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] --- resources:3.3.1:resources (default-resources) @ LibraryManagement ---
[INFO] Copying 1 resource from src\main\resources to target\classes
[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[WARNING] source value 8 is obsolete and will be removed in a future release
[WARNING] target value 8 is obsolete and will be removed in a future release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>

```
JDBC - LibraryManagement/src/main/java/com/example/LibraryManagementApplication.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
₱ | Package Explorer × | E S | P B | E Console ×
                                       **Cerminated> LibraryManagementApplication [Java Application] C\Program Files\Java\jre1.80_202\bin\javaw.exe (01-Jul-2025, 8:39:14 pm = 8:39:14 pm elapsed BookService: Adding book - Spring in Action
> 😂 FactoryMethodPatternExample
   > $\mathbb{E}$ Financial_Forecasting
   > 🔂 findpresence
   > 🥵 groovy
   > 🔀 JUnitAssertionsTest
   > 🐸 JunitExample
  v 👺 LibraryManagement

⇒ LibraryManagementApplication.ia

→ # com.example.repository

          > 🗓 BookRepository.java

→ # com.example.service

          > Deli BookService.java

→ 

## src/main/resources

    ■ applicationContext.xml

     > # com.example
     → M JRE System Library [JavaSE-1.8]
     > Maven Dependencies

→ 

B→ src

        ⊕ main

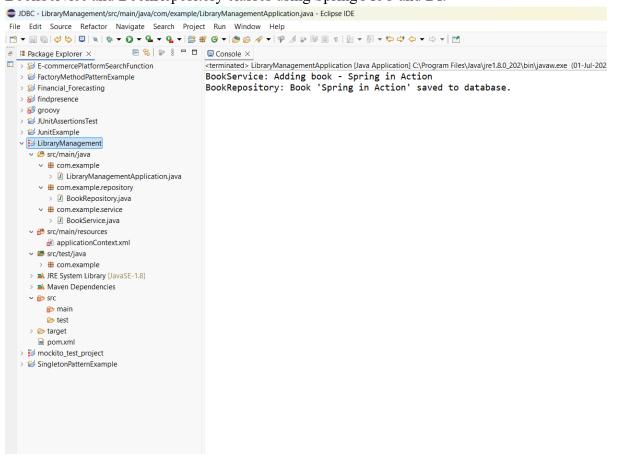
 test
       mx.mog
   > 👺 mockito_test_project
   > 😂 SingletonPatternExample
```

```
[INFO]
[INFO] ------
[INFO] TESTS
[INFO] ------
[INFO] Running com.example.AppTest
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.032 s - in com.exampl
⊇.AppTest
[INFO]
[INFO] Results:
[INFO]
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0
[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] --- 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] TESTS
[INFO] ------
[INFO] Running com.example.AppTest
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.032 s - in com.exampl
.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
```

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.

```
□ □ Jerminal ×
₽ Package Explorer ×
                            E 🕏 🝃 🖁
                                          C\WINDOWS\svstem32\cmd.exe
    > 👺 E-commercePlatformSearchFunctio
                                          C:\Users\Lenovo\eclipse-workspace\JDBC\LibraryManagements>mvn clean compile
     FactoryMethodPatternExample
                                          [INFO] Scanning for projects..
      Financial_Forecasting
                                           INFO
      [INFO] ------ com.example:LibraryManagements >------
     [INFO] Building LibraryManagements 0.0.1-SNAPSHOT
                                          [INFO]
                                                     from pom.xml

□ JunitExample

      LibraryManagement
                                           [INFO]
    [INFO] --- clean:3.2.0:clean (default-clean) @ LibraryManagements ---

→ B src/main/java

                                           [INFO] Deleting C:\Users\Lenovo\eclipse-workspace\JDBC\LibraryManagements\target

w the com.example.LibraryManage

            LibraryManagementsAppli
                                          [INFO] --- resources: 3.3.1: resources (default-resources) @ LibraryManagements --

y 

src/test/iava

                                                     G] Using platform encoding (UTF-8 actually) to copy filtered resources, i
                                          TWAR
            > AppTest.iava
                                           e. build is platform dependent!
                                          [INFO] skip non existing resourceDirectory C:\Users\Lenovo\eclipse-workspace\JDB C\LibraryManagements\src\main\resources

✓ ■ JRE System Library [JavaSE-1.8]

          access-bridge-64.iar - C:\Pro
           🗟 charsets.jar - C:\Program File
                                          [INFO]
                                           [INFO]
                                          [INFO] --- compiler:3.8.1:compile (default-compile) @ LibraryManagements --- [INFO] Changes detected - recompiling the module!
