WEEK 3

SPRING CORE MAVEN
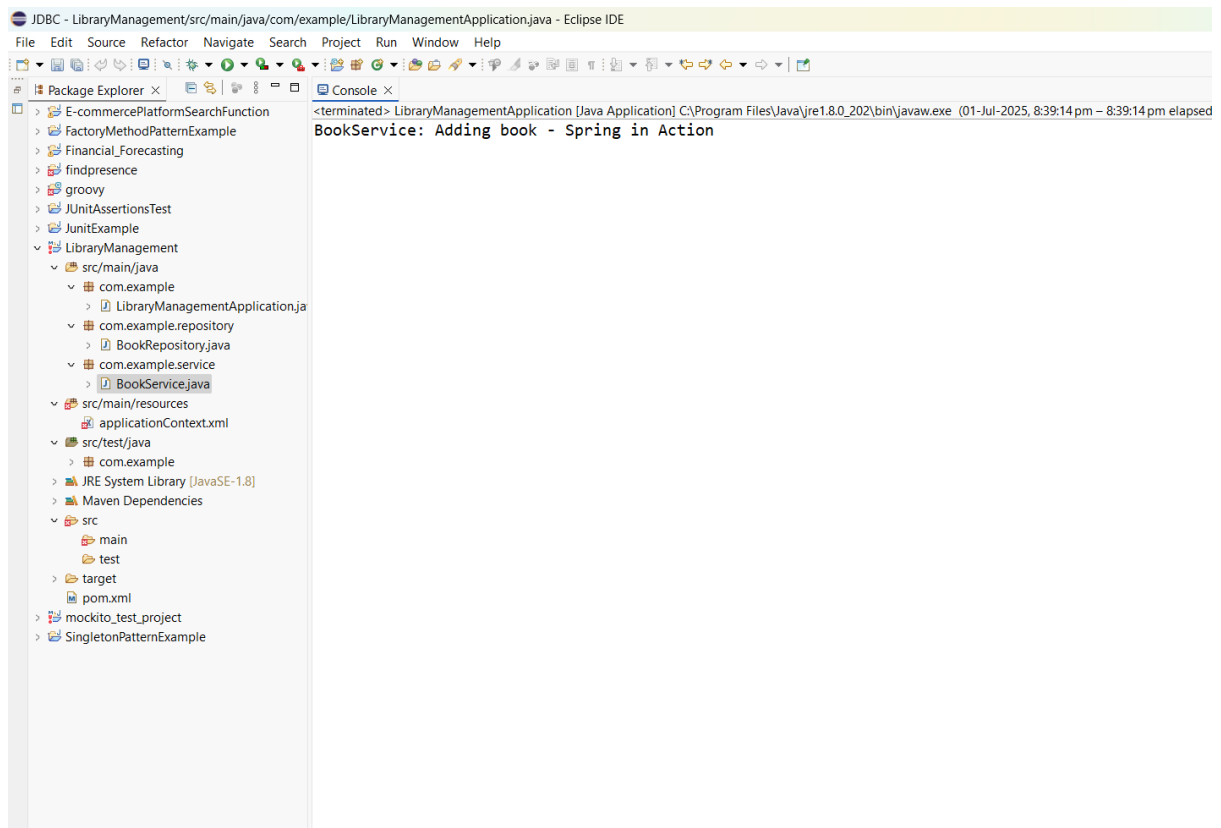
Exercise 1: Configuring a Basic Spring Application

Scenario:

Your company is developing a web application for managing a library. You need to use the Spring Framework to handle the backend operations.

```
C:\Users\Lenovo\eclipse-workspace\JDBC\LibraryManagement>mvn compile
[INFO] Scanning for projects...
[INFO]
[INFO] -------------------< com.example:LibraryManagement >-------------------
[INFO] Building LibraryManagement 0.0.1-SNAPSHOT
[INFO]    from pom.xml
[INFO] --------------------------------[ jar ]---------------------------------
[INFO]
[INFO] --- resources:3.3.1:resources (default-resources) @ LibraryManagement ---
[INFO] Copying 1 resource from src\main\resources to target\classes
[INFO]
[INFO] --- compiler:3.13.0:compile (default-compile) @ LibraryManagement ---
[INFO] Recompiling the module because of changed source code.
[INFO] Compiling 3 source files with javac [debug target 1.8] to target\classes
[WARNING] bootstrap class path not set in conjunction with -source 8
[WARNING] source value 8 is obsolete and will be removed in a future release
[WARNING] target value 8 is obsolete and will be removed in a future release
[WARNING] To suppress warnings about obsolete options, use -Xlint:-options.
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  1.250 s
[INFO] Finished at: 2025-07-01T20:40:53+05:30
[INFO] ------------------------------------------------------------------------

C:\Users\Lenovo\eclipse-workspace\JDBC\LibraryManagement>
```

```
C:\Users\Lenovo\eclipse-workspace\JDBC\LibraryManagement>mvn validate
[INFO] Scanning for projects...
[INFO]
[INFO] -------------------< com.example:LibraryManagement >-------------------
[INFO] Building LibraryManagement 0.0.1-SNAPSHOT
[INFO]    from pom.xml
[INFO] --------------------------------[ jar ]---------------------------------
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  0.141 s
[INFO] Finished at: 2025-07-01T20:48:23+05:30
[INFO] ------------------------------------------------------------------------
```

