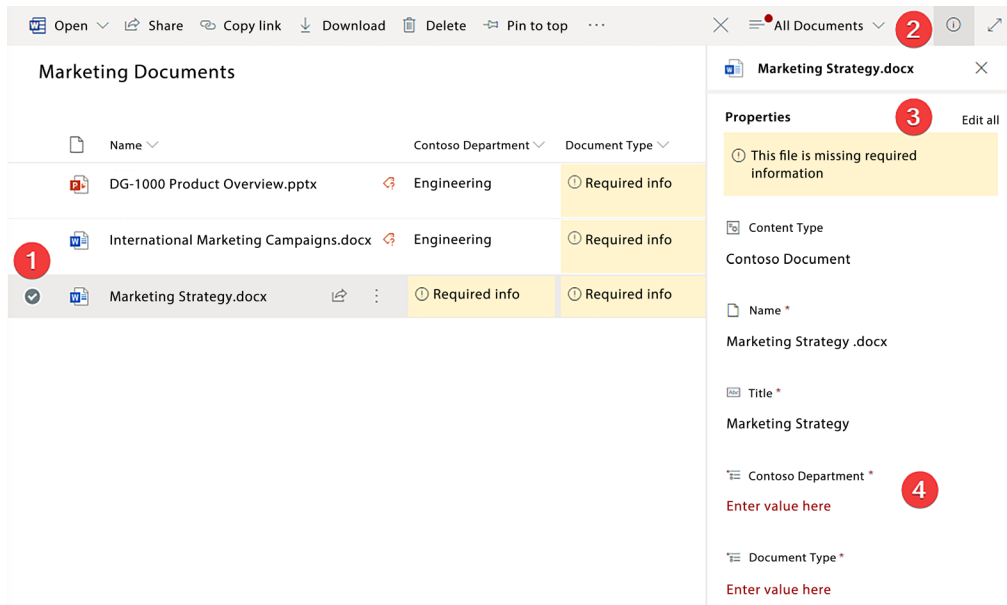

Figure 13.42: Opening document properties

You can now edit the properties directly in this pane or click **Edit all** in the **Properties** section to edit the properties in an expanded view.

3. Click within one of the managed metadata fields and start typing a value for that field. Share-Point will autocomplete it for you with the term name if it finds a match. This is shown in the following screenshot:

Figure 13.43: Autocompleting using terms

4. Next, we will click inside another **Document Type** managed metadata field. This time, however, we will click the tag image next to the field:

Contoso Department *

Sales & Marketing;   ✕   ◇

Document Type *

Type term to tag   ◇

Figure 13.44: Appling a tag via the tag icon

This opens a dialog for you to select your term.

5. Here, you can select the appropriate term by first clicking the term, then the **Select >>** button, and then **OK**, as shown in steps 1 through 3 in the following screenshot:

Select : Document Type

▲ 📑 Document Types
    ◉ **Campaign**   ①
    ◉ Case Study
    ◉ Product Overview
    ◉ Product Pitch

②   Select > >   Campaign

③   OK   Cancel

Figure 13.45: Selecting a term from a directory

6. You can then similarly enter or select the rest of the properties for the document and then click the **Save** button:

Title *

International Marketing Campaigns
_____

Contoso Department *

| Sales & Marketing; × |
_____

Document Type *

Campaign; ×
_____

Product *

Action Camera 1000s; ×
_____

Product Line *

Cameras & Camcorders; ×
_____

Document Purpose *

Guidelines for the marketing campaign
_____
Short purpose of the document

Document Contact *

Alex Wilber ×   Enter a name or email address
_____
The contact for this document

Apply retention label

None
_____

Save   Cancel

Figure 13.46: Filling remaining properties

7. This will update the document with the selected or entered properties, including any metadata tags that you may have applied. Depending on how the view for the library is configured, you will now see these properties as part of the view columns for the document, as shown in the following screenshot:

Name ∨	Contoso Departme... ∨	Document Type ▽ ∨	Product ∨	Product Line ∨	Document Purpose ∨
International Marketing Campaigns.docx	Sales & Marketing	Campaign	Action Camera 1000s	Camera & Camcorders	Guidelines for the marketing campaign

Figure 13.47: Viewing content type properties within a site

Congratulations – you just learned how to tag your documents with managed metadata by using terms that were created as a standard across the enterprise.

How it works...

Entering information in managed metadata columns is quite similar to entering or selecting information in some of the other column types. The one big difference for the managed metadata columns is that instead of entering or selecting information that is just used one time, you would typically enter or select terms that are maintained at the enterprise level. Just doing this opens up additional scenarios. One of the biggest benefits of doing this is the ability to use **SharePoint search** to pull information globally from across multiple sites. To illustrate the point, let's refer to the document we just tagged in this recipe. We are going to see how tagging it with a particular product helps users easily search for it. Let's assume a user is looking for marketing campaigns related to the `Action Camera 1000s` product.

The following is the result set that SharePoint brings back if I just search for the word `campaigns`:
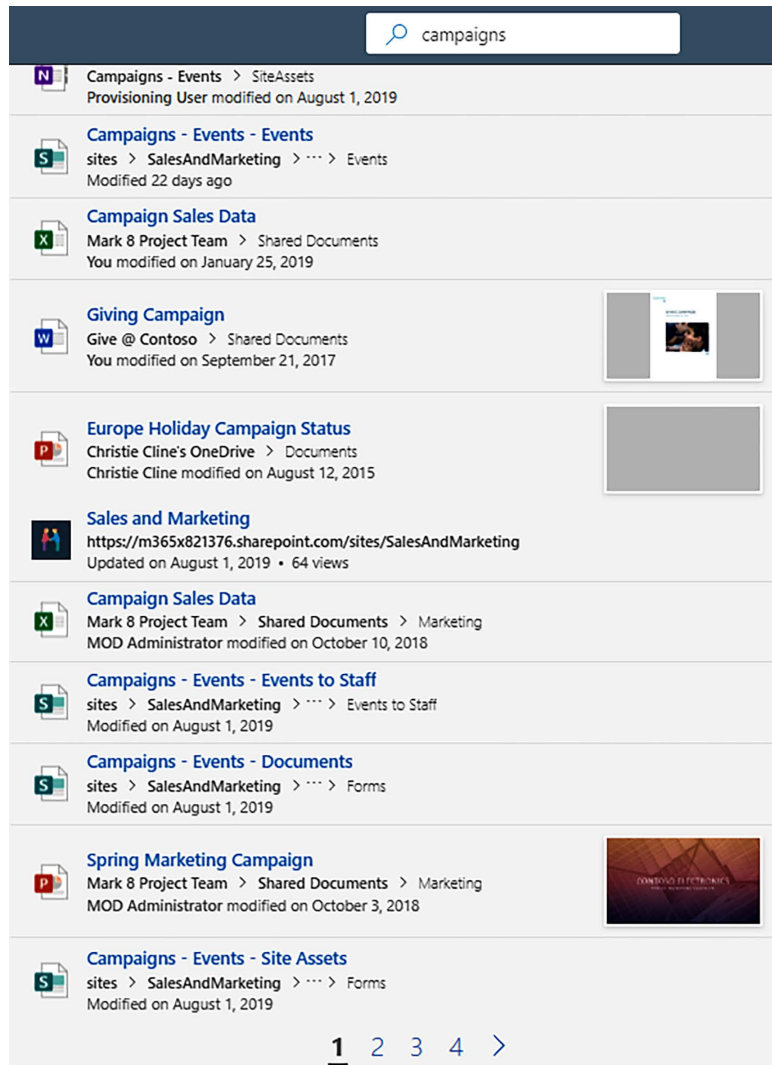

Figure 13.48: Searching using a broad term

However, since we tagged our campaign document with the appropriate product, users will be able to significantly narrow down the search to get to what they were looking for just by typing the name of the product against the search term. The following is the result set that SharePoint returns if you search for `campaigns Action camera 1000s`:
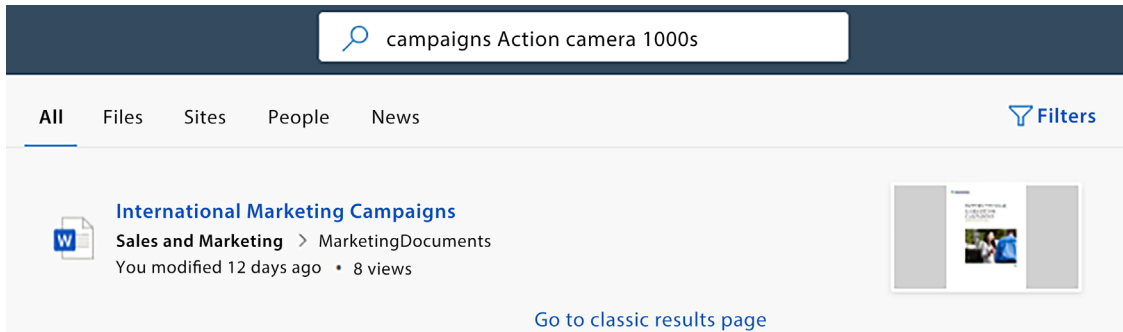

Figure 13.49: Narrowing searches with terms

As you can see, just the fact that we tagged the document with the product name helped us considerably narrow down the search results from potentially hundreds of documents to exactly what we were looking for.

Planning information architecture and the content structure along with the correct governance policies goes a long way in making sure that users can quickly get to what they are looking for. In the preceding example, we not only created the required term sets and corresponding managed metadata columns but also enforced the selection of the appropriate tags by marking these columns as required within our content type.

In addition to improved search, using managed metadata columns for the content in your library also helps you to better organize the information in it. The use of managed metadata columns results in better filtering, sorting, and grouping of information in your lists or libraries. The following screenshot shows how the library view was changed to show documents grouped by the `Document Type` managed metadata field that was previously created for our example:
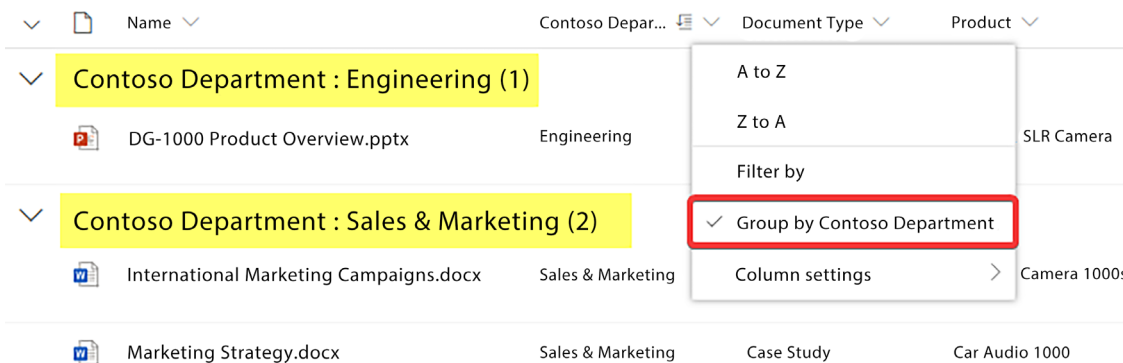

Figure 13.50: Organizing documents using terms

See also

- The *Adding a column* recipe in *Chapter 4, Lists and Libraries in SharePoint Online*
- *Chapter 14, Search in Microsoft 365*

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`https://packt.link/powerusers`

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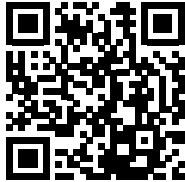
Search in Microsoft 365

Microsoft Search lets you effortlessly find and discover content that you need to complete your everyday tasks. It then presents this content back to you through a modern and easy-to-navigate user experience. The content that Microsoft Search returns is highly personalized to your work patterns and what's trending around you – things you've been working on (based on your activity in Microsoft 365), who you work with, activity in the content shared with you and and who you work with, and so on. This personalization experience, coupled with advanced analytics and machine learning algorithms, brings the relevant content back to you. If you worked with files, interacted with people, or other types of content in Office 365, Microsoft Search will automatically bring back this content to you, without you even having to search for it. This content is presented to you through various means:

- You will see results by just clicking anywhere inside the search box, even before you start typing text, as shown in the following screenshot of the search box on the Microsoft 365 home page (`www.office.com`):
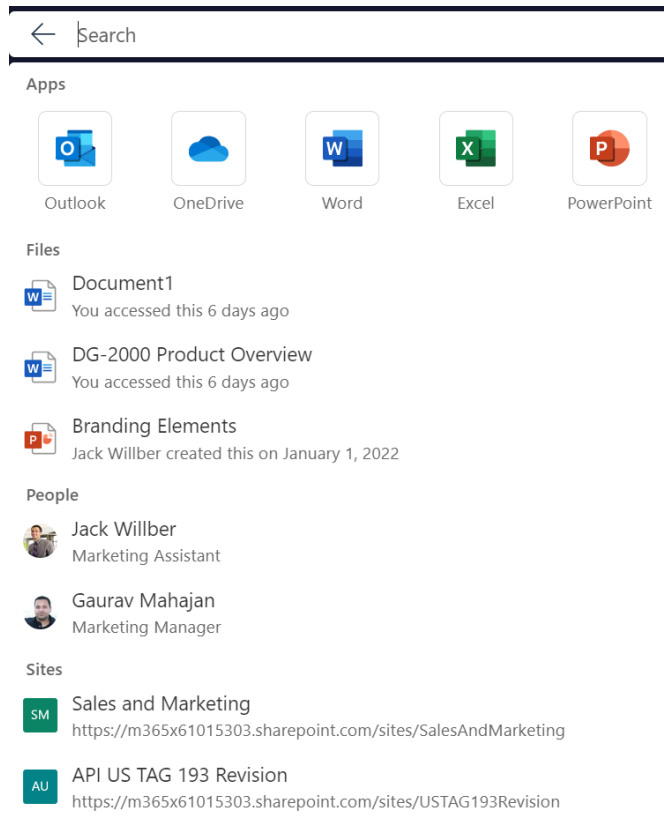
Figure 14.1: Search box on the Microsoft 365 home page

- Through various sections on the Microsoft 365 home page, as shown in the following screenshot:
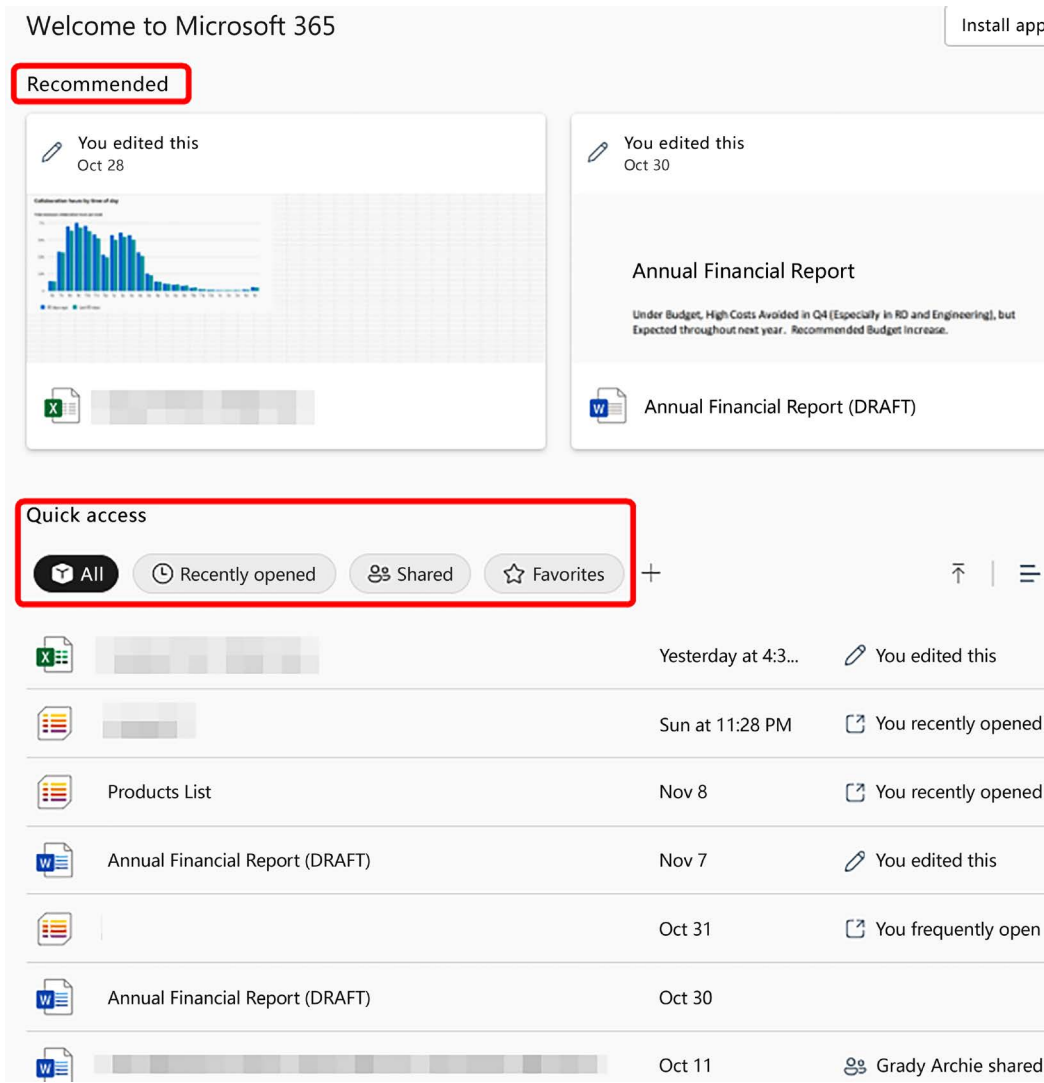

Figure 14.2: Search areas on the Microsoft 365 home page

- Through various pages and sections in Delve, as shown in the following screenshot. Note that the list of people shown in the following screenshot is, again, based on your behavioral and environmental patterns in Microsoft 365:
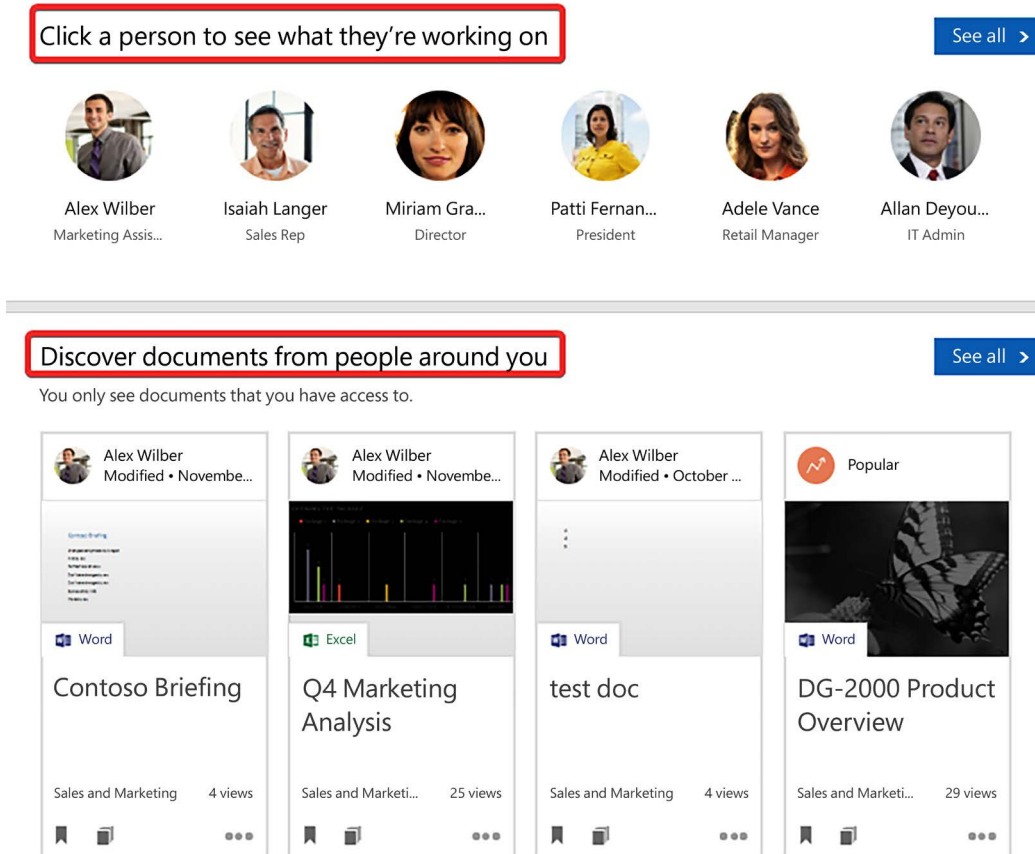

Figure 14.3: Search areas on Delve

- Through various web parts on SharePoint, such as the **Highlighted** content, **News,** and **Site activity** web parts.

Microsoft Search is available everywhere via the search box in the header area of all the Microsoft 365 apps, as shown in the following screenshots:
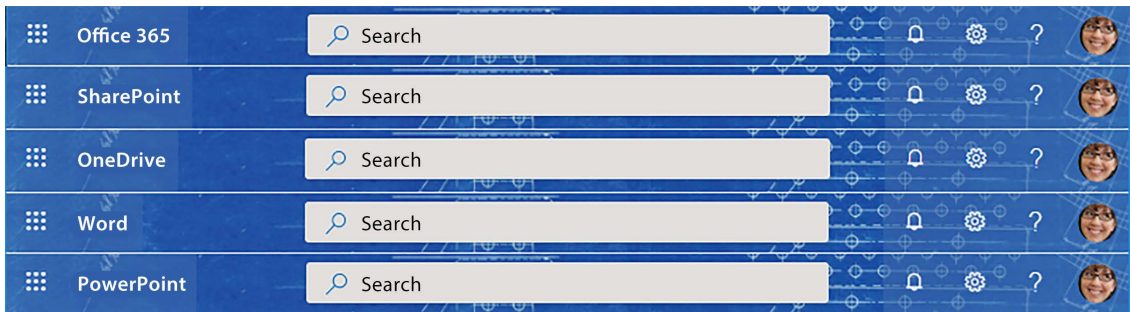
Figure 14.4: Search boxes across applications

This makes it very easy to get to the content you are looking for. Let's say that you are working on a PowerPoint presentation and need to look up content from the corresponding Word document. You can simply search for the Word document right from within the search box in PowerPoint.

Additionally, Microsoft Search is aware of the context of the app you are searching from. So, if you are searching from within a SharePoint list or library, it will scope the search to that list or library. Searching from a SharePoint site will first return results from that site, but will also let you easily switch the context to the corresponding hub or the entire organization.

> Your site administrator can change the scope of the site search so that you see results from the entire organization or the corresponding hub by default instead of just the results from that particular site.

Some other examples of contextual searches are when you perform a search from the following workloads:

- **Outlook**: Searching from Outlook will return results only from within Outlook.
- **Viva Engage:** Searching from Viva Engage will return files and conversations from within Viva Engage.
- **Teams:** While files shared through Teams are stored in SharePoint and/or OneDrive, the conversations are not. You can therefore only search for any Teams conversations from within Microsoft Teams.

Furthermore, SharePoint Online offers two flavors of search:

- **The more modern, personalized, and intelligent search experience:** The **modern** SharePoint search utilizes Microsoft Search for a more modern search experience. As previously described, this experience is consistent across most workloads of Microsoft 365.
- **The classic search experience:** The **classic** search experience is what you will see in the classic SharePoint sites. This experience is slowly being deprecated.

Both experiences utilize the same underlying search **index**, meaning that the underlying source of truth for both search experiences is the same. However, the modern search functionality applies machine learning coupled with usage analytics to this index to bring back what's more relevant to you. It then uses a more modern user experience to display these results for you. You can view the differences between classic and modern search experiences here: `https://packt.link/search-classic-modern`.

We learned how to perform a basic search as part of the *Searching content* recipe in *Chapter 2*, *Introduction to SharePoint Online*. In this chapter, we will look at the more advanced capabilities and some specific use cases of Microsoft Search based on the modern search experience.

We will cover the following recipes in this chapter:

-   Performing an advanced search
-   Finding experts and people
-   Searching with Bing Search

Performing an advanced search

Just like any other search engine, Microsoft Search supports advanced search queries. You can build these advanced queries by adding various operators and property filters to the search keywords. This recipe will show you how to do that.

Getting ready

You can access Microsoft Search from any workload in your Microsoft 365 tenant. You can also search from within the apps that are installed locally on your computer, as long as they are connected to the Microsoft 365 tenant. Search in Microsoft 365 is security trimmed, meaning that search will only return content from areas that you have read or write access to. If you don't have access to certain documents, lists, libraries, sites, or teams, content from such documents or areas in Microsoft 365 will never be shown to you in the search results either.

How to do it...

For our scenario, let's assume that, as a product design engineer, I am working on a design proposal for a new product. I remember that a similar design presentation was showcased by one of my colleagues, *Megan Bowen*. I liked her presentation and would like to use it as a template for my presentation. In this recipe, we will see how I can use an advanced search to narrow down the results to quickly find this presentation.

In this recipe, we will begin with a routine search and then start narrowing down the results through advanced parameters to find exactly what we are looking for. This will be done using **Keyword Query Language** (**KQL**), which we'll learn more about after the recipe. Let's begin:

1. Browse to the Microsoft 365 home page for your tenant.

> Since you know that you are looking for a file in SharePoint, you can also perform this search from the SharePoint home page. For broader searches, it is a good idea to start from the Microsoft 365 home page since it has a wider reach compared to just searching within SharePoint.

2. Based on what I am looking for, I will begin my search by typing design in the search box at the top of the page and hit *Enter*:
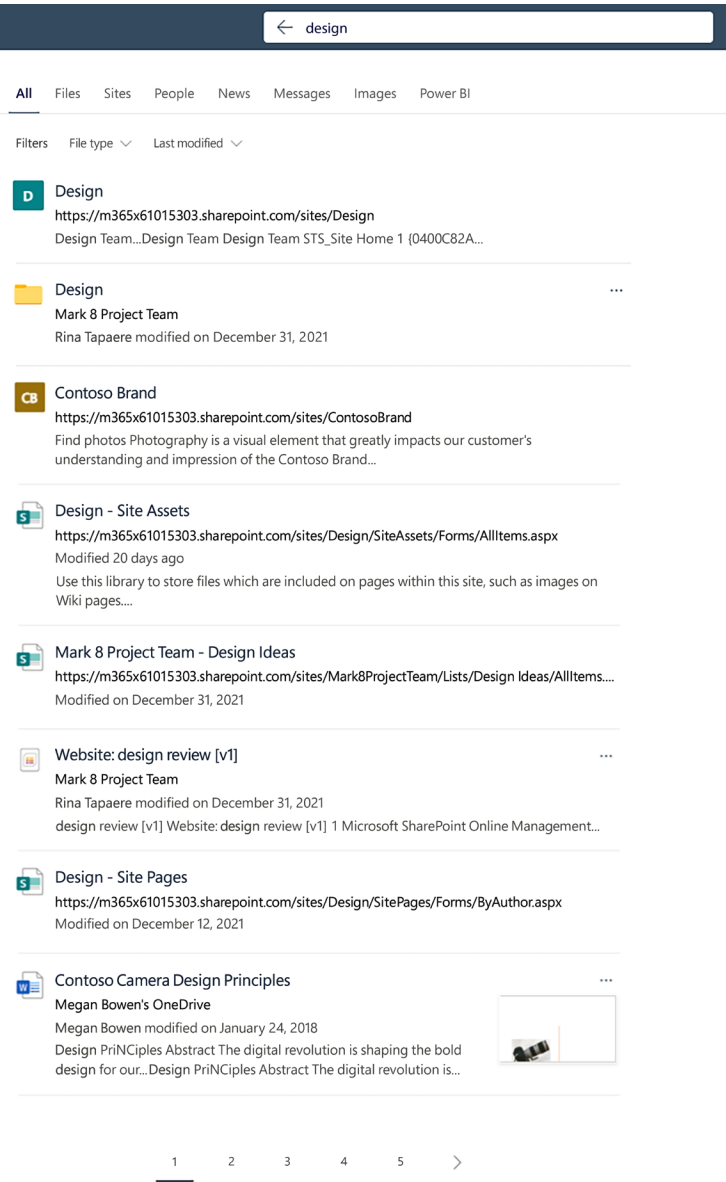

Figure 14.5: Search results after entering text into the search bar

3. As you can see in the screenshot above, this returns a lot of different results of various types. Many of these results are related to branding and visual design.

> Also notice the various result sources toward the top of the search results page. These are called *search verticals* and can be configured by your organization's administrators through the *Search & intelligence* admin center. If you are an admin, you can read more about configuring search verticals here: `https://packt.link/search-verticals`.
>
> The benefit of starting your search from the Microsoft 365 home page is that if you are performing a broad search (and not looking for a specific result type), it will bring you results from across all verticals, including news articles and Teams messages, to name a few. If you were searching from within SharePoint, for example, you would not see results from certain verticals (for example, **Messages**).

4. To remove these unwanted results, I'll go ahead and add the following advanced filters to my search text:

   - I will add the text `-branding` to it so I can exclude content that contains the text `Brand/Branding`.
   - Also, since I am specifically looking for presentations, I will add the text `filetype:pptx`.

5. Entering the above filters as text in the search box and optionally clicking **Files** further narrows down the search results to just presentations surrounding product design and overviews, as shown in the following screenshot:
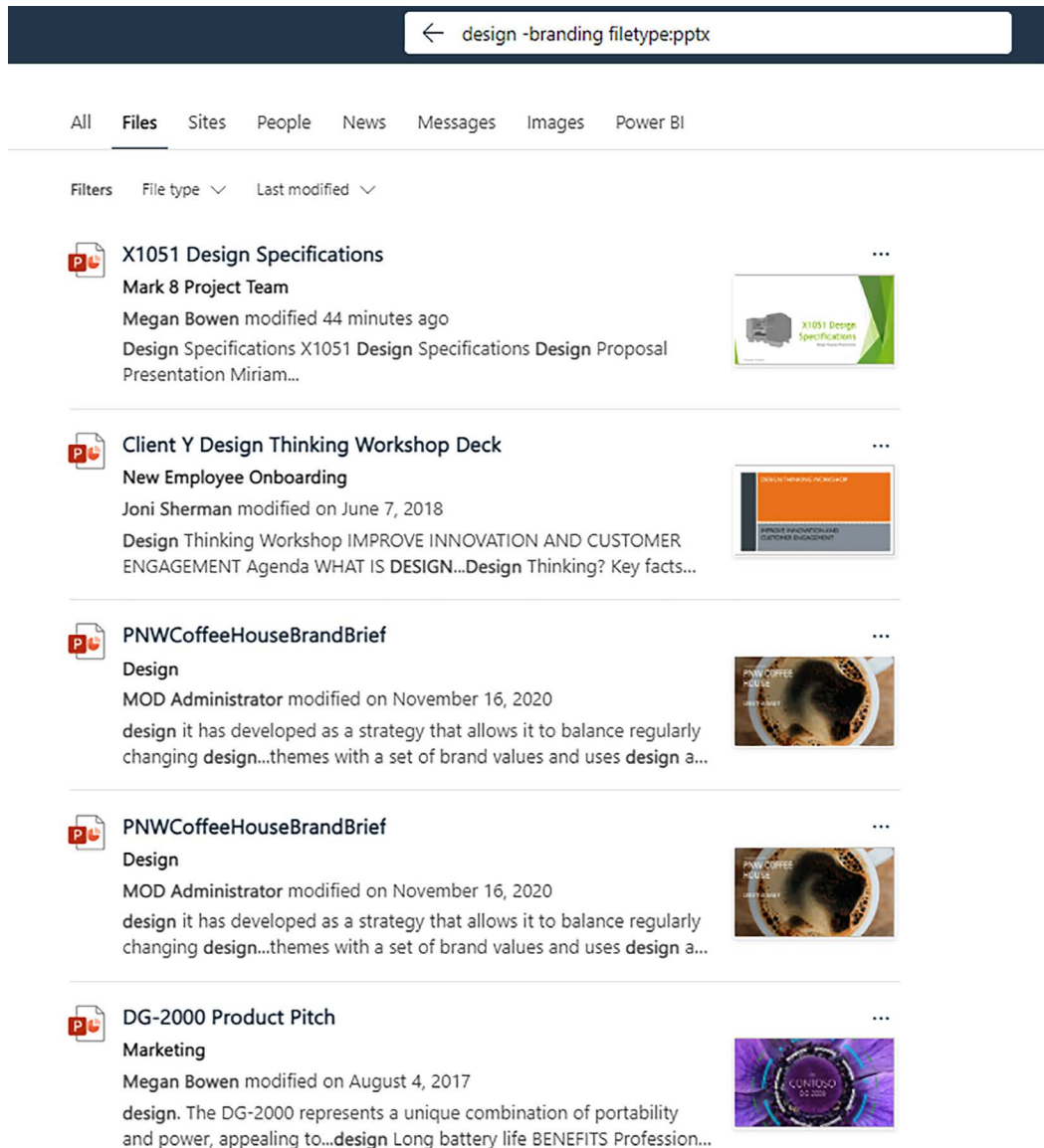

Figure 14.6: Using filters to narrow search results

6. Finally, since I remembered that the presentation was actually a design *proposal* presented by *Megan*, I am going to add the text `proposal` to my search. I will also and the `author` filter that shows only the documents authored by her. This narrows down the search results to exactly what I was looking for. This is shown in the following screenshot:
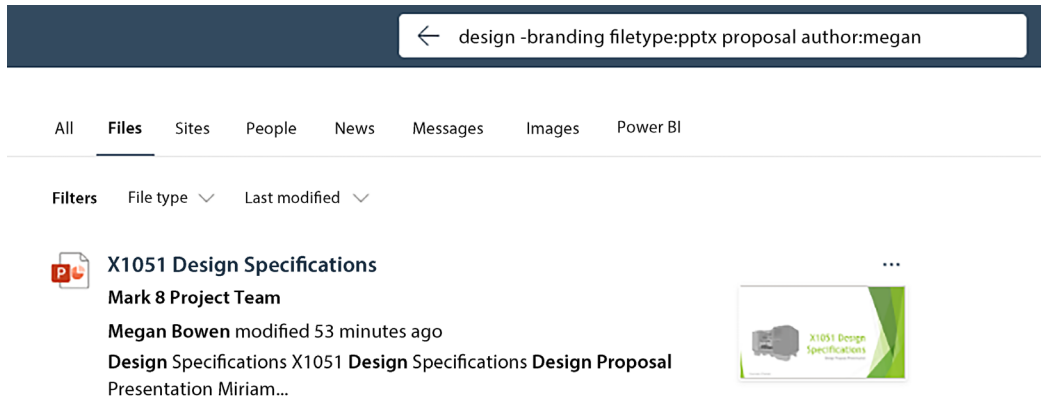
Figure 14.7: Locating an exact document in Microsoft Search

Congratulations! We just learned how to use advanced search in Microsoft 365 to narrow down the search results and find exactly what we were looking for.

How it works...

Microsoft Search, just like any other search engine, has the following components to it:

*   **Crawler:** This part of the search engine scours the content in your tenant and then uses content processing to transform it into a suitable format for the indexer to use. It basically creates a replica of the searchable content in a more standard format for use of the downstream search components.
*   **Indexer:** The content after the crawl still needs to be organized better so it's easily searchable. The indexer is that part of the search engine that organizes the content in a format that is easily searchable. It then *indexes* this content so the query engine can efficiently look it up (just like an index or a table of contents in a book).
*   **Query component:** This part of the search engine is responsible for processing the user search queries, using them to obtain results from the indexer, filtering and ranking the results, and sending them back to the UI component.
*   **UI:** The search engine's UI is the part that you and I interact with as users. It lets us submit search queries, sends them to the query component, and then renders the obtained results.

Note that Microsoft Search not only *crawls* and *indexes* the content but it also indexes the underlying properties and column names. For each SharePoint column that the crawler encounters, it creates a corresponding property within its `Crawl` database.

This additionally enables you to *query* and *filter* the content by easily specifying the property or column names. We saw this earlier in this recipe when we specifically filtered the results by the **Author** column.

> For advanced readers, such properties that get created within the search database are called **crawled properties**. However, not all crawled content or metadata is useful for the search index. So, the search schema maintains a separate list of useful metadata columns, called **managed properties**. The search index only includes content and metadata from the managed properties. The **Author** property is an example of such a managed property.
>
> Please also note that Microsoft Search will create managed properties only for the corresponding site columns. Any columns that directly get added to lists or libraries will not get a corresponding crawled property. This means that you will still be able to search for content in such columns but will not have the ability to specifically filter the search results by specifying these column names, as we did in this recipe.
>
> The following link provides more insight into the SharePoint Online search schema: `https://packt.link/search-schema`.

You should try to couple Microsoft Search's behind-the-scenes AI with a proper information architecture to help users quickly find the right content. To understand how this works, you need to be aware of **content types**. In short, a content type is just a set of columns clubbed together. These columns are usually reused across multiple sites to standardize the information contained in the lists and libraries on these sites. With this in mind, imagine the following scenario:

1. You have defined a base content type and published it through the content type hub, for use in all the libraries in your organization.
2. This content type contains a managed metadata site column called **Department**.
3. The content type and the corresponding site column then gets replicated to all department sites.
4. You then optionally update the site column for each site and set its default value to represent the particular department's name.
5. Now, documents uploaded to libraries using this content type will automatically get tagged by the name of the corresponding department (or users will need to manually select the department name if the defaults are not specified).
6. Because these columns were created as site columns, the search crawler will create crawled and managed properties for them.
7. Users across the organization will now easily be able to filter the search results by the department name and quickly narrow them down to the exact content that the user is looking for.

> We go into more detail about content types and the content type hub in the *Creating a content type and adding columns to it* recipe of *Chapter 13*, *Term Store and Content Types in SharePoint Online*.

Such an arrangement involves more upfront planning and setup time but helps achieve better user satisfaction and increased productivity, especially if you are part of a large organization with dispersed and/or a large content size. As mentioned earlier, with advancements in the modern Microsoft Search, it may not be necessary for smaller organizations to go through all this upfront planning just for search to return relevant results (there may be other valid reasons for you to go through this exercise though).

In addition, certain columns, such as the managed metadata column, require some additional handling before they can be used in filters. The following articles describe these steps in more detail. Note that even though they are written for SharePoint Server, the steps are equally valid for SharePoint Online:

- *From site column to managed property – What's up with that*: `https://packt.link/managed-properties`
- *Mapping crawled properties to pre-defined managed properties*: `https://packt.link/map-search-properties`

Fine-tuning search with KQL

Microsoft Search presents a very simple user interface along with a very powerful underlying search engine. This engine will usually return accurate results for most of your queries, but you can implement the following measures if you are not getting the expected results back:

- Ensure that sufficient time has elapsed since the content was created. Referring to the search components described earlier, the crawler component needs to first crawl the content, process it, and submit it to the index before it can be searched. This usually happens at scheduled intervals, which means that there's a slight lag between the time the content gets created and the time it shows up in the search results. This process is usually almost instantaneous, but sometimes it can take up to 4 hours or more before users get the newly created content as part of the search results.

> Microsoft Search is forgiving to spelling mistakes (well, almost). In the context of this recipe, you will get the same results if you search for `desgn` instead of `design`. Additionally, Search will show you the following text at the top of the results list:
>
> Showing results for **design**.
> No results found for desgn.
>
> *Figure 14.8: Test displayed when searching with spelling mistakes*
>
> On the other hand, a search for the word `dsign` will not return any results. You may therefore need to check the spelling if you are not finding what you are looking for once in a while.

- As mentioned previously, Microsoft Search may return different results for the same search depending on who is searching for content. The result ranking in a modern search is based on complicated machine learning algorithms that consider your activity, patterns, and environment. So, it might be that others may see a result higher up in the results list while you see it a little lower. You can always refine your queries to get more focused results if needed.

- Everything in Search is permission-based. This means that you will only see results that you have at least read access to. If you have tried refining the queries and are still not seeing results that others are seeing, then there's a possibility that you may not have access to that content.

- SharePoint understands the advanced query syntax **KQL**. KQL helps you build highly focused and complex queries. The information at `https://packt.link/search-KQL` explains the various elements of KQL in more detail.

The following article discusses more details as to how to fine-tune your search if you are getting too few or too many results: `https://packt.link/search-tuning`.

There's more...

In this section, we will first look at the Microsoft Search admin settings that can be used to alter the search experience. We will then briefly read about the PnP Modern Search solution, which contains a set of web parts that make the modern search experience in SharePoint highly extensible and customizable.

Owner controls

You can apply settings at various levels to control what shows up in the search results and how:

- As a list or library owner, you can choose to exclude your list, library, or content from the search results. This setting is available from within the **Advanced settings** page for your list or library. Please refer to the *Viewing and changing list settings* recipe of *Chapter 4*, *Lists and Libraries in SharePoint Online*, for steps on how to access these settings.

- As a site owner, you can similarly specify various settings for the site. Most of these settings are geared toward the classic search experience; however, some settings apply to both the classic and modern experiences. The ability to exclude the site and its contents from showing up in search results is one such setting. This can be accessed from the Search and offline availability page under **Site Settings**. This page also lets a site owner view and make limited changes to the search schema. Please refer to the *Viewing and changing site settings* recipe of *Chapter 3*, *Modern Sites in SharePoint Online*.

Admin controls

Finally, as a global admin or a tenant search admin, I can control various aspects of the organization-wide search experience. In addition to managing the search schema, the following are some settings related to the modern experience that you can manage through the Microsoft Search admin center:

- View organization-wide search usage reports, as described at `https://packt.link/search-usage`.
- Help create predefined search results, such as acronyms, bookmarks, Q and As, locations, and floor plans. These predefined results are based on the most used scenarios for your user experience and show up before the other results do. Note that these result types show up only when the search is being done across the organization, and not when the search is narrowly scoped (such as when searching in a list, library, or site). You can read more about these result types in the *Provide answers* section of the following web page: `https://packt.link/provide-answers`.
- Create and configure connectors to search and bring back results from external data sources. You can read more about this at `https://packt.link/search-connectors`.
- Make additional configuration changes to the search. You can read more about these configuration changes in the *Customize the end-user UX* section on this page: `https://packt.link/search-customize`.
- Some examples of these configuration changes are as follows:

    - Creating and managing search verticals and result types
    - Connecting to external content sources
    - Changing the search result layouts
    - Managing search result filters
    - And there are more besides!

Please note that some of these features were in preview at the time of writing this book and may or may not be available in your organization's Microsoft 365 tenant.

PnP Modern Search

The SharePoint classic search experience allowed you to customize the search experience and the results display to suit your specific needs. This ability was consciously left out of the Modern Search experience for a few reasons:

- The modern AI-based search is very powerful and personalized out of the box, hence reducing the need to customize it
- Keeping it out of the box results in a more consistent search experience across other Microsoft 365 workloads
- It is recommended to avoid making customizations to SharePoint Online unless justified by a valid business need

While you cannot modify the out-of-the-box search experience in SharePoint Online, you can use the PnP Modern Search solution to create a customized experience to address your organization's specific needs. The PnP Modern Search solution is essentially a set of web parts that allow you to modify various aspects of the search and the corresponding results view to create a highly configurable and customizable search experience.

> While you can potentially create your very own customized enterprise search center using these web parts, it is usually not recommended to do so for the reasons mentioned earlier, and mainly to keep the search experience consistent across all Microsoft 365 workloads. Other than that, you can most certainly use the solution to solve specific needs that your organization might have. As an example, you can use the search results web part to show a highly customized list of all pages or documents that are classified with certain tags (say, showing all news pages or Excel/Word forms grouped by department, or using a modern and responsive UI). While something like this may not be fully possible using out-of-the-box web parts, the PnP Modern Search web parts allow you to do so in a breeze. Since the solution is open source, you can further customize or enhance it to meet the specific needs of your organization with a little bit of development knowledge.

The following links explain the PnP Modern Search solution and relevant usage scenarios in more detail:

- This link outlines the different scenario-based use cases for each of the PnP Search web parts: `https://packt.link/PnP-search-scenarios`
- You can read more about the solution at the project's home page here: `https://packt.link/PnP-search`
- This video provides a great introduction to the PnP modern search solution: `https://packt.link/PnP-search-intro`
- For the technically inclined, or if you'd like to extend this solution to meet your organization's needs, here's a link to the PnP GitHub repository: `https://packt.link/PnP-search-repo`

See also

- The *Searching content* recipe in *Chapter 2*, *Introduction to SharePoint Online*
- The *Creating a content type and adding columns to it* recipe in *Chapter 13*, *Term Store and Content Types in SharePoint Online*
- The *Viewing and changing list settings* recipe in *Chapter 4*, *Lists and Libraries in SharePoint Online*
- The *Viewing and changing site settings* recipe in *Chapter 3*, *Modern Sites in SharePoint Online*

Finding experts and people

Microsoft Search not only helps you find content but also helps find people within your organization. You can use it to search for people based on who they are, where they work, or what role they fulfill in the organization.

Continuing the example from the previous recipe, let's say that I am looking for help with creating a product *design* proposal. This recipe will show you how you can use Microsoft Search to search your organization for an expert to help with it. It will then show you how you can also reach out to them through your favorite communication tools from within that interface.

Getting ready

Unless your organization disables it, people search is enabled by default and is available to anyone in the organization who has access to Microsoft 365. You will, however, need to perform the search from the Microsoft 365 home page (`https://www.office.com`).

How to do it...

To look for someone with design skills, go through the following steps:

1. Browse to the Microsoft 365 home page for your tenant.
2. Type `designer` in the search box at the top.
3. You should see person results after the first few document results. You can also click the **People** tab to just view the people-only results, as shown in the following screenshot:

| Microsoft 365 | ← designer |

All   Files   Sites   **People**   News   Messages   Images   Power BI

Grady Archie
Designer
R&D, 19/2109
Ask Me About: Design Committee Rev...

✉ GradyA@
💬 GradyA
📞 +1 309 555 0104
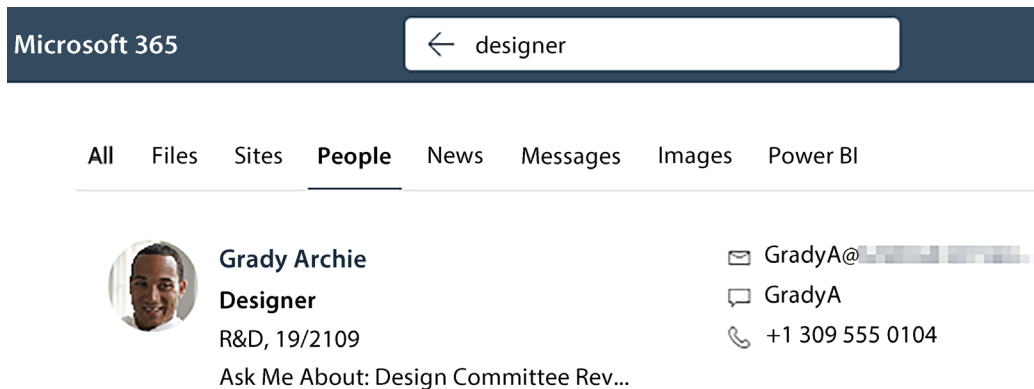
Figure 14.9: Narrowing search via tabs

4. In this example, I can see that the first result that was returned was **Grady Archie**, who has the word **Designer** in his job title. I can then click on Grady's name to see more details about him. Doing so opens his **profile card** (also known as the **contact card**), as shown in the following screenshot:
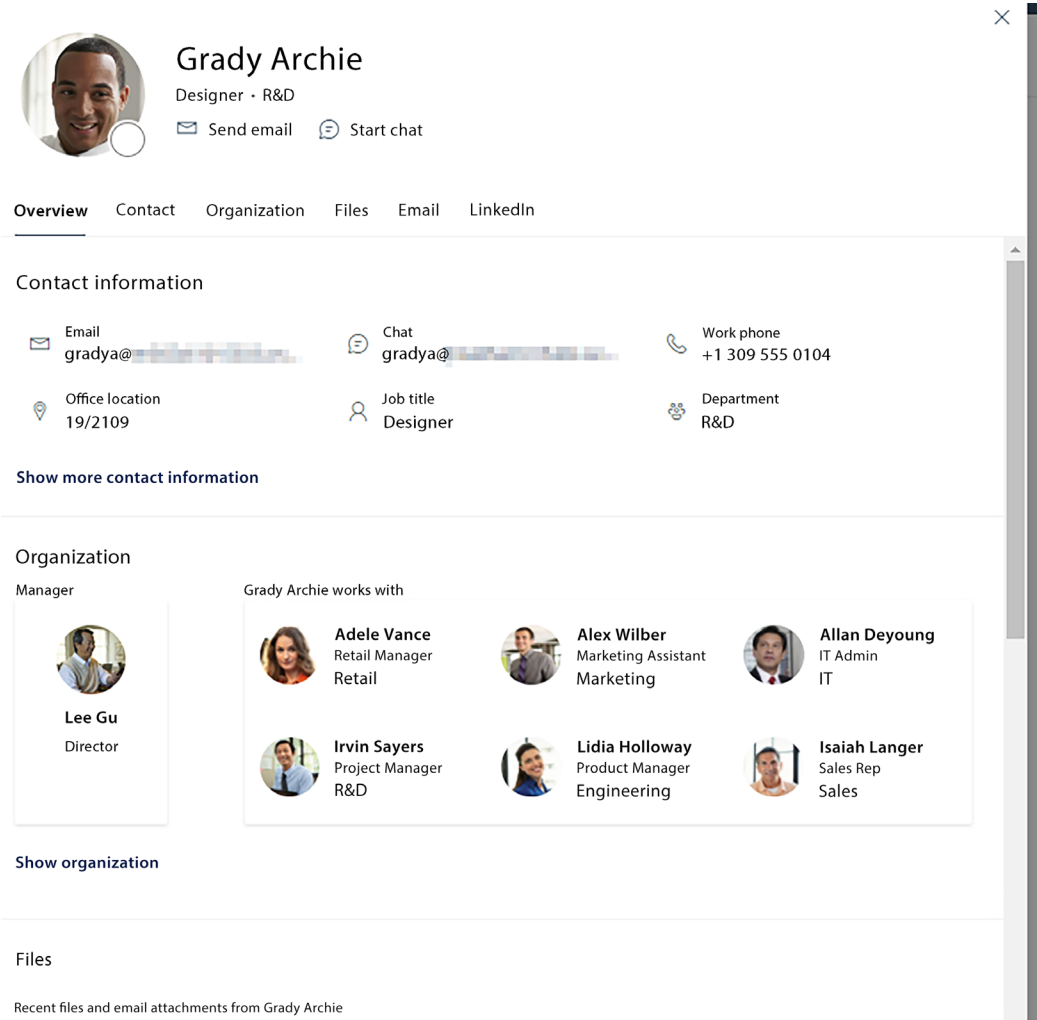
Figure 14.10: Opening a profile card

5. In the **Overview** tab of his profile card, I can view the various aspects of his profile, such as his contact information, his manager and colleagues, files he has shared, my recent email conversations with him, and his LinkedIn profile (if enabled by your organization).

6. Clicking a different tab from the profile card shows further details in that tab. Clicking the **Contact** tab, as an example, shows additional details about Grady, such as his skills, education, and the projects that he has worked on, as shown in the following screenshot:

Figure 14.11: Viewing the Contact tab of the contact card

> The properties shown in the **Contact information** and **About me** sections need to be populated by you before they are searchable or even show up in the profile card. Your organization can maintain and then sync over some of these properties to Microsoft 365 so that they are maintained in a central place, usually through HR or IT management systems. They can also optionally make these properties editable for you so that you can maintain them on your own through your profile page in Delve, which we will see in the next chapter.

7. Going by his profile summary, I can see that this matches exactly who I am looking for. Hence, I can click **Start chat** to open Grady's profile in Teams (or Skype for Business), as shown in the following screenshot:
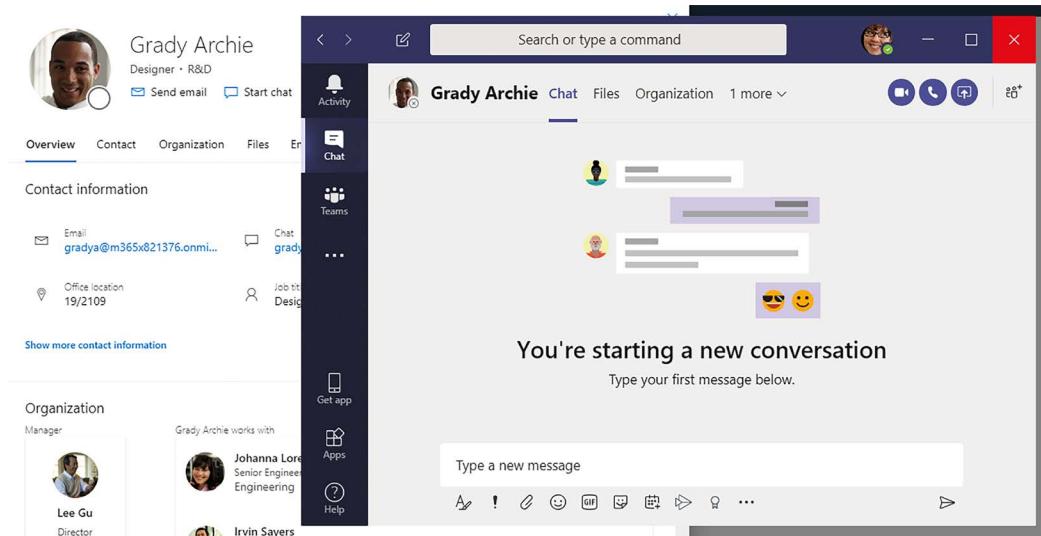
Figure 14.12: Using the Start chat feature to open Teams

8. From here, I can call or message him using the familiar Teams interface.

Congratulations! You just learned how to perform a people search in Microsoft 365 and then learned how to contact them directly using a familiar tool of your choice.

How it works...

An enhanced people search lets you search for the right experts in your organization, and further helps you to quickly establish contact using inbuilt tools without even leaving the search interface. In the preceding example, with one attribute, Microsoft Search identified *Grady* as a *design* subject matter expert.

From that point on, the deep contextual information returned by Microsoft Search through the user profile card created efficiencies for us, improving productivity by reducing the friction of switching between apps and browser tabs. We can quickly send an email to or chat with the identified expert without having to leave the browser. We can also see other details about them, such as their location, in case we'd like to get in touch with them.

In addition to performing a generic search, as we did in this recipe, you can also use preconfigured managed properties (see the previous recipe to understand managed properties in more detail) to perform a highly targeted search. Some examples are as follows:

- `jobtitle: *design*`: This will return all profiles where the job title partially or fully matches the word *design*. Following the example from the recipe, this will bring back Grady's profile, since his job title is **Designer**.
- `schools: Michigan`: This search will bring back all profiles where the person's school name contains *Michigan*.
- `skills: *design*`: This search will bring back all profiles where the person's skill partially matches the word *design*. An example of this search is shown in the following screenshot:
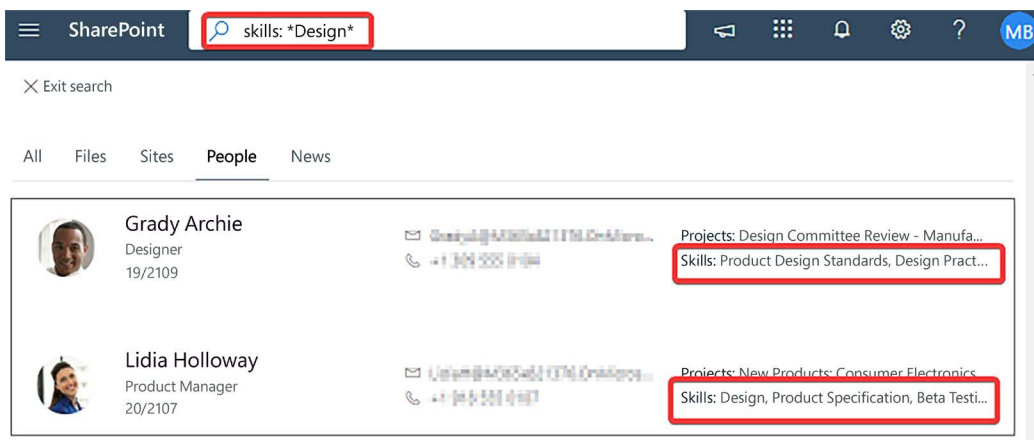
Figure 14.13: Searching with managed properties

Please note that the targeted search mentioned above, as well as the information being returned through Microsoft Search and profile cards, is contingent on the relevant profile information being maintained in the first place. The HR department in your organization is typically the one that would solicit the creation and maintenance of such employee profile information. The IT department then helps set up the synchronization of this information to Microsoft 365. These departments will subsequently need to work hand in hand so that this profile information is regularly maintained. Stale information being presented through the search experience or through other workloads in Microsoft 365 can often discourage users from effectively utilizing the platform. It's therefore highly recommended that you expend some upfront time to plan and set up the necessary backend processes (either manual or automated) so that this information stays up to date.

See also

- The *Performing an advanced search* recipe, earlier in this chapter

Searching with Microsoft Bing

Bing is a web search engine that is owned and operated by Microsoft. If you use Microsoft Edge for your browser, you probably use Microsoft Bing without realizing it! Further more, if you have a Microsoft 365 work account and you perform a search from within Bing, you can also get results from your organization in addition to the usual web results that are returned by the search engine. Of course, all of this is available to you in a multitude of browsers across a variety of device types.

This recipe will show you how to use Bing as your one-stop search engine for not only bringing back public results from the web but also the results from within your organization's Microsoft 365 environment. For illustration purposes, we will use the same scenario that we did in the *Performing an advanced search* recipe, earlier in this chapter. As a product design engineer, I am working on a design proposal for a new product. In the recent past, I remember that a similar proposal was presented by one of my colleagues, *Megan Bowen*. I liked the proposal and would like to use it as a template for my proposal. In this recipe, we will see how I can use Bing Search to quickly find this proposal.

Getting ready

Your organization should have **Microsoft Search in Bing** enabled by default. If it does not, we recommend downloading the *Microsoft Search in Bing Admin Essentials Guide* for some deeper reading (`https://packt.link/Microsoft-Search-in-Bing`). To view your work results alongside the web search results, you will need to log in to Bing using your work credentials; this recipe will also show you how to do this. Other than that, the requirements for viewing your work results in Bing are the same as those for the regular Microsoft 365 search, in that it will only return results to which you at least have read access.

How to do it...

To view your company's Microsoft 365 results in Microsoft Bing, perform the following steps:

1. Open your favorite browser and browse to `https://www.bing.com/`.

2. Click the **Sign in** link in the top-right corner of the Microsoft Bing page, as shown in the following screenshot:
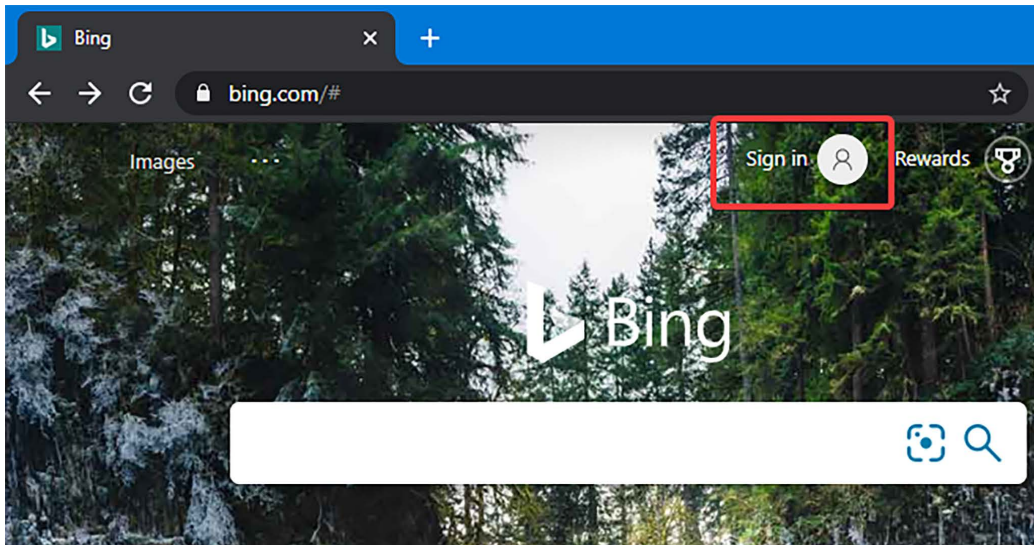
Figure 14.14: Signing in so that Microsoft Bing can provide results from Microsoft Search

3. Doing so will take you to a familiar Microsoft sign-in experience, where you can enter your Microsoft 365 credentials to sign in.

4. Once signed in, you will be brought back to the Bing home page, with the sign-in button and corresponding image replaced by your details from your organization's Microsoft 365 environment.

> It is recommended that you sign in to Bing only on personal/private computers. Signing in on a public device or a device that does not belong to you will leave your organization's information susceptible to being stolen and misused. If you do have a critical or urgent need to sign in on a public device, you should remember to sign out and completely close the browser session after you are done.

5. Since I am looking for a design proposal that was presented by *Megan Bowen*, I am going to search Bing for any files that were authored or modified by her. To do so, I will enter the text `Megan Bowen files` in the search box and press the *Enter* key.

6. This will bring back the file search results from my organization that are centered around *Megan*. As shown in the following screenshot, the design presentation that I was searching for shows as the first result. This is likely because there's current activity trending around that file and/or the machine learning algorithm identified this file to be of greater relevance to me compared to the other file results:
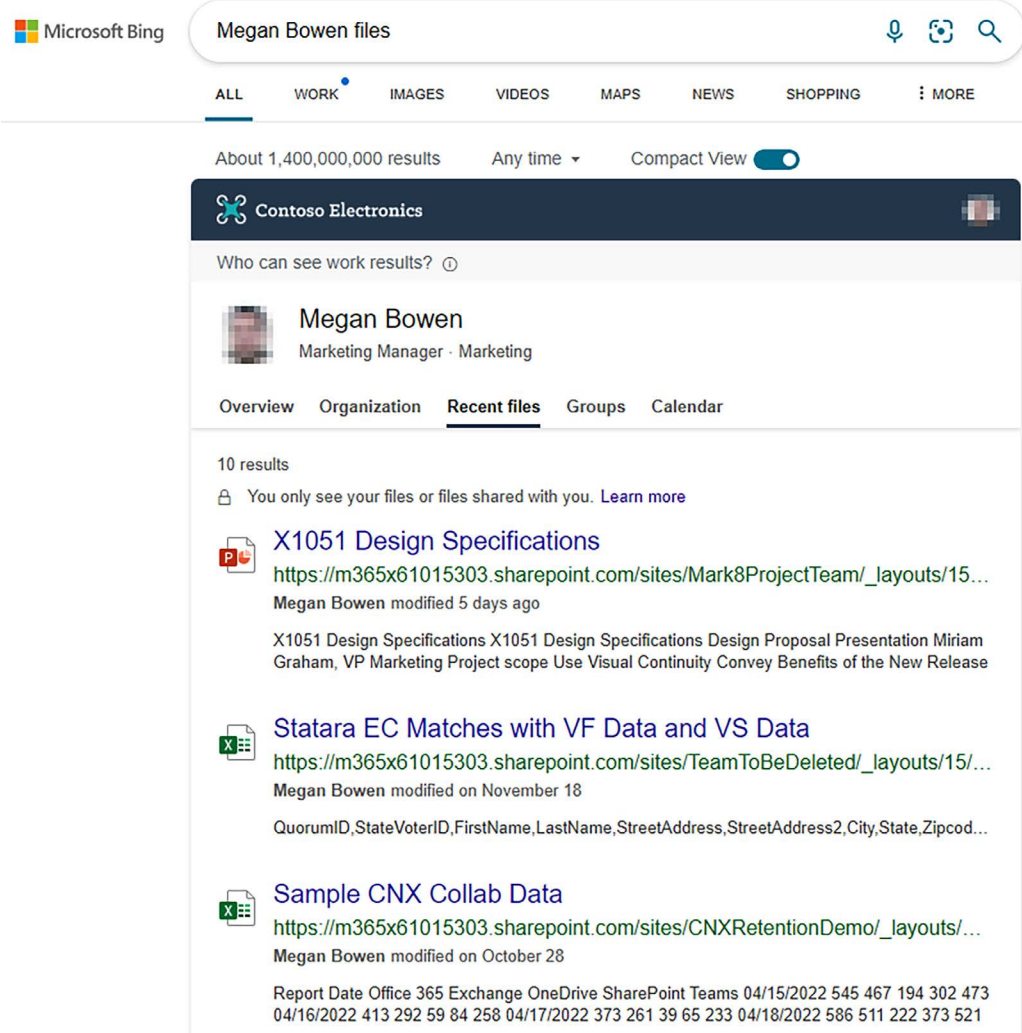
Figure 14.15: Search results prioritizing files with the most recent activity

7. If your search returned non-organization results, you would see them after the organization results.

That's it! You just learned how to use Bing as the one-stop search engine to bring back not only internet results but also results from your organization.

How it works...

We discussed the different components of Microsoft Search as part of the *Performing an advanced search* recipe earlier in this chapter. Bing's search works by securely tapping into your organization's search index and using its own query and UI components. This enables Bing's search to serve some advanced queries, in addition to the more common and simplistic queries that it can also return search results for. Some examples of such advanced queries include the following:

- Searching for `my files` or `my documents` returns the most recent documents that you worked on:
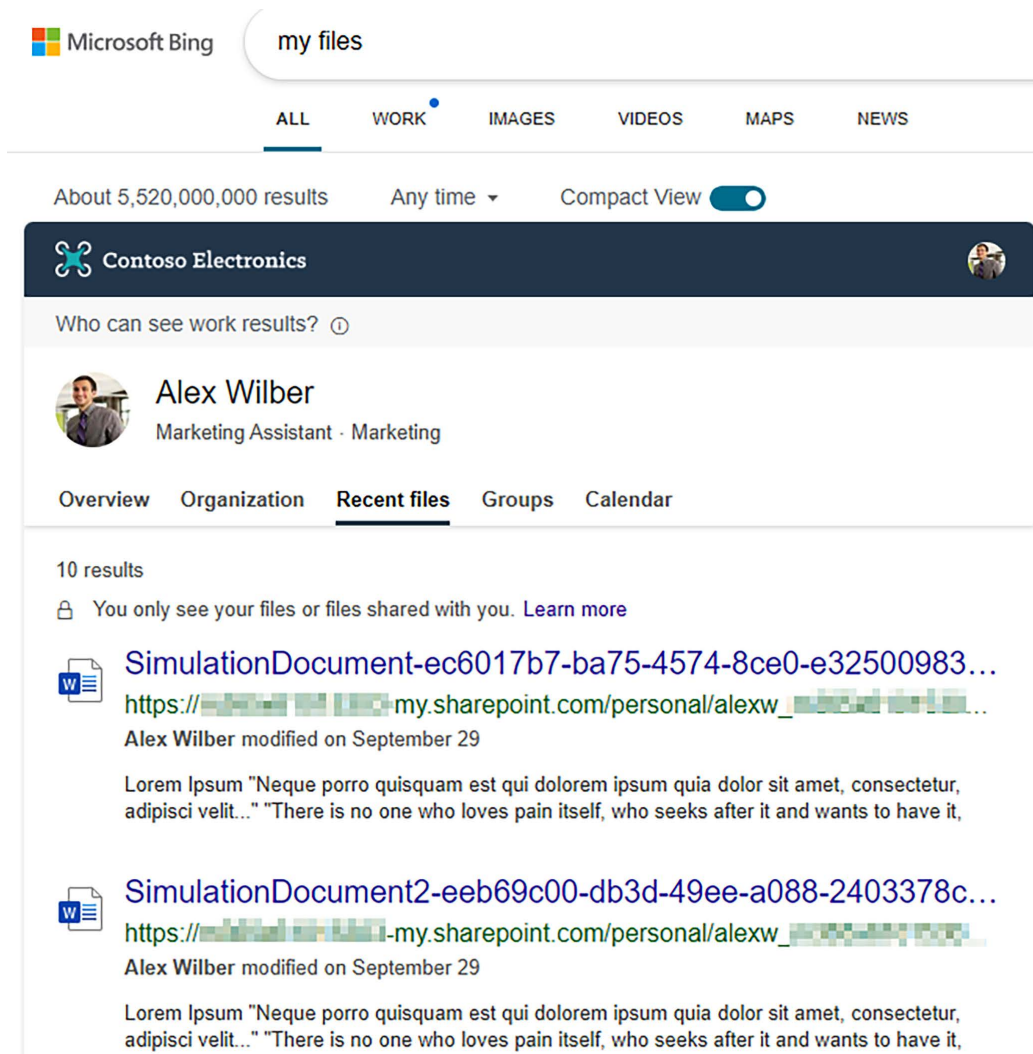
Figure 14.16: Microsoft Bing utilizing the organization's search index

- Searching for `<employee name> org`, `<employee name> direct reports`, or `<employee name> manager` returns the organization chart for the employee:
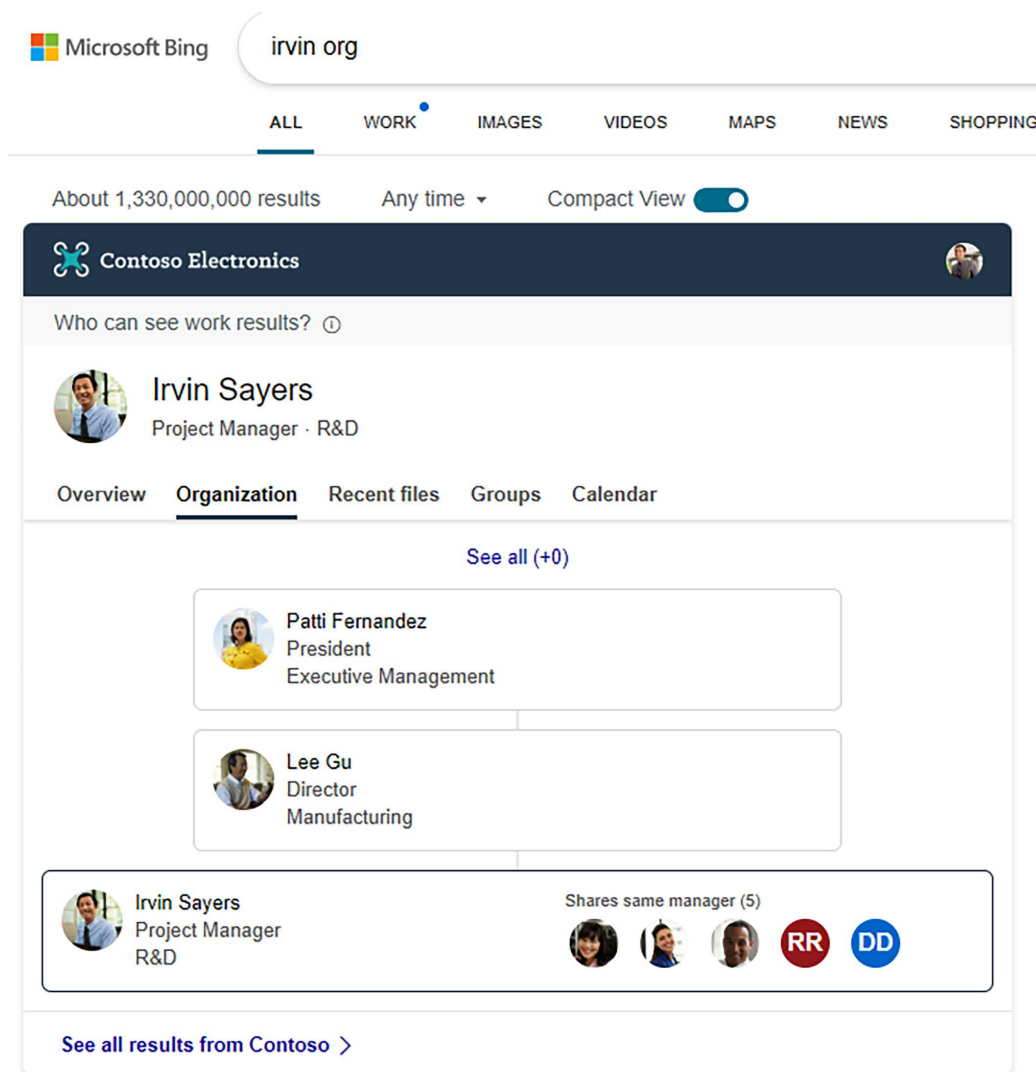
Figure 14.17: Organization contacts in Bing search results

Remember that, irrespective of where you perform the search or what search you perform, you will always only see content that you have access to through security and permissions. In the preceding screenshot, I see those files and conversations only because they were individually shared with me, one of the groups that I am a member of, or with the entire organization.

See also
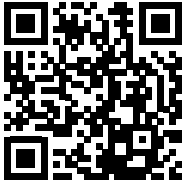
- The *Performing an advanced search* recipe, earlier in this chapter
- The *Finding experts and people* recipe, earlier in this chapter

Learn more on Discord

To join the Discord community for this book – where you can share feedback, ask questions to the author, and learn about new releases – follow the QR code below:

`https://packt.link/powerusers`

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Microsoft Delve

Delve brings to you the most recent and relevant documents from all across Microsoft 365. Delve will not only show you your recent content but also content that your colleagues have been working on and have shared with you. This content includes OneDrive documents, SharePoint Online documents, and documents that were shared with you through email attachments. Delve automatically surfaces this content for you without even needing you to search for it.

In addition to surfacing relevant content, you can also update your profile information and Microsoft 365 profile photo through Delve.

In this chapter, we will cover the following topics:

- Viewing your Delve profile page
- Grouping documents through boards
- Updating your profile information
- Changing your profile photo

Viewing your Delve profile page

Delve has two landing pages:

- Your Delve profile landing page
- The Delve home page

In this recipe, you will see how to get to your profile page in Delve. We will explain the different kinds of information you can view on your Delve profile page. We will then see the difference between the Delve profile and home pages and how you can navigate to the Delve home page.

Getting ready

The only requirement for you to access Delve is that your administrator should have enabled it for your organization.

How to do it...

To get to your Delve profile page, follow these steps:

1. Browse to the Microsoft 365 home page or the home page of any app in your Microsoft 365 tenant.

2. Click your profile image in the top-right corner.

3. Click **My Microsoft 365 profile**, as shown in the following screenshot:
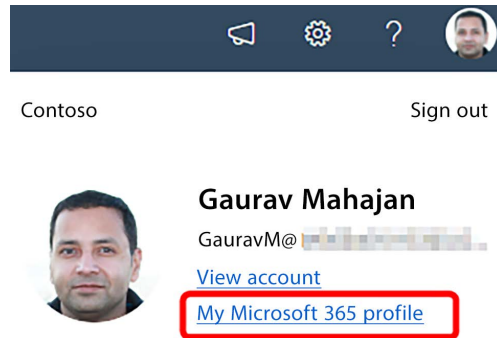
Figure 15.1: Button on the profile pane to go to Delve

4. You will now be taken to your Delve profile page. Here, you will see your recent documents and a list of people you have been working with, the shared documents they have been working on, and those which are relevant to you. We will cover a detailed explanation of all sections on this page through a screenshot in the *How it works...* section below.

Congratulations! You just learned how to browse to your Delve profile page. In the next sections, we will learn about the various sections on this page in greater detail.

How it works...

Delve is powered by **Microsoft Graph**, the same AI-based tool that powers **Microsoft Search**.

> You can read more about Microsoft Graph in the section on *Office development frameworks* in *Chapter 25, Custom Development - SharePoint Framework,* which is also part of the bonus resource that comes with this book.

Microsoft Graph plays three critical roles in Delve in particular and in Microsoft 365 in general:

*   First, it monitors your interaction with content and people across multiple Microsoft 365 workloads, such as (but not limited to) SharePoint, Teams, OneDrive for Business, and Outlook.

*   Based on these interactions, it uses machine learning to understand the connections between you, those people, and the crawled content.

*   It then uses the developed understanding to automatically surface content in the order of relevance for you.

Things like what you've been working on, who you've been working with, what they've been working with, who your manager is, and who else has the same manager as you – all these impact the relevance of the content that you see in Delve. This helps you find and discover the most relevant and fresh content first, instead of you having to go through a list of search results, or for that matter, even having to perform a search in the first place!

The Delve profile page is a great way to quickly get back to what you were working on and also discover relevant content around you:
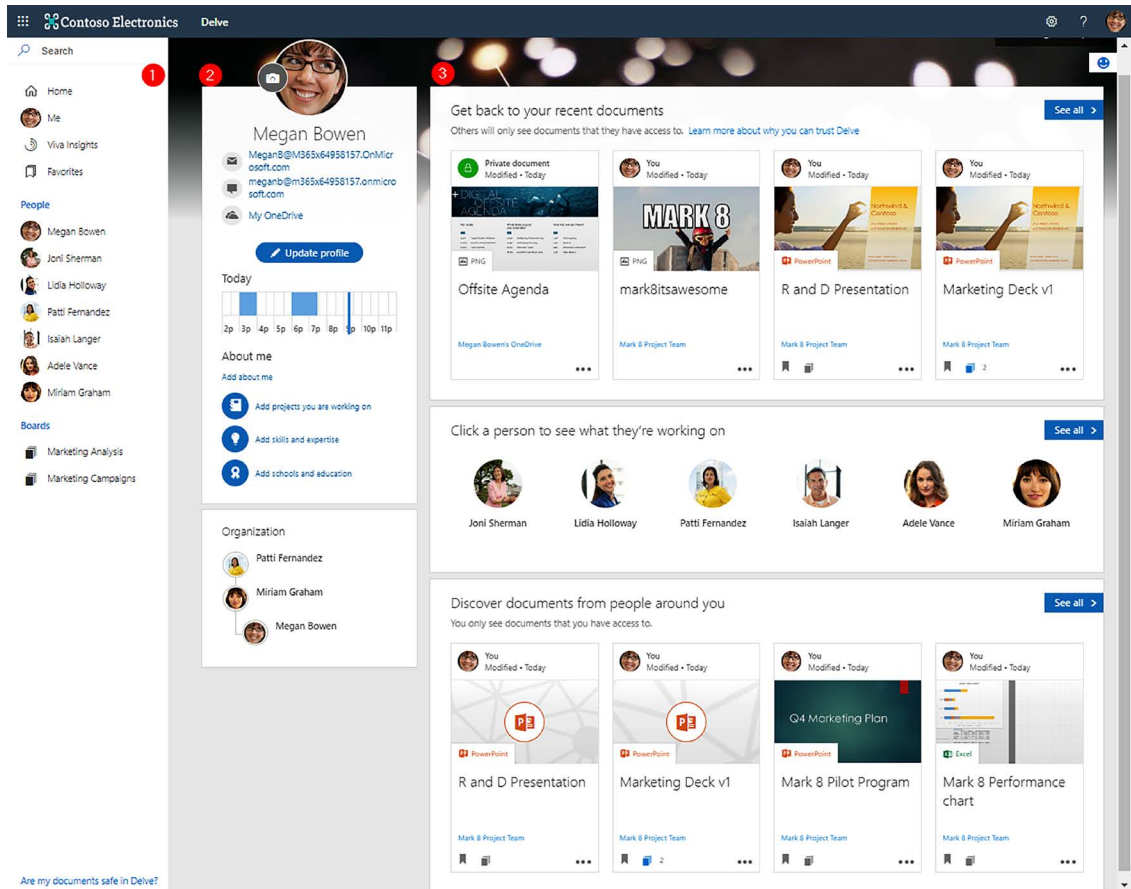
Figure 15.2: Delve profile page

As shown in the preceding screenshot, the content on the page is subdivided into three sections: the search tool and left navigation, profile information, and relevant content and profiles. In the subsections below, we will look at each of these in turn.

Search and left navigation (1)

You can perform the following actions from this section:

- **Search:** You can perform an organization-wide search from the **Search** box in this section. Note that this search is slightly different from the usual Microsoft 365 search:

- When bringing back search results, it gives more weight to what's relevant for you and shows that content first.

- It will only show you people results, documents, and Delve boards (we will learn more about boards in a subsequent recipe in this chapter) in the search results. It will not bring back other content such as data from SharePoint lists, chats from Teams, etc.

- You cannot use the advanced search filters when searching from Delve.

- **Home:** Click this link to go to the Delve home page.

- **Me:** Click this to view your profile page.

- **Viva Insights:** This link shows up only if you have Viva Insights enabled for your organization. Clicking this link takes you to your Viva Insights page. Viva Insights provides insights and recommendations into your work patterns and helps build better work habits. We will discuss Viva Insights in more detail later in this bonus resource, in *Chapter 19, Viva Insights*.

- **Favorites:** You can mark documents as favorites and then view all your favorites in one place from here.

- **People:** This section shows a list of people that you've been working with most or whose profiles are the most relevant to you based on your organization's hierarchy. You can click a person's name or picture to see their profile page.

- **Boards:** This section shows you your favorite boards. We will learn more about boards in the *Grouping documents through boards* recipe later in this chapter.

Your profile information section (2)

This section lets you do the following:

- **Add or change your profile photo:** You can resize or change your profile image by clicking the camera icon next to it. We have covered this in more detail in the *Changing your profile photo* recipe later in this chapter.

- **View or update profile information:** You can view a snapshot of your profile information in the **About me** section. You can also click the **Update profile** button to make changes to it. This is covered in more detail in the *Updating your profile information* recipe later in this chapter. If you are viewing someone else's profile, you will see a **View profile** button here. Clicking this button will show you detailed contact and profile information for that person.

- **View a snapshot of today's calendar:** This is a quick snapshot of your Outlook calendar for the day. If you are viewing someone else's profile, you will see their Outlook calendar here.

- **View the organization hierarchy:** This section shows a limited graphical view of the organizational hierarchy for the person whose Delve profile you are viewing. You can click on the person's profile card to go to their Delve profile page.

Relevant content and profiles (3)

This content is driven by Microsoft Graph. You can view the following details in this section:

- **Get back to your recent documents:** This subsection shows you the recent documents that you've been working on. This includes documents in any emails that you may have exchanged with others. Documents within Delve are presented in the form of **document cards**. Document cards are unique to Delve, and we will see shortly all the things that you can do with a document card. You can also click **See all** to get an expanded view showing more documents that you recently worked on. This view also provides a few additional filtering capabilities.

- **Click a person to see what they are working on:** This subsection shows you a list of people that are most relevant to you based on your interactions in Microsoft 365. Clicking on a person's image will take you to their profile page, which is similar in structure to yours but shows content that is centered around them, and that you have access to via permissions.

- **Discover relevant documents from people around you:** This section shows you relevant documents from the people around you. Remember that the relevance is based on a multitude of factors, including but not limited to things that you've been working on, who you report to, who you work with, and what's most popular amongst your team. Also, remember that these documents are shown using the document cards described previously.

Delve home page

The Delve home page surfaces documents that are popular and relevant for you. You can browse to the Delve home page by clicking on the Delve app in the Microsoft 365 app launcher, as shown in the following screenshot:
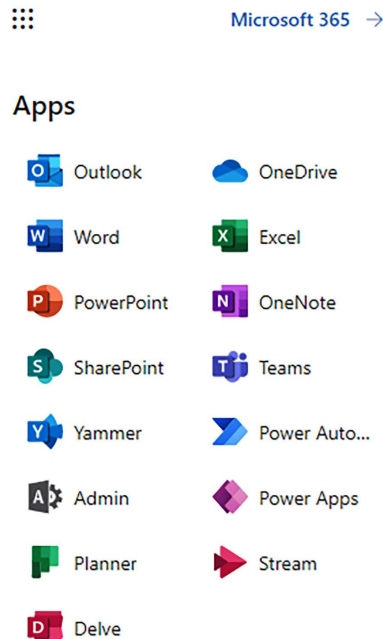
Figure 15.3: Accessing Delve from the app launcher

You can also click the **Home** hyperlink from anywhere in Delve to be taken to the Delve home page.

There's more...

Delve comes with a few key settings and features that assist with the experience. We are going to discuss those features here.

First of all, **document cards** provide a nice way to view information related to a document. We will look at document cards in the next section.

We will then discuss how Delve only shows you content that you have access to. We will finally look at how to completely turn off Delve if you need to do so for any reason.

