**Exercise 1: Configuring a Basic Spring Application**

**Question:** Your company is developing a web application for managing a library. You need to use the Spring Framework to handle the backend operations.

**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  
 https://www.springframework.org/schema/beans/spring-beans.xsd">  
  
 <bean id="bookRepository" class="org.example.repository.BookRepository"/>  
 <bean id="bookService" class="org.example.service.BookService"/>  
</beans>

**BookRepository.java:**

package org.example.repository;  
  
public class BookRepository {  
 public void saveBook(String bookName){  
 System.*out*.println("Book " + bookName + " Saved to the DataBase");  
 }  
}

**BookService.java:**

package org.example.service;  
import org.example.repository.BookRepository;  
  
public class BookService {  
 public void displayServiceInfo() {System.*out*.println("BookService is running.");}

}

**Main.java:**

package org.example;  
import org.example.service.BookService;  
import org.springframework.context.ApplicationContext;  
import org.springframework.context.support.ClassPathXmlApplicationContext;  
  
public class Main {  
 public static void main(String[] args) {  
 ApplicationContext context =  
 new ClassPathXmlApplicationContext("applicationContext.xml");  
  
 BookService bookService = context.getBean("bookService", BookService.class);  
 bookService.displayServiceInfo();  
 }  
}

**OUTPUT:**

BookService is running

**Exercise 2: Implementing Dependency Injection**

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

**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">  
<bean id="bookRepository" class="org.example.repository.BookRepository"/>

<bean id="bookService" class="org.example.service.BookService">  
 <property name="bookRepository" ref="bookRepository"/>

</bean>  
</beans>

**BookRepository.java:**

package org.example.repository;  
  
public class BookRepository {  
 public void saveBook(String title){  
 System.*out*.println("Book " + title + " saved to the DataBase");  
 }  
}

**BookService.java:**

package org.example.service;  
import org.example.repository.BookRepository;  
  
public class BookService {  
 BookRepository bookRepository;  
  
 public void setBookRepository(BookRepository bookRepository){  
 this.bookRepository = bookRepository;  
 }  
  
 public void addBook(String title){  
 System.*out*.println("Adding " + title);  
 bookRepository.saveBook(title);  
 }  
}

**Main.java:**

package org.example;  
import org.example.service.BookService;  
import org.springframework.context.ApplicationContext;  
import org.springframework.context.support.ClassPathXmlApplicationContext;  
  
public class Main {  
 public static void main(String[] args) {  
 ApplicationContext context =  
 new ClassPathXmlApplicationContext("applicationContext.xml");  
  
 BookService bookService = context.getBean("bookService", BookService.class);  
 bookService.addBook("Harry Potter and Golden Trio");  
 }  
}

**OUTPUT:**

Adding Harry Potter and Golden Trio

Book Harry Potter and Golden Trio saved to the DataBase

**Exercise 4: Creating and Configuring a Maven Project**

**Question:** You need to set up a new Maven project for the library management application and add Spring dependencies.

**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>

<properties>  
 <maven.compiler.source>17</maven.compiler.source>  
 <maven.compiler.target>17</maven.compiler.target>  
 </properties>  
  
 <dependencies>  
 <dependency>  
 <groupId>org.springframework</groupId>  
 <artifactId>spring-context</artifactId>  
 <version>6.2.7</version>  
 </dependency>  
  
 <dependency>  
 <groupId>org.springframework</groupId>  
 <artifactId>spring-aop</artifactId>  
 <version>5.3.34</version>  
 </dependency>  
  
 <dependency>  
 <groupId>org.springframework</groupId>  
 <artifactId>spring-webmvc</artifactId>  
 <version>6.2.8</version>  
 </dependency>  
 </dependencies>  
  
 <build>  
 <plugins>  
 <plugin>  
 <groupId>org.apache.maven.plugins</groupId>  
 <artifactId>maven-compiler-plugin</artifactId>  
 <version>3.8.1</version>  
 <configuration>  
 <source>1.8</source>  
 <target>1.8</target>  
 </configuration>  
 </plugin>  
 </plugins>

</build>  
  
</project>