Exercise 1: Configuring a Basic Spring Application

1. **Set Up a Spring Project:**
2. Create a Maven Project named LibraryManagement
3. Add Spring Core dependencies in pom.xml:

<project xmlns="http://maven.apache.org/POM/4.0.0"

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

xsi:schemaLocation="http://maven.apache.org/POM/4.0.0

http://maven.apache.org/xsd/maven-4.0.0.xsd">

<modelVersion>4.0.0</modelVersion>

<groupId>com.library</groupId>

<artifactId>LibraryManagement</artifactId>

<version>1.0-SNAPSHOT</version>

<dependencies>

<!-- Spring Core -->

<dependency>

<groupId>org.springframework</groupId>

<artifactId>spring-context</artifactId>

<version>5.3.32</version>

</dependency>

</dependencies>

</project>

1. **Configure the Application Context:**

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

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

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

</bean>

</beans>

1. **Define Service and Repository Classes**

**a. com.library.repository.BookRepository.java**

package com.library.repository;

public class BookRepository {

public void saveBook(String bookName) {

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

}

}

**b.com.library.service.BookService.java**

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) {

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

bookRepository.saveBook(bookName);

}

}

1. **Run the Application:**

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("The Spring Guide");

}

}

**Output**

**A close-up of a white background

AI-generated content may be incorrect.**

**Exercise 2: Implementing Dependency Injection**

1. **Modify the XML Configuration**

<!-- src/main/resources/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>

1. **Update the BookService Class**

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) {

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

bookRepository.saveBook(bookName);

}

}

1. **Test the Configuration**

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) {

ApplicationContext context =

new ClassPathXmlApplicationContext("applicationContext.xml");

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

bookService.addBook("Spring in Action");

}

}

A close up of words

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**Exercise 4: Creating and Configuring a Maven Project**

**3.Configure Maven Compiler Plugin**

<build>

<plugins>

<plugin>

<groupId>org.apache.maven.plugins</groupId>

<artifactId>maven-compiler-plugin</artifactId>

<version>3.8.1</version>

<configuration>

<source>1.8</source>

<target>1.8</target>

</configuration>

</plugin>

</plugins>

</build>

</project>

**Summary**

With this setup, your Maven project:

* Is named **LibraryManagement**
* Supports **Spring Core**, **AOP**, and **MVC**
* Uses **Java 1.8** via the Maven Compiler Plugin