Document cards

The following screenshot shows a preview of document cards in Delve:
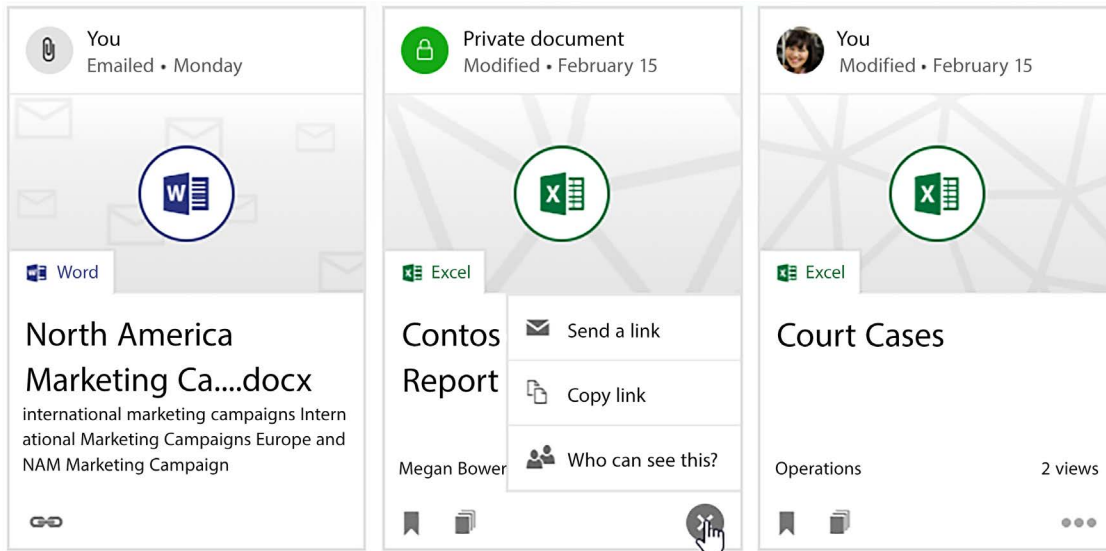
Figure 15.4: Delve document cards

For an Outlook attachment, clicking anywhere in the document card opens a preview of the document in Outlook. For SharePoint and OneDrive documents, you can perform the following additional actions through a document card:

- See the number of times the document has been viewed.
- Click the document name to open it in a new browser window.
- View the document within the original library. You can see a hyperlinked name of the parent SharePoint site or the OneDrive for Business folder toward the bottom left of the card. Clicking this link takes you to the site and, specifically, the corresponding library containing the document within that site.
- Click the bookmark/favorites icon toward the bottom left to add or remove the document from your favorites list. As mentioned earlier, all your favorite documents can be accessed in one place through the **Favorites** option in the navigation menu on the left of the page.

- Click the **Manage boards** (⬛) icon to manage the boards for this document.
- Click on the three dots toward the bottom-right corner of the card to do one of the following:

    - Copy and/or directly email a link to the document using **Copy link** or **Send a link**.
    - View the permissions for the document (who has access to it) by clicking **Who can see this?** We will cover this in more detail in the next section, *Delve and security*.

Delve and security

Delve always only brings back relevant content based on what you have access to and never changes any permissions on it. This means the following:

- Only you can see content that is private to you, and others will not see any documents that you have not shared with them.
- Others will only see their private content or content that they were given access to through permissions.
- Similarly, you will only see content from others that you have been granted access to.

Who sees a document is ultimately determined by the respective permissions in the corresponding library in SharePoint or OneDrive. As mentioned in the previous section, you can view who has access to a particular document by clicking on the three dots toward the bottom of the respective document card and then clicking **Who can see this?:**
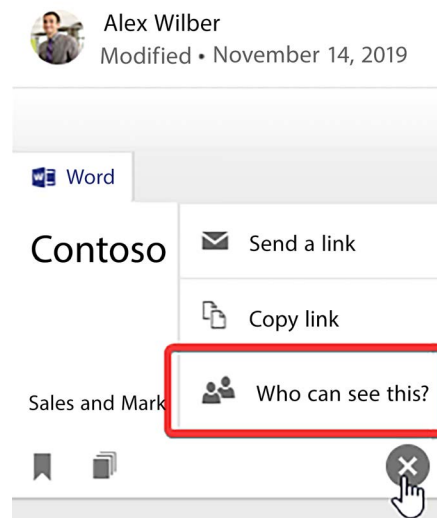
Figure 15.5: Viewing Delve permissions

Clicking this link will open the corresponding library in a new browser tab or window so you can view its permissions. To learn how to view individual document permissions, please visit the *Item permissions* topic in the *There's more...* section of the *Viewing and changing list permissions* recipe of *Chapter 4, Lists and Libraries in SharePoint Online*.

Turning off Delve

Delve can help you quickly get to the relevant content and people. If your organization has enabled Delve, you cannot completely turn it off. You may, however, turn it off just for yourself so that when others view your profile, they will not see your documents. Once you do that, you, too, will not be able to view documents on their profile page. They will still be able to visit your profile page and view your profile details and organization chart. To turn off Delve for your profile, click the gear settings icon in the top-right corner of your profile page, click **Feature settings**, and then turn the toggle under the **Show Documents in Delve** heading from **On** to **Off** and click the **OK** button, as shown in the following screenshot:
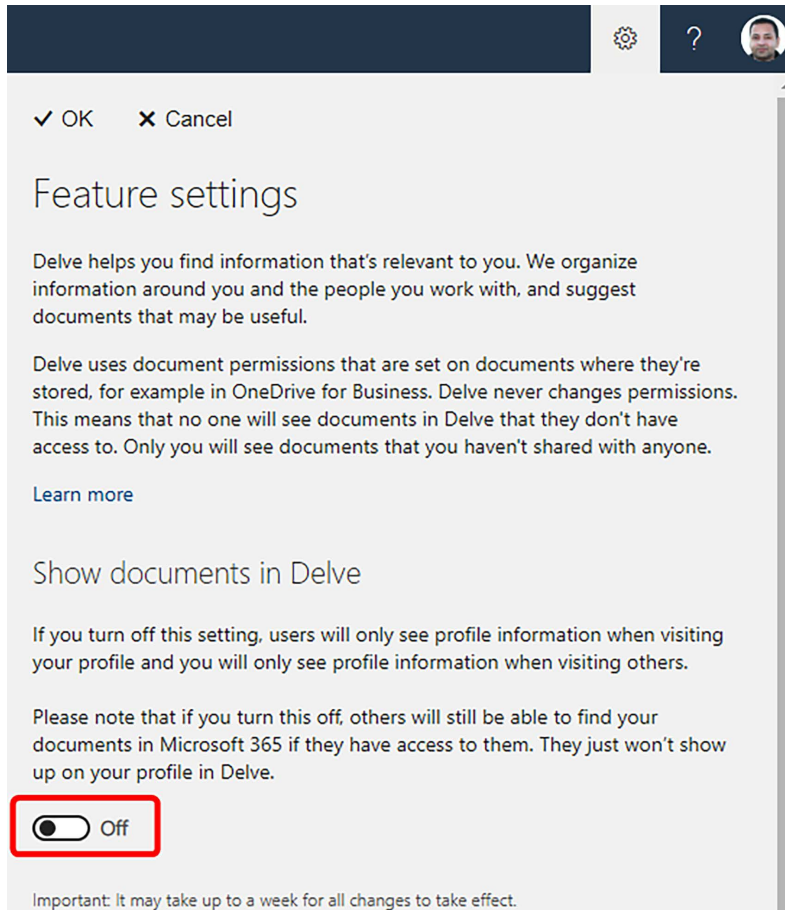
Figure 15.6: Restricting document visibility in Delve

From that point on, you will start seeing a message on the Delve profile page indicating the fact that you've turned off documents in Delve. This is shown in the following screenshot:
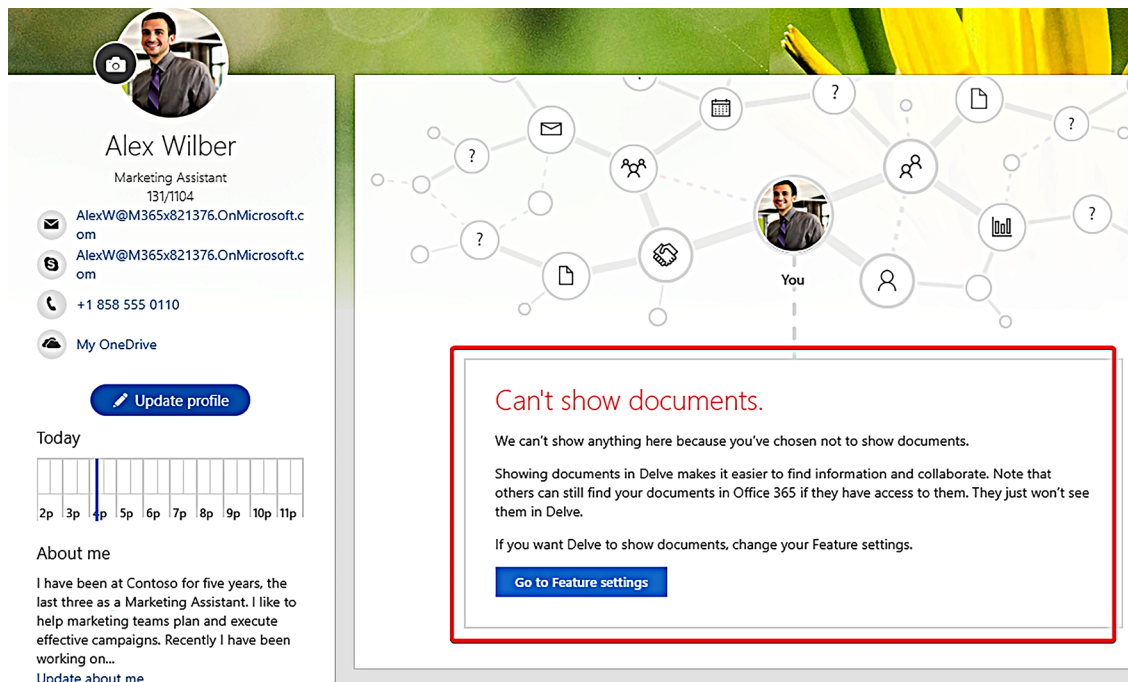
Figure 15.7: Documents disabled in Delve

In addition to completely turning off Delve on your profile, you can also prevent individual documents from showing up at all in Delve. This page describes the steps to do that in detail: `https://packt.link/Hide-From-Delve`.

You will need to be an admin on the site that contains the document(s) that you'd like to hide from Delve.

See also

- The *Determining and revoking permissions in a site* recipe in *Chapter 3, Modern Sites in SharePoint Online*
- The *Changing list permissions* recipe in *Chapter 4, Lists and Libraries in SharePoint Online*

Grouping documents through boards

As mentioned in the previous recipe, Delve uses **Microsoft Graph** to surface content for you from all over Microsoft 365. A handy feature for this in Delve is **boards**, which help you to organize related content and share it with others in your organization.

This recipe will show you how to create a board in Delve and thus share related content from that board with others. For our scenario, we will create a new board to organize the marketing campaigns within our organization.

Getting ready

The only requirement for you to be able to create boards is that your organization should have enabled Delve for you.

How to do it...

To create a board in Delve, follow these steps:

1. Browse to your Delve profile page or the Delve home page to view a list of relevant documents.
2. Click on the Manage boards icon for the document that you would like to add to the board, as shown in the following screenshot:

Figure 15.8: Boards icon on a document

3. This opens the **Manage boards** screen with a text box toward the bottom to enter the name of your board:
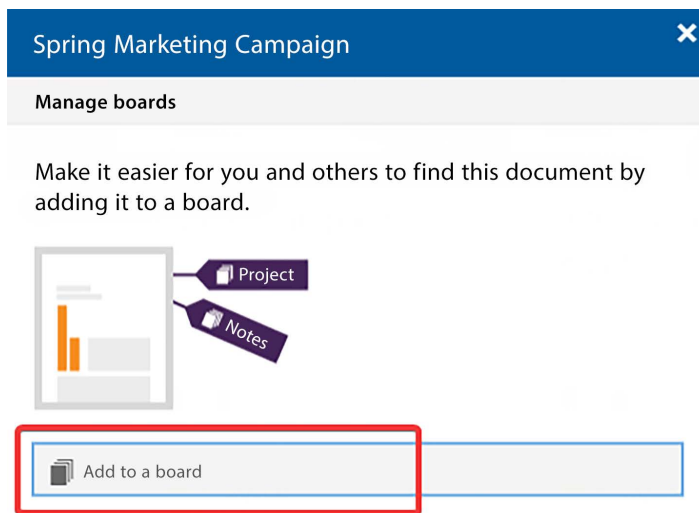
Figure 15.9: Entering a board name

4. As shown in the following screenshot, you will see a list of existing boards as you start typing the name in this text box:
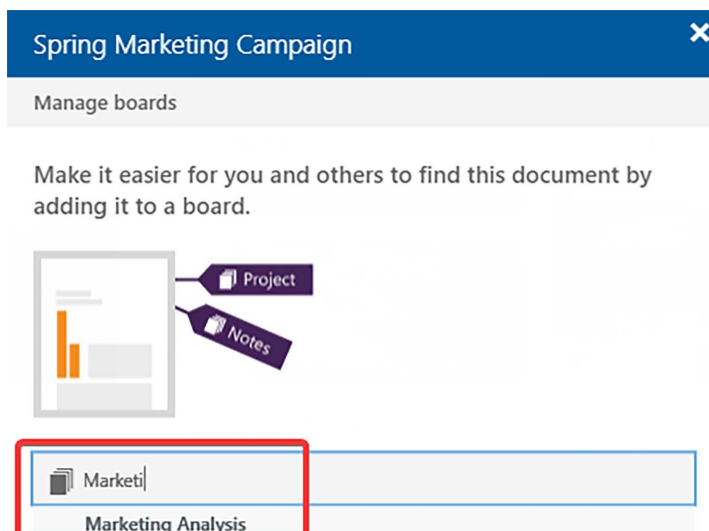
Figure 15.10: Board name search results

5. You can then select an existing board to add the document to it or create a new one if you do not find a match. Since we did not find a match for **Marketing Campaigns**, we will continue typing the board name and then press the *Enter* key when done. This creates the new board and adds the document to it.

6. This will also add it to your Delve favorites list so the new board appears in the **Boards** section toward the bottom of the left menu, as shown in the following screenshot:
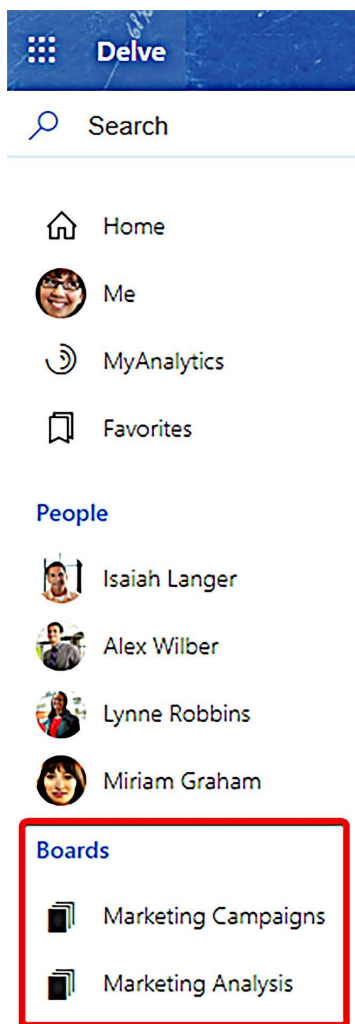
Figure 15.11: Boards menu

7. From within Delve, we can also search for other relevant documents and add them to the board we just created, as shown in the following screenshot:
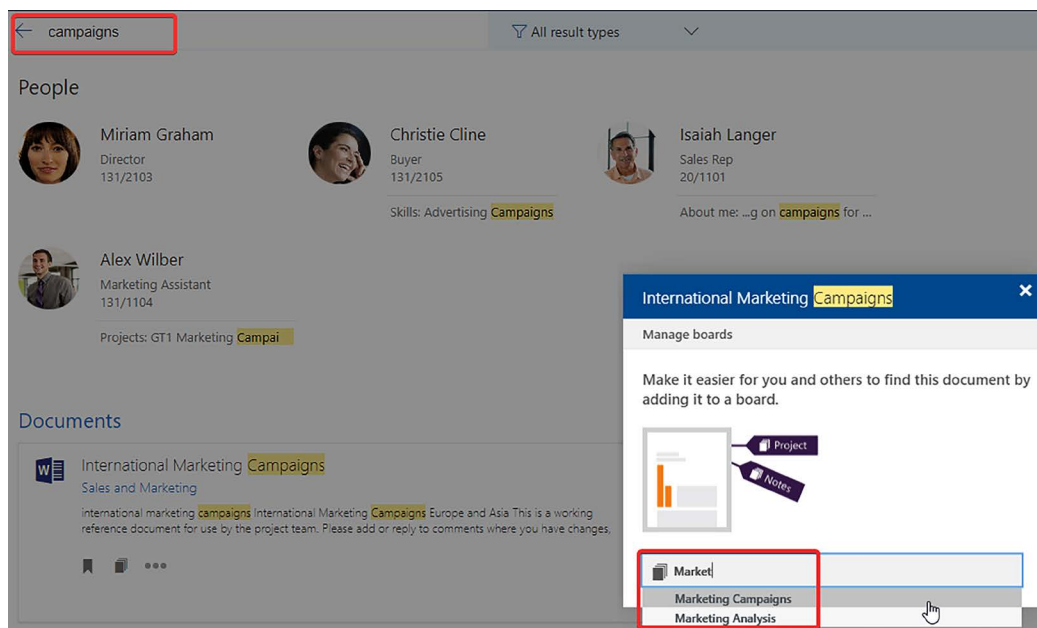
Figure 15.12: Adding more documents to a board

Note that Delve will also return, as part of the search results, any boards whose names match the search term. In the preceding screenshot, since we searched for the term `campaigns`, the results will also return our newly created **Marketing Campaigns** board.

8. If you now click on the board in the **Boards** section in the left menu, you will see all related content in one place as part of the new board that you just created. The following screenshot shows the **Marketing Campaigns** board that we just created:
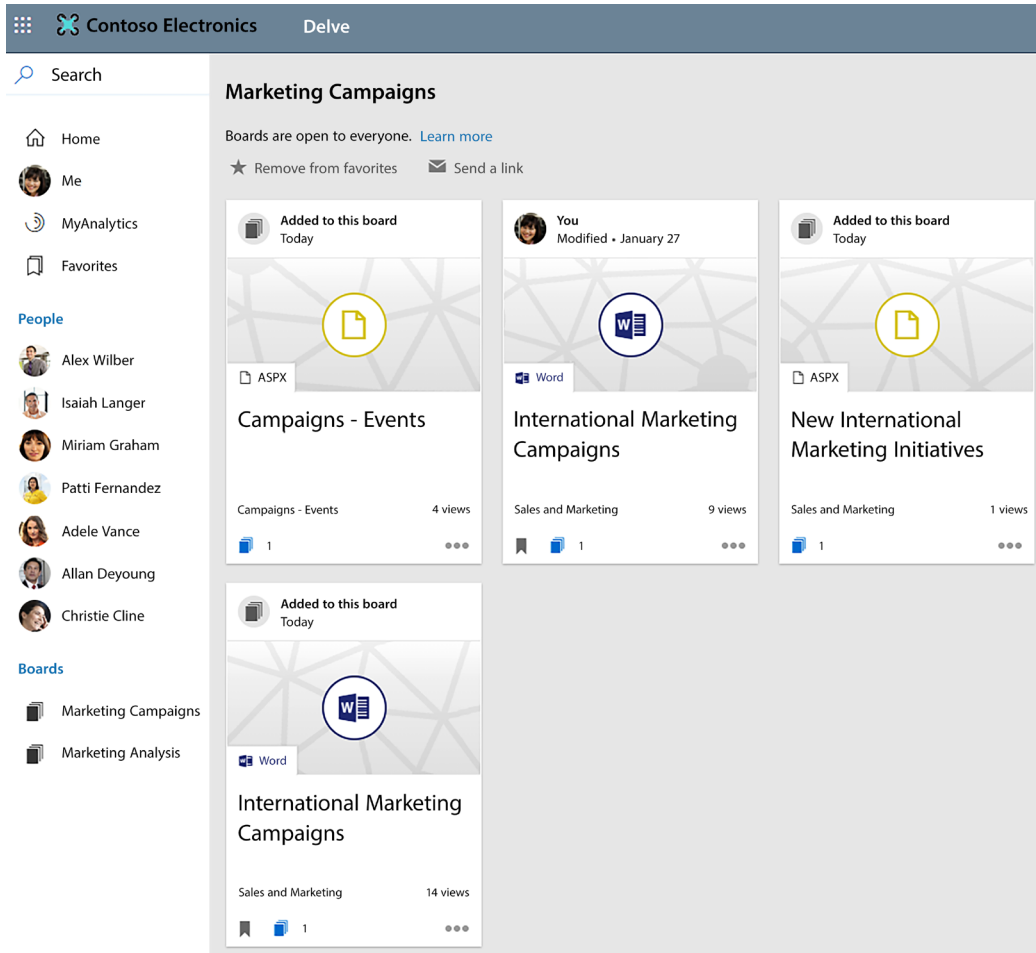
Figure 15.13: Marketing Campaigns board overview

9. Boards are viewable by everyone in your organization. This means that anyone in your organization can search for boards and view related content that is part of the board. You can also directly share boards with others by clicking the **Send a link** option from the top of your board. Doing so will open an email with a link to the board. You can also copy a link to the board from the browser address bar and then share it with others in your organization.

Congratulations! You just learned how to create a board in Delve so you can organize all related content in one single place and share it with others in your organization.

How it works...

Boards are a great way to group related content and then share it with others. Remember that boards are public, in that as soon as you create them, anyone in the organization can view them via the following means:

- Through search results in Delve
- By clicking **Manage boards** on a document card for a document that's already part of a board
- Through the auto-complete results on the **Manage boards** screen when trying to add a document to a board
- Through a direct link to the board that could have been emailed to them

Once they find a board, they can permanently add it to their favorites. Doing so will start showing the board under the **Boards** heading in the left-hand navigation menu in their Delve.

It is important to note that even though boards are public, documents within those boards are governed by permissions defined for them. This means that once you click on a board to view the documents within it, whether or not you will see a specific document from within that board will depend on your permissions for that document itself. Even though your co-workers may have added various documents to that board, you will only see the documents that you have access to via individual permissions for each of them. For this reason, different viewers of a board may see different documents on it, depending on which documents from that board they have access to.

Updating your profile information

Your profile information page helps you to showcase your credentials, skills, and interests to others in your organization. It also helps others to easily find you through search. In this recipe, we will see how you can keep your profile information up to date. As an example, we will add the **SEO Marketing** skill to our existing profile.

Getting ready

Delve should have been enabled by your organization for you to be able to make these changes. Also, some organizations like to control the profile properties that are allowed to be directly updated by the users. For you to be able to make updates to your profile properties, your organization should not have locked these properties from being edited.

How to do it...

To update your skills in Delve, follow these steps:

1. Browse to your profile page in Delve, as described in an earlier recipe in this chapter, *Viewing your Delve profile page*.
2. Click the **Update profile** button located below the profile picture.

> When you are viewing the Delve profile page for someone else in your organization, you will see a **View profile** button instead of the **Update profile** button that you see on your Delve profile page.

3. Click the **Skills and expertise** link, as shown in the following screenshot:
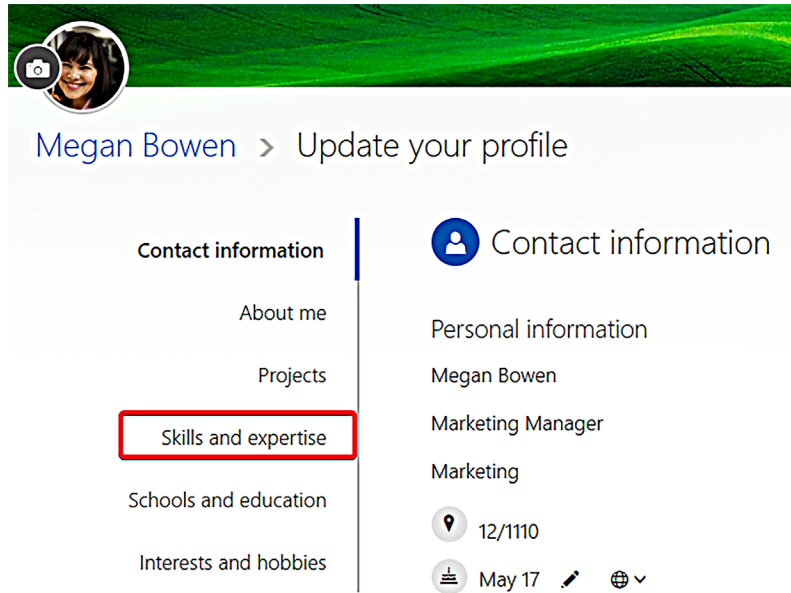
Figure 15.14: Navigating to the skills list on a Delve profile

4. Type your skill and click **Add skill:**
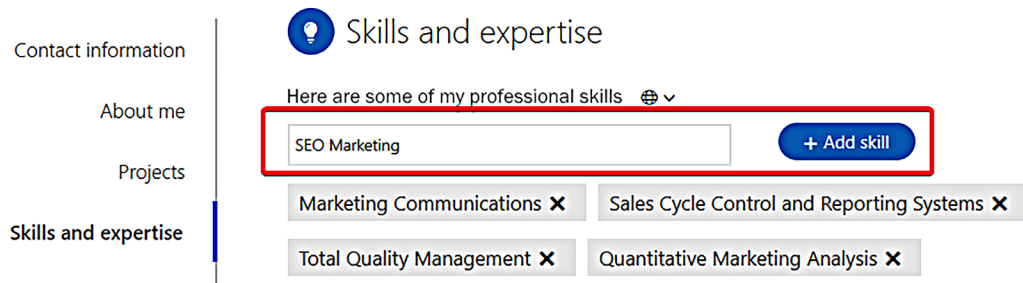
Figure 15.15: Adding skills to a profile

5. That's it! The newly added skill will now show up along with the existing skills. As long as the privacy setting for this section is public, anyone viewing your profile will also see this newly added skill right away:

Figure 15.16: Skills displayed on the profile pop-up card

6. A Microsoft 365 search for `seo marketing` will now also bring back your profile in the search results. This is depicted in the following screenshot. Please note, however, that it might take a little bit of time before the search crawler re-crawls your profile and updates the search index. Please refer to the *How it works...* section of the *Advanced Search in SharePoint Online* recipe in *Chapter 14, Search in Microsoft 365*, for details on how the search crawler works. Here's an example screenshot showing the result from the `seo marketing` search in our scenario:
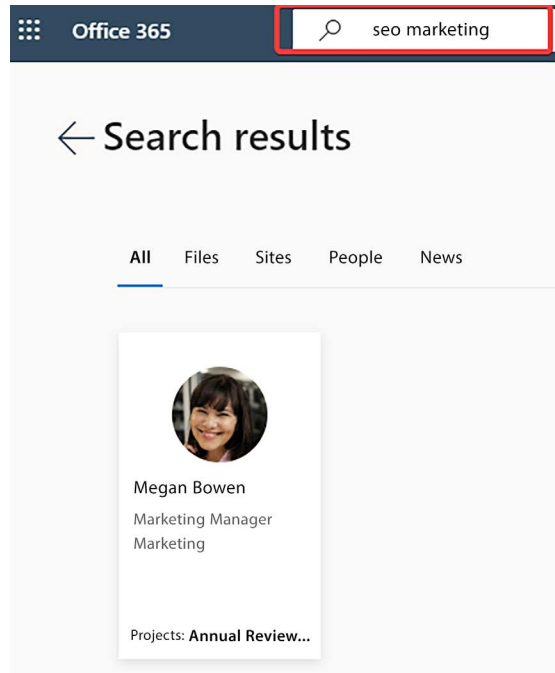
Figure 15.17: Profile included in search result for a skill

Congratulations! You just learned how to update your profile. Among other benefits, keeping your profile updated helps others in your organization to easily find you.

How it works...

The Delve profile page contains the following sections that let you view and/or edit various aspects of your contact and profile information:

*   **Contact information:** This section contains information such as your name, title, department, location, email, and phone number. Most of this information is usually maintained by your organization's IT/HR departments through external systems and is not editable from here. As shown in the following screenshot, you will see a small pencil icon next to the properties that you are allowed to edit. For each property, Delve will also show you whether that property is visible only to you or if it's also visible to others who view your profile from your organization. There are some properties, such as your birthday, for which you can change the privacy. As also shown in the following screenshot, for properties where you can edit the privacy, you will be able to specify whether this property is private or visible to others:
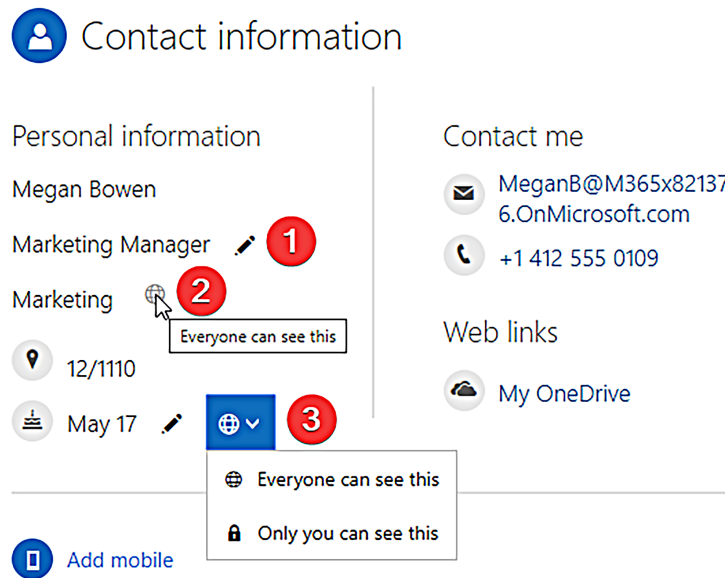
Figure 15.18: Managing profile information visibility

- **About me**: This is a short blurb about you.
- **Projects**: This is where you can enter the names of various projects that you have worked on in the past. You can choose whether your projects should only be visible to you or visible to others in your organization.
- **Skills and expertise**: This is where you can mention your professional skills and things that others can reach out to you for.
- **Schools and education**: You can mention the schools you've attended here.
- **Interests and hobbies**: Here, you can mention the things that you like to do in your leisure time. Again, you can set the privacy of this section.

Remember also that properties from your profile are only searchable if their privacy is set to public. If you set a property to be visible only to you, it will not be indexed and will, therefore, not be brought back as part of the search results.

Also, for each profile property, your organization can control the following:

- Whether or not it is displayed on the Delve profile page
- Whether or not it is changeable by you
- The default privacy setting for it
- Whether or not you can change that privacy setting

See also

- The *Advanced Search in SharePoint Online* recipe in *Chapter 14, Search in Microsoft 365*
- The *Finding experts and people* recipe in *Chapter 14, Search in Microsoft 365*

Changing your profile photo

Your profile photo shows across various Microsoft 365 workloads. It shows up in the navigation bar in the top-right corner for most workloads. In Teams, it shows against the conversations that you participate in. In SharePoint, it shows against the documents that you have modified and various other places.

You can change this photo by clicking your profile image in the top-right corner when browsing any app within Microsoft 365. Delve additionally allows you to change the photo from your profile page.

This recipe shows you how to change your profile photo from the Delve profile page as well as from the Microsoft 365 navigation bar (when using Teams as an example).

Getting ready

Delve should have been enabled by your organization for you to be able to change your profile photo from there. Your organization should also have allowed changes to the profile photo in Delve.

Similarly, for you to be able to change the profile photo from Teams, your organization should have assigned a Teams license to you, and they should have allowed making changes to the profile photo.

How to do it…

To change your profile photo in Microsoft 365 using Delve, follow these steps:

1. Browse to your profile page in Delve, as described in the first recipe in this chapter.
2. Click on the camera next to your profile image, as shown in the following screenshot:
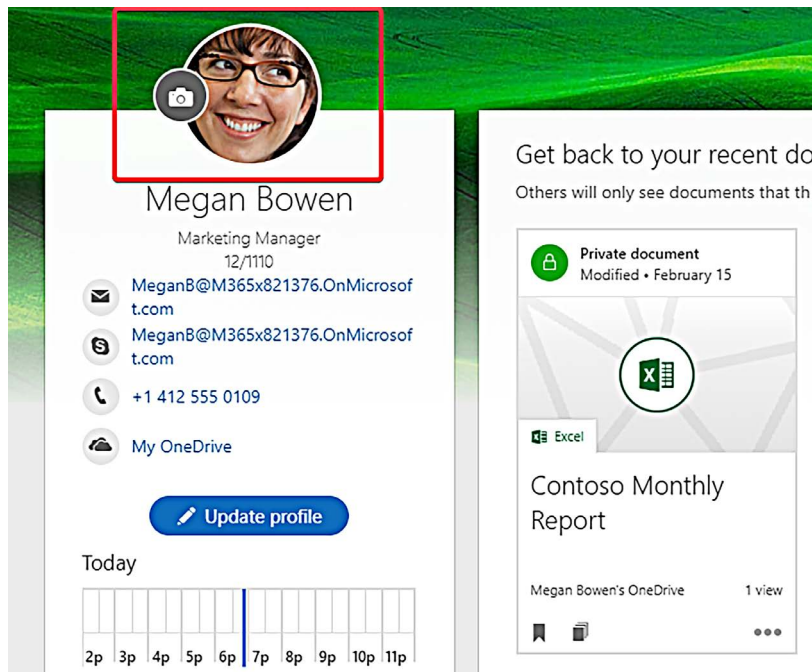
Figure 15.19: Locating the profile photo

3.   Click **Upload a new photo** on the next screen to select a photo from your computer.

4.   Once you select the photo, you can pan or zoom using the controls on this screen, as shown in the following screenshot:
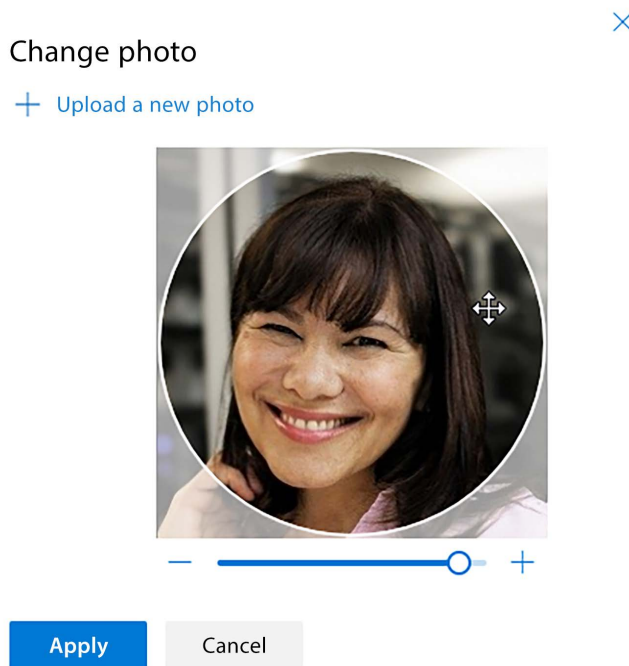
Figure 15.20: Uploading a new profile photo

5.   Click **Apply** to save your changes.

6.   Your new photo should immediately show up on the **Delve** home page. It might take a couple of hours, though, for the photo to be reflected in other Microsoft 365 workloads.

That's it! You just saw how to change your profile photo in Microsoft 365 from the Delve profile page.

To change your profile profile photo from within Teams, follow these steps:

1.   Open Teams in the desktop app or the browser.

2.   Click your profile photo in the top-right corner.

3.   Click the second profile photo, which shows in the pop-up menu:
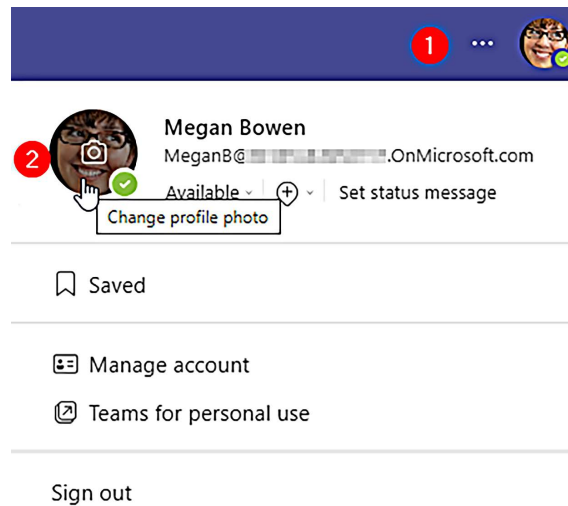
Figure 15.21: Changing a Delve profile photo via Teams

4.   Click **Upload picture** and select the new photo.

5.   Click **Save**.

That's it! This will update your profile photo in Teams. Just like Delve, changes made to the profile photo from within Teams also sync across the other Microsoft 365 workloads.

How it works...

Both Delve and the Microsoft 365 navigation bar let you change the profile photo in a single place and then sync it across all workloads. Note that once you change your profile photo from these workloads, it may take up to 24 hours for it to reflect across other workloads. Until the new picture is synchronized, you will continue to see the old photo in these workloads.

See also

•   *Chapter 7, Microsoft Teams*

Learn more on Discord

To join the Discord community for this book – where you can share feedback, ask questions to the author, and learn about new releases – follow the QR code below:

`https://packt.link/powerusers`
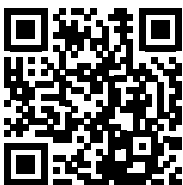
16

Microsoft 365 Groups

The core objective of Microsoft 365 is to enable collaboration between teams and team members. This common theme can be seen across all Microsoft 365 services. Every Microsoft 365 service offers a unique capability.

The beauty of a Microsoft 365 group is that it takes the best elements of every individual service and creates a collaborative space for a group of people or a team to leverage that service. When you create a Microsoft 365 group, you get the following:

- A shared conversation space where team conversations are stored
- A shared calendar where team members can book their meetings
- A file storage service where the team can save and share all team documents, spreadsheets, and so on
- A notebook to capture and share meeting agendas and notes
- A new workspace to share group reports

What this means is that you do not have to create separate instances of these services for your team, nor do you have to go through the pain of granting each member access to these separate service instances. Creating a Microsoft 365 group creates these service instances automatically and once you add members to the group, they are automatically added to each of these services.

Microsoft 365 groups can be created in several ways. You can create a group directly via Outlook, as described in the *Creating a group* recipe in this chapter.

Microsoft 365 groups are created indirectly when you do the following:

- Create a planner in Microsoft 365—for more info, go to `https://packt.link/Planner`
- Create a group in Viva Engage—for more info, go to `https://packt.link/Viva-Engage-groups`
- Create a group in Power BI—for more info, go to `https://packt.link/Power-BI-groups`
- Create a group in Microsoft 365—for more info, go to `https://packt.link/Microsoft-365-groups`

- Create a team in Microsoft Teams—for more info, go to `https://packt.link/Microsoft-Teams-groups`
- Create a modern team site in SharePoint Online—for more info, go to `https://packt.link/modern-team-site-SP`

Technically speaking, we can, therefore, say that Microsoft 365 Groups is a cross-application membership service in Microsoft 365 that has other inbuilt workloads associated with it, such as a SharePoint team site, a Viva Engage group, a shared Exchange mailbox, Planner, Power BI, and OneNote.

> Any Microsoft 365 subscription that has Exchange Online and SharePoint Online will support groups. To find out more about Microsoft 365 plans, go to `https://packt.link/m365-plans`.

In this chapter, you will learn about the following:

- Creating a group
- Deleting a group
- Joining a group
- Leaving a group
- Adding members to a group
- Removing members from a group
- Having conversations
- Booking meetings
- Sharing files
- Collaborating on a notebook

Let's start by creating a group.

Creating a group

A group in Microsoft 365 refers to an entity in Azure Active Directory (now known as Entra ID) that grants shared resources to a set of people (known as members). Members get access to common resources, such as a group mailbox, a group calendar, shared file storage, permissions, and so on, as soon as they are added to the group. Groups make collaboration easy.

Traditionally, you had to request the IT department to create a distribution list (which lets you email several people by using a single recipient address) or a security group (to manage permissions to resources). A Microsoft 365 group provides you with the benefits of both a distribution list and a security group. In fact, it provides you with more features than distribution lists and security groups combined. On top of that, end users can create and manage Microsoft 365 Groups themselves without needing the IT department's support.

In this recipe, you will learn how to create a group.

Getting ready

The ability to create Microsoft 365 groups depends on the model adopted by the organization, as shown here:

Model	Advantages
Open (default)	Users can create their own groups
IT-led	Users request the Microsoft 365 administrator (usually part of the IT department) to create one for them
Controlled	Group creation is restricted to specific people, teams, or services

A Microsoft 365 group can be created directly via the Outlook client, Outlook Web Access, or the Outlook mobile app. We will demonstrate the steps that you need to follow using Outlook Web Access. There are also indirect ways of provisioning Microsoft 365 groups, which we will learn about in *Chapter 7, Microsoft Teams, Chapter 22, Planner, and Chapter 21, Viva Engage*.

How to do it...

Microsoft 365 groups appear at the lower left-hand corner of your Outlook profile. Here, it will list all the Microsoft 365 groups you are a member of. To create a new group, perform the following steps:

1. In the **Groups** section on the left, click on **New group** as shown:
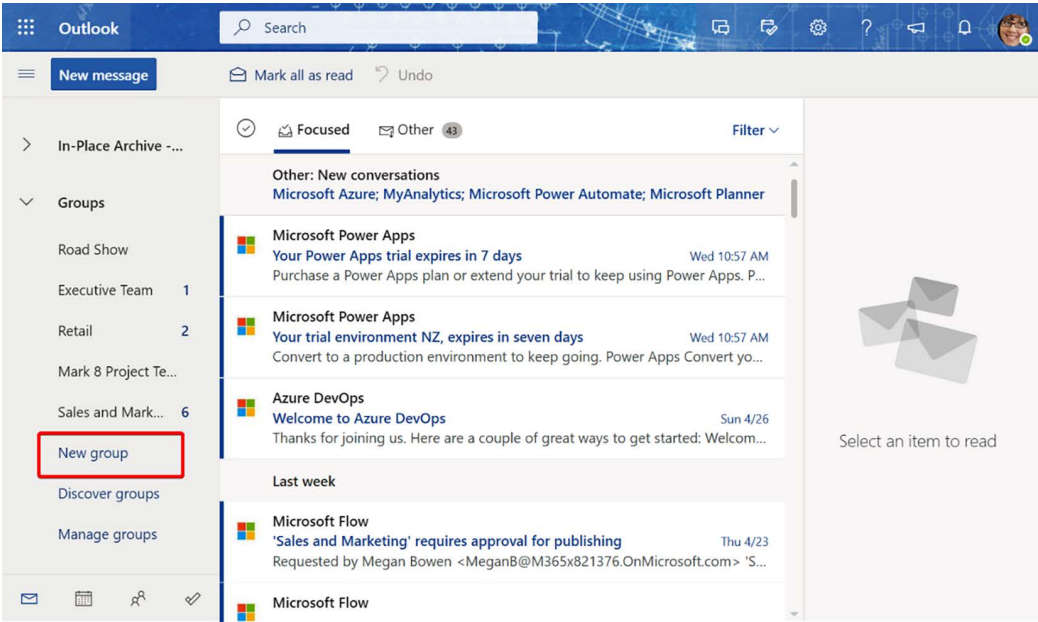
Figure 16.1: Creating a group via Outlook Web Access

2. Provide a **Group name** and **Description**.
3. Microsoft 365 creates a group email address based on the group name. You can change the email address if you like.

4. Next, set the **Privacy** option.

Figure 16.2: Group settings

"Public" groups will let anyone in the organization join your group. Users can see the group members and contribute to group files. "Private" groups will require the group owner's approval for someone to join the group. The creator of the group becomes the group owner by default. Additional owners can be added by the group owner.

5. Once you have filled in all the sections, click **Create**.

6.   Your group is now ready to be shared with members. You can add other colleagues or even other groups. You should be able to invite people from outside your organization (if your organization allows this). You can add up to 1,000 members to one group. The following screenshot shows you how to do this:
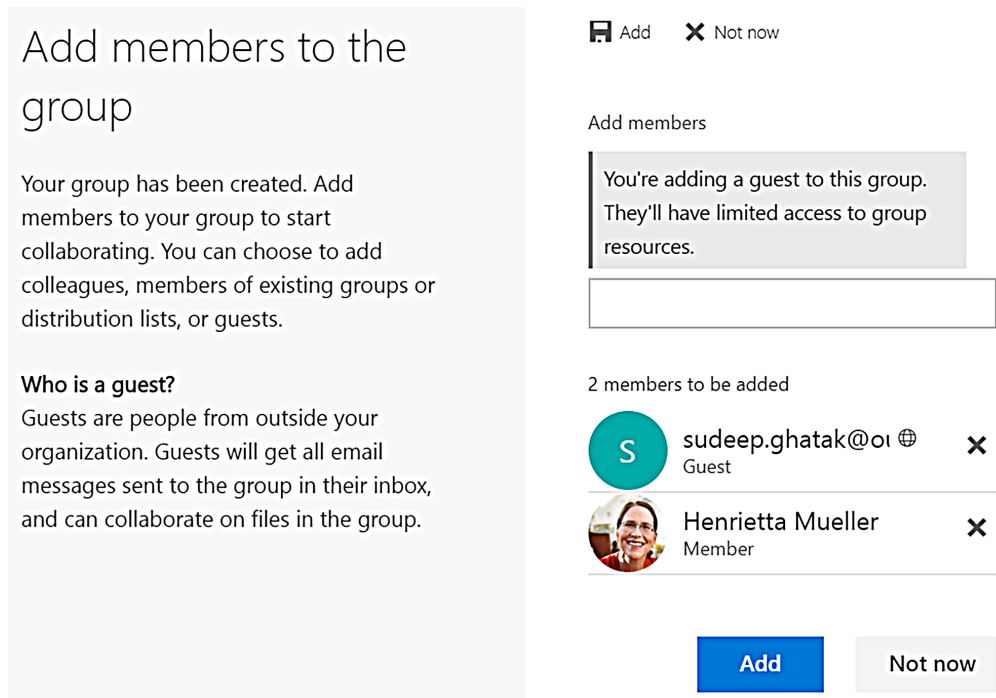
Figure 16.3: Add members to the group

Now, your group is ready. The new group should start appearing under the **Groups** section. At this point, members will receive a welcome email with links to common group tasks.

How it works...

When a new group is created, the group gets an email address assigned to it. You can send a single email to the group email address and all the group members will receive it.

As mentioned previously, when a member is added to the group, they receive a welcome email. The welcome email looks as in the following screenshot:
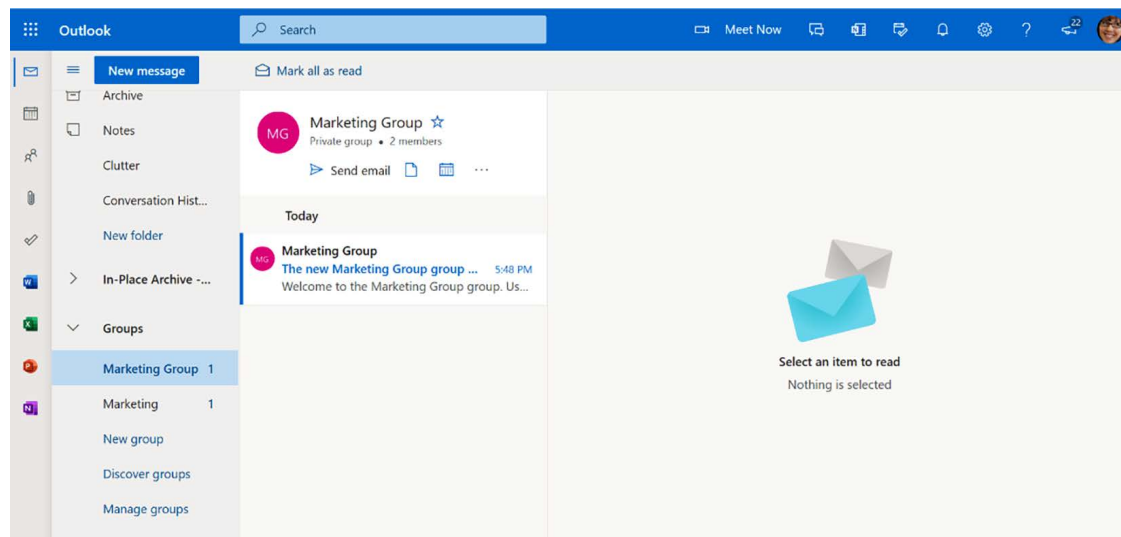
Figure 16.4: Welcome email

The email contains four links, each taking you to a specific group feature. Let's see what these four features are.

Group emails

The Microsoft 365 group reserves a conversation area where all conversations are saved. All emails sent to the group email address will appear in the group mailbox. These conversations remain in the group, even if the participants leave the group at some stage. Having conversations in one place is useful because new group members get access to all past conversations.

Group team site

The Microsoft 365 group provisions a SharePoint site that every group member can access, where all the group files can be saved. SharePoint offers additional capabilities, such as news articles, content pages, and so on. The following screenshots show the landing page of the SharePoint site that is provisioned for the group:
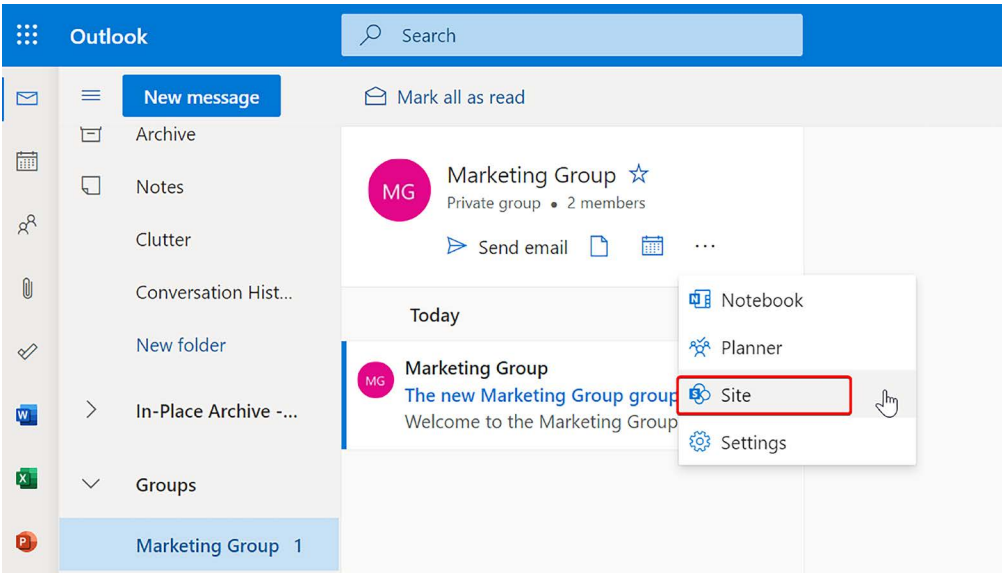
Figure 16.5: Access group site
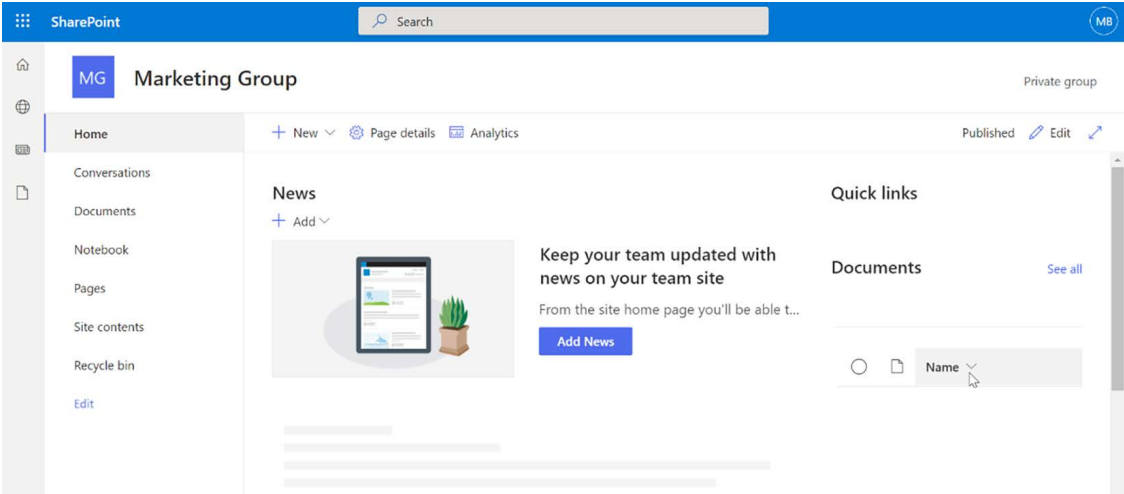
Figure 16.6: Group/team site

Sharing files

The SharePoint site that is provisioned with each Microsoft 365 group comes with a default document library called Documents. The group files can be stored in this library, or in additional libraries. Lists can be provisioned by the group members. Staff outside the group will not have access to these files.

Connecting your apps

The Microsoft 365 group lets you connect to a host of other apps from the Microsoft 365 store, as shown:
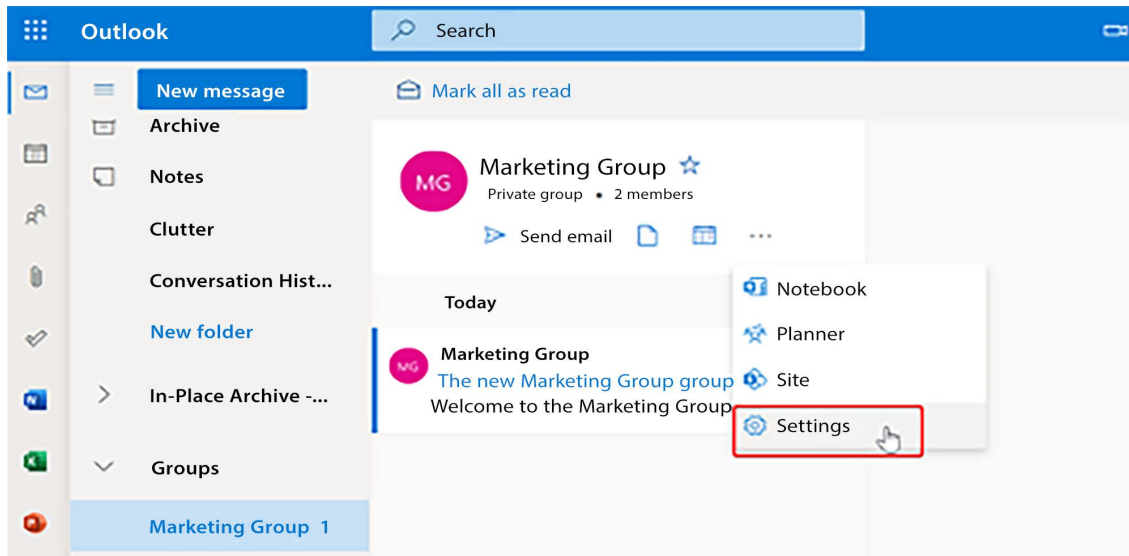
Figure 16.7: Group Settings
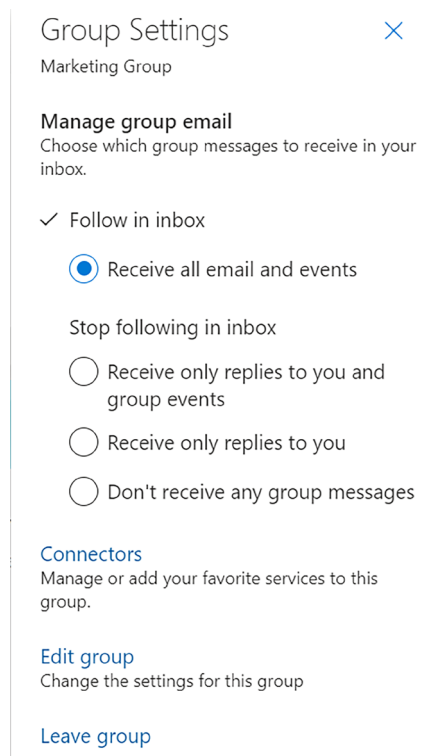
Figure 16.8: Group Settings options

Figure 16.9: Group Settings options continued

These apps can be used to facilitate tasks within the group. For instance, you could add the Twitter connector to receive tweets from an account or track certain hashtags.

See also

- The *Creating a group using Teams* recipe in *Chapter 7, Microsoft Teams*
- The *Creating a Viva Engage group* recipe in *Chapter 21, Viva Engage*
- The *Creating a group using Planner* recipe in *Chapter 22, Planner*
- *Groups in Microsoft 365 and Azure, and Which is Right for You*: `https://packt.link/groups-in-M365-and-Azure`
- *Manage who can create Microsoft 365 groups* | Microsoft Learn: `https://packt.link/manage-creation-of-groups`

To delete a group that is no longer needed, refer to the next recipe.

Deleting a group

Groups are created with a specific objective in mind. Once the objective is achieved, the group can be deleted to free up system resources. It is recommended that you move any documents that you might need in the future to another location before deleting the group.

In this recipe, we will learn how to delete a group.

Getting ready

Microsoft 365 users can only delete groups created by them. You can do this via the Outlook client, Outlook Web Access, or the Outlook mobile app. In the following recipe, we will use Outlook Web Access..

How to do it...

On Outlook Web Access, you can see all the Microsoft 365 groups that you are part of in the lower left-hand side navigation section. Follow these steps to delete a Microsoft 365 group:

1. Select the group you want to delete and click on the **Settings** symbol next to the group members.

2. This should bring up the **Group Settings** pane. Click on **Edit group**, as shown:
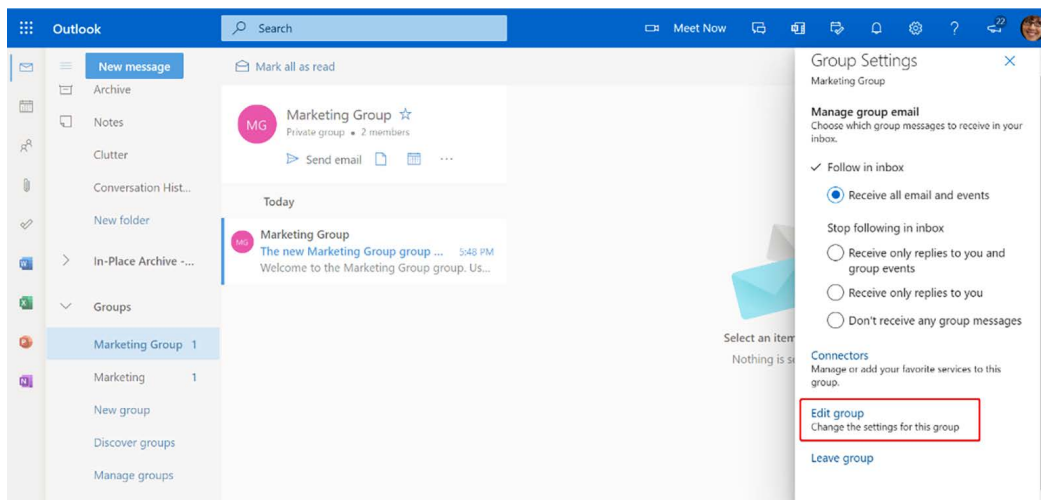
Figure 16.10: Edit group

3. Click on the **Delete group** link at the bottom of the pane and click **Yes** to any confirmation message.
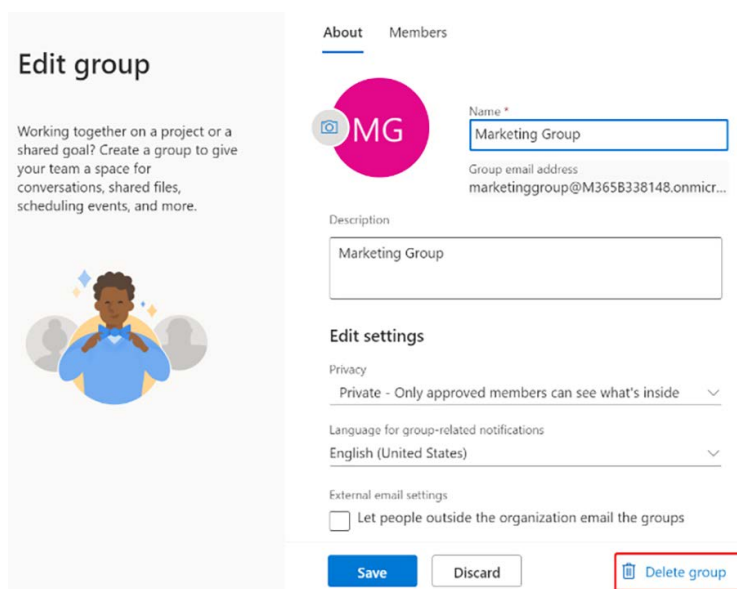
Figure 16.11: Delete group

After completing this step, you have now deleted a group.

How it works...

Deleting a group deletes all conversations, files, notebooks, and tasks. There is no concept of a group recycle bin, from where you can restore the group. However, the administrator has the option of restoring the deleted group within 30 days. If the administrator takes no action within 30 days, the contents of the group (files, conversations, etc.) will be deleted forever.

> If you want to restore a Microsoft 365 group that was deleted, you can do it via the **Deleted groups** page by navigating to the following link and following the guidance provided on screen: `https://packt.link/restore-group`.

See also

- The *Leaving a group* recipe in this chapter
- Restoring a deleted group: `https://packt.link/restore-a-deleted-group`
- End of lifecycle options for groups, teams, and Viva Engage: `https://packt.link/end-of-lifecycle-groups`

In the next recipe, we'll see how you can join an existing group.

Joining a group

Before creating a new group, it is worth checking whether another group has already been created for the same purpose. If a group already exists and is public, you can join it straight away or ask the owner to add you if the group is private. This recipe will show you how to join a group.

Getting ready

You can join groups that are not created by you. On Outlook Web Access, if you right-click on **Groups** and click **Discover,** it lists all the groups in the organization. Some of these groups might be private, while others will be public.

How to do it...

To join a group, do the following:

1. Right-click on **Groups** and click **Discover**. This will bring up the **Discover** pane with a search box. Start typing the group name you would like to join, as shown here:
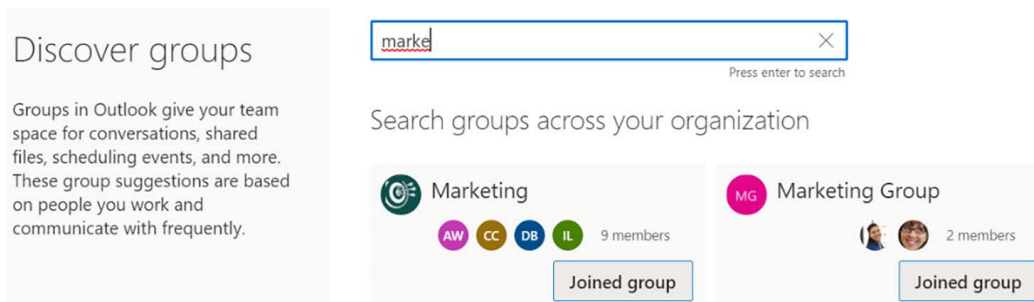
Figure 16.12: Discover groups

> *Public groups* will let you join immediately. *Private groups* will require the group owner's approval.
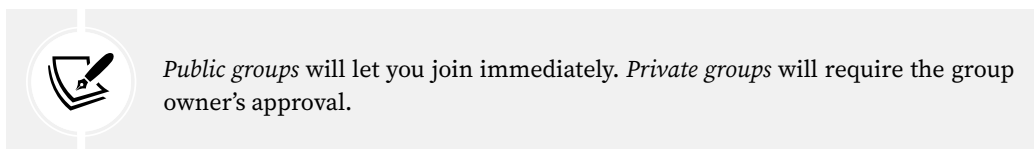
2. Click on **Request to join** or **Join**. If you are joining a private group, you will need to provide the reason for making the request, as shown here:
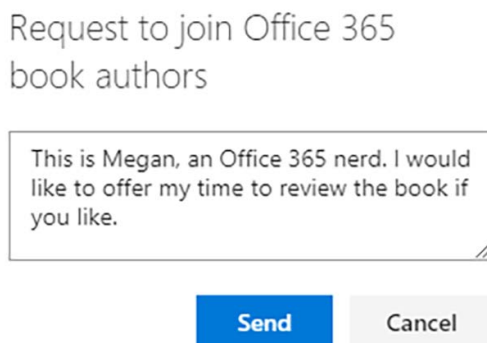
Figure 16.13: Request to join a group

By clicking **Send**, your request to join the group will be logged and the group owner will take the appropriate action.

How it works...

If you wish to join a public group, you simply click **Join** and become a member of the group. You can then participate in group conversations and have access to group files.

In the case of a private group, the owner of the group receives an email informing them about your interest. They can then choose to grant you access or ignore your request. The email will look something like this:
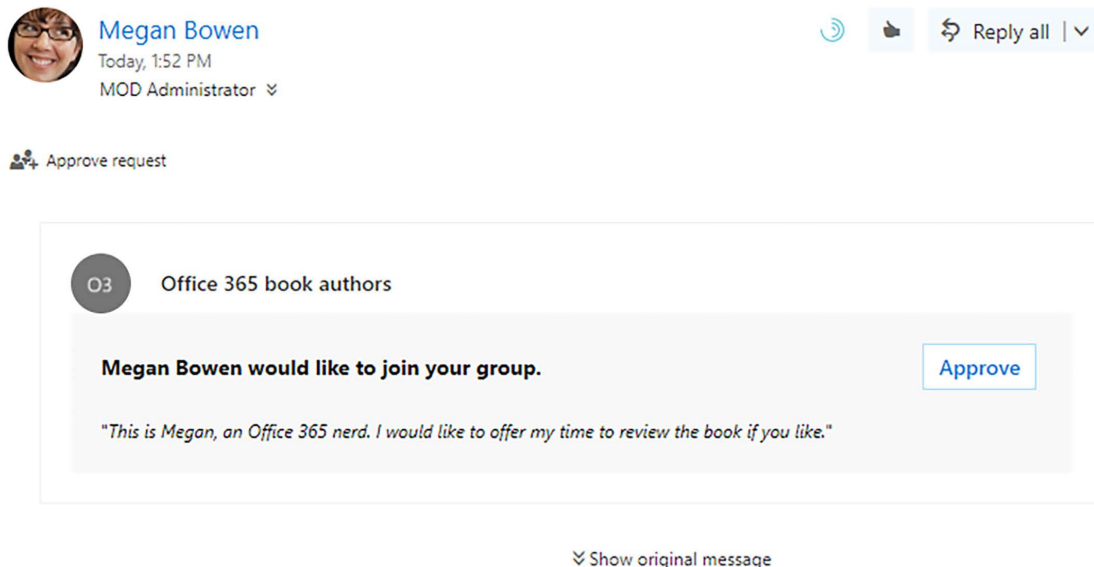
Figure 16.14: Approve a joining request

If the owner approves your request, you will receive a group welcome email.

See also

- The *Creating a group* recipe in this chapter
- *Manage guest access in Microsoft 365 groups* – Microsoft 365 admin: `https://packt.link/guest-access-in-groups`

Next, we'll see how you can leave a group that you are a part of.

Leaving a group

If you think you no longer need to contribute to a group, or you find that the group is not relevant to your work, you can leave it by following the instructions in this recipe.

Getting ready

You can leave a group at any time. You do not need any special permission to leave the group.

How to do it...

On Outlook Web Access, you can see all the Microsoft 365 groups that you are part of in the lower left-hand side navigation section. To leave a group, do the following:

1. Select the group you want to leave and click on the **Settings** symbol next to the group members.

2. Click on **Leave group** and click **Yes** to any confirmation message.
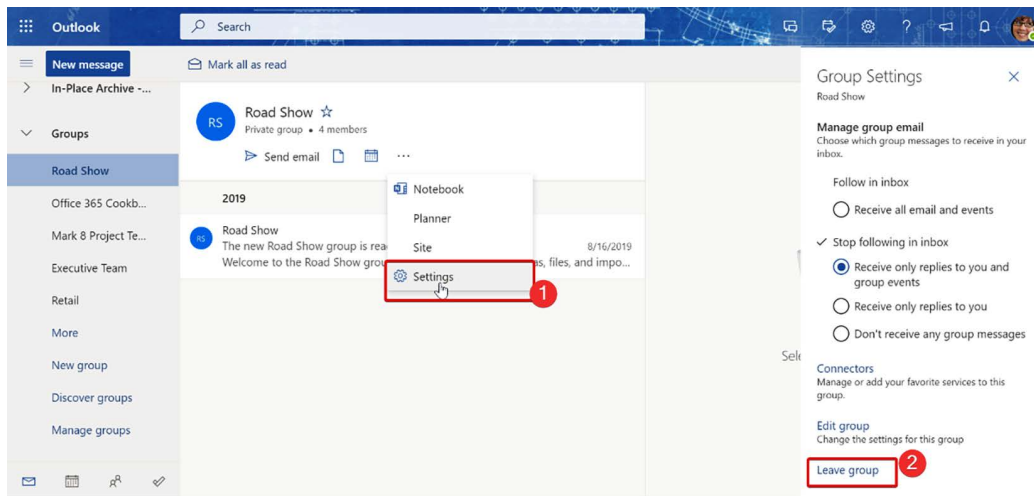
Figure 16.15: The Leave group option

How it works...

When you click the **Leave group** option, all your permissions to the group resources are revoked. If you want to retain access to the group but just do not want to receive notifications about the group activities, you can update your **email preferences** in the **Group Settings** pane, as shown in the following screenshot:
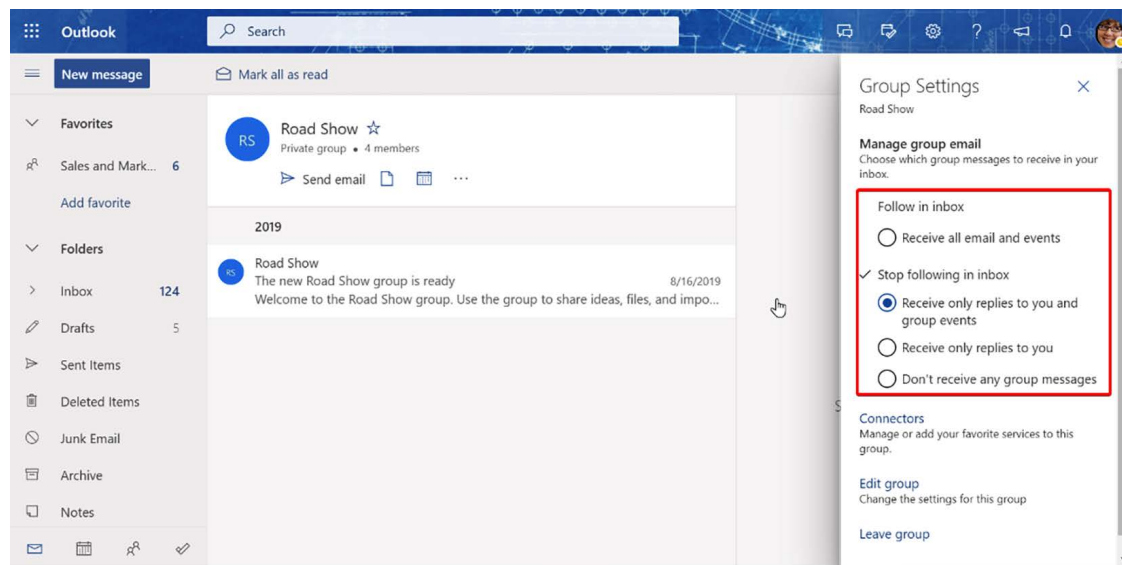
Figure 16.16: Group notifications

See also

- The *Deleting a group* recipe in this chapter
- *Manage ownerless Microsoft 365 groups and teams* – Microsoft 365 admin: `https://packt.link/ownerless-groups`

A group is of no use if it doesn't have members, so let's see how members can be added in the next recipe.

Adding members to a group

You can add members while creating a group or after the group is created. The members will gain access to all the group resources as soon as they are added. At times, you might need to invite members from outside your organization. Say you are organizing the staff Christmas party and you need to get input from a food vendor; you can invite them to the "Christmas Party" group so that they can participate in the conversations in the group. To add new members to the group, follow the instructions in this recipe.

Getting ready

In order to add additional members to the group, you need to be the **group owner**. With this role, you can also invite people from outside your organization (if your organization permits this). The external users will become part of your team and will have the same privileges as other members of the group.

How to do it...

You can add new members to the group while you are creating a new group. If the group has already been created, take the following steps:

1. Select the group and click on the number of members, as shown here:
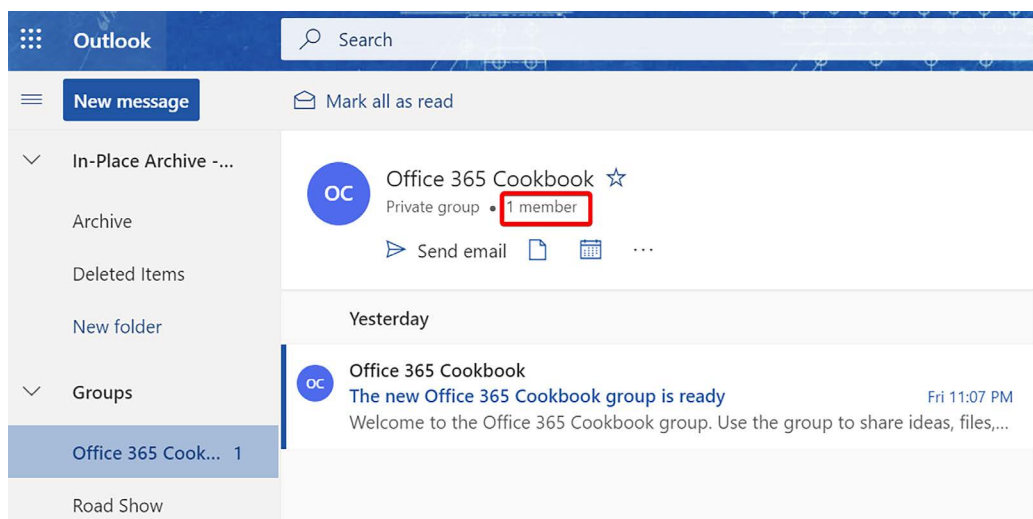
Figure 16.17: Add members to a group

2. The new screen lets you add new members by searching for them in the company directory, as in the following screenshot:
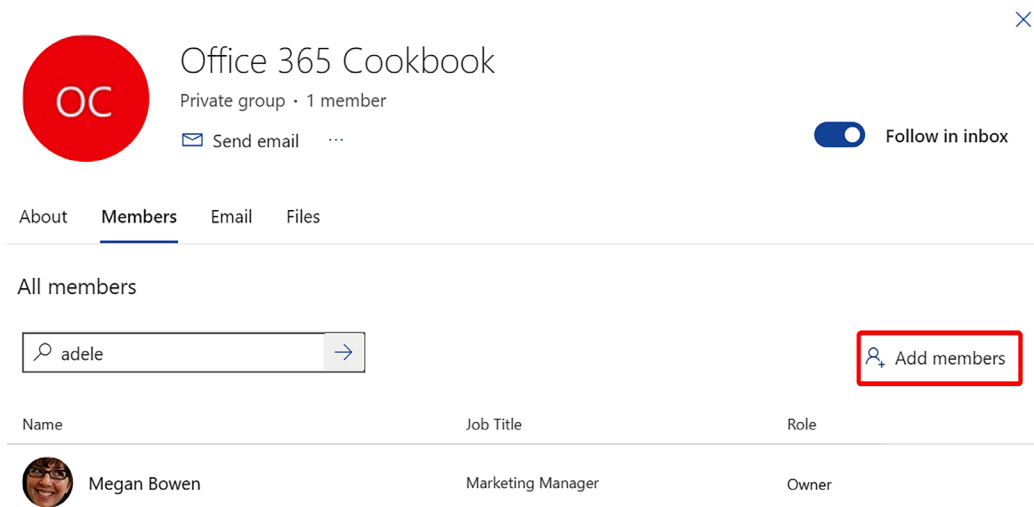
Figure 16.18: Search for users in the company directory

3. Clicking on **Add members** brings up a text box that lets you type in the email address of the team member.

4. When you start typing the email address, the text box displays suggestions from the company's active directory. To invite external users, type in their email addresses:
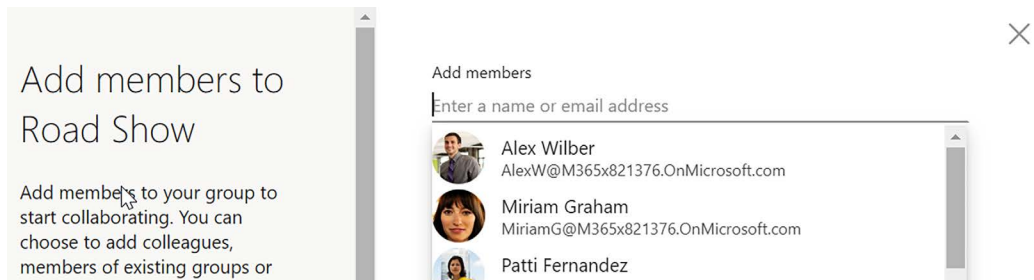
Figure 16.19: Add internal or external users to the group

5. When you select a member from the list, they get added to the group.

How it works...

Adding members grants them access to all the group resources. Microsoft 365 manages the permissions automatically for you.

> If you are adding external users, they receive an email at the email address that you provided. To log in to Microsoft 365, the user needs a Microsoft account. If the email address provided is a Microsoft account, the user can simply log in to Microsoft 365. If not, then the user is prompted to create a Microsoft account using the email.

See also

- The *Creating a group* recipe in this chapter
- The *Removing members from a group* recipe in this chapter

Having discussed how to add a user, in the next recipe we will see how you can remove users from a group.

Removing members from a group

If you think you no longer need any input from any of your group members, you can remove them from the group. To remove one or more members from a group, perform the following steps.

Getting ready

On order to remove members from the group, you need to be the **group owner**. Doing so will revoke their access to the group resources.

How to do it...

On Outlook Web Access, you can see all the Microsoft 365 Groups that you are part of in the lower left-hand side navigation section. You can remove members from the group by following these steps:

1. Select the group and click on the number of members:
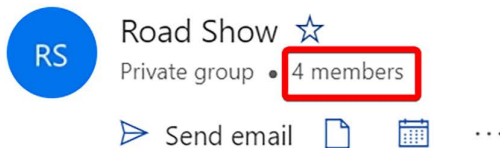
Figure 16.20: Select to see the members of the group

2.   Remove the user from the group by clicking the **X** icon, as shown here:
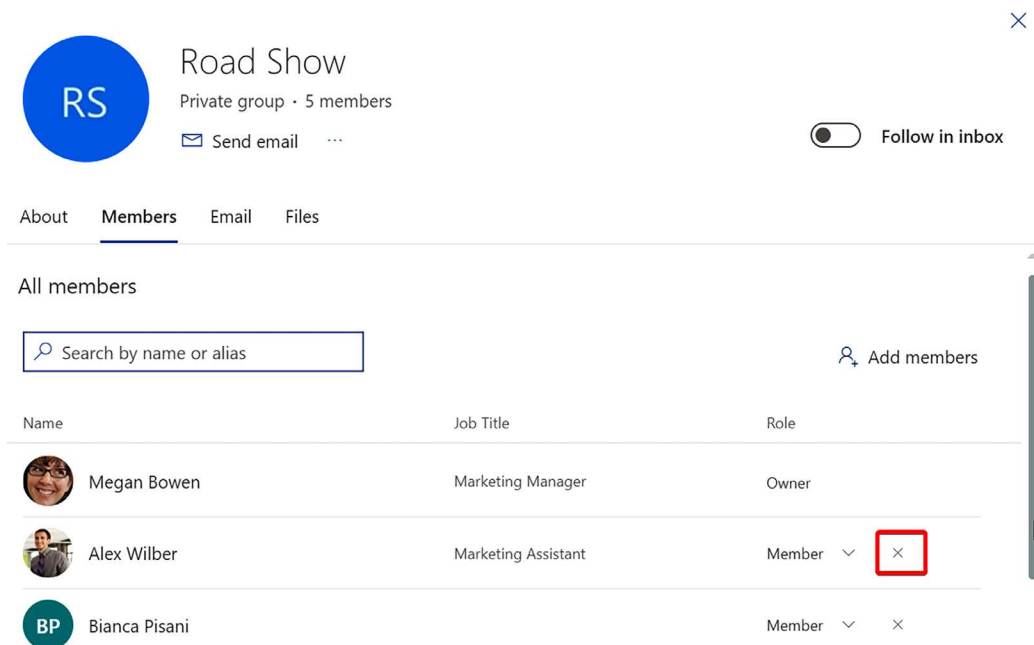
Figure 16.21: Remove members from a group

How it works...

Removing a member (which includes external users) revokes their access from all the group resources. Microsoft 365 manages the permissions automatically.

See also

*   The *Adding members to a group* recipe in this chapter

The group can communicate with each other via the shared mailbox. We will learn about this in the next recipe.

Having conversations

The conversation feature is powered by Exchange Online (the email service in Office 365). All your group emails arrive in the group mailbox, which can be accessed by everyone in the group. The conversation area displays all the group emails in one place and lets you respond from within the group interface.

Getting ready

You will have access to the conversation space if you are a group member. Users who are not members of the group can, however, send an email to the group's email address that will reach all members of the group.

How to do it...

On Outlook Web Access, you can see all the Microsoft 365 groups that you are part of in the lower left-hand side navigation section. To initiate a conversation, do the following:

1. Select the group and click **Send email**:
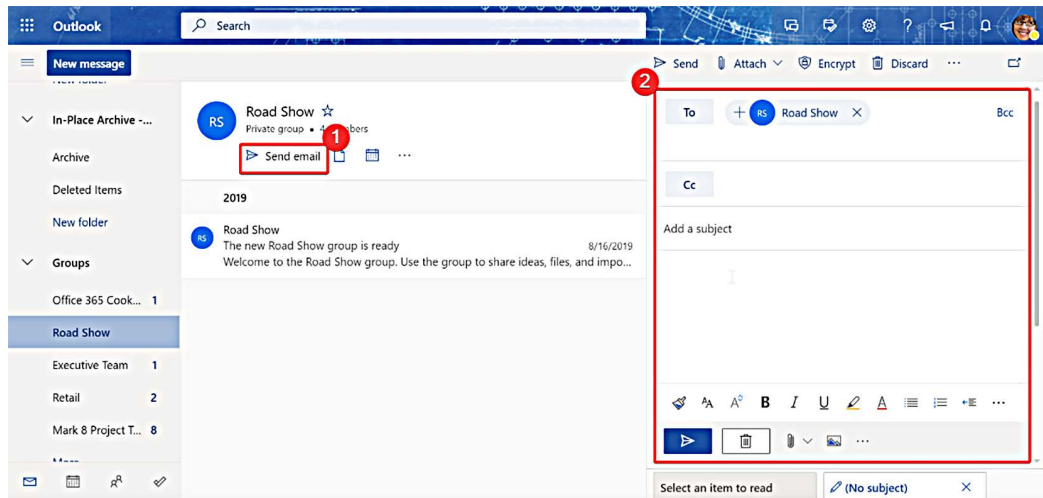
Figure 16.22: Send an email to the group

2. Type your message and press the **Send** icon.

How it works...

The conversation space is like a group mailbox, where everybody in the group can view all the conversations. All recent conversations appear at the top.

Conversations in a public group can be read and responded to by anyone in the organization. In the case of private groups, only group members can participate in conversations.

Conversations can include attachments, emojis, and rich text content. They also support **@mentions** to notify specific people of a message.

By default, conversations appear in the group's conversation area, but you can choose to receive conversations in your personal inbox by following the group, which can be done by clicking on the **Follow** icon in the group team site, as you can see in the following screenshot:
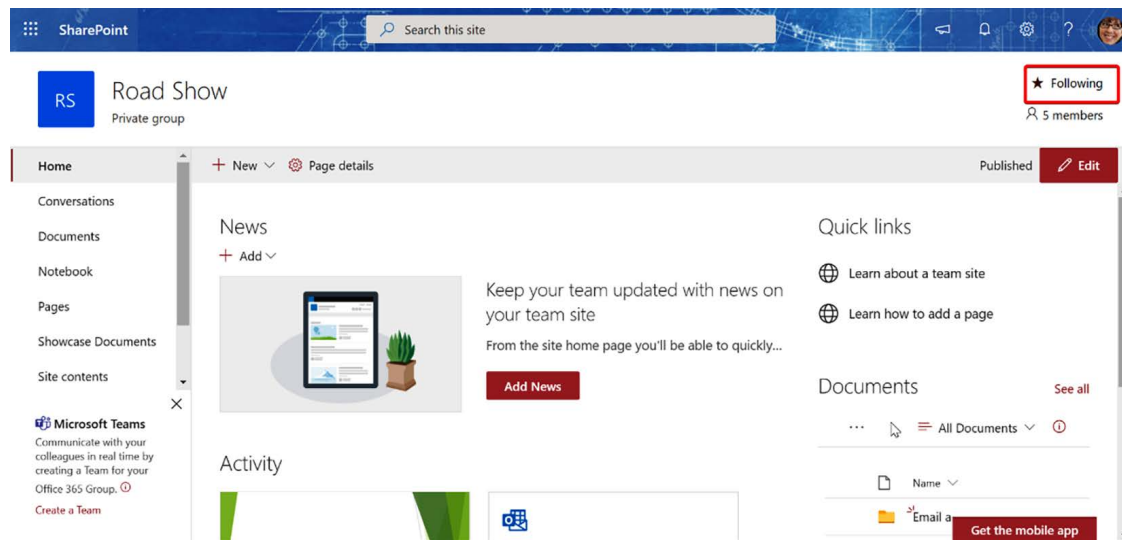
Figure 16.23: Follow a group

See also

- The *Booking meetings* recipe in this chapter
- The *Sharing files* recipe in this chapter
- The *Collaborating on a notebook* recipe in this chapter

In the next recipe, we will see how you can book meetings with team members.

Booking meetings

Sometimes, a situation requires all group members to come together to discuss their ideas. Meetings provide you with that platform. The meetings that you set appear in your calendar as a group meeting, alongside your personal meetings. The following are the instructions for how to book a group meeting.

