Chapter 2: Tools, Frameworks, and Environments

```bash
vfarci@vlktor:/IdeaProjects/tdd-java-ch02-example-vagrant$ vagrant up
Bringing machine 'default' up with 'virtualbox' provider...
==> default: Importing base box 'ubuntu/trusty64'...
==> default: Matching MAC address for NAT networking...
==> default: Checking if box 'ubuntu/trusty64' is up to date...
==> default: A newer version of the box 'ubuntu/trusty64' is available! You currently
==> default: have version '20150609.6.7'. The latest is version '20150609.0.10'. Run
==> default: 'vagrant box update' to update
==> default: Setting the name of the VM: tdd-java-ch02-example-vagrant_default_1435347519969_47040
==> default: Clearing any previously set forwarded ports...
==> default: Clearing any previously set network interfaces...
==> default: Preparing network interfaces based on configuration...
  default: Adapter 1: nat
==> default: Forwarding ports...
  default: 27017 => 27017 (adapter 1)
  default: 22 => 2222 (adapter 1)
==> default: Running 'pre-boot' VM customizations...
==> default: Booting VM...
==> default: Waiting for machine to boot. This may take a few minutes...
  default: SSH address: 127.0.0.1:2222
  default: SSH username: vagrant
  default: SSH auth method: private key
  default: Warning: Connection timeout. Retrying...
  default: Vagrant insecure key detected. Vagrant will automatically replace
  this with a newly generated keypair for better security.
  default: Inserting generated public key within guest...
  default: Removing insecure key from the guest if its present...
  default: Key inserted! Disconnecting and reconnecting using new SSH key...
==> default: Machine booted and ready!
==> default: Checking for guest additions in VM...
==> default: Mounting shared folders...
  default: /vagrant => /home/vfarci/IdeaProjects/tdd-java-ch02-example-vagrant
  default: /tmp/vagrant-cache => /home/vfarci/.vagrant.d/cache/ubuntu/trusty64
==> default: Configuring cache buckets...
==> default: Running provisioner: docker...
  default: Installing Docker (latest) onto machine...
  default: Configuring Docker to autostart containers...
==> default: Starting Docker containers...
==> default: -- Container: mongodb
==> default: Configuring cache buckets...
vfarci@vlktor:/IdeaProjects/tdd-java-ch02-example-vagrant$ ```
Class com.packtpublishing.tddjava.ch02friendships.FriendshipsTest

```
all > com.packtpublishing.tddjava.ch02friendships > FriendshipsTest

<table>
<thead>
<tr>
<th>3 tests</th>
<th>0 failures</th>
<th>0 ignored</th>
<th>0.016s duration</th>
</tr>
</thead>
</table>

