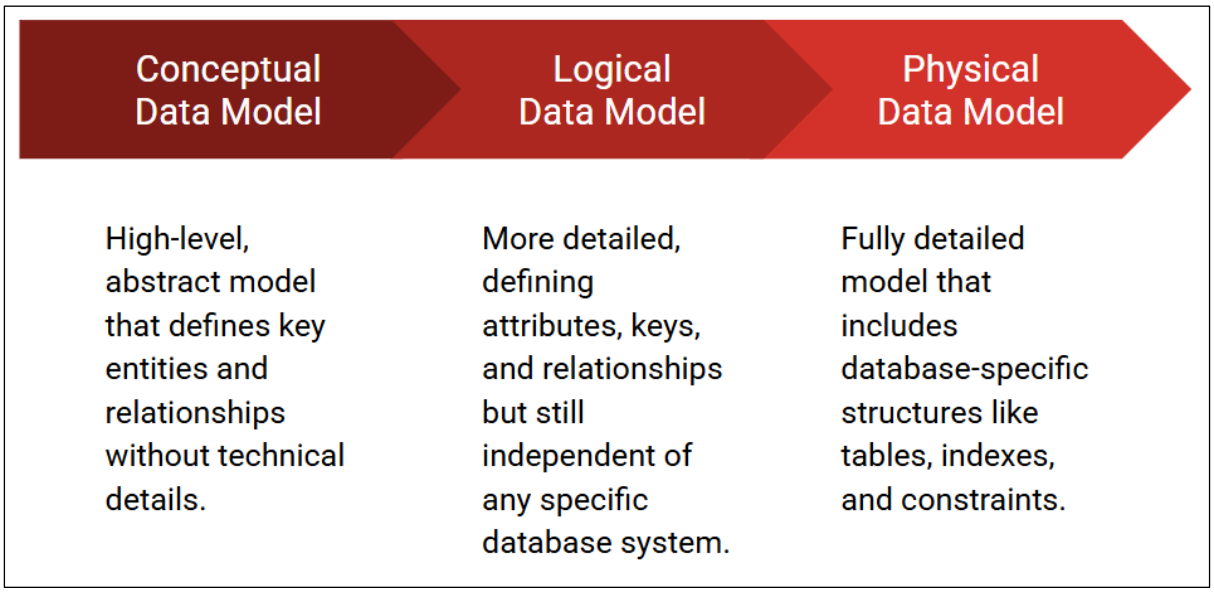
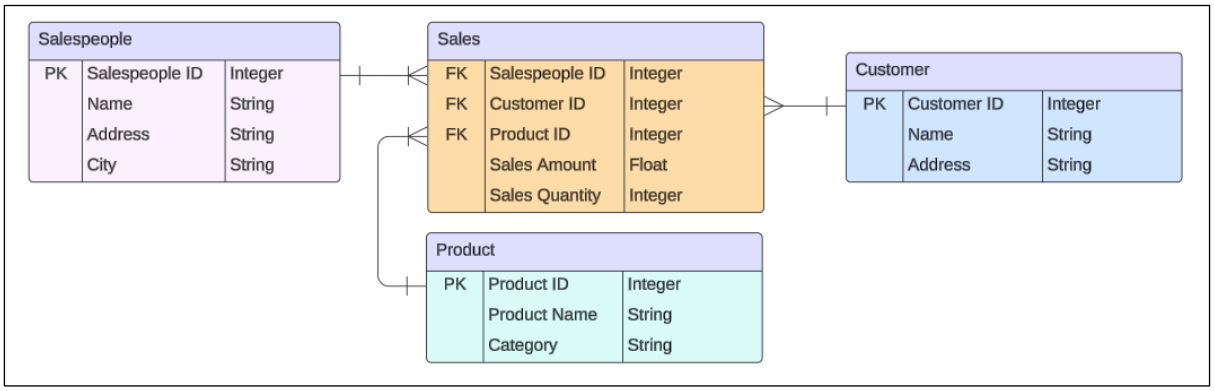
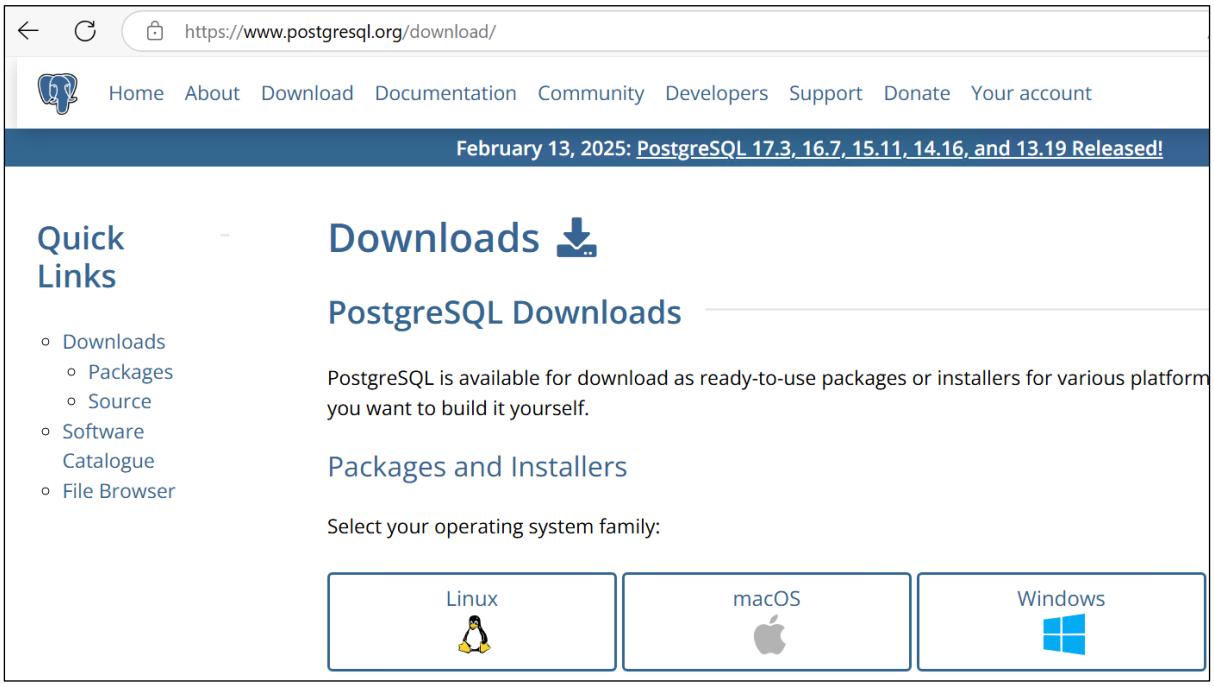
Chapter 1: Introduction to Data Management Systems

