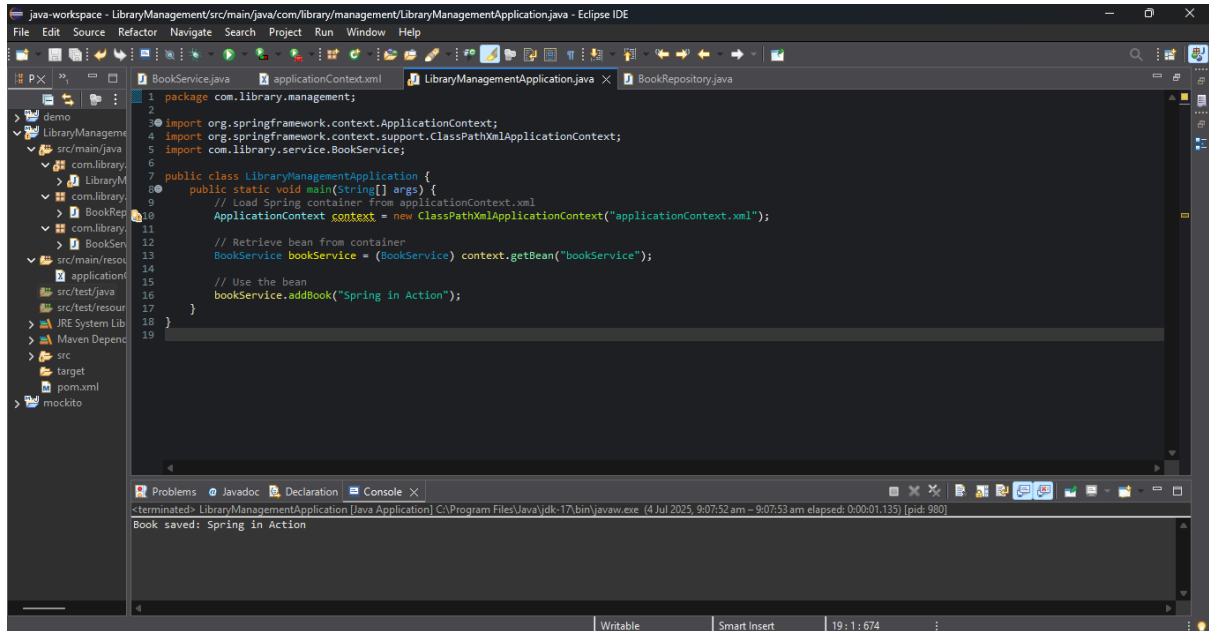


SPRING CORE MAVEN

Exercise 1: Configuring a Basic Spring Application

Output:

