Spring Core, Maven
WEEK 3

Superset ID: 6425093

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.

Book Repository.java

```
package com.library.repository;

public class BookRepository {
    public void saveBook(String bookName) {
        System.out.println("Book saved: " + bookName);
    }
}
```

Book Service.java

```
package com.library.service;

import com.library.repository.BookRepository;

public class BookService {
    private BookRepository bookRepository;

    public void setBookRepository(BookRepository bookRepository) {
        this.bookRepository = bookRepository;
    }

    public void addBook(String bookName) {
        System.out.println("Adding book to library: " + bookName);
        bookRepository.saveBook(bookName);
    }
```

```
}
```

Main.app

```
package com.library;

import com.library.service.BookService;
import org.springframework.context.ApplicationContext;
import
org.springframework.context.support.ClassPathXmlApplicationContext;

public class MainApp {
   public static void main(String[] args) {
      ApplicationContext context = new
ClassPathXmlApplicationContext("applicationContext.xml");
      BookService bookService = (BookService)
context.getBean("bookService");
      bookService.addBook("Spring in Action");
   }
}
```

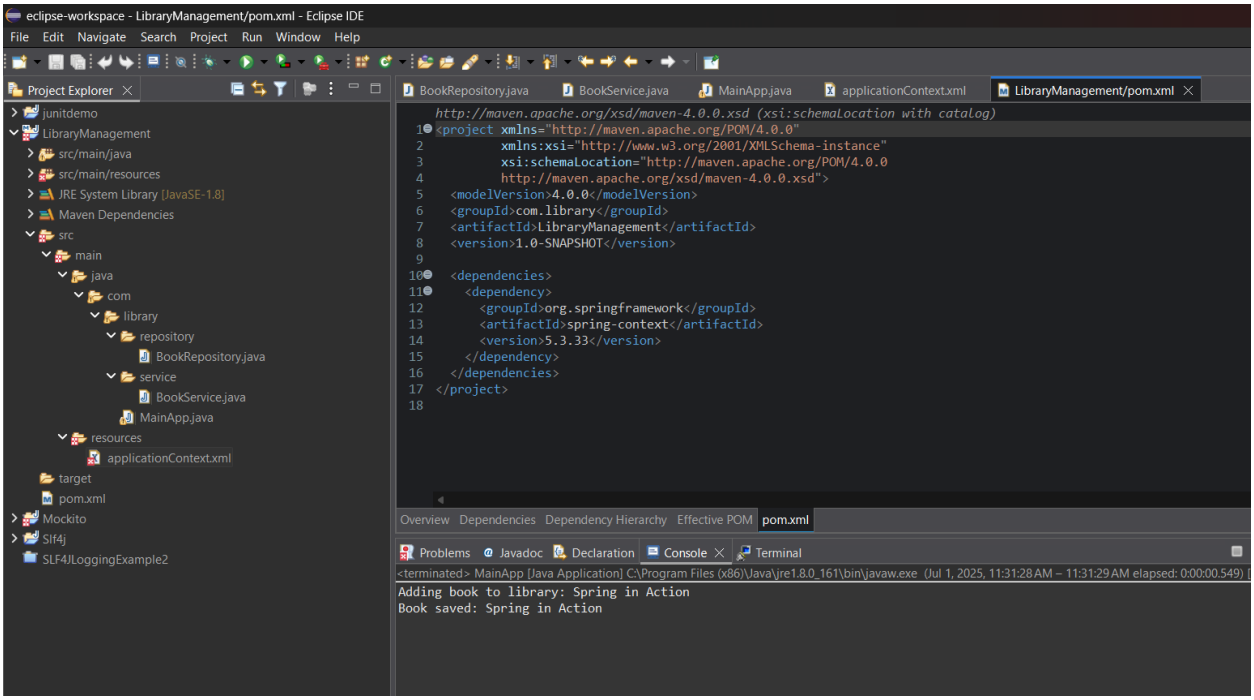
Pom.Xml

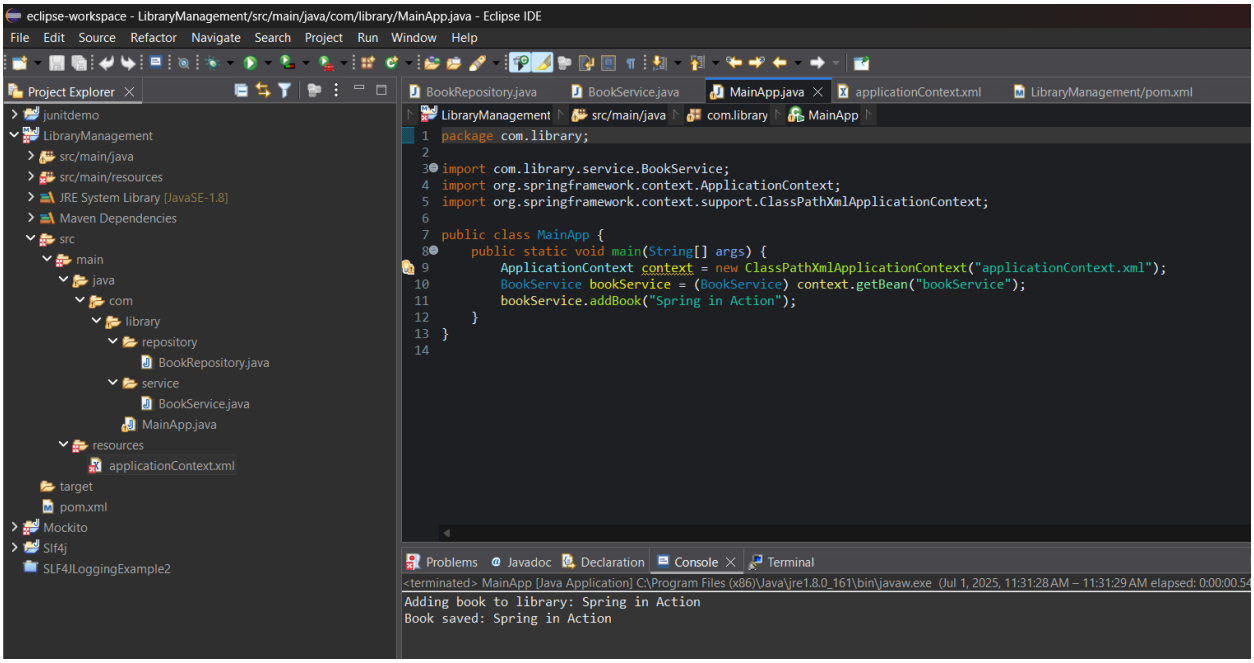
```
<project xmlns="http://maven.apache.org/POM/4.0.0"
        xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
        xsi:schemaLocation="http://maven.apache.org/POM/4.0.0
        http://maven.apache.org/xsd/maven-4.0.0.xsd">
  <modelVersion>4.0.0</modelVersion>
  <groupId>com.library</groupId>
  <artifactId>LibraryManagement</artifactId>
