

Exercise 2: Implementing Dependency Injection

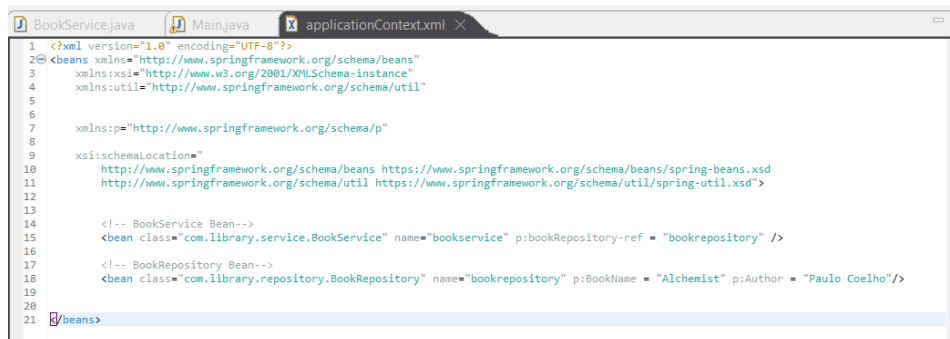
Scenario:

In the library management application, you need to manage the dependencies between the `BookService` and `BookRepository` classes using Spring's IoC and DI.

Steps:

1. Modify the XML Configuration:

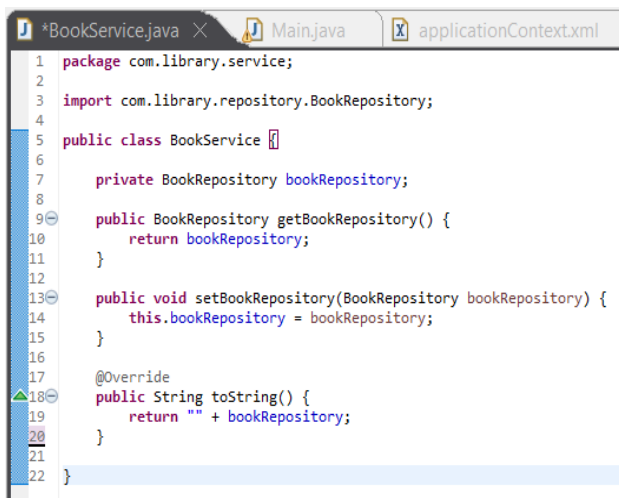
- Update `applicationContext.xml` to wire `BookRepository` into `BookService`.



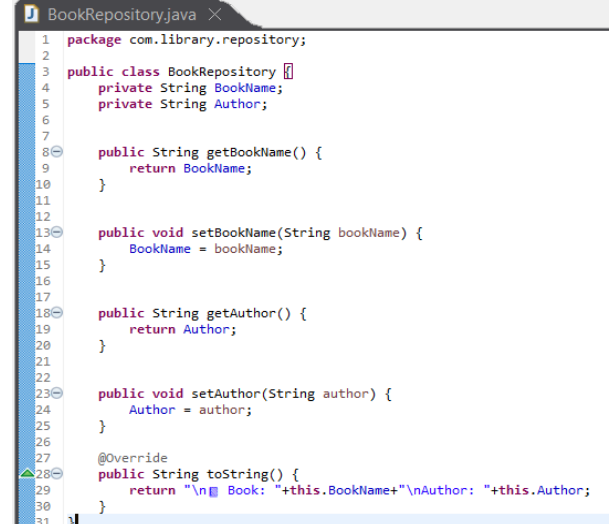
```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <beans xmlns="http://www.springframework.org/schema/beans"
3       xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
4       xmlns:util="http://www.springframework.org/schema/util"
5
6       xsi:schemaLocation="
7         http://www.springframework.org/schema/beans http://www.springframework.org/schema/beans/spring-beans.xsd
8         http://www.springframework.org/schema/util http://www.springframework.org/schema/util/spring-util.xsd">
9
10    <!-- BookService Bean -->
11    <bean class="com.library.service.BookService" name="bookservice" p:bookRepository-ref="bookrepository" />
12
13    <!-- BookRepository Bean -->
14    <bean class="com.library.repository.BookRepository" name="bookrepository" p:bookName="Alchemist" p:author="Paulo Coelho"/>
15
16 </beans>
```

2. Update the BookService Class:

- Ensure that `BookService` class has a setter method for `BookRepository`.



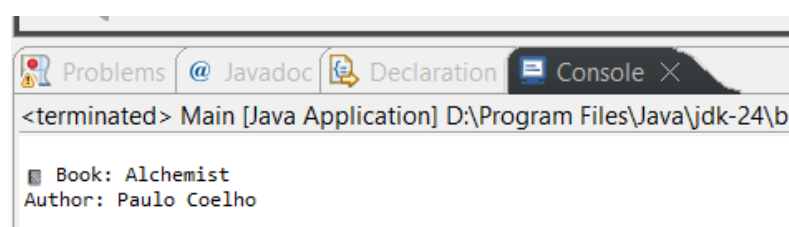
```
1 package com.library.service;
2
3 import com.library.repository.BookRepository;
4
5 public class BookService {
6
7     private BookRepository bookRepository;
8
9     public BookRepository getBookRepository() {
10         return bookRepository;
11     }
12
13     public void setBookRepository(BookRepository bookRepository) {
14         this.bookRepository = bookRepository;
15     }
16
17     @Override
18     public String toString() {
19         return "Book: " + bookRepository;
20     }
21 }
22
```



```
1 package com.library.repository;
2
3 public class BookRepository {
4     private String bookName;
5     private String author;
6
7
8     public String getBookName() {
9         return bookName;
10    }
11
12    public void setBookName(String bookName) {
13        bookName = bookName;
14    }
15
16    public String getAuthor() {
17        return author;
18    }
19
20    public void setAuthor(String author) {
21        author = author;
22    }
23
24    @Override
25    public String toString() {
26        return "Book: " + this.bookName + "\nAuthor: " + this.author;
27    }
28 }
29
```

3. Test the Configuration:

- Run the `LibraryManagementApplication` main class to verify the dependency injection.



```
<terminated> Main [Java Application] D:\Program Files\Java\jdk-24\bin\java.exe
Book: Alchemist
Author: Paulo Coelho
```