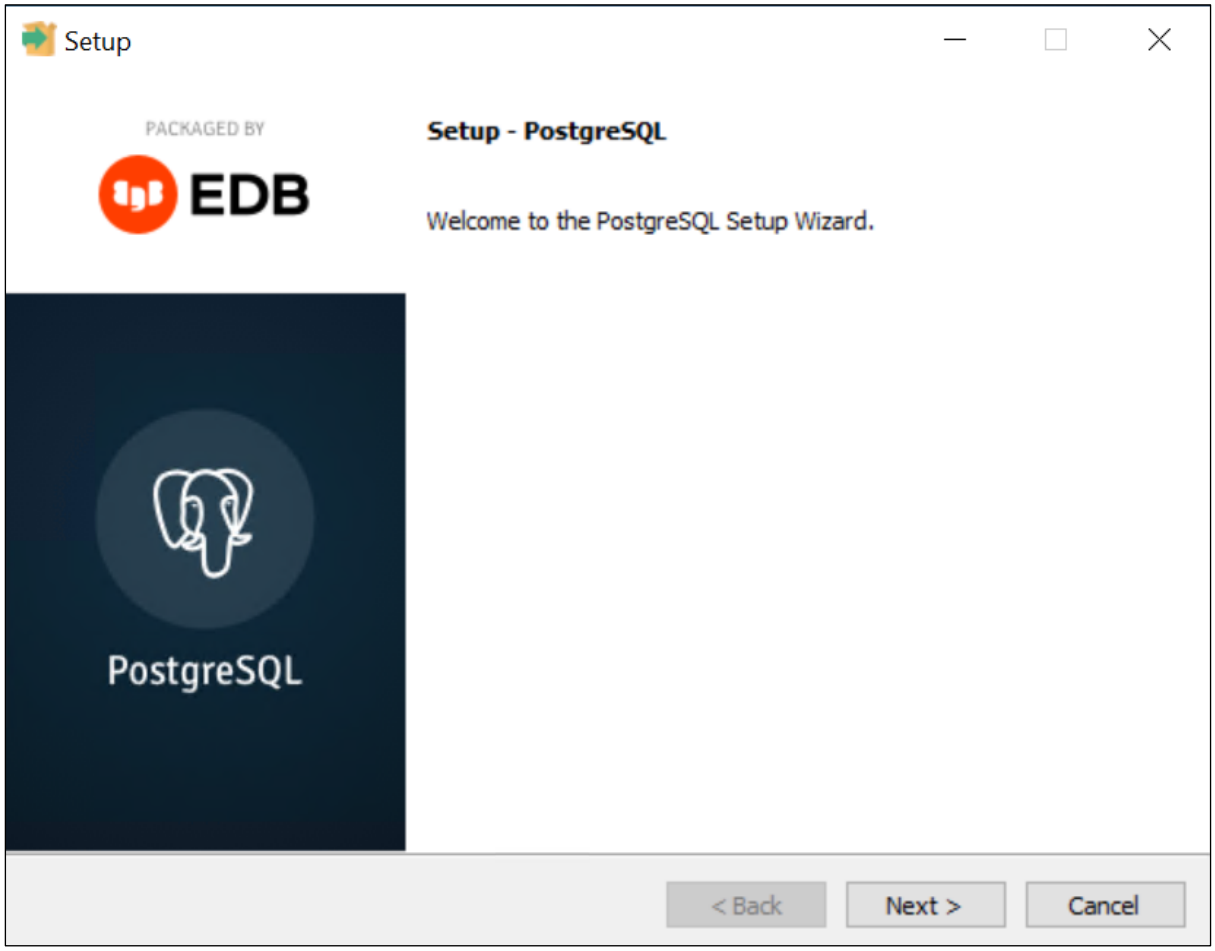


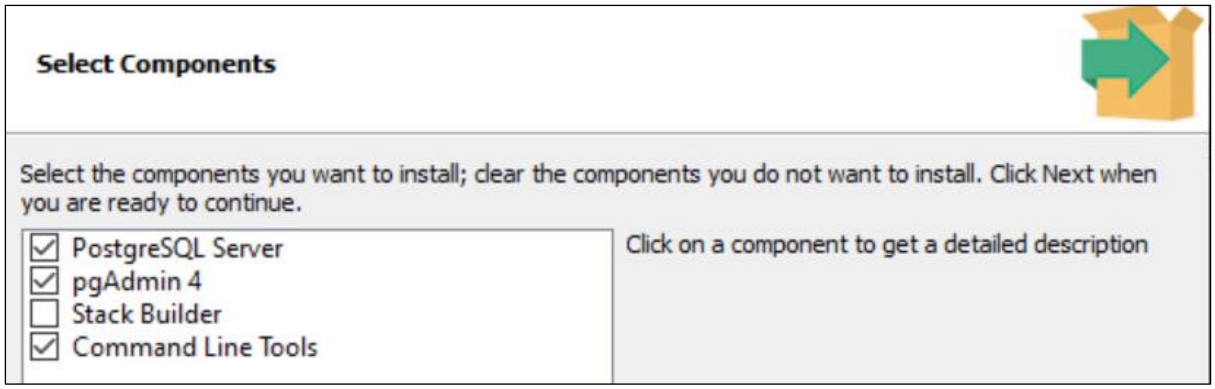


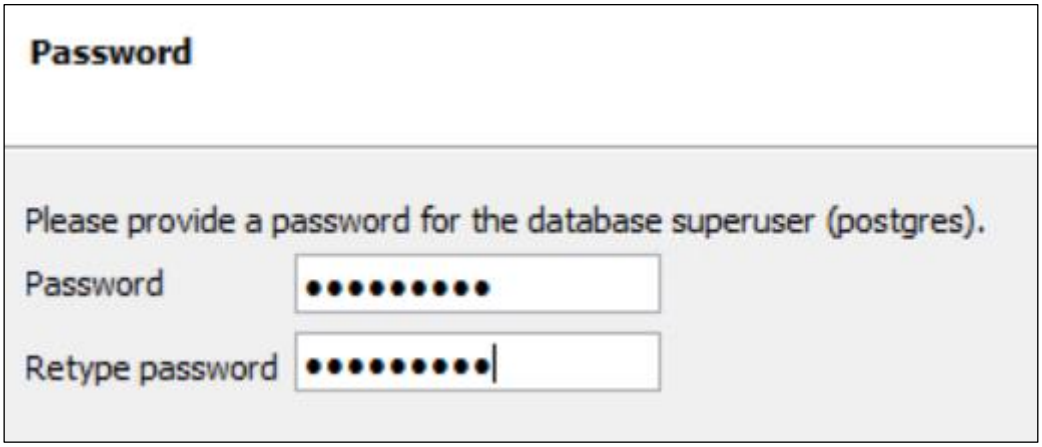


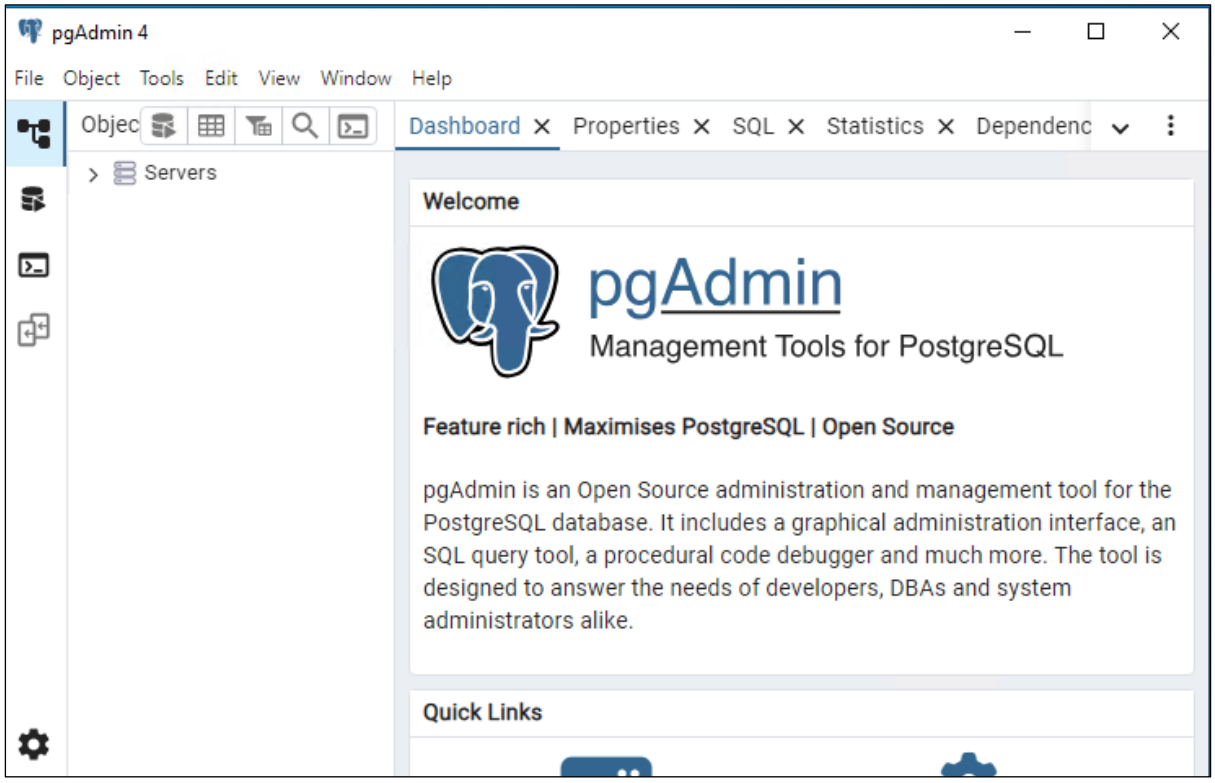

Home About Download Documentation Community Developers Support Donate Your account
February 13, 2025: PostgreSQL 17.3, 16.7, 15.11, 14.16, and 13.19 Relea
Quick Links
Downloads
Packages
Source
Software Catalogue
File Browser
Windows installers
Interactive installer by EDB
Download the installer certified by EDB for all supported Postgres versions.
Note! This installer is hosted by EDB and not on the PostgreSQL community servers. If on, please contact webmaster@enterprisedb.com.
This installer includes:


PostgreSQL Version
Linux x86-64
Linux x86-32
Mac OS X
Windows x86-64
17.3
postgresql.org
postgresql.org

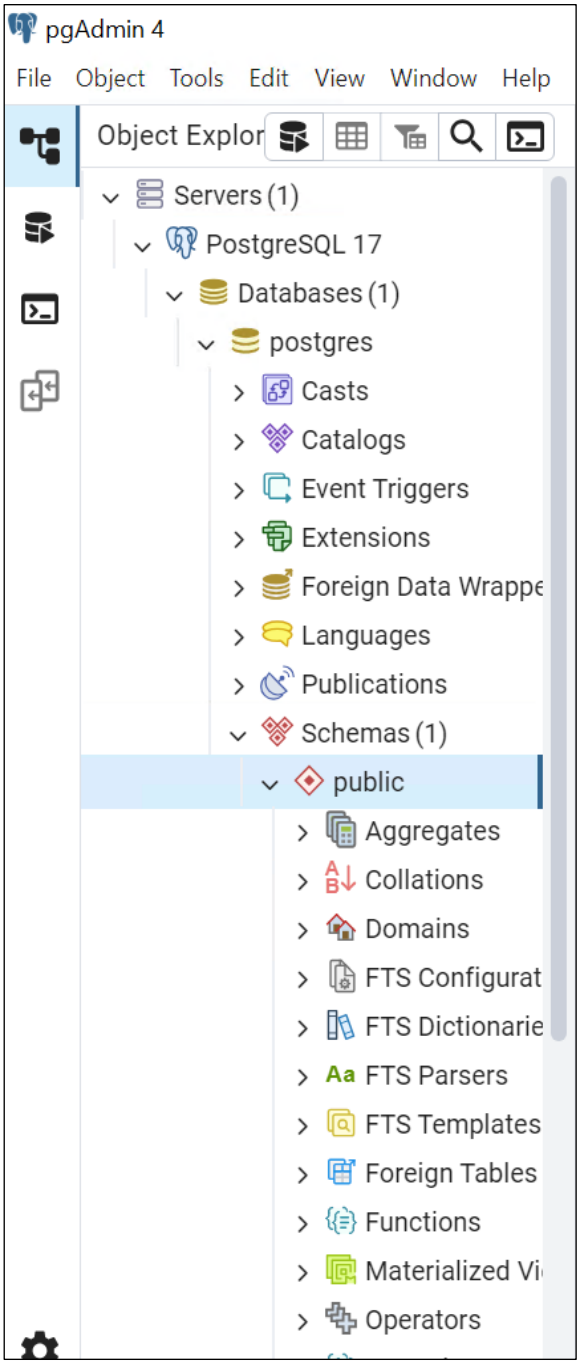

Setup
PACKAGED BY
EDB
Setup - PostgreSQL
Welcome to the PostgreSQL Setup Wizard.
PostgreSQL
< Back
Next >
Cancel

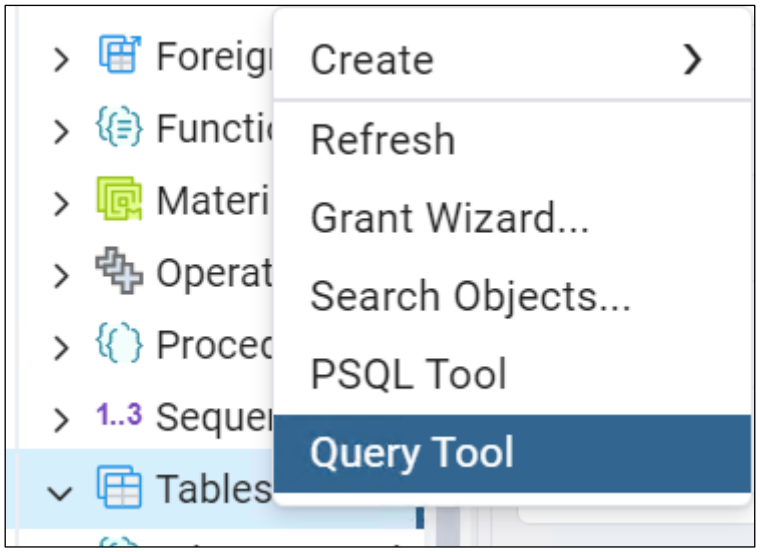

Select Components
Select the components you want to install; clear the components you do not want to install. Click Next when you are ready to continue.
PostgreSQL Server
pgAdmin 4
Stack Builder
Command Line Tools
Click on a component to get a detailed description