  <version>1.0-SNAPSHOT</version>

  <dependencies>
```

```
    <dependency>
      <groupId>org.springframework</groupId>
      <artifactId>spring-context</artifactId>
      <version>5.3.33</version>
    </dependency>
  </dependencies>
</project>
```

Output:





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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.

Book Service.java

```
package com.library.service;

import com.library.repository.BookRepository;

public class BookService {
    private BookRepository bookRepository;

    // Setter method for Dependency Injection
    public void setBookRepository(BookRepository bookRepository) {
        this.bookRepository = bookRepository;
        System.out.println("BookRepository injected via setter.");
    }

    public void addBook(String bookName) {
        System.out.println("Adding book to library: " + bookName);
        bookRepository.saveBook(bookName);
    }
}
```

Book Repository.java

```
package com.library.repository;
```

```
public class BookRepository {
   public void saveBook(String bookName) {
      System.out.println("Book saved: " + bookName);
   }
}
```

Application Context.xml

```
<?xml version="1.0" encoding="UTF-8"?>
<beans xmlns="http://www.springframework.org/schema/beans"
      xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"

xsi:schemaLocation="http://www.springframework.org/schema/beans
                    http://www.springframework.org/schema/beans/spring-
beans.xsd">

   <bean id="bookRepository"
class="com.library.repository.BookRepository"/>

   <bean id="bookService" class="com.library.service.BookService">
      <property name="bookRepository" ref="bookRepository"/>
   </bean>

</beans>
```