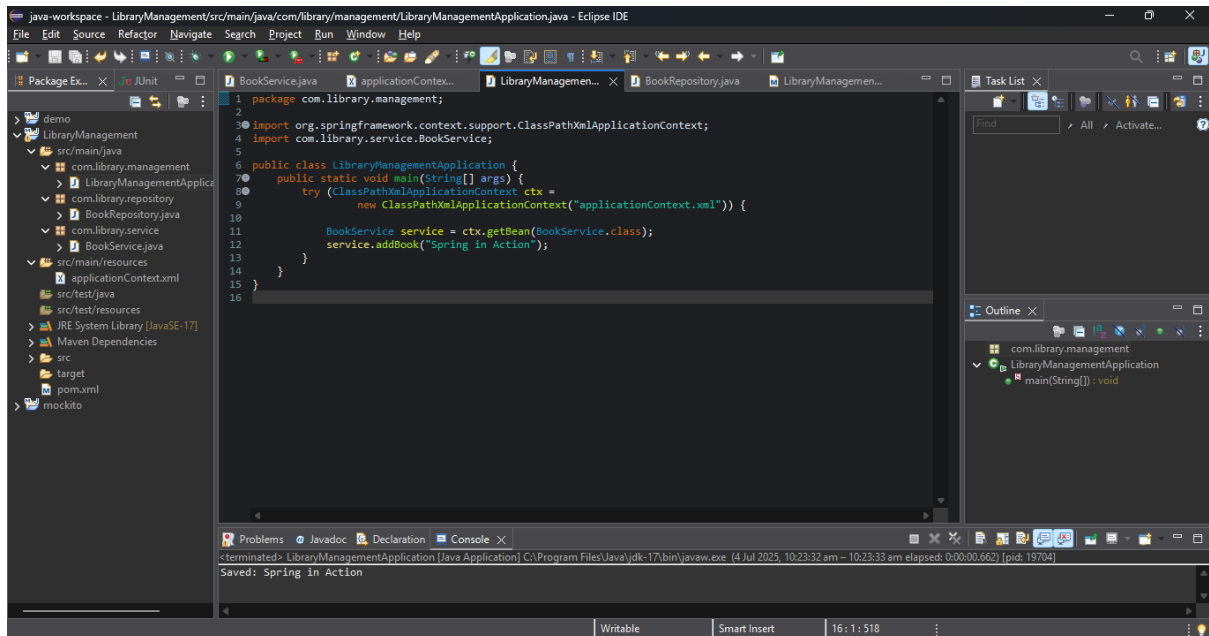


```
1 package com.library.management;
2
3 import org.springframework.context.ApplicationContext;
4 import org.springframework.context.support.ClassPathXmlApplicationContext;
5 import com.library.service.BookService;
6
7 public class LibraryManagementApplication {
8     public static void main(String[] args) {
9         // Load Spring container from applicationContext.xml
10        ApplicationContext context = new ClassPathXmlApplicationContext("applicationContext.xml");
11
12        // Retrieve bean from container
13        BookService bookService = (BookService) context.getBean("bookService");
14
15        // Use the bean
16        bookService.addBook("Spring in Action");
17    }
18 }
19
```

Book saved: Spring in Action

Exercise 2: Implementing Dependency Injection

Output:

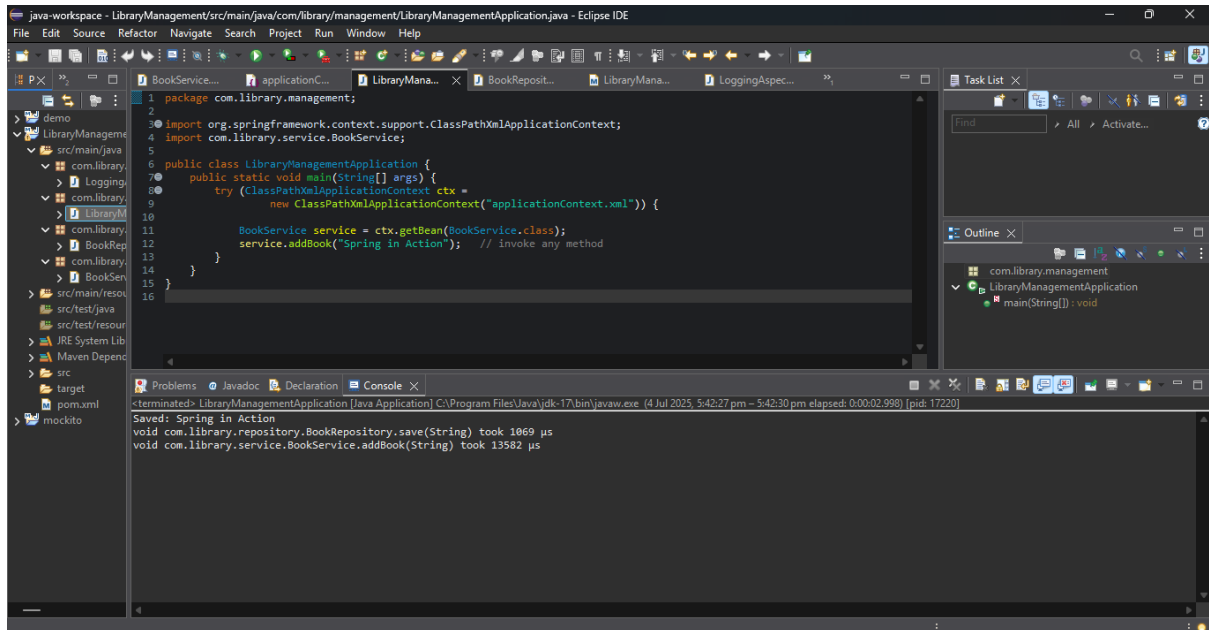


```
1 package com.library.management;
2
3 import org.springframework.context.support.ClassPathXmlApplicationContext;
4 import com.library.service.BookService;
5
6 public class LibraryManagementApplication {
7     public static void main(String[] args) {
8         try (ClassPathXmlApplicationContext ctx =
9             new ClassPathXmlApplicationContext("applicationContext.xml")) {
10
11             BookService service = ctx.getBean(BookService.class);
12             service.addBook("Spring in Action");
13         }
14     }
15 }
16
```