File Edit Source Refactor Navigate Search Project Run Window Help

Package Explorer

> E-commercePlatformSearchFunction
> FactoryMethodPatternExample
> Financial_Forecasting
> findpresence
> groovy
> JUnitAssertionsTest
> JunitExample
v LibraryManagement
  v src/main/java
    v com.example
      > LibraryManagementApplication.ja
      v com.example.repository
        > BookRepository.java
      v com.example.service
        > BookService.java
    v src/main/resources
      applicationContext.xml
    v src/test/java
      > com.example
    > JRE System Library [JavaSE-1.8]
    > Maven Dependencies
    v src
      main
      test
    > target
    pom.xml
> mockito_test_project
> SingletonPatternExample

Console

```
<terminated> LibraryManagementApplication [Java Application] C:\Program Files\Java\jre1.8.0_202\bin\javaw.exe  (01-Jul-2025, 8:39:14 pm – 8:39:14 pm elapsed
BookService: Adding book - Spring in Action
```

```
[INFO]
[INFO] -------------------------------------------------------
[INFO]  T E S T S
[INFO] -------------------------------------------------------
[INFO] Running com.example.AppTest
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.032 s - in com.exampl
e.AppTest
[INFO]
[INFO] Results:
[INFO]
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0
[INFO]
[INFO]
[INFO] --- jar:3.4.1:jar (default-jar) @ LibraryManagement ---
[INFO] Building jar: C:\Users\Lenovo\eclipse-workspace\JDBC\LibraryManagement\target\LibraryMa
nagement-0.0.1-SNAPSHOT.jar
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  24.622 s
[INFO] Finished at: 2025-07-01T20:59:47+05:30
[INFO] ------------------------------------------------------------------------
```
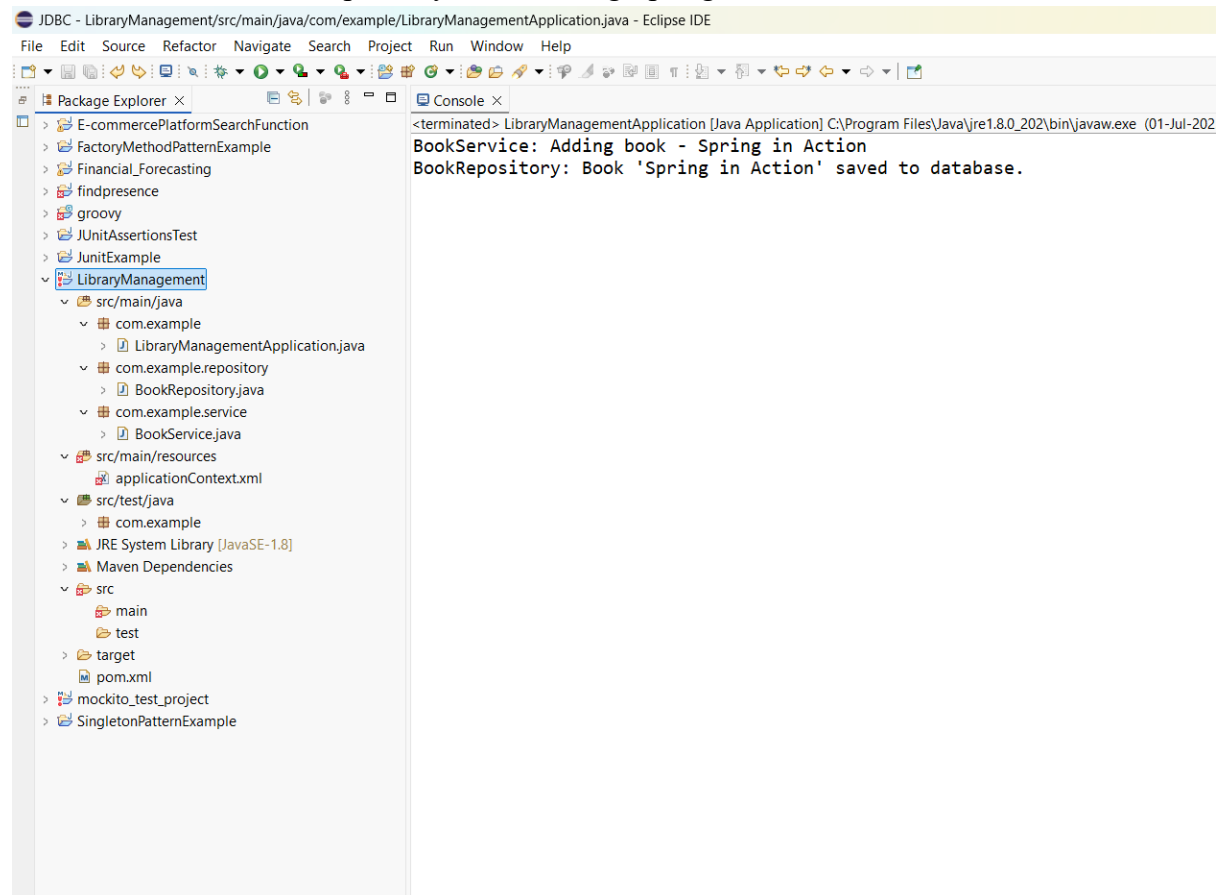
Exercise 2: Implementing Dependency Injection