Getting ready

You will have access to the group calendar if you are a group member. You can book group-specific meetings or group events using the group calendar.

How to do it...

On Outlook Web Access, you can see all the Microsoft 365 Groups that you are part of in the lower left-hand side navigation section. To book a meeting, follow these steps:

1. Select the group and click on the *Calendar* icon:
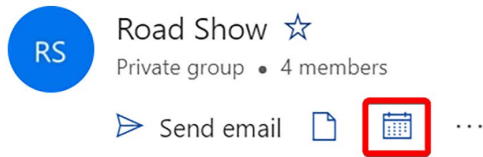
Figure 16.24: Access the group calendar

2. The screen will look as shown in the following screenshot:
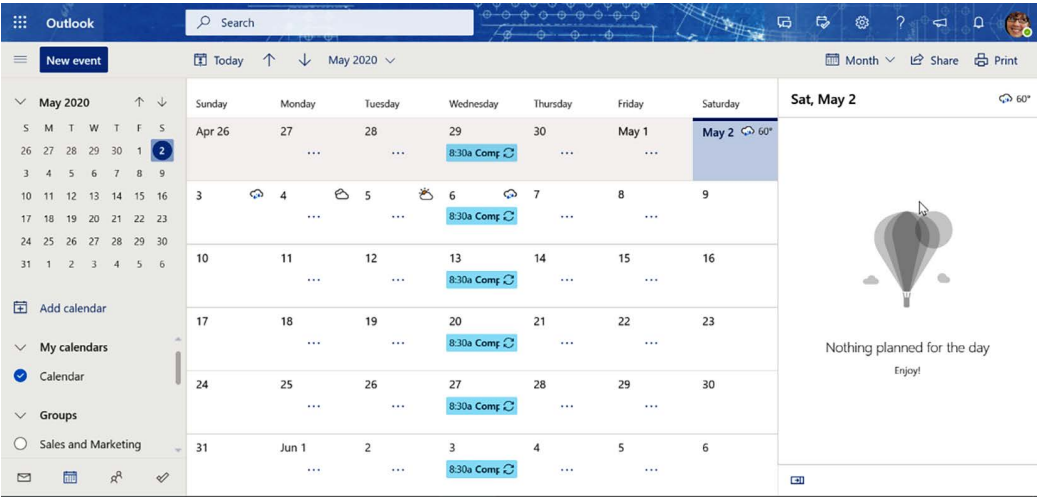
Figure 16.25: View the group calendar

3. To book a new meeting, click on the **New event** button on the top left of the screen. Specify the event information, including the following:

   - A title for the event
   - The event location
   - Participants
   - The start time
   - The end time
   - Recurrence
   - The meeting agenda

You can see these fields in the following screenshot:

Figure 16.26: Add group event

4. Once the fields have been filled in, click on the **Send** button to send the invite.

How it works...

The meeting created in the group's calendar appears when you select the group from the navigation pane:
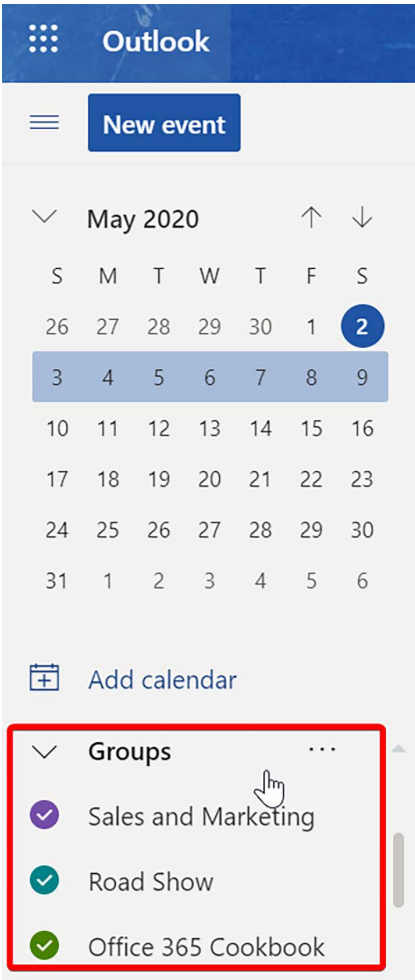
Figure 16.27: Shared group calendar

The meetings from all the selected groups are superimposed on top of each other but coded in different colors:
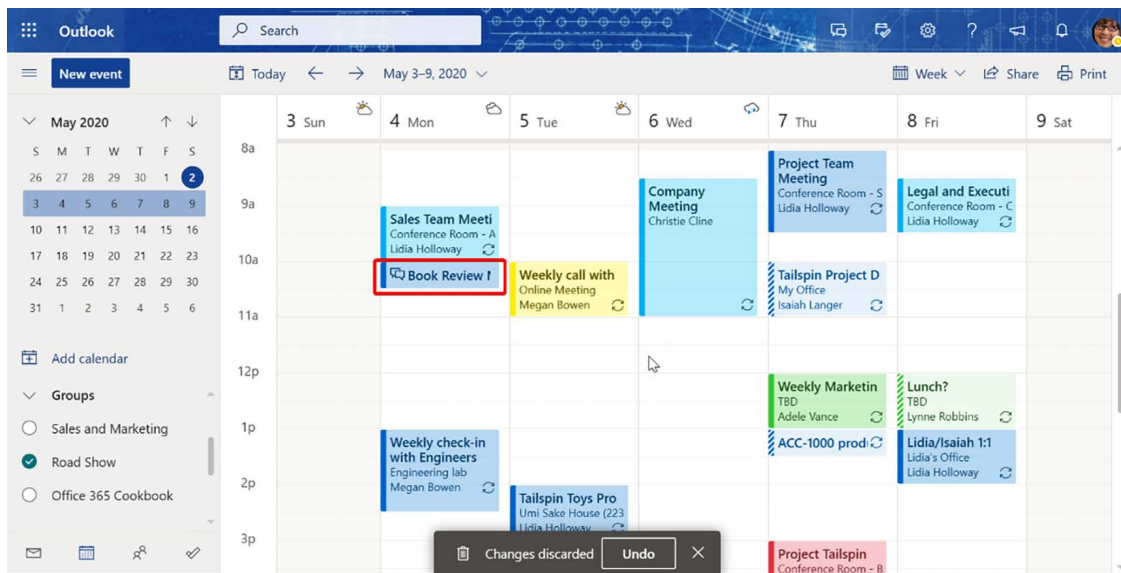
Figure 16.28: Multiple group calendars

You can change the view to take a wider or closer look at your schedule:
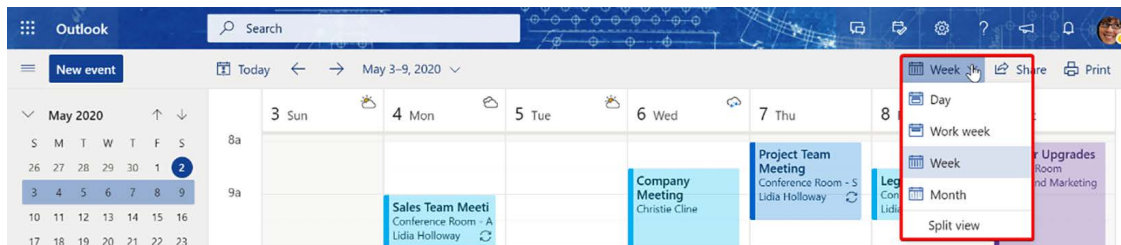
Figure 16.29: Change calendar view

See also

- The *Having conversations* recipe in this chapter
- The *Sharing files* recipe in this chapter
- The *Collaborating on a notebook* recipe in this chapter

A group needs to collaborate on documents from time to time. The next recipe shows how that is done.

Sharing files

Every group needs to collaborate by sharing digital assets. These can be images, documents, spreadsheets, or presentations. Uploading files to your group is always better than adding attachments to an email because email creates duplicate copies of the same file.

In a group, you can share files and maintain versions of the files when they are edited. You can also restore files if they are deleted by a member.

Getting ready

Every Microsoft 365 group has a SharePoint site associated with it. All the group files are saved in the SharePoint database in one or more document libraries. Every group member has "contribute" access to the files.

How to do it...

On Outlook Web Access, you can see all the Microsoft 365 groups that you are part of in the lower left-hand side navigation section. To share files, do the following:

1. Select the group and click on the **Files** icon. This displays all the files stored in SharePoint's default **Documents** library:
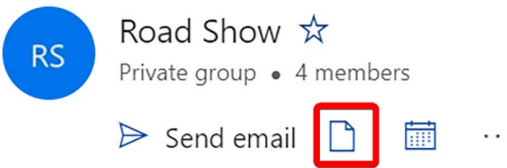
Figure 16.30: Access group files

2. To add a new Office document (Word, Excel, or PowerPoint), click on **New**:
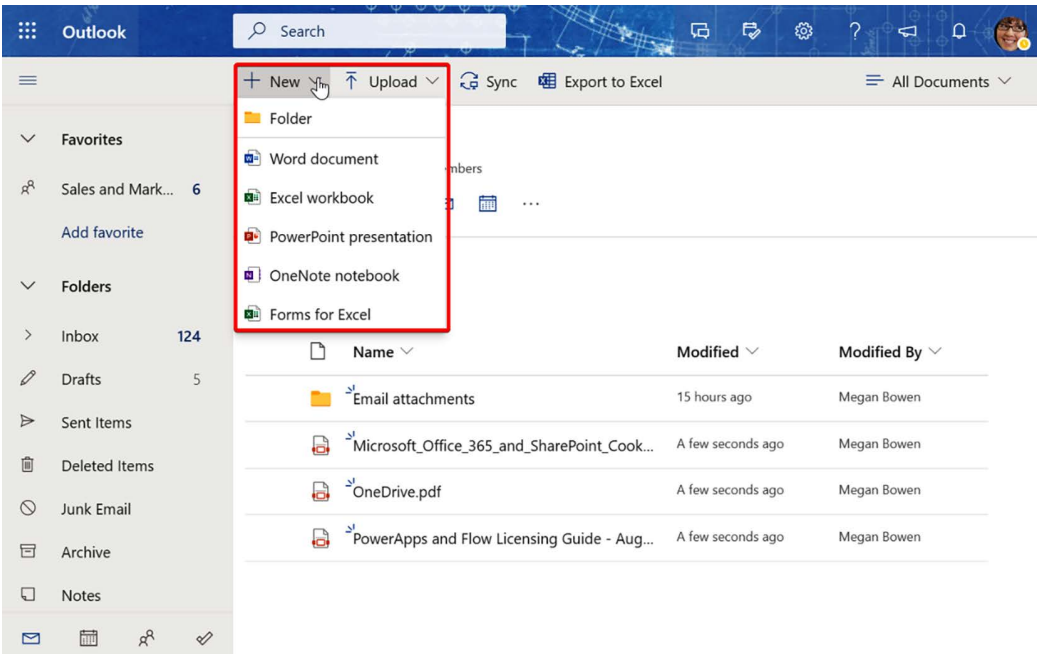
Figure 16.31: Add a file to the group repository

The new file will be created in the library.

3. You can also upload an existing document by clicking on the **Upload** option.

4. To download the file, click on it and then click on the **Download** option from the ribbon or the context menu:
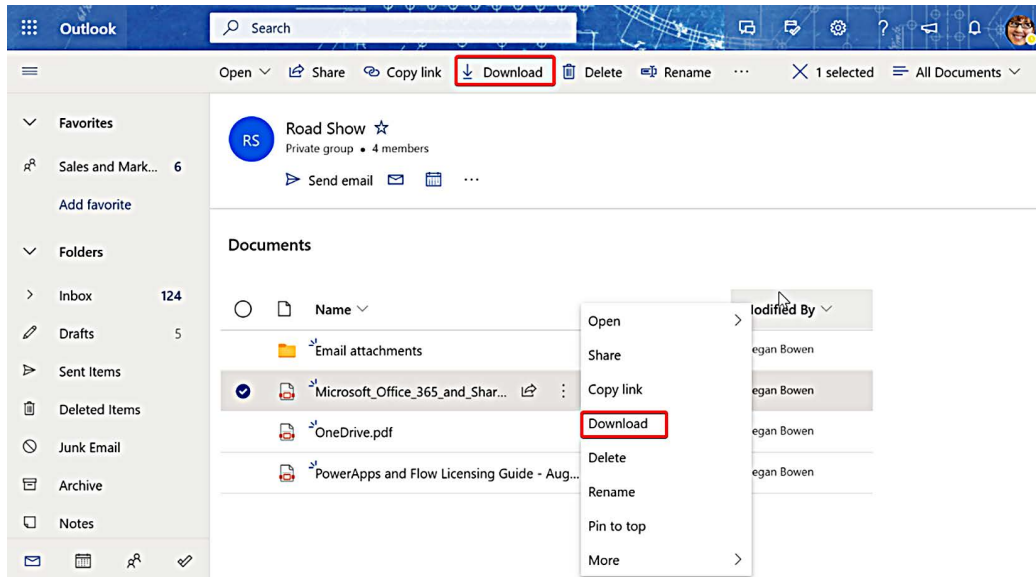
Figure 16.32: Download a file from the group repository

> Note that you cannot delete files using the *Files* tab from within a Microsoft 365 Group. These files can be deleted from SharePoint.

How it works...

File management in groups is limited when accessed from within the Microsoft 365 group. But the same files can also be accessed by going to the SharePoint site associated with the group. You can navigate to the SharePoint site by clicking on the **Site** menu option:
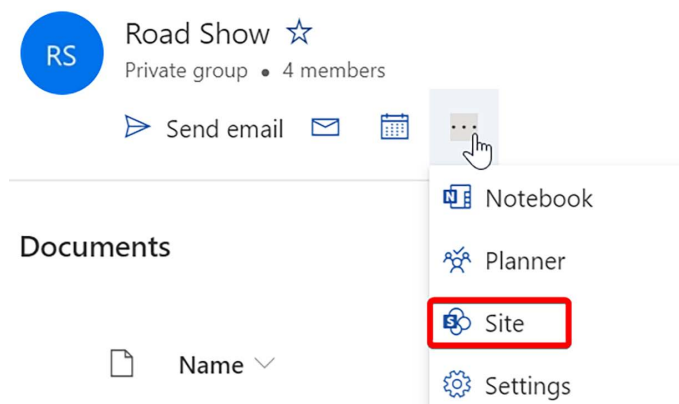
Figure 16.33: Access group site

By navigating to SharePoint, you will not only have access to the default documents library but you can also create additional libraries, not to mention the other benefits it provides, including but not limited to:

- Versioning
- Metadata
- The recycle bin

The following is a screenshot of a SharePoint landing page provisioned for the group:
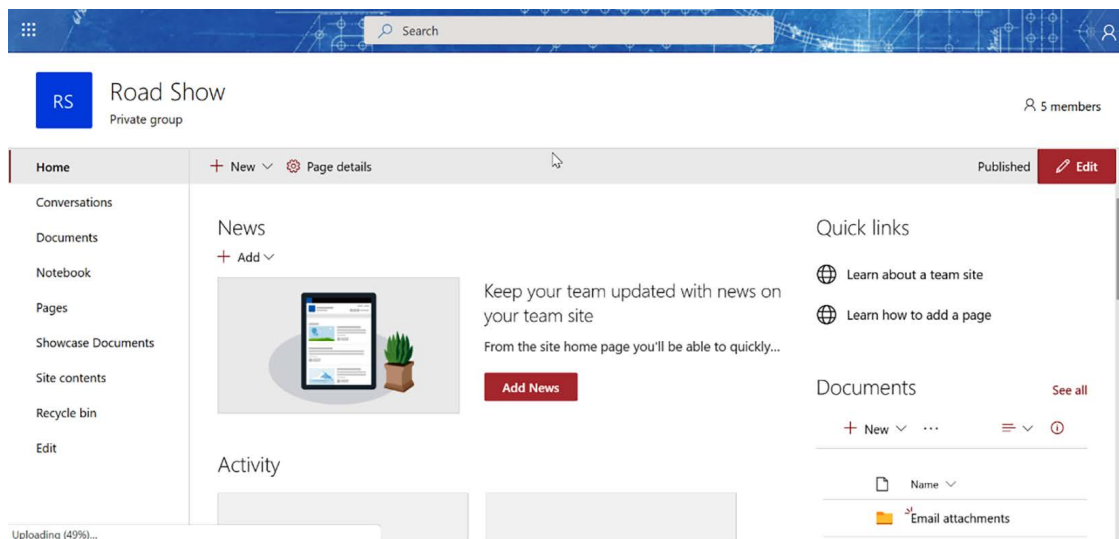
Figure 16.34: SharePoint landing page for the group

See also

- The *Viewing and editing documents in the browser* recipe in *Chapter 5*, *Document Management in SharePoint Online*
- The *Having conversations* recipe in this chapter
- The *Booking meetings* recipe in this chapter
- The *Collaborating on a notebook* recipe in this chapter

The next recipe demonstrates how you can collaborate on a shared notebook.

Collaborating on a notebook

Microsoft 365 provides a note-taking application to capture notes during meetings. OneNote lets you capture ideas in any form, including typed text, a link, an image, an embedded video, or even hand-written text. To collaborate on a writeup, follow the instructions in the next section.

Getting ready

In order to get access to a team notebook, you need to be a member of the Microsoft 365 group.

How to do it...

The notes in OneNote can be organized in pages and sections. You can think of sections as chapters in a book. Each section can contain several pages. You get a blank notebook, to begin with:
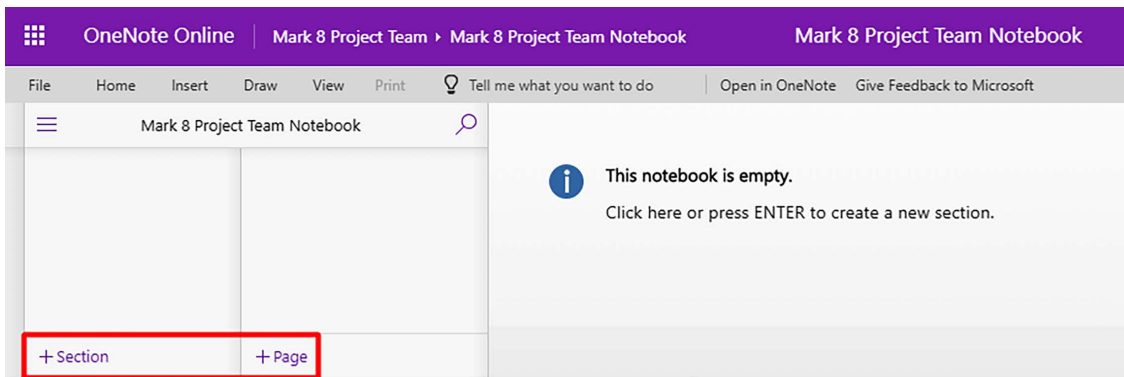
Figure 16.35: Shared OneNote for the group

1. To create a section, click on **+ Section** and give it a name.
2. To create a page, click on **+ Page** and give it a name.

3. To draw a picture, go to the **Draw** tab and select **Pen**. Use your mouse or a stylus pen (for touchscreen devices) to draw.

4. Switch to the text mode by selecting **Text** and type your notes.

5. Use formatting options, such as bullet points or to-do controls, accordingly:
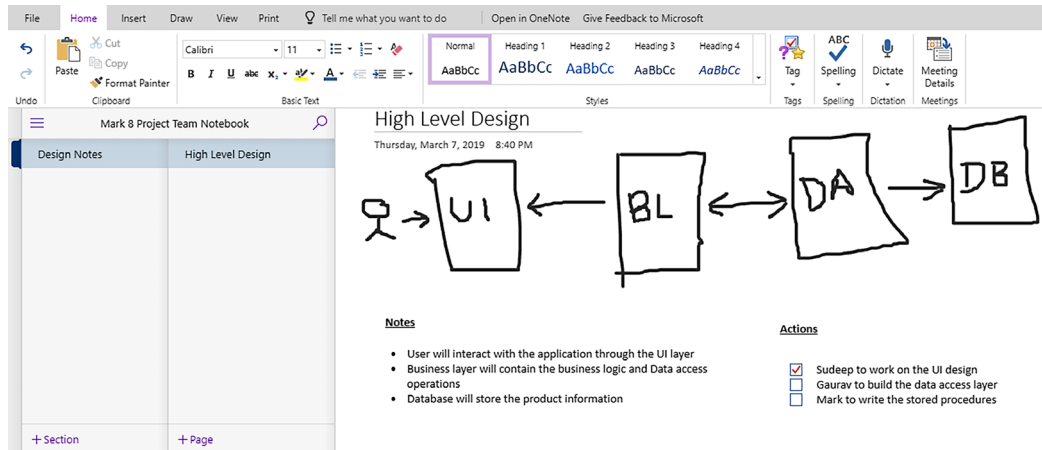
Figure 16.36: Working with OneNote

How it works...

OneNote lets you share your notebook with others. Anyone who has access to the notebook can see all the sections and pages. The Microsoft 365 group creates a notebook that the entire team can access. You can use this to capture, compile, and share minutes, thoughts, and ideas with your teammates. You can switch between your notebooks by clicking on the three lines as shown in the following screenshot:
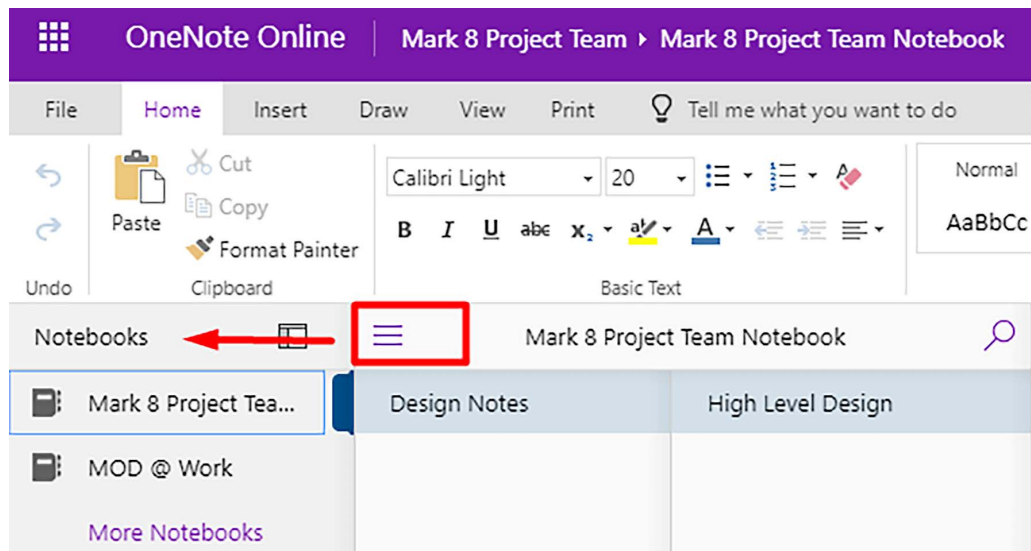
Figure 16.37: Access other notebooks

See also

- The *Having conversations* recipe in this chapter
- The *Booking meetings* recipe in this chapter
- The *Sharing files* recipe in this chapter

Learn more on Discord

To join the Discord community for this book – where you can share feedback, ask questions to the author, and learn about new releases – follow the QR code below:

```
https://packt.link/powerusers
```

17

Power Automate Desktop for RPA

Power Automate Desktop flows allow you to reduce bottlenecks and optimize efficiency by automating repetitive, manual tasks and processes. Typical Power Automate **cloud flows**, which are the type of flow we covered in *Chapter 8*, *Power Automate*, are cloud-based and can connect both on-premises and cloud resources through a registered machine. These flows can move data from an email to SharePoint, for example, without actually navigating to your email or SharePoint – the automation happens in the background. **Desktop flows**, however, use **Robotic Process Automation** (**RPA**) to mimic typical human-led actions such as navigating, mouse clicks, keystrokes, etc. So a desktop flow can navigate and search your emails, download attachments or copy content, and then navigate and place that content elsewhere.

Desktop flows start and run entirely on a machine (whether it's a personal machine or an unattended virtual desktop) and rather than primarily moving data between services and locations, they're meant to process and navigate as a human typically would. For example, desktop flows can replace repetitive copying and pasting, entering and submitting data from emails and attachments, navigating to websites and through file structures, etc.

In this chapter, we're going to cover the following main topics:

- Installing and launching Power Automate Desktop
- Creating an attended desktop flow
- Triggering a desktop flow from the cloud

Technical requirements

In this chapter, you'll need administrator rights on a machine to install Power Automate Desktop, and you'll need adequate Power Automate licensing to continue to use desktop flows beyond the initial trial period. If this is your first time using a trial, it's adequate to get you through this chapter. Note that interacting with a desktop flow from a cloud flow requires a Premium connector.

Power Automate Desktop can be installed using this direct link: `https://go.microsoft.com/fwlink/?linkid=2102613`

As noted in the recipes that follow, you'll also need a registered machine on which to run the flow(s) if not already installed for other Power Platform apps. One machine can run one or multiple flows. Learn more about registering machines for desktop flows at `https://learn.microsoft.com/en-us/power-automate/desktop-flows/manage-machines`.

Installing and launching Power Automate Desktop

In this recipe, we'll find where to begin using desktop flows via Power Automate (though you can also launch the Power Automate Desktop app from your start menu).

Getting ready

If you're running Windows 10, you'll first need to download Power Automate Desktop from `https://aka.ms/powerautomate-desktop` (more info and Microsoft Store installation) or directly via `https://go.microsoft.com/fwlink/?linkid=2102613`. If you're running Windows 11, it's already installed on your machine. You'll be prompted to sign in using your Microsoft 365 work or school account with appropriate licensing. This will allow you to create attended desktop flows that run as the logged-in user.

You may also wish to install or use Power Automate Desktop on unattended virtual desktops with service accounts, so be sure to sign in with that alternate credential when appropriate.

There are licensing requirements for using desktop flows – check the *How it works...* and *See also* sections for more information and a link to the current pricing. You can complete this recipe and experiment with desktop flows on a free trial basis for now if you've not already used a free trial.

How to do it...

1. Sign in to Power Automate (`https://flow.microsoft.com`).
2. Select **Create** from the left-hand navigation.
3. Choose **Desktop flow**.
4. Choose **Launch app**, as shown in *Figure 17.1*. If you're not running Windows 11 or don't have Power Automate Desktop installed already, you'll first need to download and install it. Begin by selecting **Download app** and completing installation:
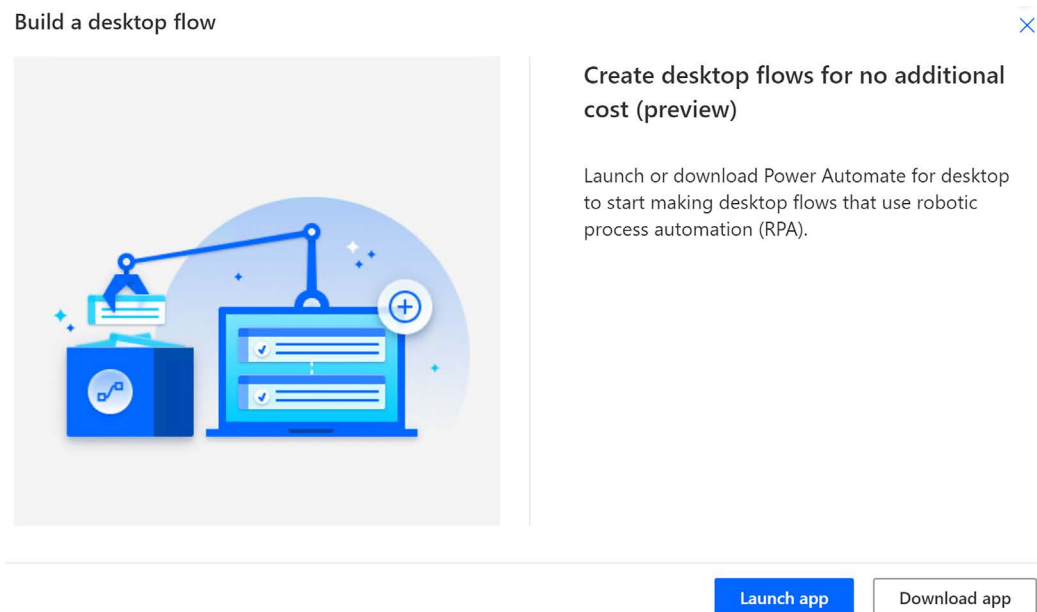
Figure 17.1: Build a desktop flow dialog in Power Automate

5. The Power Automate Desktop app will launch. It may install updates on its first usage.

6. Sign in when prompted, using your Microsoft 365 work or school account.

7. If prompted in your browser to install the Power Automate extension, turn it on in order to simplify building flows that use browser-based services and resources. *Figure 17.2* shows an example of this prompt when using Microsoft Edge:
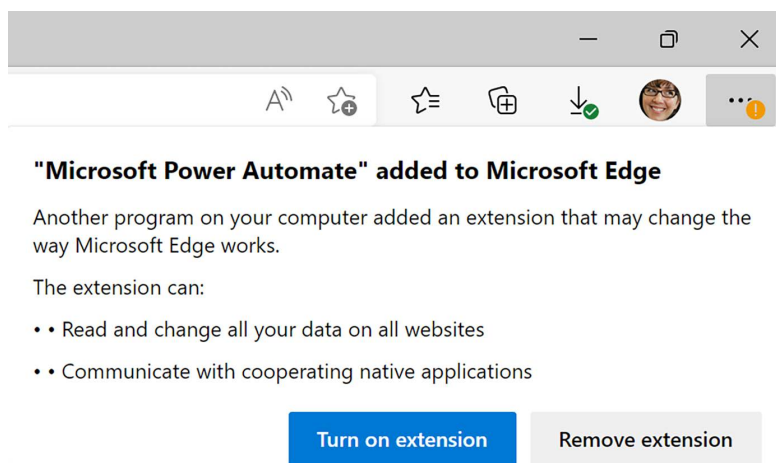
Figure 17.2: Extension installation prompt after launching Power Automate Desktop

8. On first run, Power Automate Desktop will need to establish your new Dataverse database to support your flows. *Figure 17.3* shows the wait screen. Wait for this to complete.

Setting up Dataverse...

Your new Dataverse database is being configured. This might take a while. Please check back later.

Figure 17.3: Dataverse setup screen when using Power Automate Desktop initially

9. Power Automate Desktop will now be ready to utilize.

How it works...

In this recipe, we've found and launched Power Automate Desktop for the first time. Once setup is completed, you'll see an app interface similar to what's shown in *Figure 17.4*, ready for your first desktop flow.
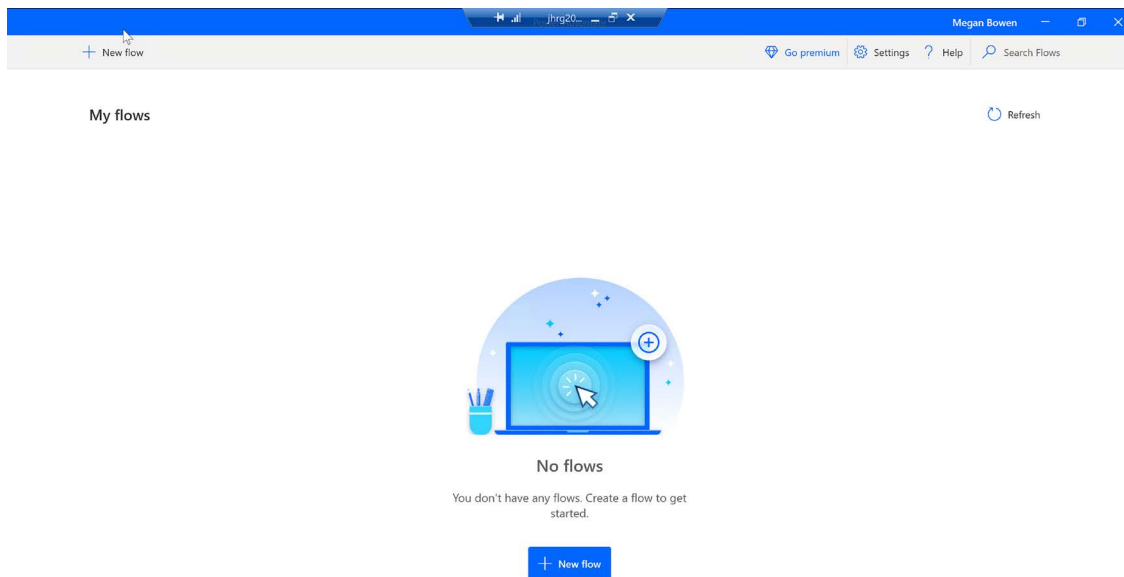
Figure 17.4: Initial app interface with no flows built in Power Automate Desktop

This recipe showed you how to set up for creating a desktop flow in a similar manner to how you'd begin building a cloud flow via the browser, but you don't have to navigate to the Power Automate website each time to begin building desktop flows. This recipe just shows you how your cloud and desktop flows can share a starting place in Power Automate if you're already there. Once you're building more desktop flows, it would make more sense to simply launch the Power Automate app from your start menu and begin building.

One thing to keep in mind as you begin using Power Automate Desktop flows at scale is that you'll likely encounter scenarios in which you'll utilize more than one environment. For example, you may develop desktop flows in a development environment (environment #1), then move reliable solutions to production (environment #2). Another scenario might be you have Dataverse data in an environment restricted to certain users, such as HR employees who can access HR data. You might build certain desktop flows there, rather than your organization's general environment, so that your flow can access the HR data located in the same environment. You can learn more about environments at `https://learn.microsoft.com/en-us/power-platform/admin/environments-overview`.

There's more...

Be sure to check out the latest pricing information to understand the add-on charges for desktop flows. You'll find pricing for **attended** desktop flows (likely on your own machine as you manually trigger a flow and watch it complete) and **unattended** desktop flows (likely on an unattended virtual desktop, running automatically without supervision or interaction). Each of these types (attended and unattended flows) has unique licensing that will need to be purchased separately if you intend to use both types.

There are trials available if you'd like to try the attended or unattended licensing for evaluation. As an administrator, go to the Microsoft 365 admin center, then select **Billing | Purchase services** and search for the product (attended or unattended RPA) you're interested in. There, you'll find a trial option, as shown in *Figure 17.5,* unless you've previously used one.
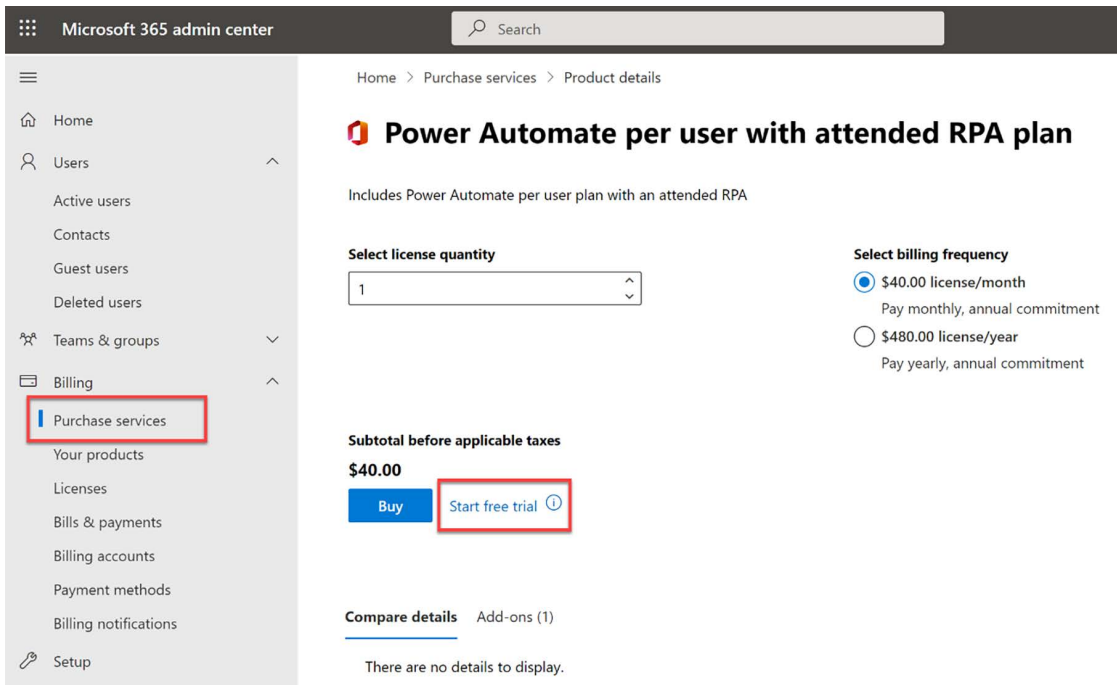
Figure 17.5: Trial option location for attended RPA licensing in the M365 admin center

See also

- Power Automate For Desktop: `https://powerautomate.microsoft.com/en-us/desktop/`
- Power Automate Desktop e-book with common usage scenarios: `https://go.microsoft.com/fwlink/?LinkId=2153655&clcid=0x409`
- Power Automate pricing and licensing: `https://powerautomate.microsoft.com/en-us/pricing/`

Creating an attended desktop flow

In this first recipe, we'll create a simple, attended desktop flow, meaning you'll manually trigger it and supervise (and potentially interact with) the flow as it runs on your machine.

Getting ready

You'll need Power Automate Desktop installed and set up on your machine.

How to do it...

1. Launch Power Automate on your machine.
2. Check the environment in which you're building the flow, noted in the upper-right corner. If you need to change it, simply select it.
3. Select **New flow**.
4. Search for app in the action panel and double-click **Run application** as shown in *Figure 17.6*.
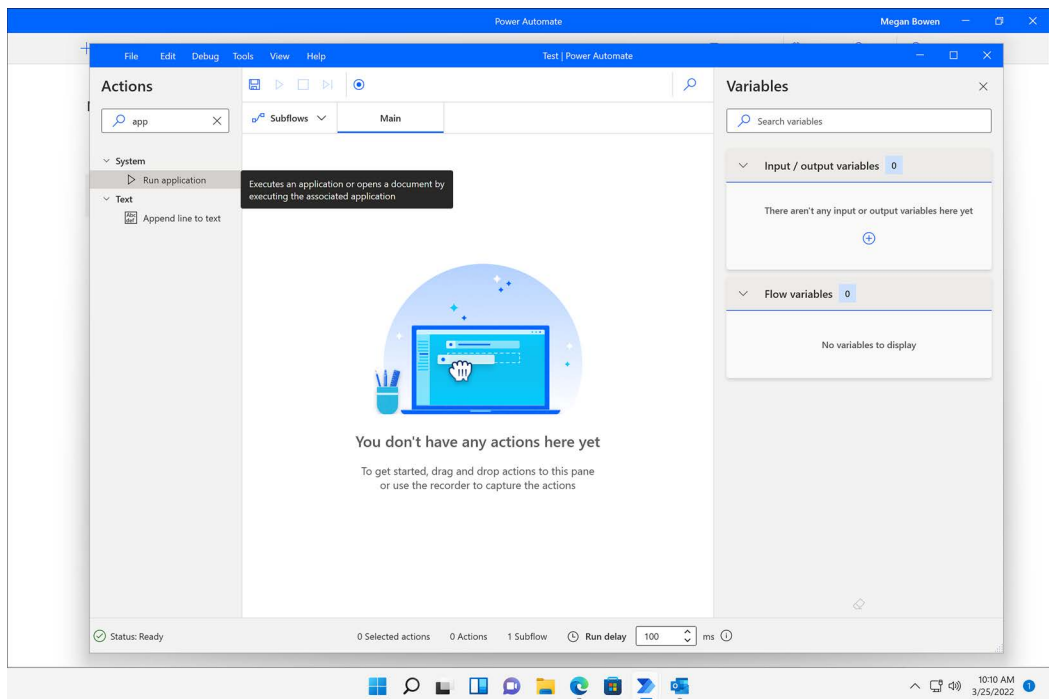
Figure 17.6: Run application action

5. Use the **Select file** icon for the **Application** path parameter of the **Run application** action, then search for an application you use regularly, such as your email application, an invoicing or client system, database, etc. The **Select file** and explorer windows are shown in *Figure 17.7*. We'll use Outlook in this recipe:
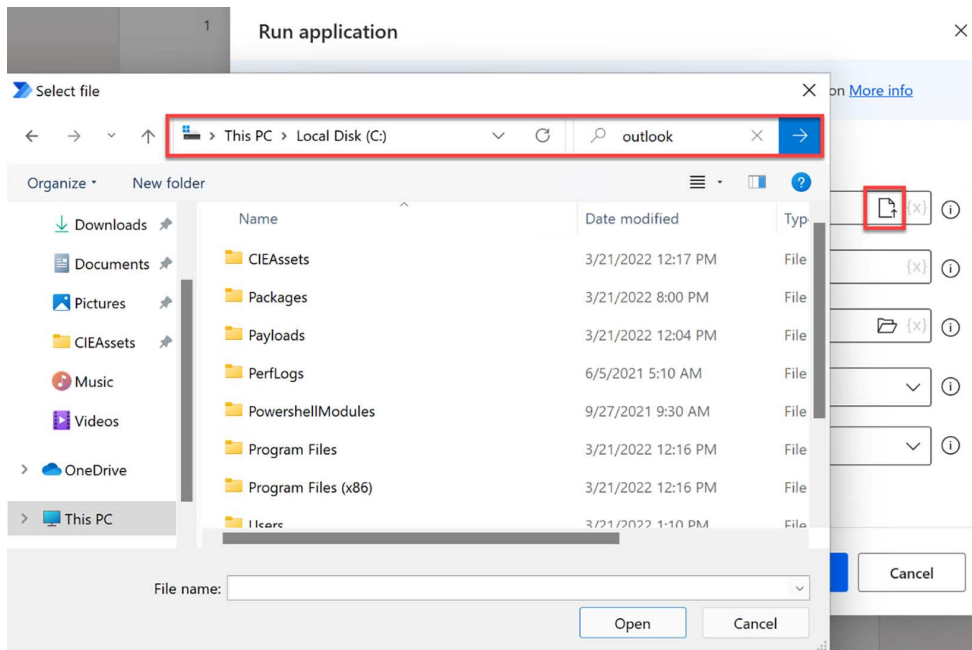
Figure 17.7: Run application Select file and explorer navigation options.

6. Select **Open** and **Save** once you've found the application file you'd like to launch.

7. Now select the **Record** button shown in *Figure 17.8* to record your individual actions and simplify building the flow. If you're using something other than Outlook, just start your recording and perform repetitive steps you'd usually do in that application. For this recipe, we'll email the latest update of a report to its stakeholders.
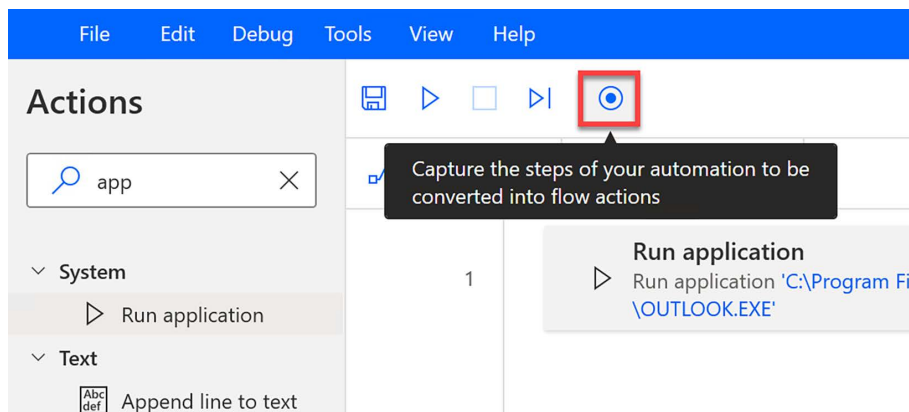
Figure 17.8: Record button for capturing mouse clicks, navigation, keystrokes, etc.

8. When you've finished recording, return to the recorder window and click **Finish**. Your steps will have auto-populated in Power Automate Desktop, as shown in *Figure 17.9*, where we've initiated an email and subject:
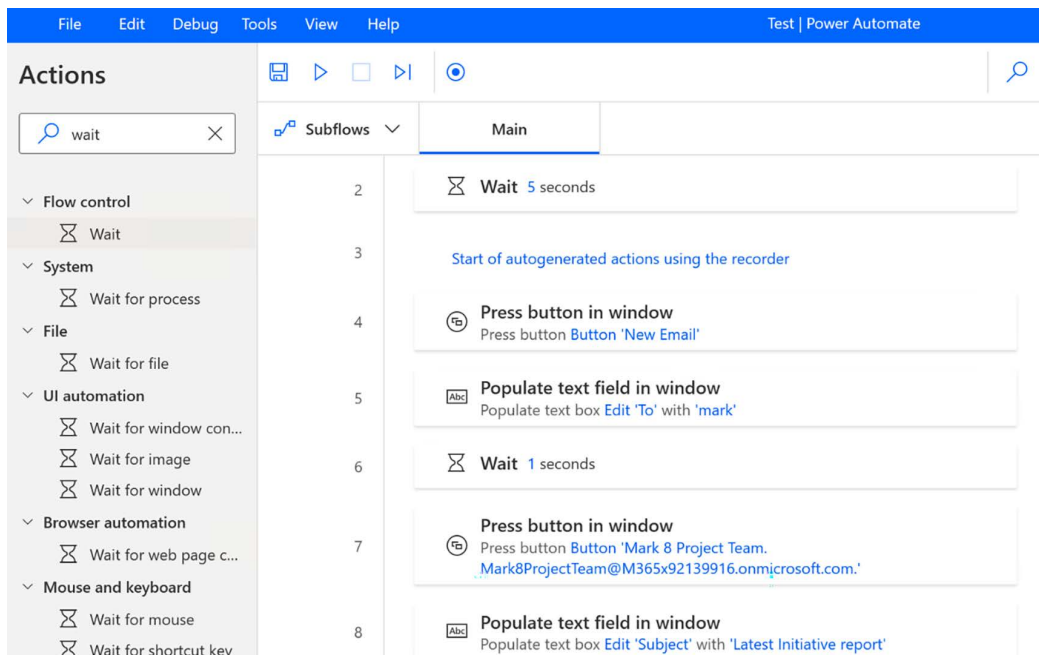
Figure 17.9: Autogenerated actions from using the Power Automate Desktop recorder.

9. You may need to manually insert **Wait** actions to have the flow wait for an app or dialog to load before proceeding.

10. Test your flow by selecting the **Play** button and making sure your flow works as expected.

11. Save your flow regularly.

How it works...

Desktop flows run a series of actions you specify when triggered. These can be mouse movements and clicks, data entry, information scraping, taking screenshots, building tables, etc. You can build a desktop flow by recording these human-led actions, or by building each action manually and intentionally in the low-code canvas designer.

See also

- Power Automate For Desktop: https://powerautomate.microsoft.com/en-us/desktop/
- Power Automate Desktop e-book with common usage scenarios: https://go.microsoft.com/fwlink/?LinkId=2153655&clcid=0x409
- Attended and unattended scenarios: https://docs.microsoft.com/en-us/power-automate/guidance/planning/attended-unattended

- Power Automate pricing and licensing: `https://powerautomate.microsoft.com/en-us/pricing/`

Triggering a desktop flow from the cloud

In this last recipe, we'll use the desktop flow we created previously and trigger it from a scheduled cloud flow so our desktop flow runs every week.

Getting ready

You'll need an existing Power Automate Desktop flow, a machine hosting the flow, and appropriate licensing (as desktop flows are a Premium connector in cloud flows). For this particular flow, the machine the desktop flow will run on must be powered on and signed in to or the run will fail. With that in mind, remember that some desktop flows may be better as unattended (and running on an always-on virtual desktop) as opposed to any individual person's machine.

Also, as mentioned earlier in this chapter, Dataverse is a prerequisite and it may have been set up for you during your first run. And since each Power Automate environment can have its own database, you may need to configure additional environments as needed to best support your specific flows and ensure they have access to the right data and resources (and are accessible to the appropriate users).

How to do it...

1. Sign in to Power Automate (`https://flow.microsoft.com`).
2. Select **Create** on the left navigation menu and choose **Scheduled cloud flow** as the trigger type.
3. Specify a frequency, such as once weekly, name your flow, and click **Create**.
4. Select **New step** to add an action.

5. Search for and select **Run a flow built with Power Automate for desktop:**
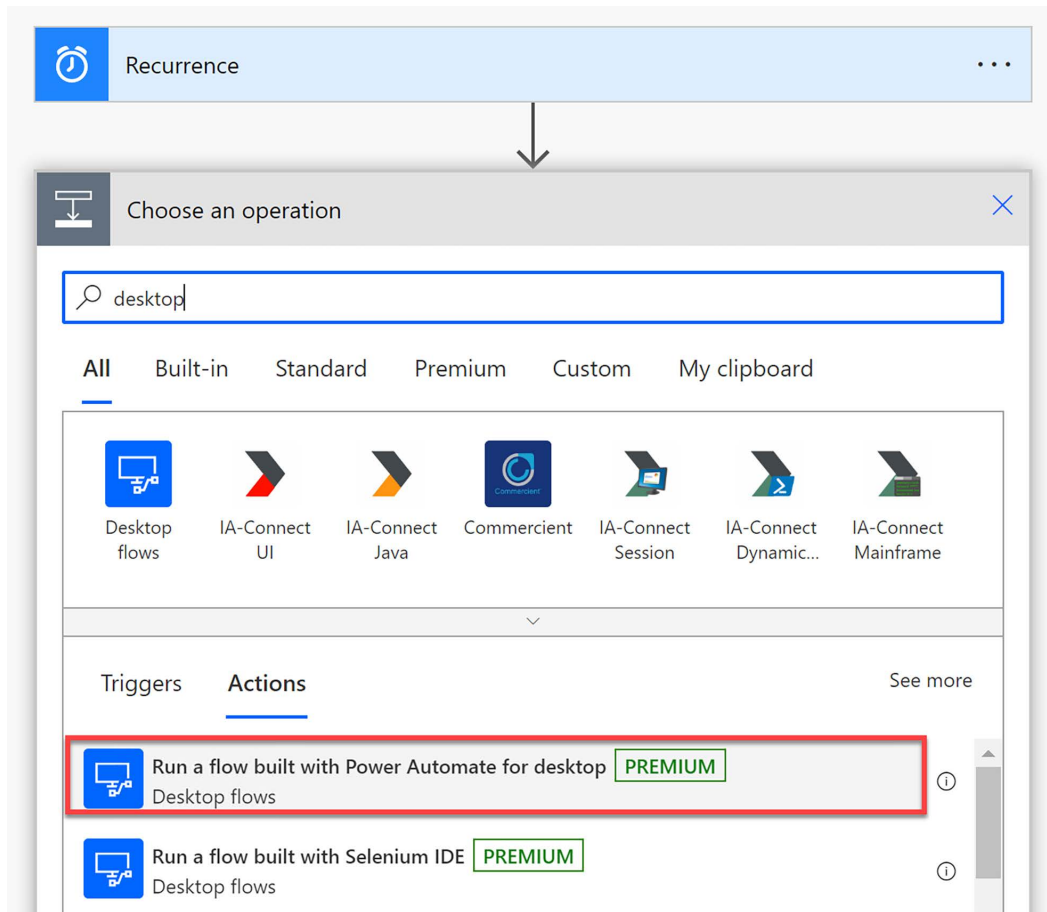
Figure 17.10: Desktop flow run action in Power Automate cloud flows.

6. For **Connect**, select **Directly to machine**, then choose the machine or machine group.
7. Specify authentication to the selected machine.

> In **Attended** mode, the selected user account must be logged in on the target machine. In **Unattended** mode, no active session must be active on the target machine.

8. Select the desktop flow to be run on the target machine.

9. Select the run mode (attended or unattended).

10. Click **Create**.

11. Save and test your flow.

How it works...

There are several pre-requisites to being able to trigger a desktop flow from a cloud flow. The most important of these is, of course, licensing. You'll need licensing to run attended flows as well as to use the premium **Desktop flows** connector in a cloud flow. You'll also need to register a machine if you don't already have one on, from which you'll be running the flow.

Remember that attended desktop flows are initiated and supervised by a human and can sometimes require interaction. Unattended desktop flows run in the background, fully automated, and typically on an unattended virtual desktop utilizing a service account for authentication to relevant resources and services. We can, however, combine an attended desktop flow with cloud triggers (manual, automated, or scheduled) to maximize the potential of being able to utilize these flows at optimal times as long as the machine with the flow is active.

Once all prerequisites are in place, you'll be able to combine the convenience of automated, manual, and scheduled cloud flows with the desktop automation you've built. For example, you could have a desktop flow run on a weekly basis to update a SharePoint list with information received via email. Or you can extract the latest blog posts from a website and send those to your team. The possibilities are truly endless.

See also

- Power Automate For Desktop: `https://powerautomate.microsoft.com/en-us/desktop/`
- Power Automate Desktop e-book with common usage scenarios: `https://go.microsoft.com/fwlink/?LinkId=2153655&clcid=0x409`
- Attended and unattended scenarios: `https://docs.microsoft.com/en-us/power-automate/guidance/planning/attended-unattended`
- Power Automate pricing and licensing: `https://powerautomate.microsoft.com/en-us/pricing/`
- Learn about Power Automate environments: `https://learn.microsoft.com/en-us/power-platform/admin/environments-overview`
- Learn how to register and manage machines: `https://docs.microsoft.com/en-us/power-automate/desktop-flows/manage-machines`

18

Copilot Studio (Power Virtual Agents)

Power Virtual Agents (**PVA**) is a **Software-as-a-Service** (**SaaS**) for building smart bots that can answer queries from your customers round the clock. You can design bots by simply using a guided, no-code graphical interface.

Microsoft has also set up an alternative service called **Azure Bot Service** that lets you build intelligent, enterprise-grade bots. This uses the **Bot Framework** to build bots that range from simple Q&A bots to sophisticated virtual assistants. The Bot Framework, along with other Azure services such as Cognitive Services, gives you the ability to speak, listen, understand, and learn from your users.

However, building and publishing bots using the Bot Framework requires developer know-how. You need to write lines of code to build a bot and deploy it. You also must plan ongoing support to maintain the code in the future.

Using a code-based method poses another challenge. While testing the bot, every time you find an issue, the bot has to go through a development cycle. This slows down the delivery process.

Creating bots with PVA, on the other hand, is easy and requires no development knowledge. It lets the subject matter experts build bots without requiring a developer. You can build bots and test them using a conversational UI in a matter of minutes without writing a single line of code. Furthermore, Power Virtual Agents comes with a testing console that allows citizen developers to test the bot's logic in the development cycle, leading to a quicker delivery process.

Someone who has experience in using Power Automate can take the bot to an even higher level by integrating the bot with flows, thereby adding extra functionality.

The choice between using PVA or the Bot Framework depends on your specific requirements and your level of expertise. Here are some considerations for each:

Power Virtual Agents (PVA):

- Ease of use: PVA is designed for users who may not have extensive programming or development experience. It offers a low-code/no-code environment, making it accessible to a wide range of users, including business users and subject matter experts.

- Pre-built templates: PVA provides a range of pre-built bot templates that can be customized for common use cases, such as customer support, HR inquiries, and more. This can save you time and effort in getting started.

- Integration with Microsoft products: If your organization primarily uses Microsoft products and services, PVA offers seamless integration with services like Microsoft Teams, Power Automate, and more.

- Conversation design: PVA simplifies the process of designing conversational flows and bot responses, making it easy for non-technical users to create and manage bots.

- Scalability: While PVA is great for smaller to medium-sized bot projects, it may have some limitations when it comes to very complex or highly customized bot solutions.

Bot Framework:

- Customization: If you need a highly customized and complex bot with specific functionalities, the Bot Framework allows you to have full control over the development process. You can write code in multiple programming languages.

- Multi-platform: The Bot Framework is platform-agnostic and can be used to build bots for various messaging platforms, not just Microsoft products.

- Integration flexibility: It provides more extensive options for integrating with a wide range of APIs, databases, and external systems.

- Advanced scenarios: If your use case involves advanced AI and machine learning scenarios, or if you need to build bots with specific, unique capabilities, the Bot Framework offers more advanced development capabilities.

In summary, consider using PVA if you want a user-friendly, quick-to-deploy solution that integrates well with Microsoft's ecosystem. It's a great choice for straightforward and common bot use cases. On the other hand, choose the Bot Framework if you require a highly customized, advanced, and platform-agnostic solution with extensive integration and development options. Your decision should be based on the complexity and specific requirements of your bot project, as well as the skillset of your development team.

In this chapter, we'll cover the following recipes:

- PVA versus Copilot Studio
- Creating a bot
- Creating a topic
- Testing a bot
- Building a bot using Copilot
- Deploying a bot

Let's get started!

PVA versus Copilot Studio

Copilot Studio is a low-code comprehensive conversational AI solution that unlocks new Copilot capabilities, going further than Copilot's integration into PVA. It allows you to connect Copilot to your data using pre-built or custom plugins and GPTs (more on that was covered in *Chapter 12*, *Overview of Copilot in Microsoft 365 and Power Platform*) with which you can create workflows and manage several instances of Copilot in one central place. One of the forms of Copilot that we covered in *Chapter 12* was **Copilot for Microsoft 365** – in Copilot Studio, you can customize this form of Copilot to provide tailored responses and workflows for unique scenarios.

Power Virtual Agents, on the other hand, is a chatbot development platform that enables you to create custom chatbots without writing any code. It offers extensibility through plugins and allows for creating custom Copilot instances. As we'll see, you can create chatbots with Copilot in PVA. However, it is not as comprehensive as Copilot Studio.

This chapter was written before the launch of Copilot Studio, so by the time of reading there will likely have been new developments in the field. Like all of Microsoft's Copilot offerings, Copilot Studio is a very new technology. As a result, it will develop rapidly and change from month to month. Because of this instability regarding minute details that are important when following instructions we are only tentatively including recipes that use it.

Creating a bot

Building a bot for your business is not universally necessary but can offer substantial advantages based on your needs. Bots can enhance customer support, automate tasks, and scale operations. They aid in lead generation and data collection, and can set you apart in competitive markets. Ensure you carefully assess your business goals, budget, and customer expectations. Well-implemented bots can improve efficiency and user experience, but should be approached thoughtfully for maximum benefits.

Let's see what it takes to build a new bot. We are going to build a bot that helps our users register themselves for a course. This recipe will demonstrate how you can use the Power Virtual Agents designer to take the first steps in building a bot in a given Power Platform environment.

Getting ready

You will need a Power Virtual Agents license to complete this recipe. Alternatively, you can sign up for a trial by visiting `https://packt.link/PVA-Copilot-Studio-Trial`.

How to do it...

Follow these steps to complete this recipe:

1. Go to `https://powerva.microsoft.com/` and sign in with your organization account.
2. If you do not have a license, sign up for a trial.

3. In the **Create a new bot** dialog box, enter a name for your bot. Let's name it `Course Selector`.

4. Select **Create** to initiate the bot-building process.

5. If you have already created one bot and want to create another, click on the bot icon at the top and click **New bot:**
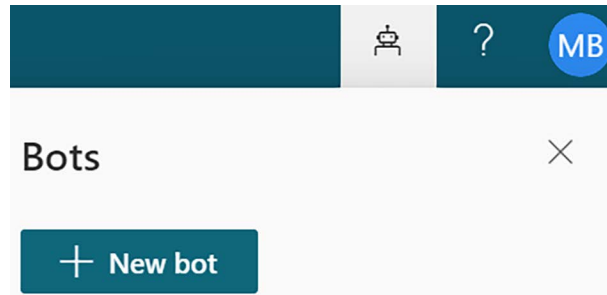
Figure 18.1: Appearance and location of the bot icon

It can take up to 15 minutes to create the first bot; subsequent bots take less time. You will see the following screen when the building process is over:
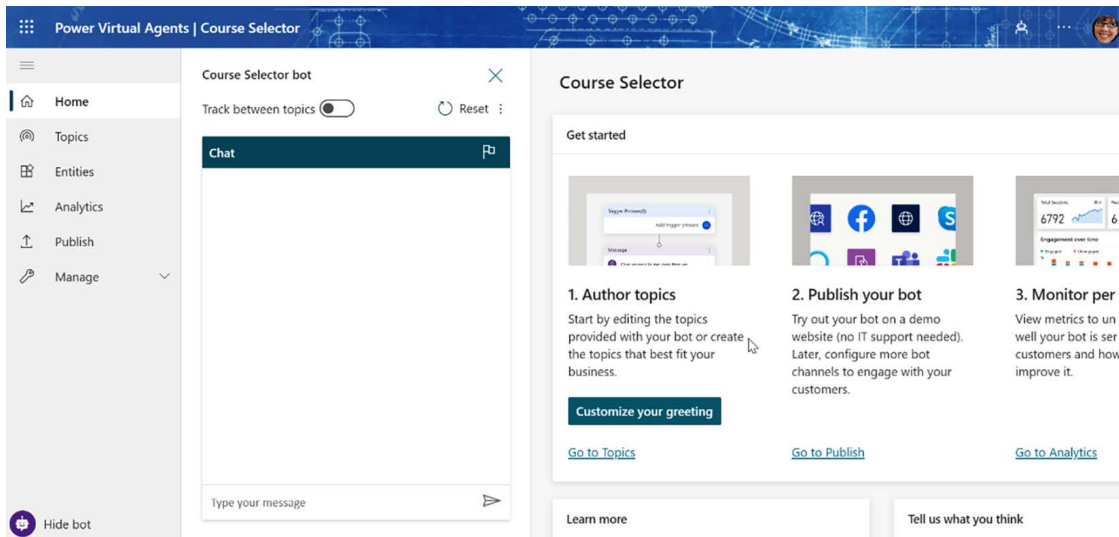
Figure 18.2: UI after the bot creation process is finished

How it works...

By default, the bot gets provisioned in your default environment. You can change the environment during the provisioning process by selecting a particular environment, as shown in the following screenshot:
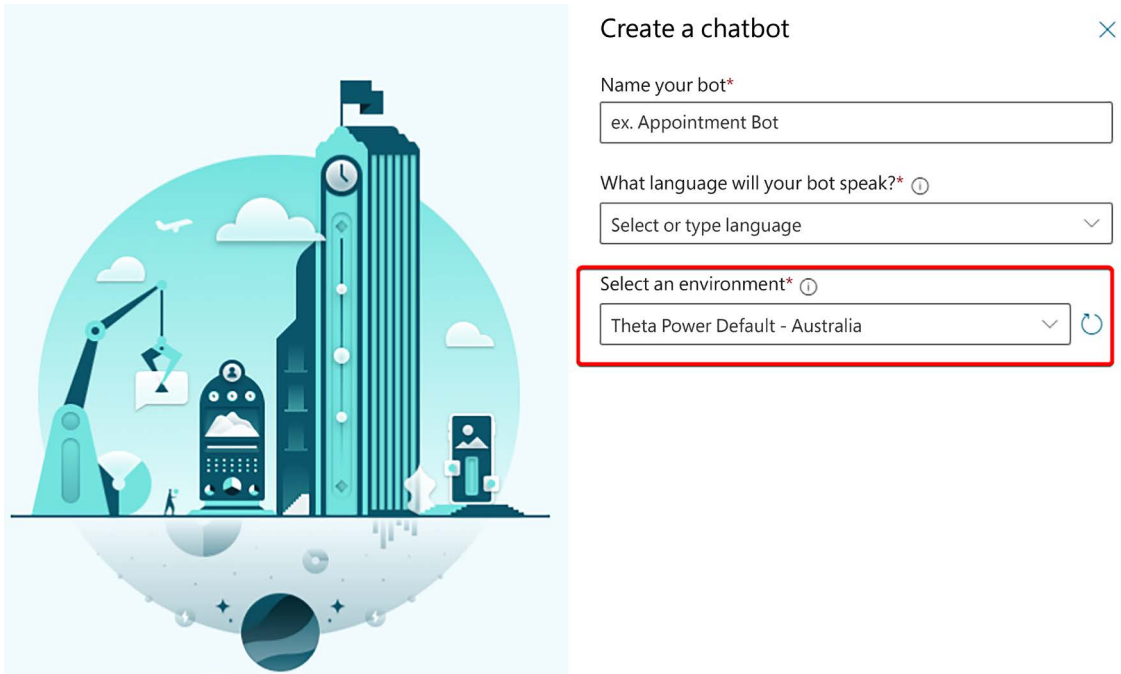
Figure 18.3: Choosing an environment while provisioning a bot

If you don't see all your environments listed in the drop-down menu, this is probably because you do not have access to the environment.

If you encounter an error saying **You do not have permissions to any environments**, you should get access from an administrator, as you will need to create a new environment and use that environment to create your bot.

See also

- The *Creating a solution* recipe in *Chapter 8*, *Power Automate* (*Microsoft Flow*), to read more about environments
- Quotas, limits, app registration, certificates, and configuration values – Power Virtual Agents | Microsoft Learn: `https://packt.link/PVA-Copilot-Studio-requirements`
- Overview of Power Virtual Agents – Power Virtual Agents | Microsoft Learn: `https://packt.link/PVA-Copilot-Studio-portal-overview`

Creating a topic

In Power Virtual Agents, a **topic** defines how the bot communicates. A topic is an individual process that has a trigger and one or more branches. It is a fundamental concept used to organize and manage the conversational flow and content of a chatbot. Each topic is essentially a container for a specific task, scenario, or area of conversation

When you create a bot, you will see that some topics are available by default. A bot comes with four default user topics and eight default system topics. You can edit both topic types in the same way that you create them, but you cannot delete them:
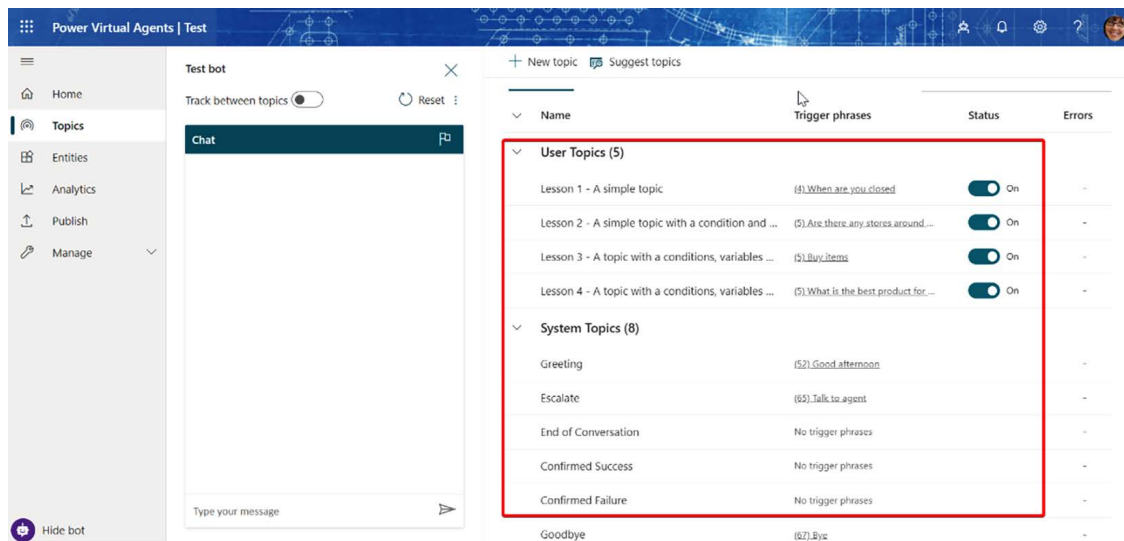
Figure 18.4: Default topics for your bot

A bot will execute a specific topic based on what the user types. A topic has several **trigger phrases**. These **phrases** are the questions or keywords that the user is likely to type. The bot uses **Natural Language Understanding** (**NLU**) to interpret what a customer wants to know. For example, the topic shown in the following screenshot gets triggered if the user types one of the phrases provided:
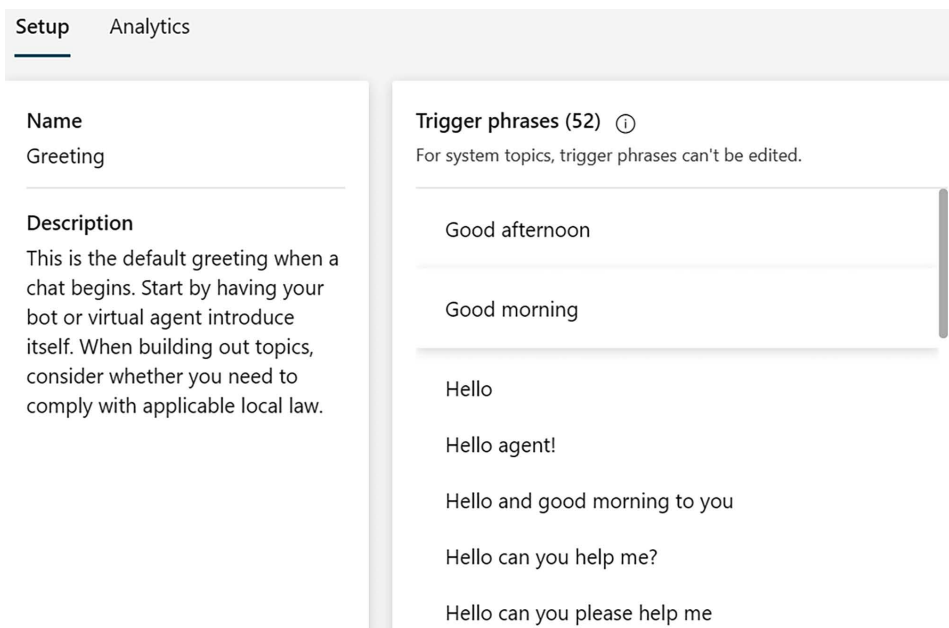
Figure 18.5: Bot trigger phases for the Greeting topic

Getting ready

You will need a Power Virtual Agents license to complete this recipe. Alternatively, you can sign up for a trial by visiting `https://packt.link/PVA-Copilot-Studio-Trial`.

How to do it...

Follow these steps to complete this recipe:

1. Go to `https://powerva.microsoft.com/` and sign in with your organization account.
2. If you do not have a license, sign up for a trial.
3. Click on the link that says **Topics**, as shown in the following screenshot:
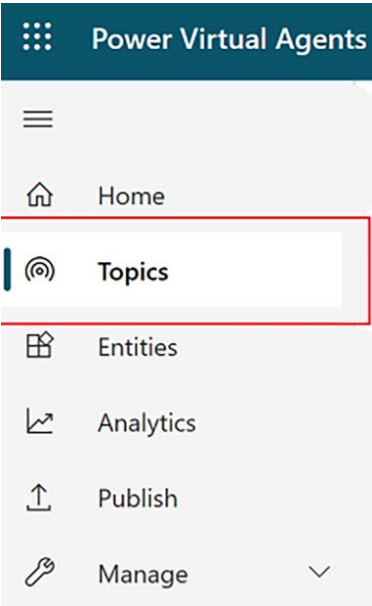
Figure 18.6: Accessing the topic creation page

4. To create a new topic, click + **New topic**:
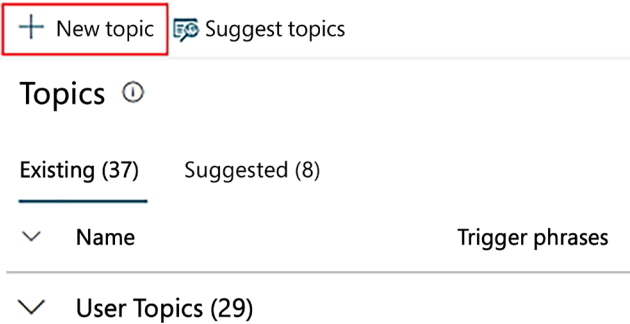
Figure 18.7: Creating a new topic

5. Name the new topic `Course Topic` and add the following phrases to it:
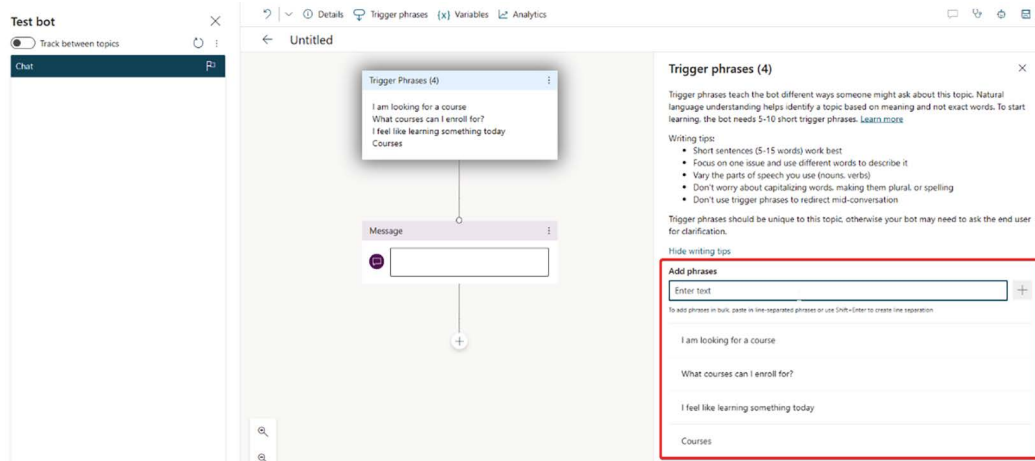
Figure 18.8: Topic setup page

6. Click **Save topic** to add the topic to the **Topics** list.

7. Click on the **Go to authoring** canvas to build the logic behind the topic.

8. The authoring canvas displays the topic trigger phrases with a **message** node. Click on the (+) icon to add a node:
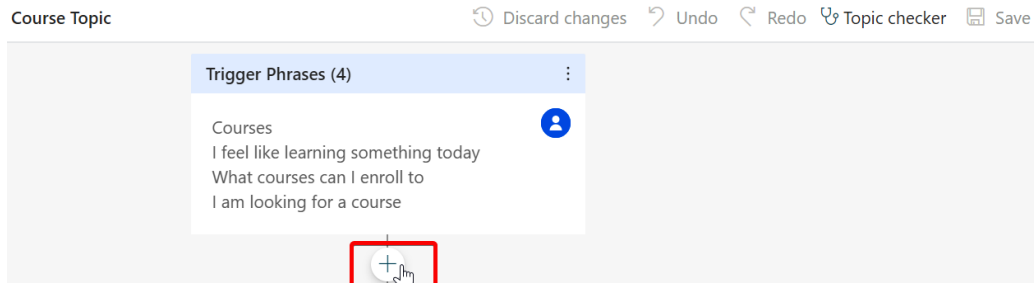
Figure 18.9: Adding phrases to a topic

9. When adding a node, you can choose from five options, as shown in the following screenshot:
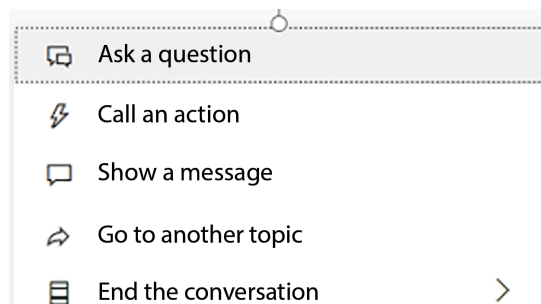
Figure 18.10: Phrase type

10. Let's pick **Ask a question**. Set the desired question, as shown in the following screenshot. Save the response in a variable. Update the variable name to `CourseName`:

Figure 18.11: Adding a question phrase

11. Next, add a **Condition** node, as shown in the following screenshot:
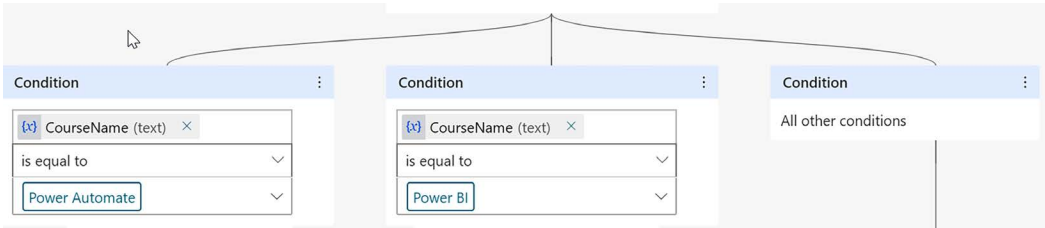
Figure 18.12: Conditional branching based on the response

12. Now, we will configure each course branch. For the sake of this example, let's assume that the registration for Power Apps has closed but that registration is open for other courses:
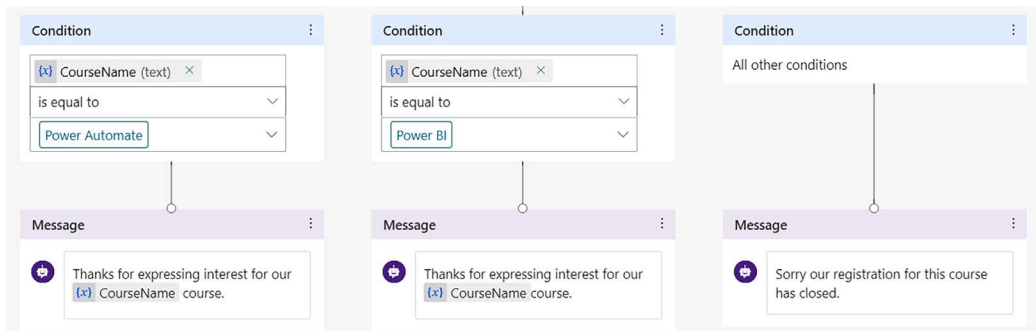
Figure 18.13: Creating a message for each conditional branch

13. Those who expressed an interest in Power Apps will see a "sorry" message, and then the bot will transfer the user to an agent who'll discuss other options with the user. Here, we need to select **Transfer To Agent** to insert a hand-off node. Enter a private message you want to send to the agent. See how we have used the `CourseName` variable here to add context:
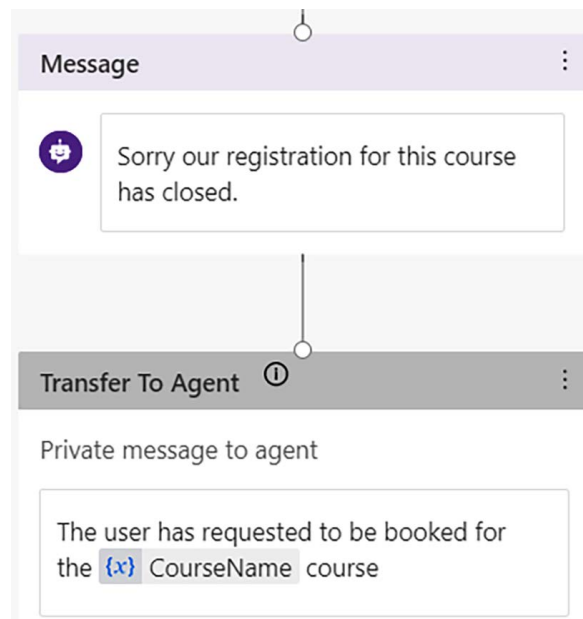
Figure 18.14: Transferring to an agent

14. We'll end the other two course branches with a survey:
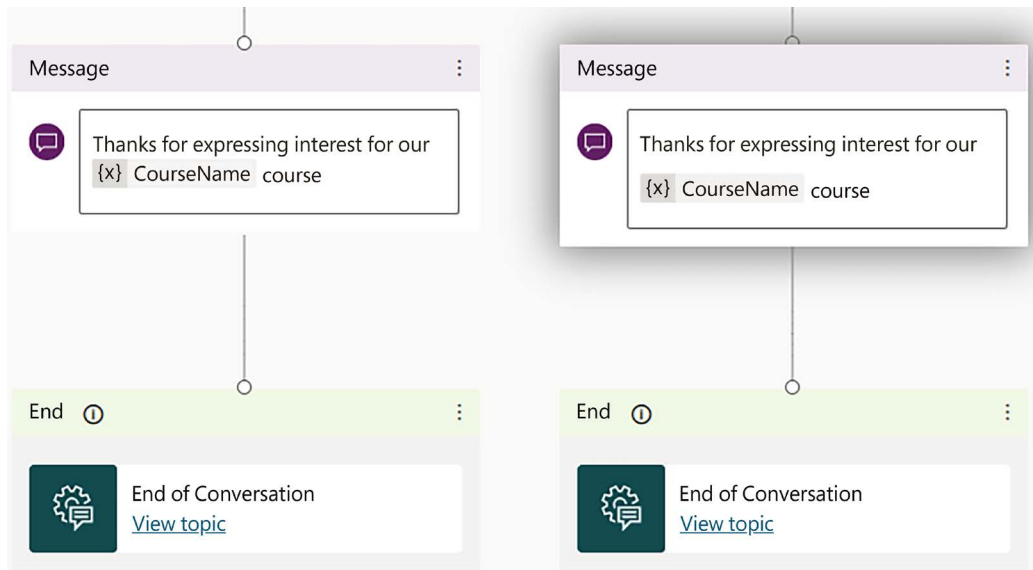
Figure 18.15: Ending the conversation

15. Save the authoring canvas logic by clicking on **Save**.

How it works…

Let's take a closer look at the five nodes that are available for use in *Figure 18.10*: **Show a message, Ask a question, End the conversation, Go to another topic,** and **Call an action.**

Show a message

This is the simplest of all nodes. As the name suggests, it displays a text message to the user.

Ask a question

While adding the question in *step 10* of this recipe, we picked **Multiple choice options.** In order to help the bot make sense of the responses it receives, we need to select an **entity** that characterizes the user input:
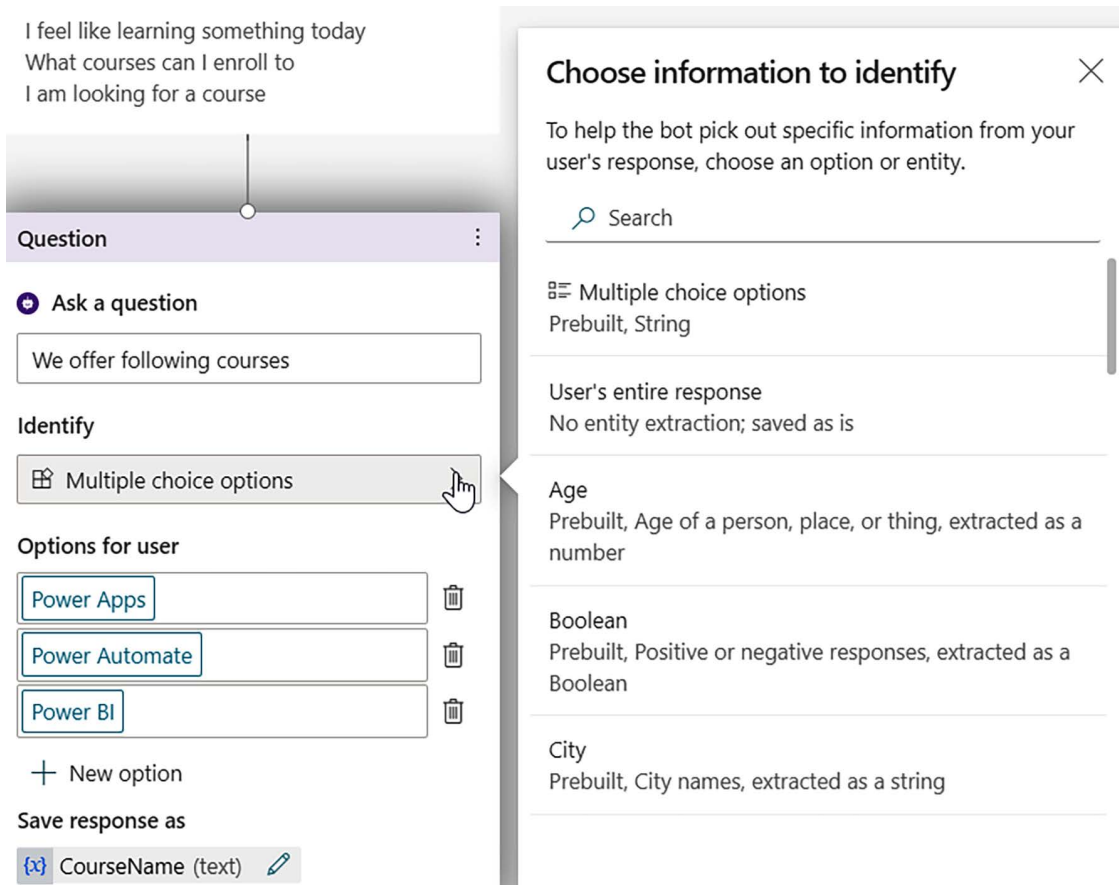
Figure 18.16: Different entities for a multiple choice question

An entity enables the bot to extract information units by using natural language understanding. For instance, if the bot asks a question that is related to a city, a user can reply in a variety of ways. An entity deciphers the required information, as shown in the following screenshot:

Figure 18.17: Examples of how a bot identifies an entity

End the conversation

There are two ways to end a conversation, either by ending with a survey or transferring to an agent. We will look at both of these below.