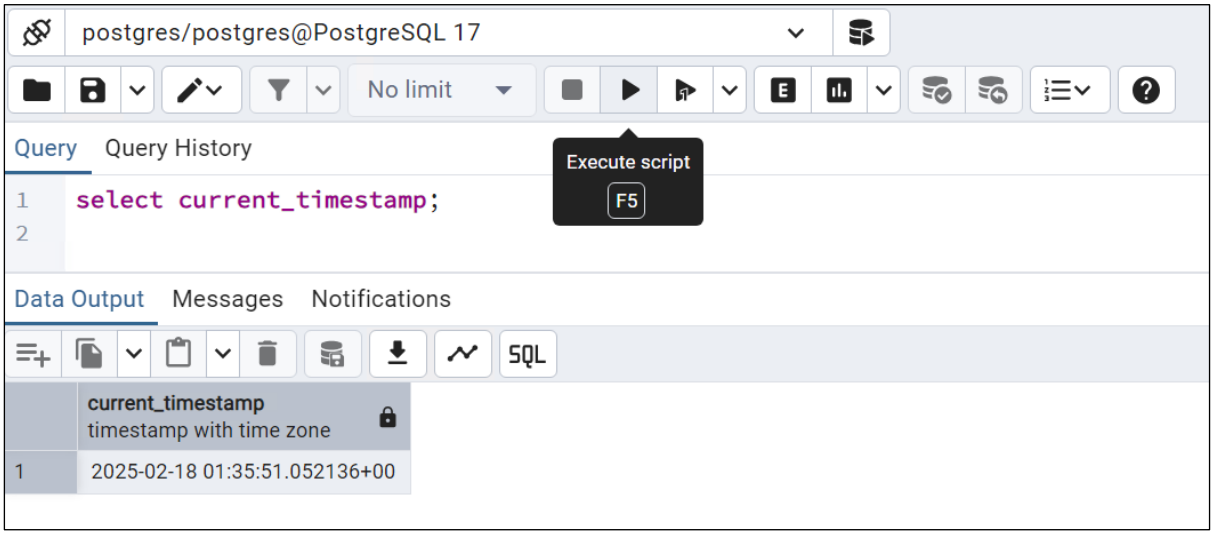

Password
Please provide a password for the database superuser (postgres).
Password
Retype password

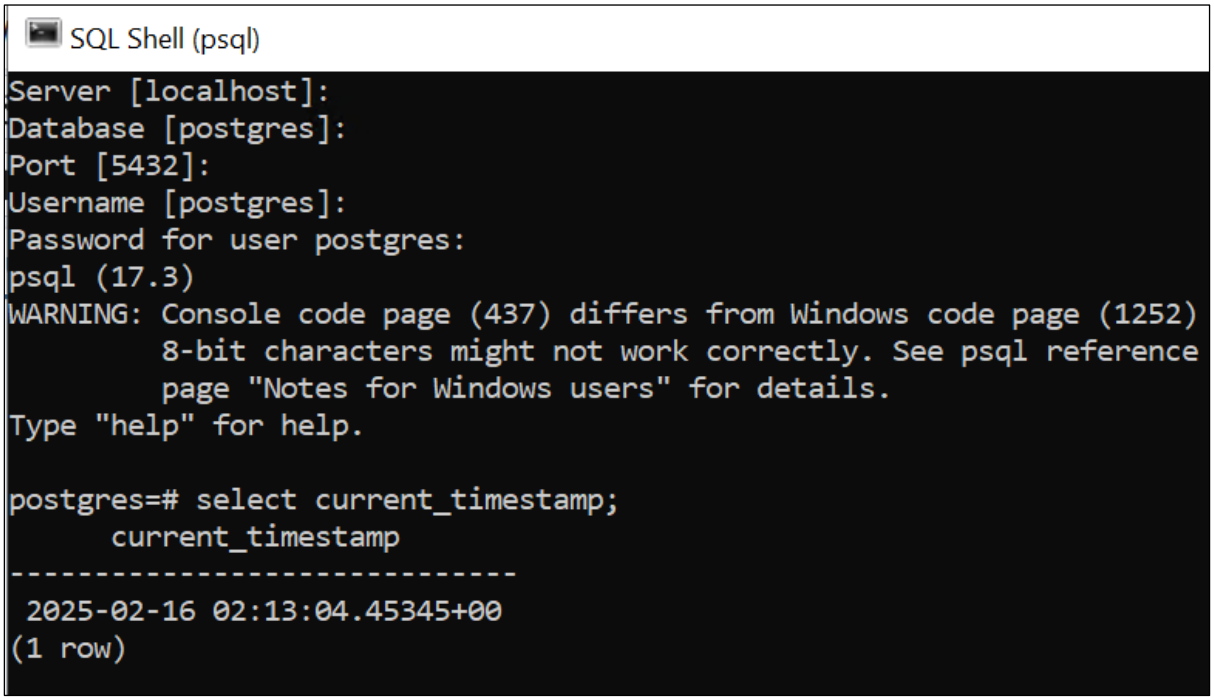

pgAdmin 4
File Object Tools Edit View Window Help
Servers
Dashboard
Properties
SQL
Statistics
Welcome
pgAdmin
Management Tools for PostgreSQL
Feature rich | Maximises PostgreSQL | Open Source
pgAdmin is an Open Source administration and management tool for the PostgreSQL database. It includes a graphical administration interface, an SQL query tool, a procedural code debugger and much more. The tool is designed to answer the needs of developers, DBAs and system administrators alike.
Quick Links


Connect to Server
Please enter the password for the user 'postgres' to connect the server - "PostgreSQL 17"
Save Password
Cancel
OK


pgAdmin 4
File
Object
Tools
Edit
View
Window
Help
Object Explor
Servers (1)
PostgreSQL 17
Databases (1)
postgres
Casts
Catalogs
Event Triggers
Extensions
Foreign Data Wrappe
Languages
Publications
Schemas (1)
public
Aggregates
Collations
Domains
FTS Configurat
FTS Dictionarie
FTS Parsers
FTS Templates
Foreign Tables
Functions
Materialized Vi
Operators

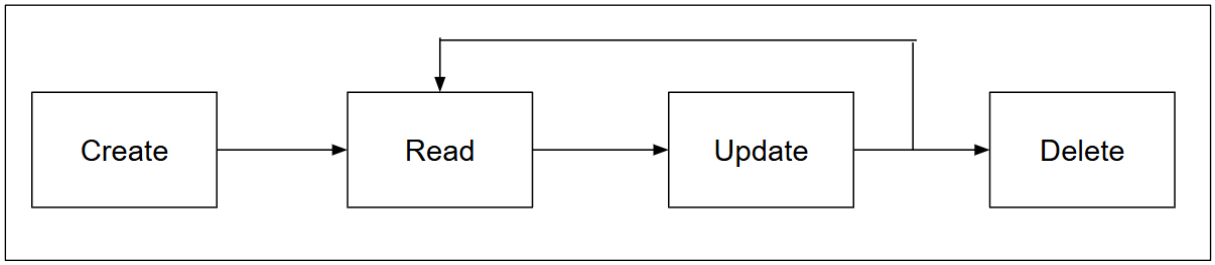

Create
Refresh
Grant Wizard...
Search Objects...
PSQL Tool
Query Tool
Tables


postgres/postgres@PostgreSQL 17
No limit
Query
Query History
Execute script
F5
1 select current_timestamp;
2
Data Output
Messages
Notifications
SQL
current_timestamp
timestamp with time zone
1
2025-02-18 01:35:51.052136+00

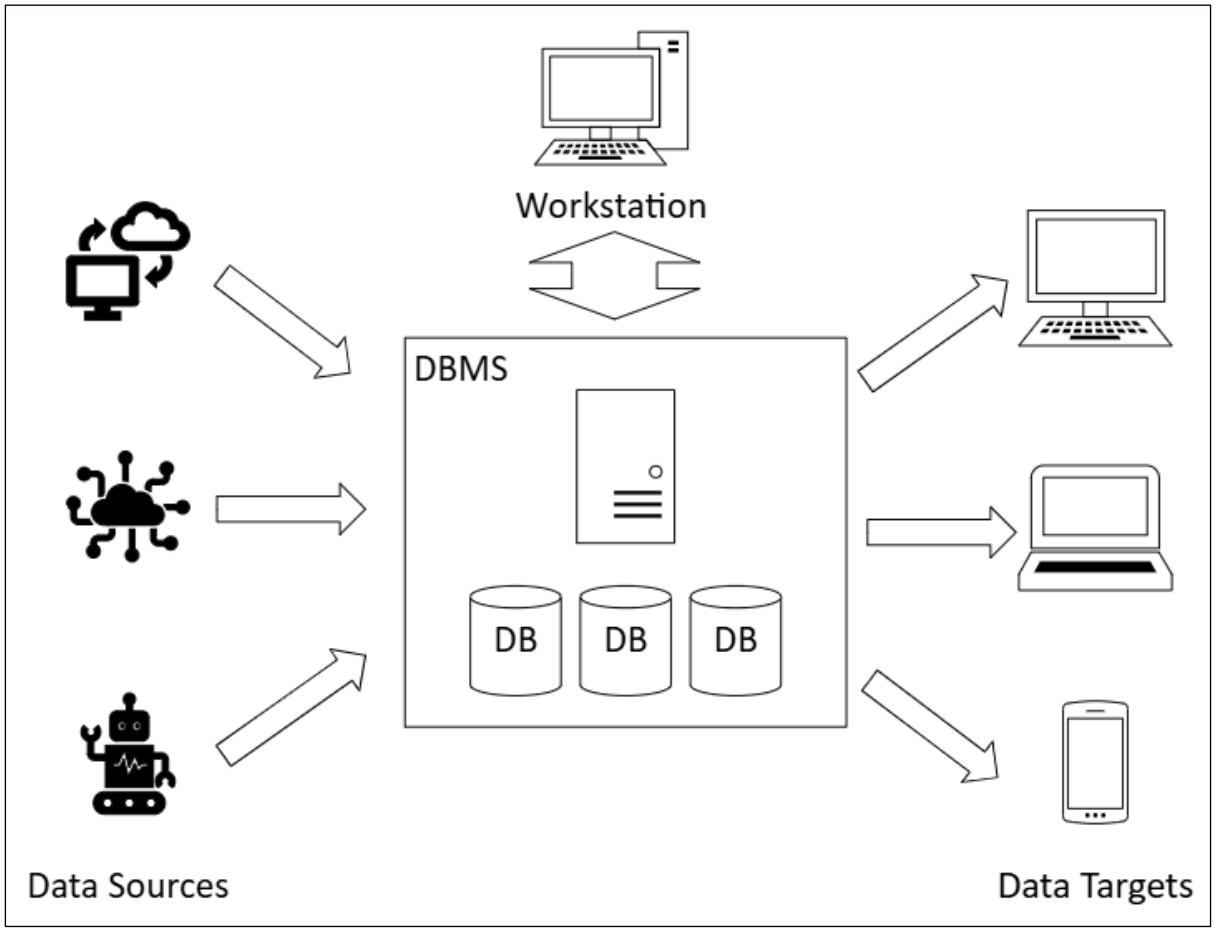

SQL Shell (psql)
Server [localhost]:
Database [postgres]:
Port [5432]:
Username [postgres]:
Password for user postgres:
psql (17.3)
WARNING: Console code page (437) differs from Windows code page (1252)
8-bit characters might not work correctly. See psql reference
page "Notes for Windows users" for details.
Type "help" for help.
postgres=# select current_timestamp;
current_timestamp
2025-02-16 02:13:04.45345+00
(1 row)

```
postgres=# exit
Press any key to continue . . .
```