Saved: Spring in Action

Exercise 3: Implementing Logging with Spring AOP

Output:



The screenshot shows the Eclipse IDE with the `LibraryManagementApplication.java` file open. The code is as follows:

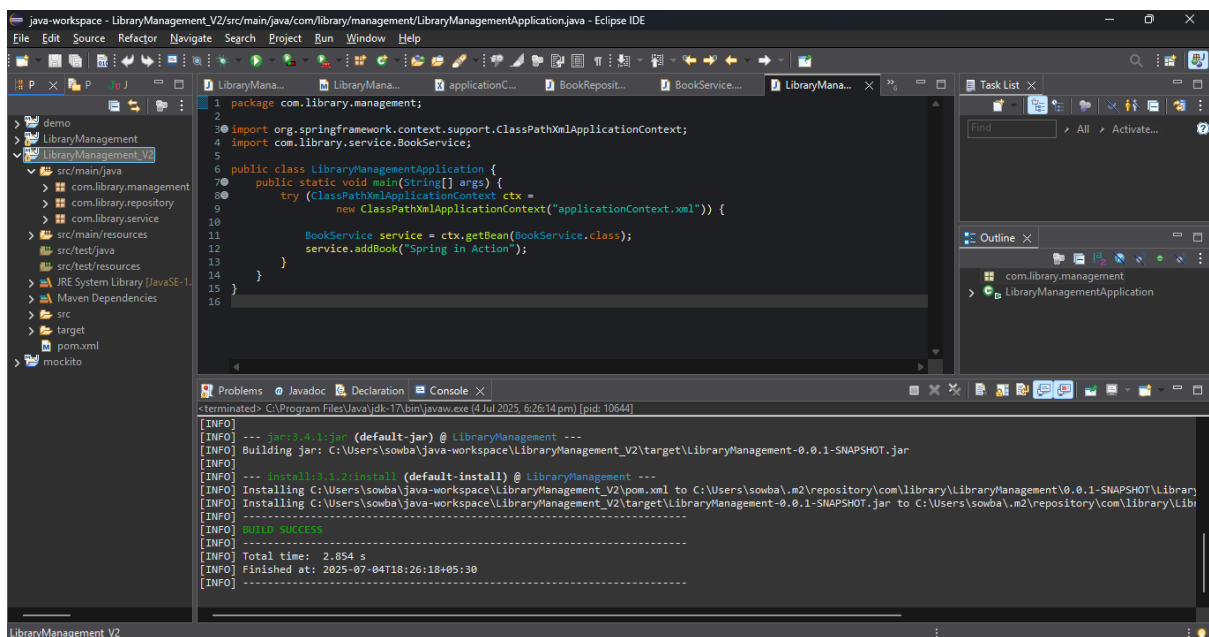
```
1 package com.library.management;
2
3 import org.springframework.context.support.ClassPathXmlApplicationContext;
4 import com.library.service.BookService;
5
6 public class LibraryManagementApplication {
7     public static void main(String[] args) {
8         try (ClassPathXmlApplicationContext ctx =
9             new ClassPathXmlApplicationContext("applicationContext.xml")) {
10
11             BookService service = ctx.getBean(BookService.class);
12             service.addBook("Spring in Action"); // invoke any method
13         }
14     }
15 }
16
```