End with a survey

This node will end the conversation flow with a survey to rate the conversation experience, as shown in the following screenshot:
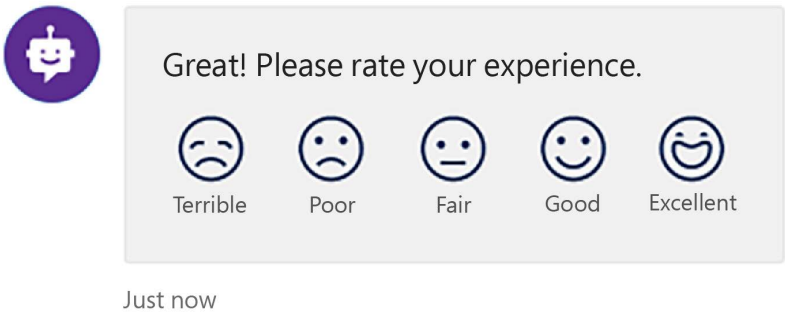
Figure 18.18: Conversation rating

Transfer to agent

As you saw previously, we can hand off conversations to an agent. This can be done seamlessly and contextually within the authoring canvas. Click on the gear icon and choose **Transfer to agent**:
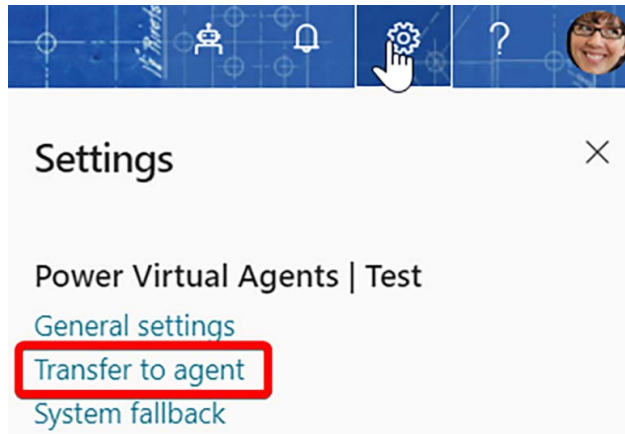
Figure 18.19: Transfer to agent option in the authoring canvas

There are multiple options you can choose from to transfer the flow, as shown in the following screenshot:
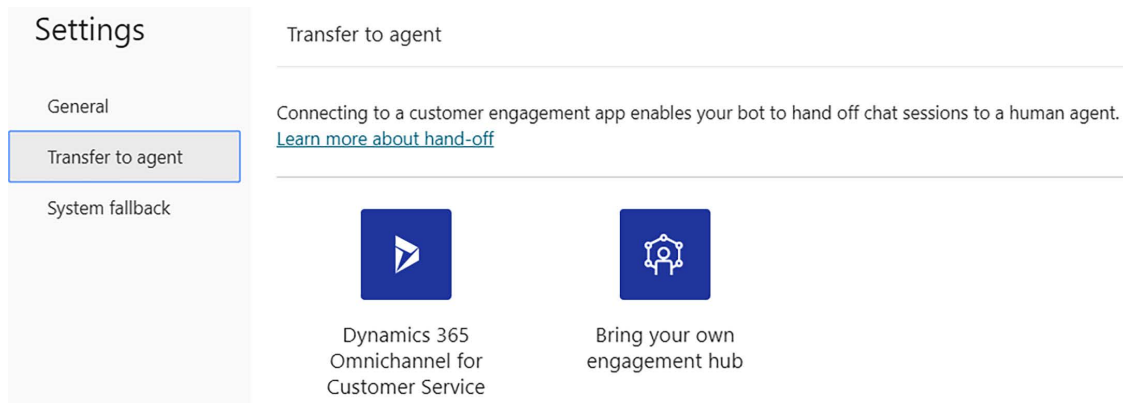
Figure 18.20: Option for transferring to an agent through Dynamics 365 or a different hub

Configuring these engagement apps is beyond the scope of this book. During the transfer process, Power Virtual Agents sends additional information to the agent, along with a transcript of the chat session, as shown in the following screenshot:

Chat session details

User information collected for handoff using the Transfer to agent node.

CourseName	**Power Apps**
va_Scope	**bot**
va_LastTopic	**Course Topic**
va_Topics	**Course Topic**
va_LastPhrase	**courses**
va_Phrases	**courses**
va_ConversationId	**812FCOOEfgP8HvYgycveCj-f**
va_AgentMessage	**The user has requested to be booked for Power Apps course**
va_BotId	**df3653c6-30dc-400b-adc1-1385c089cb2b**
va_BotName	**Test**
va_Language	**en-US**
chatTranscript	<u>Download transcript</u>

Figure 18.21: Information shared with the agent

Go to another topic

The user is transferred to another topic when they type in a phrase that matches one of the phrases listed in the topic. You can transfer a user intentionally by adding the **Go to another topic** node. With this, the bot transfers the conversation flow from the current topic to the specified topic.

Call an action

Let's say you need to query another system to get some additional course information or log user queries in a SharePoint list; you can achieve this by adding **integration logic** into a flow. The **Call an action** option lets you trigger an existing flow or create a new flow, as shown in the following screenshot:
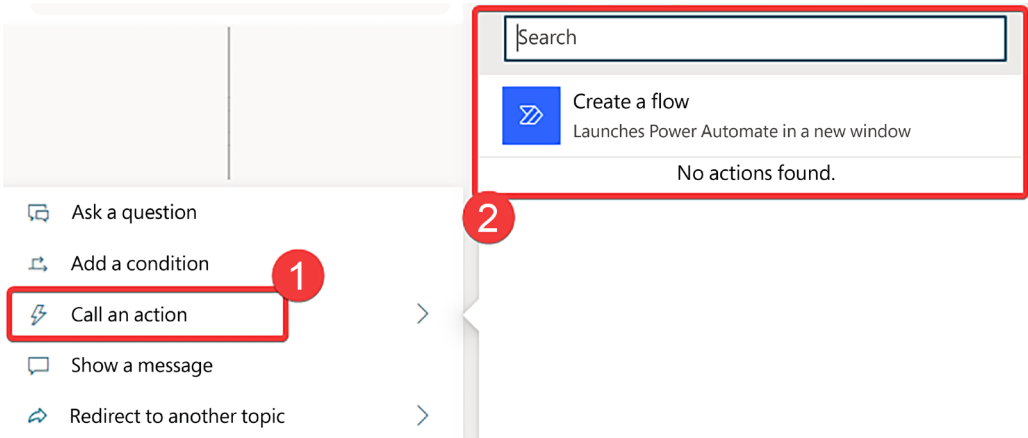
Figure 18.22: Power Automate integration

There are some constraining criteria with Power Automate integrations that you should be aware of:

- The flow needs to be in the same Dataverse environment as the bot
- The flow should be part of a solution

> If you want to achieve integration with a flow, our suggestion is that you create the bot first and then create the flow using the aforementioned **Create a flow** option. This will ensure that the integration criteria are met.

See also

- The *Creating a solution* recipe in *Chapter 8*, *Power Automate (Microsoft Flow)*, to read more about environments
- The *Creating a bot* recipe in this chapter
- Chatbot authoring – Power Virtual Agents | Microsoft Learn: `https://packt.link/PVA-Copilot-Studio-chatbot-authoring`
- Use topics to design a chatbot conversation | Microsoft Learn: `https://packt.link/chatbot-conversation-with-topics`

Testing a bot

Power Virtual Agents allows you to build and test bots simultaneously. While testing a bot, you can see the required steps being executed. This allows you to find and fix unexpected behavior.

Because of the testing console available in Power Virtual Agents, the experts in the subject matter who know how the bot is supposed to behave can be the ones to tweak the bot logic while performing user acceptance testing.

Getting ready

You will need a Power Virtual Agents license to complete this recipe. Alternatively, you can sign up for a trial by visiting `https://packt.link/PVA-Copilot-Studio-Trial`.

How to do it...

Follow these steps to complete this recipe:

1. Go to `https://powerva.microsoft.com/` and sign in with your organization account.
2. If you do not have a license, sign up for a trial.
3. Usually, the test console is on the landing page itself. If not, open it by selecting **Test your bot**. Once you've done that, the link will change to **Hide bot**, as shown in the following screenshot:
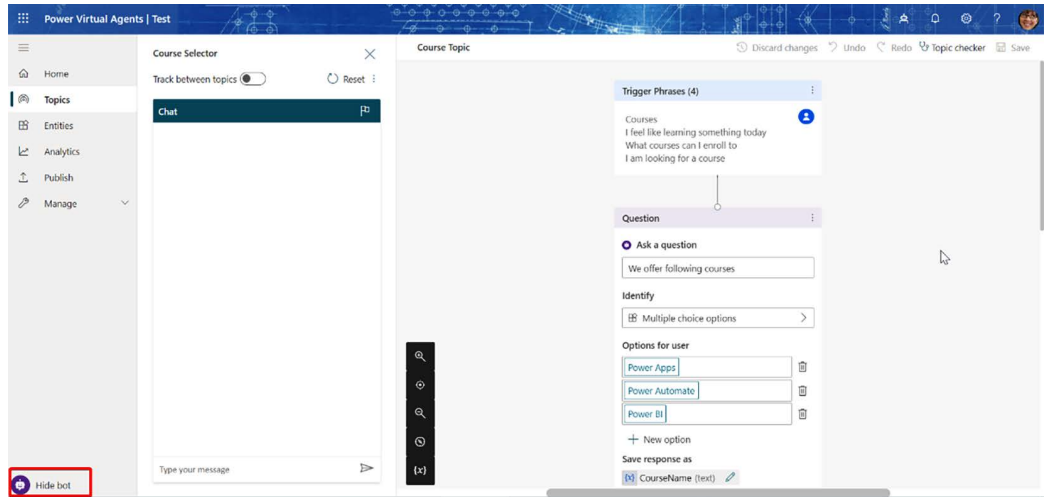
Figure 18.23: Test your bot button turns to Hide bot when on the test console

4. Where the textbox appears, enter one of the trigger phrases we defined for **Course Topic**. Let's go with Courses.

5. When the courses are all listed, pick **Power Automate**.

6. End the conversation by providing feedback, as shown in the following screenshot:
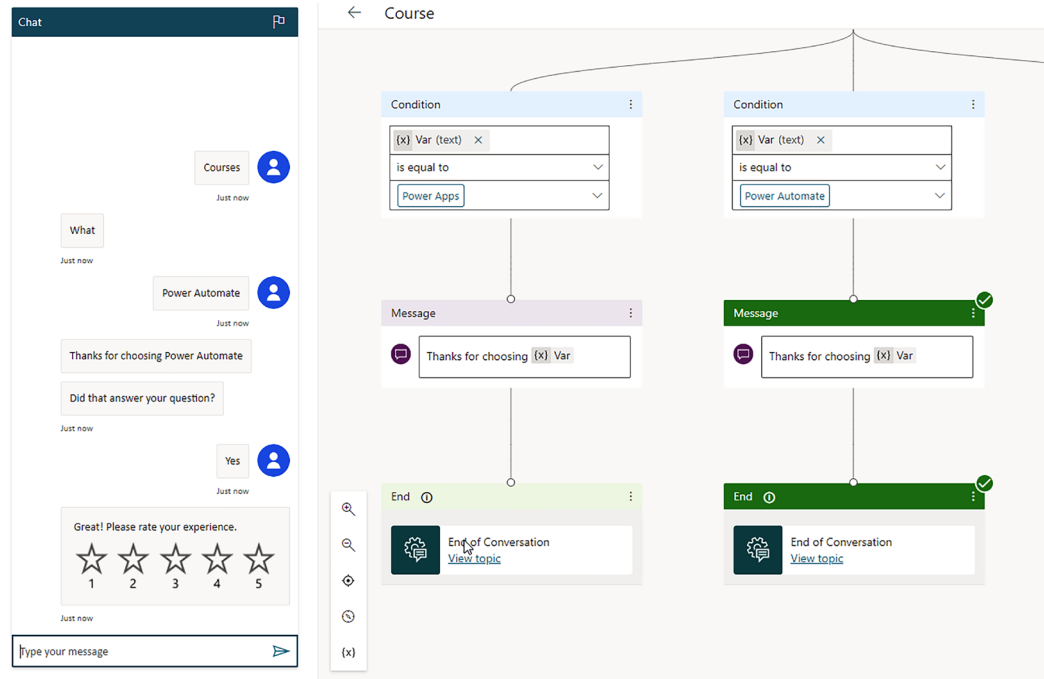
Figure 18.24: Bot conversation flow ending with feedback

7. Restart testing by clicking on **Reset**.

How it works...

There are three more features of the testing console. These can be seen in the following screenshot:
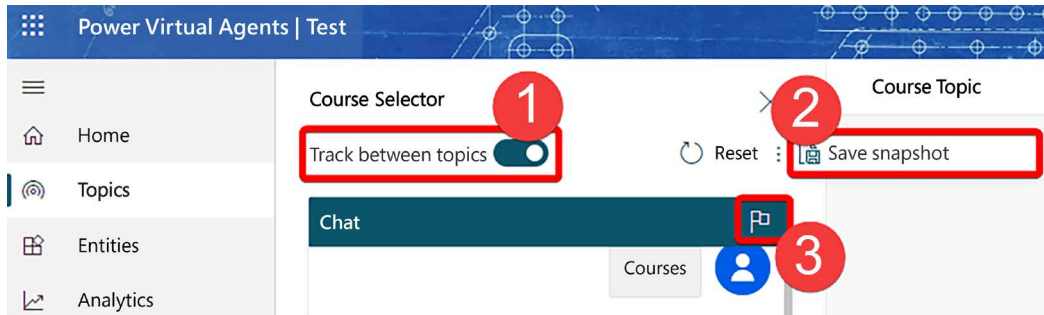
Figure 18.25: Other features on the testing console

Let's go over these features respective to their number in the screenshot:

1. **Track between topics** lets you follow through the conversation path step by step when your bot moves from one topic to another.

2. If the bot is behaving unexpectedly and you need to have a closer look at the diagnostics, you can click on **Save snapshot.**

3. If you are having issues with the Power Virtual Agents platform itself, you can **Flag an issue** by clicking on the flag icon. This brings up a dialog box and displays a conversation ID to help Microsoft debug the issue. The request is submitted anonymously, and your test data never leaves your tenant.

If you click on the second option, **Save snapshot**, a dialog box will appear asking to save the snapshot. Click **Save.**

A file named `DSAT.zip` will be downloaded to your device. This contains two files, as shown in *Figure 19.26*:

*   `botContent.json`, which contains the bot's topics and other content, including entities and variables that are being used in the bot

*   `dialog.json`, which contains conversational diagnostics, including detailed descriptions of errors
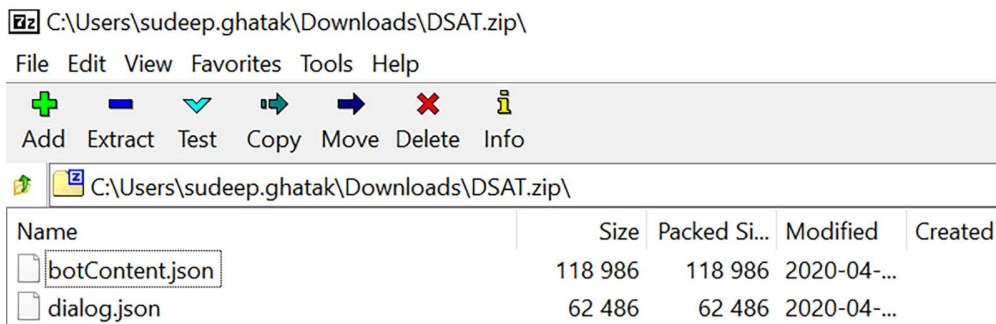
Figure 18.26: Bot debugging

See also

- The *Creating a bot* recipe in this chapter
- The *Creating a topic* recipe in this chapter
- The *Deploying a bot* recipe in this chapter
- Test your Power Virtual Agents bot – Power Virtual Agents | Microsoft Learn: `https://packt.link/test-your-PVA-bot`

Building a bot using Copilot

As we learned in *Chapter 12*, *Overview of Copilot in Microsoft 365 and Power Platform*, Copilot is a generative AI tool developed in partnership between Microsoft and OpenAI. We saw that Copilot has recently been built into almost every Microsoft offering, including the 365 suite of Word, Excel, PowerPoint, as well as Power Platform tools. Power Virtual Agents is no exception.

In PVA, Copilot allows you to craft chatbot conversations by providing a simple description. This description not only includes relevant trigger phrases but also encompasses questions, entities, messages, variables, and other logical elements. In a matter of seconds, you can convey your bot's intended functionality in plain, natural language, and obtain a fully assembled conversational dialogue.

With Copilot, you have the flexibility to further refine your dialogue using natural language prompts, or if you prefer a more hands-on approach, you can manually tweak it using the UI provided by PVA.

This combination of a low-code user experience and natural language processing makes bot building accessible to a broad audience, making the creation of conversational interactions more effortless and user-friendly than ever before. These exciting developments are available for preview right now.

In this recipe, we will explore the basics of how to build a bot using Copilot.

Getting ready

At the time of writing this book, the feature is only available for users with the Microsoft 365 environment in the United States region. With this in mind, there are some additional requirements:

- You'll need an account for Power Virtual Agents.
- Your bot must be created in the US region.
- This capability may be subject to usage limits or capacity throttling.

How to do it...

1. Go to the Power Virtual Agents home page and sign in with your work email address.

2.   Select **Create** and choose **Copilot** as the type of bot you want to create.

3.   Enter a name for your bot (1), such as `Flight Booking Bot`, and select **English** as the language. You can also enter a website address for your bot (2), which it will utilize to provide generative answers to users:

Figure 18.27: Creating a Copilot bot

4.   Select **Create (3)** and wait for your bot to be created.

Thanks
We're setting up your bot.

Figure 18.28: Copilot generating a chatbot

5.   Go to the **Topics** page and select **+ Add** | **Create with Copilot**:
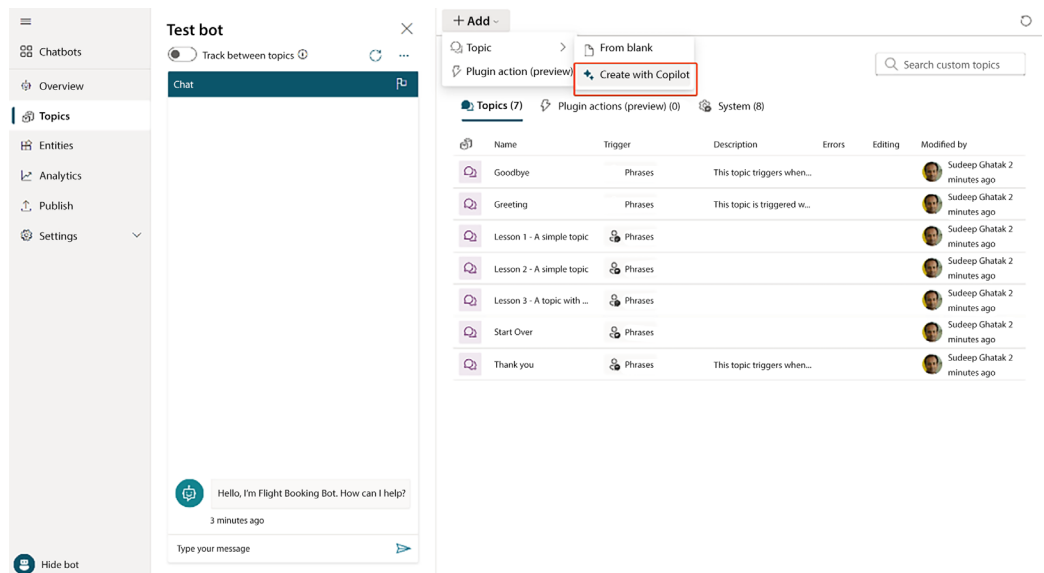
Figure 18.29: Screen navigation for adding a topic with Copilot

6. Instruct Copilot about the topic details:

Figure 18.30: New topic details in natural language

7. Copilot will build the bot and add the required actions.

8. On the graphical canvas, add a node to ask the user to check their details and store the response in a variable:
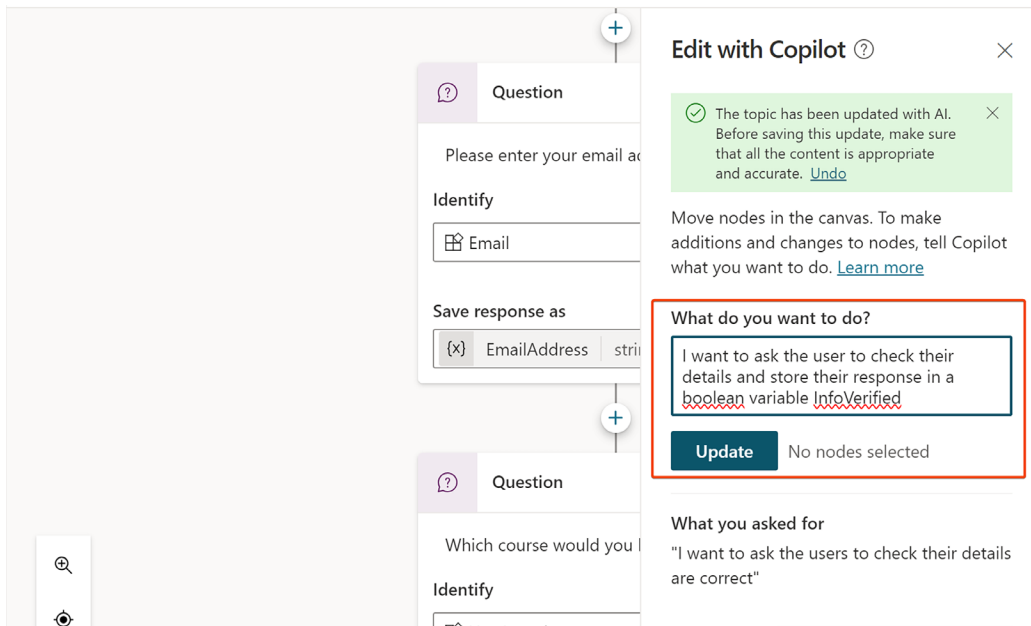
Figure 18.31: Editing the Copilot-generated chatbot

9. Finally, ask the bot to add a confirmation message:
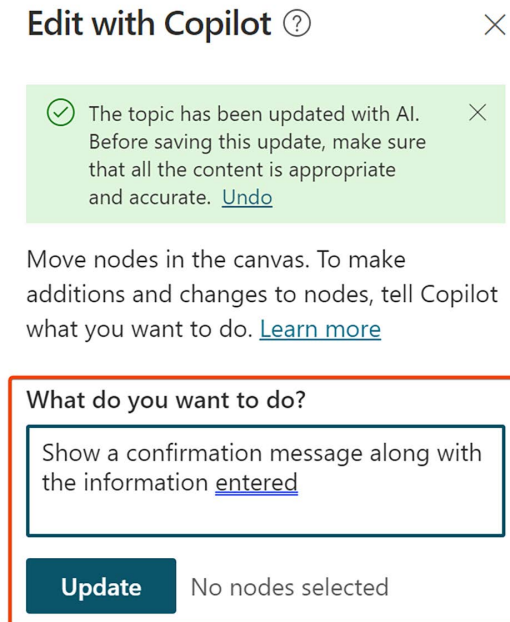
Figure 18.32: Adding further details with Copilot

10. Save and publish your topic.

How it works...

Copilot simplifies the process of topic creation by allowing you to describe your intent in plain language. This eliminates the need for in-depth technical or domain knowledge, making chatbot development accessible to a broader range of individuals within your organization.

When we created the topic in the section above, Copilot generated all the matching phrases, including the following:

- `"upcoming events"`
- `"event schedule"`
- `"what events are happening?"`
- `"tell me about the next event"`
- `"any interesting events coming up?"`
- `"can you recommend any events?"`
- `"event details"`
- `"where can I find information about upcoming events?"`
- `"how can I stay updated on upcoming events?"`

Copilot accelerates the topic creation process. What might have taken hours or even days to create manually can be accomplished in minutes with Copilot. This time-saving feature can be especially beneficial in fast-paced business environments. It also lowers the learning curve for chatbot development. New chatbot creators or individuals with limited experience in chatbot authoring can quickly get started and create effective topics with minimal training.

You can easily iterate on topics generated with Copilot. After Copilot creates a topic, you can review and customize it as needed to align with your specific requirements and refine the chatbot's performance over time.

Note that when you ask Copilot to add a node, it also informs you of the actions that were added or the ones that were affected.
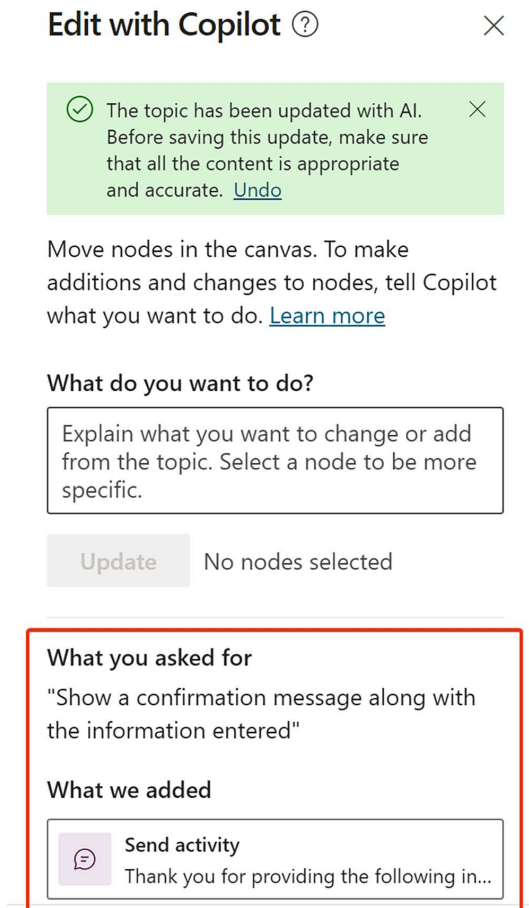
Figure 18.33: Notification describing Copilot's actions

See also

- AI-based chatbot authoring overview – Power Virtual Agents | Microsoft Learn: `https://packt.link/AI-chatbot-authoring-overview`
- Create (and edit) with Copilot – Power Virtual Agents | Microsoft Learn: `https://packt.link/create-with-Copilot-in-PVA`

Deploying a bot

Deploying a bot is done in two stages:

1. Publishing a bot
2. Connecting the bot to a channel

Power Virtual Agents lets you publish bots on multiple platforms or channels, as shown in the following screenshot:
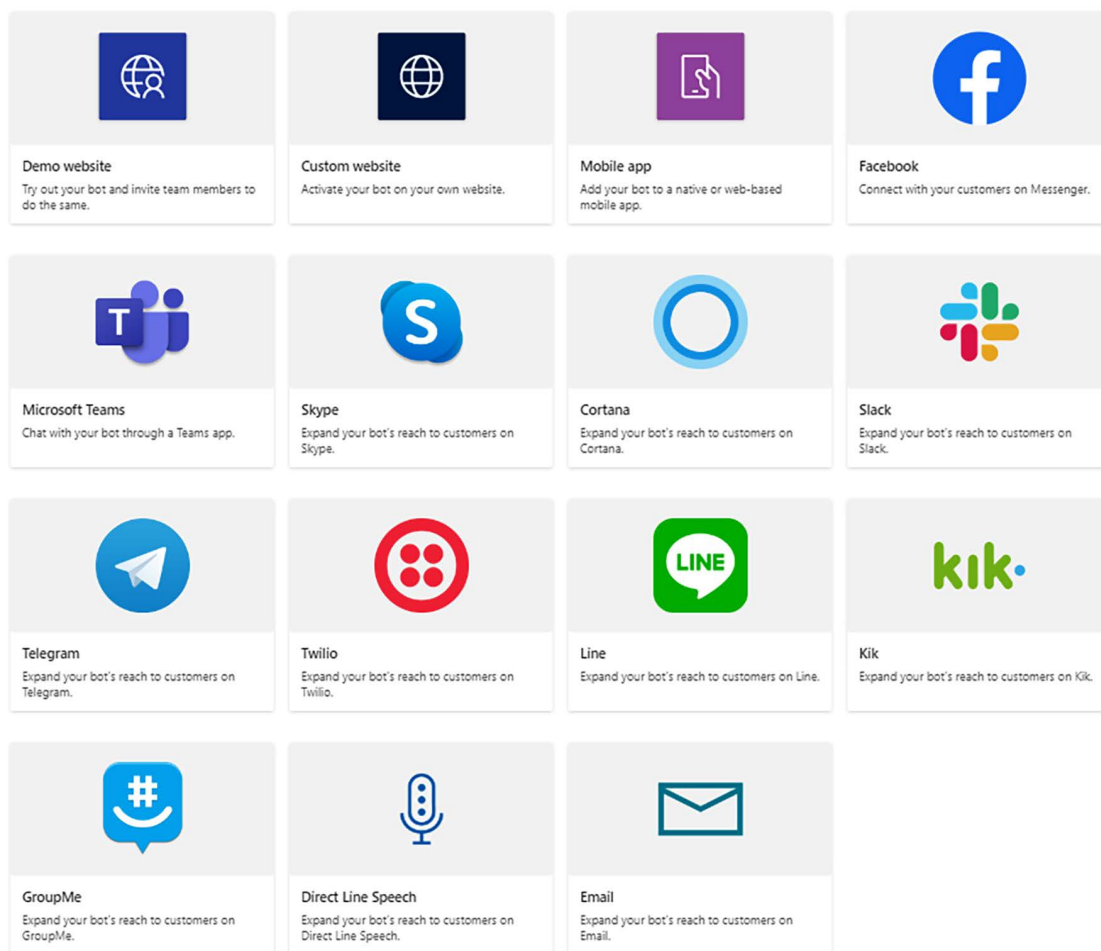
Figure 18.34: Bot deployment platforms

You can connect your bot to as many channels as you like, provided that it has been published at least once. Power Virtual Agents lets you publish the bot from within the app. If your bot is already connected to a channel, Power Virtual Agents takes care of publishing the bot to the channels you have connected it to. Once you've published the bot, you can share it with your colleagues and customers.

Let's go through the steps involved in the publishing process. In the following steps, we'll show you how to add the bot to Microsoft Teams.

Getting ready

You must have the Teams app installed on your desktop. It's important to differentiate a personal account from a Teams enterprise account: the personal account does not provide installation of Microsoft Teams App Studio, but the enterprise account does provide this.

How to do it...

Follow these steps to complete this recipe:

1. Go to `https://powerva.microsoft.com/` and sign in with your organization account.

2. Click **Publish (1)** in the left navigation pane and select **Publish** again from the right-hand pane (2):
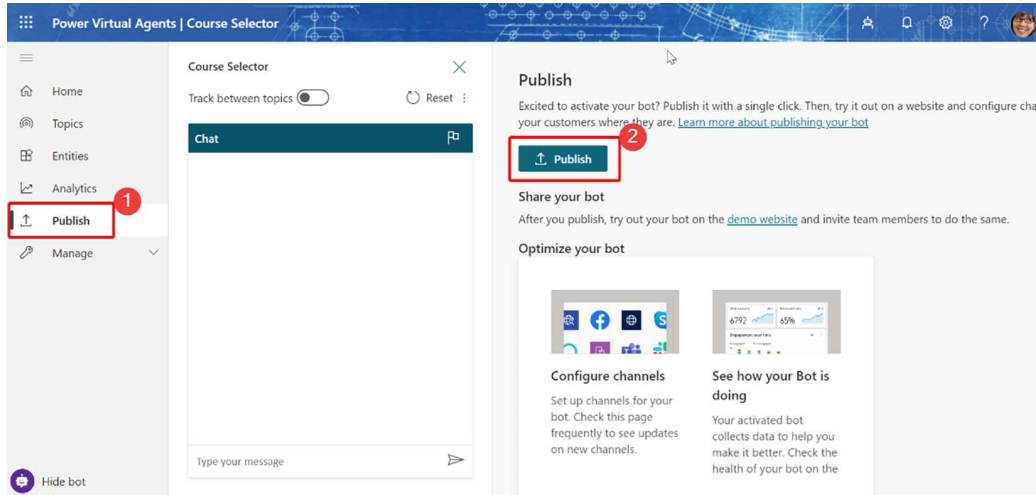
Figure 18.35: Publishing your bot

3. A popup will appear. Select **Publish** again.

4. A confirmation message will appear on your screen, as shown in the following screenshot:
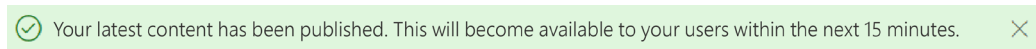
Figure 18.36: Confirmation message for publishing your bot to Teams

Now, you need to connect your bot to a channel.

5. Select **Manage** on the side navigation pane and go to the **Channels** tab.

6. Select **Microsoft Teams** and then click on **Turn on Teams**:
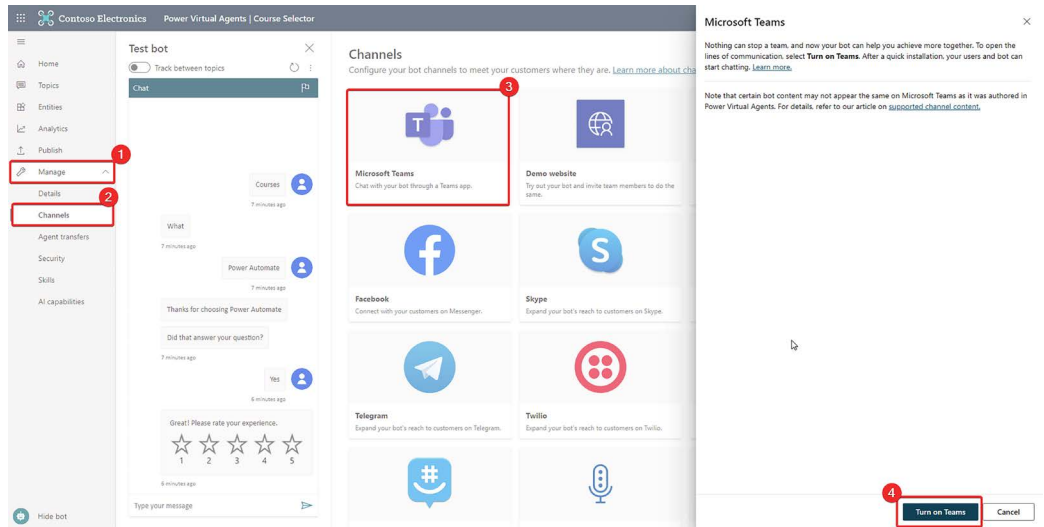
Figure 18.37: Activating Teams integration

7. In the Microsoft Teams integration panel, click on **Edit details:**

Figure 18.38: Opening the details pane on the Teams integration panel

8.   Check the option to **Allow your users to add this bot to a team:**

Figure 18.39: Allowing users to add the bot

9. Now, click on **Availability options**:
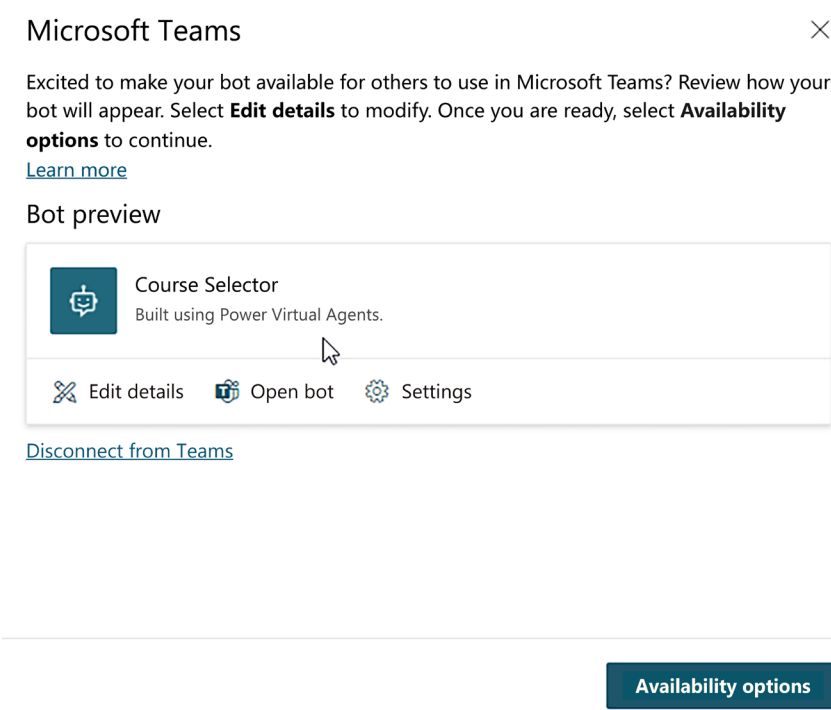
Figure 18.40: Opening Availability options

10. You can share your bot using one of the following options. For this example, select the second option, **Show to my teammates and shared users**:
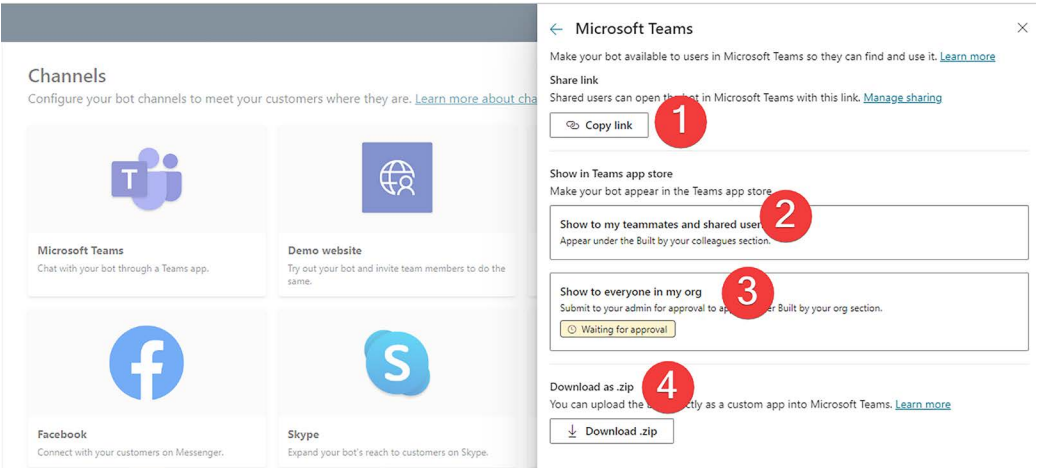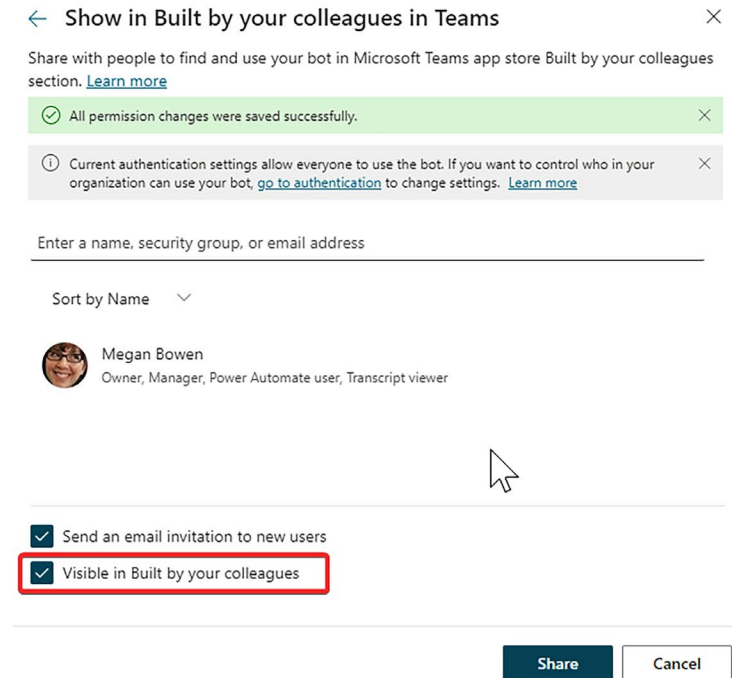
Figure 18.41: Four different sharing options

11. Add the users/colleagues you want to share the bot with. Remember to check the **Visible in Built by your colleagues** option:

Figure 18.42: Checking visibility options for the bot

12. In Teams, go to **More apps**:
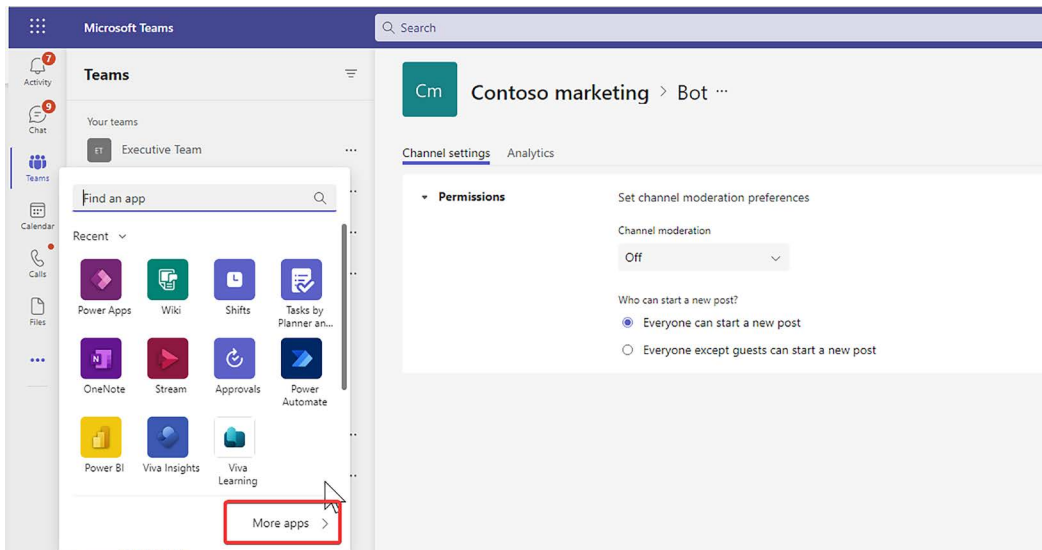
Figure 18.43: Clicking on More apps to find your bot

13. Look for the **Built with Power Platform** option under **Apps.** Your bot should be visible in this section. Click **Add** to add it to your channel:
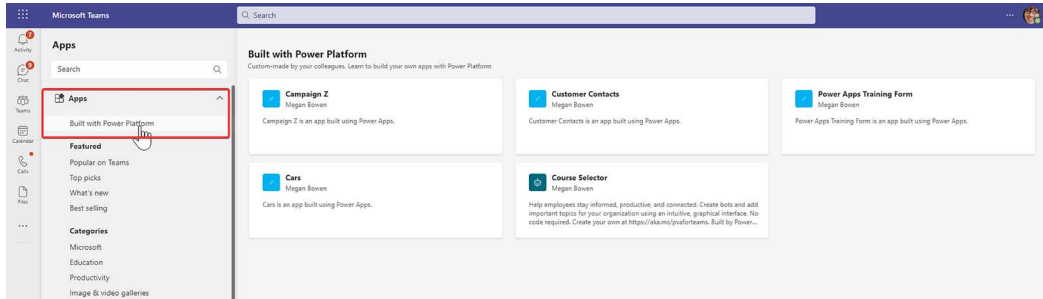
Figure 18.44: Adding your bot to a Teams channel

14. You can now use the bot in Teams:
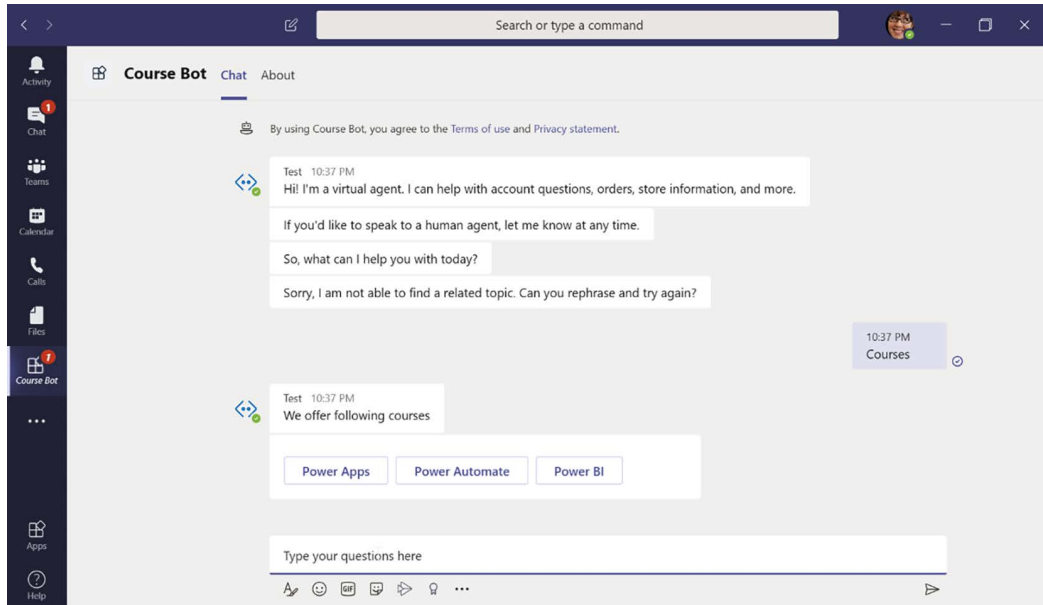
Figure 18.45: Running your bot in Teams

How it works...

The publication process deploys the bot to a **Demo website** by default. The demo website link opens a new tab where you and your team can interact with the bot. You can share the link with your testers and customers to test how the bot responds to various inputs:

Note that this is not meant for production deployment.
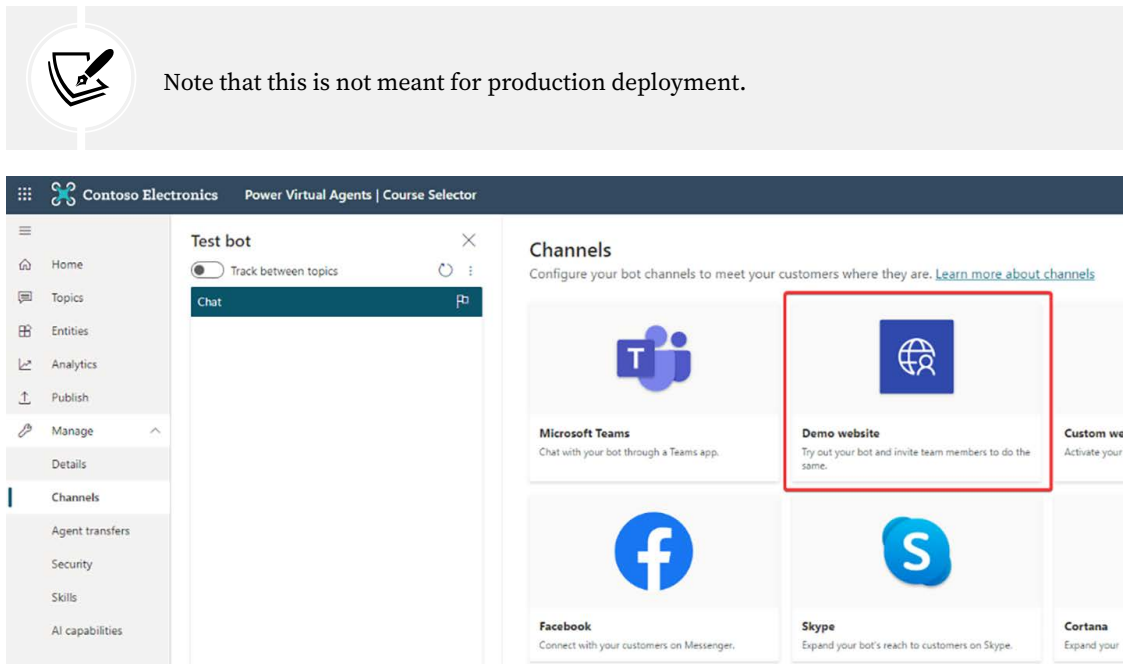
Figure 18.46: Bot is deployed to a demo website

The following screenshot shows what the bot will look like on the demo website:
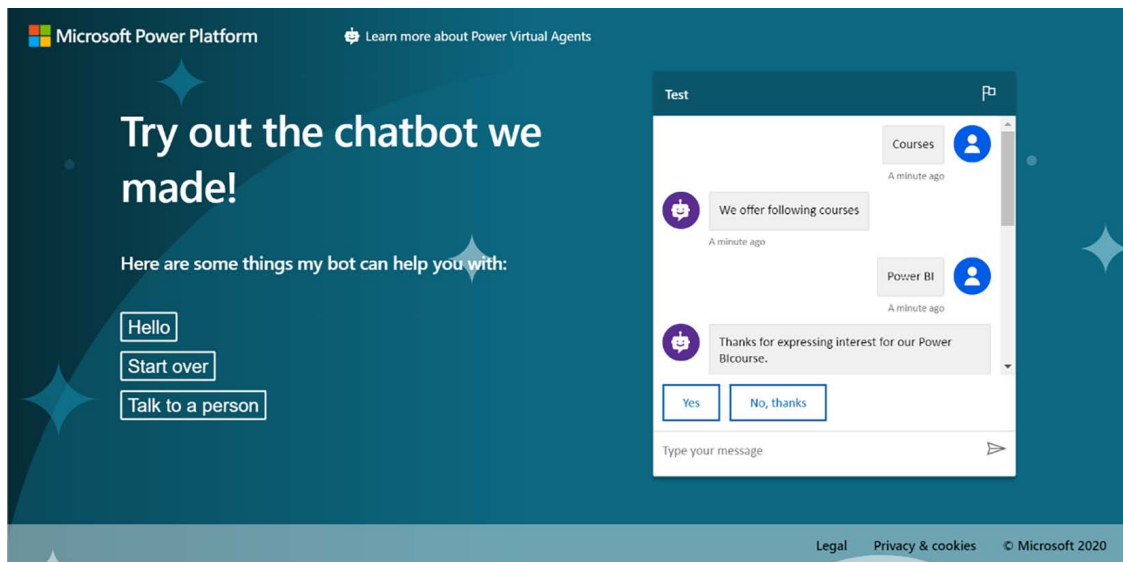
Figure 18.47: Sample demo website

You can change the title of the site, along with the phrases that you want the users to use. This is done by updating the **Demo website** channel, as shown in the following screenshot:
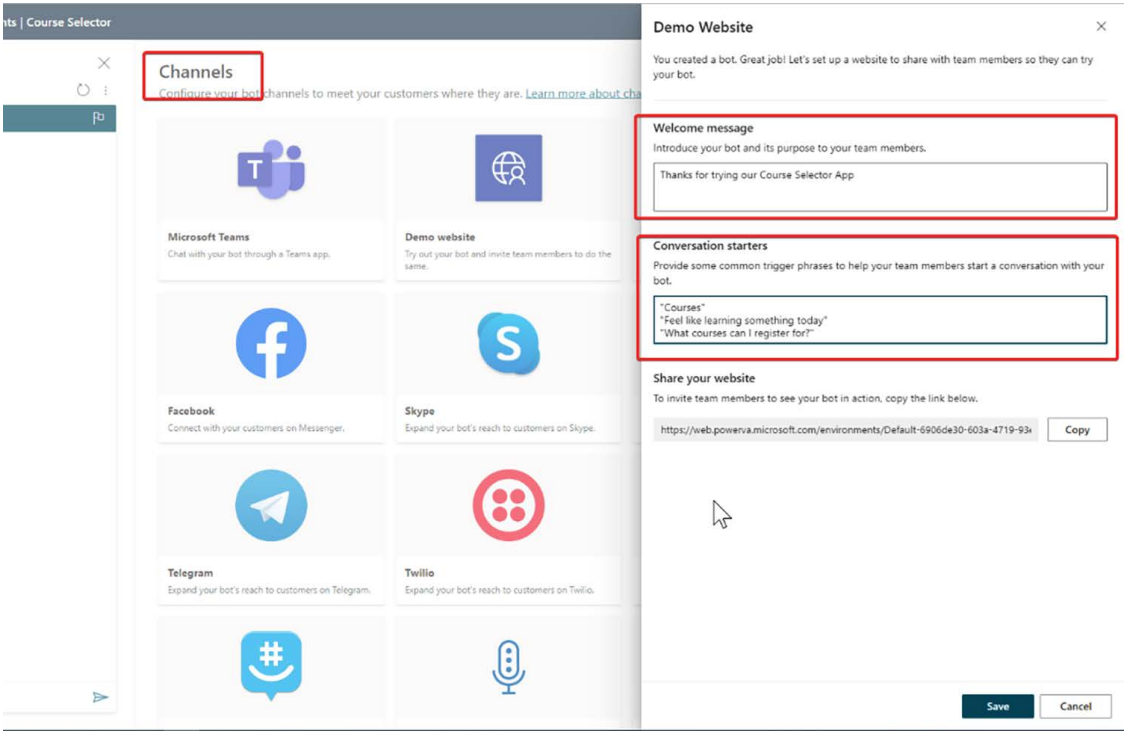
Figure 18.48: Customizing the demo website

There's more...

Power Virtual Agents lets you keep an eye on how your bots are performing using powerful metrics and AI-driven dashboards. By navigating to **Analytics**, you can easily see which topics are doing well and where the bot can improve, as well as quickly adjust to improve performance:
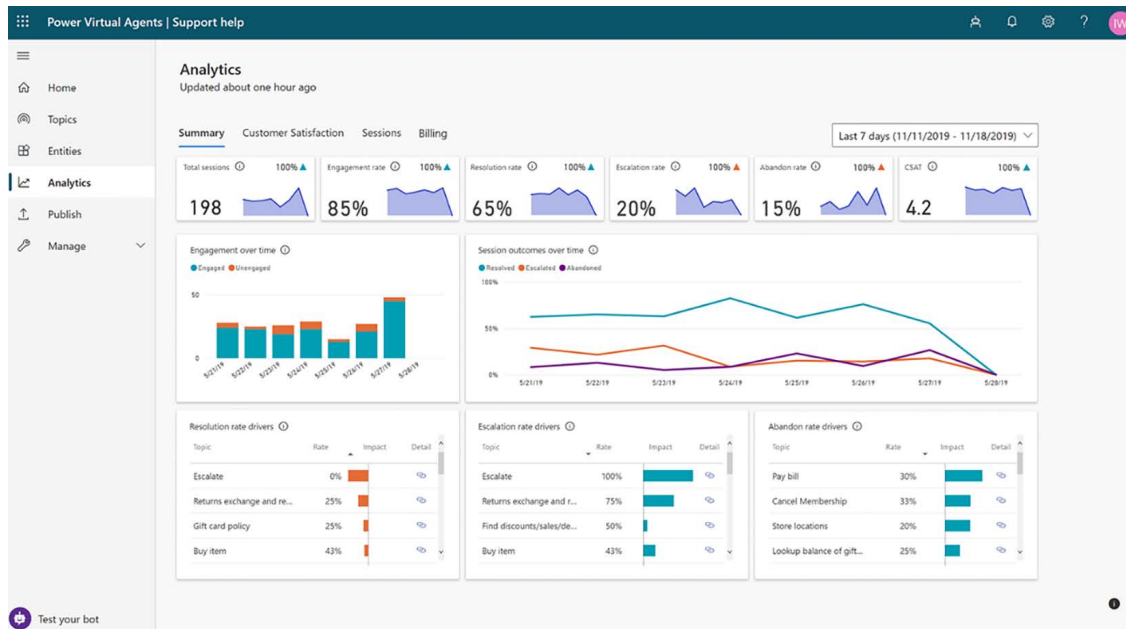
Figure 18.49: Bot analytics page

Power Virtual Agents has a comprehensive set of analytics that show you the key performance indicators for your bot, such as **Resolution rate drivers** and **Abandon rate drivers**.

Multiple charts show you trends and usage for your bot's topics. These charts use AI to highlight the topics that have the greatest impact on your bot's performance.

See also

- Fundamentals – Publish a chatbot to various channels (contains video): `https://packt.link/chatbot-publishing-fundamentals`
- Configure a chatbot for a live or demo website (contains video) – Power Virtual Agents | Microsoft Learn: `https://packt.link/chatbot-for-website`

19

Viva Insights

Viva Insights is found as a standalone app in Microsoft 365 and is also integrated throughout other Microsoft 365 apps, including Teams and Viva Engage (formerly known as Yammer). It connects to each individual employee and provides insights based on the employee's usage of and behavior in apps such as Outlook, Teams, and OneDrive. Those insights give the employee an idea of where and how they're spending their time, who they're collaborating with and through which channels, and provide recommendations to help them find better work-life balance such as creating focus time, scheduling lunch, and wrapping up days mindfully.

In this chapter, we're going to explore these sorts of insights by covering the following main recipes:

- Navigating the **Stay connected** tab
- Exploring **Protect time** features
- Sending praise to colleagues
- Keeping track of mood
- Starting a virtual commute

Technical requirements

There are no significant technical requirements for this chapter beyond having access to Microsoft Teams in an organization that allows Viva Insights features. The features in this chapter are all accessible by default.

Navigating the Stay connected tab

In this recipe, we'll explore Viva Insights via Microsoft Teams – the recommended experience. Specifically, we're going to look at the **Stay connected** tab of Viva Insights to understand how it highlights your collaboration habits with peers and suggests potential tasks, such as responding to invites and emails, or scheduling 1:1 time.

Getting ready

To work through the steps in this recipe, you'll need to first open the Microsoft Teams app on your desktop or web browser.

How to do it...

1. Within Microsoft Teams, look for Viva Insights on your left-hand navigation rail. If it's not already pinned there, use the ellipsis (**...**) to search for and select **Viva Insights**.

2. You can optionally pin Viva Insights for easier navigation by right-clicking the app on your menu and selecting **Pin** as shown in *Figure 19.1*:
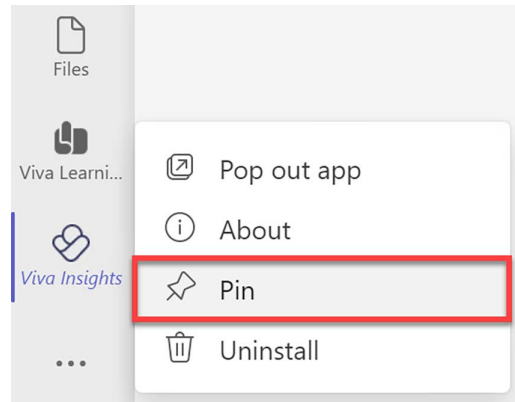
Figure 19.1: The pin option for an app when right-clicked from the navigation rail

3. On the **Home** screen, go ahead and look around and take any actions suggested that you'd like. For example, you may wish to:

    - Mark a colleague as important with whom you frequently collaborate

    - Send praise to a colleague

    - Review your To Do tasks

    - Indicate how you're feeling at this moment (the response is private to you and can be reviewed as a data visualization later for reflection)

4. Along the top of Viva Insights, select the **Stay connected** tab as shown in *Figure 19.2*:
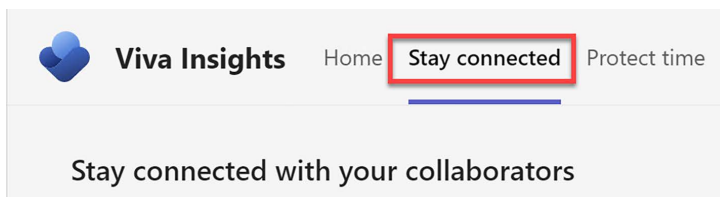
Figure 19.2: Stay connected tab of Viva Insights

5. If you haven't used Microsoft 365 much yet, you may not see much here right now. Marking colleagues as important will help make this tab show more helpful information. Over time, you'll see things like:

   - Incomplete tasks and task suggestions
   - Unanswered emails
   - Meeting invites you haven't responded to
   - 1:1 meeting suggestions
   - Pin collaborators shown here using the pushpin icon under their picture
   - Review shared documents you may have missed

6. Notice that these reminders will be broken into **Pinned** and **Recent. Pinned** reminders involve anyone you've marked as important via the Viva Insights home page, or the Viva Insights standalone browser app.

7. On the right side, you can also send praise to colleagues as shown in *Figure 19.3*. We'll cover this in a later recipe in this chapter.
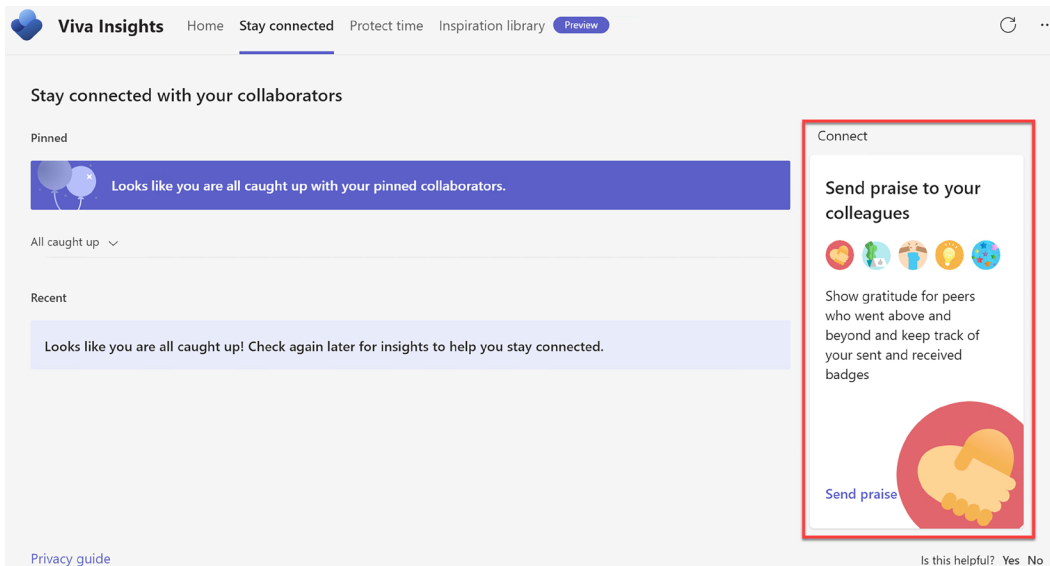
Figure 19.3: The option to send praise to colleagues from the Stay connected tab

How it works...

Viva Insights simply connects to your chats, emails, calls, and meetings to understand your work behavior and help provide a high-level picture of your work weeks. This data is private to you, and managers only have anonymized and general data once they reach a certain threshold of direct reports to help protect individual employees from being identified within data.

Viva Insights depends on you configuring certain settings and utilizing it to be more helpful. You can modify your settings by selecting the ellipsis (**…**) in the upper right corner of Viva Insights in Teams and selecting **Settings**. From there, you'll be able to specify the following:

- Work week schedule and time zone (when are your active working hours?)
- Virtual commute schedule (when do you begin to wrap up your day?)
- Protect time (reminders to clear meetings and conflicts on no-meeting days
- Reflection (reminders to check in with yourself on a specific schedule)
- Praise (reminders to praise colleagues regularly)

Adjusting these settings will help you make the most of your Viva Insights experience.

There's more…

Some of the content in this recipe may sound familiar. Viva Insights used to be known as MyAnalytics. Those features and data-driven insights have been carried forward into Viva Insights.

In addition to using Viva Insights in Teams, you can visit the standalone app in Microsoft 365. You can find this by visiting `office.com` and using the app launcher to find Viva Insights. You can also visit it directly by navigating to `https://insights.viva.office.com/`.

> If you haven't used Viva Insights yet, it may take a week or so of activity before you see insights.

In the upper right of Viva Insights, you can select the ellipsis (**…**) then **Settings** to adjust a few more Viva Insights-related settings such as enabling the dashboard, monthly digest emails, and the Outlook add-in. As you can see along the left navigation menu in *Figure 19.4*, each component of Viva Insights has its own page for setting configurations.

Figure 19.4: Viva Insights Work week settings for configuring work week schedule

See also

- Viva Insights home page: `https://packt.link/home-web`
- Personal insights introduction: `https://packt.link/personal-introduction`
- Stay connected with Viva Insights: `https://packt.link/stay-connected`
- Privacy guide: `https://packt.link/guide-users`

Exploring Protect time features

In this recipe, you'll learn how to navigate to the **Protect time** tab of the Viva Insights app and review the **focus time** and **virtual commute** options.

Getting ready

To work through the steps in this recipe, you'll need to first open the Microsoft Teams app on your desktop or web browser.

How to do it...

1. Open the Viva Insights app in Microsoft Teams and select the **Protect time** tab as shown in *Figure 19.5*.
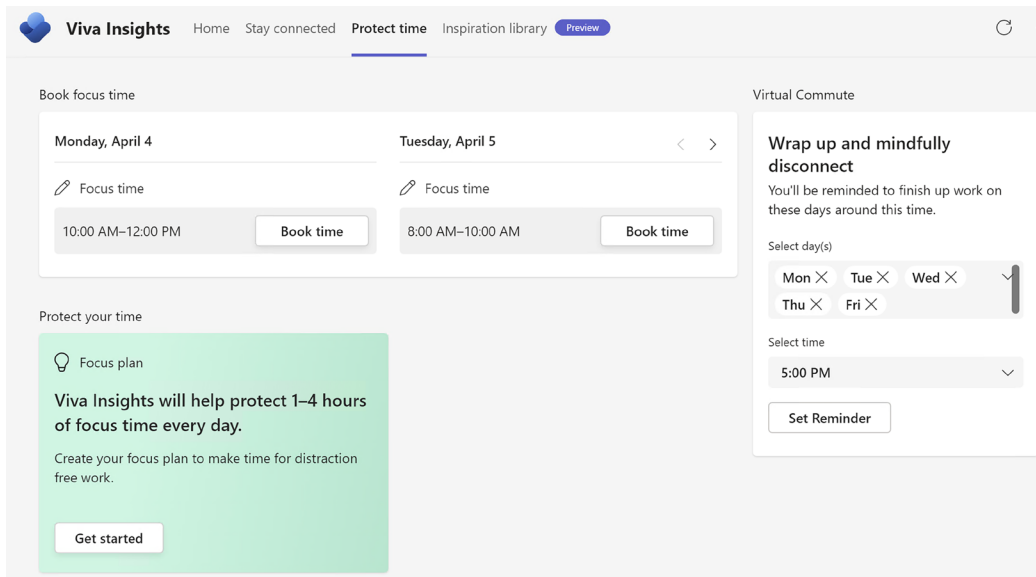
Figure 19.5: The Protect time tab of Viva Insights in Teams

2. **Book focus time:** The first time you visit the **Protect time** tab, you may be prompted to book focus time for upcoming workdays, or you can select **Get started** under **Focus plan** to automate this on a rolling 2-week period. This will help block a specific duration of time to help you focus and get work done each day. This helps prevent the likelihood of your day filling completely with meetings.

3. **Virtual Commute:** On the right under **Virtual Commute**, you'll also be able to set up your virtual commute schedule to help you wrap up each workday with consistency and intention. This will send you a notification and help guide you through creating tasks for things you didn't get done today, downshift with an optional and brief meditation, and check in with you emotionally to help you identify patterns over time.

4. **Protect your time:** If you've already been using **Protect time** features, your dashboard may look more like *Figure 19.6* where a focus plan has been established and you are a single click away from beginning a virtual commute at any time, even outside your specified schedule:
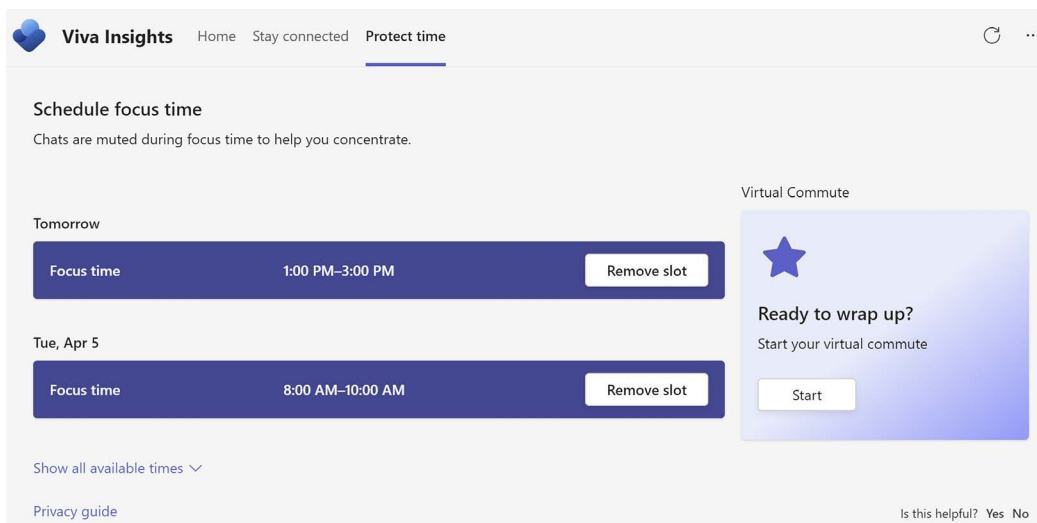
Figure 19.6: The Protect time tab of Viva Insights in Teams showing focus time and virtual commute

How it works...

Viva Insights integrates seamlessly with Outlook to help make sure that time is held on your calendar for focus time. If you have a meeting already scheduled during your usual focus time block, it'll identify another time block of the same or similar duration to make sure that sometime during the day, you're able to focus.

Virtual commutes help you check in with yourself, ending each day with reflection and starting each day with leftover tasks. They are integrated with Outlook and Microsoft To Do.

See also

- Protect time with Viva Insights: `https://packt.link/protect-time`
- Virtual commute: `https://packt.link/virtual-commute`

Sending praise to colleagues

Using Viva Insights, you can quickly and easily send praise to colleagues to recognize contributions and exceptional work. Taking time to do something like this helps strengthen working relationships, raise morale, and improve employee experiences. In this recipe, we'll send praise to a colleague using Viva Insights in Teams.

Getting ready

To work through the steps in this recipe, you'll need to first open the Microsoft Teams app on your desktop or web browser.

How to do it...

1. Open the Viva Insights for Teams app.

2. On the **Send praise to your colleagues** card, select **Send praise** as shown in *Figure 19.7*:
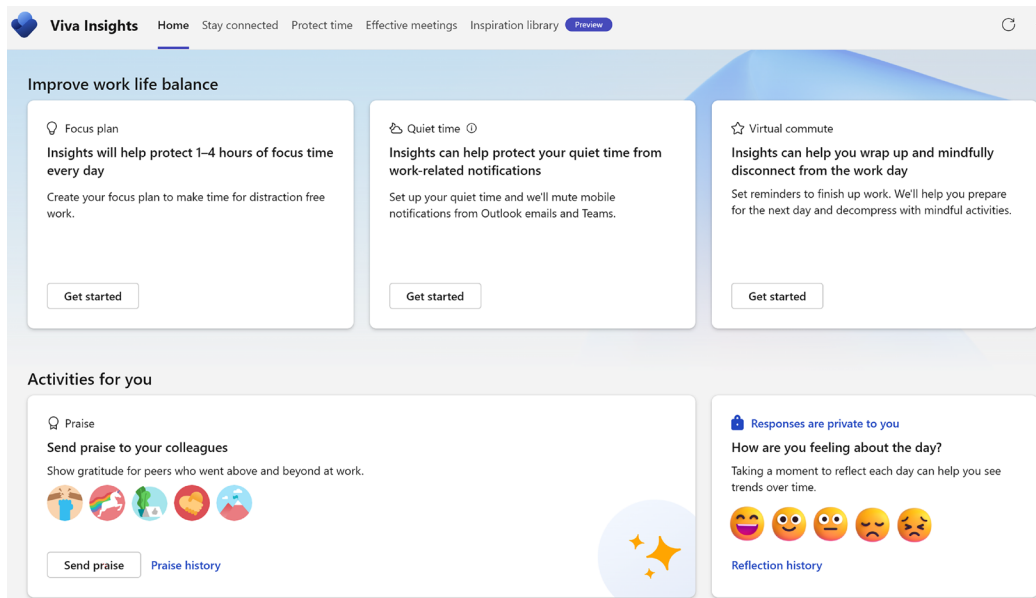
Figure 19.7: Send praise option shown in the lower left on the start page of Viva Insights for Teams

3. Complete the praise card fields including recipient(s), location, note, and badge category as shown in *Figure 19.8*:

Figure 19.8: A new praise card being configured in Viva Insights for Teams

4. Click **Preview** to see how the card will appear in the designated location.
5. Click **Send** to post the praise to the designated location.

How it works...

Praise can be sent via chats, channel conversations and replies, or via the Viva Insights for Teams app as we did in this recipe. When sending in a chat (whether 1:1 or group), you and other chat participants will see the praise posted in the chat feed as a card. If it's a group chat, others can react, reply, etc. to make the praise more meaningful. This is why, perhaps, using channel conversations for praise are more effective. Everyone in the team can then get involved in celebrating their co-worker.

Figure 19.9 shows the praise we sent in this recipe, posted as a channel conversation that Adele's co-workers can now react to and reply to.
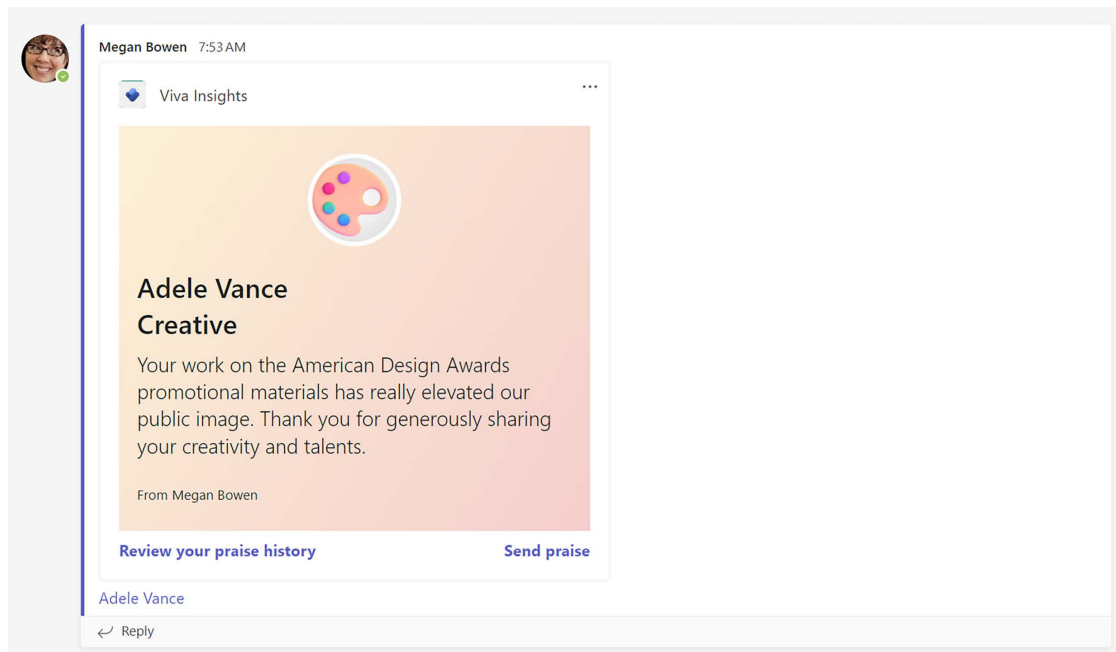
Figure 19.9: Praise sent to a channel via Viva Insights for Teams

After sending your praise, you are taken to the praise history page where you can optionally set a reminder schedule to continue to send praise regularly. *Figure 19.10* shows this option on the right side of the **Send praise** screen after sending the praise in this recipe. You can also find this ability via your **Settings** (upper right corner ellipsis | **Settings**).
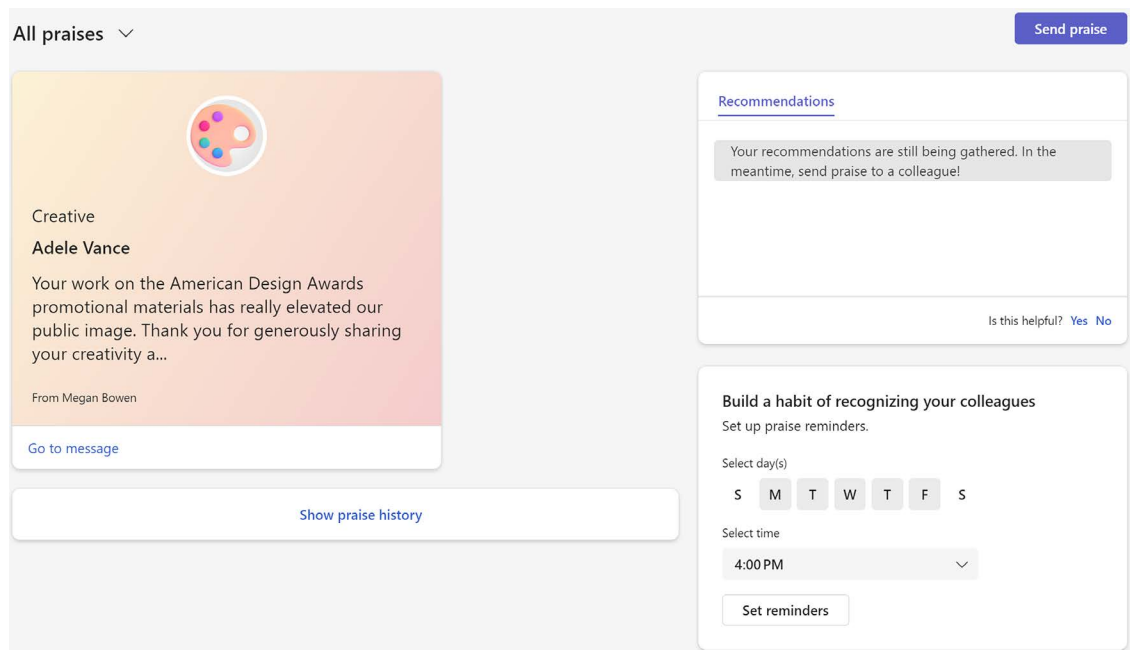
Figure 19.10: Prompt to set a praise reminder in Viva Insights for Teams in the lower right of the Send praise page

Also, at the bottom of the **Send praise** screen, you can select **Show praise history** review all sent and received praise over the past 6 months.

See also

- Praise with Viva Insights: `https://packt.link/insights-praise`

Keeping track of mood

Reflecting is an important part of Viva Insights to help you identify patterns over time. With a simple daily click, you can let Viva Insights know how you're feeling at the start or end of your day and then see if there are patterns or correlations over time. This recipe will show you how to reflect daily using Viva Insights.

Getting ready

To work through the steps in this recipe, you'll need to first open the Microsoft Teams app on your desktop or web browser.

How to do it...

1. Open the Viva Insights for Teams app.

2. Select how you're currently feeling from the emoji options on the right side of the landing page of Viva Insights. Your options, as shown in *Figure 19.11* are:

    - Very good
    - Good
    - Neutral
    - Bad
    - Very bad

🔒 Responses are private to you

How are you feeling about the day?

Taking a moment to reflect each day can help you see trends over time.

😄 🙂 😐 😔 😣

Reflection history
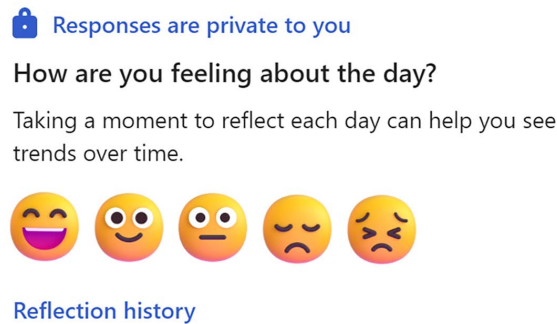
Figure 19.11: Reflection options in Viva Insights

How it works...

Reflecting is a simple one-click action in Viva Insights, but the data you track over time is what is of value. Reflecting is also built into virtual commutes – so you can choose to build reflection into your virtual commute routine as opposed to separately.

Once you've made a reflection selection for today, you'll be able to click **Reflection history** as shown in *Figure 19.12* to see your trends over time:

🔒 Responses are private to you

😄

Awesome! Keep doing more of whatever you are doing!

Consider reflecting on the reason behind the way you are feeling.

Reflection history
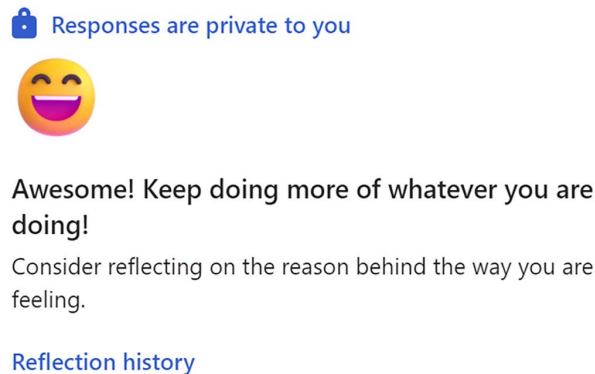
Figure 19.12: Card shown after reflecting in Viva Insights

The reflection history provides a line chart of your selections over time as shown in *Figure 19.13*. Your reflection data is entirely private to you, and meant only for your own personal benefit.
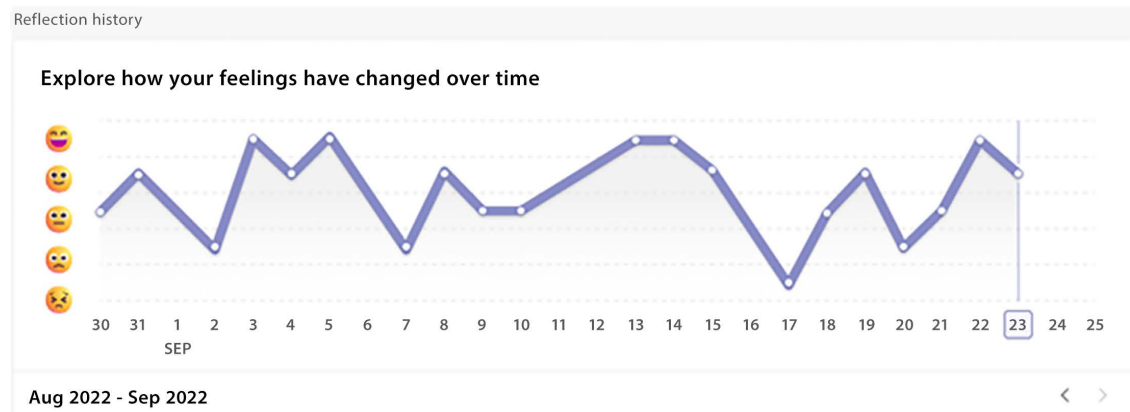
Figure 19.13: Viva Insights reflection data for a demo user over time

On your reflection history page, you can also set up a reflection reminder if you haven't already done so, or you can access **Reminder settings** in the upper right to adjust when you're reminded to reflect.

See also

- Reflect with Viva Insights: `https://packt.link/insights-reflect`

Starting a virtual commute

Virtual commutes help you mindfully wind down from a workday by reflecting (as shown in the previous recipe), reviewing your tasks and creating some for the next workday, optionally meditating, and reflecting. In this recipe, we will enable virtual commute reminders.

Getting ready

To work through the steps in this recipe, you'll need to first open the Microsoft Teams app on your desktop or web browser.

How to do it...

1. Open the Viva Insights for Teams app.

2. Select **Protect time** from the top navigation menu. On the right, set up your virtual commute reminder schedule, as shown in *Figure 19.14*, for when you'd like Teams to send a notification to begin wrapping up your day:

☆ Virtual commute

Wrap up and mindfully disconnect

You'll be reminded to finish up work on these days around this time.

Select day(s)

S   **M**   **T**   **W**   **T**   **F**   S

Select time

5:00 PM   ⌄

Looks good

Figure 19.14: Virtual commute reminder setup

3. Click **Looks good** after you've chosen the days and time to be reminded to begin your virtual commute.

4. Now you can begin your first virtual commute by clicking **Start now** as shown in *Figure 19.15*. Otherwise, you can wait until you get your first reminder to begin:

☆ Virtual commute

Your Virtual commute reminders are scheduled

We'll send you a notification when it's time to begin wrapping up for the day. You can launch Virtual commute anytime from within Viva Insights.

Start now   View settings

Figure 19.15: Card shown after configuring virtual commute reminders

5. Once you start the virtual commute, proceed through each of the screens taking action as necessary.

How it works...

