**Exercise 2:** **Implementing Dependency Injection**

**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 http://maven.apache.org/xsd/maven-4.0.0.xsd">  
 <modelVersion>4.0.0</modelVersion>  
  
 <groupId>org.example</groupId>  
 <artifactId>SpringCore</artifactId>  
 <version>1.0-SNAPSHOT</version>  
  
 <dependencies>  
 <!-- Spring Core -->  
 <dependency>  
 <groupId>org.springframework</groupId>  
 <artifactId>spring-context</artifactId>  
 <version>5.3.36</version>  
 </dependency>  
 </dependencies>  
  
 <properties>  
 <maven.compiler.source>17</maven.compiler.source>  
 <maven.compiler.target>17</maven.compiler.target>  
 <project.build.sourceEncoding>UTF-8</project.build.sourceEncoding>  
 </properties>  
  
</project>

**ApplicationContext.xml**

<?xml version="1.0" encoding="UTF-8"?>  
<beans xmlns="http://www.springframework.org/schema/beans"  
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"  
 xsi:schemaLocation="http://www.springframework.org/schema/beans  
 http://www.springframework.org/schema/beans/spring-beans.xsd">  
  
 <!-- BookRepository Bean -->  
 <bean id="bookRepository" class="org.library.repository.BookRepository"/>  
  
 <!-- BookService Bean with dependency injection -->  
 <bean id="bookService" class="org.library.service.BookService">  
 <property name="bookRepository" ref="bookRepository"/>  
 </bean>  
  
</beans>

**BookRepository.java**

package org.library.repository;  
  
public class BookRepository {  
 public void saveBook(String bookName) {  
 System.*out*.println("Book saved: " + bookName);  
 }  
}

**BookService.java**

package org.library.service;  
  
import org.library.repository.BookRepository;  
  
public class BookService {  
 private BookRepository bookRepository;  
  
 // Setter for Spring to inject the dependency  
 public void setBookRepository(BookRepository bookRepository) {  
 this.bookRepository = bookRepository;  
 }  
  
 public void addBook(String bookName) {  
 bookRepository.saveBook(bookName);  
 }  
}

**MainApp.java**

package org.library;  
  
import org.library.service.BookService;  
import org.springframework.context.support.ClassPathXmlApplicationContext;  
  
public class MainApp {  
 public static void main(String[] args) {  
 ClassPathXmlApplicationContext context =  
 new ClassPathXmlApplicationContext("applicationContext.xml");  
  
 // Get the bookService bean and test the method  
 BookService bookService = context.getBean("bookService", BookService.class);  
 bookService.addBook("The Alchemist");  
  
 context.close();  
 }  
}

**Output:**

