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.

**1. Modify the XML Configuration:**

* Update applicationContext.xml to wire BookRepository into BookService.

<?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

https://www.springframework.org/schema/beans/spring-beans.xsd">

<!-- Define BookRepository bean -->

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

<!-- Wire BookRepository into BookService using setter injection -->

<bean id="bookService" class="com.library.service.BookService">

<property name="bookRepository" ref="bookRepository"/>

</bean>

</beans>

**2. Update the BookService Class:**

* Ensure that BookService class has a setter method for BookRepository.

package com.library.service;

import com.library.repository.BookRepository;

public class BookService {

private BookRepository bookRepository; // Dependency

// Setter method for DI

public void setBookRepository(BookRepository bookRepository) {

this.bookRepository = bookRepository;

}

public String getBookDetails(String isbn) {

return bookRepository.getBookInfo(isbn);

}

}

**3. Test the Configuration:**

* Run the LibraryManagementApplication main class to verify the dependency injection.

package com.library.main;

import org.springframework.context.ApplicationContext;

import org.springframework.context.support.ClassPathXmlApplicationContext;

import com.library.service.BookService;

public class LibraryApplication {

public static void main(String[] args) {

ApplicationContext context = new ClassPathXmlApplicationContext("applicationContext.xml");

BookService bookService = context.getBean("bookService", BookService.class);

// Test DI

String result = bookService.getBookDetails("978-3-16-148410-0");

System.out.println(result);

((ClassPathXmlApplicationContext) context).close();

}

}

**OUTPUT:**

