Exercise 4: Creating and Configuring a Maven Project

**Scenario:**

You need to set up a new Maven project for the library management application and add Spring dependencies.

**1. Create a New Maven Project:**

o Create a new Maven project named LibraryManagement.

**2. Add Spring Dependencies in pom.xml:**

o Include dependencies for Spring Context, Spring AOP, and Spring WebMVC.

*pom.xml:*

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

<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 https://maven.apache.org/xsd/maven-4.0.0.xsd">

<modelVersion>4.0.0</modelVersion>

<groupId>com.Library</groupId>

<artifactId>LibraryManagement</artifactId>

<version>1.0.0</version>

<properties>

<project.build.sourceEncoding>UTF-8</project.build.sourceEncoding>

<maven.compiler.source>21</maven.compiler.source>

<maven.compiler.target>21</maven.compiler.target>

<spring.version>6.1.0</spring.version> <!-- Spring 6.x for Java 21 -->

</properties>

<dependencies>

<!-- Spring Context -->

<dependency>

<groupId>org.springframework</groupId>

<artifactId>spring-context</artifactId>

<version>${spring.version}</version>

</dependency>

<!-- Spring AOP -->

<dependency>

<groupId>org.springframework</groupId>

<artifactId>spring-aop</artifactId>

<version>${spring.version}</version>

</dependency>

<!-- AspectJ Weaver (required for @Aspect) -->

<dependency>

<groupId>org.aspectj</groupId>

<artifactId>aspectjweaver</artifactId>

<version>1.9.20</version>

</dependency>

</dependencies>

<build>

<plugins>

<!-- Maven Compiler Plugin (for Java 21) -->

<plugin>

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

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

<version>3.11.0</version>

<configuration>

<source>${maven.compiler.source}</source>

<target>${maven.compiler.target}</target>

</configuration>

</plugin>

</plugins>

</build>

</project>

**3. Configure Maven Plugins:**

o Configure the Maven Compiler Plugin for Java version 21 in the pom.xml file.

* + Update Maven Dependencies:
    - Right-click project → Maven → Update Project
    - Check "Force Update of Snapshots/Releases"
  + Verify Java Compiler:
    - Right-click project → Properties → Java Compiler
    - Ensure "Compiler compliance level" is 21
  + Check Dependencies:
    - Expand Maven Dependencies in Project Explorer
    - Verify all Spring JARs (spring-context, spring-aop, etc.) are present