100% successful

Tests

<table>
<thead>
<tr>
<th>Test</th>
<th>Duration</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>alexDoesNotHaveFriends</td>
<td>0.013s</td>
<td>passed</td>
</tr>
<tr>
<td>joeHas5Friends</td>
<td>0.002s</td>
<td>passed</td>
</tr>
<tr>
<td>joelsFriendWithEveryone</td>
<td>0.001s</td>
<td>passed</td>
</tr>
</tbody>
</table>
```
### Friendships

<table>
<thead>
<tr>
<th>Element</th>
<th>Missed Instructions</th>
<th>Cov.</th>
<th>Missed Branches</th>
<th>Cov.</th>
<th>Missed</th>
<th>Cty</th>
<th>Missed</th>
<th>Lines</th>
<th>Missed</th>
<th>Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>userFriends(String, String)</td>
<td>0%</td>
<td></td>
<td>0%</td>
<td></td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>addFriend(String, String)</td>
<td>100%</td>
<td></td>
<td>75%</td>
<td></td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>getFriendList(String)</td>
<td>100%</td>
<td></td>
<td>100%</td>
<td></td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>makeFriends(String, String)</td>
<td>100%</td>
<td></td>
<td>n/a</td>
<td></td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Friendships()</td>
<td>100%</td>
<td></td>
<td>n/a</td>
<td></td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>17 of 75</td>
<td>77%</td>
<td>5 of 10</td>
<td>50%</td>
<td>4</td>
<td>10</td>
<td>1</td>
<td>12</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

### bdd/jbehave/stories/wikipediaSearch.story

**Scenario: Wikipedia search**

- Given I go to Wikipedia homepage
- When I enter the value Test-driven development on a field named search
- When I click the button go
- Then the page title contains Test-driven development

**Feature: Wikipedia Search**

- **Scenario: TDD search on wikipedia**
  - Given I go to Wikipedia homepage
  - When I enter the value Test-driven development on a field named search
  - When I click the button go
  - Then the page title contains Test-driven development
Chapter 3: Red-Green-Refactor – From Failure Through Success until Perfection
The project structure shows a `tdd-java-ch03-tic-tac-toe` directory containing:

- `.gradle`
- `.idea`
- `build`
- `src`
  - `main`
    - `java`
    - `com`
      - `packtpublishing`
        - `tddjava`
          - `ch03tictactoe`
            - `TicTacToe.java`
  - `test`
    - `java`
    - `com`
      - `packtpublishing`
      - `tddjava`
    - `ch03tictactoe`
      - `TicTacToeSpec.java`
- `.gitignore`
- `build.gradle`
- `settings.gradle`
- `tdd-java-ch03-tic-tac-toe.iml`
- `External Libraries`
## TicTacToe

<table>
<thead>
<tr>
<th>Element</th>
<th>Missed Instructions</th>
<th>Cov.</th>
<th>Missed Branches</th>
<th>Cov.</th>
<th>Missed</th>
<th>Cxty</th>
<th>Missed</th>
<th>Lines</th>
<th>Missed</th>
<th>Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>IsWin(int, int)</td>
<td>100%</td>
<td></td>
<td>100%</td>
<td></td>
<td>0</td>
<td>6</td>
<td>0</td>
<td>10</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>TicTacToe()</td>
<td>100%</td>
<td></td>
<td>n/a</td>
<td></td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>play(int, int)</td>
<td>100%</td>
<td></td>
<td>100%</td>
<td></td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>9</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>setBox(int, int, char)</td>
<td>100%</td>
<td></td>
<td>100%</td>
<td></td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>isDraw()</td>
<td>100%</td>
<td></td>
<td>100%</td>
<td></td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>checkAxes(int)</td>
<td>100%</td>
<td></td>
<td>75%</td>
<td></td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>nextPlayer()</td>
<td>100%</td>
<td></td>
<td>100%</td>
<td></td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>0 of 272</td>
<td>100%</td>
<td>1 of 28</td>
<td>96%</td>
<td>1</td>
<td>21</td>
<td>0</td>
<td>37</td>
<td>0</td>
<td>7</td>
</tr>
</tbody>
</table>
Chapter 4: Unit Testing – Focusing on What You Do and Not on What Has Been Done
Chapter 5: Design – If It's Not Testable, It's Not Designed Well

<table>
<thead>
<tr>
<th>Element</th>
<th>Missed Instructions</th>
<th>Cov.</th>
<th>Missed Branches</th>
<th>Cov.</th>
<th>Missed</th>
<th>Cty.</th>
<th>Missed</th>
<th>Lines</th>
<th>Missed</th>
<th>Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>checkWinner(int, int)</td>
<td></td>
<td>100%</td>
<td></td>
<td>100%</td>
<td>0</td>
<td>13</td>
<td>0</td>
<td>29</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Connect4TDD(PrintStream)</td>
<td></td>
<td>100%</td>
<td></td>
<td>100%</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>8</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>printBoard()</td>
<td></td>
<td>100%</td>
<td></td>
<td>100%</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>putDiscInColumn(int)</td>
<td></td>
<td>100%</td>
<td></td>
<td>n/a</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>8</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>checkColumn(int)</td>
<td></td>
<td>100%</td>
<td></td>
<td>75%</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>checkPositionToInsert(int, Int)</td>
<td></td>
<td>100%</td>
<td></td>
<td>100%</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>getCurrentPlayer()</td>
<td></td>
<td>100%</td>
<td></td>
<td>n/a</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>switchPlayer()</td>
<td></td>
<td>100%</td>
<td></td>
<td>100%</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>getNumberOfDiscsInColumn(int)</td>
<td></td>
<td>100%</td>
<td></td>
<td>n/a</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>getNumberOfDiscs()</td>
<td></td>
<td>100%</td>
<td></td>
<td>n/a</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>isFinished()</td>
<td></td>
<td>100%</td>
<td></td>
<td>100%</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>getWinner()</td>
<td></td>
<td>100%</td>
<td></td>
<td>n/a</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>0 of 358</td>
<td>100%</td>
<td>1 of 38</td>
<td>97%</td>
<td>1</td>
<td>31</td>
<td>0</td>
<td>98</td>
<td>0</td>
</tr>
</tbody>
</table>
Chapter 6: Mocking – Removing External Dependencies

```
vfarbic@viktor:~/IdeaProjects/tdd-java-ch06-tic-tac-toe-mongo$ gradle testInteg
:compileJava UP-TO-DATE
:processResources UP-TO-DATE
:classes UP-TO-DATE
:compileTestJava UP-TO-DATE
:processTestResources UP-TO-DATE
:testClasses UP-TO-DATE
:testInteg

com.packtpublishing.tddjava.ch03ticactoe.TicTacToeInteg > givenMongoDbIsRunning
WhenPlayThenNOException
FAILED
    java.lang.RuntimeException at TicTacToeInteg.java:12

1 test completed, 1 failed
:testInteg FAILED

FAILURE: Build failed with an exception.