Chapter 2: Creating a Table with a Solid Structure



Chapter 3: Exchange Data Using COPY



my_file - Notepad

File Edit Format View Help

```
product_id,model,year,product_type,base_msrp,production_start_date,production_end_date
1,Lemon,2016,scooter,399.99,2015-10-28 00:00:00,2018-02-03 00:00:00
2,Lemon Limited Edition,2017,scooter,799.99,2016-08-30 00:00:00,2016-11-24 00:00:00
3,Lemon,2019,scooter,499.99,2018-12-27 00:00:00,2024-08-24 00:00:00
5,Blade,2020,scooter,699.99,2020-02-17 00:00:00,2020-09-23 00:00:00
7,Bat,2022,scooter,599.99,2022-06-07 00:00:00,
```

my_file - Notepad

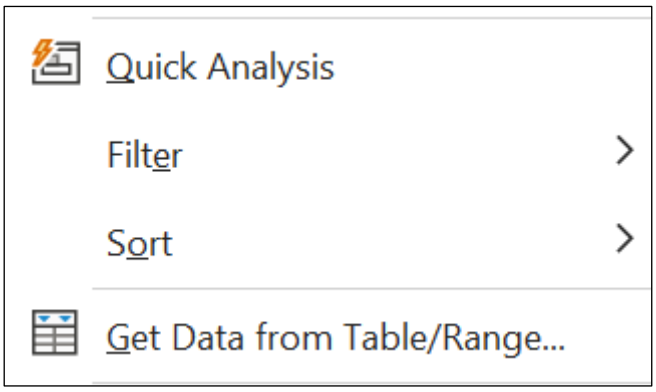
File Edit Format View Help

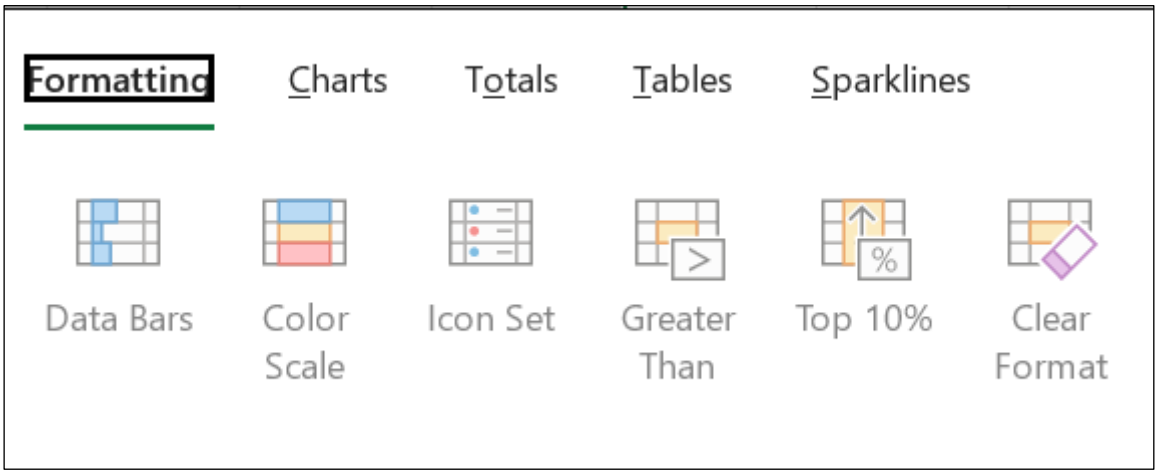
```
product_id|model|year|product_type|base_msrp|production_start_date|production_end_date
1|Lemon|2016|scooter|399.99|2015-10-28 00:00:00|2018-02-03 00:00:00
2|Lemon Limited Edition|2017|scooter|799.99|2016-08-30 00:00:00|2016-11-24 00:00:00
3|Lemon|2019|scooter|499.99|2018-12-27 00:00:00|2024-08-24 00:00:00
5|Blade|2020|scooter|699.99|2020-02-17 00:00:00|2020-09-23 00:00:00
7|Bat|2022|scooter|599.99|2022-06-07 00:00:00|
8|Bat Limited Edition|2023|scooter|699.99|2022-10-13 00:00:00|
12|Lemon Zester|2025|scooter|349.99|2024-10-01 00:00:00|
4|Model Chi|2020|automobile|115000.00|2020-02-17 00:00:00|2024-08-24 00:00:00
6|Model Sigma|2021|automobile|65500.00|2020-12-10 00:00:00|2024-05-28 00:00:00
9|Model Epsilon|2023|automobile|35000.00|2022-10-13 00:00:00|
10|Model Gamma|2023|automobile|85750.00|2022-10-13 00:00:00|
11|Model Chi|2025|automobile|95000.00|2024-10-01 00:00:00|
```

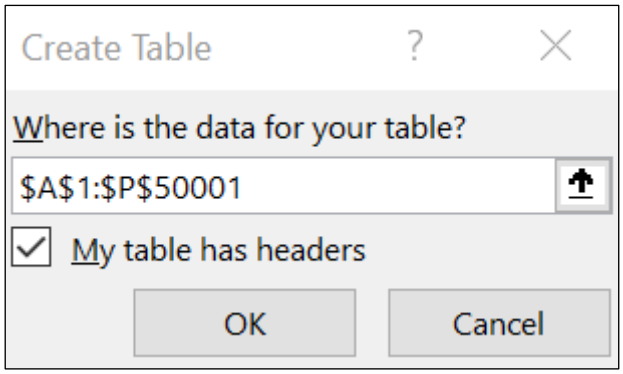
customer_details - Notepad

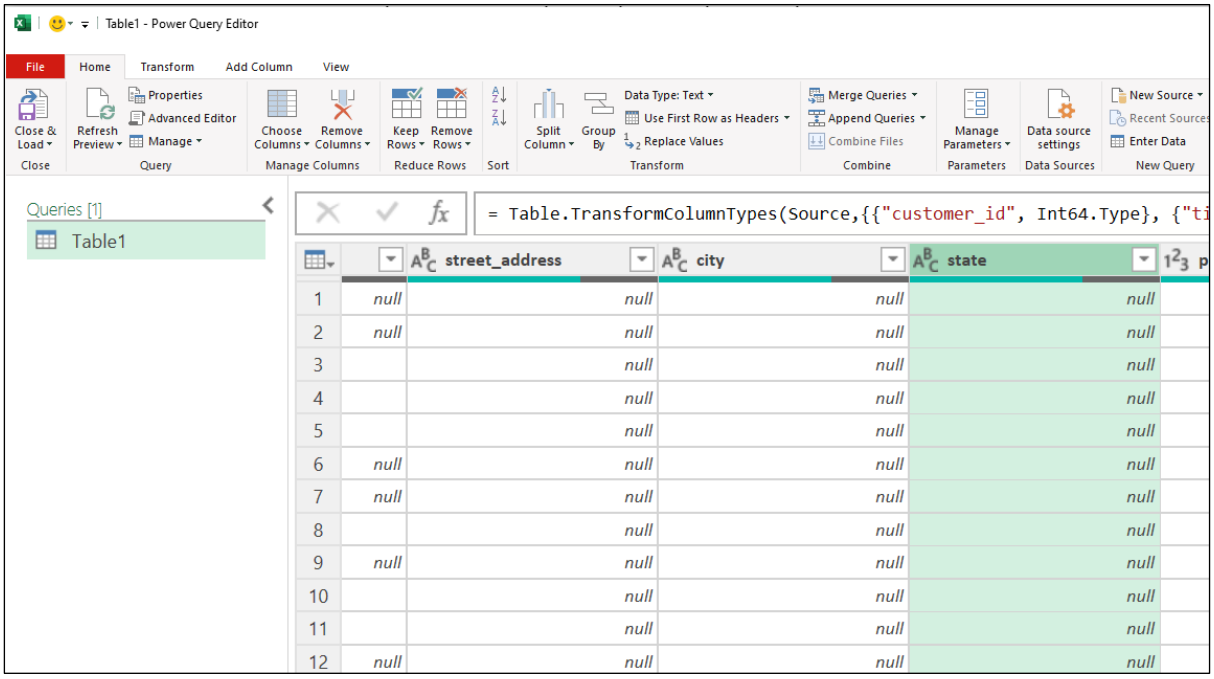
File Edit Format View Help

```
customer_id,title,first_name,last_name,suffix,email,gender,ip_address,phone,street_add
716,,Jarred,Bester,,jbesterjv@nih.gov,M,216.51.110.28,,,,,,,,2021-09-19 00:00:00
644,,Aeriell,Zanicchi,,azanicchihv@a8.net,F,154.245.228.134,,,,,,,,2019-04-03 00:00:00
709,,Chane,McGrory,,cmcgroryjo@gravatar.com,M,182.125.205.96,,,,,,,,2022-07-02 00:00:0
1097,,Edita,Bein,,ebeinug@blog.com,F,20.238.148.141,504-467-1751,,,,,,,2020-06-16 00:0
1194,,Alford,Cartwright,,acartwrightx5@shop-pro.jp,M,6.64.226.158,,,,,,,,2022-05-06 00
1293,,Ase,Skim,,askimzw@histats.com,M,15.201.206.206,781-788-4219,,,,,,,2021-09-05 00:
1482,,George,Creamen,,gcreamen155@sun.com,F,148.40.19.38,901-374-2312,,,,,,,2020-02-16
2120,,Jessalyn,Ovise,,jovise1mv@wordpress.com,F,137.136.7.150,740-173-1915,,,,,,,2019-
2880,,Randie,Pepperill,,rpepperill27z@apple.com,F,146.185.193.208,,,,,,,,2019-12-05 00
3148,,Reece,Balding,,rbalding2ff@nhs.uk,M,33.241.177.202,816-798-4943,,,,,,,2024-09-11
4415,,Purcell,Hillaby,,phillaby3em@house.gov,M,50.113.23.179,,,,,,,,2017-11-20 00:00:0
4762,,North,Bennedick,,nbennedick3o9@csmonitor.com,M,91.248.212.189,,,,,,,,2018-08-15
4809,,Ash,Lovick,,alovick3pk@wufoo.com,M,168.30.247.218,,,,,,,,2016-08-11 00:00:00
5493,,Miltie,Kellick,,mkellick48k@bloglovin.com,M,3.95.215.138,239-361-8396,,,,,,,2018
6904,Honorable,Dotti,Mose,,dmose5br@163.com,F,129.130.165.234,,,,,,,,2024-02-23 00:00:
```

