**Exercise 2: Writing Basic JUnit Tests**

**Scenario**: You need to write basic JUnit tests for a simple Java class.

Calculator.java :-

package org.example1;  
  
public class Calculator {  
 public int add(int a, int b) {  
 return a + b;  
 }  
  
 public int subtract(int a, int b) {  
 return a - b;  
 }  
  
 public int multiply(int a, int b) {  
 return a \* b;  
 }  
  
 public int divide(int a, int b) {  
 if (b == 0)  
 throw new IllegalArgumentException("Division by zero");  
 return a / b;  
 }  
}

CalculatorTest.java :-

package org.example1;  
  
import org.junit.jupiter.api.Test;  
import static org.junit.jupiter.api.Assertions.*assertEquals*;  
import static org.junit.jupiter.api.Assertions.*assertThrows*;  
  
public class CalculatorTest {  
  
 Calculator calculator = new Calculator();  
  
 @Test  
 public void testAdd() {  
 *assertEquals*(5, calculator.add(2, 3));  
 }  
  
 @Test  
 public void testSubtract() {  
 *assertEquals*(2, calculator.subtract(5, 3));  
 }  
  
 @Test  
 public void testMultiply() {  
 *assertEquals*(15, calculator.multiply(3, 5));  
 }  
  
 @Test  
 public void testDivide() {  
 *assertEquals*(4, calculator.divide(8, 2));  
 }  
  
 @Test  
 public void testDivideByZero() {  
 Exception exception = *assertThrows*(IllegalArgumentException.class, () -> {  
 calculator.divide(5, 0);  
 });  
 *assertEquals*("Division by zero", exception.getMessage());  
 }  
}

**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>BasicJunitTest</artifactId>  
 <version>1.0-SNAPSHOT</version>  
  
 <properties>  
 <maven.compiler.source>17</maven.compiler.source>  
 <maven.compiler.target>17</maven.compiler.target>  
 </properties>  
  
 <dependencies>  
 <!-- JUnit 5 (Jupiter) -->  
 <dependency>  
 <groupId>org.junit.jupiter</groupId>  
 <artifactId>junit-jupiter</artifactId>  
 <version>5.10.0</version>  
 <scope>test</scope>  
 </dependency>  
 </dependencies>  
  
 <build>  
 <plugins>  
   
 <plugin>  
 <groupId>org.apache.maven.plugins</groupId>  
 <artifactId>maven-surefire-plugin</artifactId>  
 <version>3.0.0</version>  
 </plugin>  
 </plugins>  
 </build>  
</project>

**Output :-**