Scenario:

In the library management application, you need to manage the dependencies between the BookService and BookRepository classes using Spring's IoC and DI.

```
C:\Users\Lenovo\eclipse-workspace\JDBC\LibraryManagement>mvn compile
[INFO] Scanning for projects...
[INFO]
[INFO] -------------------< com.example:LibraryManagement >--------------------
[INFO] Building LibraryManagement 0.0.1-SNAPSHOT
[INFO]    from pom.xml
[INFO] -------------------------------[ jar ]---------------------------------
[INFO]
[INFO] --- resources:3.3.1:resources (default-resources) @ LibraryManagement ---
[INFO] Copying 1 resource from src\main\resources to target\classes
[INFO]
[INFO] --- compiler:3.13.0:compile (default-compile) @ LibraryManagement ---
[INFO] Nothing to compile - all classes are up to date.
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  0.674 s
[INFO] Finished at: 2025-07-01T20:48:01+05:30
[INFO] ------------------------------------------------------------------------

C:\Users\Lenovo\eclipse-workspace\JDBC\LibraryManagement>
```

```
[INFO]
[INFO] -------------------------------------------------------
[INFO]  T E S T S
[INFO] -------------------------------------------------------
[INFO] Running com.example.AppTest
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.032 s - in com.exampl
e.AppTest
[INFO]
[INFO] Results:
[INFO]
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0
[INFO]
[INFO]
[INFO] --- jar:3.4.1:jar (default-jar) @ LibraryManagement ---
[INFO] Building jar: C:\Users\Lenovo\eclipse-workspace\JDBC\LibraryManagement\target\LibraryMa
nagement-0.0.1-SNAPSHOT.jar
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  24.622 s
[INFO] Finished at: 2025-07-01T20:59:47+05:30
[INFO] ------------------------------------------------------------------------
```

Exercise 4: Creating and Configuring a Maven Project

Scenario:

You need to set up a new Maven project for the library management application and add Spring dependencies.

Package Explorer

- E-commercePlatformSearchFunctio
- FactoryMethodPatternExample
- Financial_Forecasting
- findpresence
- groovy
- JUnitAssertionsTest
- JunitExample
- LibraryManagement
- LibraryManagements
  - src/main/java
    - com.example.LibraryManage
      - LibraryManagementsAppli
  - src/test/java
    - com.example.LibraryManage
      - AppTest.java
  - JRE System Library [JavaSE-1.8]
    - access-bridge-64.jar - C:\Prog
    - charsets.jar - C:\Program Files
    - cldrdata.jar - C:\Program Files
    - dnsns.jar - C:\Program Files\J
    - jaccess.jar - C:\Program Files\
    - jce.jar - C:\Program Files\Java
    - jfr.jar - C:\Program Files\Java\
    - jfxrt.jar - C:\Program Files\Jav
    - jsse.jar - C:\Program Files\Jav
    - localedata.jar - C:\Program Fi
    - nashorn.jar - C:\Program Files
    - resources.jar - C:\Program File
    - rt.jar - C:\Program Files\Java\
    - sunec.jar - C:\Program Files\Ja
    - sunjce_provider.jar - C:\Progr
    - sunmscapi.jar - C:\Program Fi
    - sunpkcs11.jar - C:\Program Fi
    - zipfs.jar - C:\Program Files\Ja
  - Maven Dependencies
    - apiguardian-api-1.1.2.jar - C:\