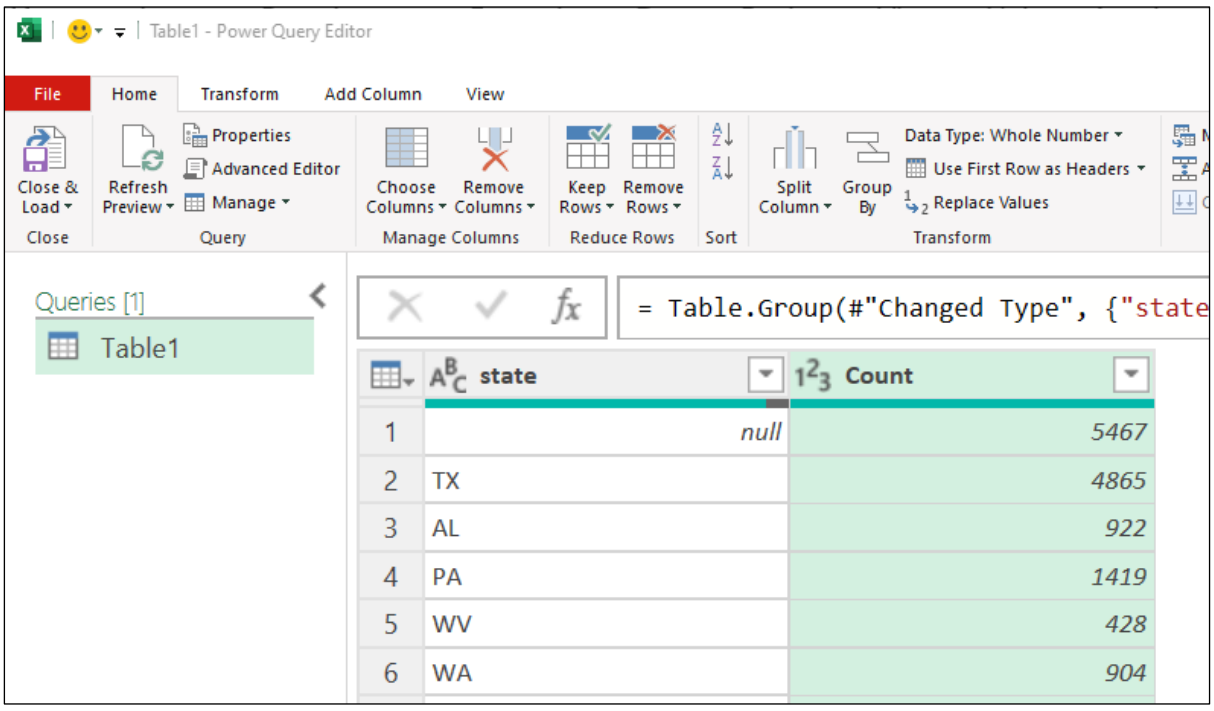




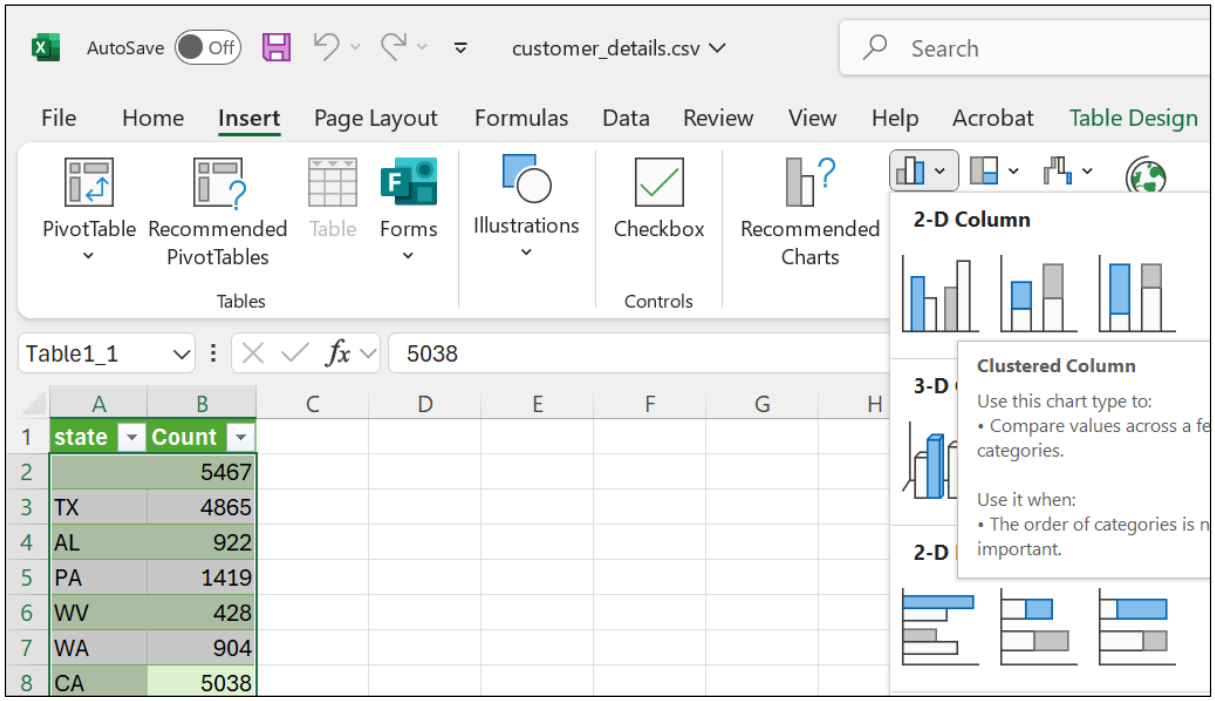


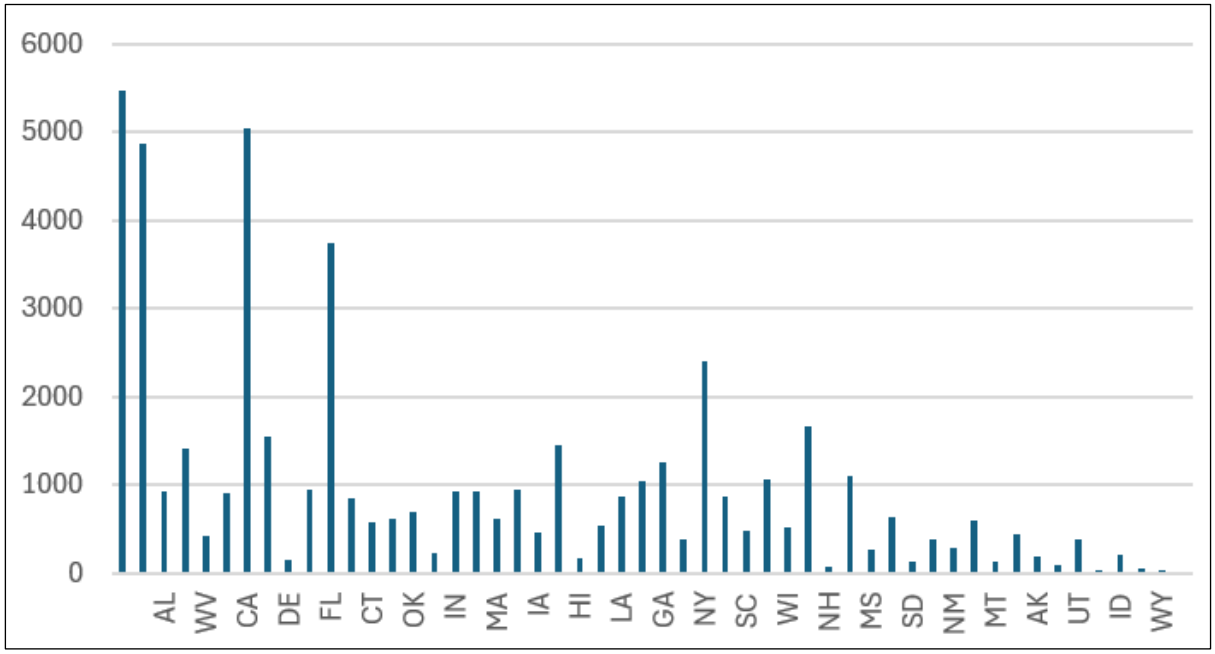


	street_address	city	state
1	null	null	null
2	null	null	null
3		null	null
4		null	null
5		null	null
6	null	null	null
7	null	null	null
8		null	null
9	null	null	null
10		null	null
11		null	null
12	null	null	null

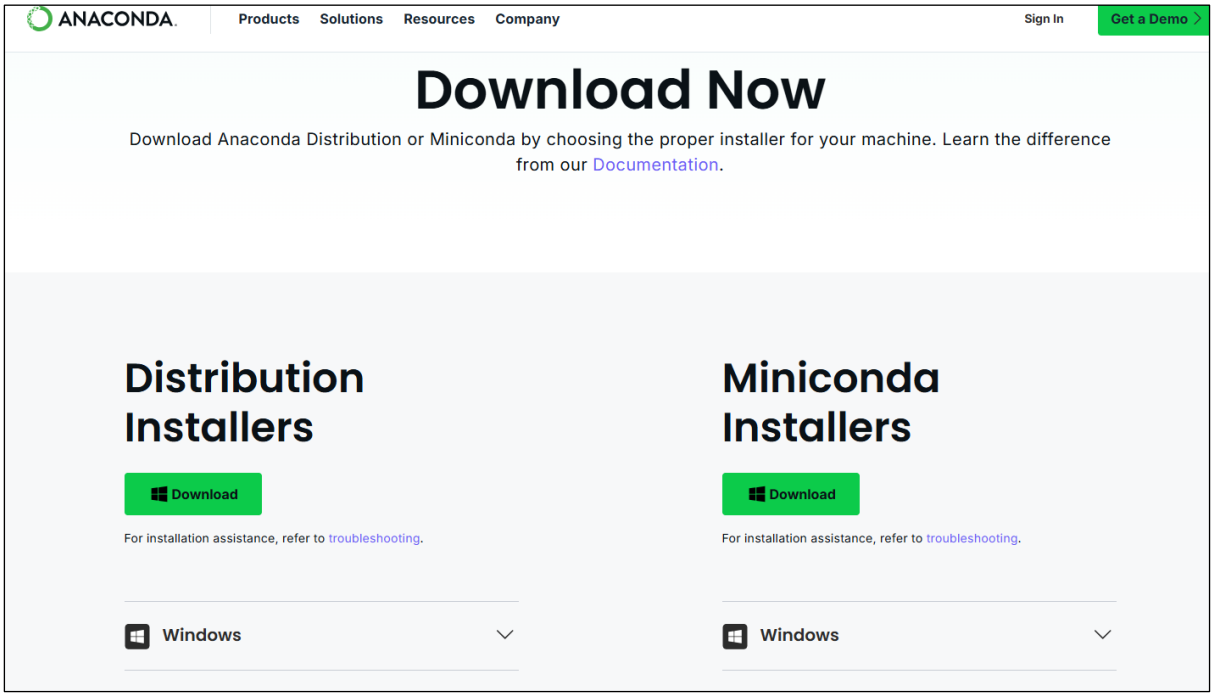


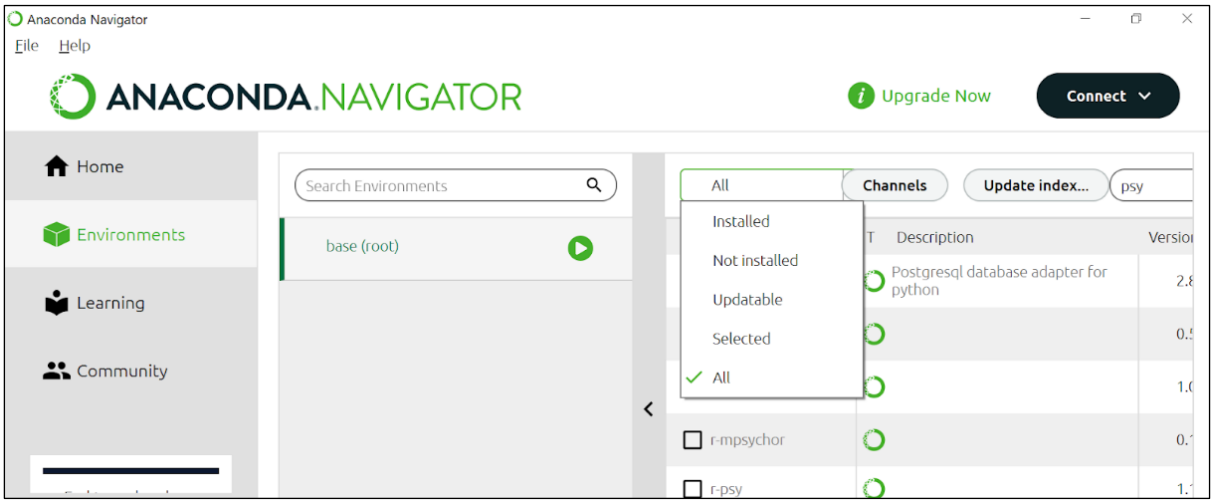
	state	Count
1	null	5467
2	TX	4865
3	AL	922
4	PA	1419
5	WV	428
6	WA	904