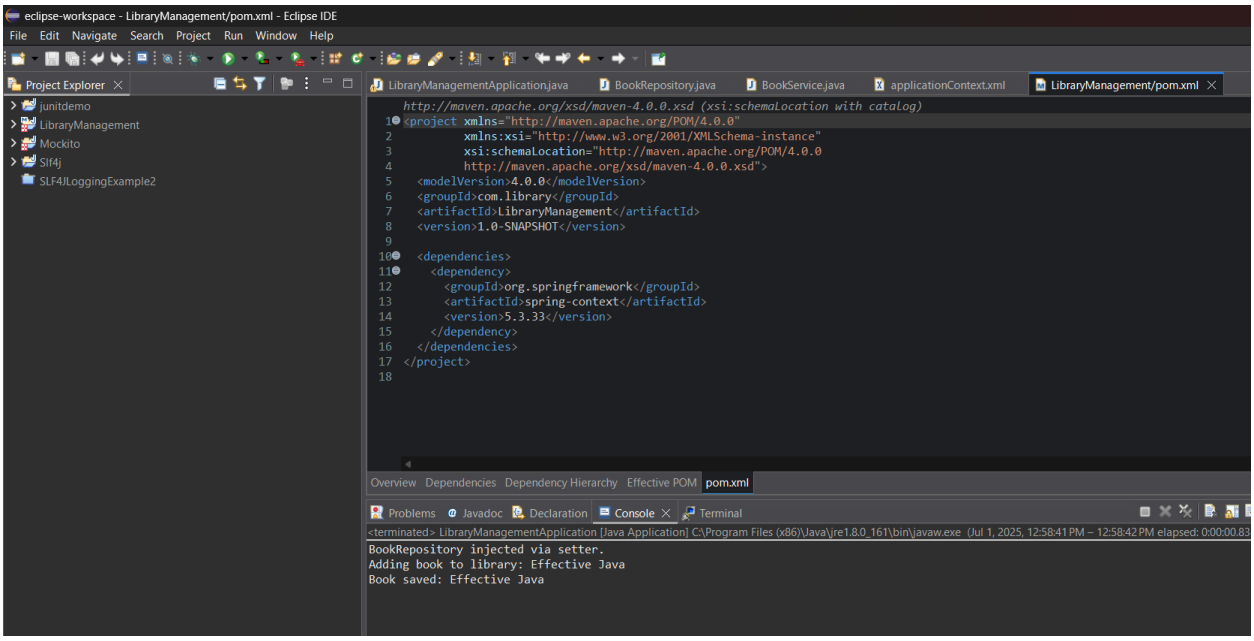
Library Management Application.java

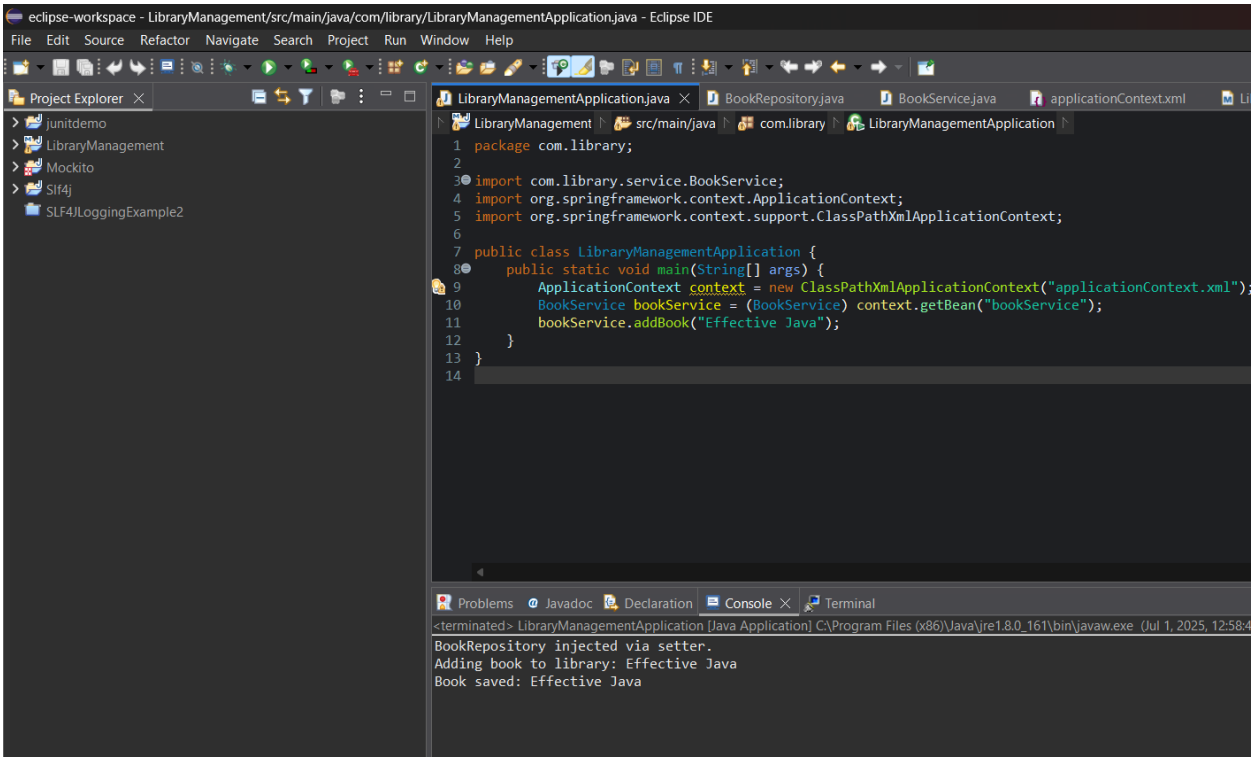
```
package com.library;

import com.library.service.BookService;
import org.springframework.context.ApplicationContext;
import
org.springframework.context.support.ClassPathXmlApplicationContext;
```

```
public class LibraryManagementApplication {
    public static void main(String[] args) {
        ApplicationContext context = new
ClassPathXmlApplicationContext("applicationContext.xml");
        BookService bookService = (BookService)
context.getBean("bookService");
        bookService.addBook("Effective Java");
    }
}
```

