WEEK 3 : Mandatory Exercises

Exercise 1 : Configuring a Basic Spring Application

Exercise 2: Implementing Dependency Injection

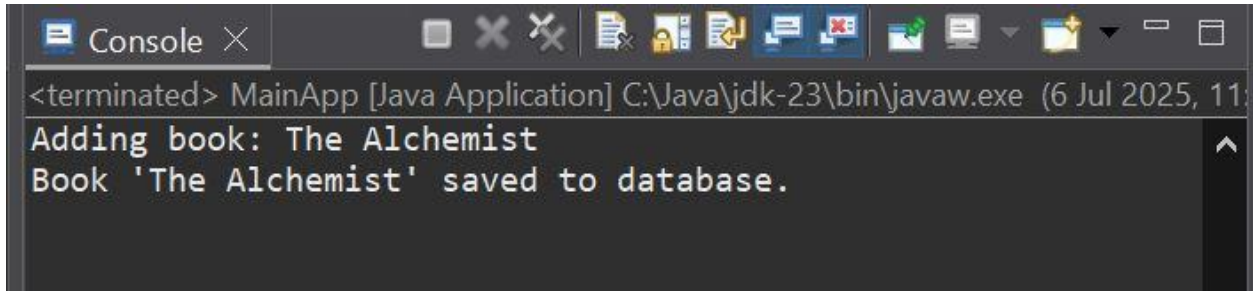```java
1 package com.library.service;
2   Varsha1/src/firstpackage/Split.java
3 import com.library.repository.BookRepository;
4
5 public class BookService {
6   private BookRepository bookRepository;
7
8   // Setter for dependency injection
9   public void setBookRepository(BookRepository bookRepository) {
10   this.bookRepository = bookRepository;
11   }
12
13   public void addBook(String bookName) {
14   System.out.println("Adding book: " + bookName);
15   bookRepository.saveBook(bookName);
16   }
17 }
```

```java
1  package com.library.repository;
2
3  public class BookRepository {
4      public void saveBook(String bookName) {
5          System.out.println("Book '" + bookName + "' saved to database.");
6      }
7  }
```

```java
1  package com.library;
2
3  import org.springframework.context.ApplicationContext;
4  import org.springframework.context.support.ClassPathXmlApplicationContext;
5  import com.library.service.BookService;
6
7  public class MainApp {
8      public static void main(String[] args) {
9          ApplicationContext context = new ClassPathXmlApplicationContext("applicationContext.xml");
10
11         BookService bookService = (BookService) context.getBean("bookService");
12         bookService.addBook("The Alchemist");
13     }
14 }
```

```xml
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         xsi:schemaLocation="http://www.springframework.org/schema/beans
5                             https://www.springframework.org/schema/beans/spring-beans.xsd">
6
7      <bean id="bookRepository" class="com.library.repository.BookRepository" />
8
9      <bean id="bookService" class="com.library.service.BookService">
10         <property name="bookRepository" ref="bookRepository" />
11     </bean>
12
13 </beans>
```

Output :


```
<terminated> MainApp [Java Application] C:\Java\jdk-23\bin\javaw.exe  (6 Jul 2025, 11:
Adding book: The Alchemist
Book 'The Alchemist' saved to database.
```

Exercise 4: Creating and Configuring a Maven Project

```java
1  package com.library.config;
2
3  import org.springframework.context.annotation.ComponentScan;
4  import org.springframework.context.annotation.Configuration;
5
6  @Configuration
7  @ComponentScan(basePackages = "com.library")
8  public class AppConfig {
9  }
```

```java
1  package com.library.service;
2
3  import org.springframework.beans.factory.annotation.Autowired;
4  import org.springframework.stereotype.Service;
5  import com.library.repository.BookRepository;
6
7  @Service
8  public class BookService {
9
10     private BookRepository bookRepository;
11
12     @Autowired
13     public void setBookRepository(BookRepository bookRepository) {
14         this.bookRepository = bookRepository;
15     }
16
17     public void addBook(String bookName) {
18         System.out.println("Adding book: " + bookName);
19         bookRepository.saveBook(bookName);
20     }
21  }
22
```

```
1  package com.library.repository;
2
3  import org.springframework.stereotype.Repository;
4
5  @Repository
6  public class BookRepository {
7      public void saveBook(String bookName) {
8          System.out.println("Book '" + bookName + "' saved to database.");
9      }
10 }
11
```
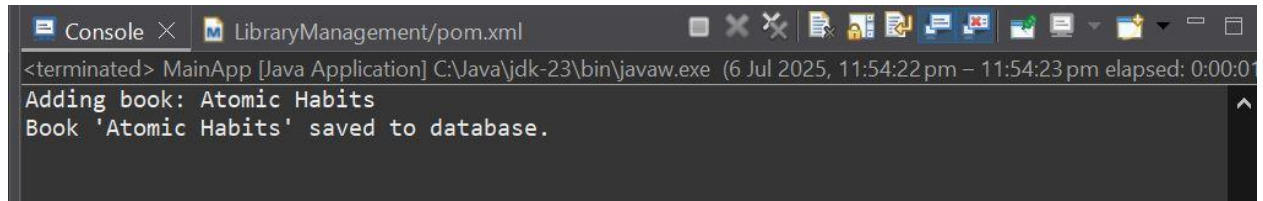
```
1  package com.library;
2
3  import org.springframework.context.ApplicationContext;
4  import org.springframework.context.annotation.AnnotationConfigApplicationContext;
5  import com.library.config.AppConfig;
6  import com.library.service.BookService;
7
8  public class MainApp {
9      public static void main(String[] args) {
10         ApplicationContext context = new AnnotationConfigApplicationContext(AppConfig.class);
11
12         BookService bookService = context.getBean(BookService.class);
13         bookService.addBook("Atomic Habits");
14     }
15 }
```

Output :

```
Console ×    M  LibraryManagement/pom.xml
<terminated> MainApp [Java Application] C:\Java\jdk-23\bin\javaw.exe  (6 Jul 2025, 11:54:22 pm – 11:54:23 pm elapsed: 0:00:01
Adding book: Atomic Habits
Book 'Atomic Habits' saved to database.
```