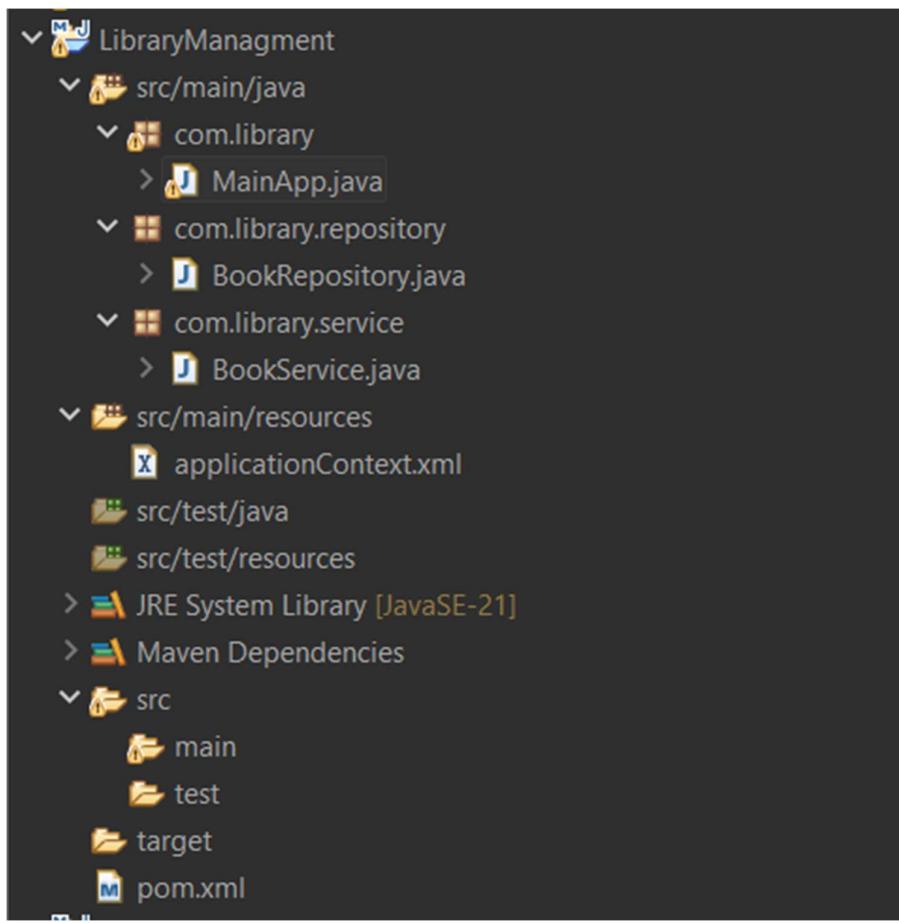


# Implementing Dependency Injection in a Library Management Application

## Objective:

To implement setter-based Dependency Injection using **Spring's IoC container** in a simple library management application, where BookService depends on BookRepository

### Project File Structure



## Explanation of Changes

### BookService.java

The BookService class contains a setter method for injecting the BookRepository dependency and a method issueBook(String) to simulate issuing a book.

```
package com.library.service;

import com.library.repository.BookRepository;

public class BookService {
    private BookRepository bookRepository;

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

    // Business method
    public void issueBook(String bookName) {
        System.out.println("Issuing book: " + bookName);
        bookRepository.save(bookName);
    }
}
```

### BookRepository.java

Provides a save() method that prints the book name being saved to simulate storage logic.

```
package com.library.repository;

public class BookRepository {
    public void save(String bookName) {
        System.out.println("Saving book: " + bookName);
    }
}
```

## **applicationContext.xml**

Wires the BookService and BookRepository beans using setter injection.

```
<?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>
```

## **MainApp.java**

Loads the Spring application context, retrieves the bookService bean, and calls issueBook().

```
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.issueBook("Kimestu no Yabi (Manga)");
    }
}
```

## **Output from Console**

```
Console ×
<terminated> MainApp [Java Application] C:\Users\chait\p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_2
Issuing book: Kimetsu no Yabi (Manga)
Saving book: Kimetsu no Yabi (Manga)
```