The console output shows the following messages:

```
<terminated> LibraryManagementApplication [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (4 Jul 2025, 5:42:27 pm elapsed: 0:00:02.998) [pid: 17220]
Saved: Spring in Action
void com.library.repository.BookRepository.save(String) took 1069 μs
void com.library.service.BookService.addBook(String) took 13582 μs
```

Exercise 4: Creating and Configuring a Maven Project

Output:



The screenshot shows the Eclipse IDE with the `LibraryManagement_V2` project open. The code is as follows:

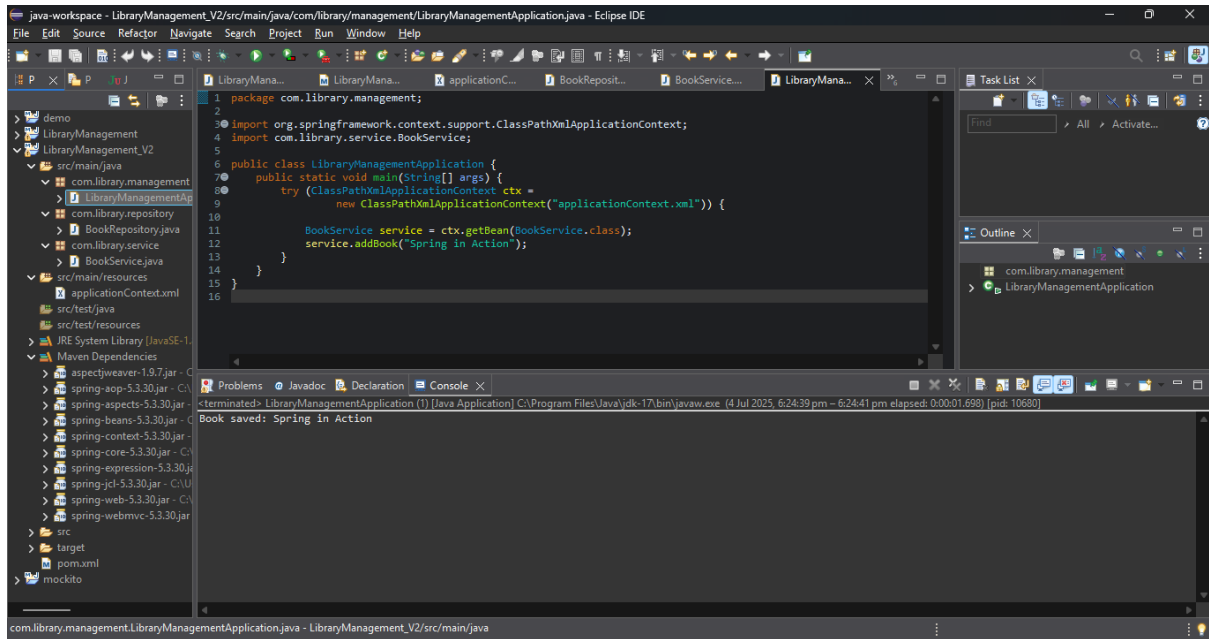
```
1 package com.library.management;
2
3 import org.springframework.context.support.ClassPathXmlApplicationContext;
4 import com.library.service.BookService;
5
6 public class LibraryManagementApplication {
7     public static void main(String[] args) {
8         try (ClassPathXmlApplicationContext ctx =
9             new ClassPathXmlApplicationContext("applicationContext.xml")) {
10
11             BookService service = ctx.getBean(BookService.class);
12             service.addBook("Spring in Action");
13         }
14     }
15 }
16
```

