**Exercise 8: Implementing Basic AOP with Spring**

**Scenario:**

The library management application requires basic AOP functionality to separate cross-cutting concerns like logging and transaction management.

**LoggingAspect.java**

**package com.library.aspect;**

**import org.aspectj.lang.annotation.After;**

**import org.aspectj.lang.annotation.Aspect;**

**import org.aspectj.lang.annotation.Before;**

**import org.springframework.stereotype.Component;**

**@Aspect**

**@Component**

**public class LoggingAspect {**

**@Before("execution(\* com.library.service.\*.\*(..))")**

**public void logBeforeMethodExecution() {**

**System.out.println("Logging before method execution");**

**}**

**@After("execution(\* com.library.service.\*.\*(..))")**

**public void logAfterMethodExecution() {**

**System.out.println("Logging after method execution");**

**}**

**}**

#### applicationContext.xml

**<beans xmlns="http://www.springframework.org/schema/beans"**

**xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"**

**xmlns:aop="http://www.springframework.org/schema/aop"**

**xsi:schemaLocation="http://www.springframework.org/schema/beans**

**http://www.springframework.org/schema/beans/spring-beans.xsd**

**http://www.springframework.org/schema/aop**

**http://www.springframework.org/schema/aop/spring-aop.xsd">**

**<!-- Bean for BookRepository -->**

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

**<!-- Constructor Injection for BookService -->**

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

**<constructor-arg ref="bookRepository"/>**

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

**</bean>**

**<!-- Aspect Configuration -->**

**<bean id="loggingAspect" class="com.library.aspect.LoggingAspect"/>**

**<aop:aspectj-autoproxy/>**

**</beans>**

#### LibraryManagementApplication.java

**package com.library;**

**import org.springframework.context.ApplicationContext;**

**import org.springframework.context.support.ClassPathXmlApplicationContext;**

**public class LibraryManagementApplication {**

**public static void main(String[] args) {**

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

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

**bookService.manageBooks();**

**}**

**}**