Your virtual commute is an individual feature you can use to help you end your workdays consistently and mindfully. The first screen typically gives you a glimpse of upcoming meetings that need responses or have conflicts, as shown in *Figure 19.16*, from which you can change your RSVP status or reschedule a meeting.
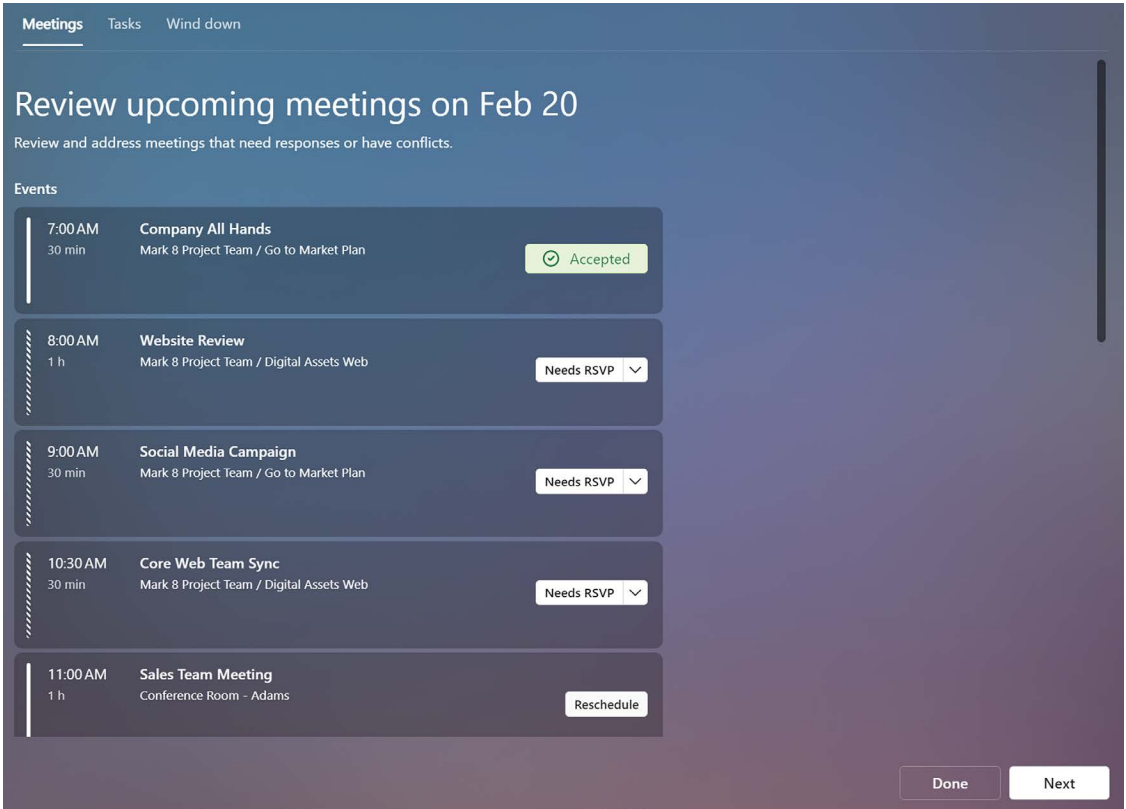
Figure 19.16: Upcoming events shown in a virtual commute

The next screen asks you to create tasks for any unfinished business you want to continue on the next workday. These tasks are added to your individual To Do task list. *Figure 19.17* shows this screen:
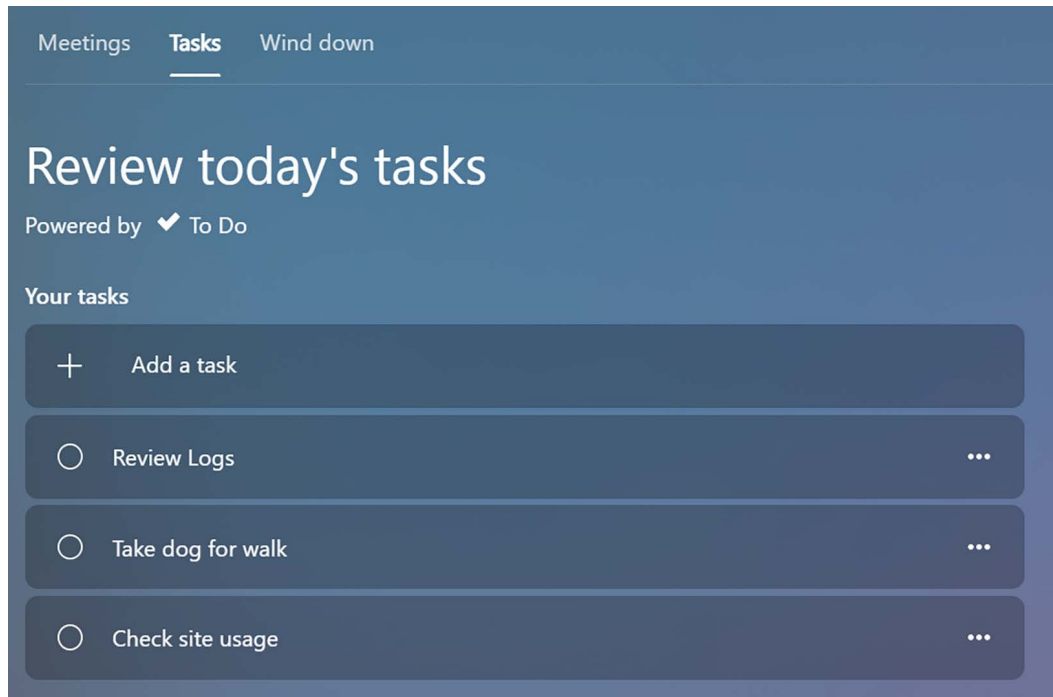
Figure 19.17: Task creation screen of a virtual commute

The next screen asks you to privately wind down with a meditation from Headspace or reflect on your day, as seen in *Figure 19.18*:
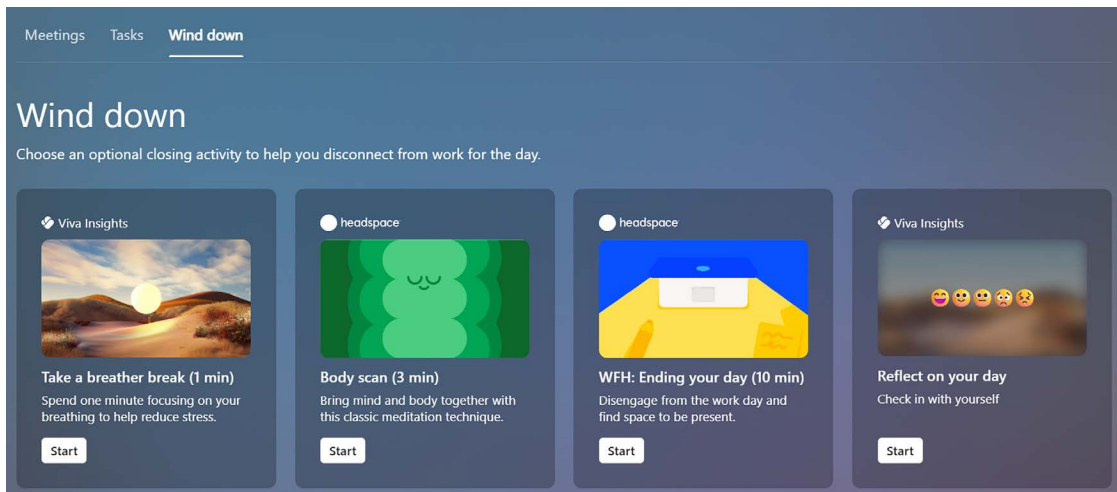
Figure 19.18: Reflection screen of a virtual commute

When the wind down part of your commute is finished (or if you'd like to skip it), simply click **Done** to complete your workday. Build this virtual commute into a new habit to give your workdays' endings more structure and improve your work-life balance.

See also

- Virtual commute: `https://packt.link/insights-commute`

Summary

In this chapter, you've seen how Viva Insights helps individuals in an organization manage their time, be more mindful, recognize others, and generally build a better work-life balance.

The most important thing about most of the recipes in this chapter is to try to make them habitual practices. For example, once you have focus time booked, don't accept meetings that overlap or continually shorten the time to accommodate a busier schedule. With focus time built into your schedule, you're giving yourself much-needed time to complete tasks arising from meetings and other obligations.

Remember that Viva Insights is likely to receive updates in the future, so keep an eye out for new features that help you manage your work-life balance.

Learn more on Discord

To join the Discord community for this book – where you can share feedback, ask questions to the author, and learn about new releases – follow the QR code below:

`https://packt.link/powerusers`
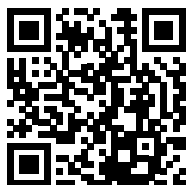
20

Viva Learning

Viva Learning is a standalone app in Microsoft 365 and is also integrated with other Microsoft 365 apps like Teams and, less extensively, SharePoint. It allows individuals to find on-demand learning modules and paths to upskill on a wide variety of topics, ranging from Microsoft 365 apps to professional communication and business skills. It also allows teams to share and pin specific learning opportunities that they may endeavor to complete together, or require as part of onboarding or professional development goals.

In this chapter, we're going to cover the following main topics:

- Taking a course
- Reviewing your learning activity
- Suggesting a course for your team

Technical requirements

There are no significant technical requirements for this chapter beyond having access to Microsoft Teams in an organization that allows Viva Learning features. The features in this chapter are all accessible by default.

Taking a course

Viva Learning makes it easy to learn while working. In this recipe, you'll learn how to find a course to complete in Viva Learning.

Getting ready

To work through the steps in this recipe, you'll need to first open the Microsoft Teams app on your desktop or web browser.

How to do it...

1. Within Microsoft Teams, look for Viva Learning on your left-hand navigation rail. If it's not already pinned there, use the ellipsis (...) to search for and select Viva Learning.

2. Search for and select the learning module named **Collaborate in teams and channels with Microsoft Teams**, as shown in *Figure 20.1*:
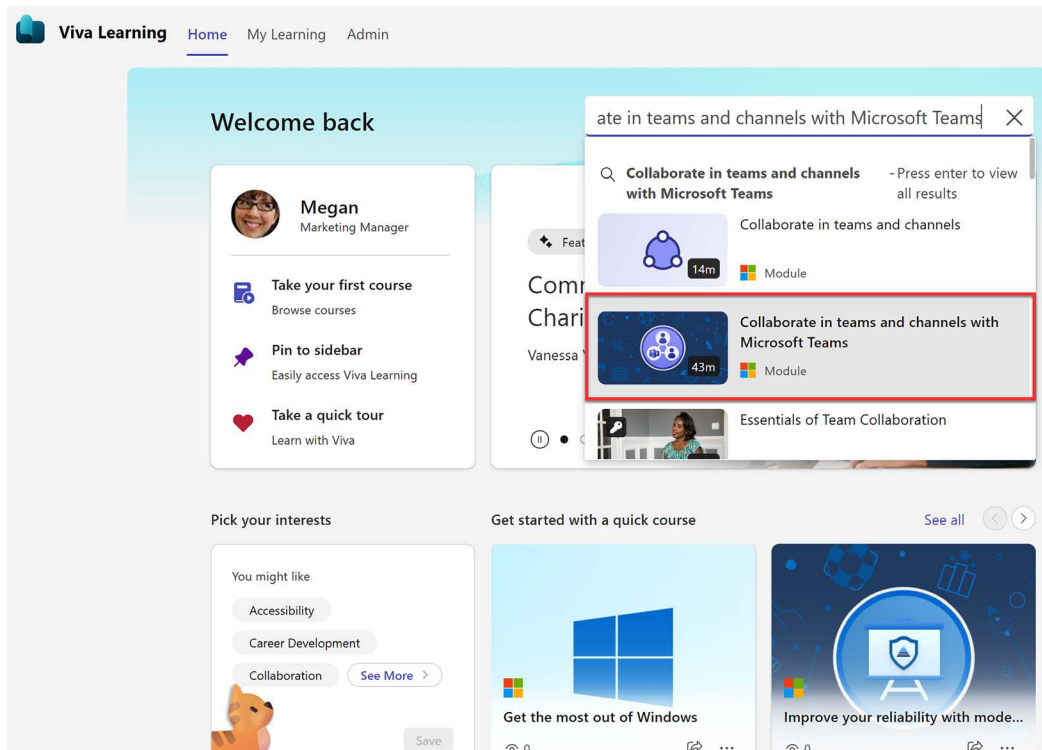
Figure 20.1: Viva Learning search box with suggested results

3. Review the provided information about the learning module, as shown in *Figure 20.2*, then click the course thumbnail or **Open in browser** to begin:
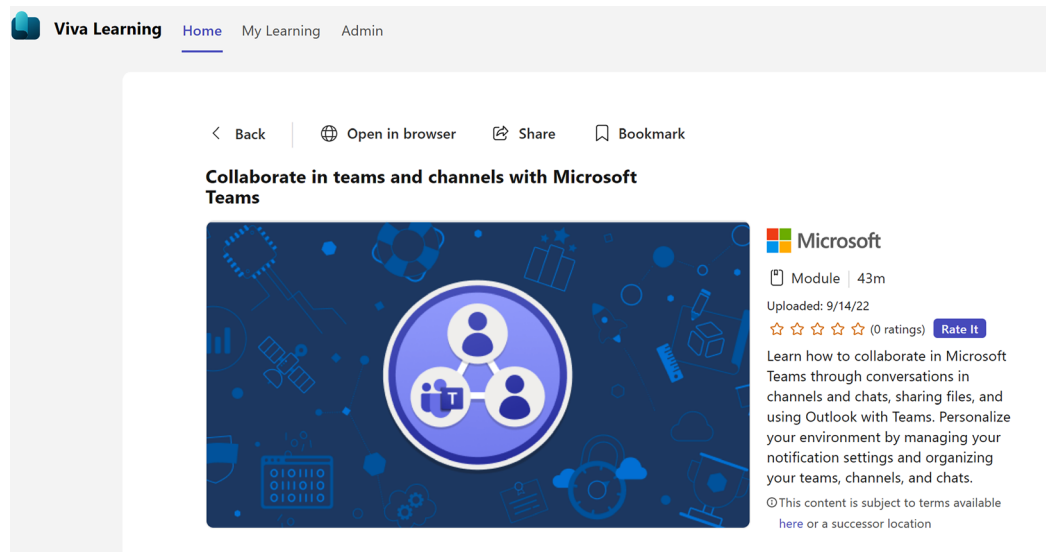
Figure 20.2: Viva Learning course details

4. You'll be taken to the full learning module in Microsoft Learn (host of this particular course) where you can sign in to track your progress if you're not already signed in. You can then complete the course.

How it works...

Viva Learning includes content largely from Microsoft Learn and LinkedIn Learning by default, and may be extended by your organization to include even more learning content from other providers. As an individual, you can browse for and start these modules and paths of your own choosing.

Some courses will open into a new browser window, while others will stay inside the Teams app. It just depends on the format of the course, such as whether it's Microsoft Docs documentation or a Microsoft Learn module or path.

As opposed to simply searching for and completing content of interest, your organization may also make learning content available. Content you've completed from your organization or integrated **Learning Management System** (**LMS**) can be tracked in **My Learning | Completed**. Other content, such as Microsoft Learn content, can be tracked directly in Microsoft Learn when you're signed in.

There's more…

Your admins may choose to expand content sources for Viva Learning to bring in existing third-party LMS content, or content from SharePoint, for example. This broadens your available courses for collaboration and self-learning and makes it easier to coordinate learning from a single application. And as with the other Viva products, you can expect to see additional updates and enhancements from Microsoft over time, including stronger integration throughout Microsoft 365.

See also

Overview of Microsoft Viva Learning: `https://packt.link/Viva-Learning`

Reviewing your learning activity

As your organization makes learning content available, you can complete it and track it using **My Learning | Completed**. In this recipe, we'll navigate to your completed learning.

Getting ready

To work through the steps in this recipe, you'll need to first open the Microsoft Teams app on your desktop or web browser.

How to do it…

1. Open the Viva Learning for Teams app.
2. Select **My Learning** at the top of Viva Learning, as shown in *Figure 20.3*:
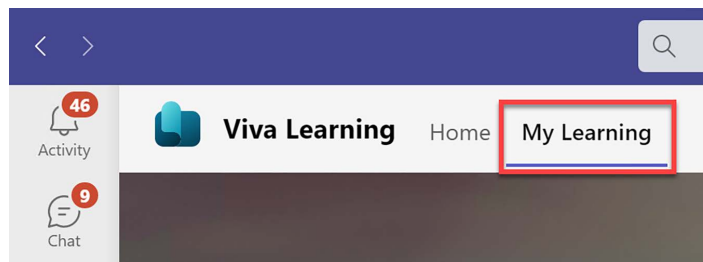
Figure 20.3: My Learning tab in Viva Learning

3. Select **Completed**.

How it works...

You can use **My Learning** to review learning content you've bookmarked, content that's been recommended to you by others, and content you've viewed recently.

Content not provided by your organization or LMS may be content sourced from Microsoft Learn or LinkedIn Learning. You'll need to visit those particular learning content providers to track your progress or review your learning history for those. For example, if you took a Teams learning module from Microsoft Learn via Viva Learning, you'll need to visit Microsoft Learn to review your progress and activity.

See also

- Overview of Microsoft Viva Learning: `https://packt.link/Viva-Learning`

Suggesting a course for your team

As you use Viva Learning more, you may find courses that are particularly helpful that you'd like to share with other members of your team. In this recipe, you'll suggest a Viva Learning course on Microsoft Teams.

Getting ready

To work through the steps in this recipe, you'll need to first open the Microsoft Teams app on your desktop or web browser.

How to do it...

1. Navigate to the specific team and channel to which you'd like to share the learning content.
2. Select **New conversation**, as shown in *Figure 20.4*:
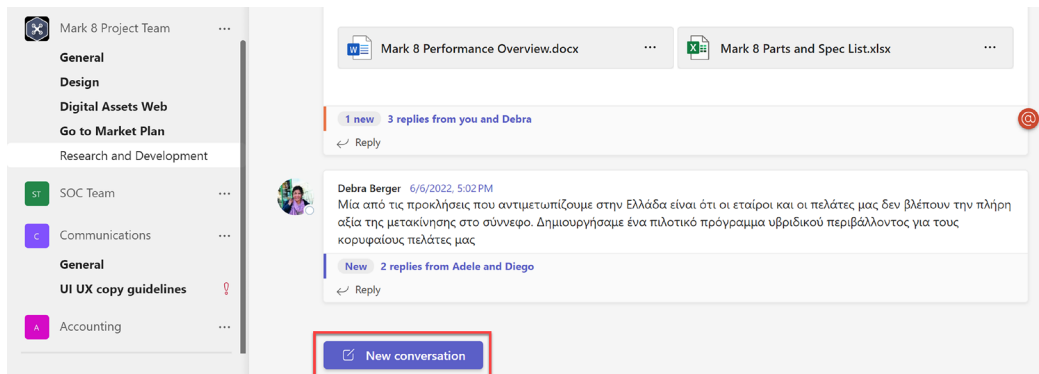
Figure 20.4: New conversation option in a Teams channel posts feed

3. Select the **Viva Learning** connector shown in *Figure 20.5*, then search for learning content to suggest to the team members. For this recipe, we'll search for `SharePoint online`:
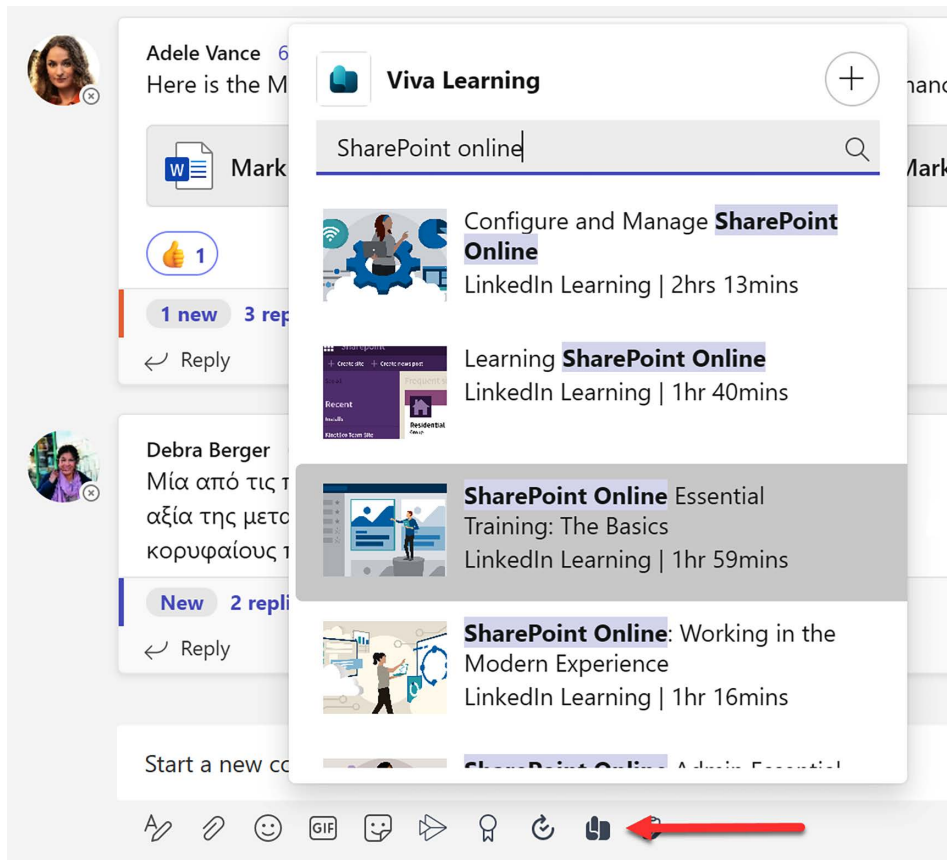
Figure 20.5: Viva Learning app integration for conversations

4. Select the content you wish to share. In this recipe, we'll select **SharePoint Online Essential Training: The Basics**.
5. Optionally add a note and send the message to encourage your teammates to complete the course or content.

How it works...

When you suggest a course in a chat or channel conversation in Microsoft Teams, a Viva Learning card is added to your message similar to the one shown in *Figure 20.6*, recommending the **SharePoint Online Essential Training: The Basics** course:
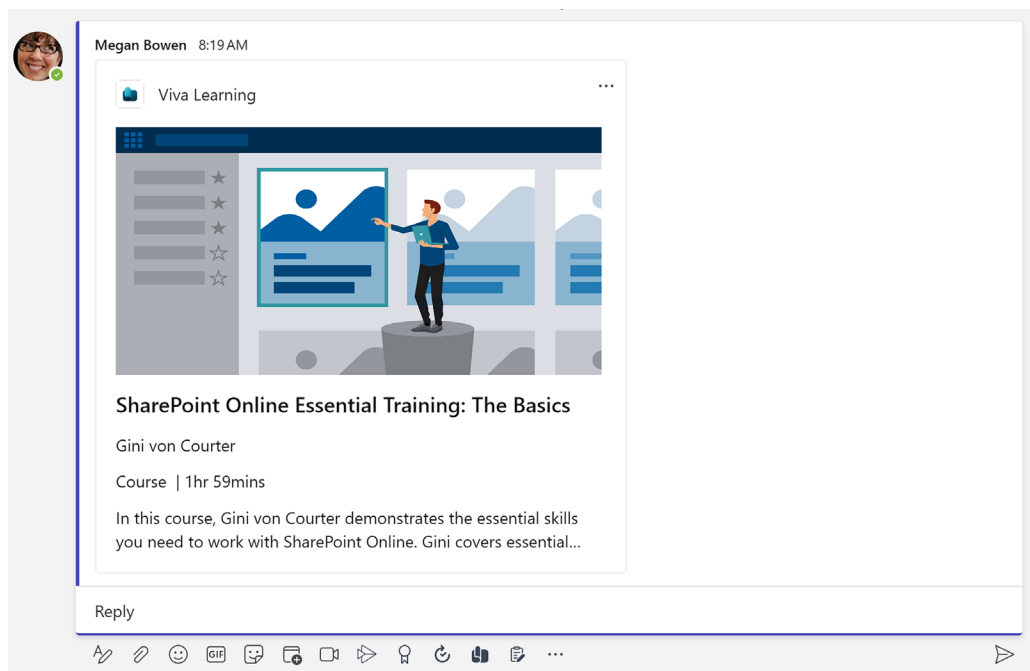
Figure 20.6: A recommended learning module shared in a channel conversation

There's more...

You can also pin Viva Learning as an app to a channel or chat. To do so:

1. Navigate to the specific chat or channel where you wish to pin Viva Learning.
2. Add a tab using the plus (+) icon at the top.
3. Select **Viva Learning** for the tab's app.

4.   Name the tab, then search for and select one or more modules, videos, and so on, to initially include in the tab. *Figure 20.7* shows this step:

Figure 20.7: A new chat tab being configured for Viva Learning

5.   Click **Save**.

6. Over time, you and your collaborators can use the tab to access and manage learning content you wish to share with one another. When you wish to add more, simply click **Add new**, as seen in *Figure 20.8*:
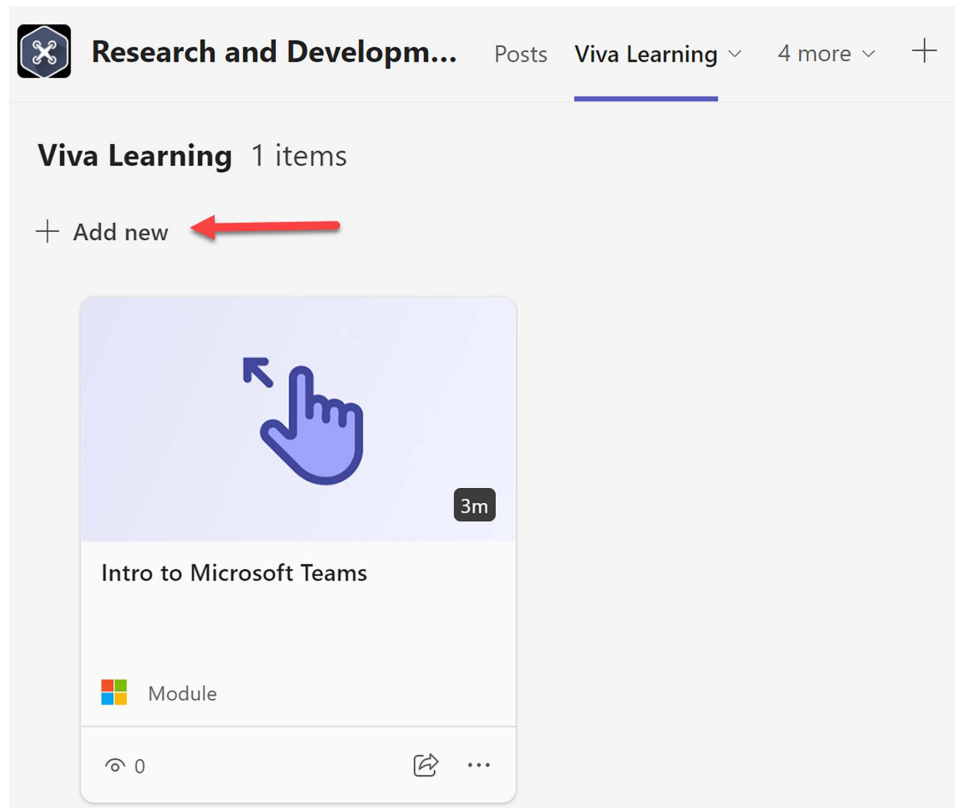
Figure 20.8: A Viva Learning tab added to a group chat or channel in Microsoft Teams

See also

- Microsoft support | Social learning: `https://packt.link/Microsoft-Support-social-learning`

Learn more on Discord

To join the Discord community for this book – where you can share feedback, ask questions to the author, and learn about new releases – follow the QR code below:

`https://packt.link/powerusers`

21

Viva Engage

Viva Engage is a social networking platform designed for internal business communication. Viva Engage provides a common area for all employees to interact, even those who might not have met each other yet. Since its acquisition by Microsoft in 2012, Viva Engage has been used by close to 80% of the Fortune 500 companies.

Viva Engage brings social networking to the workplace, providing a platform where people can get help solving problems from others in the organization. Viva Engage thus lets you get answers from a wide range of people in multiple ways, including discussions and polls.

The main uses of Viva Engage are to gather ideas, solve problems, share knowledge, and gather feedback. Additionally, Viva Engage makes the office a fun place. It allows people to create their own interest-based communities around shared topics, interests, or areas of practice.

Until recently, Viva Engage was known as **Yammer**. Any resources that you find about Yammer are talking about Viva Engage. This is largely just a rebranding to align Yammer with the Viva family of services offered by Microsoft; the core functionalities are the same. That said, technology is always changing, and it's important to be aware of changes or enhancements that will be introduced bit by bit, month by month.

In this chapter, we will cover the following recipes:

- Joining a Viva Engage network
- Creating a Viva Engage community
- Joining a Viva Engage community
- Using the home feed
- Following people and topics
- Posting messages
- Tagging colleagues
- Inviting external members to your network

Joining a Viva Engage network

The Microsoft 365 sign-in options for Viva Engage let you access Viva Engage with your Microsoft 365 identity. This means when you visit `www.Viva Engage.com` or choose **Viva Engage** from the Microsoft 365 waffle, you will be logged straight into Viva Engage (with your Microsoft 365 credentials). To join a Viva Engage network, use the following instructions.

Getting ready

Every Microsoft 365 user can access the organization's Viva Engage network and join communities of their choice. Users external to the company can only join if they receive an invitation. However, they can only view the external community they have been added to.

How to do it...

To join a Viva Engage network, follow these steps:

1. Go to `www.Viva Engage.com`:
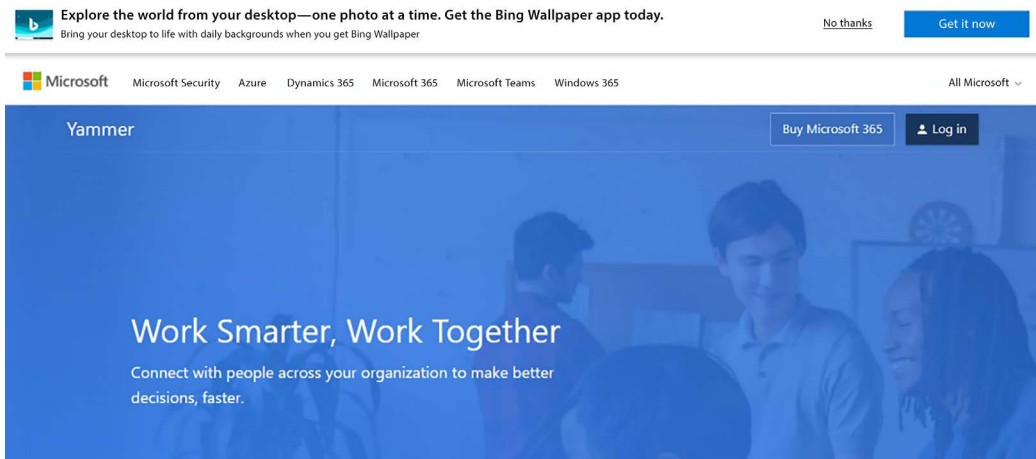
Figure 21.1: Viva Engage registration

2. To join using your organization's account, click on **Log In** and provide your email address:
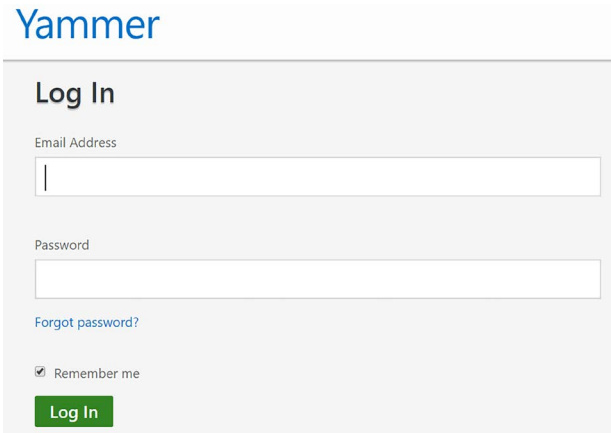
Figure 21.2: Viva Engage sign-in

3. If your organization has a Microsoft 365 tenant, you will be taken to your organization's sign-in page.

4. Enter your Microsoft 365 credentials.

You are in!

How it works...

When you log in to Viva Engage, your homepage will look like the screenshot below. We will go through the different parts of the screen as numerically indicated:
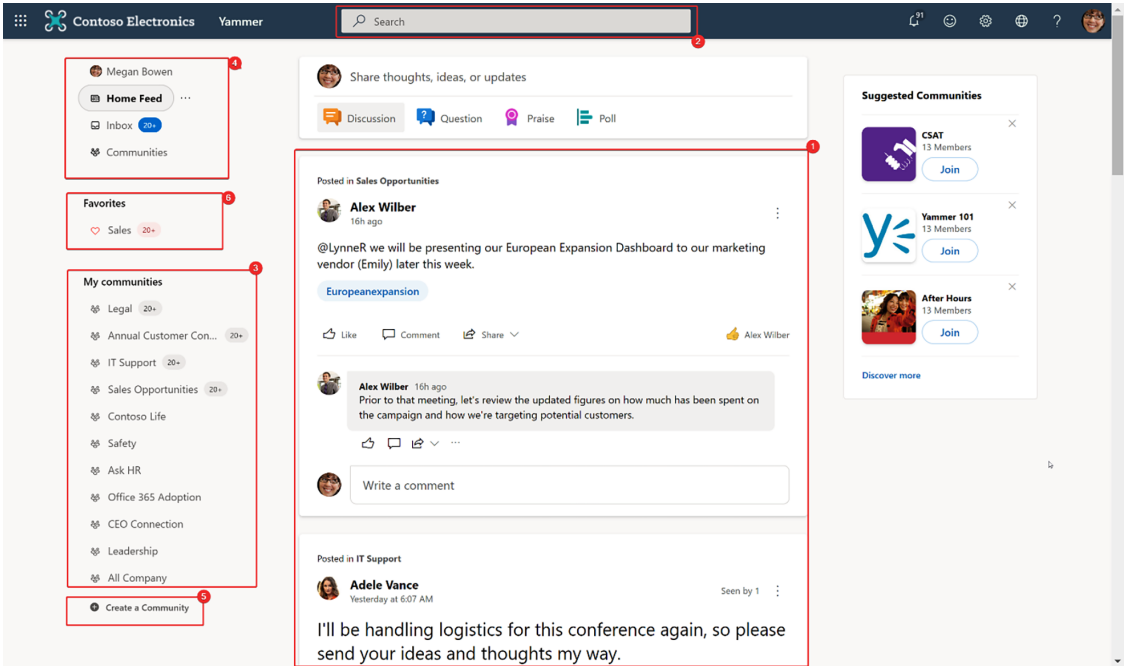
Figure 21.3: Viva Engage interface

1. **Conversations:** You create and consume content in the center of the screen. The content here is gathered from the various communities that you have joined, or the people or topics you follow. In the above example we can see that posts in **Sales Opportunities** and **IT Support** have been shown separately.

2. **Search:** You can search for communities, posts, and people using this option at the top of the page. You can restrict your search to the current community or search across all communities by selecting the **All Viva Engage** option:

Figure 21.4: Viva Engage Search

3. **My communities:** All the communities that you have subscribed to will appear in the left pane, with notifications beside each community name to indicate when new content has been posted.

> Everyone in the organization is added to the **All Company** community by default. They can also join other public communities based on their interests.
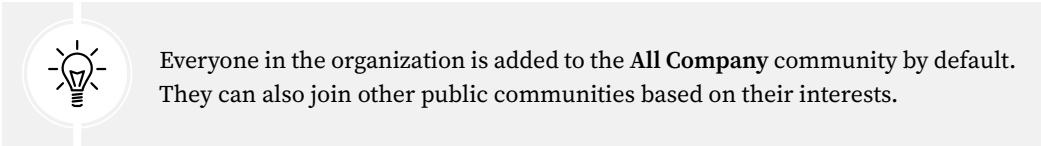
4. **Home Feed**, **Inbox**, and **Communities:** At the top-left corner, you can choose which conversations you would like to view center-screen. We can also see the notifications for each feed.

5. **Create a Community:** In the bottom-left corner, you can create a new community. You will be prompted to enter the **Name**, **Description**, **Members**, and privacy **Settings** for this community.

Inbox

The inbox is for focused messages that have been posted in your team or a post you decided to follow, as shown here:
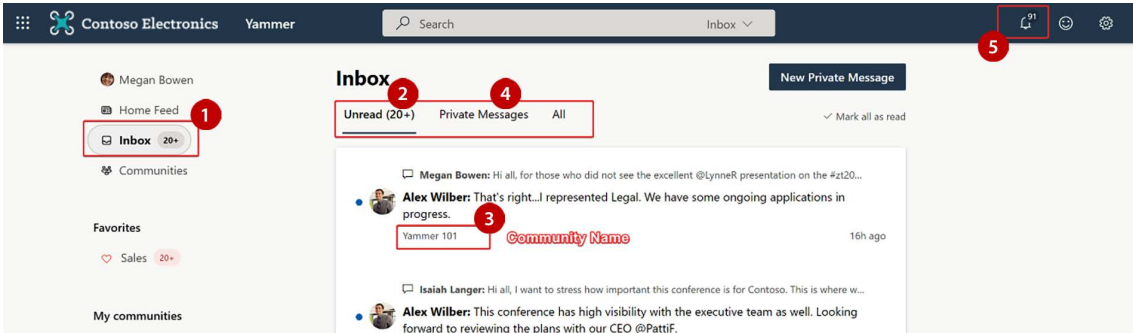
Figure 21.5: Viva Engage inbox

1. **Inbox notifications:** When there are unread messages for you, you will see a number (representing the unread message count) next to **Inbox**. Inbox messages are grouped under **Unread**, **Private Messages**, and **All**.

2. **Unread:** A heading at the top of the inbox that displays any community messages you have missed.

3. **Community name:** The conversation/message displays the community name alongside for reference. Clicking on the message opens the message in full view, displaying the message thread (if responses are available).

4. **Private Messages:** Displays direct messages sent only to you.

The notifications just show activity around your community or post (such as new members, likes, and so on):
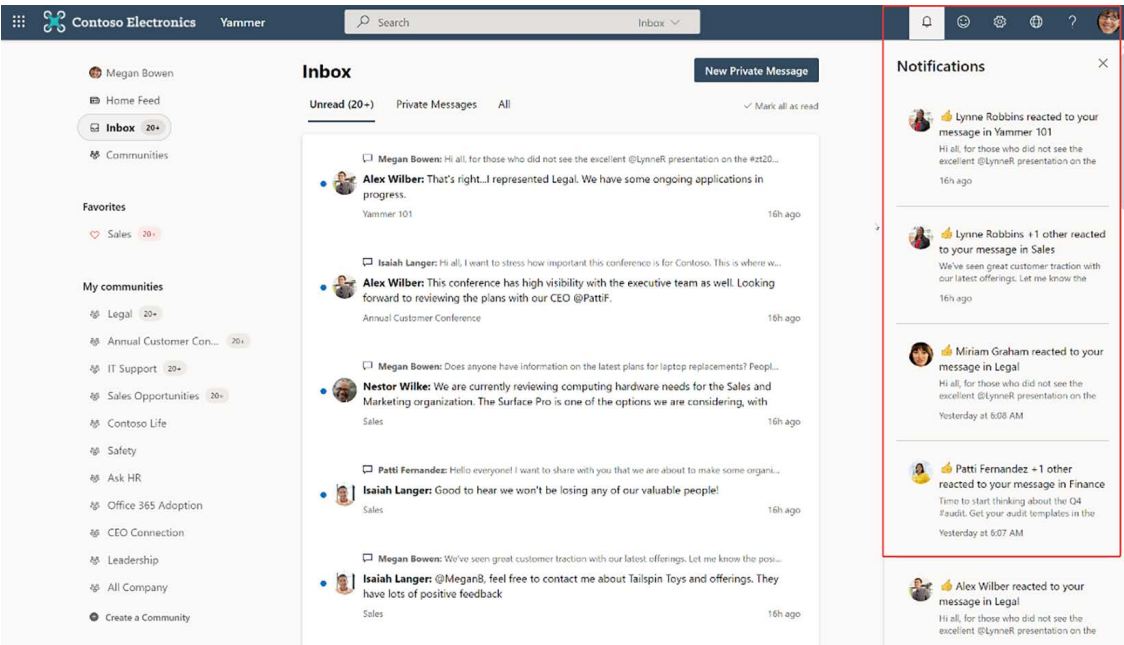
Figure 21.6: Viva Engage notifications

If you post a message, it is posted in the **All Company** community by default. So, if you want to post a message to a specific community, select the community first, then post your message.

There's more…

Before it was integrated with Microsoft 365, Viva Engage used to allow users to sign up using their organization-provided email address and a password of their choice (which was different from their Microsoft 365 password). This credential was termed a "Viva Engage identity." Now, if the user has a Microsoft 365 identity, they can log in to Viva Engage using their Microsoft 365 credentials even if the user doesn't have their Microsoft 365 identity enforced. On the other hand, if the user doesn't have their Microsoft 365 identity enforced and the email used to sign up to Viva Engage doesn't have a Microsoft 365 account associated, they are still allowed to log in using their Viva Engage identity.

See also

- The *Joining a Viva Engage community* recipe in this chapter
- The *Inviting external members to your network* recipe in this chapter

Creating a Viva Engage community

A Viva Engage community is a group of people who have come together within the Viva Engage platform to collaborate, share information and ideas, and communicate on specific topics or projects. It can be thought of as a virtual community within an organization or among a group of people with shared interests.

Viva Engage communities can be private or public, depending on the settings configured by the network administrator. In a private community, membership may be limited to individuals within a specific department, project team, or organization. In a public community, anyone can join the group and contribute to the discussions and collaborations.

Members of a Viva Engage community can communicate with one another through posts, comments, and direct messages. They can also share files, create polls, and collaborate on projects through integrated third-party applications like Trello or Asana. Viva Engage communities can help foster collaboration, increase productivity, and build a sense of community among colleagues or individuals with shared interests.

Getting ready

Any staff member can create a Viva Engage community. When you create a community, you automatically become the owner of that community.

How to do it...

To create a Viva Engage community, do the following:

1. Go to `www.office.com` and select **Viva Engage**.

2. From the left pane, select **Create a community**.

Figure 21.7: Creating a Viva Engage community

3. Provide a community name and add members.

4. Specify the privacy settings by clicking on **Edit.**

Create a New Community   ✕

Name *

Name your community

Description

Describe this community to others

150 characters remaining

Members

Add people by name or email

Edit settings

Internal or External

Internal: To collaborate with people inside your organization.   ⌄

Select public or private community

Public: Anyone in your network can view and join this community.   ⌄

Create
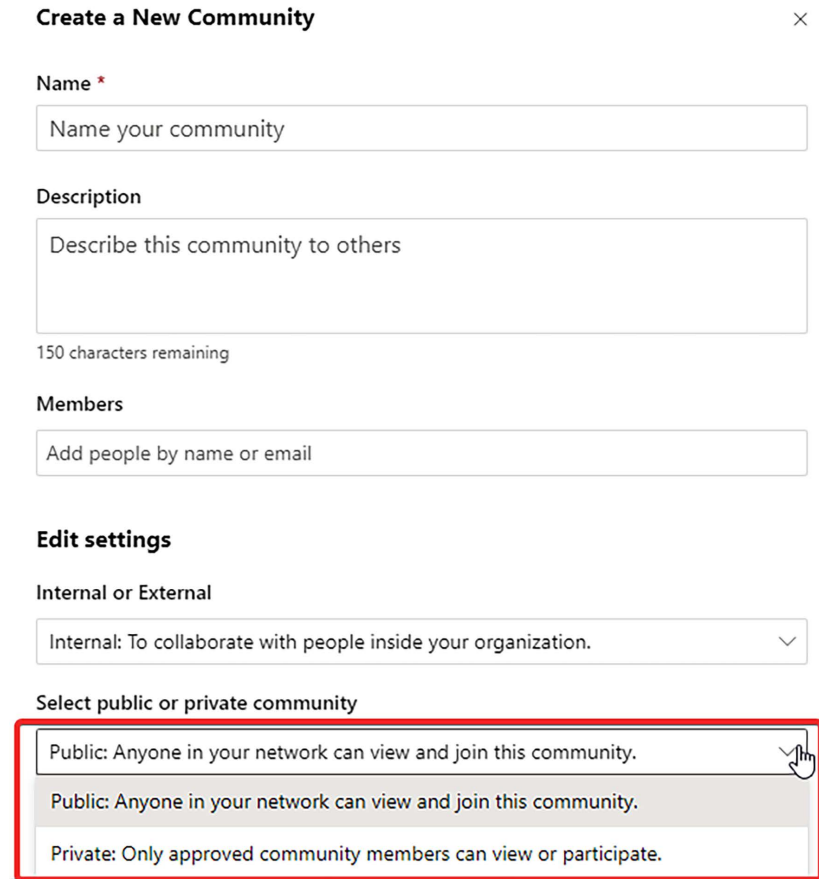
Figure 21.8: Viva Engage privacy settings

5. Click **Create.**

How it works...

Viva Engage communities can be created either to collaborate or socialize with internal staff or external vendors or partners. In some organizations, admins can turn off the ability to create external communities.

While creating a community, you can specify its privacy setting.

Figure 21.9: Community privacy

- **Internal:** This option only allows members who are part of your organization to join.
- **External:** This option lets you invite people from outside the organization. This could include vendors, partners, etc.
- **Public Access:** This option lets anyone within the organization post messages, pictures, videos, and other content to the community.
- **Private Access:** This option only lets members of the community post messages and other content to the community.

See also

- The *Joining a Viva Engage network* recipe in this chapter
- The *Inviting external members to your network* recipe in this chapter

Joining a Viva Engage community

To join a Viva Engage community, you must first have a Viva Engage account. If you do not have an account, you can create one by signing up with your work email address or by creating a new email address specifically for your Viva Engage account.

Once you have an account, you can search for communities to join by using the search bar on the Viva Engage home page. You can search for communities based on keywords or topics related to your interests or job responsibilities. You can also browse through the recommended communities provided by Viva Engage or view communities that are popular among your colleagues.

When you find a community that you would like to join, simply click on the community name to view the community page. From there, you can request to join the community by clicking on the **Join** button. The community administrator will receive your request and can either approve or deny your request to join.

If you are already a member of a community and want to join another community, you can repeat the search and request process to join the new community. Viva Engage allows you to join multiple communities simultaneously, giving you the flexibility to participate in discussions and collaborate with colleagues across various groups and topics.

Getting ready

By default, you can join any community within your organization. However, certain communities may be **private**, which limits the membership to a selected set of individuals. To join these communities, you need to send a request to the administrator.

How to do it…

To join a Viva Engage community, do the following:

1. Log in to the Viva Engage home page.

2. Use the **search bar** to look for a community.
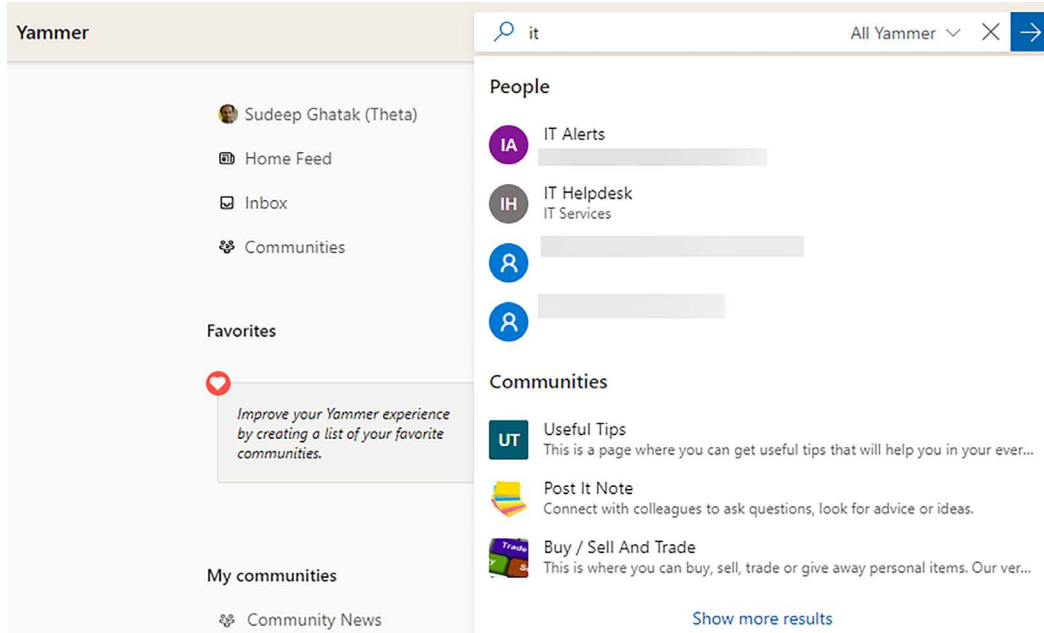
Figure 21.10: Search for a Viva Engage community

3. Viva Engage will suggest communities based on your connections and the communities you have already joined. Click **Show more results** to see the full list of communities matching your search criteria.

How it works...

When you join a community, you will start seeing posts from the members of that community on your Viva Engage home page.

Viva Engage is closely connected to Outlook, so you will keep getting notifications when there is any activity within your community. Sometimes, your Outlook inbox can get too busy if you have joined several communities. You can, in that case, customize your preferences to reduce the email clutter. You can update your preferences by clicking on the **gear icon** in the left-hand pane and choosing **Edit settings:**
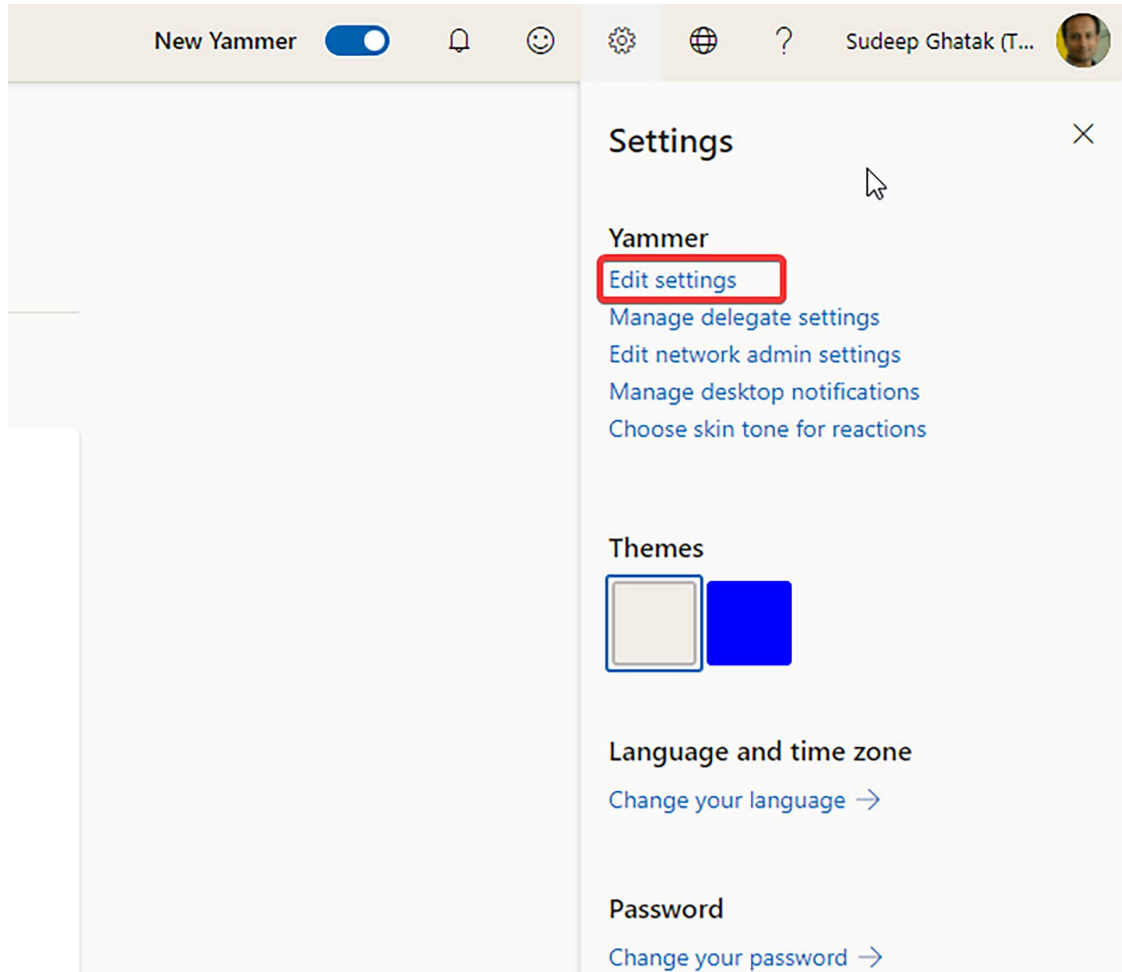
Figure 21.11: Viva Engage personalization settings

By clicking on the **Notifications** tab you can personalize your settings, specifying what you want to get notifications for:

Figure 21.12: Viva Engage notification settings

See also

- The *Joining a Viva Engage network* recipe in this chapter
- The *Inviting external members to your network* recipe in this chapter

Using the home feed

The home feed is the section where all the posts that are relevant to you will appear. This includes posts from your colleagues, any announcements, and content that is trending. Your home feed is tailored to you depending on the communities and people you follow, as well as the posts you have shown interest in. This recipe describes how you can use the home feed.

Getting ready

All Microsoft 365 users that have joined a Viva Engage network can access the Viva Engage home feed.

How to do it...

To access the home feed, do the following:

1. Go to `www.office.com`, search for `Engage`, and select the app from the suggestions as you type:
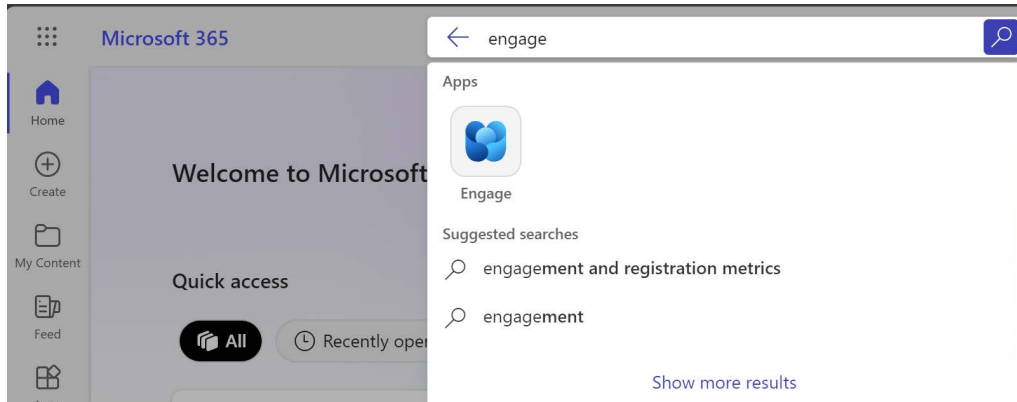
Figure 21.13: Accessing Viva Engage

2. The home feed appears on the center of the page by default, and you can also access it by clicking **Home Feed** on the left-hand menu. The following screenshot shows how it appears:
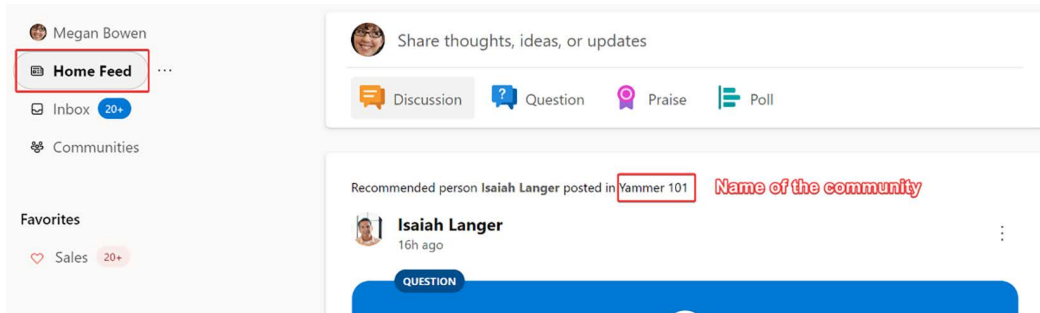
Figure 21.14: Viva Engage home feed

How it works...

Viva Engage's home feed uses AI to curate content for you. Behind the scenes, it trains a model that learns from your choices and presents relevant activity. For example, if you follow a particular user, Alice, Viva Engage might occasionally show you a post from Alice's colleagues or her manager. It then monitors your reaction to find out whether these posts are of any value to you. If you like these posts or comment on them, it will start showing you other posts from those users in the future. Not just that, you will also notice that the home feed changes during the day, even though you haven't taken any action. This is because Viva Engage's algorithm arranges the feed in order of importance and relevance at that time of the day.

See also

- The *Following people and topics* recipe in this chapter
- The *Posting messages* recipe in this chapter
- The *Tagging colleagues* recipe in this chapter

Following people and topics

Viva Engage generally displays posts from the communities you have subscribed to. However, you can follow specific people or topics instead of joining a community. As an example, you might be interested in what Kim, the marketing manager, has to say but you don't want to join Adele's "Marketing" community because there will be posts that the marketing team publishes that are of no interest to you. When you follow someone on Viva Engage, messages that they post will show up in your feed on your home page under **Following**.

You can also follow specific topics. Topics are created in Viva Engage with hashtags, such as `#hrupdate`. In this recipe, we'll explain how you can follow people and topics.

Getting ready

You can follow anyone within your company, along with any topic that has been hash-tagged.

How to do it...

To follow a person, do the following:

1. Use the **search bar** to find who you want to follow and click on their profile.
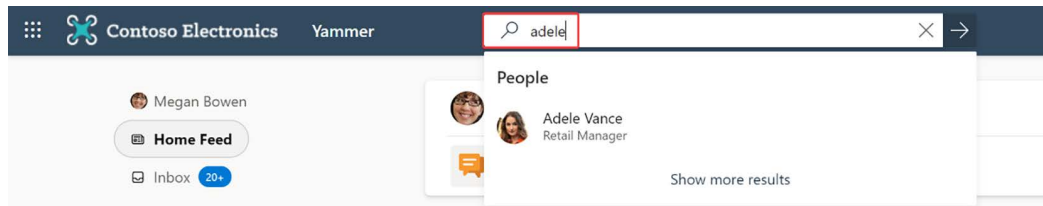
Figure 21.15: Search for a person

2. Click + **Follow**:
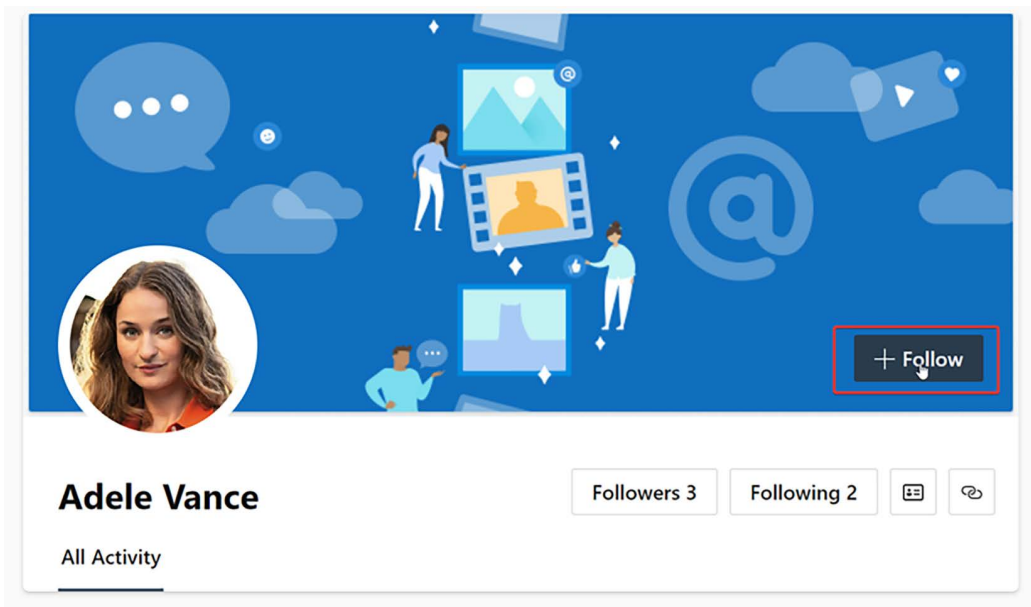
Figure 21.16: Follow a person

3. To follow a topic, search for the topic or click on the hashtag within a post:
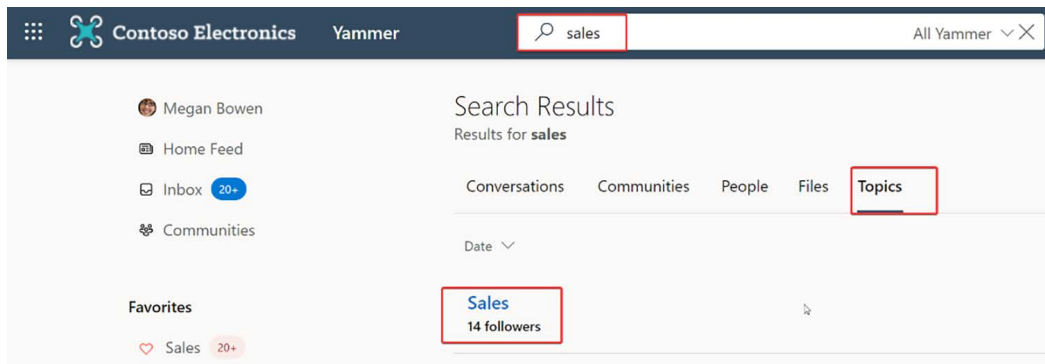
Figure 21.17: Search topic

4. After picking a topic, click **Follow** on the right side of the screen.
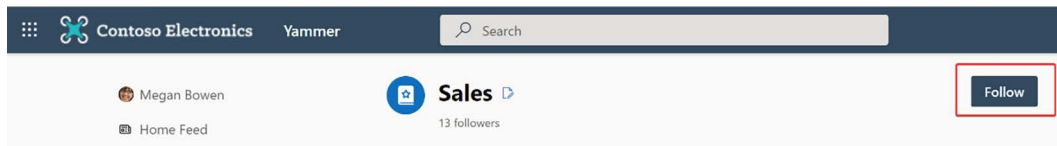
Figure 21.18: Follow topic

How it works...

By following a person or a topic, you are requesting to be notified about any activity they have been associated with. This is a good way of subscribing to a topic or specific people within the company that you are interested in without joining multiple communities. Companies can use hashtags to create specific topics, such as #shareprice or #employeeofthemonth, to keep staff informed about what's going on.

See also

- The *Using the home feed* recipe in this chapter
- The *Posting messages* recipe in this chapter
- The *Tagging colleagues* recipe in this chapter

Posting messages

Viva Engage gives you the opportunity to share your ideas and opinions with the rest of the company. Viva Engage allows you to post messages, images, announcements, and run polls. If you want, you can associate your message with a topic. You'll learn more about posting messages in this recipe.

Getting ready

Anyone in the company can post a message. They can post messages to **All Company** or any publicly available community.

How to do it...

To post a message, do the following:
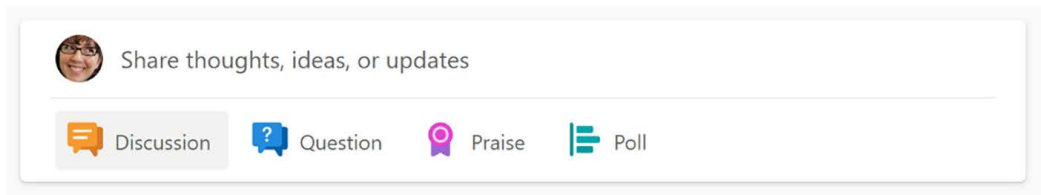
1. Go to the Viva Engage home page.
2. Choose the community you want to post the message to.

> If you post a message without selecting a community from the navigation bar, it is posted in the **All Company** community by default.
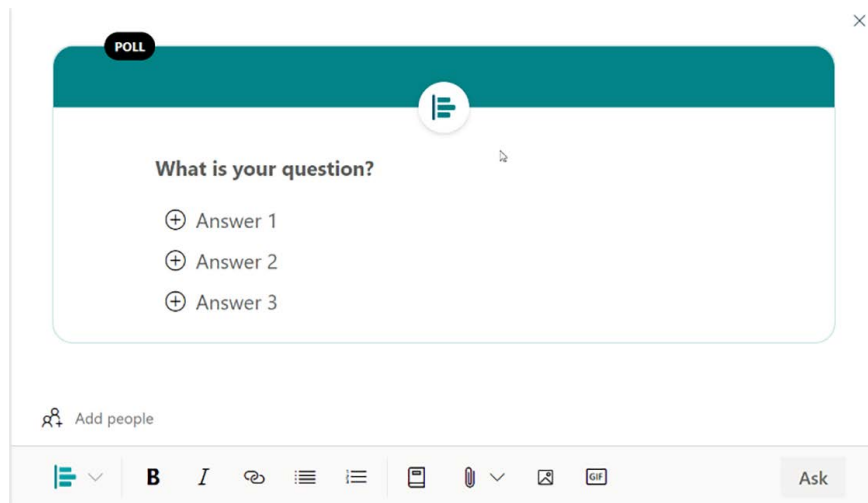
3. Type your message in the text box provided on the home page:

Figure 21.19: Post a message

4. You can also upload an image or run a poll and post it in a community:

Figure 21.20: Add a poll

Only community administrators can post announcements in Viva Engage.

How it works...

The message posted appears on the home page of the community it was posted to. The section in the left-hand panel of the home page displays the total unread posts in the community. This is how subscribers of the community know that new posts are available to read:
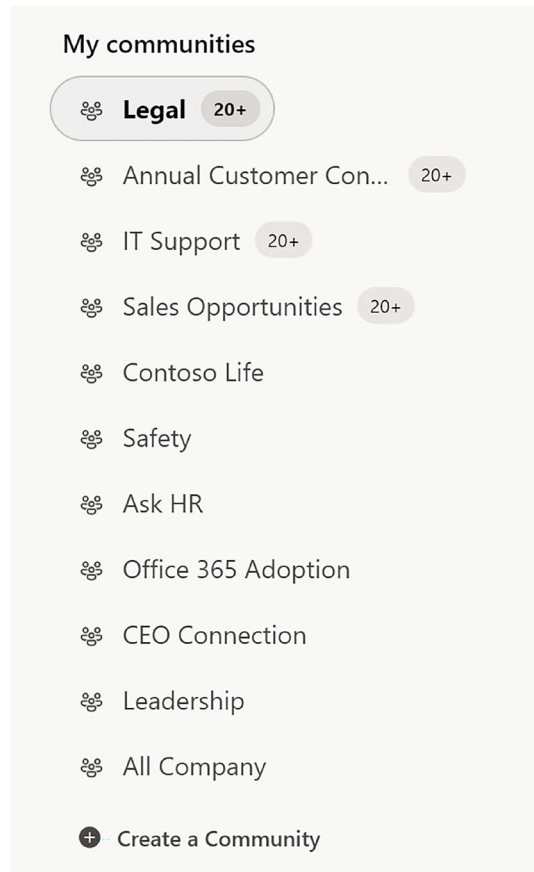
Figure 21.21: Notifications to subscribers

The **Praise** option lets you praise someone in your network who shared something helpful, or to celebrate a success.
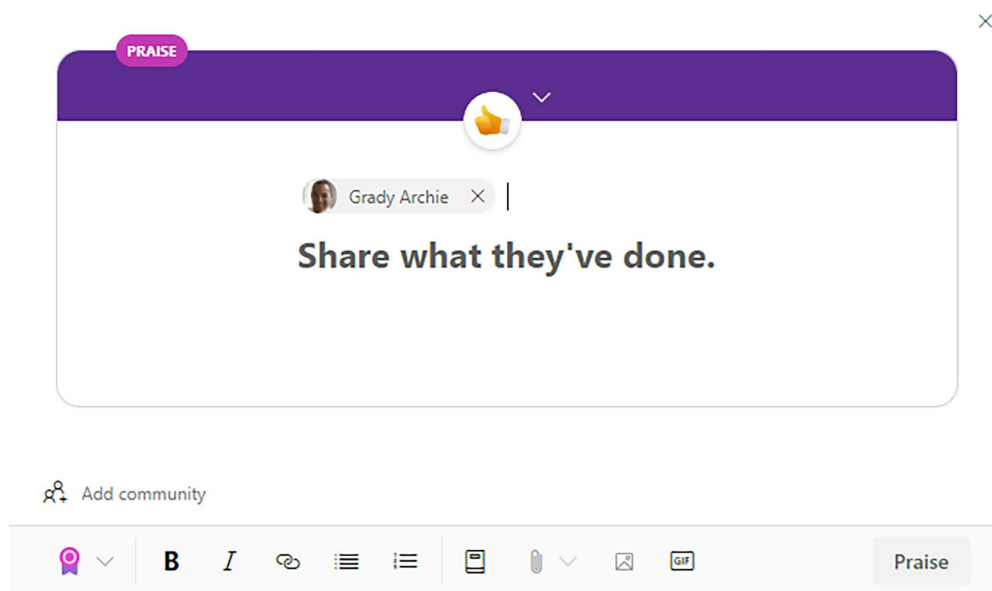
Figure 21.22: Praise someone

The **Question** option lets you request answers to a problem you might be having. You can post a question to one or multiple communities.
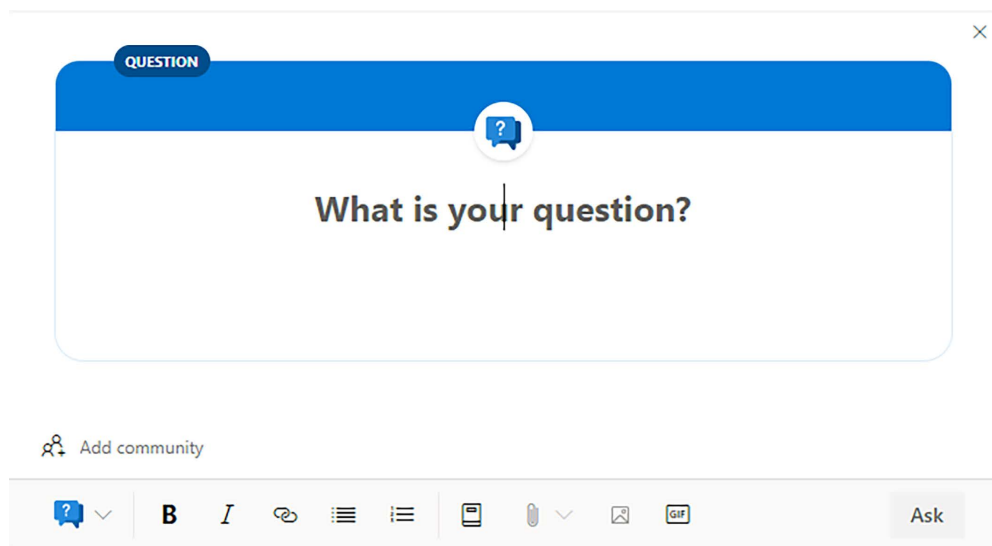
Figure 21.23: Posting a question

You can share an existing post to other communities by using the **Share** option. This lets you preserve comments that were posted under the original conversation (shown in the following screenshot):
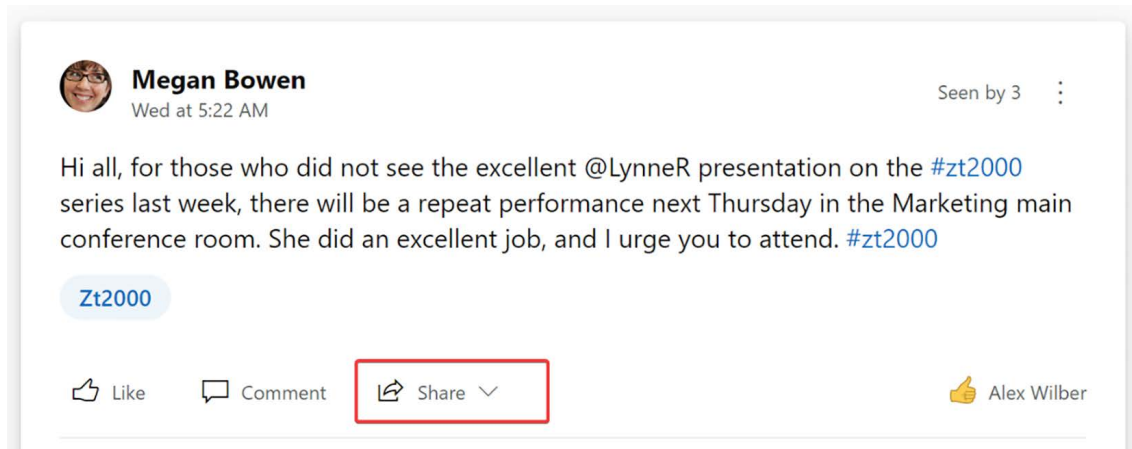
Figure 21.24: Share a post to other communities

The members can choose to respond to messages from the Viva Engage portal by just replying to the Viva Engage notification in their mailbox.

You can also post a message in Viva Engage by simply replying to the notification email. When you reply to the email, it is posted in the same conversation thread.

See also

- The *Using the home feed* recipe in this chapter
- The *Following people and topics* recipe in this chapter
- The *Tagging colleagues* recipe in this chapter

Tagging colleagues

Tagging your co-workers is a good way of drawing their attention. When you tag a colleague, they receive an email notification and a notification in Viva Engage.

In this recipe, we will learn about tagging your colleagues to stay connected.

How to do it...

To tag someone, do the following:

1. Go to the Viva Engage home page.
2. Compose a message and mention the person you want to tag by typing @ followed by their name:
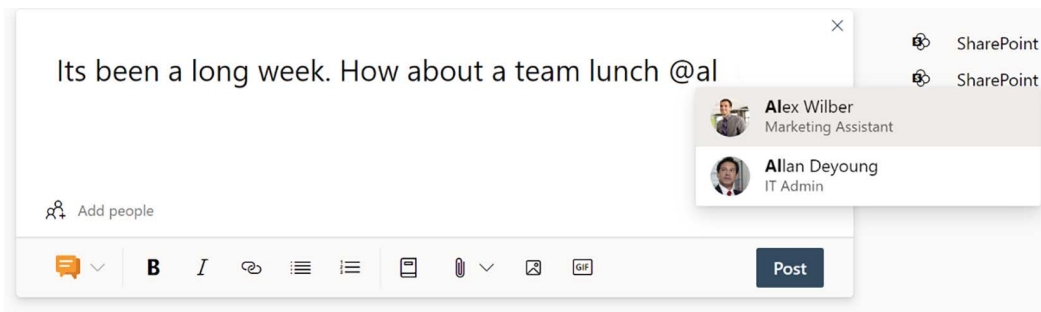
Figure 21.25: @mention People

3. You can also tag an individual or an entire community in the area highlighted in the following screenshot:
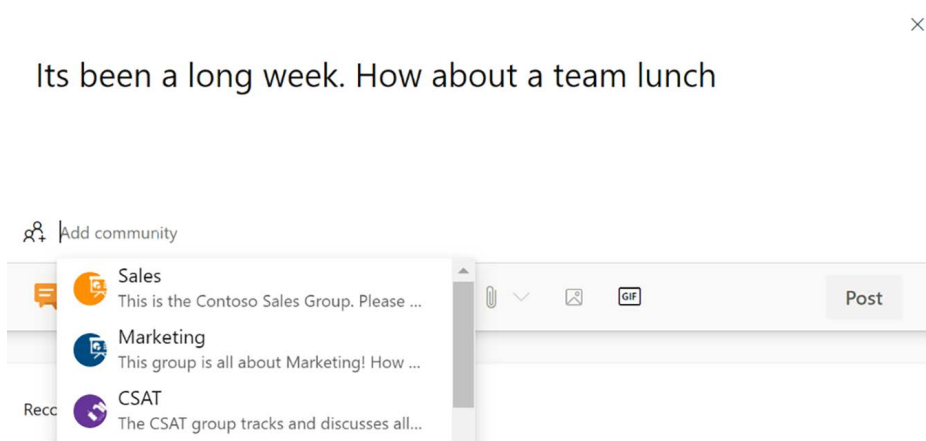
Figure 21.26: Tag an individual or community

How it works...

Tagging an individual notifies that person through an email. If you tag an entire community, everyone in the community receives an email. You can invite people from outside the community you are posting the message to. This feature is useful if you need to bring an expert into an existing conversation.

See also

- The *Using the home feed* recipe in this chapter
- The *Following people and topics* recipe in this chapter
- The *Posting messages* recipe in this chapter

Inviting external members to your network

Viva Engage lets you invite external people to a conversation, allowing you to get feedback from experts outside the organization as well. This feature is handy for inviting customers, vendors, and suppliers to a conversation. As a security measure, Viva Engage makes everyone in the community aware that an external member has been added to the conversation. This recipe explains how you can invite people from outside your organization to your Viva Engage network.

Getting ready

You can invite anyone (with a valid email address) to a conversation.

How to do it...

To invite someone, do the following:

1. Go to the Viva Engage home page.
2. Compose a message and provide the email address of the person from outside your organization that you want to add:
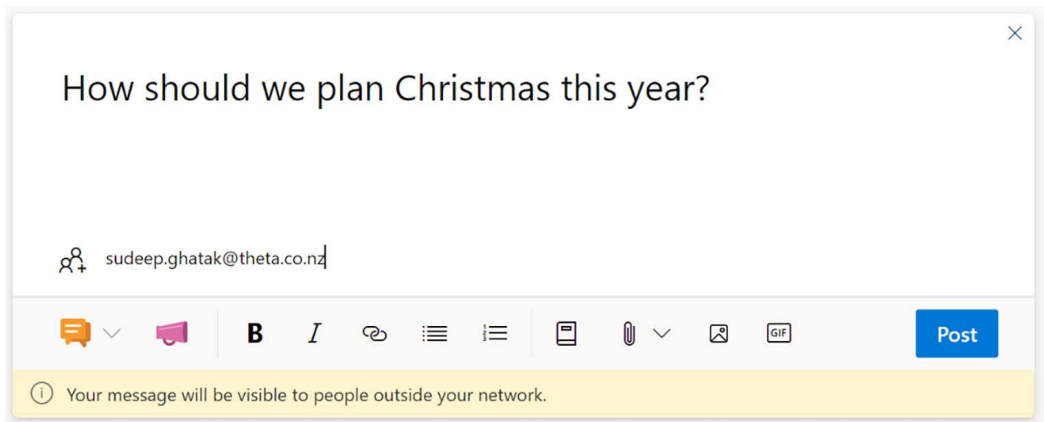
Figure 21.27: Tag an external person

3. Post the message.

How it works...

When an external member is invited to a conversation, they can participate and view all the messages in the thread. If the thread is too long, other members of the community might not realize that someone outside the company is following their conversation. In order to circumvent the issue, Viva Engage adds a globe symbol, along with a note on all future responses making it clear that the reply will be visible to people outside the network.

The external member receives an email notifying them that they were mentioned in a Viva Engage post.

If they have a Viva Engage account, they will receive a notification on their Viva Engage home page as well. They can respond to the message by simply replying to the Viva Engage email or replying via the Viva Engage portal.

See also

- The *Joining a Viva Engage network* recipe in this chapter
- The *Joining a Viva Engage community* recipe in this chapter

Learn more on Discord

To join the Discord community for this book – where you can share feedback, ask questions to the author, and learn about new releases – follow the QR code below:

`https://packt.link/powerusers`
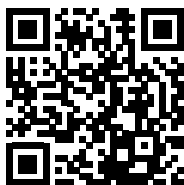
22

Planner

Planner is a visual tool that helps you organize your team tasks. It helps you stay on track, thereby making it easier to manage an ongoing project.

Planner is not a comprehensive project-management solution like Microsoft Project, but it provides lightweight task-management capabilities, such as creating tasks and assigning them to team members, specifying due dates, sharing files, having conversations, and more.

Here are a few examples of how Microsoft Planner can be used:

- **Project management**: Microsoft Planner can be used to manage a wide variety of projects, from simple tasks to complex projects with multiple team members and deadlines. You can create a plan for each project, set up different buckets to group tasks by status, and assign tasks to team members. This can help you stay on top of all the moving pieces in a project, and ensure that everyone is on the same page.

- **Event planning**: If you are planning an event, such as a conference or a wedding, Microsoft Planner can help you keep track of all the details. You can create a plan for the event, set up buckets for different stages of the planning process (such as "venue," "catering," and "guest list"), and assign tasks to team members. This can help you stay organized and ensure that everything is in place for the big day.

- **Content creation**: If you are creating content, such as blog posts or videos, Microsoft Planner can help you stay organized and on schedule. You can create a plan for each piece of content, set up buckets for different stages of the creation process (such as "research," "writing," and "editing"), and assign tasks to team members. This can help you ensure that your content is of high quality and delivered on time.

- **Personal task management**: Microsoft Planner can also be used for personal task management, such as organizing your daily to-do list or planning a vacation. You can create a plan for each task or project, set up buckets for different categories of tasks (such as "work" and "personal"), and assign tasks to yourself. This can help you stay organized and focused, and ensure that you are making progress on your goals.

Planner lets you visualize your tasks by allowing you to sort your project tasks by team member, task status, or task bucket, all from the same screen. It does this by laying all your task items on a planner board, which is like a dashboard that displays all of the tasks in a given plan.

Diving deeper into it, you might want to group tasks together based on an attribute, such as the task status or project phase. As we will learn in this chapter, you can achieve this by creating **buckets** within a board, which let you add **cards** representing individual tasks. You can move cards from one bucket to another by dragging them or simply by updating the bucket within the card. We will explain this with screenshots throughout the chapter, where it will be easy to visualize how this works.

You can manage all your plans via the **Planner Hub** page. The Planner Hub also provides a visual chart of the completed and ongoing tasks. Team members can have task-specific conversations within each card. They receive notifications when a new task gets assigned.

Planner integrates with other Microsoft 365 apps, such as Teams and Microsoft 365 Groups. Together, they offer a rich user experience. Planner is available to customers with Microsoft 365 Enterprise E1–E5, Business Essentials, Business Premium, and Education subscription plans. So, let's get into it.

We will cover the following recipes in this chapter:

- Creating a plan
- Creating tasks
- Assigning tasks
- Adding items to the checklist
- Managing a plan
- Deleting a plan

By the end of this chapter, you will be able to perform the basic functionality available on Planner, understanding how it works and how you can apply it in your organization for smoothly managing projects.

Creating a plan

Planner can be used to manage an event, research new ideas, track a project, prepare for a customer visit, or just organize your team more effectively.

You begin by creating a plan. There are several ways in which you can create a plan. One obvious way is to create the plan through the Planner home page. Plans also get created indirectly if you create a team in Microsoft Teams or a group within Microsoft 365 Groups.

Getting ready

In order to create plans, you should have permission to provision a Microsoft 365 group. Administrators can disable this feature in some organizations; however, Microsoft 365 does allow you to selectively grant Microsoft 365 group creation rights to individuals or groups.

How to do it...

To create a plan from the Planner app:

1. Log in to `https://office.com` using your Microsoft 365 account.
2. Click on **Planner**.
3. Click on **New plan**:
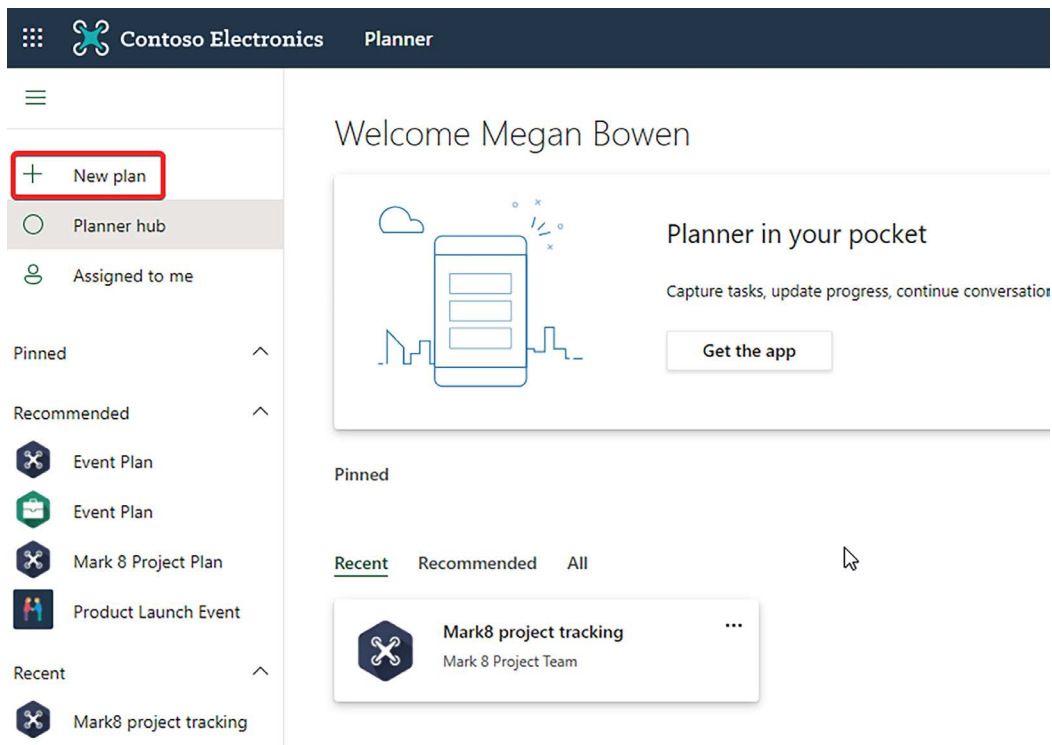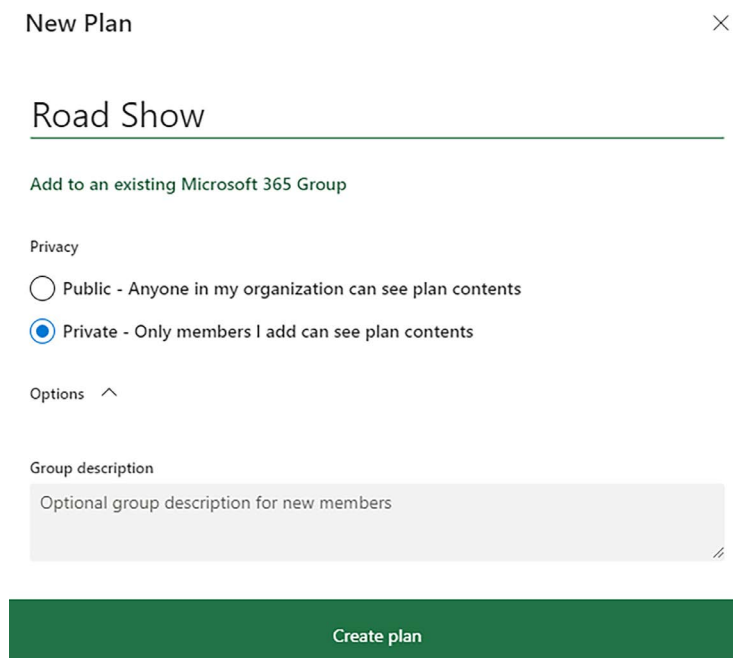
Figure 22.1: Creating a new plan

4.   Give your plan a name and click **Create plan**:

Figure 22.2: Plan permissions

It's as easy as that – you have successfully created a plan. Now we will look at the **Public** and **Private** options presented in the above screenshot.