Terminal

```
C:\Users\Lenovo\eclipse-workspace\JDBC\LibraryManagements>mvn clean compile
[INFO] Scanning for projects...
[INFO]
[INFO] ------------------< com.example:LibraryManagements >--------------------
[INFO] Building LibraryManagements 0.0.1-SNAPSHOT
[INFO]   from pom.xml
[INFO] --------------------------------[ jar ]---------------------------------
[INFO]
[INFO] --- clean:3.2.0:clean (default-clean) @ LibraryManagements ---
[INFO] Deleting C:\Users\Lenovo\eclipse-workspace\JDBC\LibraryManagements\target
[INFO]
[INFO] --- resources:3.3.1:resources (default-resources) @ LibraryManagements --
-
[WARNING] Using platform encoding (UTF-8 actually) to copy filtered resources, i
.e. build is platform dependent!
[INFO] skip non existing resourceDirectory C:\Users\Lenovo\eclipse-workspace\JDB
C\LibraryManagements\src\main\resources
[INFO]
[INFO] --- compiler:3.8.1:compile (default-compile) @ LibraryManagements ---
[INFO] Changes detected - recompiling the module!
[WARNING] File encoding has not been set, using platform encoding UTF-8, i.e. bu
ild is platform dependent!
[INFO] Compiling 1 source file to C:\Users\Lenovo\eclipse-workspace\JDBC\Library
Managements\target\classes
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  1.909 s
[INFO] Finished at: 2025-07-02T19:47:42+05:30
[INFO] ------------------------------------------------------------------------

C:\Users\Lenovo\eclipse-workspace\JDBC\LibraryManagements>mvn validate
[INFO] Scanning for projects...
[INFO]
[INFO] ------------------< com.example:LibraryManagements >--------------------
[INFO] Building LibraryManagements 0.0.1-SNAPSHOT
[INFO]   from pom.xml
```

Package Explorer

- E-commercePlatformSearchFunctio
- FactoryMethodPatternExample
- Financial_Forecasting
- findpresence
- groovy
- JUnitAssertionsTest
- JunitExample
- LibraryManagement
- LibraryManagements
  - src/main/java
    - com.example.LibraryManage
      - LibraryManagementsAppli
  - src/test/java
    - com.example.LibraryManage
      - AppTest.java
  - JRE System Library [JavaSE-1.8]
    - access-bridge-64.jar - C:\Prog
    - charsets.jar - C:\Program Files
    - cldrdata.jar - C:\Program Files
    - dnsns.jar - C:\Program Files\J
    - jaccess.jar - C:\Program Files\
    - jce.jar - C:\Program Files\Java
    - jfr.jar - C:\Program Files\Java\
    - jfxrt.jar - C:\Program Files\Jav
    - jsse.jar - C:\Program Files\Jav
    - localedata.jar - C:\Program Fi
    - nashorn.jar - C:\Program Files
    - resources.jar - C:\Program File
    - rt.jar - C:\Program Files\Java\
    - sunec.jar - C:\Program Files\Ja
    - sunjce_provider.jar - C:\Progr
    - sunmscapi.jar - C:\Program Fi
    - sunpkcs11.jar - C:\Program Fi
    - zipfs.jar - C:\Program Files\Ja
  - Maven Dependencies
    - apiguardian-api-1.1.2.jar - C:\

Terminal

```
[INFO] ------------------------------------------------------------------------

C:\Users\Lenovo\eclipse-workspace\JDBC\LibraryManagements>mvn validate
[INFO] Scanning for projects...
[INFO]
[INFO] ------------------< com.example:LibraryManagements >--------------------
[INFO] Building LibraryManagements 0.0.1-SNAPSHOT
[INFO]   from pom.xml
[INFO] --------------------------------[ jar ]---------------------------------
[INFO]
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  0.137 s
[INFO] Finished at: 2025-07-02T19:47:56+05:30
[INFO] ------------------------------------------------------------------------

C:\Users\Lenovo\eclipse-workspace\JDBC\LibraryManagements>mvn verify
[INFO] Scanning for projects...
[INFO]
[INFO] ------------------< com.example:LibraryManagements >--------------------
[INFO] Building LibraryManagements 0.0.1-SNAPSHOT
[INFO]   from pom.xml
[INFO] --------------------------------[ jar ]---------------------------------
[INFO]
[INFO] --- resources:3.3.1:resources (default-resources) @ LibraryManagements --
-
[WARNING] Using platform encoding (UTF-8 actually) to copy filtered resources, i
.e. build is platform dependent!
[INFO] skip non existing resourceDirectory C:\Users\Lenovo\eclipse-workspace\JDB
C\LibraryManagements\src\main\resources
[INFO]
[INFO] --- compiler:3.8.1:compile (default-compile) @ LibraryManagements ---
[INFO] Nothing to compile - all classes are up to date
[INFO]
[INFO] --- resources:3.3.1:testResources (default-testResources) @ LibraryManage
ments ---
[WARNING] Using platform encoding (UTF-8 actually) to copy filtered resources, i
```

