**Exercise 1: Basic Unit Test for a Service Method**

**Task:** Write a unit test for a service method that adds two numbers.

**CalculatorService.java :-**

package org.example1;  
  
import org.springframework.stereotype.Service;  
  
@Service  
public class CalculatorService {  
 public int add(int a, int b) {  
 return a + b;  
 }  
}

**CalculatorServiceTest.java :-**

package org.example1;  
  
import org.junit.jupiter.api.Test;  
import static org.junit.jupiter.api.Assertions.\*;  
  
class CalculatorServiceTest {  
  
 private final org.example1.CalculatorService calculatorService = new org.example1.CalculatorService();  
  
 @Test  
 void testAdd() {  
 int result = calculatorService.add(5, 3);  
 *assertEquals*(8, result, "Addition of 5 and 3 should be 8");  
 }  
}

**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>org.example1</groupId>  
 <artifactId>spring-calculator</artifactId>  
 <version>1.0-SNAPSHOT</version>  
  
 <properties>  
 <java.version>17</java.version>  
 </properties>  
  
 <dependencies>  
 <!-- Spring Context for @Service -->  
 <dependency>  
 <groupId>org.springframework</groupId>  
 <artifactId>spring-context</artifactId>  
 <version>6.1.4</version>  
 </dependency>  
  
 <!-- JUnit 5 -->  
 <dependency>  
 <groupId>org.junit.jupiter</groupId>  
 <artifactId>junit-jupiter</artifactId>  
 <version>5.10.0</version>  
 <scope>test</scope>  
 </dependency>  
 </dependencies>  
  
 <build>  
 <plugins>  
 <!-- Java Compiler Plugin -->  
 <plugin>  
 <groupId>org.apache.maven.plugins</groupId>  
 <artifactId>maven-compiler-plugin</artifactId>  
 <version>3.10.1</version>  
 <configuration>  
 <source>${java.version}</source>  
 <target>${java.version}</target>  
 </configuration>  
 </plugin>  
  
 <!-- Surefire Plugin for running tests -->  
 <plugin>  
 <groupId>org.apache.maven.plugins</groupId>  
 <artifactId>maven-surefire-plugin</artifactId>  
 <version>3.1.2</version>  
 </plugin>  
 </plugins>  
 </build>  
</project>

**Output :-**