How it works...

While creating a plan, you can specify whether the plan is public or private:

- **Public plans** will be visible to everyone in your organization.
- **Private plans** will only be accessible to members that you add to the plan.

Creating a plan triggers actions in several other apps. You get a Microsoft 365 group to collaborate on your plan, a notebook is created for the group in OneNote, and your group gets a mailbox in Outlook, a calendar, and a SharePoint site.

If you already have a Microsoft 365 group and want to create another plan, then this can be done by associating the new plan with your group using the **Add to an existing Microsoft 365 Group** option.

After the plan is created, you will be taken to the **Board** view (landing page) of the plan.

The board displays all the cards grouped together in columns (known as **buckets**). Buckets can be project phases, task categories, or any other type that you would like to categorize the tasks by, as shown in the following screenshot:
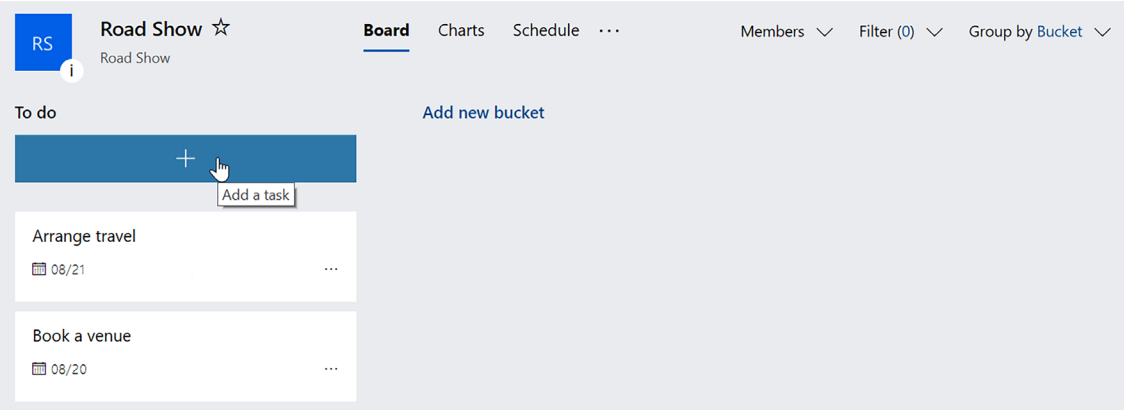
Figure 22.3: Planner Board view

The **Charts** view shows how your plan is progressing. It provides some basic visuals to show what's complete, in progress, not started, and late. It also displays the task count in a bucket. You can also create tasks in this view:
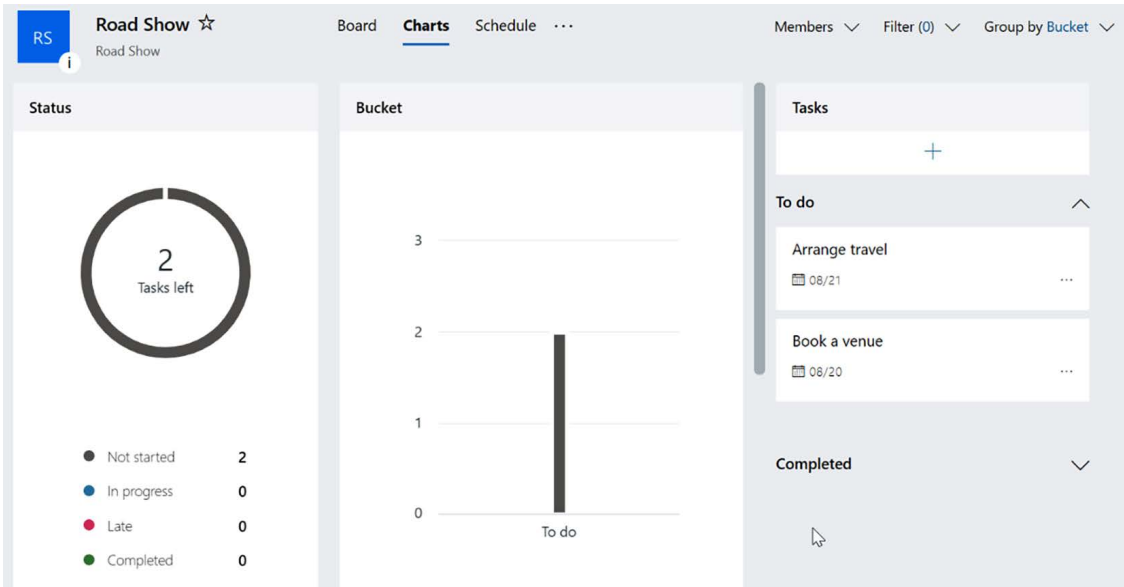
Figure 22.4: Planner Charts view

The **Schedule** view displays team tasks and also lets you create tasks within a calendar, as shown in the following screenshot:
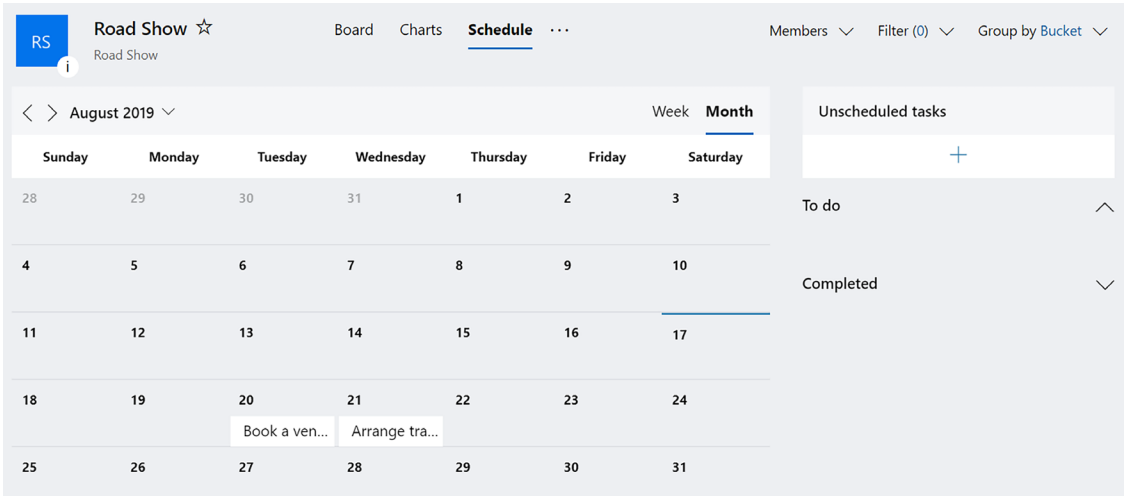
Figure 22.5: Planner Schedule view

If you click the ellipsis (...) icon, it reveals several options in the context menu, as shown in the following screenshot:
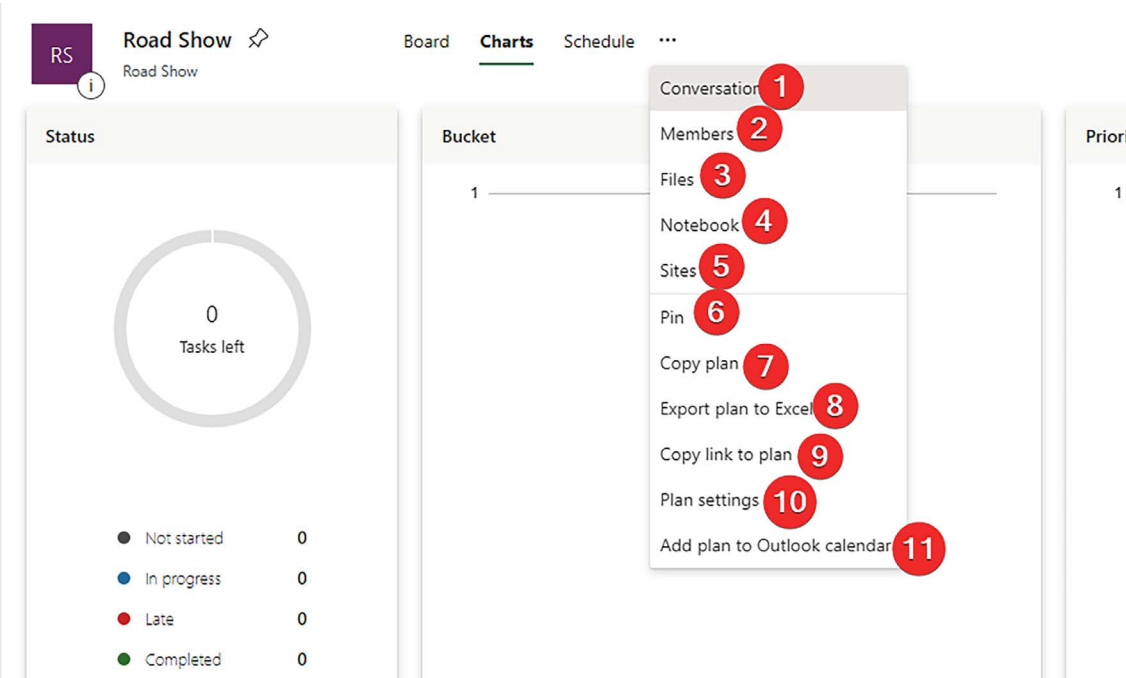
Figure 22.6: Planner options

The list below explains the options in the context menu, with numbers corresponding to those in *Figure 22.6*, respectively:

1. **Conversation:** This takes you to the mailbox for the Microsoft 365 group that sits behind the plan.
2. **Members:** By clicking on this, you can share a plan with your colleagues. It takes you to the Microsoft 365 Groups page where you can add new members using the **Add member** option.
3. **Files:** Takes you to a SharePoint document library where all the group documents are stored.
4. **Notebook:** Allows you to access the group's OneNote document.
5. **Sites:** Takes you to the SharePoint site sitting behind the plan.
6. **Pin:** Lets you mark the plan as a favorite so that you can easily find it.
7. **Copy plan:** Lets you clone the plan as a public or private plan. The copy option copies the tasks (along with the task artifacts) associated with the plan.
8. **Export plan to Excel:** Lets you export the Planner task into Excel in case you want to share these tasks with an external member or someone outside your organization.
9. **Copy link to plan:** Copies the link to the plan, which you can bookmark (if you want to). Note that this is not the preferred way of saving links for future reference. Instead, you should mark a plan as a favorite.
10. **Plan settings:** Lets you change the plan name and privacy settings or delete the plan.
11. **Add plan to Outlook:** Lets you add your Planner tasks to your Outlook calendar by adding a subscription.

See also

- *Creating tasks*, in this chapter
- *Adding items to the checklist*, in this chapter
- *Managing a plan*, in this chapter
- *Deleting a plan*, in this chapter

Creating tasks

A plan is no good if it doesn't have any actions. The individual action items in a plan are created as **tasks**. The tasks in a plan appear as **cards**. Every card represents a unique activity with an optional due date and an assignee. Tracking the individual cards on the board lets you track the progress of your plan holistically.

Getting ready

Individual tasks can be created by the members of the Microsoft 365 group associated with the plan.

How to do it...

The following are the steps to create a new task in Planner:

1. Log in to `https://office.com` using your Microsoft 365 account.
2. Click on **Planner** and choose the plan you are working on.

3. Click on the + symbol on the board below the bucket name:
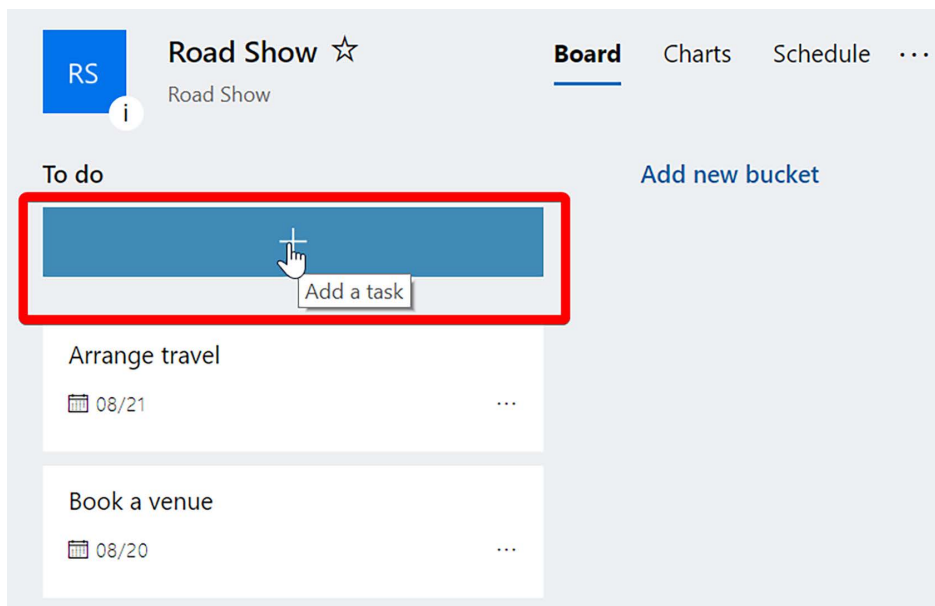
Figure 22.7: Add a task with the + button

4. Give your task a name and provide a due date (optional) and assignee (optional):
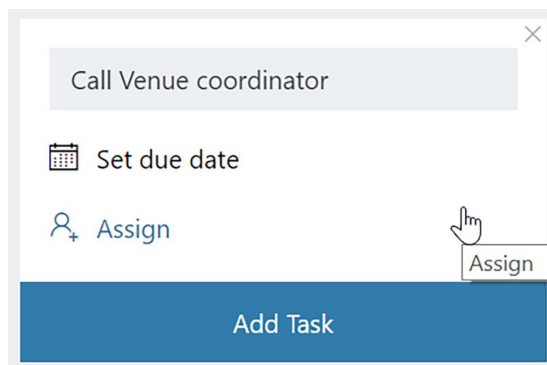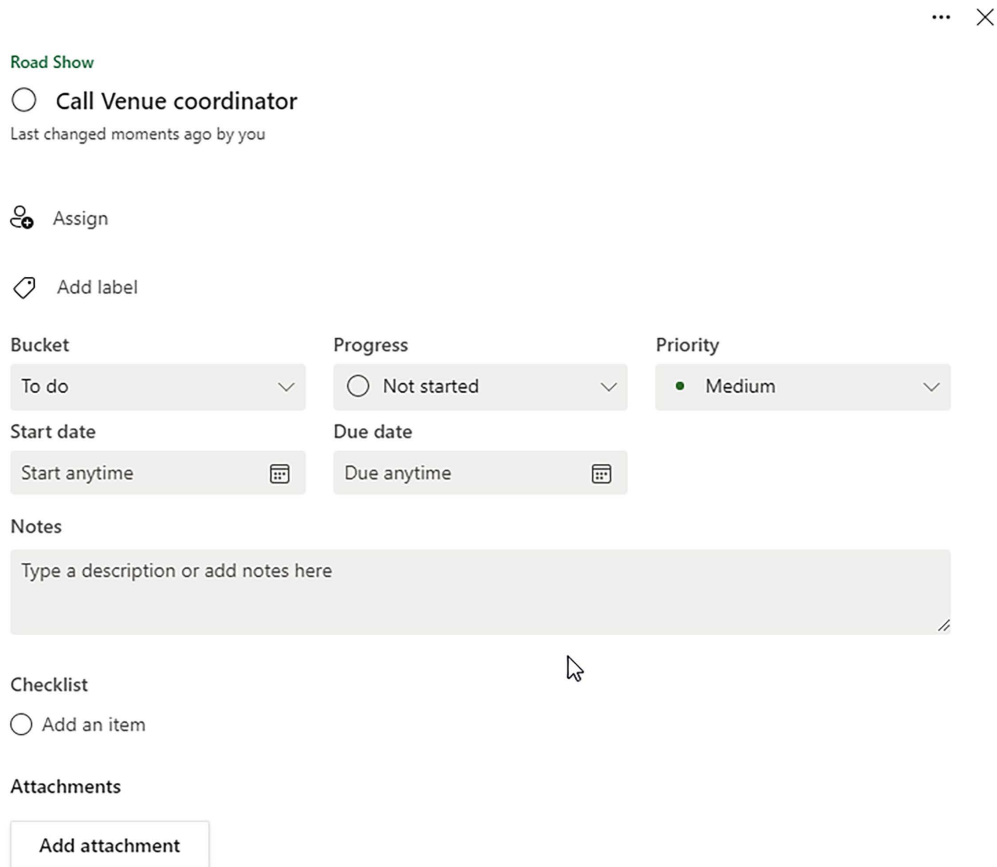
Figure 22.8: Due date and assignee are optional while adding a task

5. Click **Add task.**

6. The task appears on the board. Click to open it.

7. You can now set a start date for the task as well as update the due date, as shown in the following screenshot:

Figure 22.9: Option to update the task with a start date and due date

8. Enter the task description. Planner autosaves your task properties.

How it works...

A Planner task offers several features that let you manage your task in an efficient manner. You can add a due date to the task, which lets you manage the overall plan. Planner lets you specify a task start date so that the project manager can determine which tasks are in progress and which ones are yet to be started. You can mark the task as complete by clicking on the checkbox next to the task name, as shown in the following screenshot:
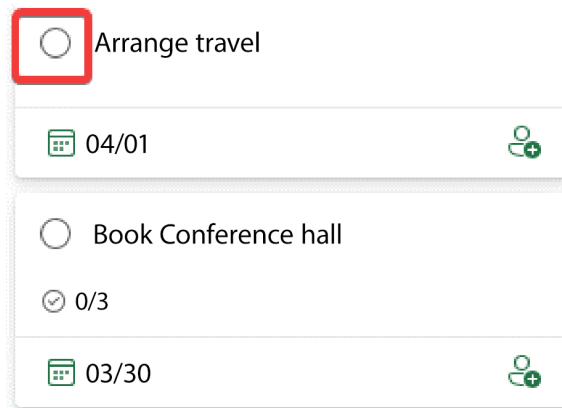
Figure 22.10: Checkbox to indicate that a task has been completed

The card also lets you clone a task. This can be done either from the **Board** view or from within the **Task** view:
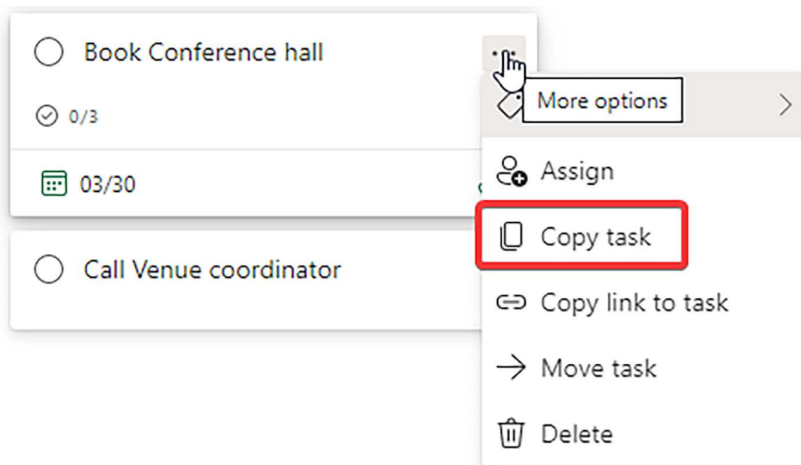
Figure 22.11: Copy task from More options, on the right of the task name

See also

- *Creating a plan*, in this chapter
- *Adding items to the checklist*, in this chapter
- *Managing a plan*, in this chapter
- *Deleting a plan*, in this chapter

Assigning tasks

Tasks let you keep a digital reminder of work activities you need to complete by a given due date. Planner lets you create tasks from the **Board** view without having to assign an owner. If you simply specify a task name and press *Enter*, a task gets created without an assignee.

You can see the tasks that don't have an assignee by grouping the tasks by **Assigned to**.

Getting ready

All members of the Microsoft 365 group that is associated with the plan can add task assignees.

How to do it...

You can assign a group member by doing one of the following:

- Update the task.
- Drag the card in the **Assigned to** view.

Both methods are explained in the following sections.

Updating the task

The following are the steps to update a task:

1. Log in to `https://office.com` using your Microsoft 365 account.
2. Click on **Planner** and choose the plan you are working on.
3. Click on the task name.
4. Click **Assign**.

5.   A text box appears with the list of group members below it:

Prepare advertising material
Last modified 2 days ago by Megan Bowen
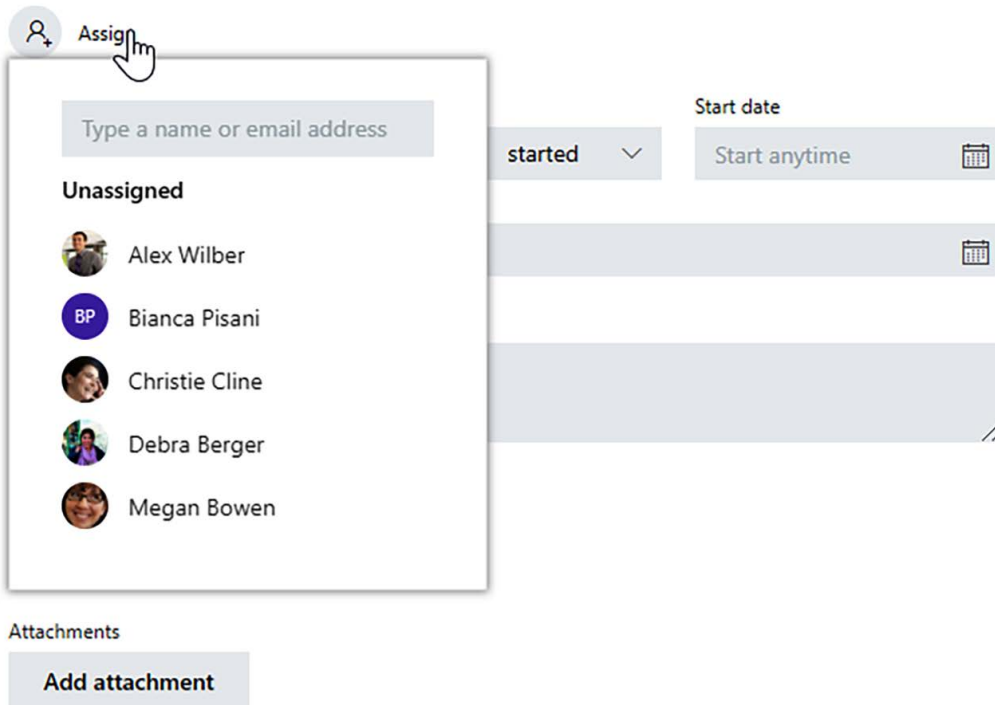
Figure 22.12: Updating a task by assigning members to it

6.   Click on one or more group members to assign a task to them.

7.   Close the task by clicking the **X** icon.

Dragging the card

You can also update a card by dragging it across to a bucket, as follows:

1.   Log in to `https://office.com` using your Microsoft 365 account.

2.   Click on **Planner** and choose the plan you are working on.

3.   Switch the **Group by** option to **Assigned to**, as shown in the following screenshot:
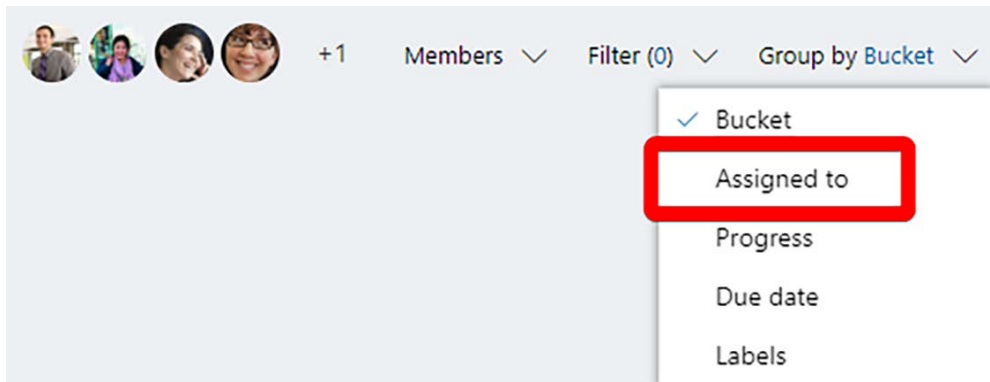
Figure 22.13: Updating a task by moving it to an assignees bucket

4.   Drag a task from one person's bucket to another. The task assignee gets updated.

How it works...

Planner notifies assignees of the task when they have been added. Planner tasks can be assigned to one or more group members. You can also assign people who are not part of your group by specifying their email addresses.

> Remember, you cannot assign tasks to people outside your organization.

See also

*   *Creating tasks*, in this chapter
*   *Adding items to the checklist*, in this chapter

Adding items to the checklist

Adding tasks on the board meets just one objective. After the tasks get created, they need to be monitored and managed. This is done by organizing the tasks in categories known as boards and tracking the progress of a task by creating checklists within them. For instance, booking a conference room task might involve finalizing the conference date, calling the owner, negotiating a price, and so on. These can be treated as subtasks and can be tracked via a checklist.

Getting ready

Checklists can be added by the members of the Microsoft 365 group associated with the plan.

How to do it...

You can add the checklist items by going through the following steps:

1. Log in to `https://office.com` using your Microsoft 365 account.
2. Click on **Planner** and choose the plan you are working on.
3. Click on a task.
4. Go to the section that says **Checklist.**
5. Add a checklist item where it says **Add an item.**
6. Type in a checklist item and simply press *Enter*.
7. Check the **Show on card** option, as shown in the following screenshot:

Figure 22.14: Adding items to a checklist

8. The tasks can be labeled with a color that lets you easily identify a task—for instance, all tasks related to a conference venue, such as arranging food, organizing a projector, and so on, can be labeled with a pink color:
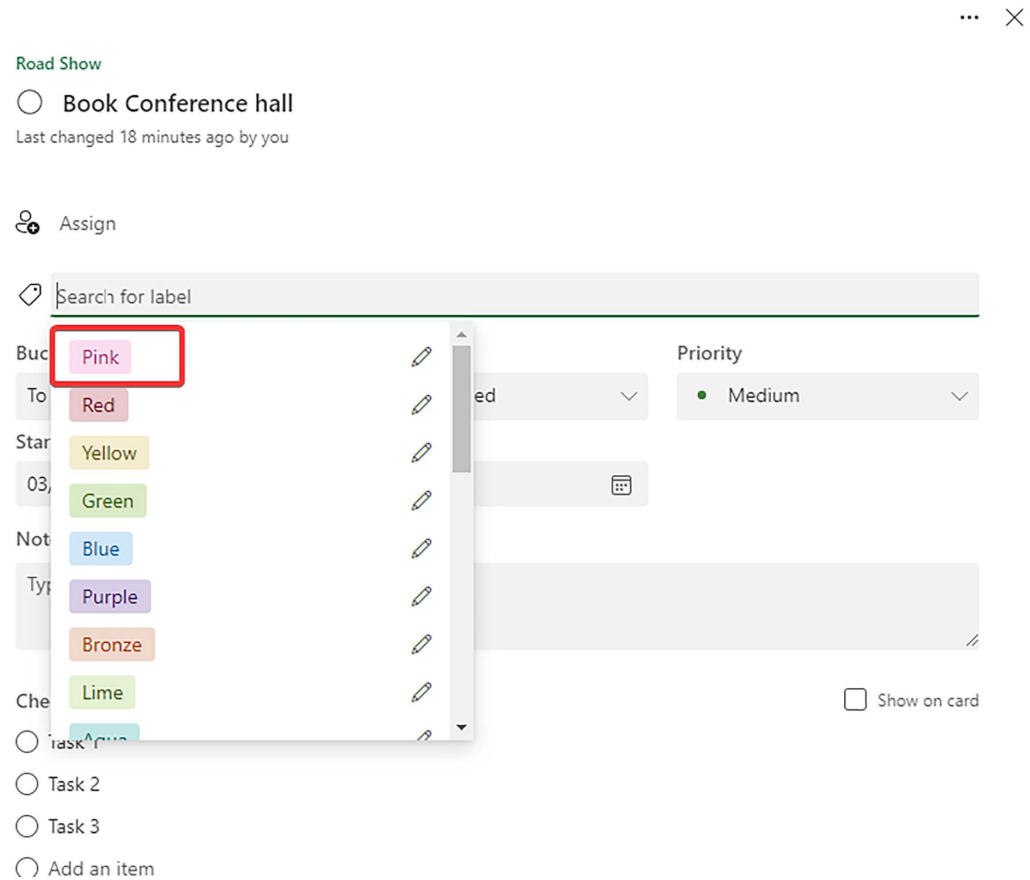
Figure 22.15: Color coding tasks to make them identifiable

How it works...

While adding items to a checklist, if you check the box that says **Show on card**, then the incomplete checklist items roll up to the **Task** view. A tiny graphic appears below the rollup section that displays how many of the checklist subtasks have been completed:
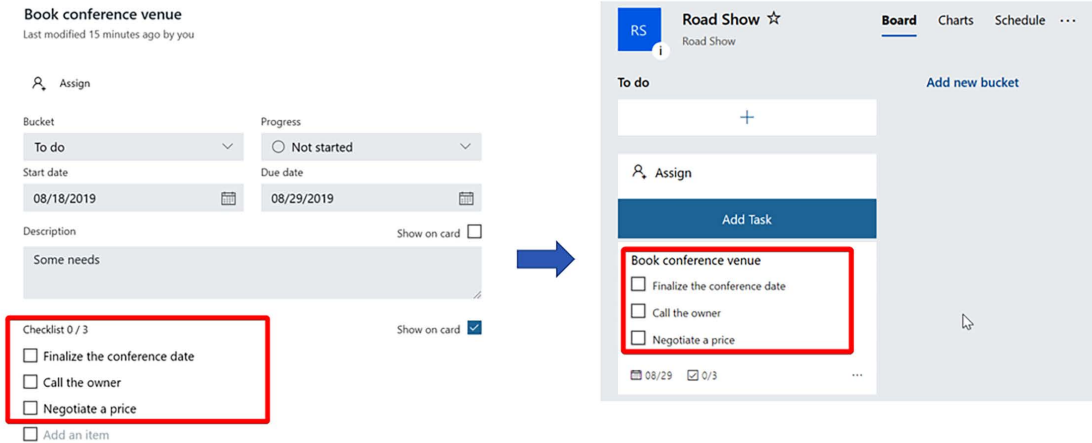
Figure 22.16: Completed tasks are not shown in the rollup section

As we can see, the completed checklist items don't appear in the rollup section. If we look at the **Task** view, however, they appear with a strikethrough:
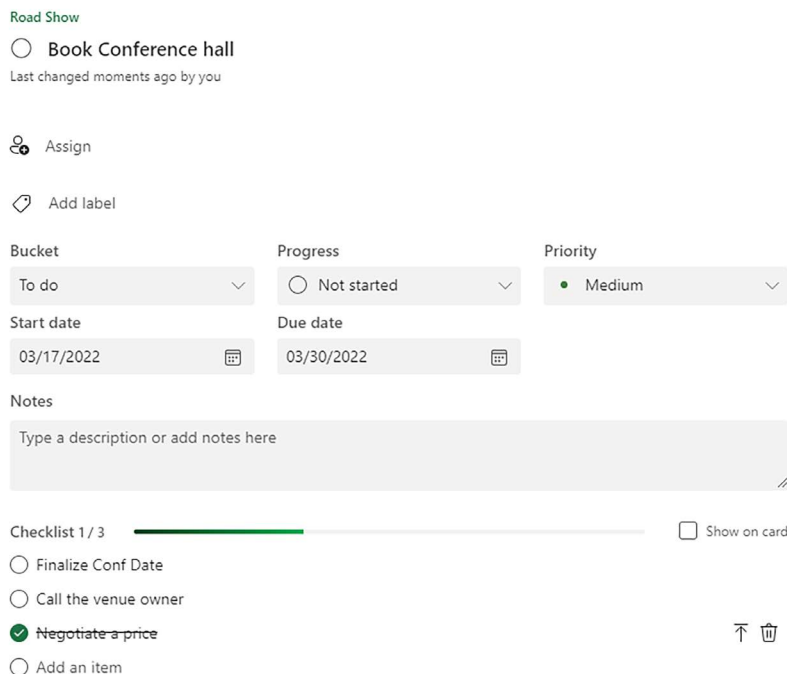
Figure 22.17: Completed tasks appear with a strikethrough in the Task view

See also

- *Creating a plan*, in this chapter
- *Creating tasks*, in this chapter
- *Managing a plan*, in this chapter
- *Deleting a plan*, in this chapter

Managing a plan

Planner has various features to track and manage your plan. This includes using charts and dashboards. You can view the plans and tasks by bucket, progress, due date, and labels. Planner also lets you visualize statistics related to completed and unfinished tasks.

Getting ready

Plans can be managed by the members of the Microsoft 365 group associated with the plan.

How to do it...

To manage a plan, go through the following steps:

1. Log in to `https://office.com` using your Microsoft 365 account.
2. Click on **Planner** and choose the plan you are working on.
3. Click on the **Board** view to see the tasks organized by bucket.
4. Drag the **Collect feedback** card to the **Post Conference Tasks** bucket:
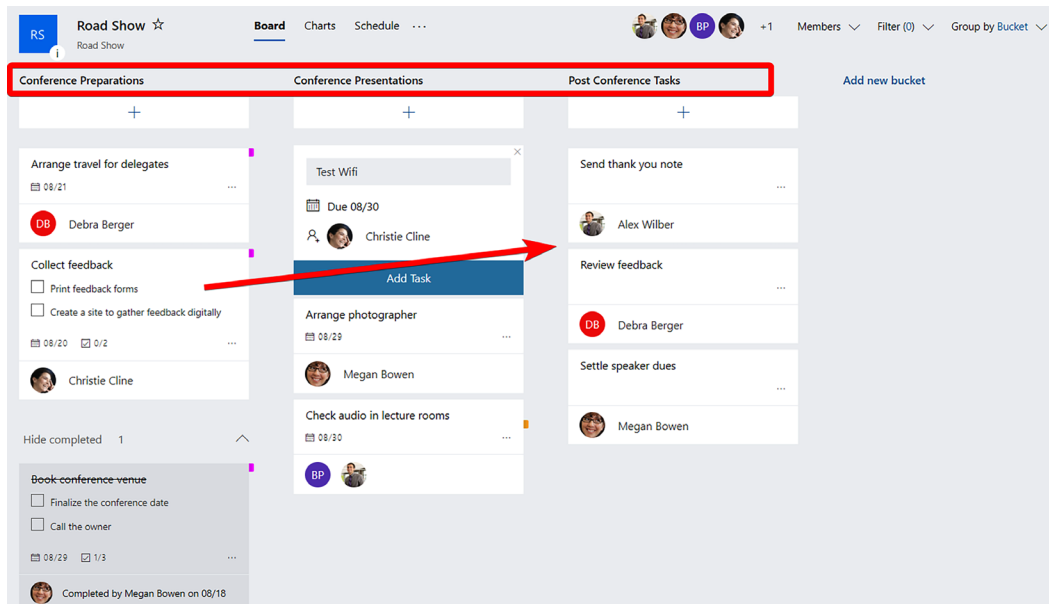
Figure 22.18: Dragging a task card from one bucket to another

5. Click on the **Charts** view to see the tasks by status. We can see that we have an unassigned task. Let's assign it to someone:
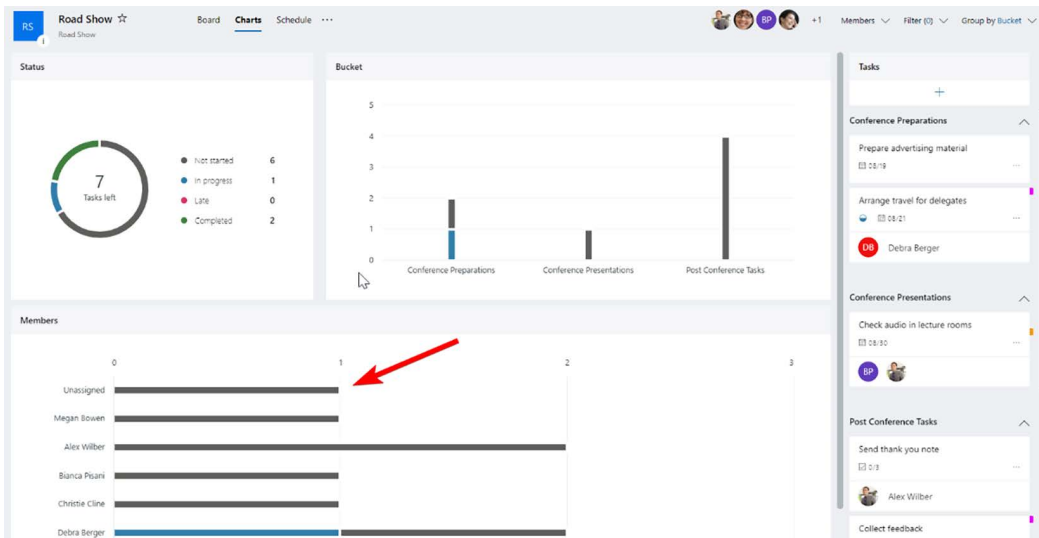
Figure 22.19: Unassigned task shown in the Charts view

6. Click on the **Unassigned** section. This will filter all the tasks that do not have an assignee:
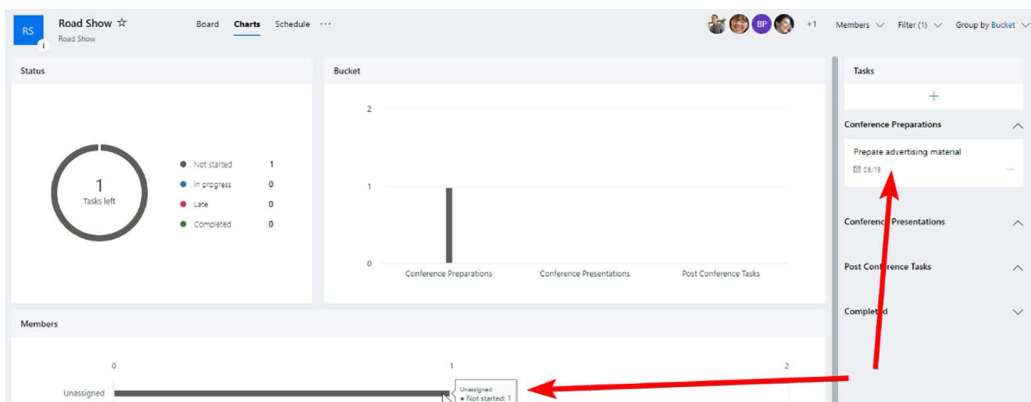
Figure 22.20: Clicking on the Unassigned section shows specific tasks without an assignee

7. Assign a member to the unassigned task by clicking on the context menu:
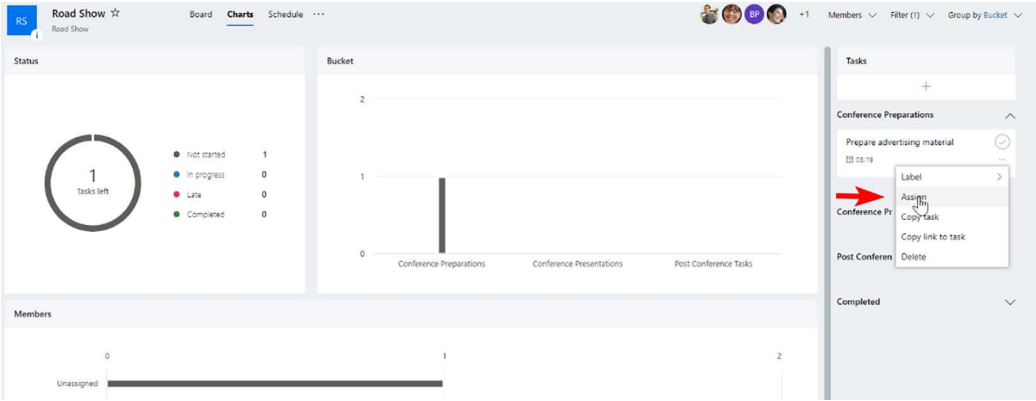
Figure 22.21: Assign option found in the context menu of an unassigned task

8. Click on the **Schedule** view to see the tasks in a calendar.

9. To add a task on a certain date, just roll the mouse over the date and click on the + symbol:
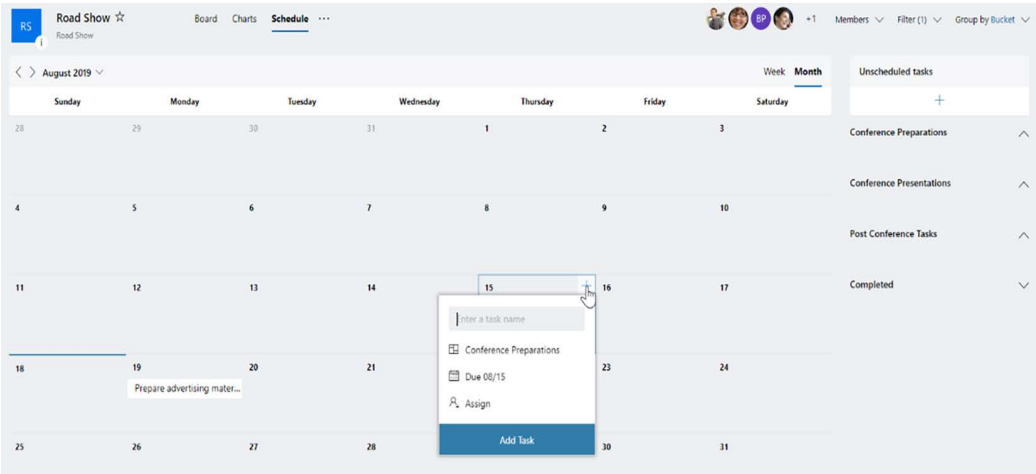
Figure 22.22: Clicking + allows us to add a task to a date

10. Specify the task name and press *Enter*.

There's more...

Besides the three views we have gone over so far (**Board, Charts,** and **Schedule**), you can also visualize the tasks by five categories: **Bucket, Assigned to, Progress, Due date**, and **Labels**. Let's go over each in turn:

- **Bucket:** This is the default view where tasks appear under buckets. In our case, the buckets are **Conference Preparations**, **Conference Presentations**, and **Post Conference Tasks.**

- **Assigned to:** In this view, the tasks are laid out by the resource assigned to the task. You can change the assignee by simply dragging the task under another person:
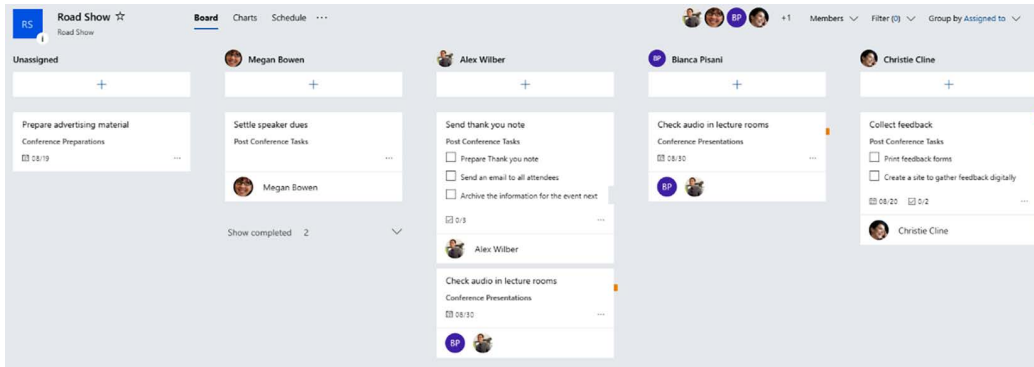
Figure 22.23: Visualising tasks with the Assigned to category

- **Progress:** This view lists tasks by their progress metadata. Tasks are listed as **Not started**, **In progress**, and **Completed.** To complete a task, simply drag the task to the **Completed** section:
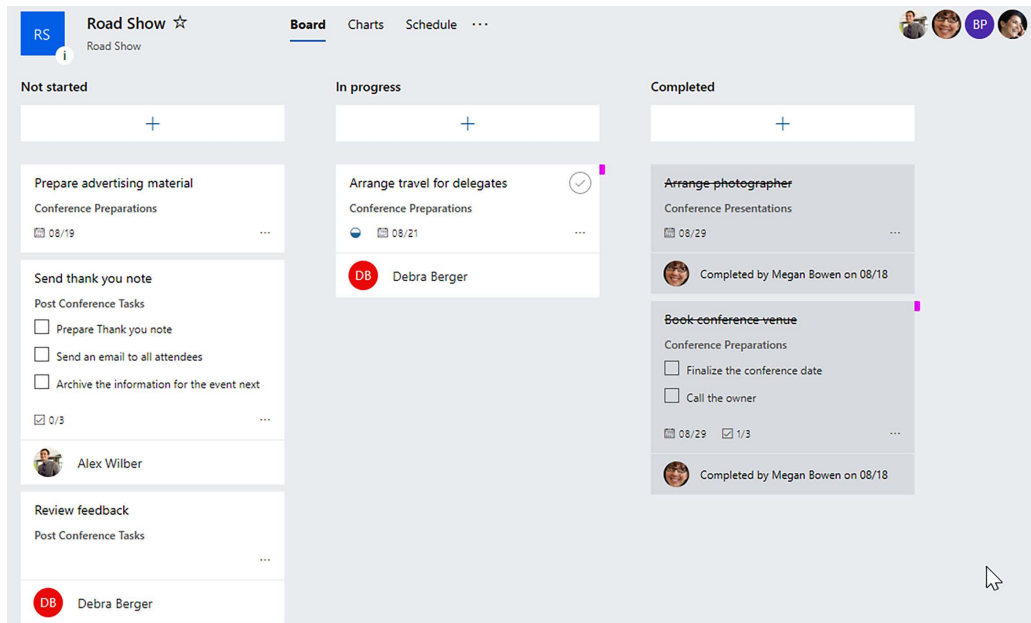
Figure 22.24: Visualising tasks with the Progress category

- **Due date:** This view lays out the tasks according to the delivery date. There are five standard categories that a task can fall under:

  - **Tomorrow**
  - **This week**
  - **Next week**
  - **Future**
  - **No date**

  The tasks move under the appropriate heading if the due date is modified. This view is good to use to filter tasks that don't have a due date assigned:
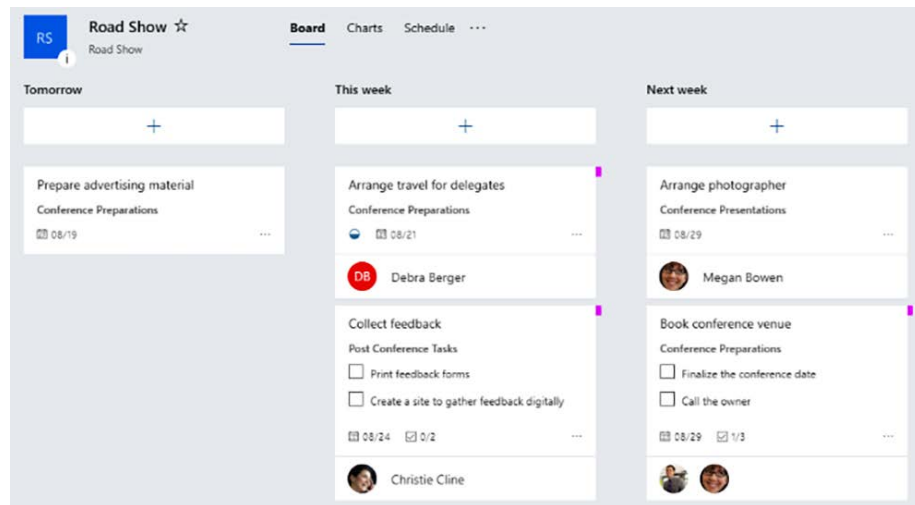
Figure 22.25: Visualising tasks with the Due date category

- **Labels:** Labels are useful in identifying the tasks visually. You can use labels to group tasks by an attribute relevant to the plan. You can add more than one label to a task:
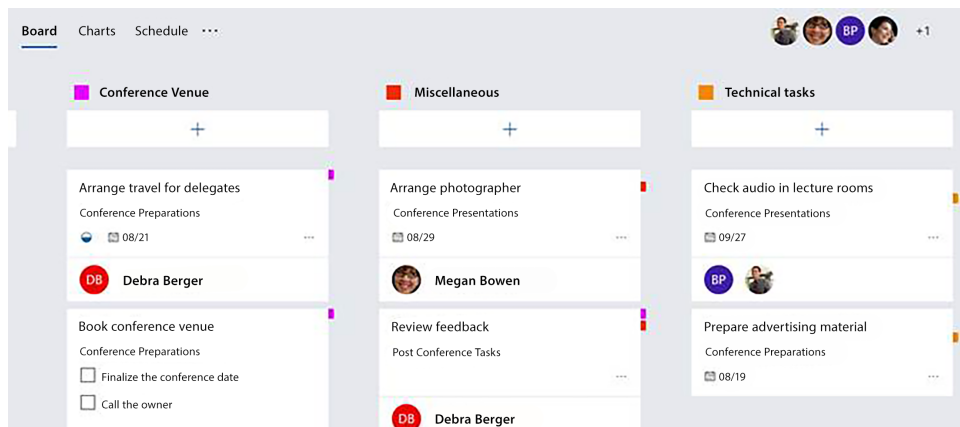
Figure 22.26: Visualising tasks with the Labels category

See also

- *Creating a plan*, in this chapter
- *Creating tasks*, in this chapter
- *Adding items to the checklist*, in this chapter
- *Deleting a plan*, in this chapter

Deleting a plan

Sometimes the plan falls through and is no longer relevant to the group or the team—for example, if a conference gets canceled because the product that was meant to be launched at the event has been discontinued. In such cases, you might want to delete the plan.

Getting ready

You need to be an administrator or group owner to delete a plan.

How to do it...

You can delete a plan by going through the following steps:

1. Log in to `https://office.com` using your Microsoft 365 account.
2. Click on **Planner** and select the plan you are working on.
3. Go to **Plan settings** by clicking on the **...** icon:
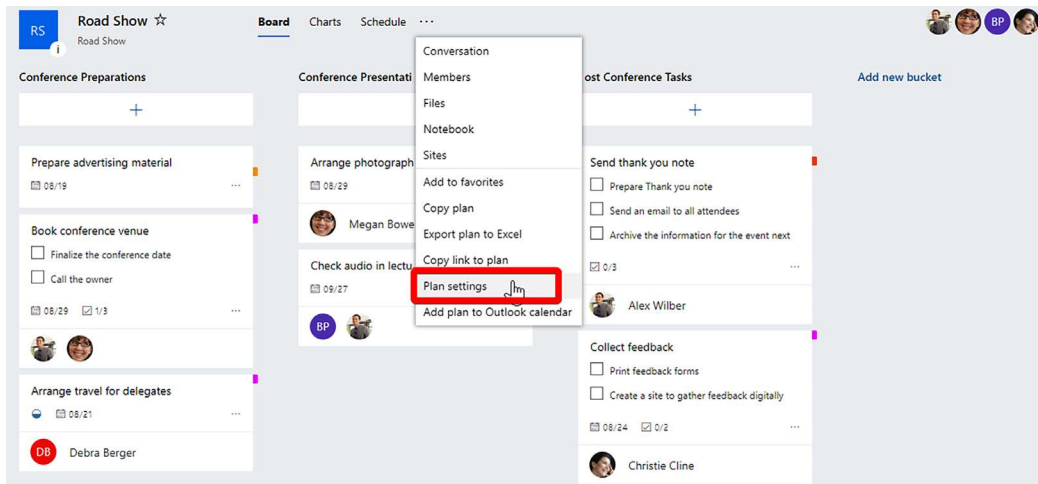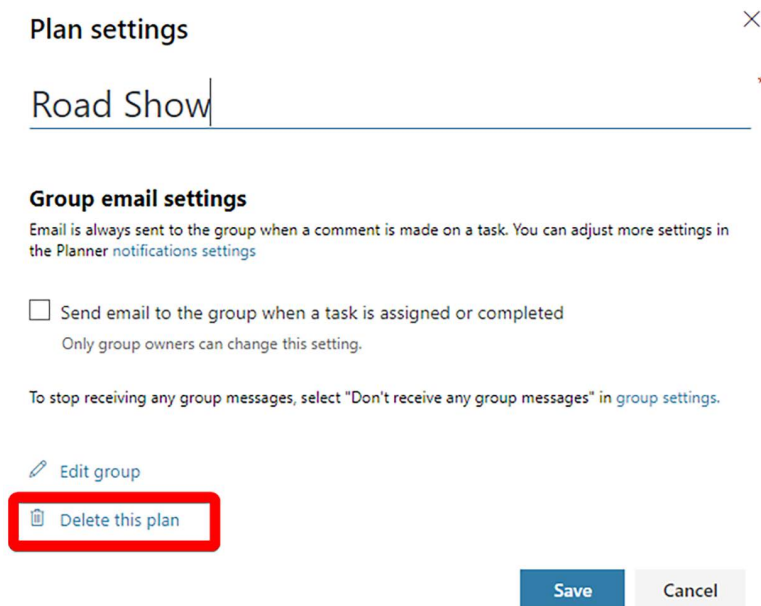
Figure 22.27: Accessing Plan settings from the context menu of a selected plan
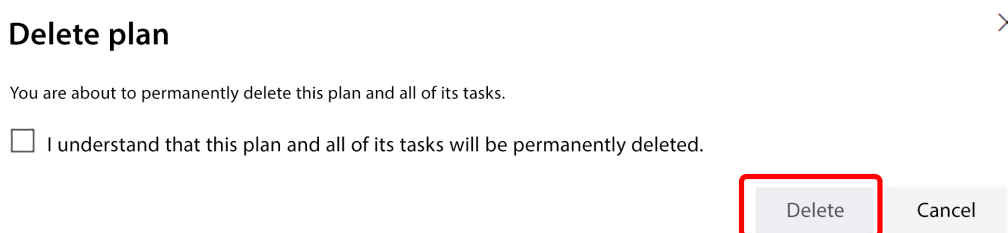
4. On the **Plan settings** page, click on **Delete this plan**:

Figure 22.28: Deleting a plan through Plan settings

5. You will be presented with a confirmation window. Check the box and click **Delete**:
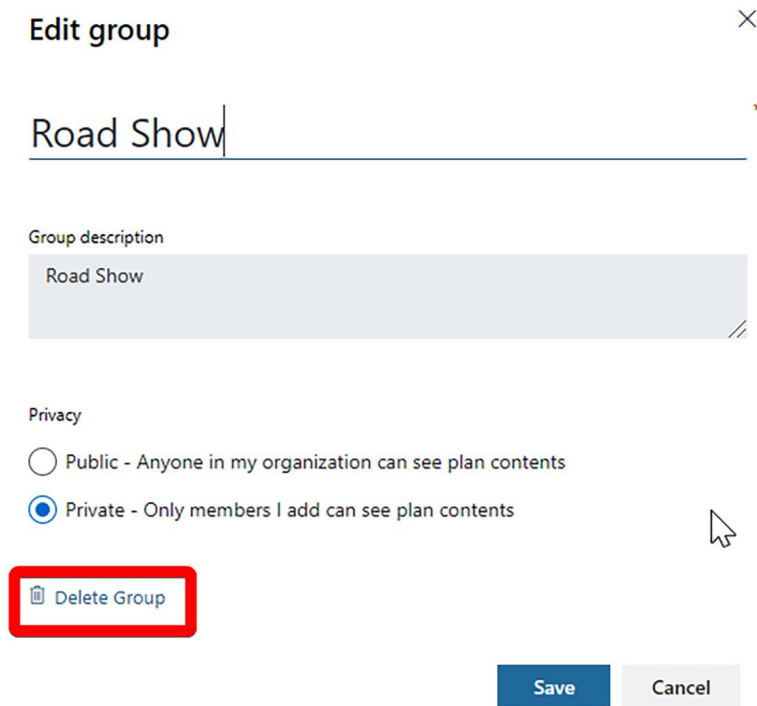
Figure 22.29: Confirmation window for deleting a plan

6. If you want to delete the group associated with the plan, click on the **Edit group** button from *step 4*.

7.   On the **Group settings** page, click on **Delete Group**:
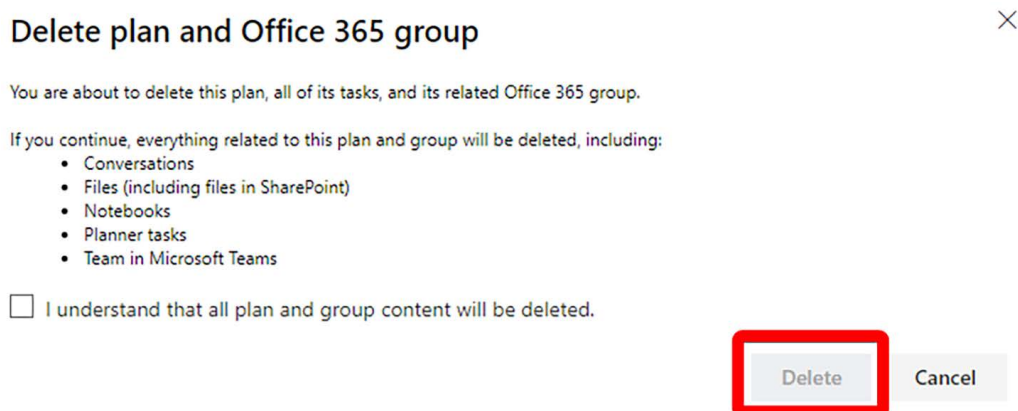
Figure 22.30: Deleting a group through Group settings

8.   You will be presented with the following message. Check the box and click **Delete**:

Figure 22.31: Confirmation window for deleting a group

The group and all plans associated with it will be deleted.

There's more...

A deleted plan cannot be recovered, so you should consult with other members of the group before taking action. If you are deleting the group attached to the plan, then you will also lose all the conversations and group files. If your concern is that too many plans appear on your Planner Hub, then you could instead leave the plans you don't want to be involved in.

This can be done via the Plan's context menu, as shown in the following screenshot:
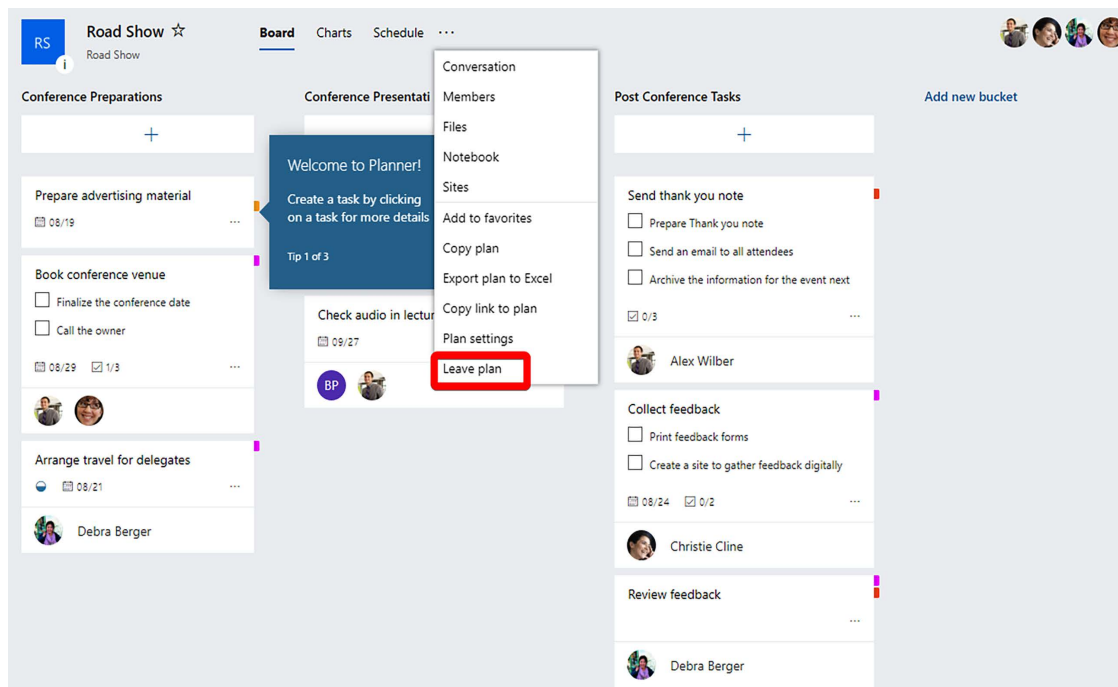
Figure 22.32: Reducing the amount of plans on Planner Hub by leaving plans instead of deleting them

> This option is available to you if you are not an administrator. Administrators will not see the **Leave plan** link.

If you are deleting the plan or group permanently, it is recommended that you back up or move your files and conversations.

See also

- *Creating a plan*, in this chapter
- *Creating tasks*, in this chapter
- *Managing a plan*, in this chapter

Learn more on Discord

To join the Discord community for this book – where you can share feedback, ask questions to the author, and learn about new releases – follow the QR code below:

https://packt.link/powerusers

23

Microsoft To Do

Microsoft To Do helps you manage your individual tasks across a variety of user experiences, including its web app in Microsoft 365, Outlook on the web, the To Do desktop client app, the To Do mobile app, and the Tasks app in Microsoft Teams.

You can create tasks on your default list altogether or organize your tasks into categorical lists. If you organize tasks into separate lists, you're also able to share that list with others.

In this chapter, we'll focus on the independent web app's interface for To Do, but note that the interface and abilities across all experiences are very similar.

In this chapter, you will learn:

- How to create a task
- How to create a task list
- How to share a task list with others

How to create a task

This recipe will guide you through creating an individual task you intend to complete at a later time. Perhaps it's a deadline coming up, a reminder to end a subscription, or just a note you want to have handy so it's not forgotten.

Getting ready

There are no prerequisite steps to creating a task in To Do, other than having access via your Microsoft 365 subscription. It is included in most subscriptions and is enabled for all Microsoft 365-licensed users by default. You can check specific subscriptions that include Microsoft To Do at `https://packt.link/To-Do-licenses`. As long as you have one of the listed subscriptions (most subscriptions) and an administrator hasn't disabled the app for you, you may proceed.

How to do it...

1. Go to Microsoft To Do (`https://to-do.office.com/`).

2. Immediately upon load, you're ready to begin typing the name of your task. Type the task name `Complete statistical report`, and press *Enter* or click **Add**:
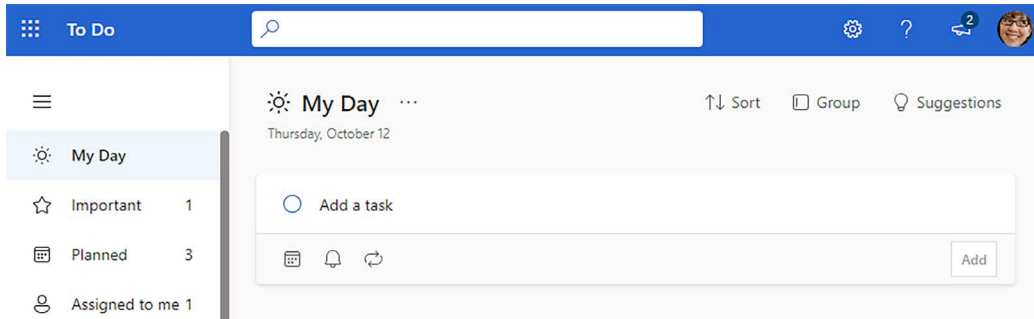
Figure 23.1: The home page of To Do, featuring the My Day section

3. Select the newly created task to open its full details.

4. Select **Remind me**, and choose **Tomorrow**.

5. Select **Add due date**, and choose **Tomorrow**.
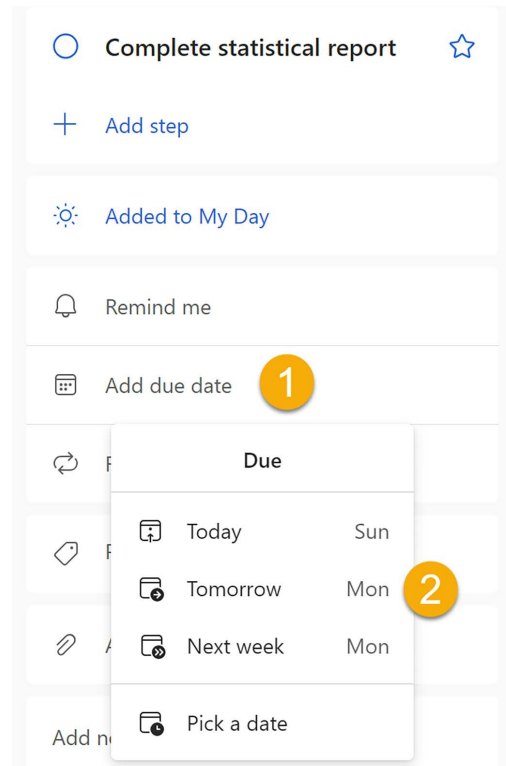
Figure 23.2: The task details pane with the due date being selected

6. Select **Pick a category**, and choose the **Green** category. Note that these category labels are the same as your Outlook categories. To modify their names or colors, visit Outlook.

7. Your task autosaves each time you make a change, so once you've entered all the relevant task details you'd like, you're finished.

How it works...

Tasks are created simply with a name at first. After you've added a task, you can open it by selecting it. When the task details panel is open you can add:

- Importance (click the star – this adds the task to the **Important** menu option like a bookmark)
- Sub-steps (intermediate steps are required to complete the overall task)
- Add to **My Day** or not (this is automatically added if the task is created on the **My Day** screen)
- Reminder
- Due date
- Repetition frequency (**Daily**, **Weekdays**, **Weekly**, **Monthly**, **Yearly**, or **Custom**)
- Categories (shared with Outlook and Teams)
- **Add file** (attachments)
- Note (a multiline text field)

To complete a task, simply click the open circle to the left of the task name to check it off and mark it as completed.
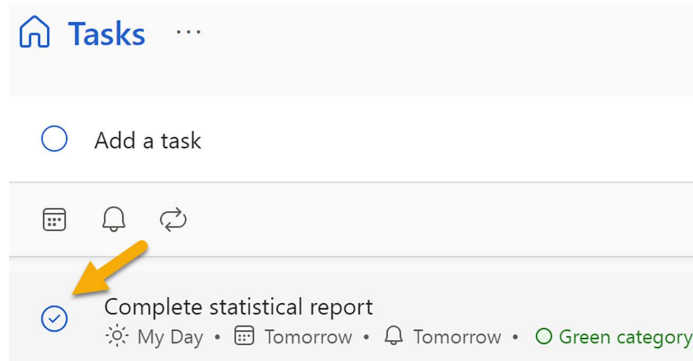
Figure 23.3: The circle for marking completion next to each task

You can uncomplete (undo marking the task as completed) a task by selecting the circle/checkmark again.

There's more...

When you first visit To Do, you'll start on the **My Day** screen. **My Day** is used to display tasks due today as well as any you've manually marked that you intend to complete today, regardless of their actual due date. If your **My Day** screen is blank, select **Tasks** on the left navigation menu to see all of your tasks, and mark some for **My Day** (right-click a task or open it, and then select **Add to My Day**).

The other navigation options on the left side are:

- **Important** (any task for which you've clicked the star, indicating it's important)
- **Planned** (any task with a due date grouped by relative time periods)
- **Assigned to me** (tasks assigned to you in To Do or Planner)
- **Flagged email** (Outlook integration, showing flagged emails as tasks)

Look in the right-hand corner of each page (**My Day**, **Important**, and so on) for options to sort or group your tasks. For example, you may wish to sort your tasks on the **Tasks** page by due date and group them by categories.

See also

- Create, edit, delete, and restore tasks: `https://packt.link/manage-tasks`
- Microsoft To Do help and learning: `https://packt.link/learn-To-Do`

How to create a task list

This recipe will guide you through creating a new task list to organize particular types of tasks together. A new list could be used to group tasks like *Requisitions*, *Questions*, *Ideas*, *Project ABC*, and *Training and Development*, for easier navigation and smoother workflow.

Getting ready

There are no prerequisite steps to creating a task list in To Do, other than having access via your Microsoft 365 subscription. If you don't see To Do in your apps, check with your administrator to see if it's been disabled.

How to do it...

1. Go to Microsoft To Do (`https://to-do.office.com/`).
2. Select **New list** on the left.
3. Type `Project Nexus` for the list name, and press *Enter*.
4. Add three tasks, following the steps in the recipe *How to create a task* if you want to add additional details for each. Name them as follows:

   a. `Meet with stakeholders and gather requirements`

   b. `Draft proposal`

   c. `Present proposal and budget plan`

5. Now that you have a separate list, *Project Nexus*, on your left navigation menu, you can keep these tasks separate and organized for the duration of the project.

Notice how having lists (shown at the bottom of *Figure 23.4*) separated from your ongoing individual navigation options in the upper-left can help you jump to a particular topic of focus easily.
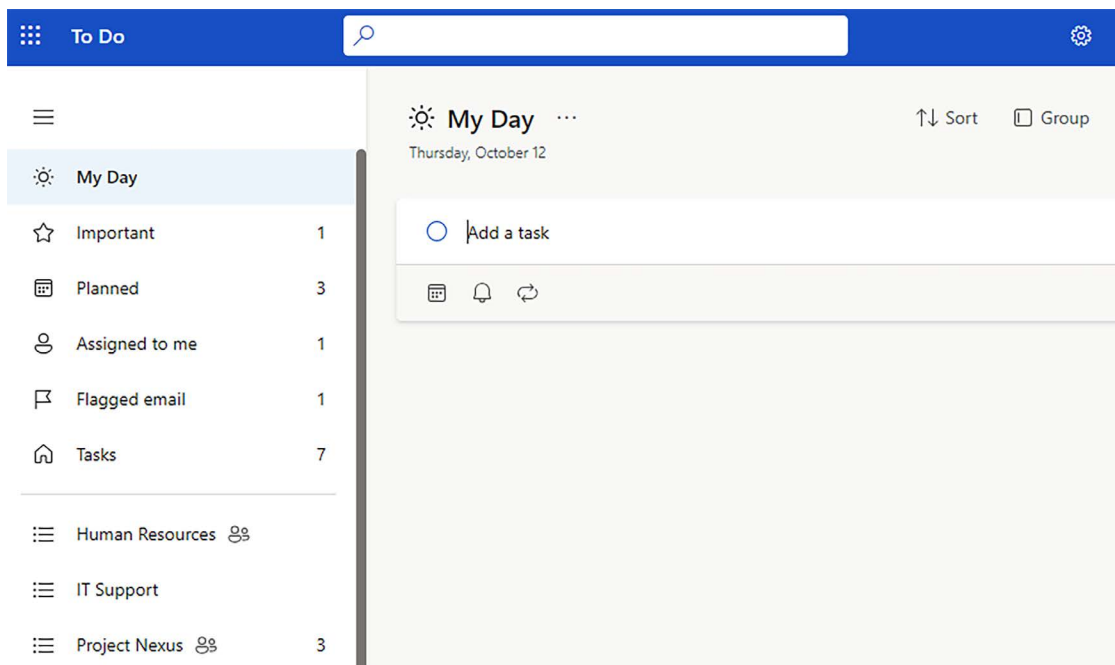
Figure 23.4: Standard navigation options and 3 user-created lists

How it works...

By creating multiple lists of tasks within To Do, you can stay more organized by having an extra layer of separation between tasks. Organising tasks using lists allows you to create your own organization system in addition to the **My Day**, **Important**, and **Categories** sections. By having an entirely separate list, you give yourself a quick bookmark for this particular set of tasks and can sort or group it independently from other tasks, without affecting the grouping or sorting of the rest of your tasks.

There's more...

One of the primary benefits of having separate lists is that it's the only way to share a list of tasks with others. See the next recipe, *How to share a task list with others*, to learn how to do this and begin assigning tasks to those involved with them.

Also, be sure to check out Planner as another method of task management that allows the separation of tasks by project or topic, as well as sharing among team members.

See also

- Create, edit, delete, and restore tasks: `https://packt.link/manage-tasks`
- Microsoft To Do help and learning: `https://packt.link/learn-To-Do`

How to share a task list with others

This recipe will guide you through sharing a simple task list with others when a Planner plan may be more than you need. This enables you to assign tasks to those who share the task list with you, as well as to get assistance tracking and complete tasks regarding shared initiatives, such as mutual short-term projects or quick research reminders.

Getting ready

Before you can share a task list, you'll need to create it. Check the previous recipe for instructions on how to do this. Also, be aware that you can only share To Do task lists with members of your same organization. If you want to share outside your organization, consider using Planner instead.

How to do it...

1. Go to Microsoft To Do (`https://to-do.office.com/`).
2. Select a list you've already created on the left navigation menu, such as *Project Nexus*, which we created in the previous recipe.
3. In the upper-right corner, select **Share**.
4. Select **Create invitation link**.

Share list   ✕

Invite some people. After they join, you'll
see them here.

Create invitation link

Anyone in your organization with this link can
join and edit this list.
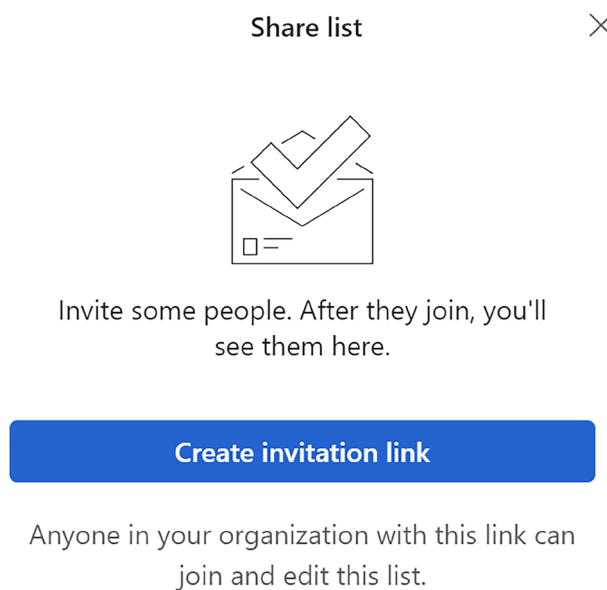
Figure 23.5: Dialog that appears when you click Share on a task list

5.   Select **Copy link.**
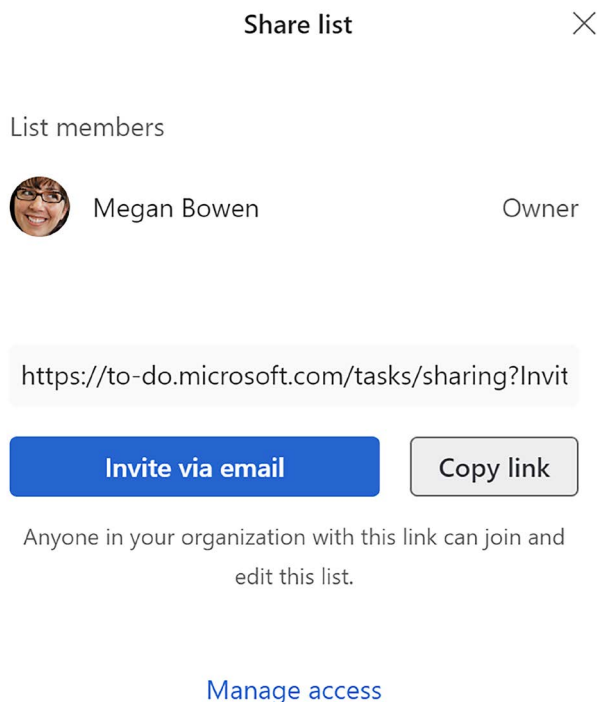
Figure 23.6: Dialog that appears when you click Create invitation link

6.   Paste the copied link in a chat, email, or other communication piece to ask others to join the list.

7.   Wait for the invited persons to accept the invite by clicking the link you shared with them.

How it works...

Sharing task lists in To Do works only through invitation links – a bit of a departure from the usual sharing experience in Microsoft 365, where we have a bit more flexibility.

When someone selects the share link you send them, they will be prompted to sign in to To Do using their work or school account, if they're not already signed in.

List invitation

You're invited to join a shared task list.

✔️ Microsoft To Do

Sign in to join list

No account? Sign up for free

Figure 23.7: Share invitation recipient's prompt to sign in to To Do

Once they're signed in, they can join the list with a single click or choose to switch their account if they want to join under a different identity.

Join list

Megan Bowen shared the list **Project Nexus** with you.

✔️ Microsoft To Do

Join list

You're signed in as
MiriamG@chambernate.onmicrosoft.com.
Switch account
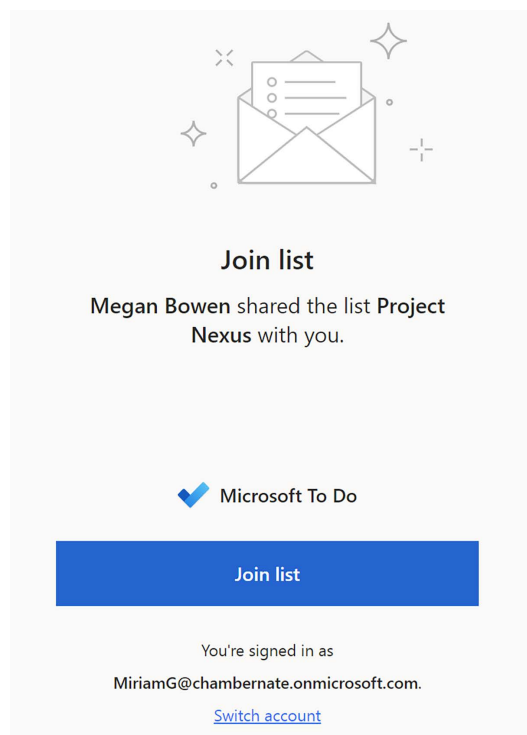
Figure 23.8: Join list option for a user joining a newly shared list in To Do

Once you're a member of a list, you can always leave it later by selecting the members icon (people icon) in the upper-right corner of the shared list, and then choosing **Leave list**.
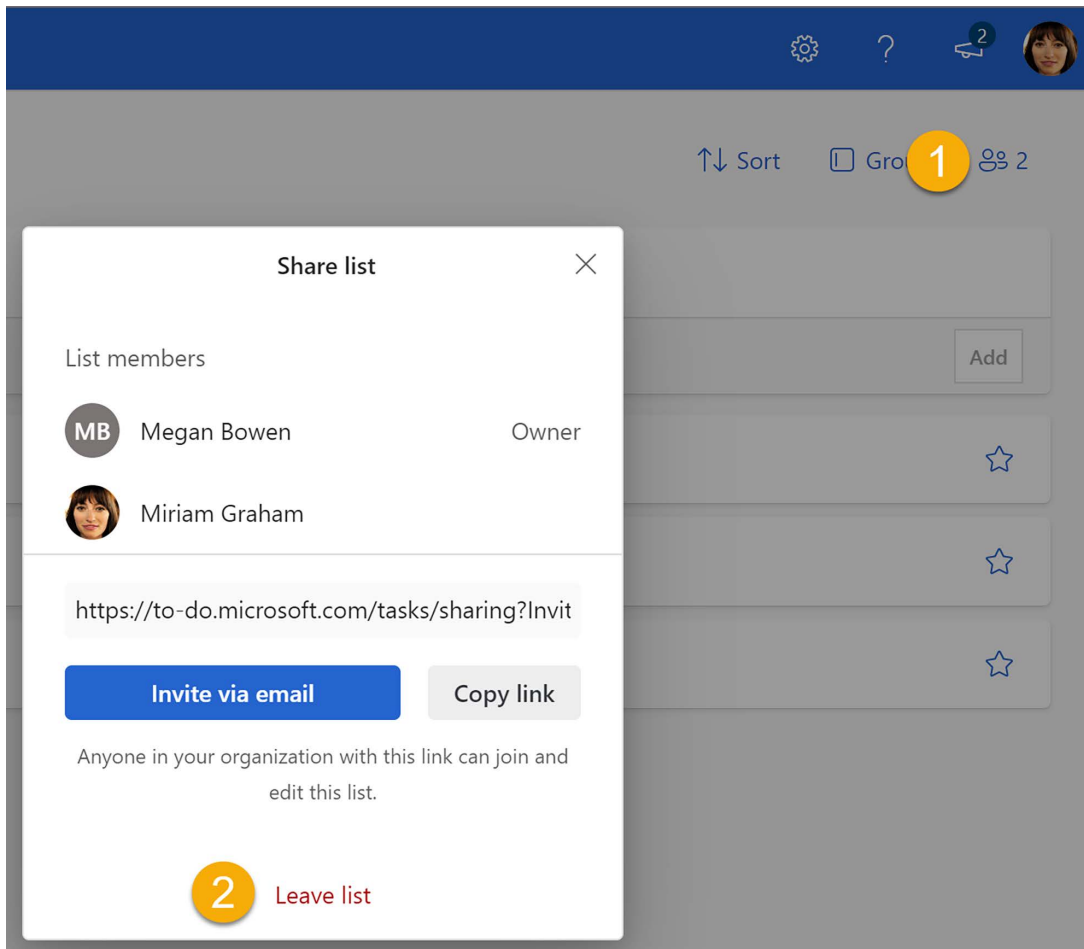
Figure 23.9: Steps to leave a shared list in To Do

Once someone has accepted your invite, you'll notice tasks in that shared list now have one more field in their details pane: **Assign to**. Use this field to assign tasks to members of the shared list. You cannot assign a task to someone in To Do if they're not a member of the shared task list.

There's more...

Note that a list owner/creator cannot leave their own list, but they can delete it by right-clicking it and selecting **Delete list**.

You can also duplicate a list by right-clicking it and selecting **Duplicate list**. This is a great way to turn a list into a template, so you don't have to recreate many tasks that tend to be similar from one iteration of a project or initiative to the next, such as an annual cycle/process that is similar year on year.

Be sure to explore other features of To Do, such as the integration of Planner (the **Planned** and **Assigned to me** navigation options), as well as the automatic addition of flagged emails in Outlook, as tasks in To Do. This helps to provide a single pane through which to view all tasks, both from your shared plans in Planner and your individual tasks in To Do. The distinction between **Planned** and **Assigned to me** is that **Planned** tasks include due dates.
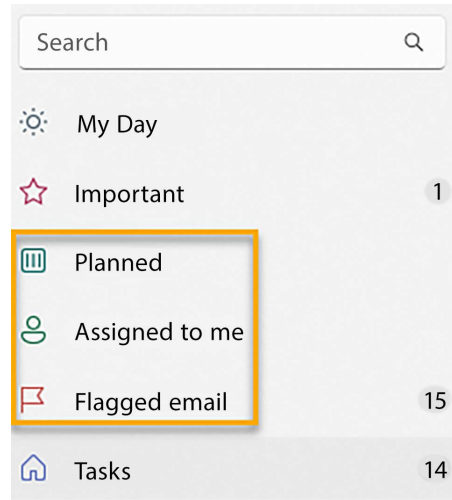
Figure 23.10: Planned, Assigned to me, and Flagged email navigation options

See also

*   Create, edit, delete, and restore tasks: `https://packt.link/learn-To-Do`
*   Microsoft To Do help and learning: `https://packt.link/learn-To-Do`

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24

Microsoft Forms

Microsoft Forms is included in your Microsoft 365 subscription as a standalone app. Even though it is independent of other apps, it still allows you to create forms and quizzes that can be distributed throughout Microsoft 365 as integrations, such as Microsoft Teams tabs or SharePoint embedded web parts. Its independence means you can also simply share a single form or quiz outside your organization with participants who may not be members of your organization.

While you can create forms independently, Microsoft Forms is also built to allow peer collaboration or Microsoft 365 group member collaboration. Analysis of results can also be done independently or made available to others, depending on how you've shared the form.

In this chapter, you'll create a form, create a quiz, and finally, share a form using Microsoft Forms.

In this chapter, you will learn:

- How to create a form
- How to create a quiz
- How to share a form

How to create a form

This recipe will guide you through creating a form to collect survey responses from individuals.

Getting ready

There are no prerequisite steps to creating a form, other than being able to access and use Microsoft Forms. It is included in most subscriptions and is enabled for all Microsoft 365-licensed users by default. You can check specific subscriptions that include Microsoft Forms at `https://support.microsoft.com/en-us/office/who-can-use-microsoft-forms-105080d1-687b-4137-ac28-0d43d935a399`. As long as you have one of the listed subscriptions and an administrator hasn't disabled the app for you, you may proceed.

How to do it...