         > A cldrdata.iar - C:\Program File
                                                      File encoding has not been set, using platform encoding UTF-8, i.e. bu
          iaccess.iar - C:\Program Files\
                                          [WARNING] File encoding has ild is platform dependent!
           jce.jar - C:\Program Files\Java
                                           [INFO] Compiling 1 source file to C:\Users\Lenovo\eclipse-workspace\JDBC\Library
          ifr.jar - C:\Program Files\Java

ifxrt.jar - C:\Program Files\Jav

in particular - C:\Program File
                                          Managements\target\classes
           isse.jar - C:\Program Files\Jav
                                           [INFO]
           ocaledata.jar - C:\Program Fi
                                          [INFO] BUILD SUCCESS
                                          [INFO]
           anashorn.jar - C:\Program Files

■ resources.jar - C:\Program File

                                          [INFO] Total time: 1.909 s

☐ rt.jar - C:\Program Files\Java\

                                          [INFO] Finished at: 2025-07-02T19:47:42+05:30

■ sunec.jar - C:\Program Files\Ja

           sunjce_provider.jar - C:\Progra
           sunmscapi.jar - C:\Program Fi
                                          C:\Users\Lenovo\eclipse-workspace\JDBC\LibraryManagements>mvn validate
           sunpkcs11.jar - C:\Program Fil
                                          [INFO] Scanning for projects...
           a zipfs.iar - C:\Program Files\Ja

■ Maven Dependencies

                                          [INFO] ------ com.example:LibraryManagements >-----
         > 👼 apiguardian-api-1.1.2.jar - C:\
                                           [INFO] Building LibraryManagements 0.0.1-SNAPSHOT
                                          [INFO] from pom.xml
File Edit Source Refactor Navigate Search Project Run Window Help
□ □ 🐉 Terminal ×
   □ Package Explorer ×
                             E S P S C\WINDOWS\system32\cmd.exe ☐ C\WINDOWS\system32\cmd.exe ×
    > 😂 E-commercePlatformSearchFunctio
                                             [INFO] ----
    > 🐸 FactoryMethodPatternExample
     Financial Forecasting
                                             C:\Users\Lenovo\eclipse-workspace\JDBC\LibraryManagements>mvn validate
     [INFO] Scanning for projects...
    > 👺 groovy
                                              [INFO]
                                             [INFO] ------ com.example:LibraryManagements >-----
      [INFO] Building LibraryManagements 0.0.1-SNAPSHOT
                                             [INFO] from pom.xml [INFO] -----[jar]------[jar]-------
     LibraryManagement
    [INFO]
         v # com.example.LibraryManager
                                              [INFO] BUILD SUCCESS

    LibraryManagementsAppli

                                              [INFO] -----
      [INFO] Total time: 0.137 s
         # com.example.l ibraryManager
                                              [INFO] Finished at: 2025-07-02T19:47:56+05:30
            > 

AppTest.java
                                             [INFO] -----
       access-bridge-64.jar - C:\Prod
                                             C:\Users\Lenovo\eclipse-workspace\JDBC\LibraryManagements>mvn verify
            dharsets.jar - C:\Program Files
                                             [INFO] Scanning for projects...
           didrdata.jar - C:\Program File:
                                             [INFO]
                                                        ----- com.example:LibraryManagements >-----
         dnsns.iar - C:\Program Files\J.
                                              [INFO]
           ■ jaccess.jar - C:\Program Files\
                                             [INFO] Building LibraryManagements 0.0.1-SNAPSHOT

    jce.jar - C:\Program Files\Java

                                             [INFO]
                                                        from pom.xml
                                              [INFO] ------
           ifr.iar - C:\Program Files\Java
           ☐ jfxrt.jar - C:\Program Files\Jav
                                             [INFO]
           isse.jar - C:\Program Files\Jav
                                             [INFO] --- resources:3.3.1:resources (default-resources) @ LibraryManagements --
           ■ localedata.iar - C\Program Fi
           anashorn.jar - C:\Program Files
                                             [WARNING] Using platform encoding (UTF-8 actually) to copy filtered resources, i

    resources.jar - C:\Program File

                                              .e. build is platform dependent!
