**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.

**Steps:**

1. **Modify the XML Configuration:**
   * Update **applicationContext.xml** to wire **BookRepository** into **BookService**.

**applicationContext.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">

<!-- BookRepository Bean -->

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

<!-- BookService Bean with Dependency Injection -->

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

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

</bean>

</beans>

1. **Update the BookService Class:**
   * Ensure that **BookService** class has a setter method for **BookRepository**.

**BookService.java :**

package com.library.service;

import org.springframework.beans.factory.annotation.Autowired;

import org.springframework.stereotype.Service;

import com.library.repository.BookRepository;

*@Service*

public class BookService {

private final BookRepository bookRepository;

*@Autowired* // constructor injection

public BookService(BookRepository bookRepository) {

this.bookRepository = bookRepository;

}

public String displayService() {

return "BookService: Service is working...\n" + bookRepository.displayRepo();

}

}

**BookRepository.java :**

package com.library.repository;

import org.springframework.stereotype.Repository;

*@Repository*

public class BookRepository {

public String displayRepo() {

return "BookRepository: Fetching book data...";

}

}

3.**Test the Configuration:**

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

**LibraryManagementApplication,java :**

package com.library;

import org.springframework.boot.SpringApplication;

import org.springframework.boot.autoconfigure.SpringBootApplication;

*@SpringBootApplication*

public class LibraryManagementApplication {

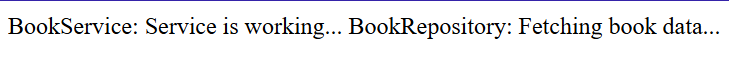
public static void main(String[] args) {

SpringApplication.*run*(LibraryManagementApplication.class, args);

}

}

**OUTPUT:**

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[**http://localhost:8080/books**](http://localhost:8080/books)