1. Go to Microsoft Forms (`https://forms.office.com`).
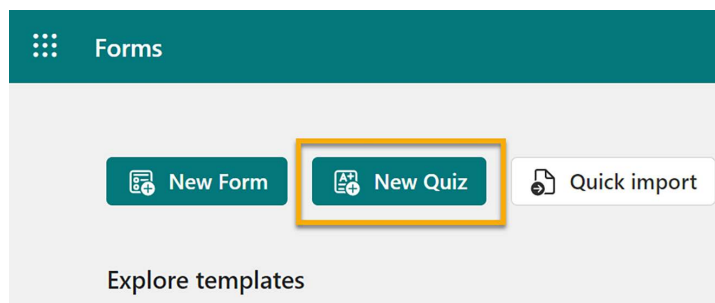2. Select **New Form:**
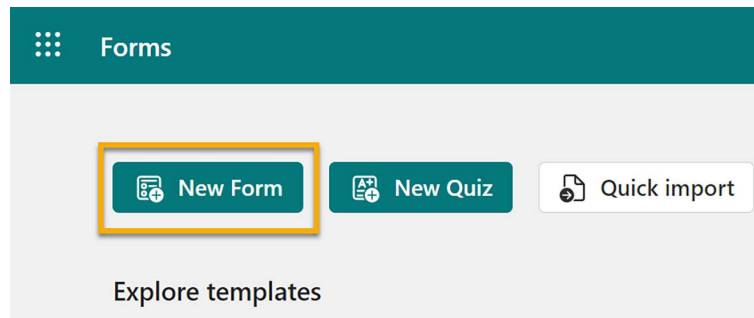
Figure 24.1: New Form button in Microsoft Forms

3. Enter a form title and description (optional).
4. Click **Add new** to add your first form question.
5. Choose **Choice** for this recipe.
6. Enter a question, subtitle (optional), and the response options for the question. Notice the ability to add more options by selecting **Add option**, as well as a fill-in option by selecting **Add "Other" option**. Also, notice that, sometimes, when providing predictable response options, additional responses will be suggested to you to save you time entering them, such as those apps shown in the following screenshot below the answers already provided.

Figure 24.2: A form question with answer options

7. Now, select **Add new** and select **Text** as the question type. Once again, enter a question and subtitle (optional). Subtitles can be used to give additional information about what's being asked, or the format desired in the response.

8. Add more questions by selecting **Add new**, and then a question type. Continue entering the question itself and subtitles where applicable. You can choose from these question types:

    •   **Choice** (select the correct answer, or answers)
    •   **Text** (enter a response)
    •   **Rating** (stars, numbers, or another indicator)
    •   **Date** (with date picker control)
    •   **Ranking** (list these options in the correct order)
    •   **Likert** (matrix)
    •   **Upload file** (only available for forms sent within your organization)
    •   **Net Promoter Score**
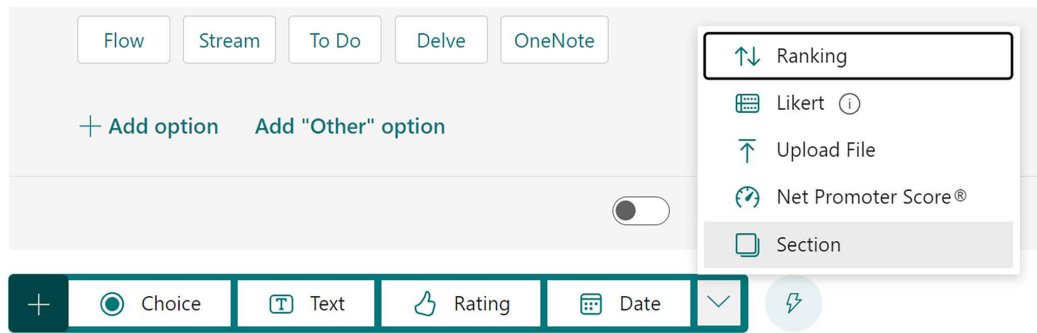
Figure 24.3: Form question types

9. When you're finished adding questions, select **Collect responses** and then **Copy link** to get a link for others to use, to take the quiz. Notice various options here, such as:

    •   Changing who can respond
    •   Changing the link format to a URL, short URL, email or Teams post, QR code, or embed code
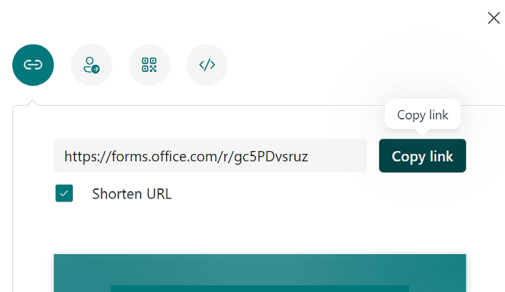
Figure 24.4: Changing the link format to URL for a form

10. Paste the link in an email, add it as a button to a site, send it in a message, or share via any other appropriate method to distribute and request responses.

How it works...

The steps in this recipe help you create a simple method of collecting information, opinions, and feedback from persons within or outside your organization. You are able to review responses or edit the survey at any time, by revisiting Microsoft Forms and selecting the form you've created.

There's more...

Note that on the **Add new** button's dropdown, you can add multiple sections to your form to break questions into logical groupings. For a form participant, this experience feels more like navigating multiple pages of a form, rather than sections.

Each question also has different abilities in the lower-right, such as requiring the field, allowing multiple responses (choice fields), or even branching logic (such as if someone chooses *Answer A*, skip *Question 2*). Some of these options are available on the ellipsis (**...**) in the lower-right of the question when it's in edit mode.

You can also reorder questions when one is in edit mode by selecting the up and down arrows at the top of the question. There are also options to duplicate or delete the question:
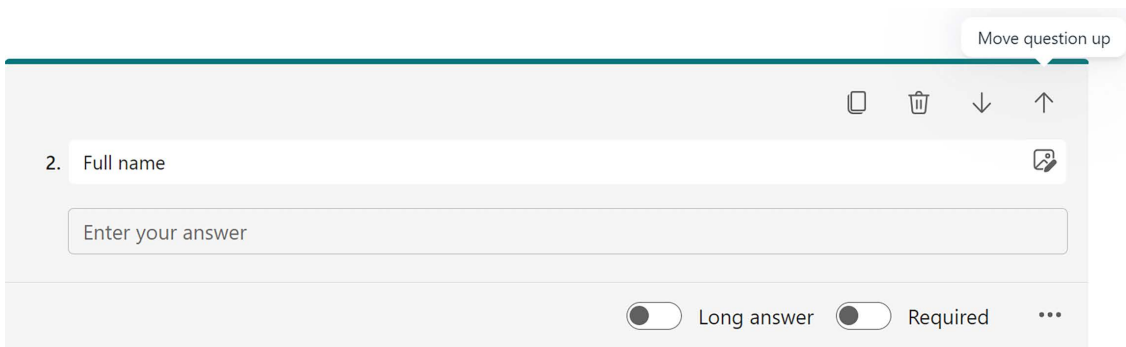
Figure 24.5: Reorder, delete, and duplicate options for a question

To edit a question you've already created, simply click anywhere in the general question area to put the question back into edit mode.

Figure 24.6: A question in preview mode, with a cursor indicating where to click

Clicking outside the question area will put it into preview mode again.

See also

- Create a form: `https://packt.link/create-MS-form`
- Collect responses: `https://packt.link/collect-responses-MS-forms`
- Check results: `https://packt.link/check-results-MS-forms`
- Microsoft Forms FAQ: `https://packt.link/MS-forms-FAQ`

How to create a quiz

This recipe will guide you through creating a quiz, focusing especially on some of the features that distinguish a quiz from a standard form.

Getting ready

There are no prerequisite steps to creating a quiz, other than being able to access and use Microsoft Forms. As long as your administrator hasn't disabled this for you, you may proceed.

How to do it...

1. Go to Microsoft Forms (`https://forms.office.com`).
2. Select **New Quiz**:

Figure 24.7: New Quiz button in Microsoft Forms

3. Enter a form title and description (optional).
4. Click **Add new** to add your first quiz question.
5. Choose **Choice** for this recipe.

6. Enter a question, subtitle (optional), and the correct answer, along with three incorrect answers:

Figure 24.8: A basic choice question with a correct answer indicated
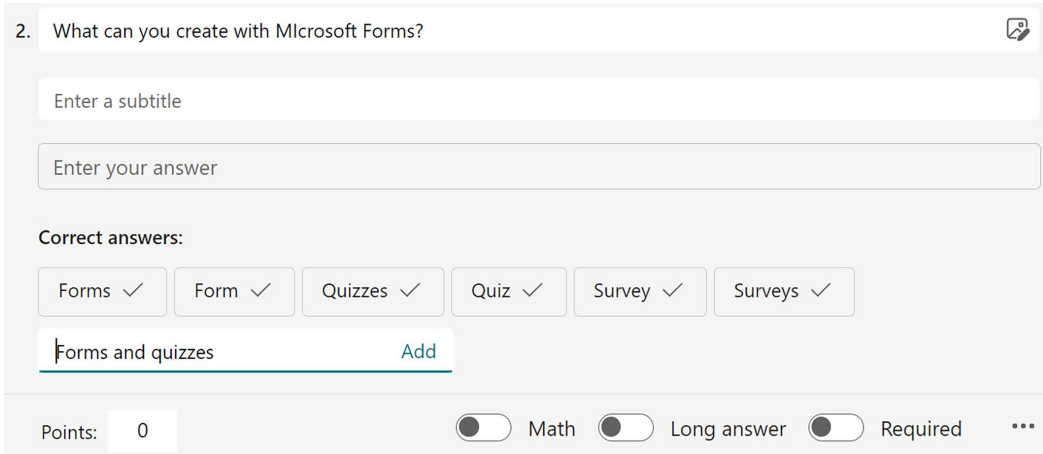
7. Next to each answer, select the speech bubble to enter an explanation as to why that answer is correct or incorrect – quiz takers will see this text upon choosing the corresponding answer:

Figure 24.9: Message option for each answer option

8. Enter a **Points** value (optional) to the lower left of each question to indicate how heavily each question should be weighed. If you don't enter point values, each question is worth 0 points, but a person's score will be a percentage, calculated as the number of correct questions divided by the number of total questions.
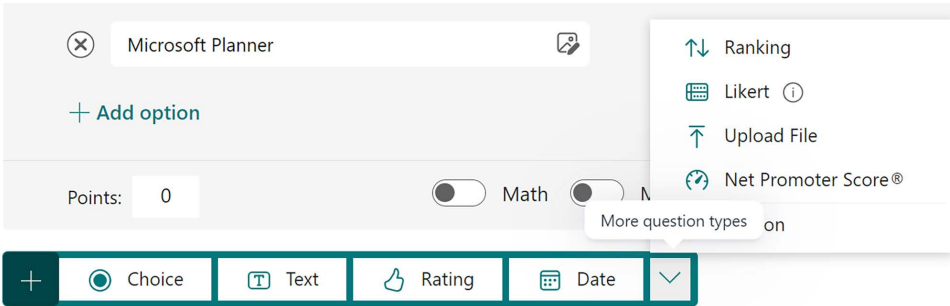
9. Now, select **Add new**, and select **Text** as the question type. For this one, enter any acceptable typed responses below the question, selecting **Add** after each acceptable answer:

Figure 24.10: Correct answers added for a text quiz question type

10. Add more questions by selecting **Add new**, and then a question type. Continue entering explanations for each answer (both incorrect and correct). You can choose from these question types, which are specific to quiz abilities:

   • **Choice** (select the correct answer, or answers)
   • **Text** (enter a response)
   • **Ranking** (list these options in the correct order)

Figure 24.11: Question type options

11. When you've finished adding questions and points, select **Collect responses** and then **Copy link** to get a link for others to use, to take the quiz. Notice various options here, such as:

   • Changing who can respond

- Changing link format to a URL, short URL, email or Teams post, QR code, or embed code
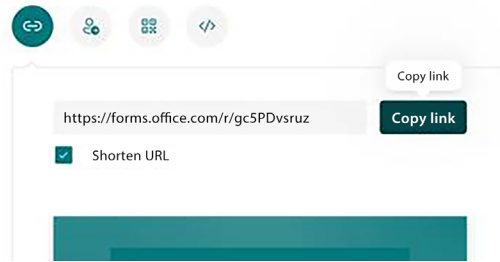
Figure 24.12: Changing link format to URL for a quiz

12. Paste the link in an email, add it as a button to a site, send it in a message, or share via any other appropriate method to distribute and request responses.

How it works...

Quizzes are created with a different intention than when creating a form. With a quiz, you check knowledge retention or assess existing knowledge. By assigning correct responses and point values to otherwise normal form questions, you're providing an opportunity for quiz takers to assess their current levels and set a benchmark, against which they can measure their growth.

You should also note the restriction of question types that work with quiz abilities (assigning point values and correct answers). Even though it's limited to choice, text, and ranking question types, you can still choose the other traditional form/survey question types to collect survey information alongside assessing quiz questions. For example, you might ask a student to upload a file using the **Upload file** question type, but it won't have a correct answer or point value. Perhaps they're uploading a book report document as well as answering quiz questions about the book's content.

The last major difference you'll encounter with quizzes is the ability to **Post scores** rather than share responses. With a form, you can share the response summary page (with limited response information) with others. With a quiz, however, as long as you limit respondents to people in your organization (to track their name/identity), you can post scores only to the quiz taker so that they can review their own scores individually.

Otherwise, creating a quiz and reviewing responses should feel quite similar to creating a form/survey.

There's more...

As results start coming in, you can monitor them easily. Return to Microsoft Forms and follow these steps to review responses (summarily or individually):

1. Select your quiz from the Microsoft Forms landing page (`https://forms.office.com`).
2. Select **Responses** at the top. You'll see a number next to it, indicating how many responses you've received.
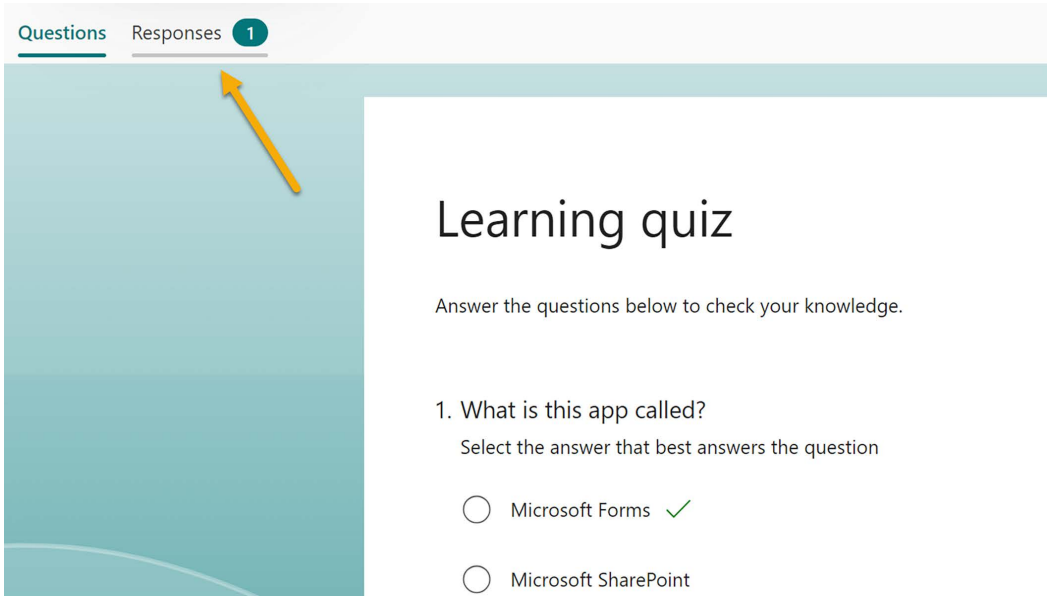
Figure 24.13: Responses tab location on the form design page

3. Here, you can view responses graphically, question by question or individually (per user), by using **Review answers**. Also, note the option to **Open in Excel** or **Post scores** (share individual results with each participant).
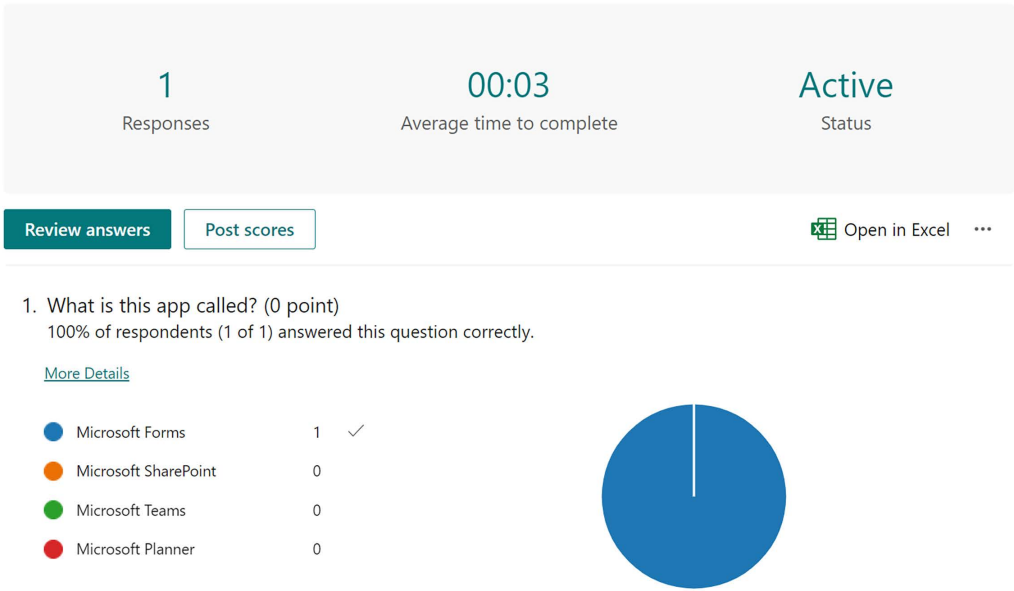

Figure 24.14: The responses page of a quiz.

You may also wish to create a quiz within a Microsoft 365 group so that, if you left the organization, others could maintain responses and use/edit the quiz in your absence. To create a group quiz, the steps are nearly the same, except before you click **New quiz** (*step 2* in the recipe), scroll to the bottom of the landing page and select the group in which you'd rather create the quiz. Then, select **New group quiz**. Note that doing this gives all group members the ability to see responses and modify questions and answers.

See also

- Create a quiz: `https://packt.link/create-quiz`
- Collect responses: `https://packt.link/collect-responses-MS-Forms`
- Check quiz results: `https://packt.link/check-quiz-results`
- Microsoft Forms FAQ: `https://packt.link/MS-Forms-FAQ`

How to share a form

This recipe will detail the steps involved in sharing a form with others in your organization, for the purpose of collaborating on the form's design and response analysis. Read about other ways to share in the *There's more...* section that follows.

Getting ready

Before you can share a form, you will need a form, of course. Once you have one created and you feel it is ready for others to see and, if desired, edit, you can complete the steps in this recipe.

How to do it...

1. Go to Microsoft Forms (`https://forms.office.com`).
2. Open the form you wish to share.
3. Select the ellipsis (**...**) in the upper-right corner and select **Collaborate or Duplicate**:
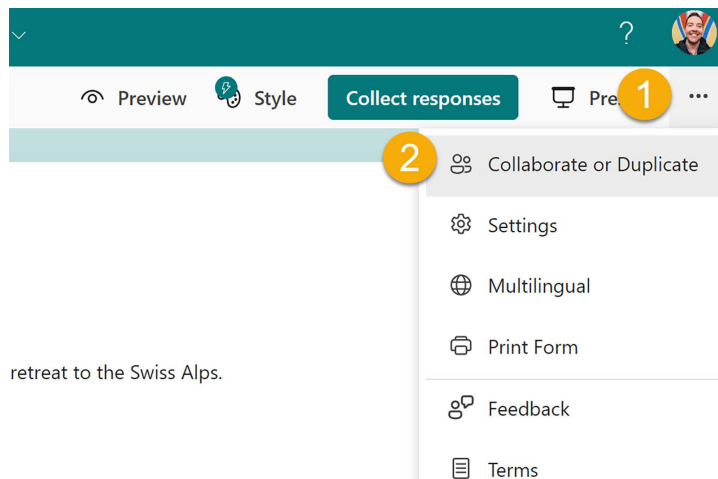
Figure 24.15: Collaborate or Duplicate option on the ellipsis menu

4. Under **Add collaborators,** select **Share the link to collaborate and view result.**

5. Choose who the share link should work for:

    •   **Anyone with an Office 365 work or school account can edit and view result** (including people outside your organization)

    •   **People in ORGANIZATION NAME with the link can edit and view result** (they must have valid credentials to log in to your organization's Microsoft 365 tenant)

    •   **Specific people in ORGANIZATION NAME with the link can edit and view result** (you must specify names of individuals in your organization whom the resulting link will work for)
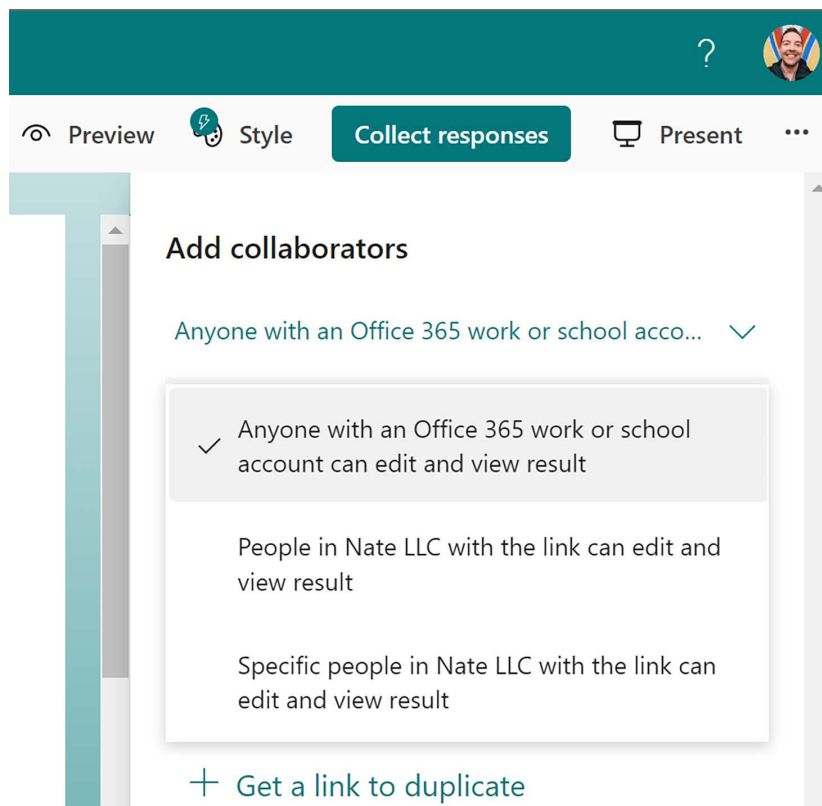
Figure 24.16: Add collaborators options when sharing a form with others

6. Copy the link by selecting **Copy**, and then send the link to your chosen collaborators via which-
    ever method you prefer (email, chat, and so on):
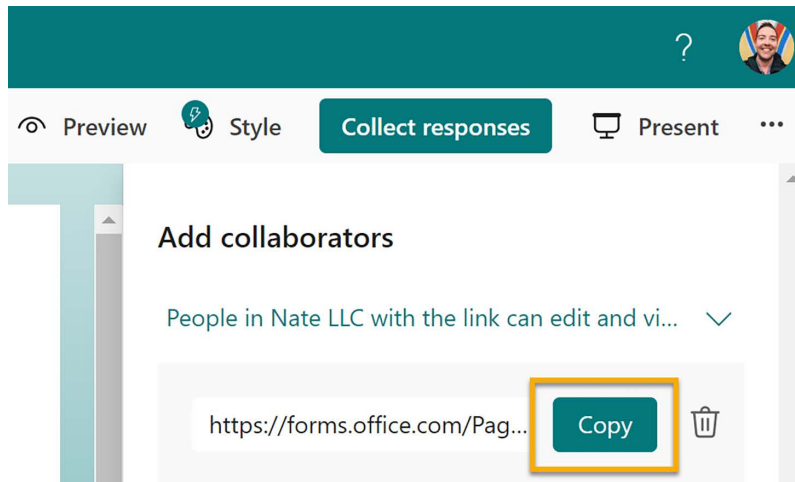
Figure 24.17: Form share link Copy button

How it works...

Sharing a form is different than collecting responses. As a refresher, forms and quizzes can be shared
internally for response collection, made accessible only to members of your organization. As long as a
user is logged into their organization account, they can respond to your form. Also, you can also distrib-
ute forms and quizzes outside your organization simply by changing the **Collect Responses** link type.

However, in addition to collecting responses, you may want to share a form as a template for similar
forms in the future, collaborate with peers on a form's design or response analysis, or make the form
available as a group form rather than an individual form that is private to you. These are all ways you
might share rather than collect responses.

In this recipe, you ended up with a link that works for a specific audience of users. Maybe you chose
anyone with a Microsoft 365 account (in or outside your organization), or maybe you went with the
most secure (specific people) option. No matter which you chose, any recipient of that share link will be
prompted to sign in (if not already) to validate their ID before they can edit the form or view responses.

There's more...

You can create forms by yourself (with the responses and editing abilities private to you) by simply
clicking **New Form** or **New Quiz** once you open Microsoft Forms.

If you'd rather work on a form with others, you have two options:

*   Maintain ownership of the form but share manually as needed with others (as you did in this
    recipe)
*   Give ownership of the form to a Microsoft 365 group (which moves the form to a group and
    gives all members equal access to edit the form and view responses)

The second option, granting ownership to a group, is relatively simple. On your main landing page for Microsoft Forms, where you can view all your individual forms, you'll notice a section at the bottom titled **My groups**. These are Microsoft 365 groups of which you're a member. Any individual form you've created can be moved to one of these groups to give all group members (current and future) access to edit the form and view its responses. This eliminates the need to continually share each form you create with the same people each time. It also makes sure that if you leave the organization, your team members maintain ownership of the form and its responses.

To move a form to a group, select its ellipsis (**…**) and then **Move to a group**. This form will now appear in all group members' **My groups** section within Microsoft Forms.

In addition to moving an existing form of yours, you can create new forms and quizzes directly within the group. In the **My groups** section, select the group in which you'd like to establish your new form or quiz. Then, select **New Group Form** or **New Group Quiz**, as seen in the following screenshot, and proceed as usual:
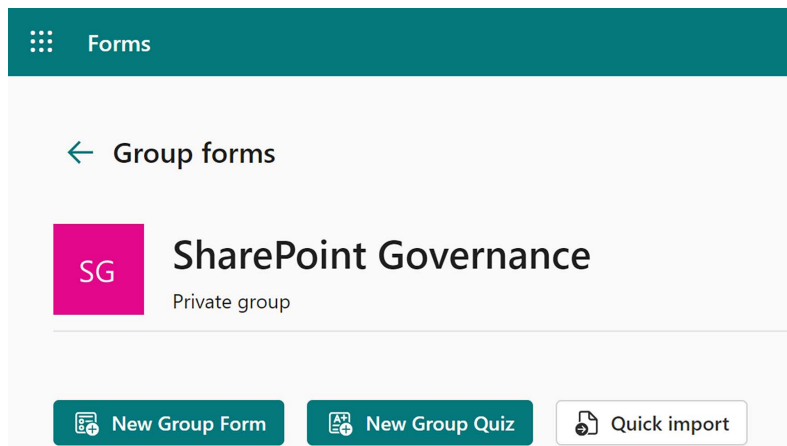
Figure 24.18: New Group Form and New Group Quiz options within a group

This eliminates the need to manually move a form later, or use the share link options.

Lastly, you should also explore using Power Automate to take responses from your form and automate the business process that follows. For example, maybe you want to initiate an approval, send an email receipt, notify someone of a new submission, assign a Planner task, and so on.

You can get started with all of this by visiting Power Automate (sign in to `Microsoft365.com` and search for `Power Automate`) and exploring templates that involve Microsoft Forms. For more information on Power Automate, check out *Chapter 8*, *Power Automate (Microsoft Flow)*.

See also

- Create a form: `https://packt.link/create-MS-form`
- Collect responses: `https://packt.link/collect-responses-MS-forms`
- Check results: `https://packt.link/check-results-MS-forms`
- Microsoft Forms FAQ: `https://packt.link/MS-forms-FAQ`

Learn more on Discord

To join the Discord community for this book – where you can share feedback, ask questions to the author, and learn about new releases – follow the QR code below:

`https://packt.link/powerusers`

25

Custom Development – SharePoint Framework

SharePoint is a platform that lets you build robust business solutions. Every now and then, however, there comes a time when you want to get just a little extra from the out-of-the-box product. That is when we need to customize it, and for that, we need a **development framework**.

Firstly, you may ask, should we even consider customizing an already proven platform? Shouldn't we use inbuilt SharePoint features?

Well, the answer is, *it depends*! Certainly, SharePoint combined with Microsoft 365 tools should address most of your business needs without having to build a custom solution; however, no product can ever be built that meets every conceivable requirement you can imagine. So, while SharePoint can provide 90% of the requirements natively, you might need to explore the custom settings to satisfy the remaining 10%.

However, remember that the decision to build a custom web service should be taken wisely. Note that while customization can tailor a solution as per your needs, it does bring other challenges, such as the ongoing maintenance of the customization, and the impact of future updates and releases on your customizations.

SharePoint has always been a platform that can be extended if needed, and SharePoint has gone through several transformations to this end since it was first launched.

Several SharePoint development frameworks have come and gone. While other models have not been officially deprecated (such as the app model), the recommended framework is the **SharePoint Framework** (**SPFx**) because apart from being completely JavaScript-based, it also embraces open source non-Microsoft technologies (most notably React), thereby making it easier for developers to pick the language of choice.

Unlike the old days, where you could customize every aspect of SharePoint using full-trust code, SPFx runs in the context of the currently logged-in user, which means that it can only do what the logged-in user is allowed to do.

Your SPFx code runs on the browser, which means that it does not affect the SharePoint server in any way. On top of that, everything that you build using SPFx is responsive; in other words, it works just the same on your mobile device.

SharePoint Extensions built on SPFx can be used to update areas, toolbars, and list data views.

> You can also build personal apps, meeting apps, messaging extensions, and bots with SPFx. Using SPFx simplifies the development process, as Teams tabs can be automatically hosted within SharePoint without the need for external services.

The SPFx solution consists of a bundle of script files. In some cases, the script files are hosted on a separate server and the solution simply contains the URL of the script location.

The following are some other key features of the SPFx framework:

- The code works on both modern and classic SharePoint sites
- SPFx code runs on both web and SharePoint mobile apps
- Your tenant administrators must approve an SPFx component before end users can use them

By now, you might have realized that this chapter is going to be more technical compared to the rest of the book. In this chapter, we are not just going to talk about SPFx, but we will also touch upon other open source technologies (such as **Node.js**), toolkits (such as **gulp**), and libraries (such as **React/Angular/Knockout**). Since an entire book can be devoted to each of these topics, I can't do justice to them in this one chapter. This chapter assumes that you have a beginner-level understanding of JavaScript.

In this chapter, we will cover the following recipes:

- Setting up a development environment
- Building your first SPFx web part
- Deploying your SPFx web part

If you are ready to dive in, let's begin.

Technical requirements

As I mentioned previously, this is a developer-focused chapter. You can find the GitHub folder for this chapter here: `https://packt.link/chapter-25-GitHub`. We will have to get our development environment ready before we proceed.

For our exercise, we will use the following technology stack:

Figure 25.1: SPFx programming technology stack

Let's look at the specific requirements for each technology stack.

Node.js

Node.js will be our JavaScript runtime in the environment in which we compile the custom code. You can download Node.js from the official site at `https://nodejs.org`.

There might be a couple of options to choose from, as shown in the following screenshot:

LTS Recommended For Most Users		Current Latest Features	
Windows Installer node-v10.16.3-x64.msi	macOS Installer node-v10.16.3.pkg		Source Code node-v10.16.3.tar.gz
Windows Installer (.msi)	32-bit		64-bit
Windows Binary (.zip)	32-bit		64-bit
macOS Installer (.pkg)	64-bit		
macOS Binary (.tar.gz)	64-bit		
Linux Binaries (x64)	64-bit		
Linux Binaries (ARM)	ARMv6	ARMv7	ARMv8
Source Code	node-v10.16.3.tar.gz		

Figure 25.2: Downloading Node.js

I recommend downloading LTS for Windows or Mac because the **Current** version might contain some features that are not supported by SPFx. Even when choosing LTS, you should check that the version is supported by SPFx by going to `https://packt.link/SPFx-setup`.

Download the 32-bit or 64-bit `.msi` version depending on your processor configuration and install it.

You can find the Node.js documentation here: `https://packt.link/Nodejs-docs`

npm

npm is the default package manager for Node.js. It is installed on your computer when you install Node.js. When you build a project using Node.js, you have to reference several libraries or packages. **npm** manages all these packages for you. It has an online registry of all the packages (at `https://www.npmjs.com/`) that you can use. You simply download the package by typing the following:

```
npm install package-name
```

Visual Studio Code

Visual Studio (VS) **Code** is a lightweight, open source code editor for Windows, Linux, and Mac. It offers code debugging, reusable snippets, refactoring, and many other features that can be extended via plugins. You can download VS Code from the official site at `https://code.visualstudio.com/`.

React

React (also known as React.js or ReactJS) is a free and open source frontend JavaScript library for building interactive user interfaces based on UI components. It is maintained by Meta (formerly Facebook) and a community of individual developers and companies. It is one of the most popular JavaScript frameworks used for frontend development.

Yeoman

Yeoman is a command-line interface that provides common build tools and a starter template, and builds you a scaffolding solution that you can begin with and build upon. It can also run your unit tests and provides you with a local development server to test your code.

Yeoman requires you to have `Node.js` installed. We will learn how to install Yeoman and install the SharePoint Yeoman generator in the *How to do it...* section of the *Setting up the development environment* recipe.

gulp

gulp is a tool that helps you out with several tasks, reduces your development time significantly, and takes away a lot of monotonous manual tasks. It can perform activities such as the following:

- Starting up a development server
- Auto-refreshing a browser during code changes
- Merging web assets, such as CSS, JavaScript, and images, into a single file

gulp also requires `Node.js` as a prerequisite.

TypeScript

TypeScript is a strongly typed, object-oriented, compiled language that serves as a replacement for JavaScript to write application-scale solutions. It is both a language and a set of tools. It attempts to compensate for the limitations that JavaScript has. TypeScript has now been accepted widely as a language. All TypeScript code is converted into its JavaScript equivalent for execution. In theory, all valid JavaScript files can be saved with the `.ts` extension to convert them into TypeScript files.

PowerShell

PowerShell is a command-line shell and scripting language that is built on top of .NET **Common Language Runtime** (**CLR**), used to perform a variety of tasks with Microsoft services. If you are using Windows, probably you already have PowerShell installed. You can get to it just by typing `Powershell` in the Start menu and looking for **Windows PowerShell**. Here are the instructions to install PowerShell on Mac: `https://packt.link/PowerShell-mac`.

Setting up a development environment

If you don't have enough development experience, you could find the SPFx development process a bit overwhelming. I recommend that you get some development experience with the JavaScript framework before jumping into SPFx development directly. There are several training courses available on Node. js and its ecosystem. If you are familiar with the basics of Node.js, then let's begin.

Getting ready

You need a source code editor, such as VS Code, Atom, or Eclipse, to edit the source code. You also need Node.js installed on your device, which you can do by downloading the installer from the link in the previous section. If you already have Node.js installed, then check the version to see whether it is compatible with your SPFx version by running the following command on PowerShell:

```
node -v
```

The following output is shown after running the `node -v` command:
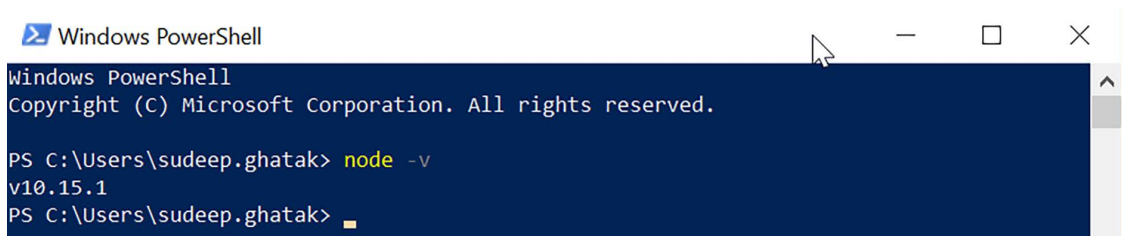
Figure 25.3: PowerShell console
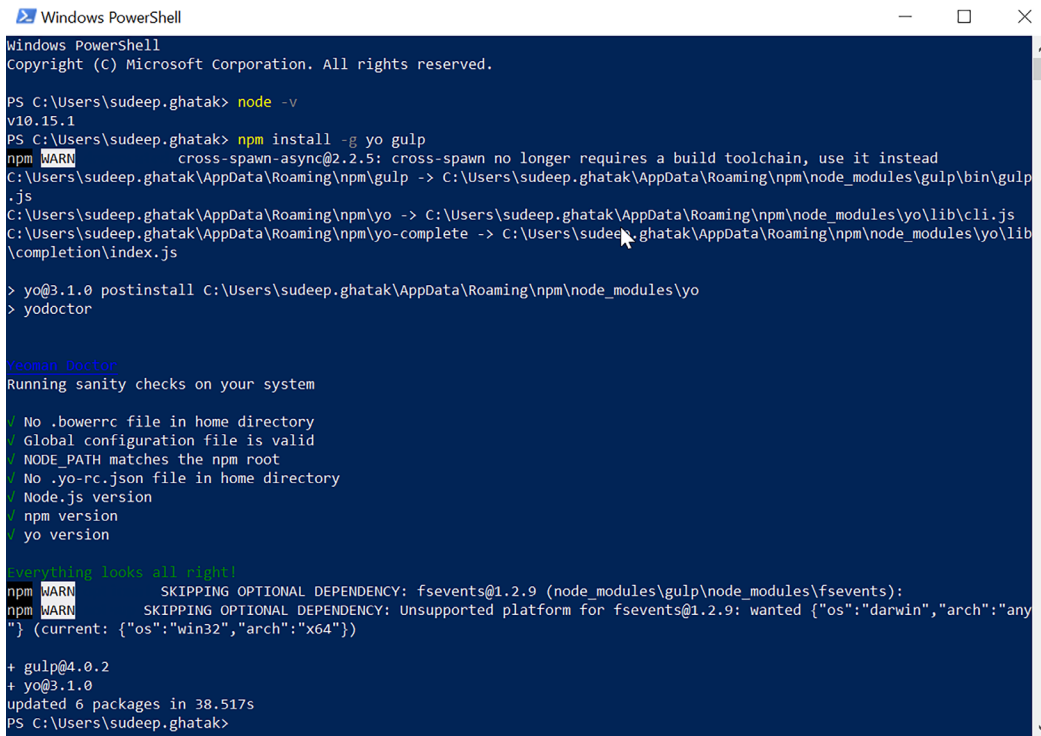
Before starting the next section, I will assume that you have managed to install Node.js.

How to do it...
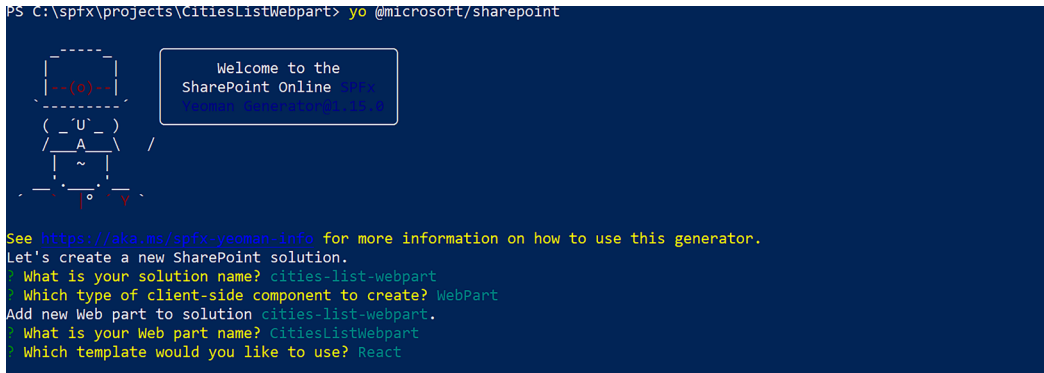
1. On a Windows operating system, click **Start**, type `PowerShell`, and then click **Windows PowerShell**.

2. Type the following command to install Yeoman and gulp:

```
npm install -g yo gulp
```

You should see the following output. If there are no errors, proceed to the next step.

Figure 25.4: Installing pre-requisites

3. Next, install the Yeoman generator for SharePoint by typing the following:

```
npm install -g @microsoft/generator-sharepoint
```

The output is as shown here:

Figure 25.5: SPFx scaffolding

4. Finally, type the following to update npm:

```
npm i -g npm
```

How it works...

Let's now try to understand the commands we just ran.

As you might have already figured out, the `install` command with npm installs the packages mentioned in the command; however, note that I added the `-g` command-line switch, which installs these packages *globally*. If you look in your global directory, you should see the package files there, as shown in the following screenshot:
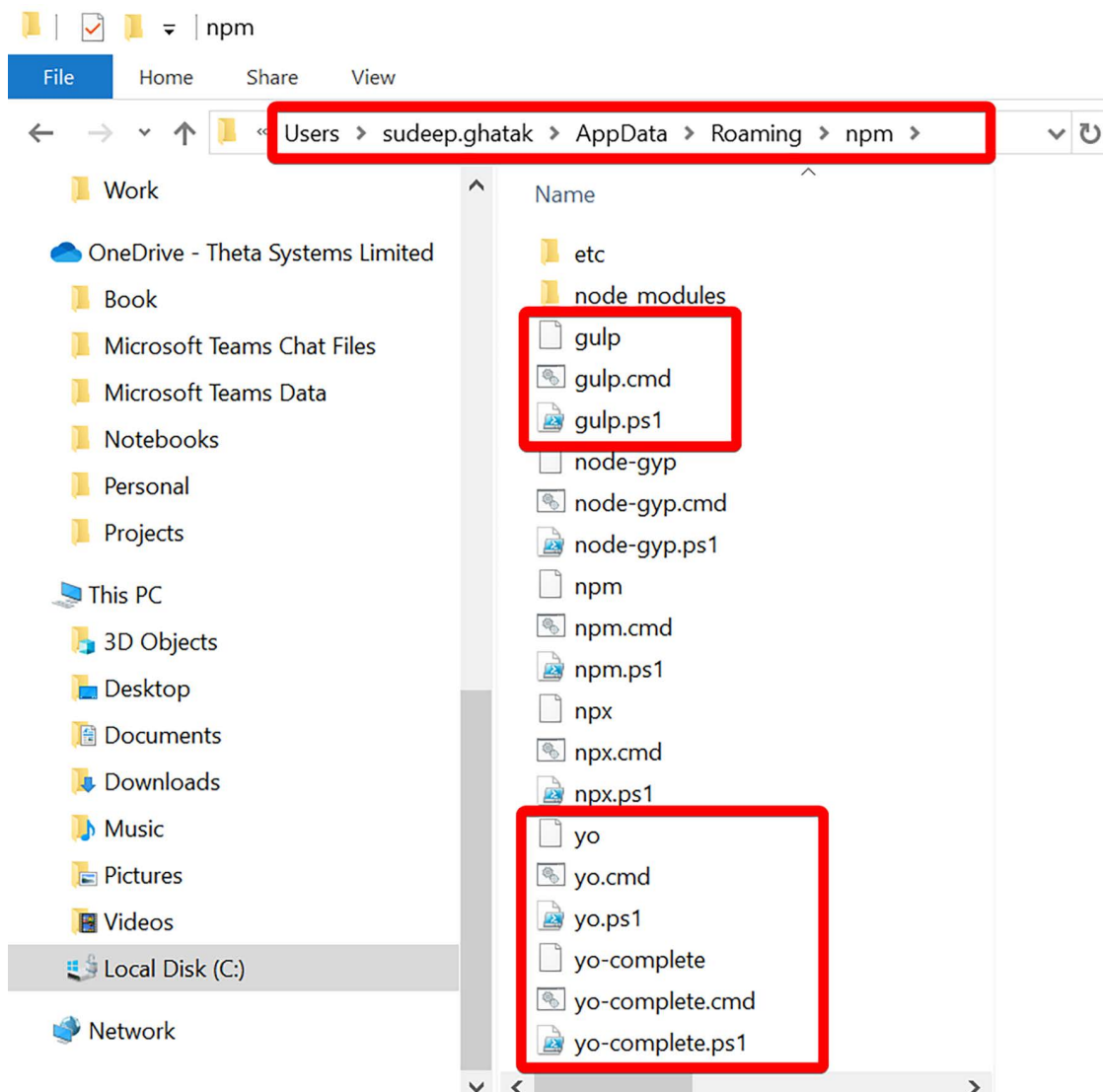
Figure 25.6: Scaffolding files

Installing these packages globally means that I can invoke the `yo` and `gulp` commands from the command line without specifying the install location.

After installing Yeoman, I installed the Yeoman SharePoint generator. Using the Yeoman SharePoint generator, you'll be able to scaffold new custom solution projects to build, package, and deploy SharePoint solutions. The generator comes with code snippets and a local development server to test your code. Note that we have installed this globally as well.

See also

- The *Building your first SPFx web part* recipe in this chapter
- The *Deploying your SPFx web part* recipe in this chapter

Building your first SPFx web part

The modern experience in SharePoint provides you with several widgets or web parts that you can add to improve the experience. Shown here is a screenshot of all the components (client web parts) that you can add to a modern SharePoint page:
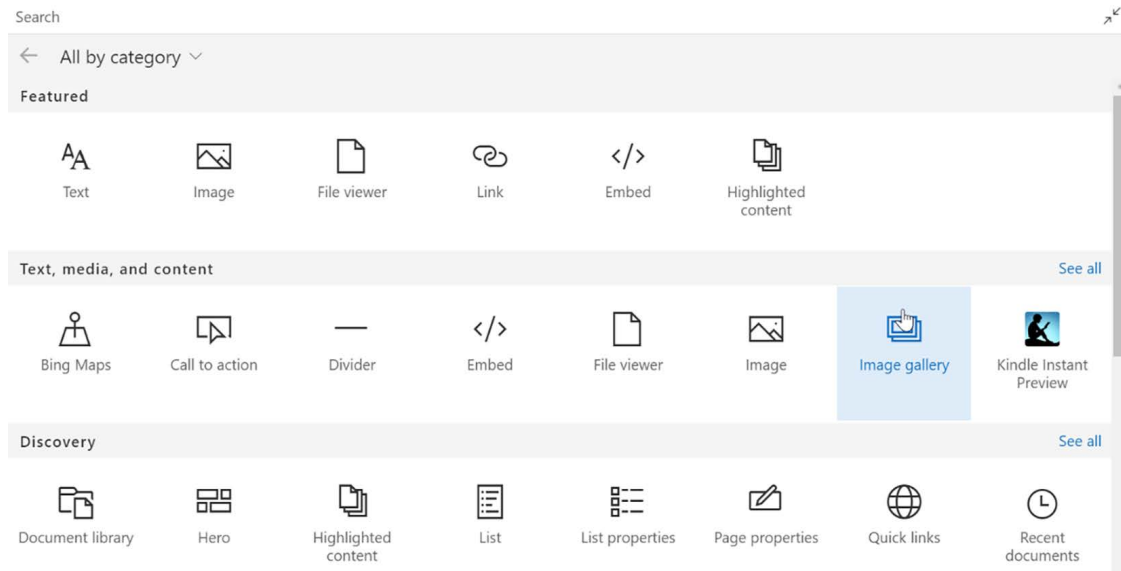
Figure 25.7: SharePoint client web parts

While these web parts offer most of what you need to display on a page, sometimes you need to develop custom functionality. In the past, there were several ways you could do this, but nowadays, the SharePoint framework is your best bet. One good thing about building web parts using SPFx is that you get to use the same framework that Microsoft uses to build the out-of-the-box web parts, as displayed in the preceding screenshot. This means that you get the same benefits, such as responsive behavior and mobile readiness.

SPFx web parts are compatible with both classic and modern pages.

The project is available for download at `https://packt.link/GitHub-repo-chapter-25`.

Getting started

For this recipe, you first need to set up the SharePoint development environment as described in the previous recipe.

We are going to build a web part that fetches data from a SharePoint list. Let us create a basic SharePoint list named `Cities` as shown below. Please note it is leveraging the default **Title** field of the list to store city names and a *choice* field named **Country** to store country names.

Figure 25.8: SharePoint List

How to do it...

1. On a Windows operating system, click **Start**, type `PowerShell`, and then click **Windows PowerShell**.
2. Navigate to the root folder by typing `cd \`.
3. Create a new folder by typing the following command:

```
md CitiesListWebpart
```

4. Change directory to the folder by typing the following:

```
cd CitiesListWebpart
```

5. Scaffold a web part template by typing `yo @microsoft/sharepoint` and respond to the questions as specified below.

Figure 25.9: SPFx web part provisioning

The responses to the questions are as follows:

- What is your solution name? `Cities-list-webpart`
- Which type of client-side component to create? `Webpart`
- What is your web part name? `CitiesListWebpart`
- Which template would you like to use? `React`

6. Type `code .` (including the space) to open the project in VS Code.
7. Open the `serve.json` file inside the `config` folder and update the SharePoint site `initialPage` property to reflect the address of the site you want this to be deployed to.
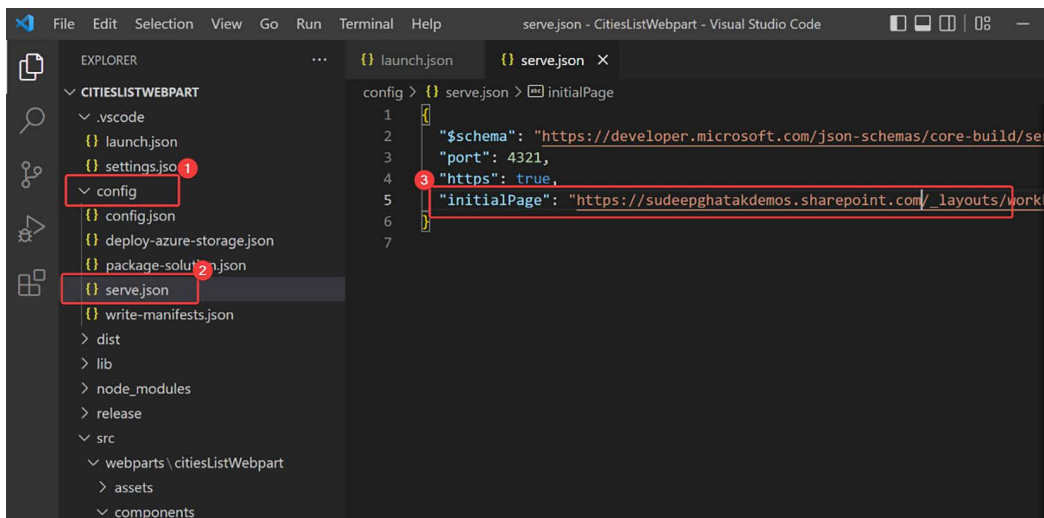
Figure 25.10: Initial page

8. You then need to create a trust certificate to get around certificate errors. Go to **Terminal** (**1** in the following screenshot) | **New Terminal** (**2**) and type (**3**):

```
gulp trust-dev-cert
```
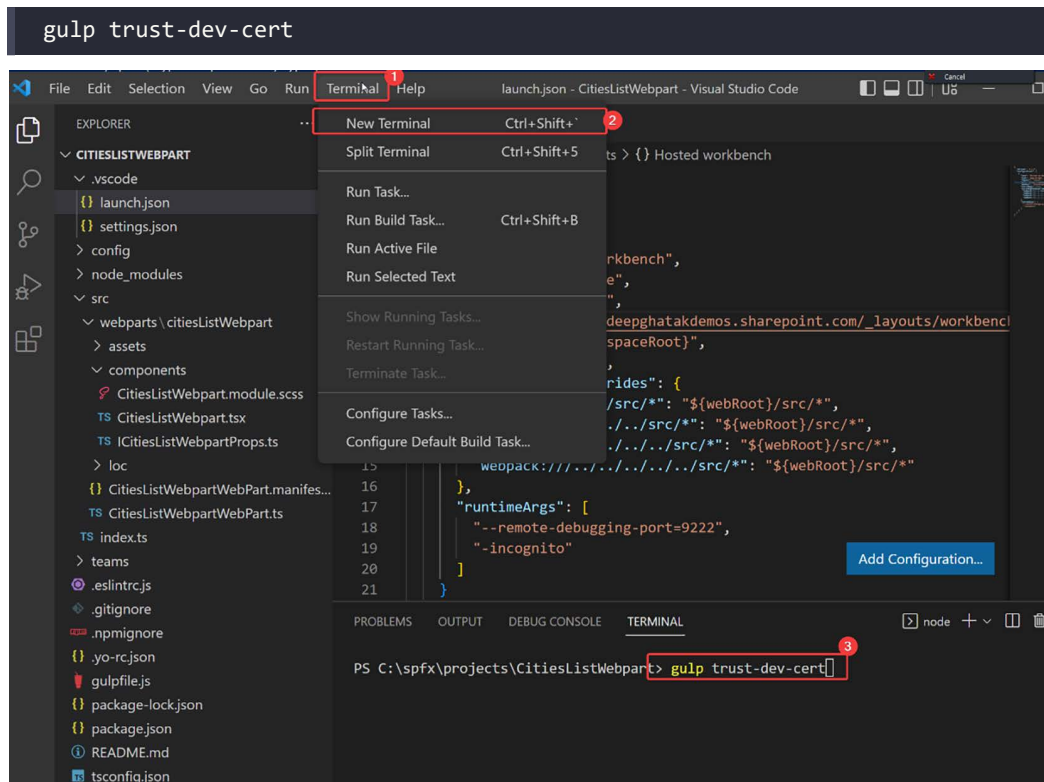

Figure 25.11: Install certificate

9. Next, type `gulp serve` to launch your web part in the dev environment.

10. The web part will be launched in the local workbench. Click on the + symbol and select the web part:
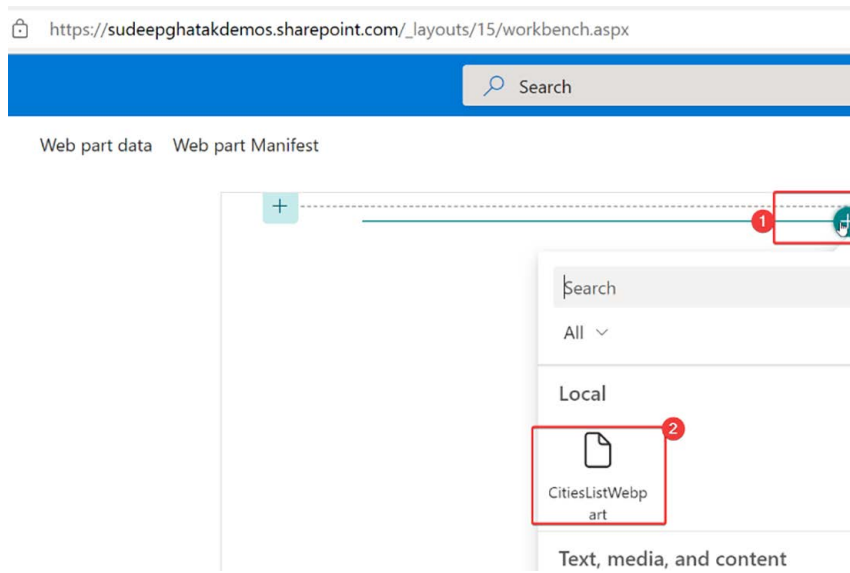
Figure 25.12: Add web part

11. The web part will be added to the page, as shown in the following screenshot:
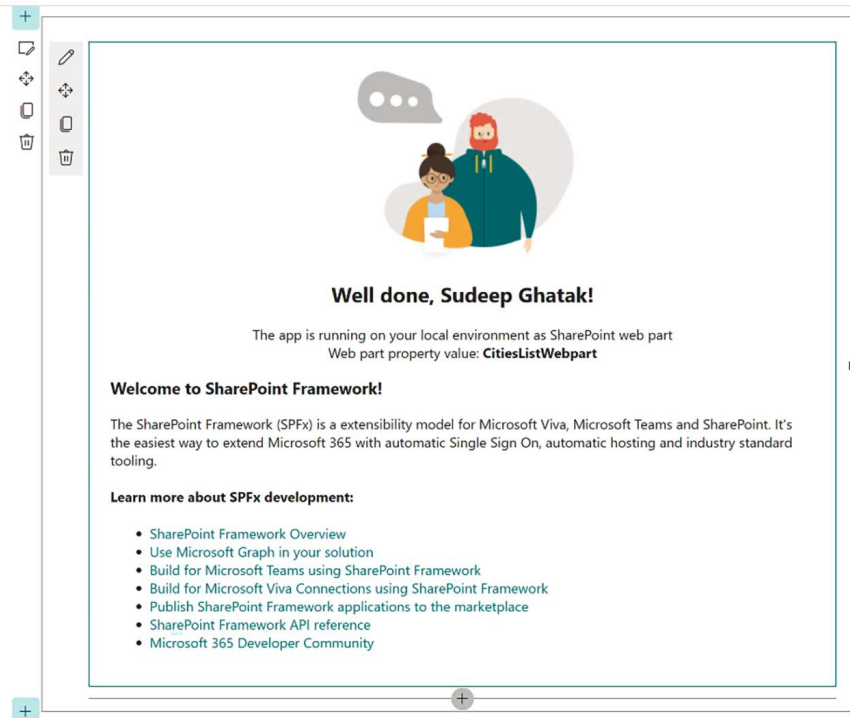
Figure 25.13: See the web part in action

Great! So we got the default web part working. Let's now go and update the code to get data from our SharePoint list:

1. In order to query SharePoint, we need to install the **SharePoint PnP** package. This package contains libraries of extensions and web parts built on top of SPFX – see the link in the *See also* section for more information. We can install PnP by typing:

```
npm install @pnp/sp --save
```

```
PS C:\spfx\projects\CitiesListWebpart> npm install  @pnp/sp --save
```

Figure 25.14: Installing the PnP package

2. Open the web part's `.tsx` file and import the SharePoint modules:

```tsx
import * as React from 'react';
import styles from './CitiesList.module.scss';
import { ICitiesListState } from './ICitiesListState';
import { ICitiesListProps } from './ICitiesListProps';
import { IListItems } from './IListItems';
import "@pnp/sp/webs";
import "@pnp/sp/lists";
import "@pnp/sp/items";
import { SPFI, spfi } from '{@pnp/sp';
import { getSP } from './pnpjsConfig';
import { ListView, IViewfield, SelectionMode, GroupOrder, IGrouping }
from "@pnp/spfx-controls-react/lib/ListView";
```
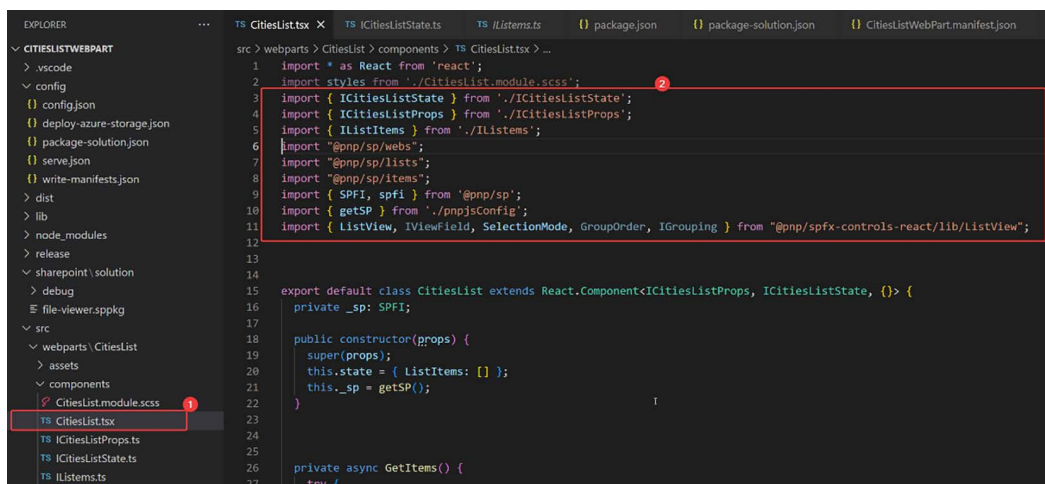

Figure 25.15: Importing SharePoint modules

3. Create a new typescript file `pnpConfig.ts` to create a helper class to query SharePoint.

```typescript
import { WebPartContext } from "@microsoft/sp-webpart-base";

// import pnp and pnp logging system
import { spfi, SPFI, SPFx } from "@pnp/sp";
import { LogLevel, PnPLogging } from "@pnp/logging";
import "@pnp/sp/webs";
import "@pnp/sp/lists";
import "@pnp/sp/items";
import "@pnp/sp/batching";

Var _sp: SPFI = null;

export const getSP = (context?: WebPartContext): SPFI => {
    if (_sp === null && context != null) {
        _sp = spfi().using(SPFx(context)).using(PnPLogging(LogLevel.
Warning));
    }
    return _sp;
};
```
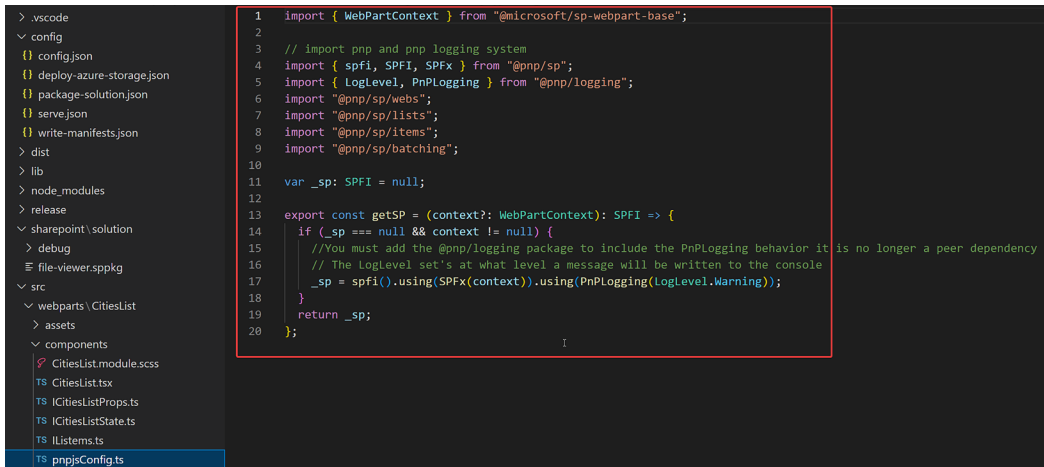

Figure 25.16: Creating a helper class

4. Since we are using the React framework, we need to create a `State` file to store SharePoint list data. Create a new `ICitiesListState.ts` file in the `components` folder and add the following code to it:

```
export interface ICitiesListState {
    ListItems:IListItems[];


}
```



```
    4    export interface ICitiesListState {
    5    ListItems:IListItems[];
    6
    7    }
```

Figure 25.17: Storing SharePoint list data

5. Initialize the state object in the constructor:

```
this.state = {ListItems: []};
```


Figure 25.18: State object within a constructor

6. Create the `GetItems` functions by querying the SharePoint API:

```
const response: IListItems[] = await spCache.web.lists
    .getByTitle("Cities")
    .items
    .select("Title", "Country")();
```

Then, implement the `componentDidMount` method to query the list:

```
public componentDidMount(): void {
    this.GetItems();


}
```

```
28   private async GetItems() {
29     try {
30
31       const spCache = spfi(this._sp);
32       const response: IListItems[] = await spCache.web.lists
33         .getByTitle("Cities")
34         .items
35         .select("Title", "Country")();
36
37       console.log(response);
38
39
40
41
42
43       this.setState({ ListItems: response });
44
45
46
47     } catch (error) {
48       console.log("Error in GetItem : " + error);
49     }
50   }
51
52
53   public componentDidMount(): void {
54     this.GetItems();
55
56   }
```

Figure 25.19: SP query and componentDidMount method in separate code blocks

7. Implement the render method to display the data returned from SharePoint:

```
<div >
    <h1>List of Cities</h1>
    <ListView
        items={this.state.ListItems}
        viewFields={[{ name: "Title", maxWidth: 100 }, { name: "Country"
}]}
        iconFieldName="ServerRelativeUrl"
        compact={true}
        selectionMode={SelectionMode.muiltiple}
        showFilter={true}
        filterPlaceHolder="Search…"
        dragDropFiles={true}
        stickyHeader={true}
    />
</div>
```

```
58    public render(): React.ReactElement<ICitiesListProps> {
59      const {
60        ListTitle,
61        isDarkTheme,
62        environmentMessage,
63        hasTeamsContext,
64        userDisplayName
65      } = this.props;
66
67      let category: string = "";
68
69
70      return (
71        <section >
72
73          <div >
74            <h1>List of Cities</h1>
75            <ListView
76              items={this.state.ListItems}
77              viewFields={[{ name: "Title", maxWidth: 100 }, { name: "Country" }]}
78              iconFieldName="ServerRelativeUrl"
79              compact={true}
80              selectionMode={SelectionMode.multiple}
81              showFilter={true}
82              filterPlaceHolder="Search..."
83              dragDropFiles={true}
84              stickyHeader={true}
85            />
86          </div>
87
88        </section>
89      );
90    }
91  }
```

Figure 25.20: Displaying SP data

8. Open the terminal window and type gulp serve.

9.   The web part now loads the cities from the `Cities` list:
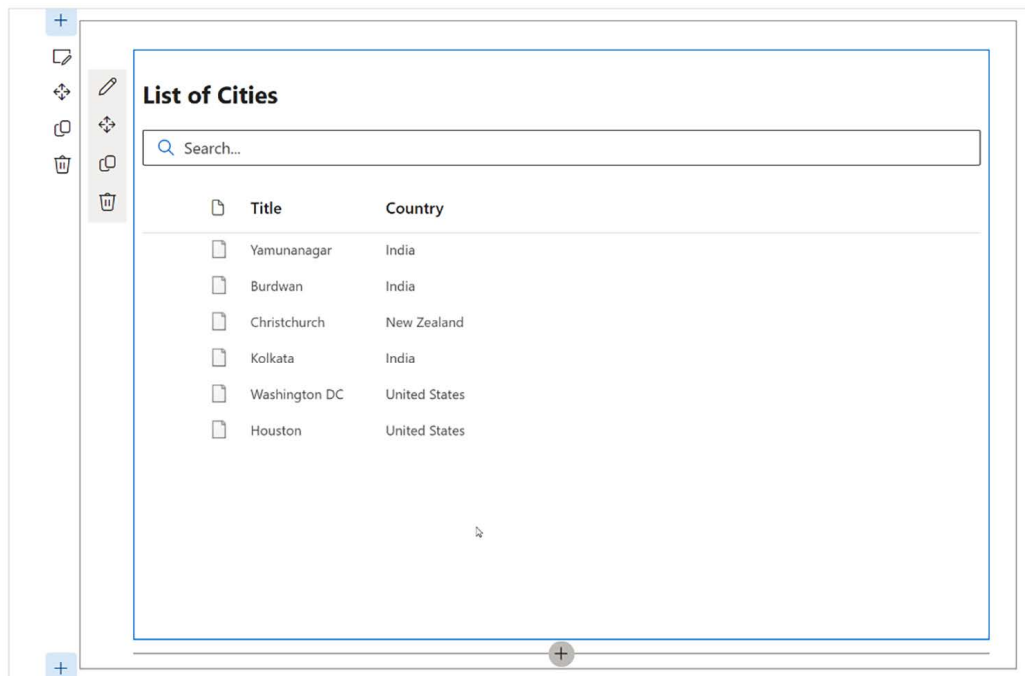
Figure 25.21: SharePoint list for testing

How it works...

In this section we will go through the various code components. The complete code for the solution above can be downloaded from `https://packt.link/chapter-25-GitHub`.

Before we begin, follow the steps in the following screenshot to open the solution in VS Code:
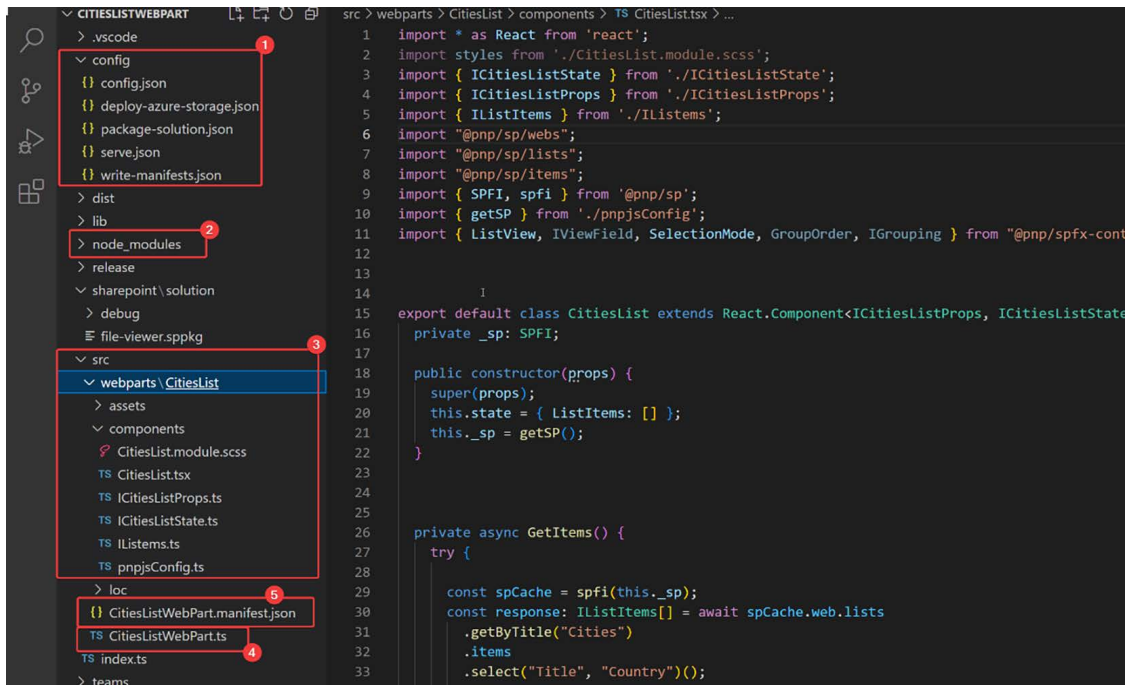
Figure 25.22: Visual Studio layout

On the left of your screen you have the **Navigation** panel that lets you access your code files. On the right you see the code written in the file you selected from the navigation pane.

To understand the code components of a web part we will first look at the `config` folder.

Config folder (config)

The config folder builds the relationship between various component elements. The configuration folder comprises files that contain the bundling information along with the components used in the solution. It also specifies the entry point of the solution and the location of the manifest file. If there are external libraries used in the solution, then the references to the external libraries are also stored here, as shown in the following screenshot:

```json
 1    {
 2      "$schema": "https://developer.microsoft.com/json-schemas/spfx-build/config.2.0.schema.json",
 3      "version": "2.0",
 4      "bundles": {
 5        "file-viewer-web-part": {
 6          "components": [
 7            {
 8              "entrypoint": "./lib/webparts/CitiesList/CitiesListWebPart.js",
 9              "manifest": "./src/webparts/CitiesList/CitiesListWebPart.manifest.json"
10            }
11          ]
12        }
13      },
14      "externals": {},
15      "localizedResources": {
16        "CitiesListWebPartStrings": "lib/webparts/CitiesList/loc/{locale}.js",
17        "ControlStrings": "node_modules/@pnp/spfx-controls-react/lib/loc/{locale}.js"
18      }
19    }
```

Figure 25.23: Config folder

Node modules (node_modules)

When you install a node package using **npm**, all the package files and their associated dependencies are stored in the local node_modules subfolder of the solution. Read more about node modules at https://packt.link/node-modules.

Source code (src)

The src folder in the solution stores the custom code that determines how your web part will look and function.

Let's now go through the code in detail.

State file (ICitiesListState.ts)

The state is a built-in React object that is used to store data or metadata of a component. Every time the component's state is changed, it re-renders itself, thereby changing the UI elements.

In this example we are using a state variable ListItems (which is a collection of IListItems objects):

```typescript
import { IListItems } from "./IListItems";
```

```
export interface ICitiesListState {
    ListItems:IListItems[];


}
```

```
import { IListItems } from "./IListems";


export interface ICitiesListState {
    ListItems:IListItems[];


}
```

Figure 25.24: ListItems variable shown in Visual Studio

The `IListItem` object represents a single item in the `Cities` list:

```
export interface IListItems {
    Title: string;
    Country:any;
}
```

```
1    export interface IListItems {
2        Title: string;
3        Country:any;
4    }
```

Figure 25.25: Item in the Cities list represented in Visual Studio

Web part file (CitiesList.tsx)

The web part file is the main file in the entire solution. It has the following four main components.

Import statements

In this recipe, we used `import` statements to build our helper class. These statements are where you refer to all the dependent classes and external libraries you will use in your solution:

```
import * as React from 'react';
import styles from './CitiesList.module.scss';
import { ICitiesListState } from './ICitiesListState';
import { ICitiesListProps } from './ICitiesListProps';
import { IListItems } from './IListItems';
import "@pnp/sp/webs";
import "@pnp/sp/lists";
import "@pnp/sp/items";
import { SPFI, spfi } from '@pnp/sp';
import { getSP } from './pnpjsConfig';
import { ListView, IViewField, SelectionMode, GroupOrder, IGrouping } from "@pnp/spfx-controls-react/lib/ListView";
```

Figure 25.26: Import statements in Visual Studio

As we can see in the import statements, the `@pnp/sp` library simplifies working with SharePoint objects. You install the library by typing the following command in the terminal window:

```
npm install @pnp/sp @pnp/graph –save
```

The `@pnp/spfx-controls-react` library allows you to leverage some reusable React controls already built by the SharePoint community. In this example we are going to use the `ListView` control. You install the library by typing the following command in the terminal window:

```
npm install @pnp/spfx-controls-react --save --save-exact
```

Constructor

The constructor is a method that automatically gets called during the creation of an object from a class. The state object is initialized in the constructor.

Because of the nature of the constructor, the `this.props` object is not available and can lead to bugs. This constructor would throw an error:

```
constructor() {
  console.log(this.props);
}
```

Hence, we take a `props` value from the `constructor()` and pass it to the `super()` method:

```
constructor(props) {
  super(props);
  console.log(this.props);
}
```

When you call the `super()` method, it calls the constructor of the parent class, which in the case of a React component is `React.Component`.

We initialize the state variable and also create an object `_sp` to query SharePoint objects:

```
export default class CitiesList extends React.Component<ICitiesListProps,
ICitiesListState, {}> {
    private _sp: SPFI;

    public constructor(props) {
        super(props);
        this.state = { ListItems: [] };
        this._sp = getSP();
    }
```

```
export default class CitiesList extends React.Component<ICitiesListProps, ICitiesListState, {}> {
  private _sp: SPFI;

  public constructor(props) {
    super(props);
    this.state = { ListItems: [] };
    this._sp = getSP();
  }
```

Figure 25.27: Initializing the state variable and creating an object for querying

componentDidMount method

The `componentDidMount` method in React is invoked immediately after a component is mounted. Usually, you would use this method to load your state variables. So, we query the SharePoint list in this method and save the values in the state object:

```
private async GetItems() {
    try {
        const spCache = spfi(this._sp);
        const response: IListItems[] = await spCache.web.lists
            .getByTitle("Cities")
            .items
            Select("Title", "Country")();
        console.log(response);
        this.setState({ ListItems: response });

    } catch (error) {
        console.log("Error in GetItem : " + error);
    }



public componentDidMount(): void {
    this.GetItems();


}
```

```
26     private async GetItems() {
27       try {
28         const spCache = spfi(this._sp);
29         const response: IListItems[] = await spCache.web.lists
30           .getByTitle("Cities")
31           .items
32           .select("Title", "Country")();
33         console.log(response);
34         this.setState({ ListItems: response });
35
36       } catch (error) {
37         console.log("Error in GetItem : " + error);
38       }
39     }
40
41
42     public componentDidMount(): void {
43       this.GetItems();
44
45     }
46
```

Figure 25.28: Querying and saving values from a SharePoint list

Render

In React, the `render()` method is the only required method in a class component and is responsible for describing the user interface. `render()` cannot be called explicitly by the user. It is part of the React component lifecycle (`https://m365book.page.link/ReactLifecycle`):

```
public render (): React.ReactElement<ICitiesListProps> {
    const {
        ListTitle,
        isDarkTheme,
        environmentMessage,
        hasTeamsContext,
        userDisplayName
    } = this.props;

    let category: string = "";
```

```
    return (
        <section >

            <div >
                <h1>List of Cities</h1>
                <h2>List Name: {this.props.ListTitle}</h2>
                <ListView
                    items={this.state.ListItems}
                    viewFields={[{ name: "Title", maxWidth: 100}, { name:
"Country" }]}
                    iconFieldName="ServerRelativeUrl"
                    compact={true}
                    selectionMode={SelectionMode.multiple}
                    showFilter={true}
                    filterPlaceHolder="Search…"
                    dragDropFiles={true}
                    stickyHeader={true}
                />
            </div>

        </section>
    );
}
```

```
47      public render(): React.ReactElement<ICitiesListProps> {
48        const {
49          ListTitle,
50          isDarkTheme,
51          environmentMessage,
52          hasTeamsContext,
53          userDisplayName
54        } = this.props;
55
56        let category: string = "";
57
58
59        return (
60          <section >
61
62            <div >
63              <h1>List of Cities</h1>
64              <h2>List Name: {this.props.ListTitle}</h2>
65              <ListView
66                items={this.state.ListItems}
67                viewFields={[{ name: "Title", maxWidth: 100 }, { name: "Country" }]}
68                iconFieldName="ServerRelativeUrl"
69                compact={true}
70                selectionMode={SelectionMode.multiple}
71                showFilter={true}
72                filterPlaceHolder="Search..."
73                dragDropFiles={true}
74                stickyHeader={true}
75              />
76            </div>
77
78          </section>
79        );
80      }
```

Figure 25.29: Creating the user interface using render()

The render() method in the CitiesList web part builds the HTML that is displayed in the web part when it is added to the page. Note that on line number 64, it refers to the this object, which contains a properties object.

The properties are a way of receiving inputs from a user. The properties are defined in the manifest file, CitiesList.manifest.json.

In this example, instead of building the HTML for the Cities list items from scratch, we leveraged a React component named ListView from the *SPFx React Controls* repository (https://packt.link/SPFx-controls).

There's more…

SharePoint provides you with a convenient way of testing your code before deploying it to SharePoint. During the development stage, you can use what is known as a SharePoint workbench.

The SharePoint workbench is a test area that enables you to quickly preview and test web parts without deploying them in SharePoint. Your workbench is provisioned by the `gulp serve` command. This is your own instance of a SharePoint modern page. You can launch the workbench by simply typing the following code:

```
gulp serve
```

The workbench is actually running on your Microsoft 365 tenancy, and can be accessed by navigating to `https://your-site/_layouts/workbench.aspx`, as shown in the following screenshot:
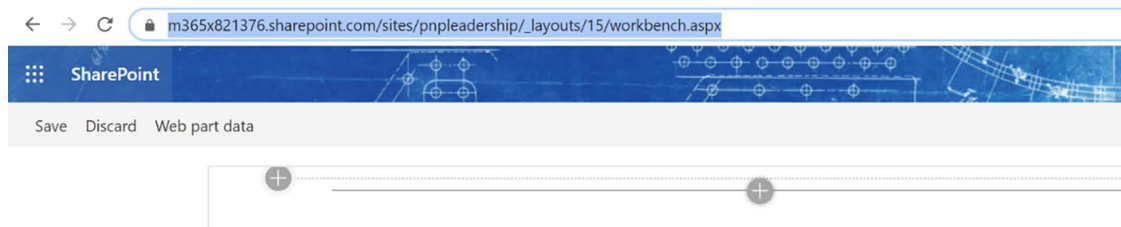
Figure 25.30: Workbench

If you just want to launch a local server in the background (without launching the workbench), you can use the following command:

```
gulp serve --nobrowser
```

See also

- The *Setting up the development environment* recipe in this chapter
- The *Deploying your SPFx web part* recipe in this chapter
- The PnP package of extensions and web parts: `https://packt.link/PnP-GitHub`

Deploying your SPFx web part to a Microsoft 365 tenant

Once you have tested your web part on your local workbench and are ready to deploy it on the live environment, there are several different approaches that you can take:

- You can deploy the web part to the Microsoft 365 app catalog so that it is available on all Share-Point sites on the tenant or site collection app catalog, restricted to a single site collection.
- You can deploy the web part to the Microsoft 365 CDN.
- You can host the web part on Azure CDN.

In this book, we will only cover the first approach, which is perhaps the simplest. To read about the other two approaches, visit `https://packt.link/SPFx-Office-CDN` and `https://packt.link/SPFx-Azure-CDN`.

Getting started

To deploy the web part to the tenant app catalog, you need to have the SharePoint Administrator role.

To deploy this on a specific site collection, you need to first create a site collection app catalog by running the following commands to open the SharePoint Online management shell.

> To connect to your SharePoint Online via PowerShell, download and install the SharePoint Online management shell from: `https://m365book.page.link/SPFx-powershell`.

To connect to your Microsoft 365 tenant administration site, use the following command:

```
connect -SPOService -Url https://{your tenant name}-admin.sharepoint.com
```

You will be asked to provide authentication. Enter your credentials:

Microsoft SharePoint Online
Management Shell

Work or school, or personal Microsoft account

Email or phone

Password

Sign in   Back

Can't access your account?

Figure 25.31: Authentication popup

Tenant administrators can choose to enable a site collection app catalog on specific site collections. Solutions deployed to the site collection app catalogs can only be installed in that particular site collection. To provision a SharePoint app catalog, type the following command:

```
add-SPOSiteCollectionAppCatalog -Site "Url of your site where the app catalog
needs to be enabled"
```

You will see that the app catalog has been created on your site, as shown in the following screenshot:

	Name	Type	Items	Modified
	Documents	Document library	0	12/12/2018 8:52 PM
	Form Templates	Document library	0	1/4/2019 11:31 AM
	Site Assets	Document library	2	1/4/2019 11:31 AM
	Style Library	Document library	0	12/12/2018 8:52 PM
	Apps for SharePoint	List	0	1/8/2019 1:39 PM
	Events	Events list	0	12/12/2018 8:52 PM

Figure 25.32: New app catalog displayed on the SharePoint site

How to do it...