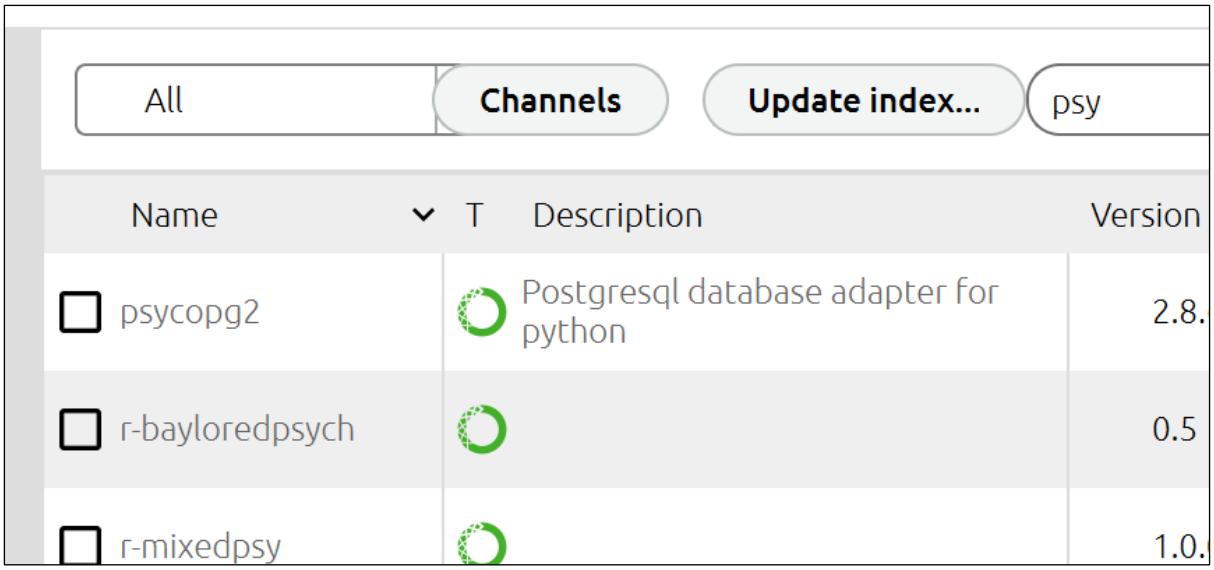

AutoSave
Off
customer_details.csv
Search
File
Home
Insert
Page Layout
Formulas
Data
Review
View
Help
Acrobat
Table Design
PivotTable
Recommended PivotTables
Table
Forms
Illustrations
Checkbox
Recommended Charts
Tables
Controls
2-D Column
Clustered Column
Use this chart type to:
• Compare values across a fe
categories.
Use it when:
• The order of categories is n
important.
3-D
2-D
Table1_1
5038
A
B
C
D
E
F
G
H
state
Count
5467
TX
4865
AL
922
PA
1419
WV
428
WA
904
CA
5038

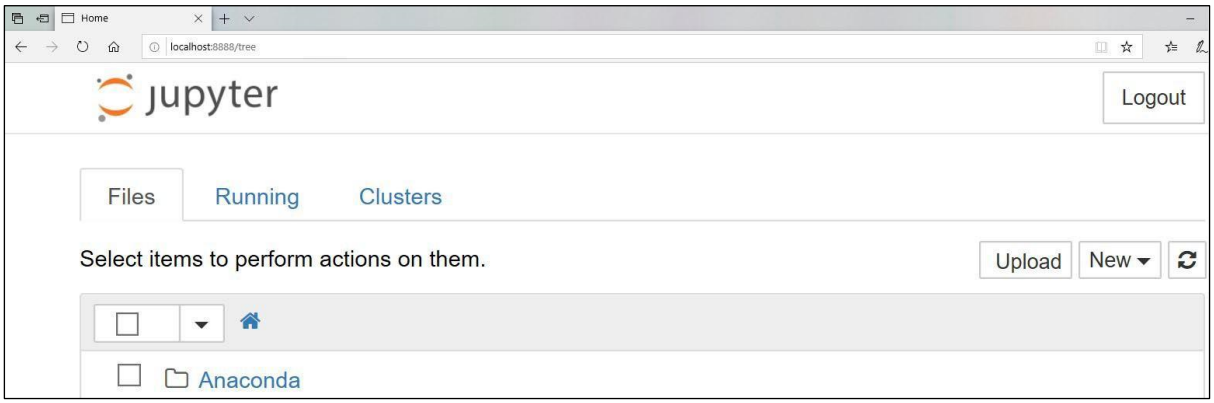

6000
5000
4000
3000
2000
1000
0
AL
WV
CA
DE
FL
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LA
GA
NY
SC
WI
NH
MS
SD
NM
MT
AK
UT
ID
WY

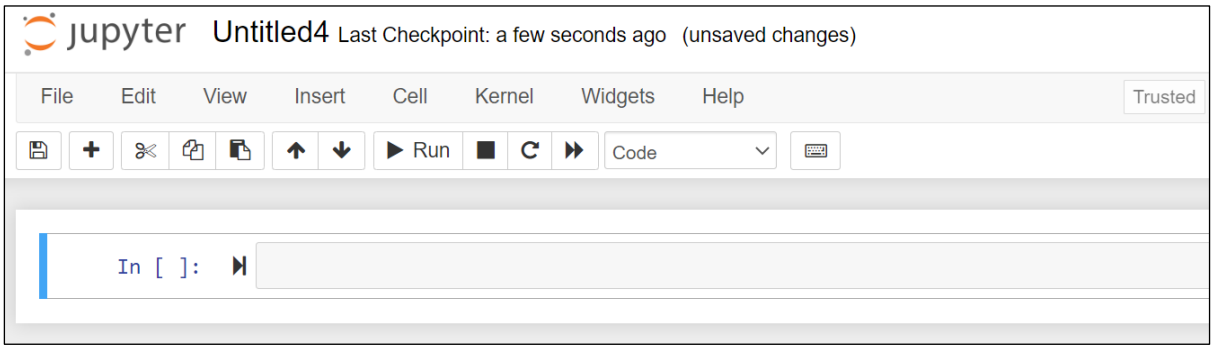
Chapter 4: Manipulating Data with Python

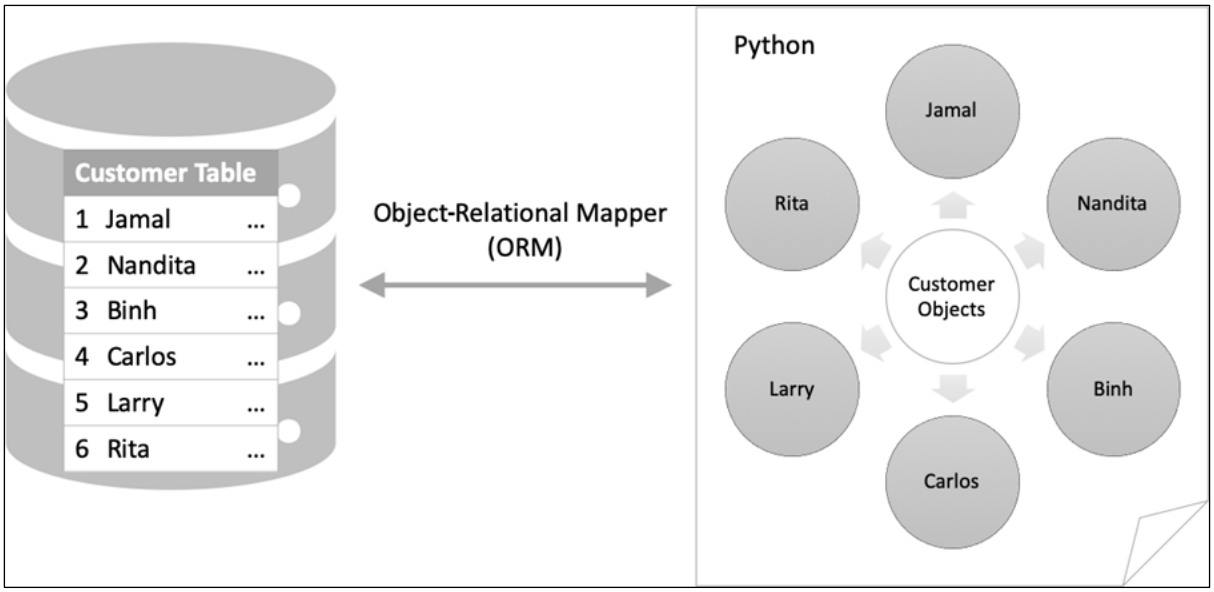





All
Channels
Update index...
psy
Name
T
Description
Version
psycopg2
Postgresql database adapter for python
2.8.
r-bayloredpsych
0.5
r-mixedpsy
1.0.