Output:





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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.

Library management Pom.xml

```
<project xmlns="http://maven.apache.org/POM/4.0.0"
        xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
        xsi:schemaLocation="http://maven.apache.org/POM/4.0.0
                        http://maven.apache.org/xsd/maven-4.0.0.xsd">

    <modelVersion>4.0.0</modelVersion>

    <groupId>com.library</groupId>
    <artifactId>LibraryManagement</artifactId>
    <version>1.0-SNAPSHOT</version>
    <packaging>jar</packaging>

    <name>LibraryManagement</name>

    <properties>
        <java.version>1.8</java.version>
        <spring.version>5.3.30</spring.version>
    </properties>

    <dependencies>

        <dependency>
            <groupId>org.springframework</groupId>
            <artifactId>spring-context</artifactId>
```

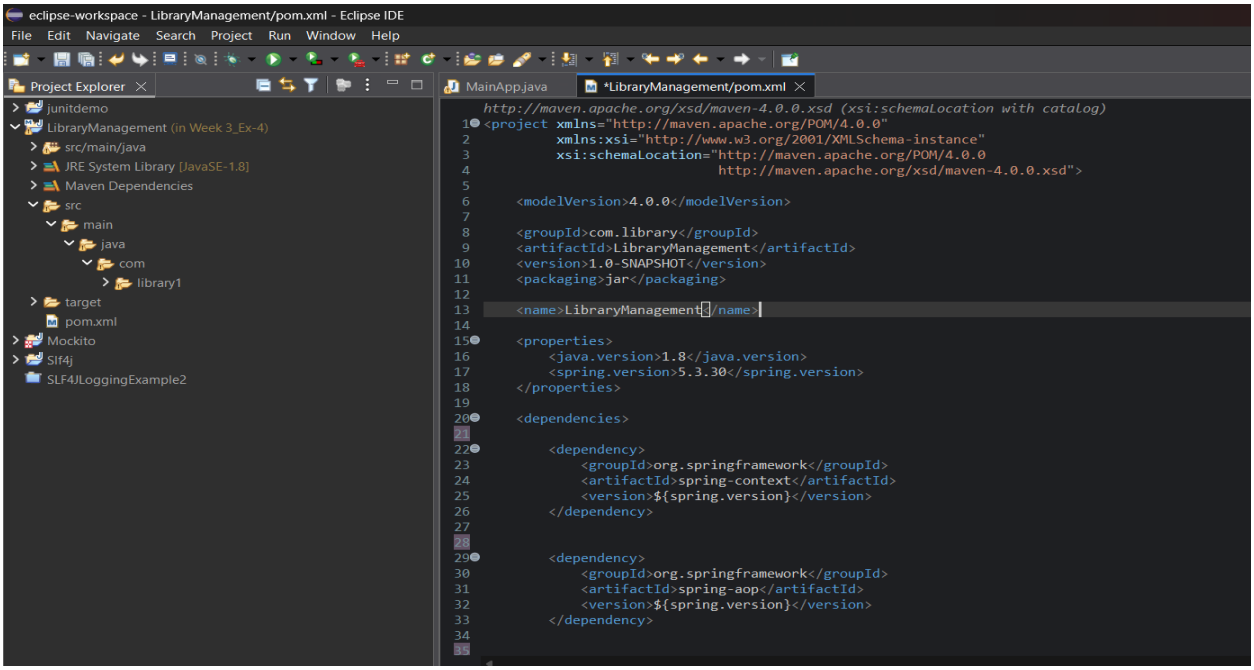
```
        <version>${spring.version}</version>
    </dependency>

    <dependency>
        <groupId>org.springframework</groupId>
        <artifactId>spring-aop</artifactId>
        <version>${spring.version}</version>
    </dependency>

    <dependency>
        <groupId>org.springframework</groupId>
        <artifactId>spring-webmvc</artifactId>
        <version>${spring.version}</version>
    </dependency>

    <dependency>
        <groupId>commons-logging</groupId>
        <artifactId>commons-logging</artifactId>
        <version>1.2</version>
    </dependency>
</dependencies>

<build>
    <plugins>

        <plugin>
            <groupId>org.apache.maven.plugins</groupId>
            <artifactId>maven-compiler-plugin</artifactId>
            <version>3.8.1</version>
            <configuration>
                <source>1.8</source>
```