The following sections will cover the instructions to do the following:

- Deploy the web part to the Microsoft 365 app catalog to make it globally available
- Deploy the web part to the app catalog of a specific site

Creating a solution package

Run the following commands to create a deployable package:

```
gulp bundle --ship
gulp package-solution --ship
```

The file with the `.sppkg` extension is your package file:
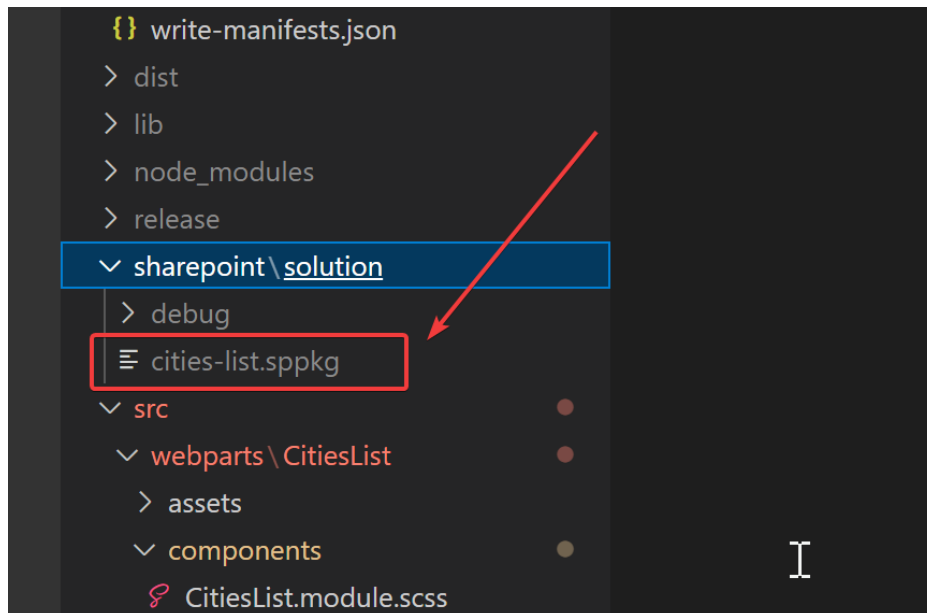
Figure 25.33: Package file in Visual Studio

Deploying to the tenant app catalog

1. Go to `https://office.com` and log in with your Microsoft 365 credentials.

2. Click on **Admin**, as shown in the following screenshot:
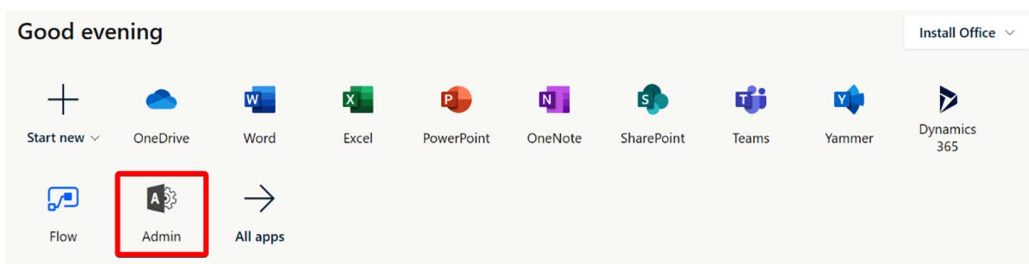
Figure 25.34: Admin icon in the list of Office apps

> You need to have the Global administrator or SharePoint administrator role in order to see the **Admin** icon.
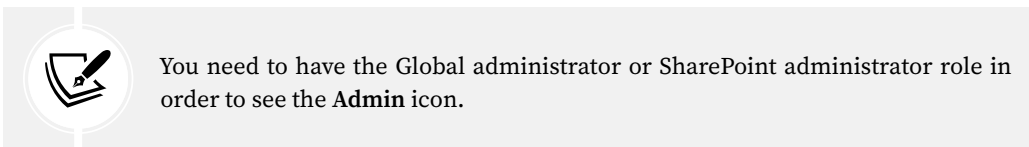
3. Navigate to the SharePoint admin center by clicking on the **SharePoint** link:
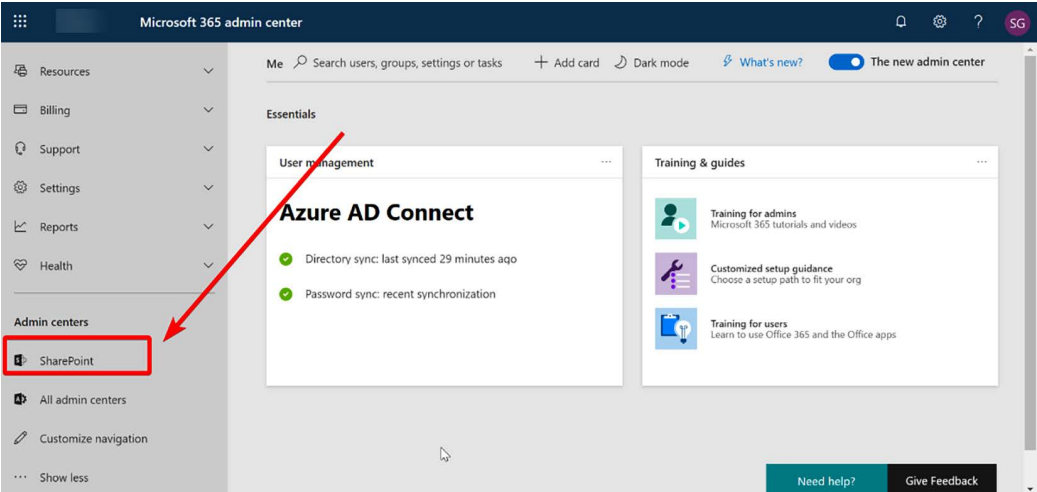
Figure 25.35: Button for the admin center

4. Open the **Apps** section:
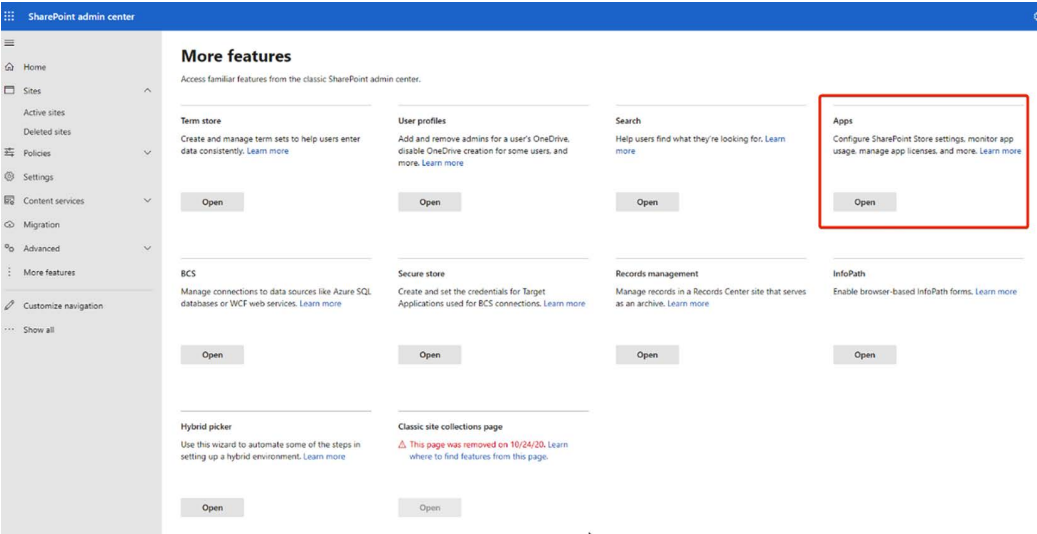
Figure 25.36: Apps section of the Classic features page

5. Click on **Apps.**

6. You will be taken to the **App Catalog**:
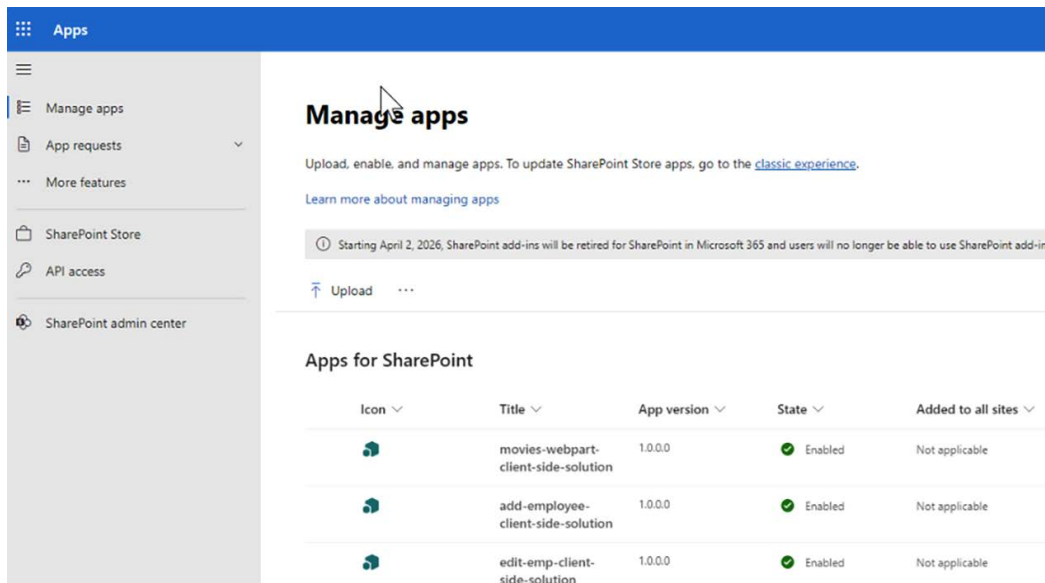
Figure 25.37: Package library

7. Drag your package file from your package solution folder to the library.
8. The web part will now be available to be added to any SharePoint page.

How it works...

The SPFx web part package consists of a solution package (a `.sppkg` file) and might optionally include other files, such as scripts, CSS style sheets, and other assets. The `.sppkg` file is actually just a zipped version of a set of files. If you rename the `.sppkg` file `.zip` and investigate the contents, you will find that it includes a manifest file named `AppManifest.xml`, which contains a bunch of URLs pointing to the location where script files are deployed.

These files need to be in a location that is accessible to the SharePoint web part running in Microsoft 365. The location could be on Azure Blob Storage or the Microsoft 365 public **content delivery network** (**CDN**). The other option, perhaps the simplest one, is to host the files in a document library within SharePoint.

Each approach has its pros and cons. CDN delivers pages and other web content to a user based on their geographic location, so if your users are geographically dispersed, you might want to deploy your assets to an Azure or Microsoft 365 CDN.

Instead of deploying your assets separately, you can choose to package them in the `.sppkg` file itself. You can achieve this by setting the `includeClientSideAssets` property as `true`. After deploying the `.sppkg` solution to the app catalog, SharePoint will unzip the assets to a location in your tenant.

See also

- CLI for Microsoft 365: `https://packt.link/CLI-Microsoft-365`
- The *Setting up the development environment* recipe in this chapter
- The *Building your first SPFx web part* recipe in this chapter

Learn more on Discord

To join the Discord community for this book – where you can share feedback, ask questions to the author, and learn about new releases – follow the QR code below:

`https://packt.link/powerusers`
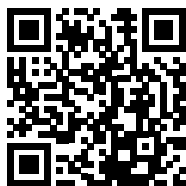
26
Microsoft 365 on Mobile Devices

Microsoft 365 is undoubtedly a very rich and diverse productivity solution that covers almost all aspects of an organization's needs. One thing that is embedded in every application of the Microsoft 365 suite is **mobility**. Every Microsoft 365 application has been designed keeping the users of the application in mind. Microsoft 365 caters to users who access Office applications from their workplace, as well as those who are on the go all the time. Some users will connect to the internet using Wi-Fi, while others might choose to do so using their mobile data.

All Microsoft 365 applications are mobile-responsive. What that means is that if you access any Microsoft 365 application on your mobile or tablet browser, you will see that it rearranges the components on the screen to provide the best browsing experience on the device of your choice.

In addition to being mobile-responsive, the applications also have native Android and iOS apps that make use of your mobile's native capabilities, such as the camera, the **Global Positioning System** (**GPS**), orientation, and so on.

In this chapter, we will take a look at some of the key mobile apps available with Microsoft 365. These are as follows:

- SharePoint
- OneDrive
- Office apps
- Planner
- Power Apps
- Power Automate (Microsoft Flow)
- Power BI
- Microsoft Teams

SharePoint

The SharePoint mobile app helps you remain on top of your work while on the go. You can access the contents of a site and search for people and documents. The app works with SharePoint Online in Microsoft 365, SharePoint Server (2013, 2016, and 2019) on-premises, and your hybrid environment. Four of the more significant screens can be seen below:
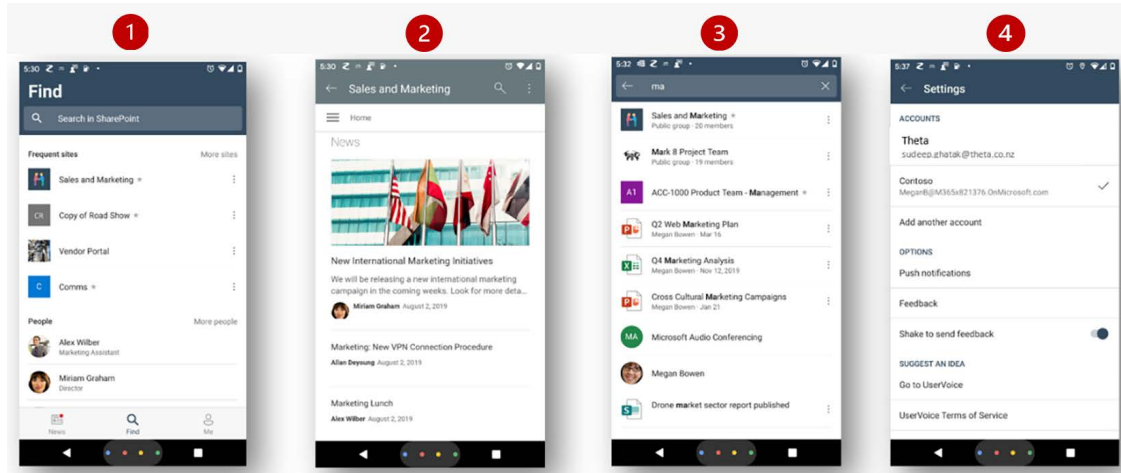
Figure 26.1: The SharePoint mobile app

Let's think about the capabilities on each of these screens:

1. The SharePoint app defaults to the **Find** view, which lets you search for a site, person, or file.
2. When you select a specific site, the content of the site renders in mobile view. There are limitations to the **content editing experience** in the mobile view. For instance, to edit content, you must have a minimum screen size. You might want to turn your mobile to landscape mode if portrait mode is not large enough.
3. The search icon is available on all your mobile views. The search results are revealed as you type in the section below. This includes sites, people, groups, and files.
4. If you have multiple Office accounts, you can switch between them from the settings of your SharePoint app.

When you sign in to the mobile app, you will see sites you have frequently visited, documents you have been working on, and people you interact with the most. Clicking on the site renders it to appear in the mobile view, where all your page components are lined up vertically. As you search for content, you get the same search experience as on the web.

You can search for content, sites, or people using the **Find** option in the navigation bar at the bottom of the screen. Clicking on **Me** lets you access your recent and saved documents. Clicking on the **gear** icon lets you access the settings page to modify other app settings.

OneDrive

The OneDrive mobile app lets you stay connected to all your files from anywhere and from any device. Microsoft Graph brings all the documents you have been working on, irrespective of where they are located (SharePoint, Teams, or OneDrive) into the OneDrive mobile app.

The app allows you to do the following:

- Access and upload Office documents, **Portable Document Format** (**PDF**) files, images, and so on, as shown in marker number **1** in the following figure.
- Preview documents and images.
- Edit and co-author in native Office apps.
- Mark files and folders for offline access.
- Share documents with your office colleagues as well as external people.
- Delete and recover files directly from your mobile devices.
- Scan whiteboard content, business cards, and receipts, and store them in Microsoft 365, as illustrated by the areas marked **2** and **3** in the following figure:
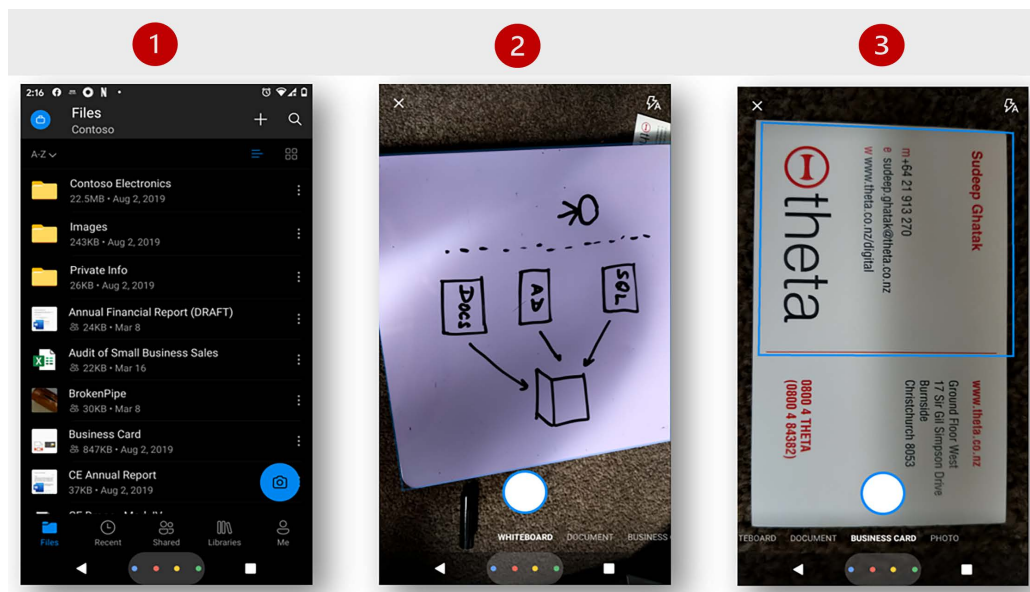
Figure 26.2: Scanning abilities of the OneDrive mobile app

Your OneDrive content is encrypted, not just on the device and in the cloud but also in transit.

Office apps

Microsoft Office has become an integral part of every organization. Word, Excel, PowerPoint, and Outlook have been shown to be the most popular applications. According to Microsoft, there are over 1 billion Microsoft Office users in the world using Office apps on a day-to-day basis, hence it is no surprise that Microsoft devoted its attention to building mobile apps for these applications.

Currently, there are Android and iOS apps for Word, Excel, PowerPoint, and Outlook. However, Microsoft is planning to merge them together into one Microsoft Office app.

The usage of Office apps on mobile devices has gone up significantly. Over 100 million people (`https://packt.link/Office-mobile`) use Outlook on a phone. Having an app on the phone saves you from sitting at your work desk, allowing you to be productive even when you are on the go.

The Microsoft Outlook app lets you connect multiple email accounts in one place and be able to view all your personal and official appointments in one calendar. The Inbox separates **Focused** emails—the emails that need your attention—from other emails, such as notifications, promotional content, and so on.

Apps for Office applications (Word, Excel, and PowerPoint) provide document-editing features on mobiles and tablets with screen sizes of less than 10.1 inches. On your mobile device, you can work on documents stored in SharePoint or OneDrive and leverage the benefits, such as sharing and co-authoring with colleagues. The documents get autosaved, so you can switch between the apps on your mobile device and not worry about losing your changes. With multi-device support, you can pick up your document from where you left off on another device.

The most familiar Office apps can be seen below:
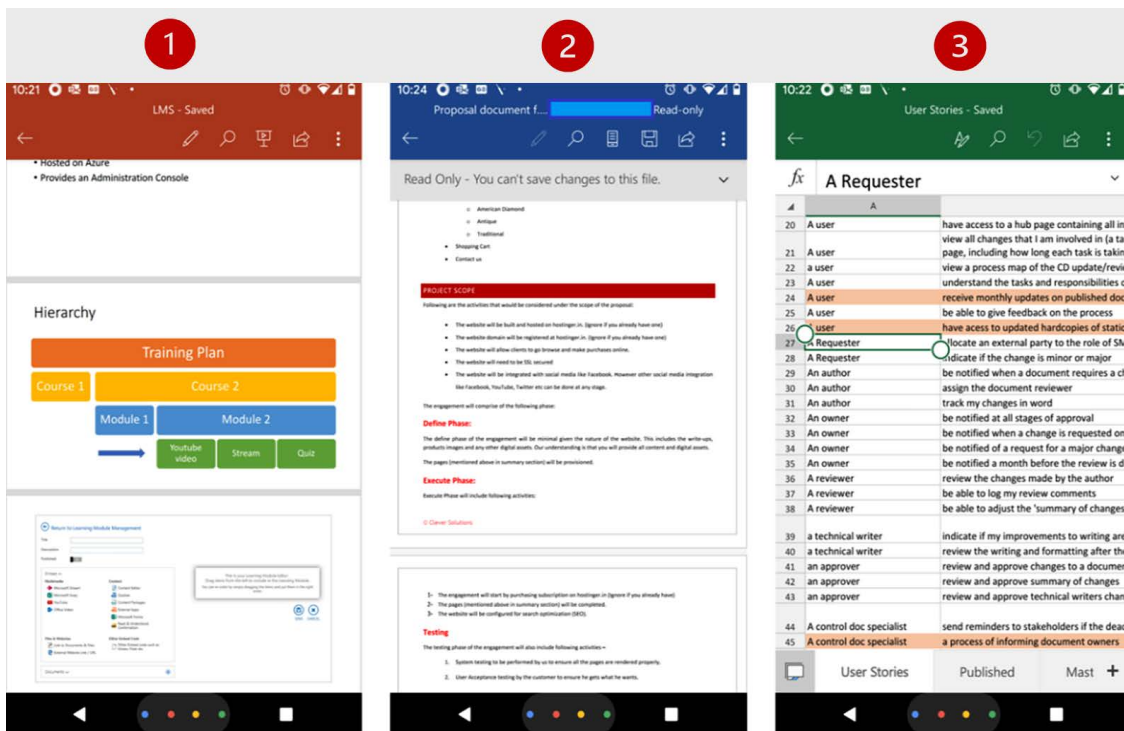
Figure 26.3: Office apps for mobile

Each of these mobile functionalities possesses many of the abilities known from the desktop app. For example:

- The Microsoft PowerPoint app (**1**) lets you edit your presentations and present them right from your mobile device, as illustrated in the screenshot.
- The Microsoft Word app (**2**) renders your entire document, including images and tables. The images and tables open in full screen when you click on them.
- The Microsoft Excel app (**3**) lets you add formulas, charts, and tables. You can show or hide columns, use filters, sort, and much more.

Planner

The Planner app lets users view and updates their plans on the go. It lets you create plans and tasks, assign tasks, share files, chat about what you're working on, and get updates on progress. The app lets you add photos from within your mobile device.

> You cannot delete a plan on a mobile device.

The app has four main sections, which can be seen below:
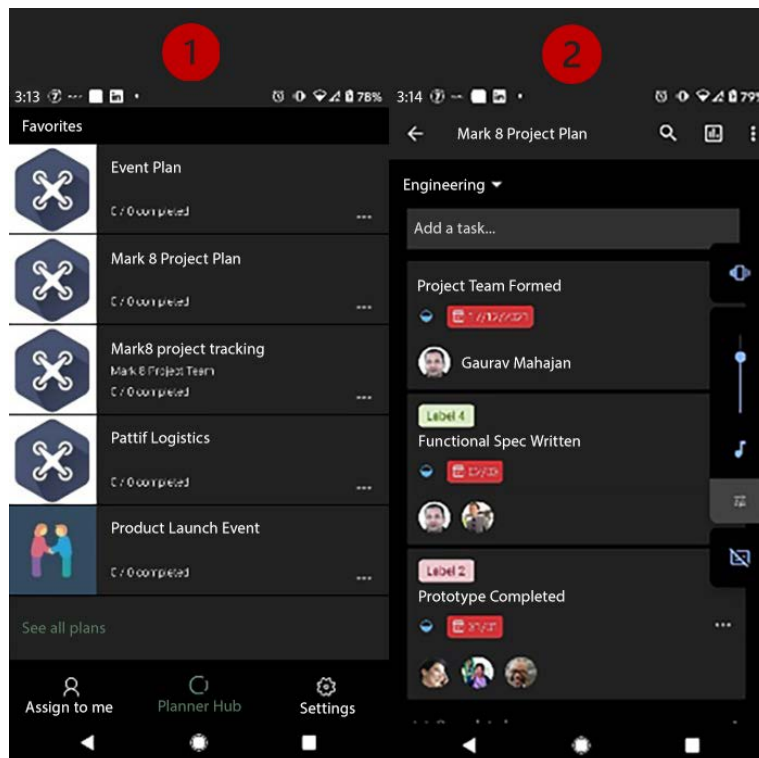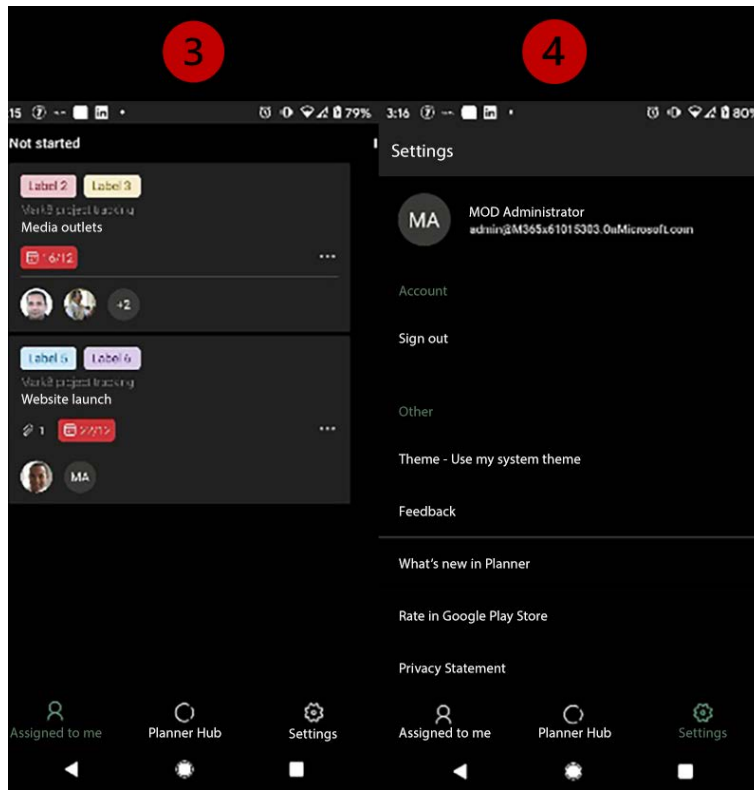
Figure 26.4: The Planner app

Let's describe each of these screens in turn:

- **Planner Hub** (1): This section lists all the plans that you are a member of.
- **Plan page** (2): You can click on a specific plan to see all the related tasks and people the tasks are assigned to.
- **Assigned to me** (3): This section displays the tasks that have been assigned to you.
- **Settings** (4): This section lets you switch to other organizations that you might have subscribed to.

Power Apps

We learned in *Chapter 9*, *Creating Power Apps*, and *Chapter 10*, *Applying Power Apps*, that Power Apps can be designed for either web or mobile devices. The benefit of the apps running on a mobile device is that you can take advantage of the device's capabilities, such as location services and the camera.

Let's see what it's like to access an app in Power Apps on a mobile:
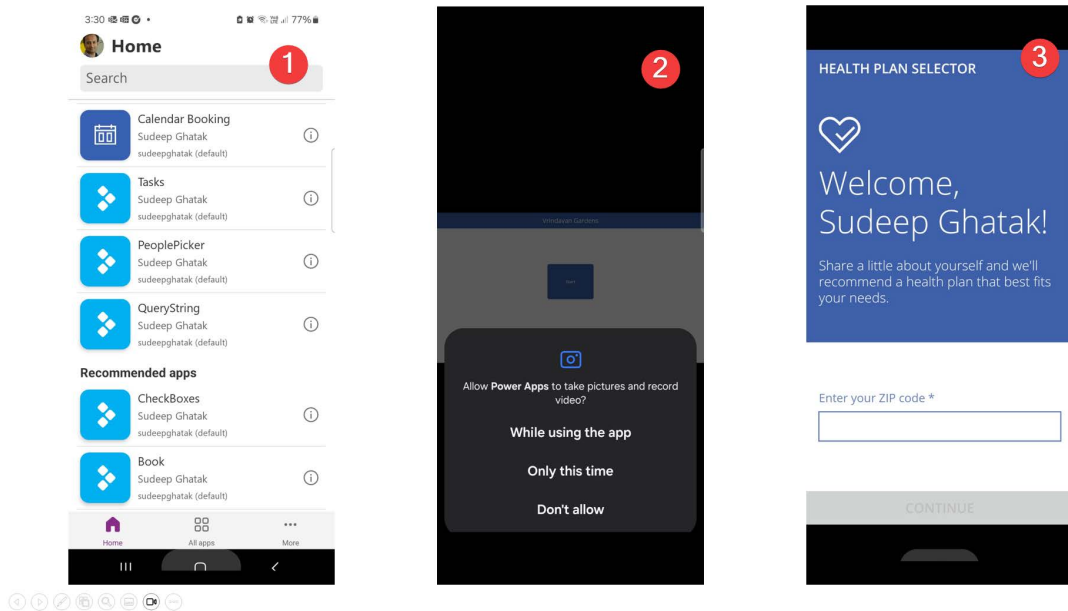
Figure 26.5: Power Apps mobile app

The steps we have taken can be described as follows:

1. From the **Home** page (**1**), you can navigate to the main sections of the Power Apps mobile app: **Home**, **All apps**, and **More**. The **Home** page displays any apps you have recently used; the **All apps** page displays the apps that have been shared with you; and the **More** page displays any apps that have been marked as **Featured**, and also lets you access sample apps built by Microsoft if you need an example for reference.

2. From the **Home** page, you can then launch an app by clicking on its name.

3. When you access the app on a mobile device for the first time, you'll be asked to grant permissions (**2**) to some applications and services, depending on the systems the app is integrating with.

4. Finally, the app opens (**3**).

Power Automate (Microsoft Flow)

The Power Automate mobile app lets you access flows that have been built by you or that have been shared with you. Let's look at three of the main pages when using this app:
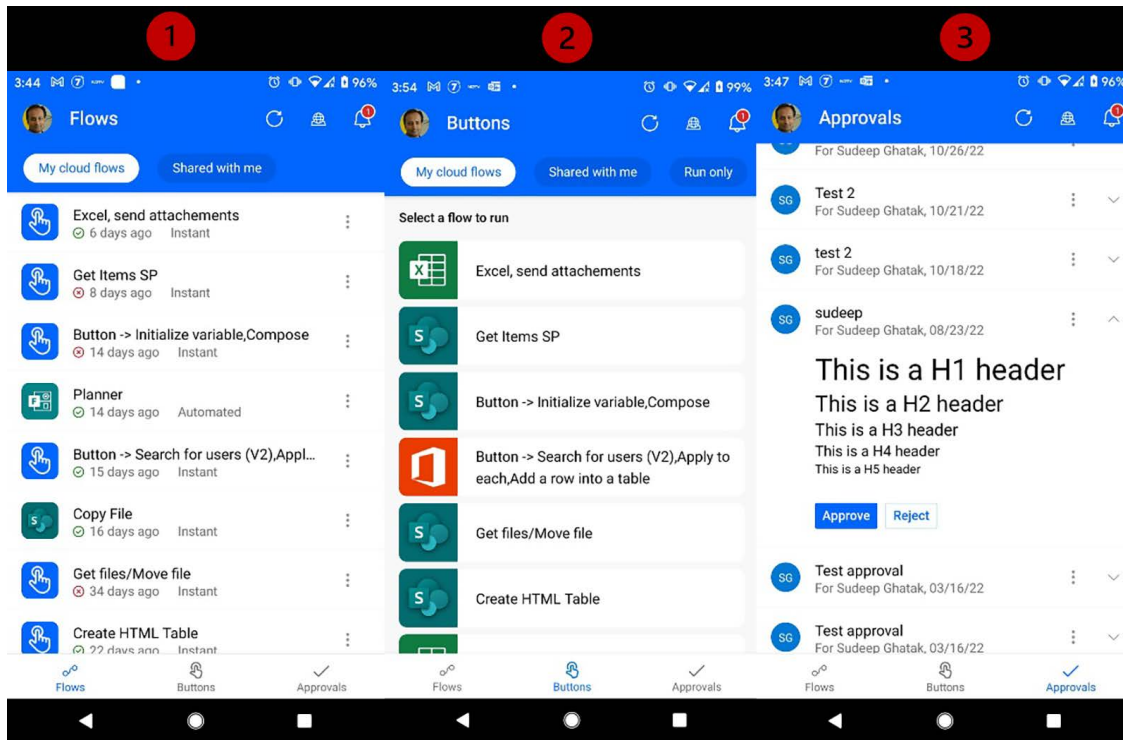
Figure 26.6: Power Automate mobile app

Your flows, including those shared with you, will all appear on the **Flows** page (**1**).

The **Buttons** page (**2**) contains all the flows with a manual trigger. They let you perform tasks such as sending a reminder or getting the weather. There are several templates available to choose from. By integrating with other third-party services, you could even order a coffee or book a movie.

Finally, the **Approvals** page (**3**) allows you to receive approval notifications on your mobile device, thus enabling you to approve or reject workflows, even while sitting in a cafe or catching a train. The approval notification lets you add an optional comment and even reassign the flow to someone else within your organization.

Power BI

The Power BI mobile app enables you to look at and analyze your company reports on a mobile device. While designing reports using Power BI Desktop, you can create visualizations for the mobile view. A mobile visualization lets you optimize your screen space.

You can download the Power BI mobile apps from their respective stores:

- App Store: `https://packt.link/Power-BI-iOS`
- Google Play: `https://packt.link/Power-BI-android`
- Windows Store: `https://packt.link/Power-BI-Windows`

To create a mobile visualization in the Power BI service, launch the report and click **Edit report**, as illustrated in the following screenshot:
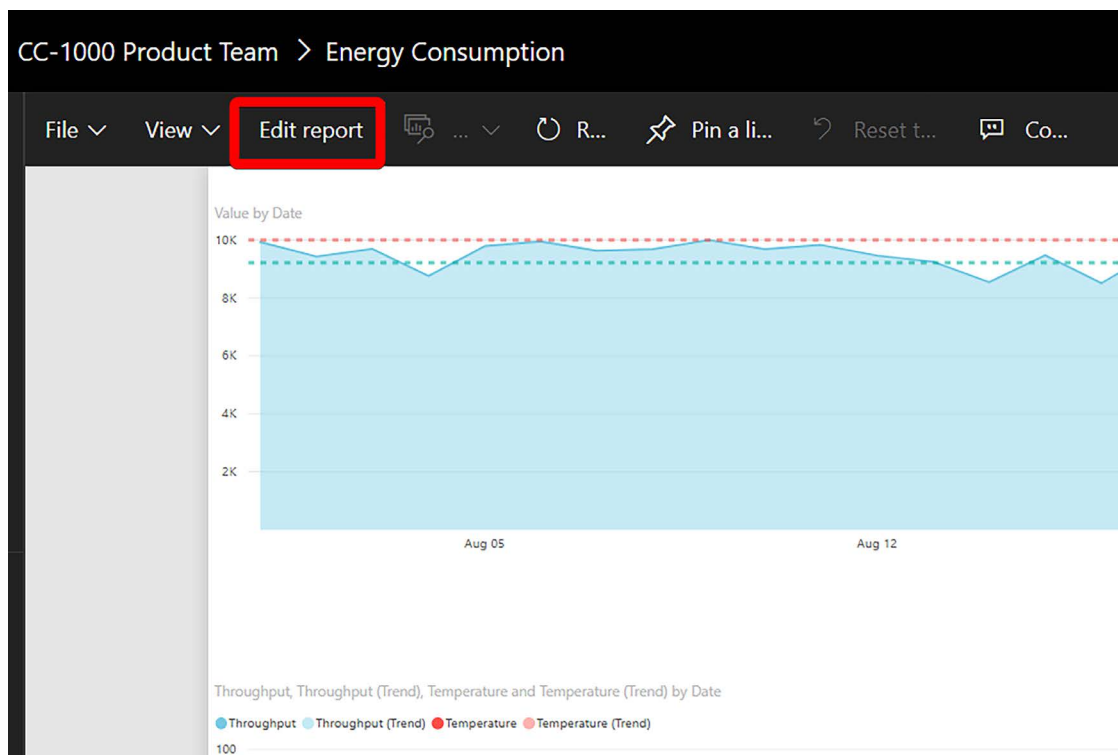
Figure 26.7: Power BI mobile app

Once the report has been opened in **Edit** mode, click **Mobile layout** to open the mobile designer window. You can now drag and drop the Power BI visualization components on the mobile layout and resize them to fit the screen, as illustrated in the following screenshot:
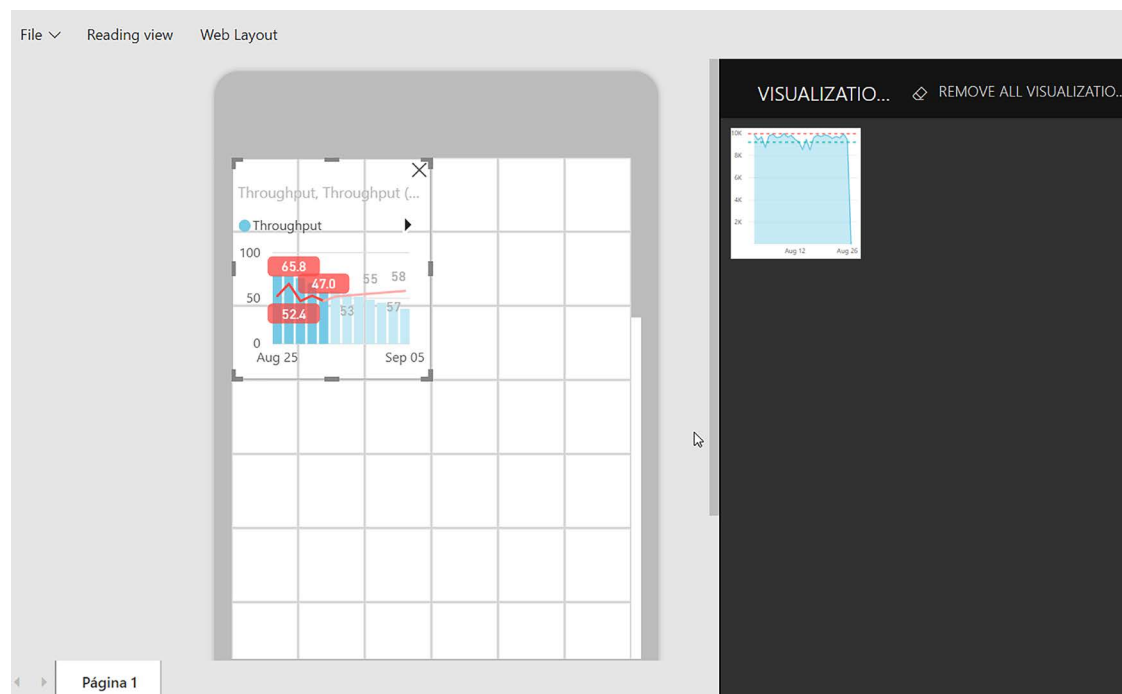
Figure 26.8: Dragging and dropping visualizations in Power BI

Now, save the report by clicking **File** | **Save**, and you are done. You can now access the mobile-optimized report on your mobile device, as shown in the following screenshot:
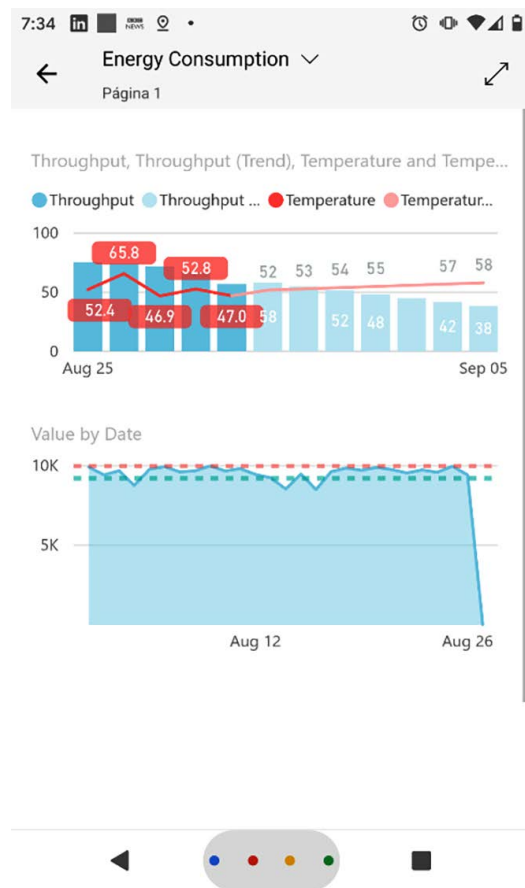
Figure 26.9: Appearance of a report on a mobile

All in all, the Power BI mobile app lets you do the following:

- Analyze and annotate reports on a mobile device
- Share reports with your colleague
- Pose questions to the app
- Set data alerts and receive notifications

Microsoft Teams

If you don't want to miss out on team calls, but want to be able to access documents from anywhere and collaborate with your peers without being in the office in person, I recommend you try the Teams app, which is available for iOS and Android mobile devices.

Let's have a look at some of the most common pages you will encounter when using the Teams app:
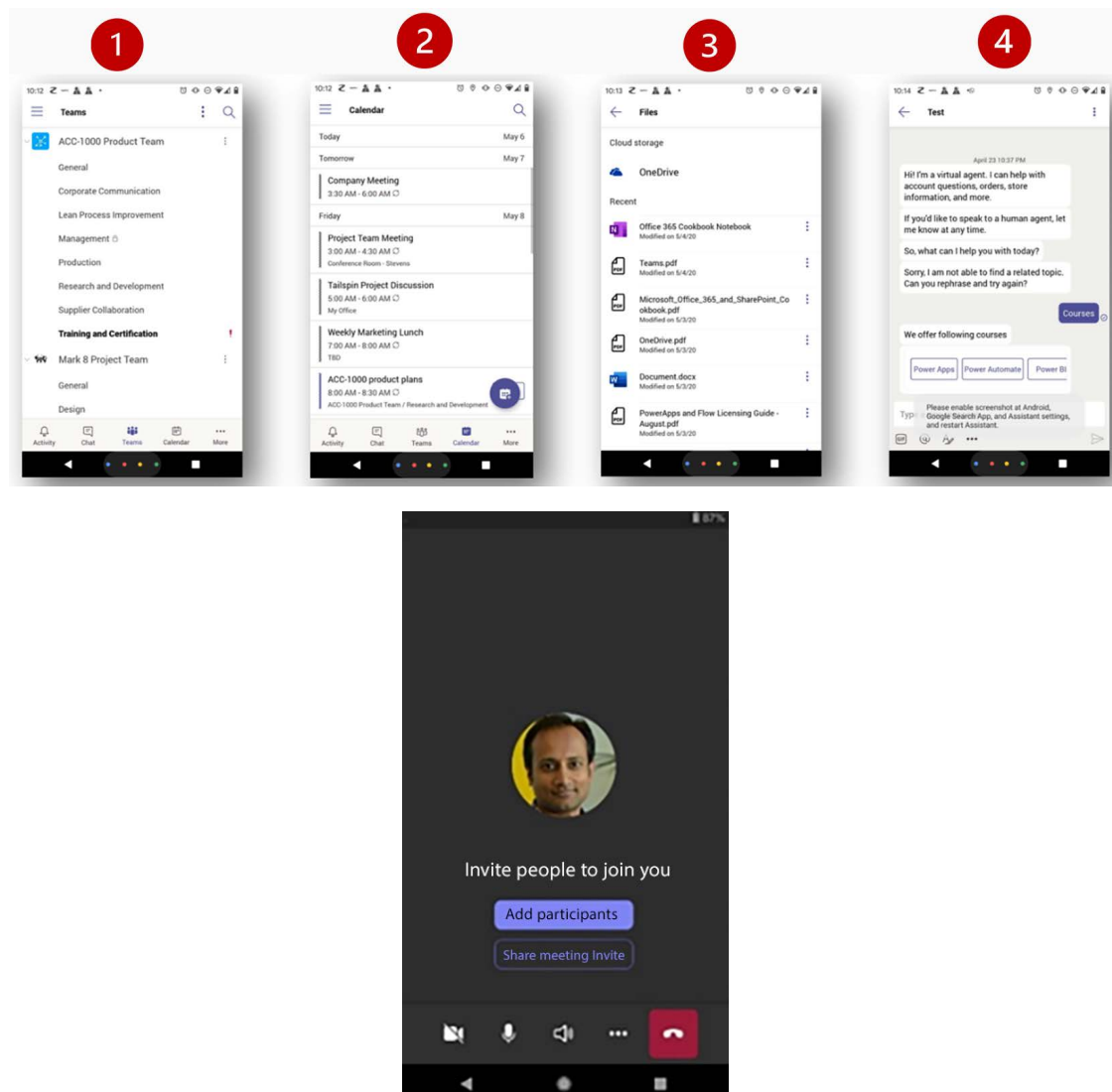
Figure 26.10: The Teams mobile app

Each of these pages is a snapshot of navigating and using Teams on mobile. On these pages, we can see several functionalities. For example, you can:

- (**1**) View all teams that you are a part of
- (**2, 5**) Attend online meetings, and have audio/video calls
- (**3**) Access files stored in your Teams channels
- (**4**) Initiate a conversation or reply to a private message

Going beyond what we have presented above, you can also:

- Monitor activities happening across the teams and channels you are part of
- Customize your channel workspace with Microsoft apps and third-party services
- Collaborate using other Microsoft 365 apps such as Microsoft Word, PowerPoint, Excel, One-Drive, and SharePoint
- Search your team conversations, files, and chats
- Set a status message

Overall, the Teams mobile interface is intuitive and easy to use. Though it doesn't offer the full functionality of the desktop app, it is a great way to remain productive and stay connected to your team.

Learn more on Discord

To join the Discord community for this book – where you can share feedback, ask questions to the author, and learn about new releases – follow the QR code below:

```
https://packt.link/powerusers
```
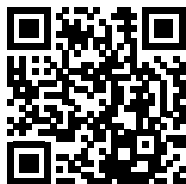
Appendix
Other Microsoft 365 Apps

While we have tried to cover all the major Microsoft 365 applications in this book, new applications are being added to the Microsoft 365 suite all the time. We have used our collective judgment to promote certain important applications throughout this book, and we will mention other worthy applications in this appendix.

Most of these apps are available within Teams and add their own unique flavor to the collaboration experience in Teams. We encourage you to explore that experience further by adding these apps to Teams.

The following apps are covered in this appendix:

- Bookings
- Forms
- Learning pathways
- Loop
- OneNote
- Places
- SharePoint spaces
- Stream (on SharePoint)
- Sway
- Syntex
- Whiteboard

Without further ado, let's dive in!

Bookings

Microsoft Bookings allows customers to schedule time with your business. It's available as part of most Microsoft 365 Business and Enterprise plans.

Bookings in Microsoft Bookings are managed through booking pages. Each booking page allows your customers to schedule time with you for specific services. Once you've created and published your booking page, you will need to share a link to it with your existing or potential customers to allow them to schedule time with you.

You can browse to `https://book.ms` to view your first booking page:

Figure A.1 – Creating a booking page

From here, you can create and manage:

- **Information about your business**, such as its name, logo, address, and hours of operation.
- **Services that your business has to offer, service details, pricing, and scheduling information.** You can define the service duration, buffer time between appointments, pricing information, availability hours along with lead time, and the information required from the customer for the appointment. You also have the option to make the appointments available as online meetings, which then automatically generates Teams meetings for those appointments. In addition to entering the service description, which is shown to your customers, you can also add notes for your internal staff:

Figure A.2 – Adding a service description

Finally, you can also define the frequency and details of the appointment reminders for your customers. This feature is especially helpful in making sure that your customers do not miss their appointments:

Figure A.3 – Setting appointment reminders

Note that you can create more than one service for each booking page.

- **You can then assign additional staff who offer these services.** At this point, you can also assign additional admin permissions to your staff, so they are able to manage the bookings for this page. You can also customize the schedule for the staff members through this page:
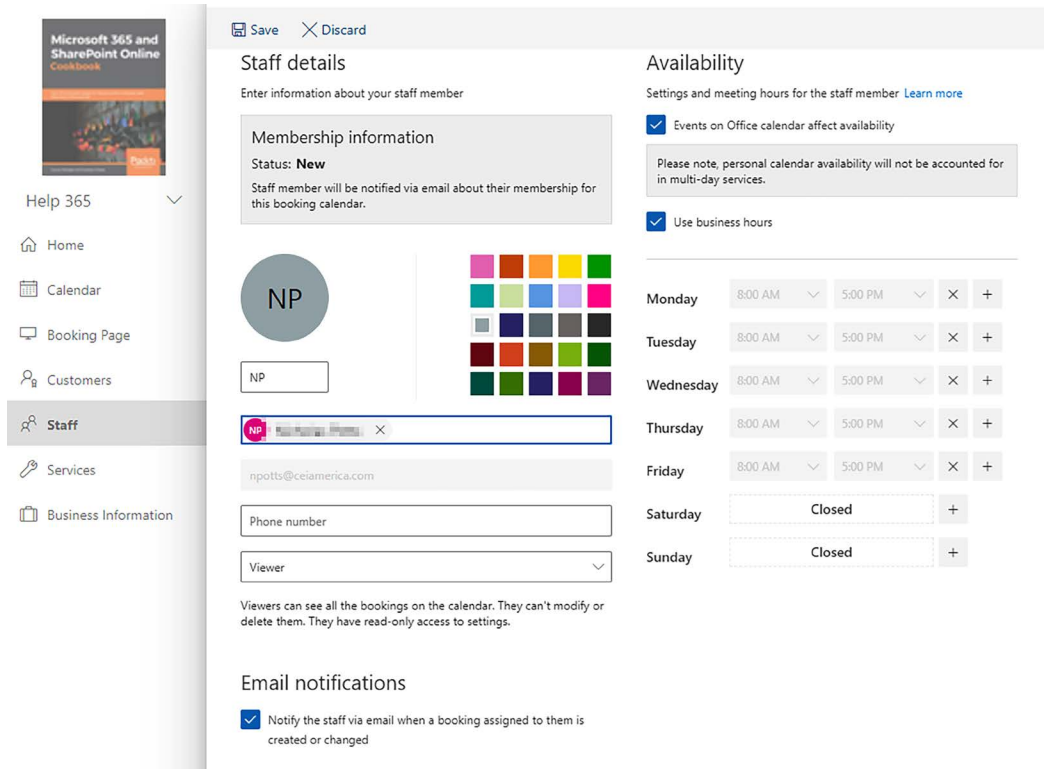
Figure A.4 – Assigning staff to services

- **You can also maintain known customers** through the **Customers** tab.

- **Finally, you can publish the page** by choosing one of the following options:
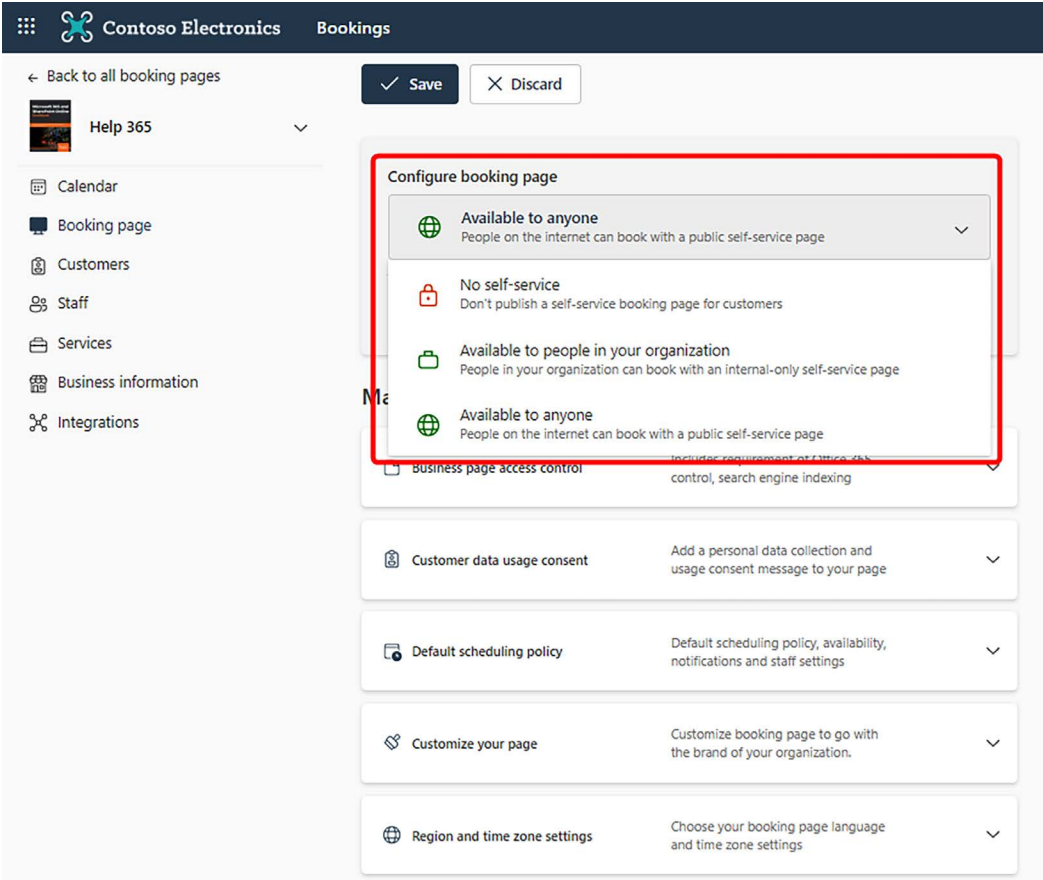
Figure A.5 – Configuring publishing settings

If you've published the page for external access, your external users will see a page like this:

Figure A.6 – Booking page from an external user's perspective

Finally, Bookings integrates with your Office 365 Outlook calendar, so appointments created through Bookings automatically get added to your calendar.

In addition to Outlook and Teams integrations, Power Automate now has a connector for Bookings (in preview at the time of writing), which can be used for subsequent automation and integration with other applications. For example, if your organization is using Webex, you can create a Power Automate flow so a new Bookings appointment will automatically result in the creation of a Webex meeting. Please refer to this link for more information on this topic: `https://learn.microsoft.com/en-us/microsoft-365/bookings/power-automate-integration`.

You can learn more about Bookings here: `https://m365book.page.link/Bookings`.

Forms

Microsoft Forms lets you create surveys, forms, and quizzes. You can create forms and surveys to get information from your coworkers or even from people outside your organization. To create a form, visit `https://forms.microsoft.com` and log in with your organization account. Once you've logged in, you can create a form or quiz. The form creation wizard is simple and easy to use, as shown here:

Figure A.7 – Form creation wizard

Start by clicking **Add new**, which lets you add questions. These questions could be simple text boxes, radio buttons, date fields, or rating fields. Once you have added all your questions, you can preview the form by clicking on **Preview** on the top banner. To make your form look interesting, you can also apply either a built-in or custom design theme.

The form can be accessed via a link that is generated when you click **Share**. This link can be public or private to the organization, depending on the sharing settings.

The form creator can look at the responses as they arrive. You can view these by clicking on the **Responses** tab:
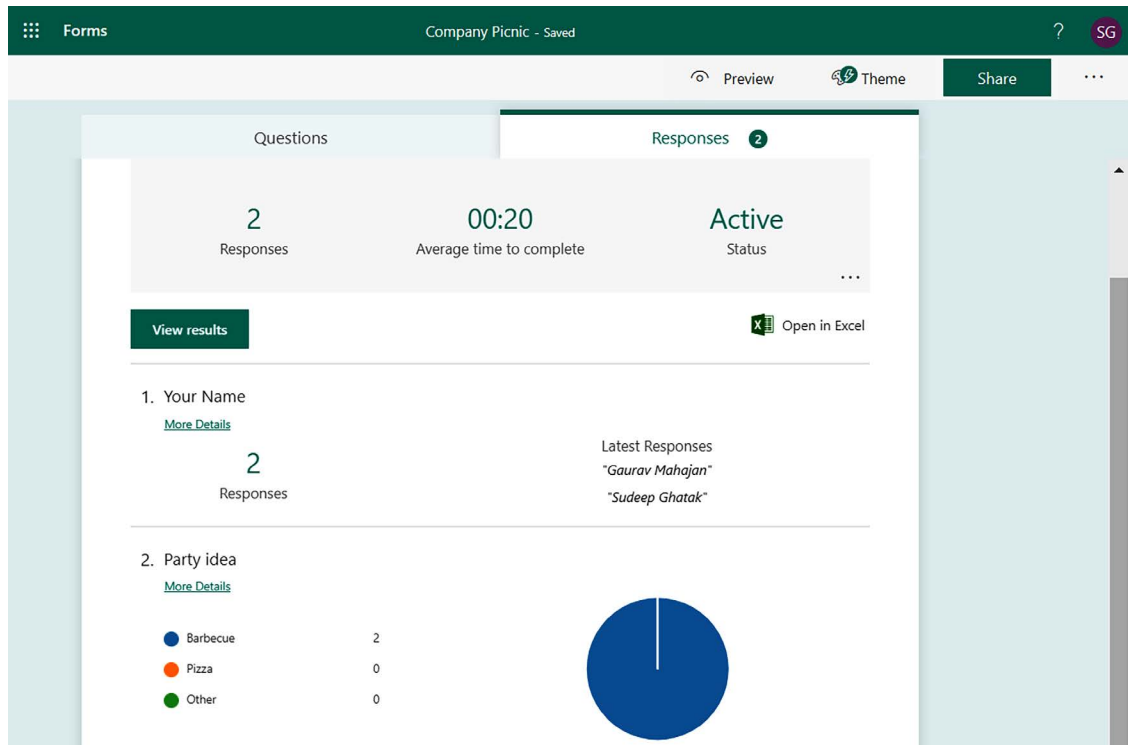
Figure A.8 – Viewing form responses

As the preceding figure shows, this page provides a summary of the responses. Individual responses can be viewed by clicking on **View results**. The responses can also be exported to Excel.

> You can further extend the functionality of this application by integrating it with Power Automate to automatically process responses and potentially store them in a SharePoint list or a database of your choice. This article lists some of the other things you can do with Power Automate for Forms: `https://m365book.page.link/forms-powerautomate`.

You can learn more about Microsoft Forms here: `https://m365book.page.link/Forms`.

Learning pathways

Microsoft 365 learning pathways are designed to help you get to grips with Microsoft 365. They do this by providing custom training from Microsoft through a customizable training site. To provision learning pathways for your organization, you will need to perform the following two steps:

1. **Install a prebuilt Microsoft 365 training site:** The training site is a communications site that gets installed using the SharePoint Lookbook service. The following link provides instructions on installing learning pathways: `https://m365book.page.link/install-learning-pathways`.

> The SharePoint Lookbook is a gallery of prebuilt site templates that you can import into your tenant with a simple click of a button. You can view and download these templates here: `https://m365book.page.link/LookBook`.
>
> Please note that you will need to be an admin in your M365 tenant to be able to provision sites (including learning pathways) using the Lookbook templates.

2. **Customize the services you want to provide training on:** Once the learning pathways site is provisioned in your tenant, you can use it to create your own training playlists and even create new pages for the training or learning campaigns you'd like to promote within your organization. The following screenshot shows some options you can choose from when customizing your training catalog:

Microsoft 365 learning pathways

∨ **Get started**

∧ Scenarios

    Modern workplace

    Work remotely

    Security

    Hybrid workplace

    Accessibility

    Collaboration

∧ Products

    Outlook

    OneDrive

Figure A.9 – Customizing a training playlist

The learning pathways site is connected to Microsoft Update Catalog, so the training content is always up to date.

You can read more about learning pathways here: `https://m365book.page.link/LP`.

Loop

Microsoft Loop takes collaboration and co-authoring to the next level. With Loop, you can create reusable content that will then stay in sync across multiple apps on which you may be collaborating with others. As an example, you can create a task list for your project and have it show up in multiple apps. You can also collaborate on those tasks with your colleagues and @mention them in real time. In the example in the following screenshot, we are creating a task list as a Loop component in a chat:
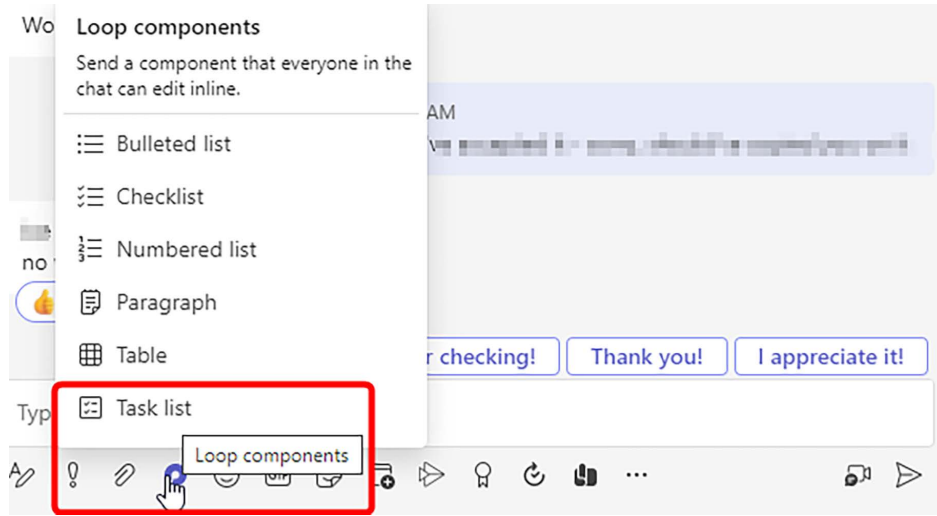
Figure A.10 – Creating a task list

As shown in the following screenshot, I can also directly assign a task to my colleague through this Loop component, right from within the chat:
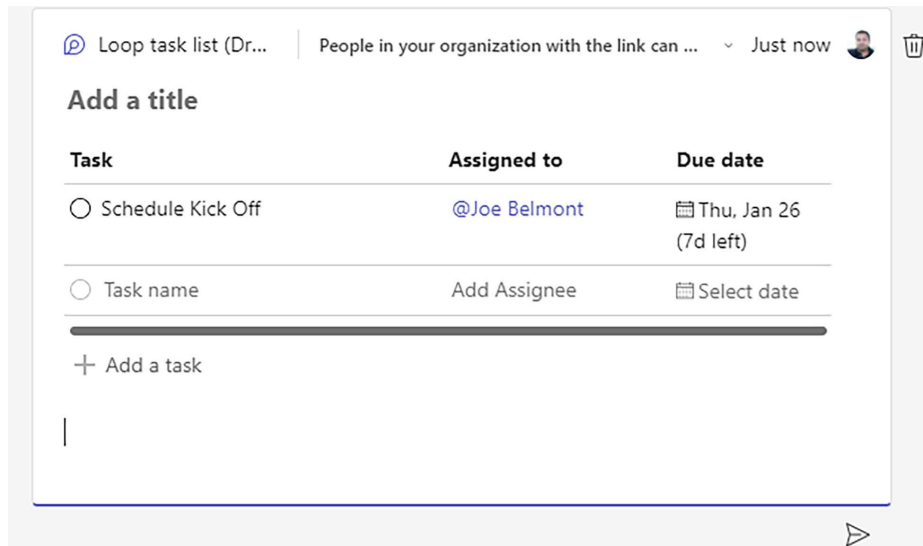
Figure A.11 – Assigning users to a task list

Loop is still evolving at the time of writing, and you can read more about Loop here: `https://m365book.page.link/loop`.

OneNote

OneNote is a highly acclaimed modern note-taking application and deserves a special mention in this book for its unique note-taking abilities. The application is rich with features that make it possible to capture ideas, thoughts, and tasks at any time on any device. Since it's part of the Microsoft Office suite of applications, it integrates seamlessly with Outlook, Microsoft Teams, and other Microsoft Office apps and services.

OneNote components

OneNote comprises **notebooks** that, just like regular notebooks, contain sections and pages. You can create and store your OneNote notebooks in SharePoint Online, Teams, and OneDrive. Such notebooks then stay synced with the cloud and are also accessible to your colleagues so you can collaborate on ideas or meeting notes (provided the notebook is shared with them).

The sections within the notebook are like chapters in a book, with each chapter comprising a couple of pages:
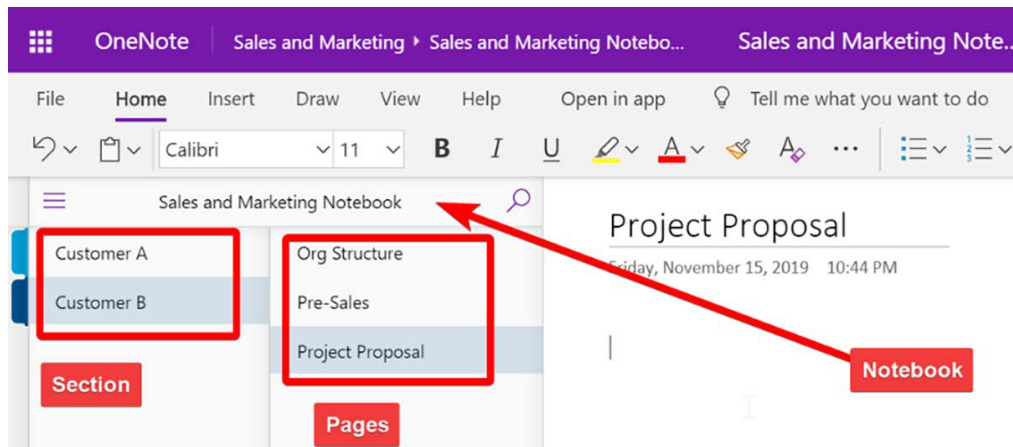
Figure A.12 – Navigating notebook sections

Taking notes

Besides digital notes, OneNote also supports *handwritten* notes (if your device supports them) and *audio/video* notes. It can convert your handwritten notes into digital notes so that they are searchable. It can also translate notes taken in one language into another language.

You can also insert images, videos, and documents into your pages. You can arrange the content on the page just by dragging and moving it around.

OneNote doesn't have a save button. This is because it continuously auto-saves the content, thus considerably speeding up the note-taking process.

Sharing notes

You can share a notebook with your colleagues simply by clicking the **Share** option toward the top right (just like all other MS Office desktop apps). This shares the entire notebook, along with all its sections:
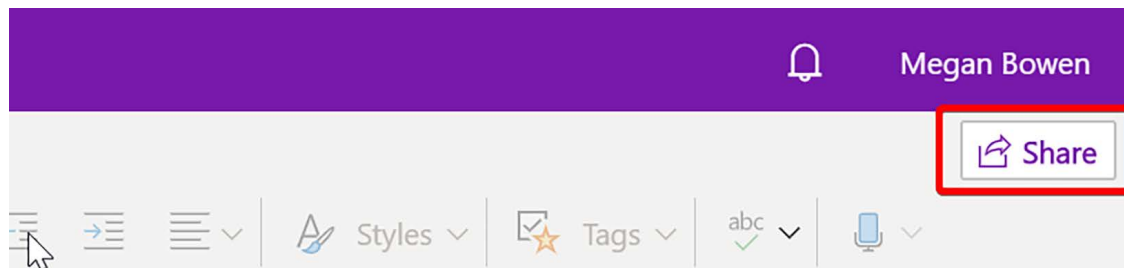
Figure A.13 – Button for sharing notebooks

Note that you can't share a single section. You *can*, however, copy or move a section from one notebook to another.

Places

Microsoft Places aims to better facilitate the shift to the modern hybrid work experience. The app is still in beta at the time of writing, but once released, it will allow you to specify if you are working from the office or remotely on a schedule or on certain days. It will also allow you and others to see this information and understand when most of your colleagues are in the office, thus allowing you to adjust your schedule to enable that valuable in-person interaction. This data could potentially be further fed into intelligent booking and office space optimization systems to save energy and improve workspace experiences. You can read more about Microsoft's announcement introducing Places here: `https://m365book.page.link/Places`.

SharePoint spaces

SharePoint spaces are web-based virtual reality spaces in SharePoint where you can create and share mixed-reality content. You can then add web parts to view these 2D and 3D objects, 360 images, videos, and more.

SharePoint spaces can be used for training staff, organizing virtual tours, engaging classroom teaching, and much more.

To use SharePoint spaces on your site, you will need to first enable it for your site. Once enabled, you will get an option to create a **space** (which is essentially a page) in the page library of your site. You can now add 2D and 3D elements to your page:
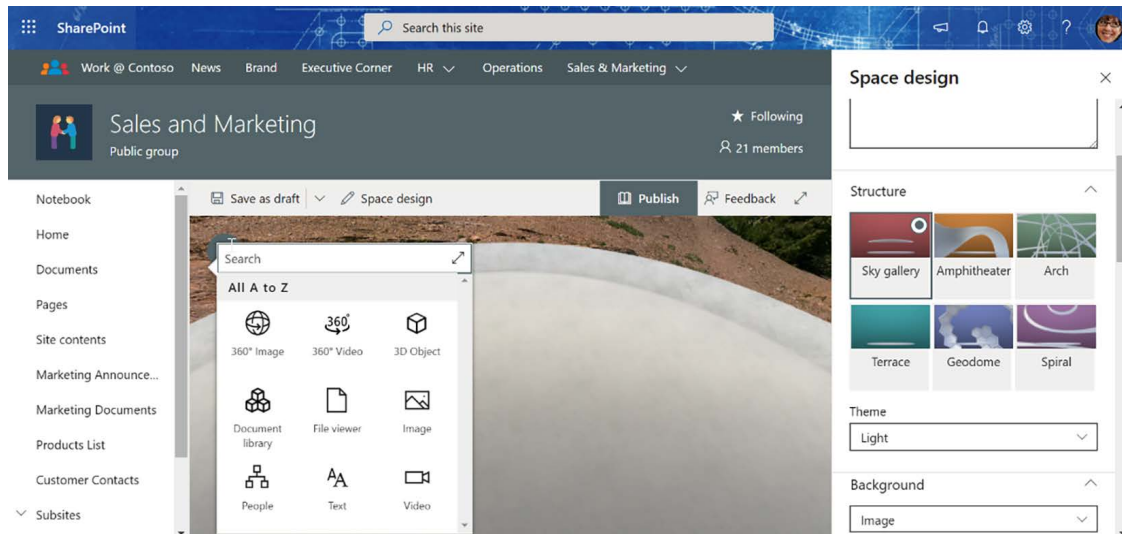
Figure A.14 – Space design themes and addable elements

SharePoint spaces look even better when you view them using a VR headset. Developers can further enrich the experience by using the SharePoint Framework. Here's an example of a 3D element embedded on a SharePoint page:
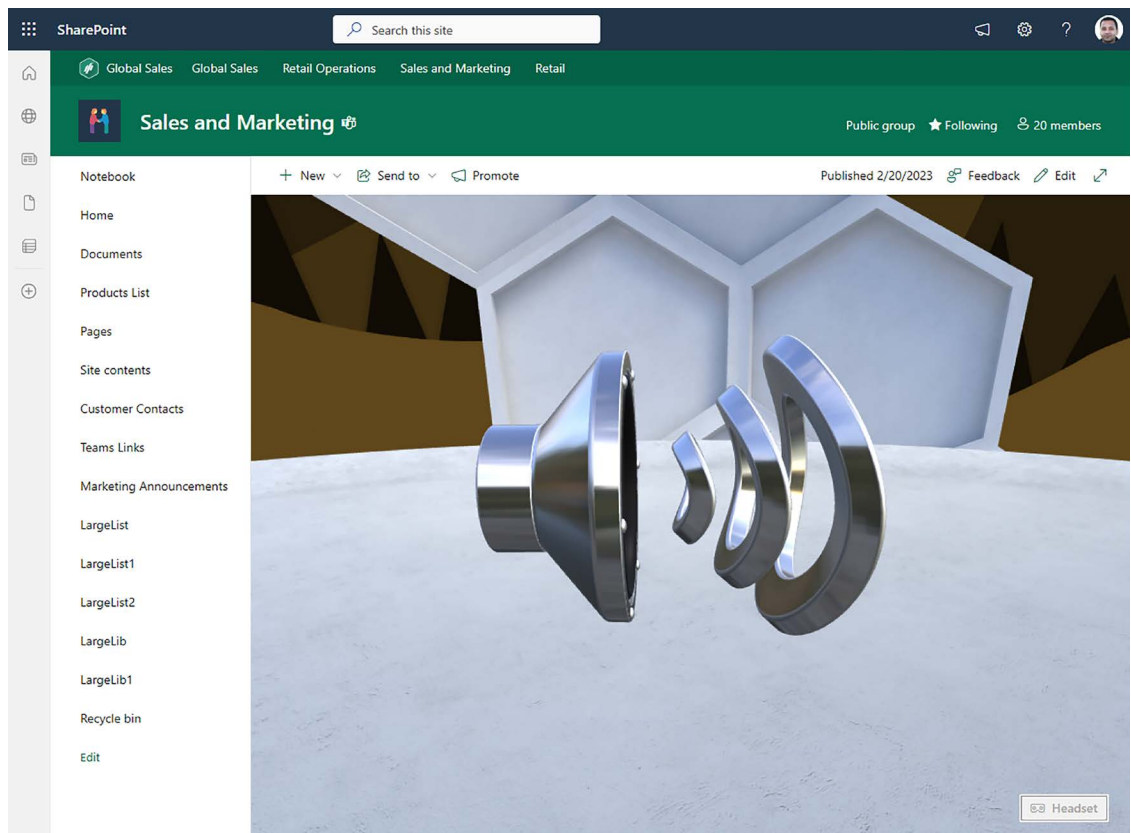
Figure A.15 – 3D element on a SharePoint space

You can learn more about SharePoint spaces here: `https://m365book.page.link/sp-spaces`.

Stream (on SharePoint)

Stream (on SharePoint) is an enterprise video streaming solution that is provided through Microsoft 365. Users of your organization can use Stream to record new videos, or upload existing videos and then share them with others within the organization. Teams meetings also get recorded through Microsoft Stream and are automatically stored in the OneDrive `Recordings` folder of the person who started the recording.

Stream recordings get published to (and stored in) your OneDrive by default. After your recording is published, you can move it or copy it over to a SharePoint library of your choice using the **Move to** or **Copy to** buttons on the top of your recording view, as shown below:
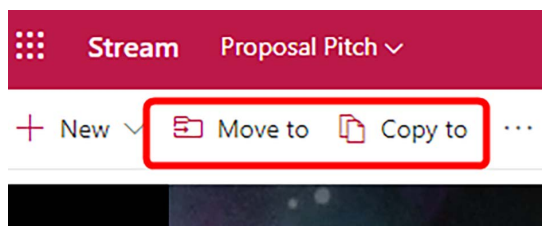
Figure A.16 – Moving Stream recording files

At that point, your Stream recording will get stored in the appropriate library as a `.webm` file like this:

Figure A.17 – Stream recording file in a library

Clicking the file simply opens it in the Stream web player. Additionally, you can also embed Microsoft Stream content in your SharePoint pages, as well as Sway and PowerPoint presentations.

Provided you have edit access to the video, Stream also allows you to specify a **Thumbnail** image for your video, auto-generate or upload a transcript, and generate **Chapters** markers for your video, as shown in the image below:
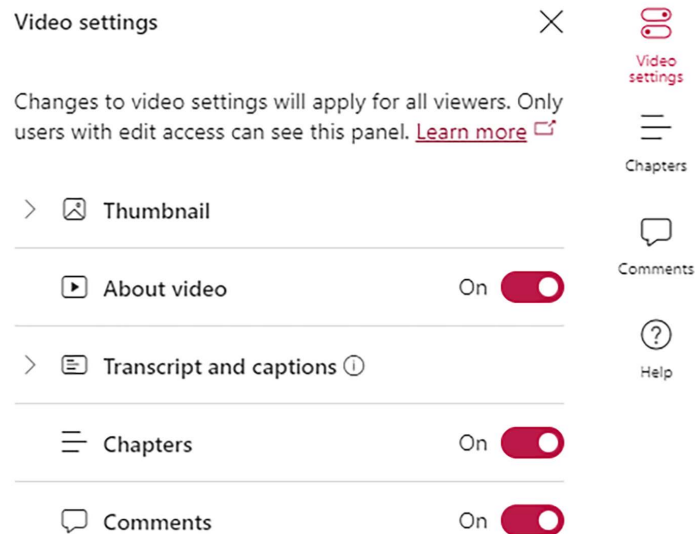
Figure A.18 – Thumbnail and Chapters markers

As shown in the preceding screenshot, you can also enable or disable **Comments** and the **About video** info.

Finally, since the video file is stored in OneDrive or a SharePoint library, you can share it within your organization (or outside if permitted) just like any other file on OneDrive or SharePoint. In addition to the traditional SharePoint/OneDrive link-sharing options, you can also create sharing links that start at a particular point in the video, as shown below:
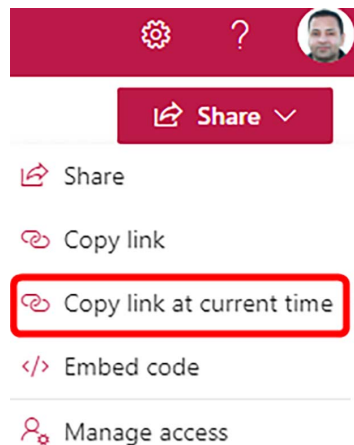
Figure A.19 – Sharing videos at a timestamp

Stream also lets you make screen recordings. So, the next time you need to record a training video for your company, try out Stream!

Please note that **Stream (on SharePoint)** replaces the classic **Microsoft Stream** service, which stored video files on the `microsoftstream.com` service, which is now being retired. You can read more about this announcement and how to migrate your existing content from Stream Classic to Stream (on SharePoint) here: `https://m365book.page.link/Stream-Classic`.

You can learn more about Stream through this link: `https://m365book.page.link/Stream`.

Sway

Sway is a tool that lets you build stunning presentations and interactive reports without you having to worry about the design or the layout. All your presentations will be responsive and render beautifully on any device.

Sway is a free service. However, if you have a Microsoft 365 license, you can do even more with Sway. The following web page compares the free version of Sway to the one that comes with a Microsoft 365 subscription: `https://m365book.page.link/sway`.

Sway lets you add text, images, and videos to a web page interface that looks pretty similar to a modern SharePoint page. As you add content, Sway will provide you with suggestions, as shown in the following image:
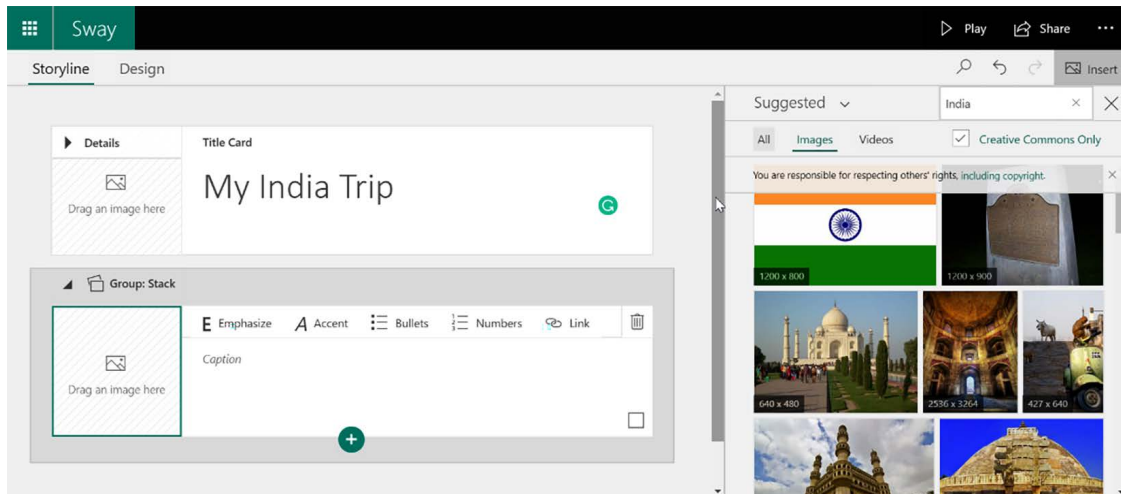
Figure A.20 – Creating a Sway presentation

Once your Sway content is ready, you can share it as an online link with colleagues or friends. You can build public Sway content that people can view without having to sign in. At the same time, you can also create secure Sway content that can only be viewed by the people you share it with.

To build your own Sway presentation, go to `www.sway.office.com` and sign in with your personal Microsoft account or the Microsoft 365 login credentials provided by your organization.

You can read more about Sway at `https://m365book.page.link/about-sway`.

Syntex

Microsoft Syntex is an AI-based solution that helps with metadata extraction, processing, and searching for documents in SharePoint libraries. It assists in harnessing this information in the following ways:

- **Using AI-based models to extract metadata:** This is the most widely used part of Microsoft Syntex. It allows you to extract metadata from structured or unstructured documents uploaded to SharePoint. For example, you can automatically extract information such as the **Amount**, **Vendor Name**, and **Payment Status** from a PDF receipt uploaded to a library that is enabled for Microsoft Syntex. This information will then show up as columns within the library. One benefit is that you could use Power Automate against this library to send emails if the invoice amount is larger than a certain threshold, for example. Training AI models to recognize metadata within documents is easy and intuitive. In addition, at the time of writing, Microsoft Syntex comes with two pre-built models, which enable information extraction from invoices and receipts without you having to train any models.

- **Content assembly:** This capability of Syntex enables the generation of dynamic document templates (only Word documents at the time of writing). You could, for example, create placeholder fields in your document that will obtain their values from columns in a SharePoint list.

- **Advanced metadata search:** This capability allows you to perform a specific metadata search against columns in your library. This feature may be especially useful if the extracted metadata is a text field (for other field types, you can easily filter/sort the data within the library).

- **Advanced compliance and taxonomy capabilities:** In addition to the above, there are advanced compliance and taxonomy capabilities that Microsoft Syntex enables, but these are beyond the scope of this book.

You can read more about Microsoft Syntex and those capabilities here: `https://m365book.page.link/Syntex`.

Whiteboard

Microsoft Whiteboard is a highly popular digital equivalent of the traditional whiteboard. Microsoft Whiteboard gives you a free-form digital canvas where you can not only write and draw like on a traditional whiteboard but also type text, and add sticky notes, images, videos, documents, links, and even reactions.

> You can use Whiteboard with touchscreen-enabled devices such as tablets or mobile devices. Aside from the added capabilities that you get with such devices, it works equally well with non-touch devices too.

The latest version of Whiteboard even comes with templates for activities such as brainstorming sessions, project planning, workshops, etc. The following image shows an example of the SWOT analysis template:
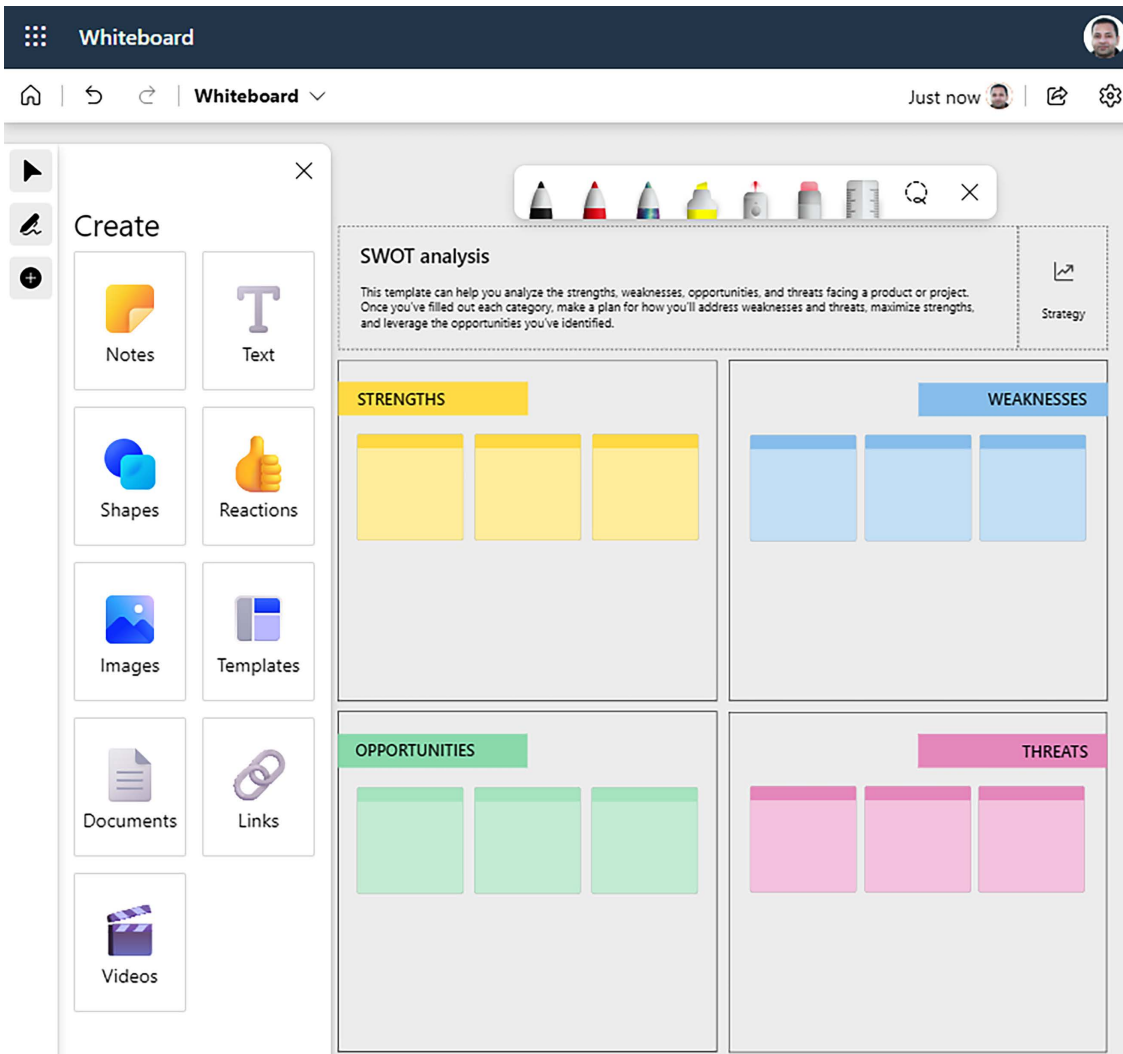
Figure A.21 – Using the SWOT analysis template on Whiteboard

Whiteboard can be accessed in the following ways:

- **Whiteboard in Teams:** You can access a collaborative version of Whiteboard through Microsoft Teams. This is the most common way to access Whiteboard. You can do so by adding the **Whiteboard** tab to your Teams channel, chat, or a meeting you are in. Once you do that, all members of the channel, chat, or meeting get real-time access to Whiteboard.

> In addition to creating collaborative whiteboards from within Teams, you can also invite others to collaborate on your individual whiteboards by creating shareable links. Please note that links you create this way using your organization account can only be shared within your organization.

- **Web app:** You can open the Whiteboard web app by browsing `https://whiteboard.office.com/` and logging in using your account. Doing so will show you all the whiteboards for that account in a single place (including those created in Teams).
- **Installable app:** You can download the Whiteboard app from one of the app stores (iOS, Android, and Windows). Like the web app, you will be able to see all your whiteboards in a single place once you log in to the app.

You can read more about Microsoft Whiteboard here: `https://m365book.page.link/whiteboard`.

This handy cheat sheet gives you a rundown of the various features of Microsoft Whiteboard: `https://m365book.page.link/whiteboard-cheatsheet`.

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