The console output shows the following messages:

```
<terminated> C:\Program Files\Java\jdk-17\bin\javaw.exe (4 Jul 2025, 6:26:14 pm) [pid: 10644]
[INFO] --- jar:3.4.1:jar (default-jar) @ LibraryManagement ---
[INFO] Building jar: C:\Users\sowba\java-workspace\LibraryManagement_V2\target\LibraryManagement-0.0.1-SNAPSHOT.jar
[INFO] --- install:3.1.2:install (default-install) @ LibraryManagement ---
[INFO] Installing C:\Users\sowba\java-workspace\LibraryManagement_V2\pom.xml to C:\Users\sowba\.m2\repository\com\library\LibraryManagement\0.0.1-SNAPSHOT\LibraryManagement-0.0.1-SNAPSHOT.pom
[INFO] Installing C:\Users\sowba\java-workspace\LibraryManagement_V2\target\LibraryManagement-0.0.1-SNAPSHOT.jar to C:\Users\sowba\.m2\repository\com\library\LibraryManagement\0.0.1-SNAPSHOT\LibraryManagement-0.0.1-SNAPSHOT.jar
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 2.854 s
[INFO] Finished at: 2025-07-04T18:26:18+05:30
[INFO] -----
```

Exercise 5: Configuring the Spring IoC Container

Output:

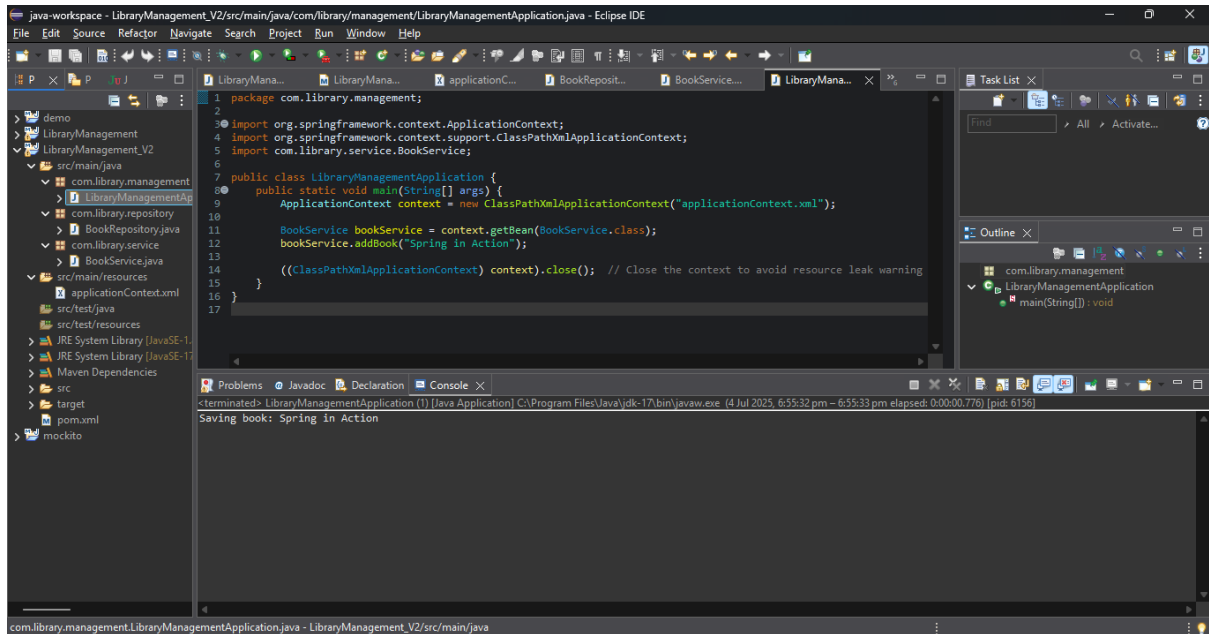


```
1 package com.library.management;
2
3 import org.springframework.context.support.ClassPathXmlApplicationContext;
4 import com.library.service.BookService;
5
6 public class LibraryManagementApplication {
7     public static void main(String[] args) {
8         try (ClassPathXmlApplicationContext ctx =
9             new ClassPathXmlApplicationContext("applicationContext.xml")) {
10
11             BookService service = ctx.getBean(BookService.class);
12             service.addBook("Spring in Action");
13         }
14     }
15 }
16
```