           rt.iar - C:\Program Files\Java\
                                             [INFO] skip non existing resourceDirectory C:\Users\Lenovo\eclipse-workspace\JDB

    sunec.jar - C:\Program Files\J

                                             C\LibraryManagements\src\main\resources
           sunjce_provider.jar - C:\Progra
                                             [INFO]
           sunmscapi.jar - C:\Program Fi
                                              [INFO]
                                                        --- compiler:3.8.1:compile (default-compile) @ LibraryManagements ---
           sunpkcs11.jar - C:\Program Fil
                                              [INFO] Nothing to compile - all classes are up to date
           ■ zipfs.jar - C:\Program Files\Ja
                                              INFO

    Mayen Dependencies

                                             [INFO] --- resources:3.3.1:testResources (default-testResources) @ LibraryManage
         > 👼 apiguardian-api-1.1.2.jar - C:\
                                             [WARNING] Using platform encoding (UTF-8 actually) to copy filtered resources, i
```

```
File Edit Source Refactor Navigate Search Project Run Window Help
# Package Explorer × □ □

# Sq. | # 8
                                                                Terminal ×

CywiNDOWS\system32\cmd.exe □ C\WINDOWS\system32\cmd.exe ×

[INFO] Tests run: 1, Failures: θ, Errors: θ, Skipped: θ
                                                                                                                                                                                                                                                                                                                                                                                                               □ №
         FactoryMethodPatternExample
         Financial_Forecasting
                                                                              [TNFO]
                                                                              € findpresence
        [INFO] ------[INFO] BUILD SUCCESS
      INFO
                                                                           [INFO] Total time: 5.943 s
[INFO] Finished at: 2025-07-0
[INFO] ------

√ 

Ø src/main/iava

                                                                                               Total time: 5.943 s
Finished at: 2025-07-02T19:48:15+05:30

☑ LibraryManagementsAppli

             C:\Users\Lenovo\eclipse-workspace\JDBC\LibraryManagements>mvn test
                                                                              [INFO] Scanning for projects...

✓ M JRE System Library [JavaSE-1.8]

                  | Nk bystem Uprary Javabs-1-8] | TINFO] | Gaccess-bridge-64jar - CAProgram Files | Gloridatajar - CAProgram Files | Gloridatajar - CAProgram Files | Gloridatajar - CAProgram Files | Gaccessjar - CAProgram Files | Gacc
                   [INFO] skip non existing resourceDirectory C:\Users\Lenovo\eclipse-workspace\JDB C\LibraryManagements\src\main\resources

    nashorn.jar - C:\Program Files
    resources.jar - C:\Program File

                                                                            [INFO]
[INFO] Nothing to compile - all classes are up to date
[INFO]
[INFO] --- resources:3.3.1:testResources (default-testResources)

    resources,jar - C\Program File
    rt,jar - C\Program Files\),i
    sunec,jar - C\Program Files\),i
    sunjce_provider,jar - C\Program Files
    sunmscapi,jar - C\Program File
    sunpkcs11,jar - C\Program File

                                                                            [INFO] --- resources:3.3.1:testResources (default-testResources) @ LibraryManagements --- [MARXING] 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]
                    E zipfs.jar - C:\Program Files\Ja
                                                                           [INFO] --- compiler:3.8.1:testCompile (default-testCompile) @ LibraryManagements ---
[INFO] Nothing to compile - all classes are up to date
[INFO]

→ Mayen Dependencies

               > 📠 apiguardian-api-1.1.2.jar - C:\
File Edit Source Refactor Navigate Search Project Run Window Help
₽ № | ∰
       E-commercePlatformSearchFunctio
                                                                                              [6] Using platform encoding (UTF-8 actually) to copy filtered resources, i
                                                                          [INFO] skip non existing resourceDirectory C:\Users\Lenovo\eclipse-workspace\JDB C\LibraryManagements\src\main\resources
         Financial_Forecasting
         groovy

JUnitAssertionsTest
          Nothing to compile - all classes are up to date

    □ LibraryManagement
    □ LibraryManagements
                                                                           [INFO]
[INFO] --- resources:3.3.1:testResources (default-testResources) @ LibraryManagements ---
[MARNING] 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

    LibraryManagementsAppl

                                                                                             --- compiler:3.8.1:testCompile (default-testCompile) @ LibraryManagements --- Nothing to compile - all classes are up to date
               --- surefire:3.2.5:test (default-test) @ LibraryManagements --- Using auto detected provider org.apache.maven.surefire.junitplatform.JUnitPlatformProvider
                                                                             ÎINF
                                                                                                             Jaccess.jar - C:\Program Files
                                                                            TINE
                  ice.iar - C:\Program Files\Java
                                                                                            Running com.example.LibraryManagements.AppTest
Tests run: 1, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.045 s -- in com.example.LibraryManagements.AppTest

    ifcijar - C\Program Files\Java jfrijar - C\Program Files\Java jfrijar - C\Program Files\Java jissejar - C\Program Files\Jav localedata.jar - C\Program Files\Jav localedata.jar - C\Program Files\Jav localedata.jar - C\Program Files\Jav localedata.jar - C\Program Files\Java localedata.jar - C\P
                                                                            [INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0
                   resources.jar - C:\Program File
                                                                             INFO
                   Frijar - C:\Program Files\Java\
                                                                             INFO
                                                                                              _____
                   sunec.jar - C:\Program Files\Ji
                                                                                            BUILD SUCCESS
                                                                                 sunjce_provider.jar - C:\Progr
```