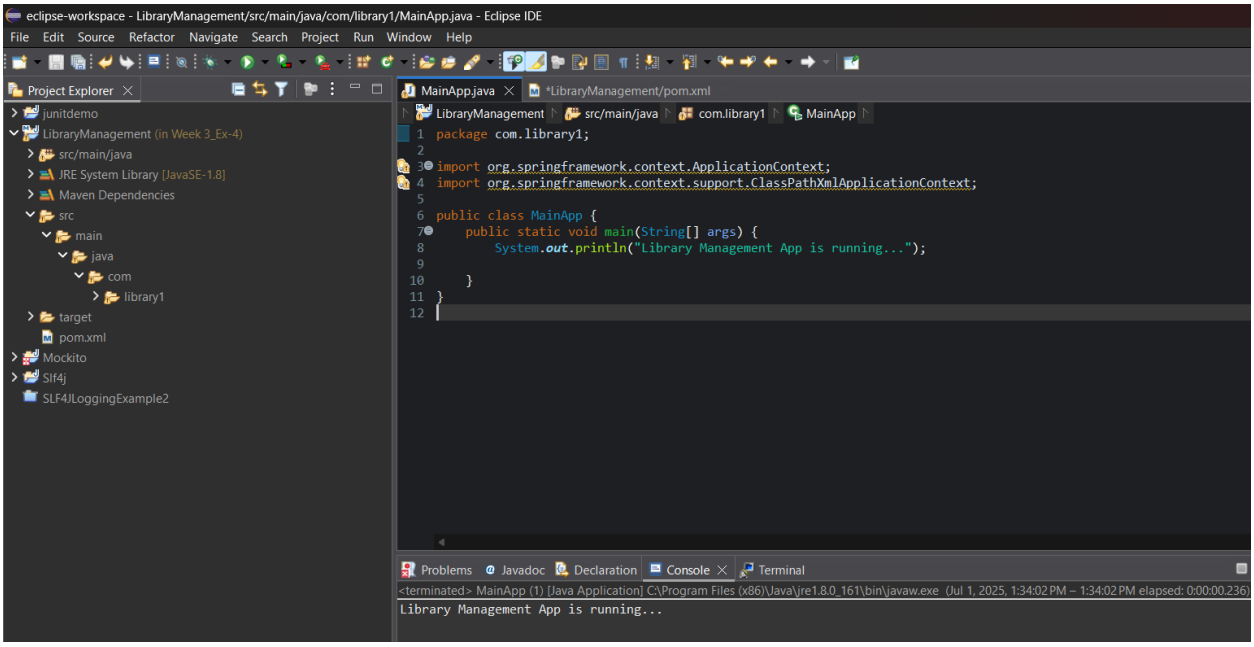
```
                <target>1.8</target>
            </configuration>
        </plugin>
    </plugins>
</build>

</project>
```

MainApp.java

```
package com.library1;

import org.springframework.context.ApplicationContext;
import
org.springframework.context.support.ClassPathXmlApplicationContext;

public class MainApp {
    public static void main(String[] args) {
        System.out.println("Library Management App is running...");

    }
}
```

Output:





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