* What went wrong:
Execution failed for task ':testInteg'.
> There were failing tests. See the report at: file:///home/vfarbic/IdeaProjects/tdd-java-ch06-tic-tac-toe-mongo/build/reports/tests/index.html

* Try:
Run with --stacktrace option to get the stack trace. Run with --info or --debug option to get more log output.

BUILD FAILED

Total time: 14.6 secs
vfarbic@viktor:~/IdeaProjects/tdd-java-ch06-tic-tac-toe-mongo$  
```
Chapter 8: BDD – Working Together with the Whole Team
### Narrative:

In order to manage the book store collection  
As a store administrator  
I want to be able to perform insert, update and delete operations

### Scenario: Book details form should have all fields

Given user is on the books screen  (PENDING)  
Then field bookId exists  (PENDING)  
Then field bookTitle exists  (PENDING)  
Then field bookAuthor exists  (PENDING)  
Then field bookDescription exists  (PENDING)

@Given("user is on the books screen")  
@Pending  
public void givenUserIsOnTheBooksScreen() {  
    // PENDING
}
Scenario: Book details form should have all fields

Given user is on the books screen   (FAILED)
Element not found {#books} Expected: visible Screenshot:
file:/home/vfarcic/IdeaProjects/tdd-java-ch07-books-
store/build/reports/tests/1430688921325.15.png Timeout: 4 s. Caused by:
NoSuchElementException: Error Message => "Unable to find element with css selector
'#books"
Then field bookId exists   (NOT PERFORMED)
Then field bookTitle exists   (NOT PERFORMED)
Then field bookAuthor exists   (NOT PERFORMED)
Then field bookDescription exists   (NOT PERFORMED)

Scenario: User should be able to create a new book

Given user is on the books screen   (FAILED)
Element not found {#books} Expected: visible Screenshot:
file:/home/vfarcic/IdeaProjects/tdd-java-ch07-books-
store/build/reports/tests/1430690653894.32.png Timeout: 4 s. Caused by:
NoSuchElementException: Error Message => "Unable to find element with css selector
'#books"
When user clicks the button newBook   (NOT PERFORMED)
When user sets values to the book form   (PENDING)
When user clicks the button saveBook   (NOT PERFORMED)
Then book is stored   (PENDING)

Scenario: User should be able to display book details

Given user is on the books screen   (FAILED)
Element not found {#books} Expected: visible Screenshot:
file:/home/vfarcic/IdeaProjects/tdd-java-ch07-books-
store/build/reports/tests/1430691141869.46.png Timeout: 4 s. Caused by:
NoSuchElementException: Error Message => "Unable to find element with css selector
'#books"
When user selects a book   (PENDING)
Then book form contains all data   (PENDING)
Scenario: User should be able to update book details

Given user is on the books screen  (FAILED)
Element not found (#books) Expected: visible Screenshot:
file:/home/vfarcic/IdeaProjects/tdd-java-ch07-books-
store/build/reports/tests/1430692088078.61.png Timeout: 4 s. Caused by:
NoSuchElementException: Error Message => 'Unable to find element with css selector
'#books"

When user selects a book  (NOT PERFORMED)
When user sets new values to the book form  (PENDING)
Then book is updated  (PENDING)

Scenario: User should be able to delete a book

Given user is on the books screen  (FAILED)
Element not found (#books) Expected: visible Screenshot:
file:/home/vfarcic/IdeaProjects/tdd-java-ch07-books-
store/build/reports/tests/1430692818420.77.png Timeout: 4 s. Caused by:
NoSuchElementException: Error Message => 'Unable to find element with css selector
'#books"

When user selects a book  (NOT PERFORMED)
When user clicks the button deleteBook  (NOT PERFORMED)
Then book is removed  (PENDING)
Narrative:

In order to manage the book store collection
As a store administrator
I want to be able to perform insert, update and delete operations

Scenario: Book details form should have all fields

Given user is on the books screen
Then field bookId exists
Then field bookTitle exists
Then field bookAuthor exists
Then field bookDescription exists

Scenario: User should be able to create a new book

Given user is on the books screen
When user clicks the button newBook
When user sets values to the book form
When user clicks the button saveBook
Then book is stored
Chapter 9: Refactoring Legacy Code – Making It Young Again

```java
package com.packtpublishing.tddjava.ch03.tictactoe;

public class TicTacToe {

    public void validatePosition(int x, int y) {
        if (x < 1 || x > 3) {
            throw new RuntimeException("X is outside board");
        }
        if (y < 1 || y > 3) {
            throw new RuntimeException("Y is outside board");
        }
    }

    Coverage TicTacToeSpec

    Coverage Summary for Package 'com.packtpublishing.tddjava.ch0...'