Book saved: Spring in Action

Exercise 6: Configuring Beans with Annotations

Output:



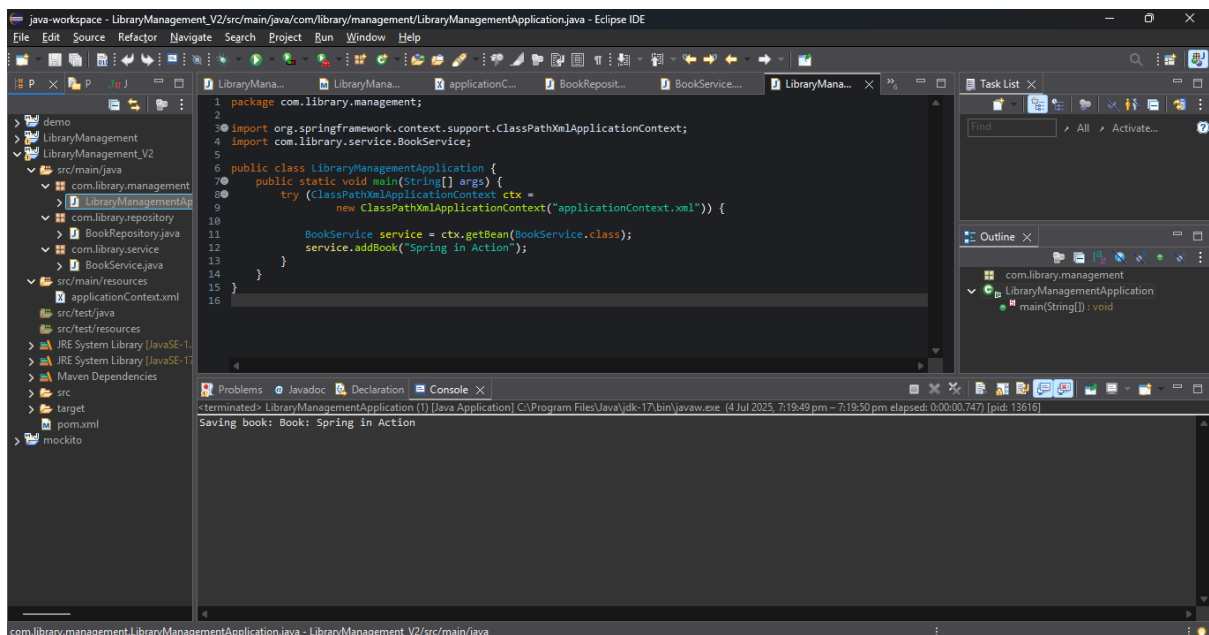
```
1 package com.library.management;
2
3 import org.springframework.context.ApplicationContext;
4 import org.springframework.context.support.ClassPathXmlApplicationContext;
5 import com.library.service.BookService;
6
7 public class LibraryManagementApplication {
8     public static void main(String[] args) {
9         ApplicationContext context = new ClassPathXmlApplicationContext("applicationContext.xml");
10
11         BookService bookService = context.getBean(BookService.class);
12         bookService.addBook("Spring in Action");
13
14         ((ClassPathXmlApplicationContext) context).close(); // Close the context to avoid resource leak warning
15     }
16 }
17
```

com.library.management.LibraryManagementApplication.java - LibraryManagement_V2/src/main/java

Saving book: Spring in Action

Exercise 7: Implementing Constructor and Setter Injection

Output:



