**Exercise 5: Configuring the Spring IoC Container**

**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">

<!-- Repository Bean -->

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

<!-- Service Bean with Setter Injection -->

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

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

</bean>

</beans>

BookRepository:

package com.example.library.repository;

public class BookRepository {

public String getBookById(int id) {

return "Book#" + id + " - Spring Framework Essentials";

}

}

**BookService Class:**

package com.example.library.service;

import com.example.library.repository.BookRepository;

public class BookService {

private BookRepository bookRepository;

public void setBookRepository(BookRepository bookRepository) {

this.bookRepository = bookRepository;

}

public void displayBook(int id) {

String book = bookRepository.getBookById(id);

System.out.println("Book Fetched: " + book);

}

}

**Main Class:**

package com.example.library;

import com.example.library.service.BookService;

import org.springframework.context.ApplicationContext;

import org.springframework.context.support.ClassPathXmlApplicationContext;

public class LibraryApp {

public static void main(String[] args) {

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

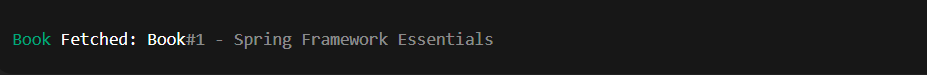
BookService bookService = context.getBean("bookService", BookService.class);

bookService.displayBook(1);

}

}

**OUTPUT:**



**Exercise 7: Implementing Constructor and Setter Injection:**

**BookRepository Class:**

package com.example.library.repository;

public class BookRepository {

public String getBookById(int id) {

return "Book#" + id + " - Java Programming";

}

}

**BookService Class:**

package com.example.library.service;

import com.example.library.repository.BookRepository;

public class BookService {

private BookRepository bookRepository;

private String libraryName;

public BookService(String libraryName) {

this.libraryName = libraryName;

}

public void setBookRepository(BookRepository bookRepository) {

this.bookRepository = bookRepository;

}

public void showBook(int id) {

System.out.println("Library: " + libraryName);

System.out.println("Book: " + bookRepository.getBookById(id));

}

}

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.example.library.repository.BookRepository" />

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

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

<!-- Constructor injection -->

<constructor-arg value="Central Library" />

<!-- Setter injection -->

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

</bean>

</beans>

**Main Application Class:**

package com.example.library;

import com.example.library.service.BookService;

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

bookService.showBook(101);

}

}

**OUTPUT:**