    Element     Class,%  Method,%  Line,%  
    TicTacToe 100% (1/1) 100% (2/2) 83% (5/6)
```
alexandria

POST add book

GET all books

POST censor book 1

GET get book by author

GET get book id = 1

GET get book state does not exist

GET get book title does not exist

POST prepare book 1

POST rent book 1 by user

POST return book 1

POST uncensor book 1
all books

http://localhost:8080/alexandria/books

Send  Save  Preview  Add to collection

Body  Headers (3)  STATUS 202 Accepted  TIME 286 ms

Pretty  Raw  Preview  JSON  XML

```json
{
  "empty": false,
  "requestTime": "18:47:59.838",
  "result": [
    {
      "title": "TDD in Java",
      "author": "Viktor Farcic & Alex Garcia",
      "status": 1,
      "id": 0
    },
    {
      "title": "TDD in Java",
      "author": "Viktor Farcic & Alex Garcia",
      "status": 1,
      "id": 1
    }
  ]
}
```
Chapter 10: Feature Toggles – Deploying Partially Done Features to Production

Whitelabel Error Page

This application has no explicit mapping for /error, so you are seeing this as a fallback.

Sun Jun 28 22:12:18 CEST 2015
There was an unexpected error (type=Service Unavailable, status=503).
This feature is currently unavailable

Whitelabel Error Page

Fri Jun 19 04:08:01 CEST 2015
There was an unexpected error (type=Bad Request, status=400).
There was an error processing your request: Failed to convert value of type 'java.lang.String' to required type 'int'; nested exception is java.lang.NumberFormatException: For input string: "abc"
List of links:

- [Click here to compute 5th fibonacci number](localhost:8080/web/fibonacci?number=5)
- [Click here to compute 7th fibonacci number](localhost:8080/web/fibonacci?number=7)
- [Click here to compute 8th fibonacci number](localhost:8080/web/fibonacci?number=8)
- [Click here to compute 16th fibonacci number](localhost:8080/web/fibonacci?number=16)

Fibonacci 7th number is 13

[back](localhost:8080)
Fibonacci 15th number is 610

back
Chapter 12: Leverage TDD by Implementing Continuous Delivery

Getting Started

Unlock Jenkins
To ensure Jenkins is securely set up by the administrator, a password has been written to the log (not sure where to find it?) and this file on the server:
/var/jenkins_home/secrets/initialAdminPassword

Please copy the password from either location and paste it below.

Administrator password

[Continue]
## Getting Started

<table>
<thead>
<tr>
<th>Folders</th>
<th>OWASP Markup Formatter</th>
<th>Build Timeout</th>
<th>Credentials Binding</th>
<th>** - required dependency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timestamper</td>
<td>Workspace Cleanup</td>
<td>Ant</td>
<td>Gradle</td>
<td>** Script Security</td>
</tr>
<tr>
<td>Pipeline</td>
<td>GitHub Branch Source</td>
<td>Pipeline: GitHub Groovy Libraries</td>
<td>Pipeline: Stage View</td>
<td>** Command Agent Launcher</td>
</tr>
<tr>
<td>Git</td>
<td>Subversion</td>
<td>SSH Slaves</td>
<td>Matrix Authorization Strategy</td>
<td>** bouncycastle API</td>
</tr>
<tr>
<td>PAM Authentication</td>
<td>LDAP</td>
<td>Email Extension</td>
<td>Mailer</td>
<td></td>
</tr>
</tbody>
</table>

Jenkins 2.108
Create First Admin User

Username: tdd-packt-java
Password: ......
Confirm password: ......
Full name: TDD packt java
E-mail address: a@b.c

Enter an item name
thimblerig-service

Freestyle project
This is the central feature of Jenkins. Jenkins will build your project, combining any SCM with any build system, and this can be even used for something other than software build.
Post-build Actions

- Archive the artifacts
  - Files to archive: build/libs/thimblerig-service.jar

- Publish JUnit test result report
  - Test report XMLs: build/test-results/test/TEST\*\.xml
  - Filset 'includes' setting that specifies the generated raw XML report files, such as 'myproject/target/test-reports/*.xml'. Basedir of the filset is the workspace root.
  - Health report amplification factor: 1.0
    - 1% failing tests scores as 99% health. 5% failing tests scores as 95% health
  - Allow empty results: Do not fail the build on empty test results

Add post-build action ▼
Build #1

Build Artifacts

- thimblerig-service.jar 14.47 MB view

No changes.

Started by user TDD Packt Java

Revision: af199b1b9ca331ce90cf7f51437866e53d95b5b6
  - refs/remotes/origin/master

Test Result (no failures)