Step 1: Configure Constructor Injection

Update applicationContext.xml to configure constructor injection for 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

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

<!-- Define BookRepository bean -->

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

<!-- Define BookService bean with constructor injection -->

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

<constructor-arg ref="bookRepository"/>

</bean>

</beans>

In the above configuration file, we have defined a bookService bean with a constructor argument that references the bookRepository bean. This will inject the BookRepository instance into the BookService constructor.

Step 2: Configure Setter Injection

Ensure that the BookService class has a setter method for BookRepository and configure it in applicationContext.xml:

package com.library.service;

import com.library.repository.BookRepository;

public class BookServiceImpl implements BookService {

private BookRepository bookRepository;

public BookServiceImpl(BookRepository bookRepository) {

this.bookRepository = bookRepository;

}

public void setBookRepositorySetter(BookRepository bookRepository) {

this.bookRepository = bookRepository;

}

@Override

public void addBook(String title, String author) {

// implementation

}

}

Update applicationContext.xml to configure setter injection for 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

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

<!-- Define BookRepository bean -->

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

<!-- Define BookService bean with constructor and setter injection -->

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

<constructor-arg ref="bookRepository"/>

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

</bean>

</beans>

In the above configuration file, we have added a property element to the bookService bean to configure setter injection for the bookRepositorySetter property.

Step 3: Test the Injection

Run the LibraryManagementApplication main class to verify both constructor and setter injection:

package com.library;

import org.springframework.context.ApplicationContext;

import org.springframework.context.support.ClassPathXmlApplicationContext;

public class LibraryManagementApplication {

public static void main(String[] args) {

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

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

bookService.addBook("Java Programming", "John Doe");

}

}