**Exercise 1: Configuring a Basic Spring Application**

**Scenario:**

Your company is developing a web application for managing a library. You need to use the Spring Framework to handle the backend operations.

**Steps:**

1. **Set Up a Spring Project:**
   * Create a Maven project named **LibraryManagement**.
   * Add Spring Core dependencies in the **pom.xml** file.
2. **Configure the Application Context:**
   * Create an XML configuration file named **applicationContext.xml** in the **src/main/resources** directory.
   * Define beans for **BookService** and **BookRepository** in the XML file.
3. **Define Service and Repository Classes:**
   * Create a package **com.library.service** and add a class **BookService**.
   * Create a package **com.library.repository** and add a class **BookRepository**.
4. **Run the Application:**
   * Create a main class to load the Spring context and test the configuration.

**Solution**

**Set Up:**

Using eclipse I have created a manven project and named it as LibraryManagement

**Pom.xml file**

<dependencies>

<dependency>

<groupId>org.springframework</groupId>

<artifactId>spring-context</artifactId>

<version>5.3.33</version> <!-- or the latest compatible version -->

</dependency>

</dependencies>

**Configuring application context:**

Created a file in the folder path src/main/resources named 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 id="bookService" class="com.library.service.BookService" />

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

</beans>

**Defining services and repository classes:**

**Package:**  com.library.repository

**Class:**  BookRepository

package com.library.repository;

public class BookRepository {

public void saveBook() {

System.out.println("Book saved to the database.");

}

}

**Package:** com.library.service

**Class:** BookService

package com.library.service;

public class BookService {

public void addBook() {

System.out.println("Adding book...");

}}

**Testing the app:**

**Package:** com.library

**Class:** MainApp

package com.library;

import com.library.service.BookService;

import com.library.repository.BookRepository;

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");

BookRepository bookRepository = (BookRepository) context.getBean("bookRepository");

bookService.addBook();

bookRepository.saveBook();

}

}

**After running the app the output is:**