Home
localhost:8888/tree
jupyter
Logout
Files
Running
Clusters
Select items to perform actions on them.
Upload
New
Anaconda

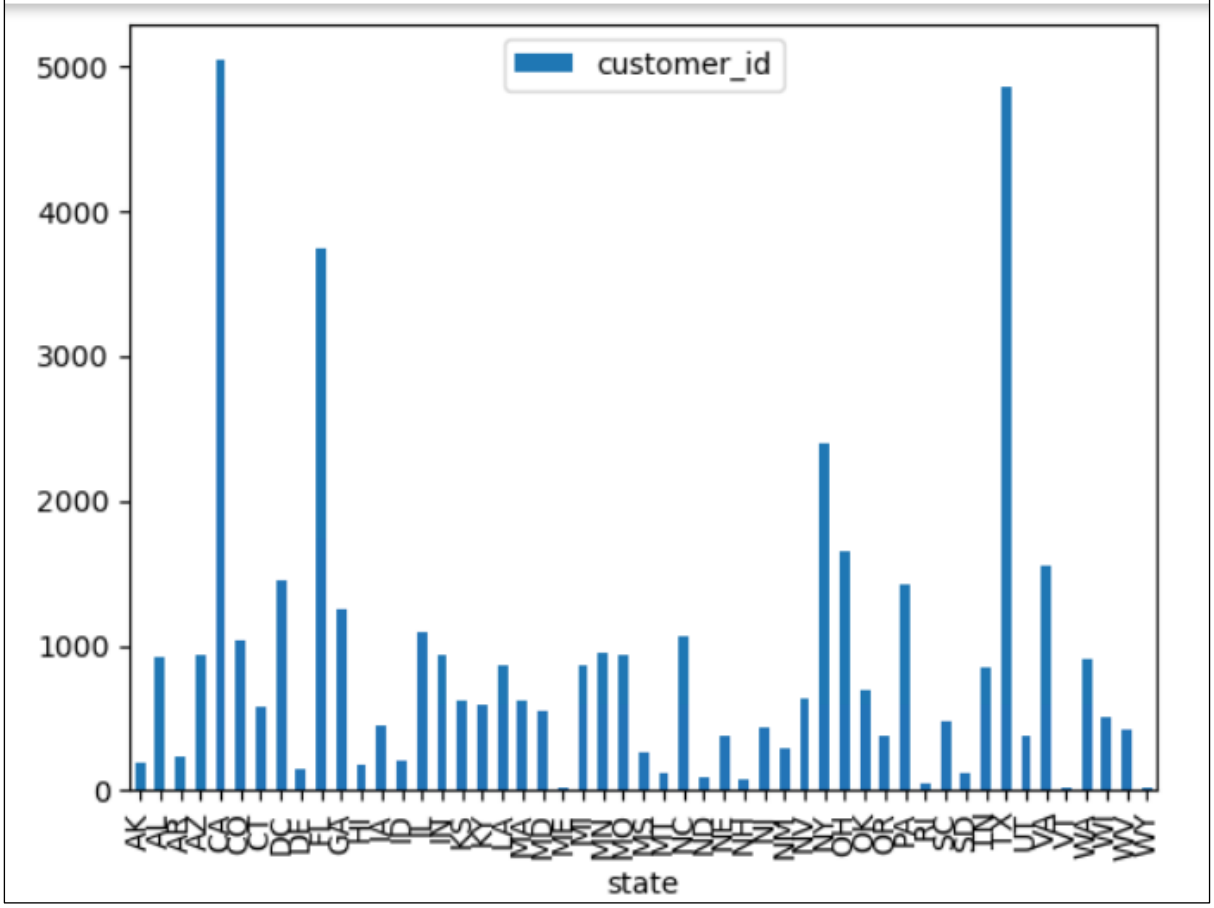

jupyter
Untitled4
Last Checkpoint: a few seconds ago
(unsaved changes)
File
Edit
View
Insert
Cell
Kernel
Widgets
Help
Trusted
Run
Code
In [ ]:




```
customers_data.head()
```

	customer_id	title	first_name	last_name	suffix	email	gender
0	716	None	Jarred	Bester	None	jbesterjv@nih.gov	M
1	1228	None	Ag	Smerdon	None	asmerdony3@house.gov	F
2	1876	None	Giuditta	Eim	None	geim1g3@typepad.com	F
3	1991	None	Nichole	Rosle	None	nrosle1ja@ning.com	M
4	2275	None	Chic	Bryning	None	cbryning1r6@pcworld.com	M

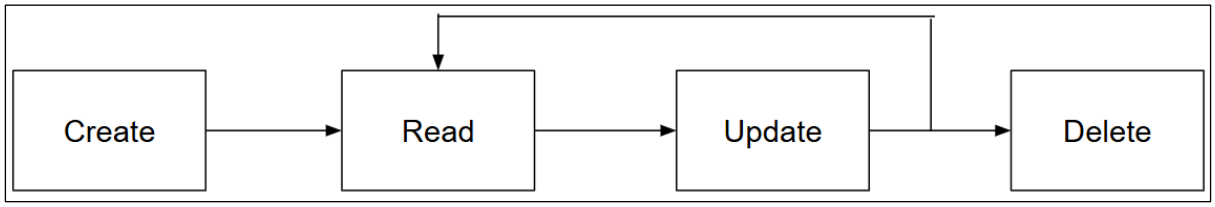
```
import matplotlib.pyplot as plt
customer_per_state.plot(kind='bar')
plt.show()
```



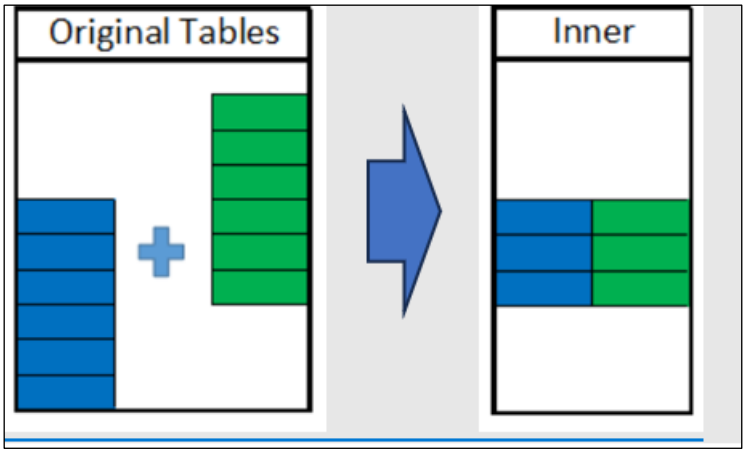

```
customer_per_state.to_sql(
    'customer_per_state',
    engine,
    if_exists='replace'
)
```

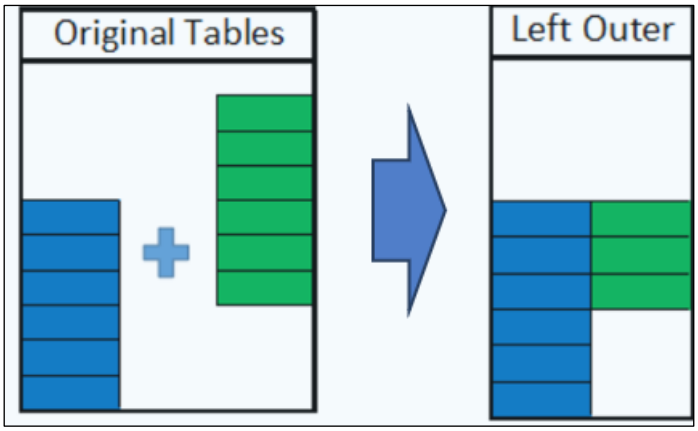
51

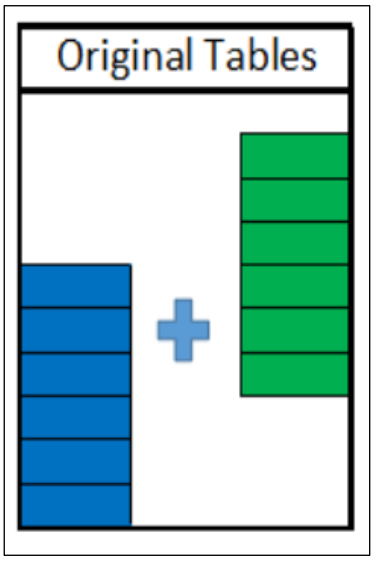
Chapter 5: Presenting Data with SELECT

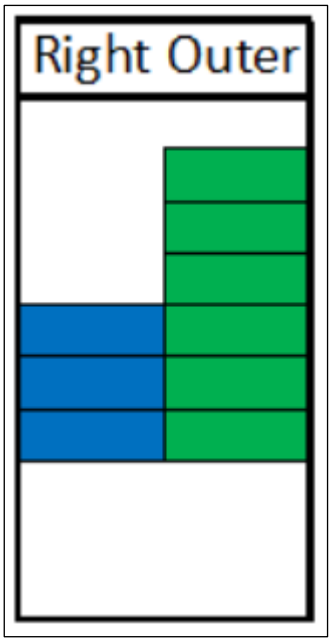


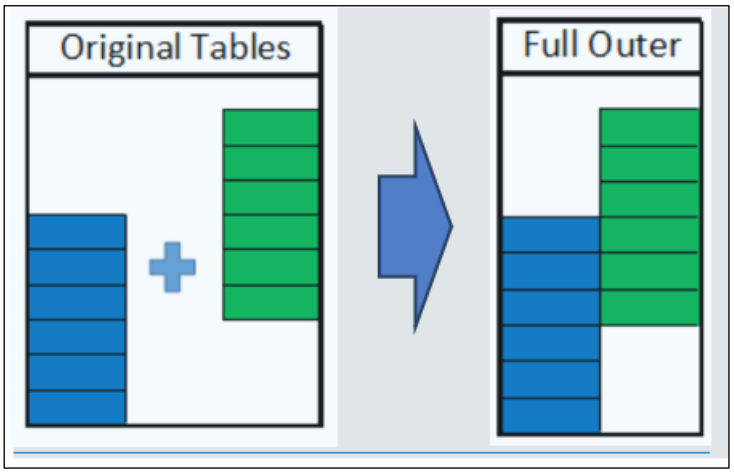
Chapter 7: Defining Datasets from Existing Datasets