Package Explorer

Terminal

C:\WINDOWS\system32\cmd.exe   C:\WINDOWS\system32\cmd.exe

```
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0
[INFO]
[INFO]
[INFO] --- jar:3.4.1:jar (default-jar) @ LibraryManagements ---
[INFO] Building jar: C:\Users\Lenovo\eclipse-workspace\JDBC\LibraryManagements\t
arget\LibraryManagements-0.0.1-SNAPSHOT.jar
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  5.943 s
[INFO] Finished at: 2025-07-02T19:48:15+05:30
[INFO] ------------------------------------------------------------------------

C:\Users\Lenovo\eclipse-workspace\JDBC\LibraryManagements>mvn test
[INFO] Scanning for projects...
[INFO]
[INFO] ------------------< com.example:LibraryManagements >-------------------
[INFO] Building LibraryManagements 0.0.1-SNAPSHOT
[INFO]   from pom.xml
[INFO] --------------------------------[ jar ]---------------------------------
[INFO]
[INFO] --- resources:3.3.1:resources (default-resources) @ LibraryManagements --
-
[WARNING] Using platform encoding (UTF-8 actually) to copy filtered resources, i
.e. build is platform dependent!
[INFO] skip non existing resourceDirectory C:\Users\Lenovo\eclipse-workspace\JDB
C\LibraryManagements\src\main\resources
[INFO]
[INFO] Nothing to compile - all classes are up to date
[INFO]
[INFO] --- resources:3.3.1:testResources (default-testResources) @ LibraryManagements ---
[WARNING] Using platform encoding (UTF-8 actually) to copy filtered resources, i.e. build is platform dependent!
[INFO] skip non existing resourceDirectory C:\Users\Lenovo\eclipse-workspace\JDBC\LibraryManagements\src\test\resources
[INFO]
[INFO] --- compiler:3.8.1:testCompile (default-testCompile) @ LibraryManagements ---
[INFO] Nothing to compile - all classes are up to date
[INFO]
```

Package Explorer

Terminal

C:\WINDOWS\system32\cmd.exe   C:\WINDOWS\system32\cmd.exe

```
[WARNING] Using platform encoding (UTF-8 actually) to copy filtered resources, i
.e. build is platform dependent!
[INFO] skip non existing resourceDirectory C:\Users\Lenovo\eclipse-workspace\JDB
C\LibraryManagements\src\main\resources
[INFO]
[INFO] Nothing to compile - all classes are up to date
[INFO]
[INFO] --- resources:3.3.1:testResources (default-testResources) @ LibraryManagements ---
[WARNING] Using platform encoding (UTF-8 actually) to copy filtered resources, i.e. build is platform dependent!
[INFO] skip non existing resourceDirectory C:\Users\Lenovo\eclipse-workspace\JDBC\LibraryManagements\src\test\resources
[INFO]
[INFO] --- compiler:3.8.1:testCompile (default-testCompile) @ LibraryManagements ---
[INFO] Nothing to compile - all classes are up to date
[INFO]
[INFO] --- surefire:3.2.5:test (default-test) @ LibraryManagements ---
[INFO] Using auto detected provider org.apache.maven.surefire.junitplatform.JUnitPlatformProvider
[INFO]
[INFO] -------------------------------------------------------
[INFO]  T E S T S
[INFO] -------------------------------------------------------
[INFO] Running com.example.LibraryManagements.AppTest
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.045 s -- in com.example.LibraryManagements.AppTest
[INFO]
[INFO] Results:
[INFO]
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0
[INFO]
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  2.732 s
[INFO] Finished at: 2025-07-02T19:48:25+05:30
[INFO] ------------------------------------------------------------------------

C:\Users\Lenovo\eclipse-workspace\JDBC\LibraryManagements>
```