**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**.
2. **Update the BookService Class:**
   * Ensure that **BookService** class has a setter method for **BookRepository**.
3. **Test the Configuration:**
   * Run the **LibraryManagementApplication** main class to verify the dependency injection.

**Hands On Solution**

Steps

1***. application.xml*** under ***src/main/resources***

<?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">

<!-- BookRepository Bean -->

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

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

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

<!-- Setter Injection -->

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

</bean>

</beans>

2. ***BookService.java*** under ***com.library.service***

**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** listBooks() {

System.***out***.println("Inside BookService...");

bookRepository.displayBooks();

}

}

3. ***MainApp.java*** under ***com.library***

**package** com.library;

**import** org.springframework.context.ApplicationContext;

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

**import** com.library.service.BookService;

**public** **class** MainApp {

**public** **static** **void** main(String[] args) {

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

// Retrieve BookService bean from Spring container

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

// Call method to test DI

bookService.listBooks();

}

}

4. Save all and run ***MainApp.java***

Output in console as follows:

A screenshot of a computer

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