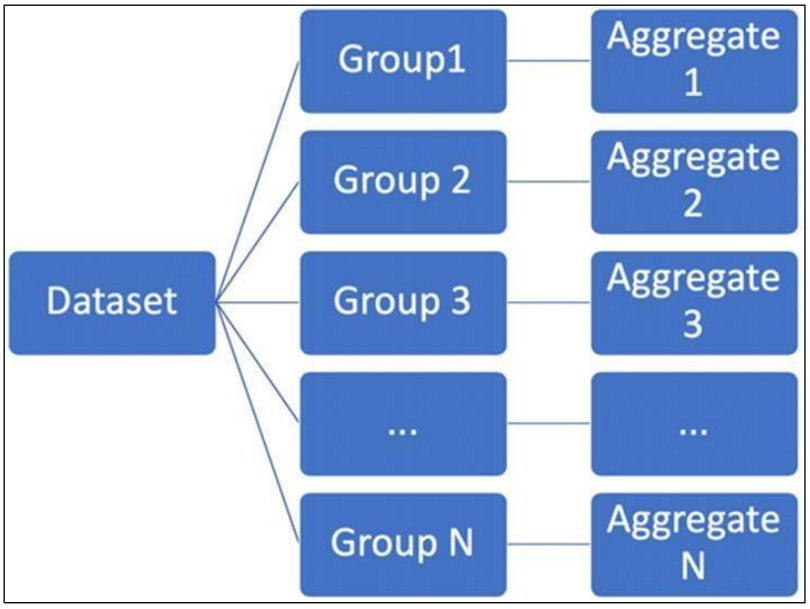


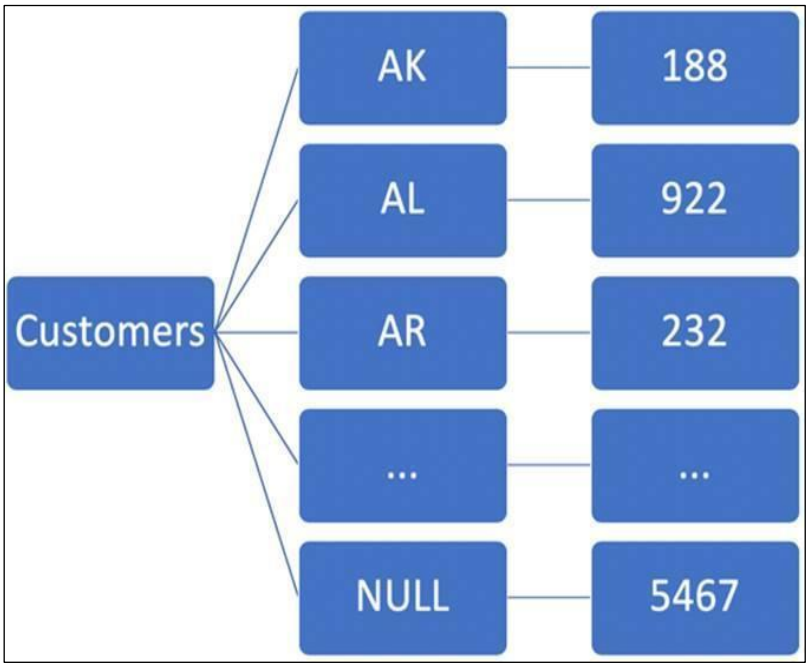


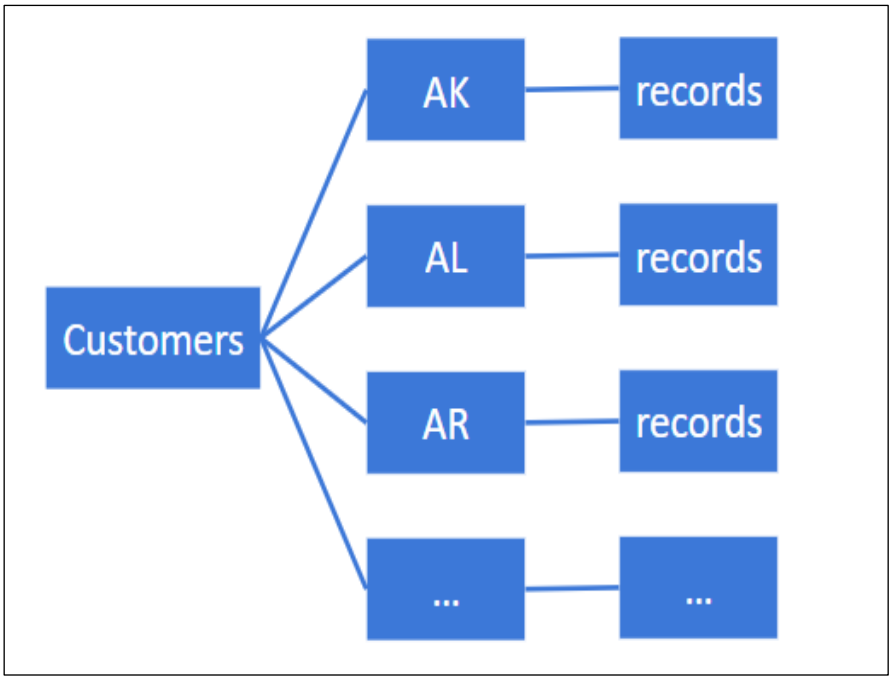

Right Outer

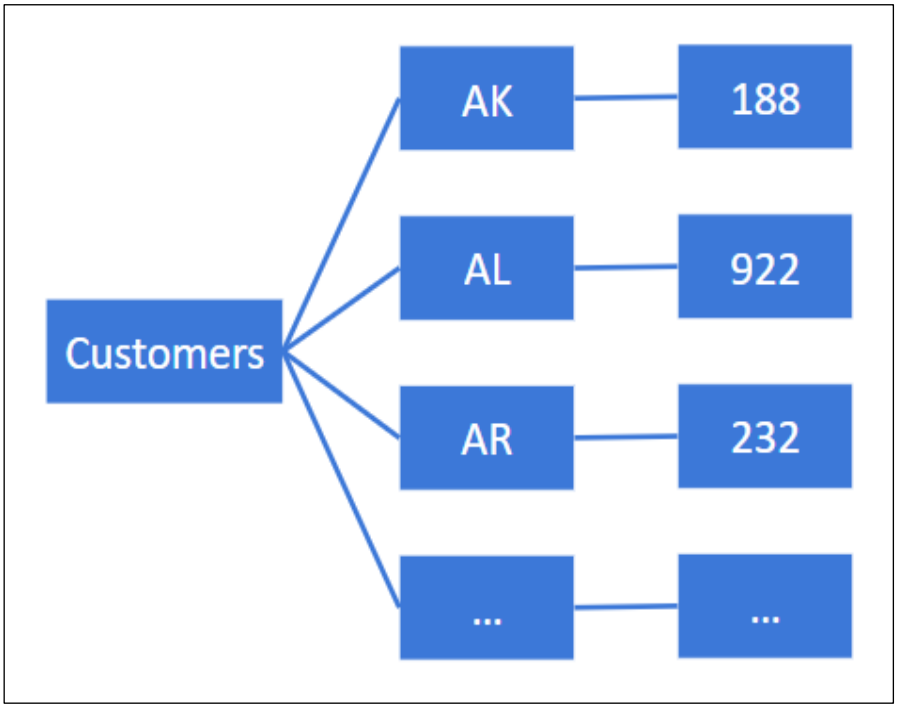

Original Tables
Full Outer

Chapter 8: Aggregating Data with GROUP BY

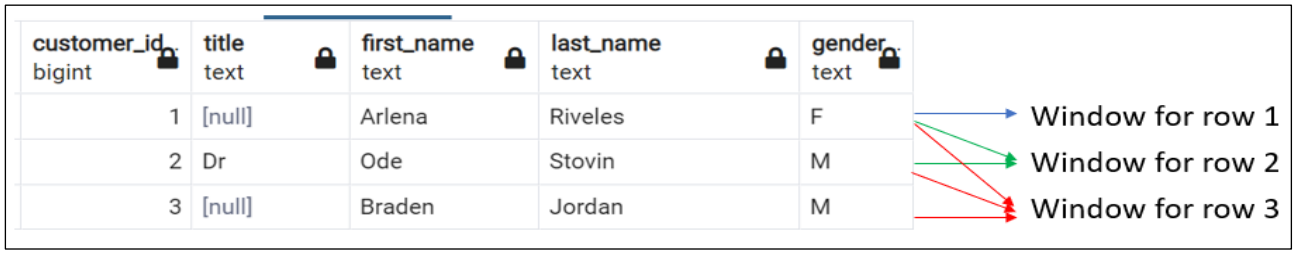





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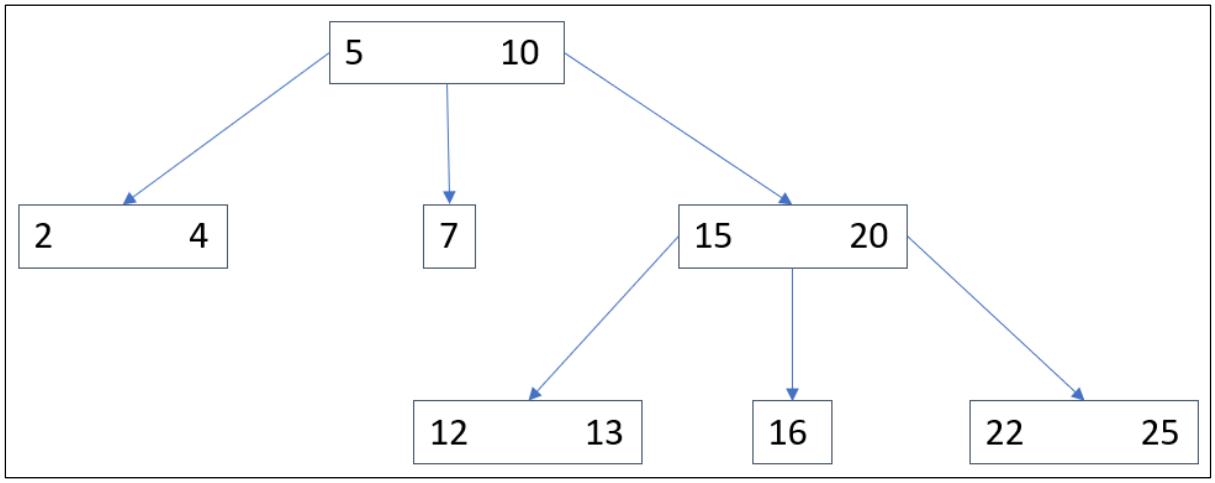

Customers
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922
232
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Chapter 9: Inter-Row Operation with Window Functions

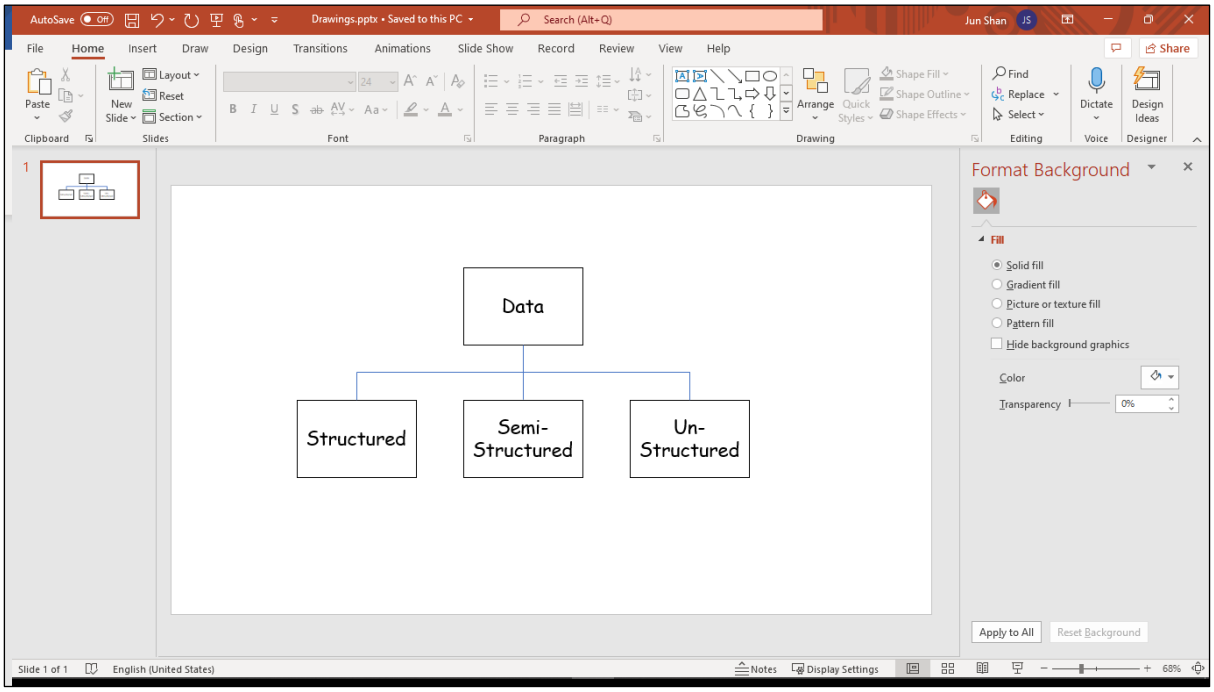




Chapter 10: Performant SQL



Chapter 11: Processing JSON and Arrays



Chapter 14: A Case Study for Analytics Using SQL

