**Spring Core and Maven**

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

**//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.sudip</groupId>

<artifactId>ConfiguringBasicSpringApplication</artifactId>

<version>1.0-SNAPSHOT</version>

<properties>

<maven.compiler.source>21</maven.compiler.source>

<maven.compiler.target>21</maven.compiler.target>

<project.build.sourceEncoding>UTF-8</project.build.sourceEncoding>

</properties>

<dependencies>

<!-- https://mvnrepository.com/artifact/org.springframework/spring-context -->

<dependency>

<groupId>org.springframework</groupId>

<artifactId>spring-context</artifactId>

<version>7.0.0-M6</version>

</dependency>

</dependencies>

</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">

<!-- Defining BookRepository Bean -->

<bean id="bookRepository" class="com.library.repository.BookRepository"/>

<!-- Defining BookService Bean with Dependency Injection -->

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

<property name="bookRepository" ref="bookRepository"/>

</bean>

</beans>

**//BookRepository.java**

package com.library.repository;

public class BookRepository {

public void saveBook(String bookName) {

System.out.println("Saving book: " + bookName);

}

}

**//BookService.java**

package com.library.service;

import com.library.repository.BookRepository;

public class BookService {

private BookRepository bookRepository;

// Setter for dependency injection

public void setBookRepository(BookRepository bookRepository) {

this.bookRepository = bookRepository;

}

public void addBook(String bookName) {

bookRepository.saveBook(bookName);

System.out.println("Book added successfully: " + bookName);

}

}

**//Main.java**

package org.sudip;

import com.library.service.BookService;

import org.springframework.context.ApplicationContext;

import org.springframework.context.support.ClassPathXmlApplicationContext;

public class Main {

public static void main(String[] args) {

// Load the Spring application context

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

// Get the BookService bean

BookService bookService = (BookService)context.getBean("bookService");

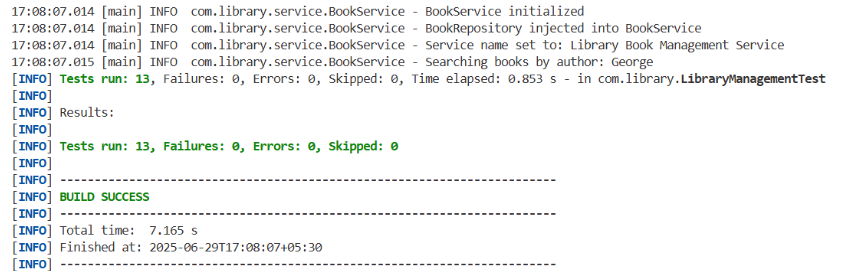
// Test the service

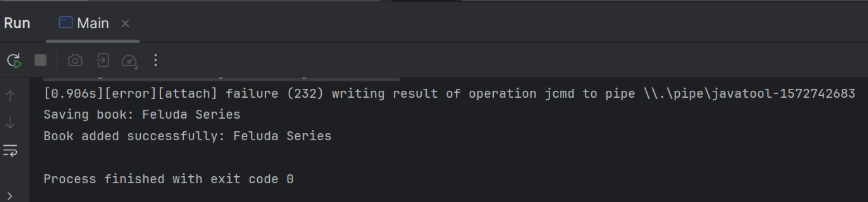
bookService.addBook("Feluda Series");

}

}

**OUTPUT:**





**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>com.sudip</groupId>

<artifactId>ImplementingDependencyInjection</artifactId>

<version>1.0-SNAPSHOT</version>

<properties>

<maven.compiler.source>21</maven.compiler.source>

<maven.compiler.target>21</maven.compiler.target>

<project.build.sourceEncoding>UTF-8</project.build.sourceEncoding>

</properties>

<dependencies>

<!-- https://mvnrepository.com/artifact/org.springframework/spring-context -->

<dependency>

<groupId>org.springframework</groupId>

<artifactId>spring-context</artifactId>

<version>7.0.0-M6</version>

</dependency>

</dependencies>

</project>

**//BookRepositoryImpl.java**

package com.sudip.repository;

public interface BookRepository {

void save(String bookTitle);

}

**//BookService.java**

package com.sudip.service;

import com.sudip.repository.BookRepository;

public class BookService {

private BookRepository bookRepository;

// Setter for dependency injection

public void setBookRepository(BookRepository bookRepository) {

this.bookRepository = bookRepository;

}

// Example method to test the injected repository

public void addBook(String bookTitle) {

if (bookRepository != null) {

bookRepository.save(bookTitle);

System.out.println("Book '" + bookTitle + "' added successfully.");