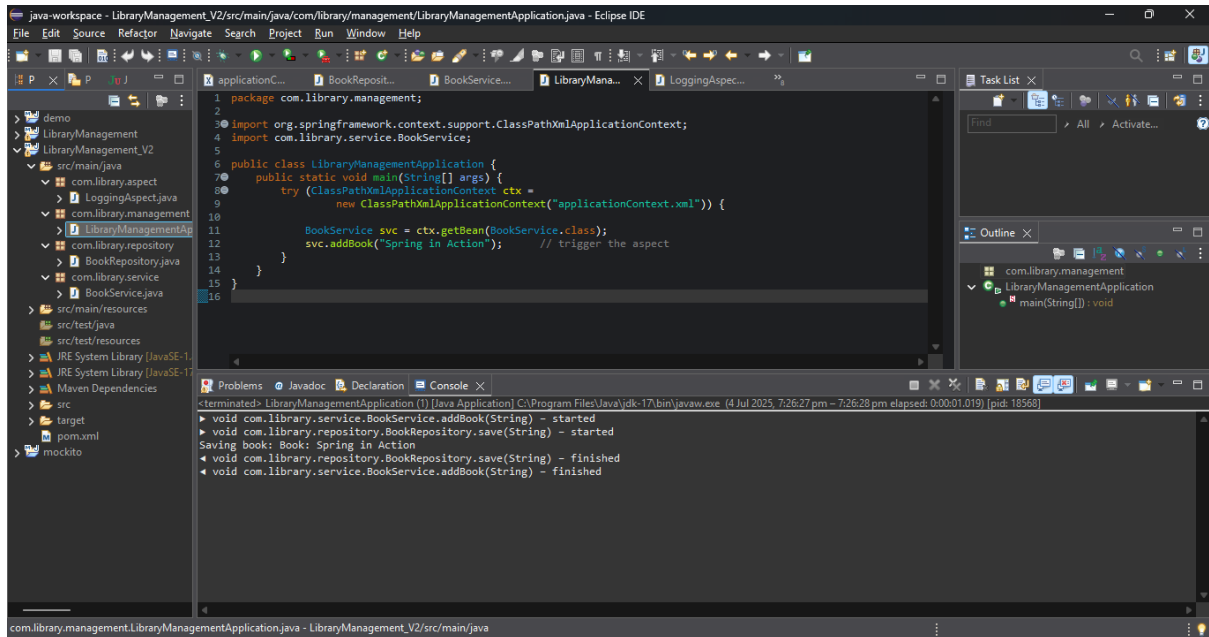
```
1 package com.library.management;
2
3 import org.springframework.context.support.ClassPathXmlApplicationContext;
4 import com.library.service.BookService;
5
6 public class LibraryManagementApplication {
7     public static void main(String[] args) {
8         try (ClassPathXmlApplicationContext ctx =
9             new ClassPathXmlApplicationContext("applicationContext.xml")) {
10
11             BookService service = ctx.getBean(BookService.class);
12             service.addBook("Spring in Action");
13         }
14     }
15 }
16
```

com.library.management.LibraryManagementApplication.java - LibraryManagement_V2/src/main/java

Saving book: Book: Spring in Action

Exercise 8: Implementing Basic AOP with Spring

Output:

