**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.

**PROGRAM:**

**Step 1: Modify 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">

<!-- Bean for BookRepository -->

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

<!-- Bean for BookService with setter injection -->

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

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

</bean>

</beans>

**Step 2: Update BookService.java for Setter Injection**

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 addBook(String bookName) {

bookRepository.saveBook(bookName);

}

}

**BookRepository.java (unchanged)**

package com.library.repository;

public class BookRepository {

public void saveBook(String bookName) {

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

}

}

**Step 3: Test Dependency Injection in MainApp.java**

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) {

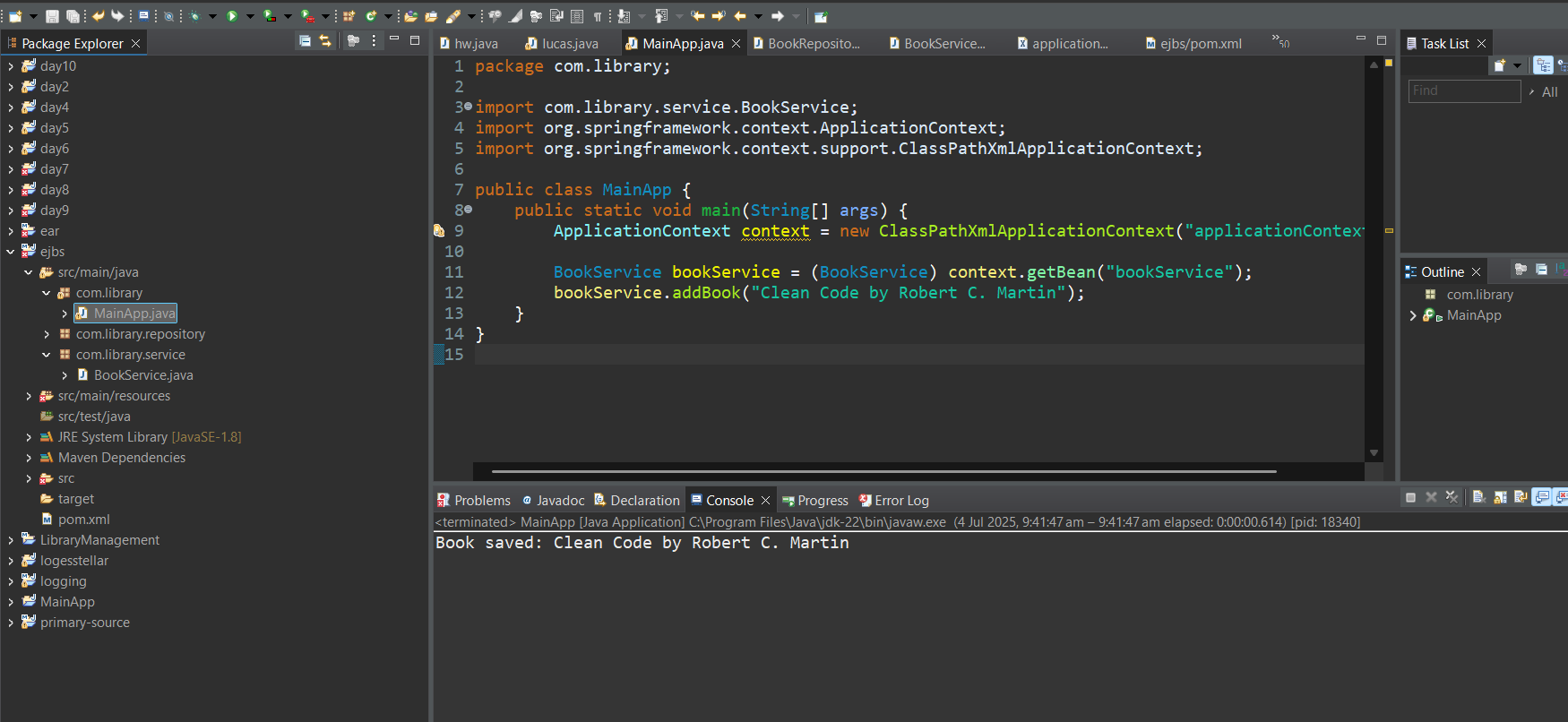
ApplicationContext context = new ClassPathXmlApplicationContext("applicationContext.xml");

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

bookService.addBook("Clean Code by Robert C. Martin");

}}

**Output ScreenShot:**

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