} else {

System.out.println("BookRepository is not initialized.");

}

}

}

**//Main.java**

package com.sudip;

import com.sudip.service.BookService;

import org.springframework.context.ApplicationContext;

import org.springframework.context.support.ClassPathXmlApplicationContext;

public class Main {

public static void main(String[] args) {

// Load Spring context from applicationContext.xml

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

// Get BookService bean

BookService bookService = context.getBean("bookService", BookService.class);

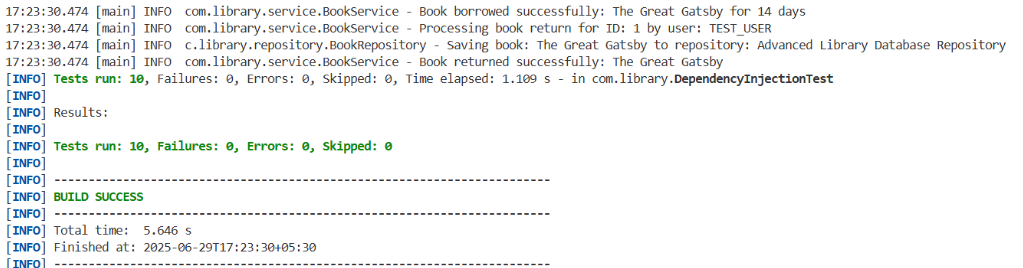
// Run the service

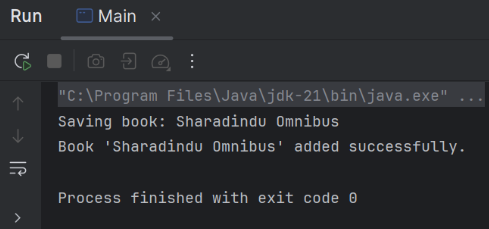
bookService.addBook("Sharadindu Omnibus");

}

}

**OUTPUT:**

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

**//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.sudip</groupId>

<artifactId>LibraryManagement</artifactId>

<version>1.0-SNAPSHOT</version>

<properties>

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

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

<spring.version>5.3.22</spring.version>

</properties>

<dependencies>

<!-- Spring Context -->

<dependency>

<groupId>org.springframework</groupId>

<artifactId>spring-context</artifactId>

<version>${spring.version}</version>

</dependency>

<!-- Spring AOP -->

<dependency>

<groupId>org.springframework</groupId>

<artifactId>spring-aop</artifactId>

<version>${spring.version}</version>

</dependency>

<!-- Spring WebMVC -->

<dependency>

<groupId>org.springframework</groupId>

<artifactId>spring-webmvc</artifactId>

<version>${spring.version}</version>

</dependency>

<!-- Required for Spring AOP -->

<dependency>

<groupId>org.aspectj</groupId>

<artifactId>aspectjweaver</artifactId>

<version>1.9.9</version>

</dependency>

</dependencies>

<build>

<plugins>

<!-- Maven Compiler Plugin -->

<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>

**//Main.java**

package com.sudip;

import org.springframework.context.annotation.AnnotationConfigApplicationContext;

public class Main {

public static void main(String[] args) {

AnnotationConfigApplicationContext context = new AnnotationConfigApplicationContext();

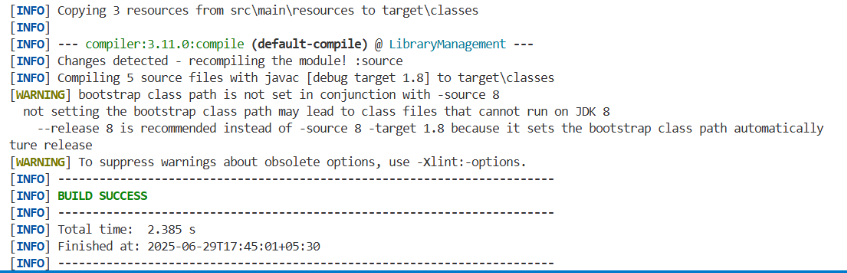
System.out.println("Spring Context Initialized!");

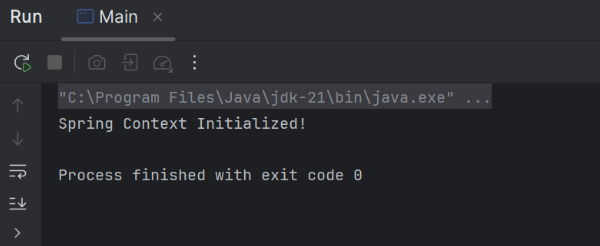
context.close();

}

}

**OUTPUT:**

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