

Exercise 3: Creating and Configuring a Maven Project

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>
  <packaging>jar</packaging>

  <name>LibraryManagement</name>
  <properties>
    <!-- Java version -->
    <maven.compiler.source>1.8</maven.compiler.source>
    <maven.compiler.target>1.8</maven.compiler.target>
    <!-- Encoding -->
    <project.build.sourceEncoding>UTF-8</project.build.sourceEncoding>
  </properties>

  <dependencies>
    <!-- Spring Context -->
    <dependency>
      <groupId>org.springframework</groupId>
      <artifactId>spring-context</artifactId>
```

```
<version>5.3.34</version>
```

```
</dependency>
```

```
<!-- Spring AOP -->
```

```
<dependency>
```

```
<groupId>org.springframework</groupId>
```

```
<artifactId>spring-aop</artifactId>
```

```
<version>5.3.34</version>
```

```
</dependency>
```

```
<!-- Spring Web MVC -->
```

```
<dependency>
```

```
<groupId>org.springframework</groupId>
```

```
<artifactId>spring-webmvc</artifactId>
```

```
<version>5.3.34</version>
```

```
</dependency>
```

```
</dependencies>
```

```
<build>
```

```
<plugins>
```

```
<!-- Maven Compiler Plugin -->
```

```
<plugin>
```

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

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

```
<version>3.8.1</version>
```

```
<configuration>
```

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

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

```
</configuration>
```

```
</plugin>
```

```
</plugins>
```

```
</build>
```

```
</project>
```

3. Define Service and Repository Classes

com/library/repository/BookRepository.java

```
package com.library.repository;
```

```
public class BookRepository {
```

```
    public void saveBook(String title) {
```

```
        System.out.println("BookRepository: Saving book titled \"" + title + "\" to the database.");
```

```
    }
```

```
}
```

com/library/service/BookService.java

```
package com.library.service;
```

```
import com.library.repository.BookRepository;
```

```
public class BookService {
```

```
    private BookRepository bookRepository;
```

```
    // Setter for Dependency Injection
```

```
    public void setBookRepository(BookRepository bookRepository) {
```

```
        this.bookRepository = bookRepository;
```

```
    }
```

```
    public void save(String bookName) {
```

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

```
        bookRepository.save(bookName);
```

```
    }
```

```
}
```

4. Run the Application

```
com/library/LibraryApp.java
```

```
package com.library;
```

```
import com.library.service.BookService;
```

```
import org.springframework.context.ApplicationContext;
```

```
import org.springframework.context.support.ClassPathXmlApplicationContext;
```

```
public class LibraryApp {
```

```
    public static void main(String[] args) {
```

```
        Load Spring context from XML
```

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

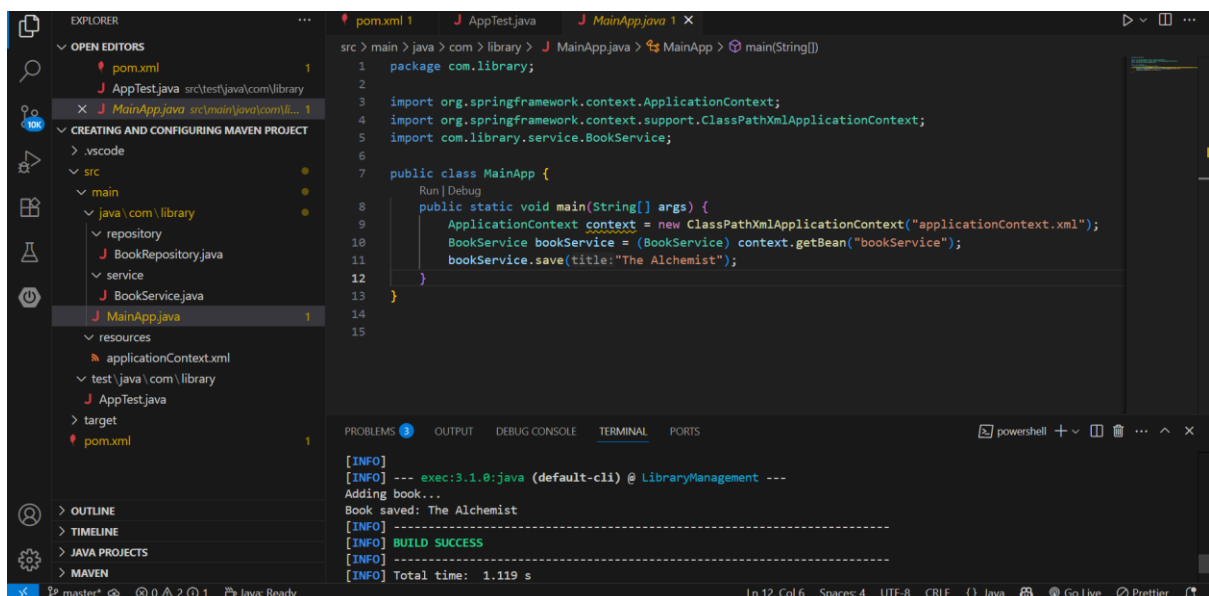
```
        BookService bookService = context.getBean("bookService", BookService.class);
```

```
        bookService.addBook("Effective Java");
```

```
    }
```

```
}
```

Output

The screenshot shows an IDE with a project named 'LibraryManagement'. The Explorer panel on the left shows the project structure with files like pom.xml, AppTest.java, MainApp.java, BookRepository.java, BookService.java, MainApp.java, resources, applicationContext.xml, test\java\com\library, AppTest.java, target, and pom.xml. The MainApp.java file is open in the editor, showing the code from the previous blocks. The terminal at the bottom shows the output of running the application: [INFO] --- exec:3.1.0:java (default-c11) @ LibraryManagement ---, Adding book..., Book saved: The Alchemist, [INFO] BUILD SUCCESS, [INFO] Total time: 1.119 s.

Compile:

```
mvn clean compile
```

