**Exercise 6: Configuring Beans with Annotations**

**Scenario:**

You need to simplify the configuration of beans in the library management application using annotations.

**Steps:**

1. **Enable Component Scanning:**
   * Update **applicationContext.xml** to include component scanning for the **com.library** package.
2. **Annotate Classes:**
   * Use **@Service** annotation for the **BookService** class.
   * Use **@Repository** annotation for the **BookRepository** class.
3. **Test the Configuration:**

Run the **LibraryManagementApplication** main class to verify the annotation-based configuration.

**Solution:**

**1. Enable Component Scanning**

Update applicationContext.xml to include component scanning for the com.library package.

<?xml version="1.0" encoding="UTF-8"?>

<beans xmlns="http://www.springframework.org/schema/beans"

xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"

xmlns:aop="http://www.springframework.org/schema/aop"

xsi:schemaLocation="http://www.springframework.org/schema/beans

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

http://www.springframework.org/schema/aop

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

<context:component-scan base-package="com.library" />

<aop:aspectj-autoproxy/>

</beans>

**2. Annotate Classes**

Use the appropriate annotations to mark the BookService and BookRepository classes as Spring components.

package com.library.service;

import org.springframework.stereotype.Service;

import com.library.repository.BookRepository;

@Service

public class BookService {

private final BookRepository bookRepository;

public BookService(BookRepository bookRepository) {

this.bookRepository = bookRepository;

}

public void manageBooks() {

System.out.println("Managing books...");

bookRepository.fetchBooks();

}

}

package com.library.repository;

import org.springframework.stereotype.Repository;

@Repository

public class BookRepository {

public void fetchBooks() {

System.out.println("Fetching books...");

}

}

**3. Test the Configuration**

Run the Main class to verify the annotation-based configuration.

package com.library;

import com.library.service.BookService;

import org.springframework.context.ApplicationContext;

import org.springframework.context.annotation.AnnotationConfigApplicationContext;

import com.library.config.AppConfig;

public class Main {

public static void main(String[] args) {

ApplicationContext context = new AnnotationConfigApplicationContext(AppConfig.class);

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

bookService.manageBooks();

}

}

package com.library.config;

import org.springframework.context.annotation.ComponentScan;

import org.springframework.context.annotation.Configuration;

@Configuration

@ComponentScan(basePackages = "com.library")

public class AppConfig {

}