**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.

**LibraryManagementApplication.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) {

// Load Spring context

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

// Get BookService bean

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

// Test adding a book

bookService.addBook("The Hobbit by J.R.R. Tolkien");

}

}

**BookService.java**

package com.library.service;

import com.library.repository.BookRepository;

public class BookService {

private BookRepository bookRepository;

// Setter for Dependency Injection

public void setBookRepository(BookRepository bookRepository) {

this.bookRepository = bookRepository;

}

public void addBook(String title) {

System.out.println("Adding book: " + title);

bookRepository.saveBook(title);

}

}

**BookRepository.java**

package com.library.repository;

public class BookRepository {

public void saveBook(String bookTitle) {

System.out.println("Book saved: " + bookTitle);

}

}

**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">

<!-- Define BookRepository Bean -->

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

<!-- Define BookService Bean and Inject BookRepository -->

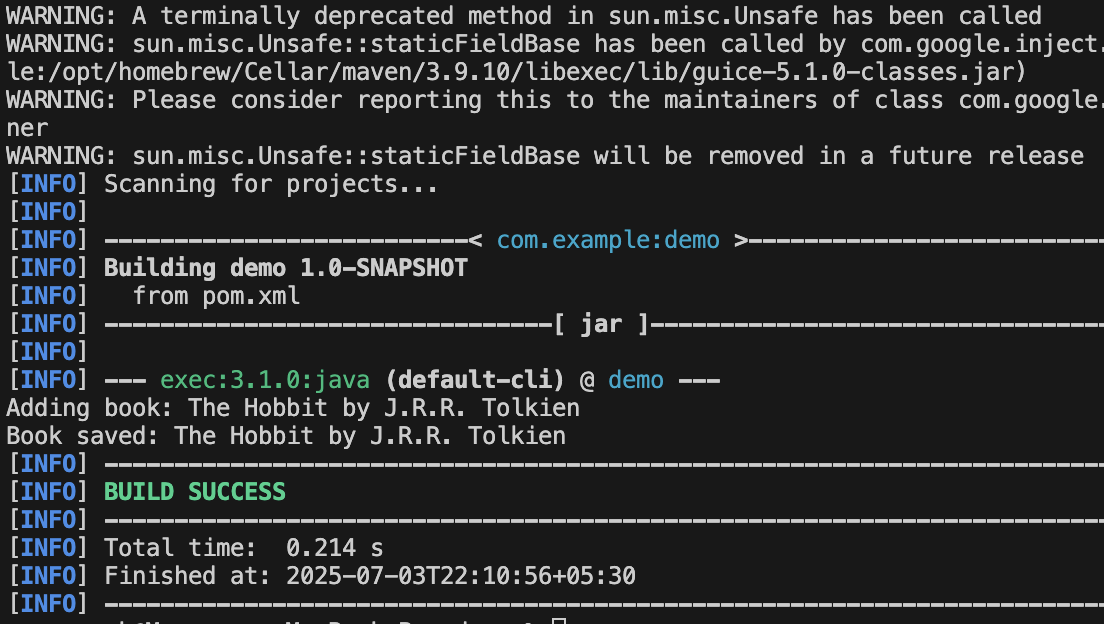
<bean id="bookService" class="com.library.service.BookService">

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

</bean>

</beans>

**Output**

****