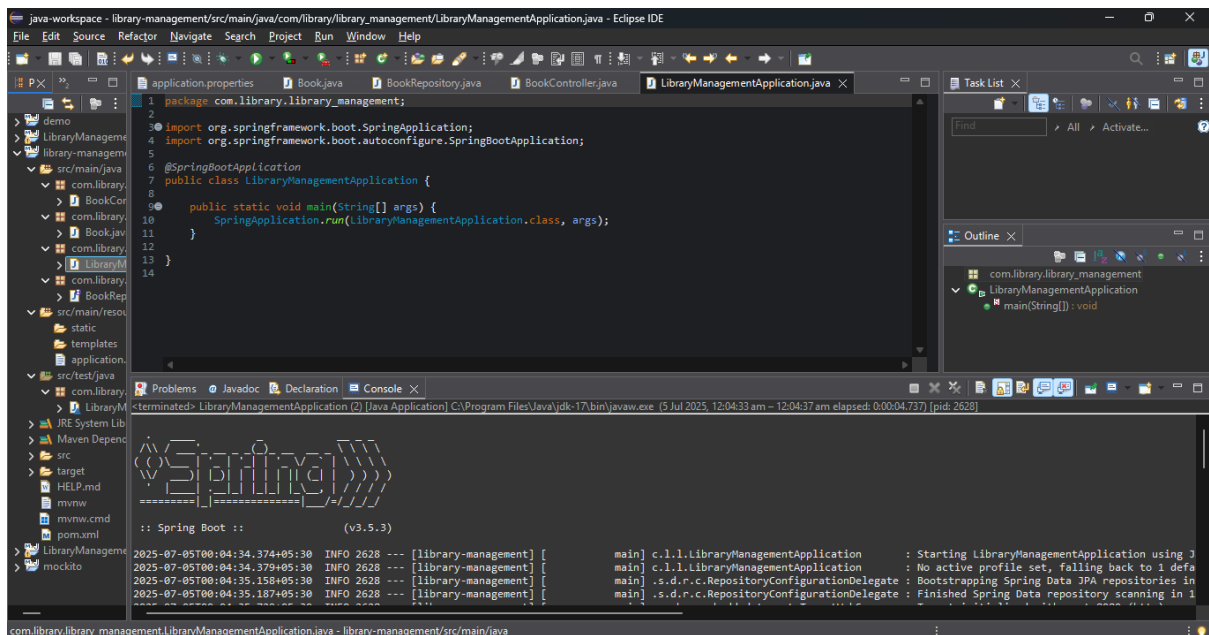


```
1 package com.library.management;
2
3 import org.springframework.context.support.ClassPathXmlApplicationContext;
4 import com.library.service.BookService;
5
6 public class LibraryManagementApplication {
7     public static void main(String[] args) {
8         try {
9             ClassPathXmlApplicationContext ctx =
10                 new ClassPathXmlApplicationContext("applicationContext.xml");
11
12             BookService svc = ctx.getBean(BookService.class);
13             svc.addBook("Spring in Action"); // trigger the aspect
14         }
15     }
16 }
```

```
<terminated> LibraryManagementApplication (1) [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (4 Jul 2025, 7:26:27 pm - 7:26:28 pm elapsed: 0:00:01.019) [pid: 18568]
void com.library.service.BookService.addBook(String) - started
void com.library.repository.BookRepository.save(String) - started
Saving books: Books: Spring in Action
void com.library.repository.BookRepository.save(String) - finished
void com.library.service.BookService.addBook(String) - finished
```

Exercise 9: Creating a Spring Boot Application

Output:



```
1 package com.library.library_management;
2
3 import org.springframework.boot.SpringApplication;
4 import org.springframework.boot.autoconfigure.SpringBootApplication;
5
6 @SpringBootApplication
7 public class LibraryManagementApplication {
8
9     public static void main(String[] args) {
10         SpringApplication.run(LibraryManagementApplication.class, args);
11     }
12 }
13
14 }
```

```
<terminated> LibraryManagementApplication (2) [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (5 Jul 2025, 12:04:33 am - 12:04:37 am elapsed: 0:00:04.737) [pid: 2628]

:: Spring Boot :: (v3.5.3)

2025-07-05T00:04:34.374+05:30 INFO 2628 --- [library-management] [main] c.l.l.LibraryManagementApplication : Starting LibraryManagementApplication using 3
2025-07-05T00:04:34.379+05:30 INFO 2628 --- [library-management] [main] c.l.l.LibraryManagementApplication : No active profile set, falling back to 1 defa
2025-07-05T00:04:35.158+05:30 INFO 2628 --- [library-management] [main] s.d.r.c.RepositoryConfigurationDelegate : Bootstrapping Spring Data JPA repositories in
2025-07-05T00:04:35.187+05:30 INFO 2628 --- [library-management] [main] s.d.r.c.RepositoryConfigurationDelegate : Finished Spring Data repository scanning in 1
```

