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

Code:

**Pom.xml**

<dependencies>

        <dependency>

            <groupId>org.springframework</groupId>

            <artifactId>spring-context</artifactId>

            <version>6.2.7</version>

        </dependency>

</dependencies>

**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="bookrepo" class="com.library.repository.BookRepository">

    </bean>

    <bean id="bookservice" class="com.library.service.BookService" >

    </bean>

</beans>

**BookService.java**

package com.library.service;

import com.library.repository.BookRepository;

public class BookService {

    private BookRepository br;

    public BookService(){

        br=new BookRepository();

    }

    public void addBook(String bname){

        br.storeBook(bname);

    }

}

**BookRepository.java**

package com.library.repository;

public class BookRepository {

    public void storeBook(String bname){

        System.out.println("Storing the book "+bname+" in repository ");

    }

}

**Main.java**

package com.library;

import org.springframework.context.ApplicationContext;

import org.springframework.context.support.ClassPathXmlApplicationContext;

import com.library.service.BookService;

public class Main {

    public static void main(String[] args) {

        ApplicationContext con = new ClassPathXmlApplicationContext("applicationContext.xml");

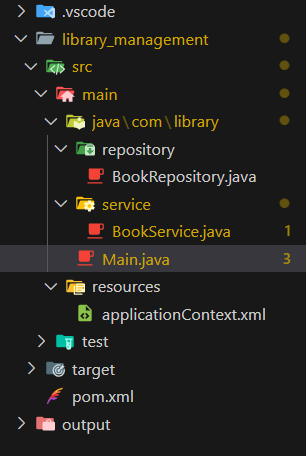
        BookService bs = new BookService();

        bs.addBook("The Lost Symbol");

    }

}

Output:



**Exercise 2: Implementing Dependency Injection**

Code:

**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="bookrepo" class="com.library.repository.BookRepository">

    </bean>

    <bean id="bookservice" class="com.library.service.BookService" >

        <property name="br" ref="bookrepo" />

    </bean>

</beans>

**BookService.java**

package com.library.service;

import com.library.repository.BookRepository;

public class BookService {

    private BookRepository br;

    public void setbr(BookRepository br){

        this.br=br;

    }

    public void addBook(String bname){

        br.storeBook(bname);

    }

}

**Main.java**

package com.library;

import org.springframework.context.ApplicationContext;

import org.springframework.context.support.ClassPathXmlApplicationContext;

import com.library.service.BookService;

public class Main {

    public static void main(String[] args) {

        ApplicationContext con = new ClassPathXmlApplicationContext("applicationContext.xml");

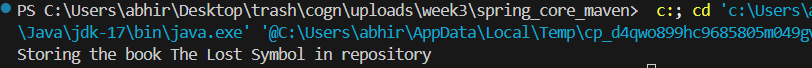
        BookService bs = (BookService) con.getBean("bookservice");

        bs.addBook("The Lost Symbol");

    }

}

Output:



Exercise 4: Creating and Configuring a Maven Project

Code:

**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>com.library</groupId>

    <artifactId>lib\_mgmt</artifactId>

    <version>1.0-SNAPSHOT</version>

    <properties>

        <maven.compiler.source>1.8</maven.compiler.source>

        <maven.compiler.target>1.8</maven.compiler.target>

    </properties>

    <dependencies>

        <dependency>

            <groupId>org.springframework</groupId>

            <artifactId>spring-context</artifactId>

            <version>5.3.32</version>

        </dependency>

        <dependency>

            <groupId>org.springframework</groupId>

            <artifactId>spring-aop</artifactId>

            <version>5.3.32</version>

        </dependency>

        <dependency>

            <groupId>org.springframework</groupId>

            <artifactId>spring-webmvc</artifactId>

            <version>5.3.32</version>

        </dependency>

        <dependency>

            <groupId>javax.servlet</groupId>

            <artifactId>javax.servlet-api</artifactId>

            <version>4.0.1</version>

            <scope>provided</scope>

        </dependency>

    </dependencies>

</project>

Exercise 5: Configuring the Spring IoC Container

Code:

**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="bookrepo" class="com.library.repository.BookRepository">

    </bean>

    <bean id="bookservice" class="com.library.service.BookService" >

        <constructor-arg ref="bookrepo" />

        <property name="br" ref="bookrepo" />

    </bean>

</beans>

**Main.java**

package com.library;

import org.springframework.context.ApplicationContext;

import org.springframework.context.support.ClassPathXmlApplicationContext;

import com.library.service.BookService;

public class Main {

    public static void main(String[] args) {

         ApplicationContext con = new ClassPathXmlApplicationContext("applicationContext.xml");

        BookService bs = (BookService) con.getBean("bookservice");

        bs.addBook("The Lost Symbol");

    }

}

**BookService.java**

package com.library.service;

import com.library.repository.BookRepository;

public class BookService {

    private BookRepository br;

    public BookService(BookRepository br){

        this.br=br;

        System.out.println("Using constructor");

    }

    public void setBr(BookRepository br){

        this.br=br;

        System.out.println("Using methods");

    }

    public void addBook(String bname){

        br.storeBook(bname);

    }

}

Output:

