**Exercise 2: Writing Basic JUnit Tests**

**Calculator.java**

package mypackage;

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("Cannot divide by zero");

}

return a / b;

}

}

**CalculatorTest.java**

package mypackage;

import org.junit.Test;

import static org.junit.Assert.assertEquals;

import static org.junit.Assert.assertThrows;

public class CalculatorTest {

@Test

public void testAdd() {

Calculator calc = new Calculator();

int result = calc.add(2, 3);

System.out.println("Addition: " + result);

assertEquals(5, result);

}

@Test

public void testSubtract() {

Calculator calc = new Calculator();

int result = calc.subtract(10, 4);

System.out.println("Subtraction: " + result);

assertEquals(6, result);

}

@Test

public void testMultiply() {

Calculator calc = new Calculator();

int result = calc.multiply(3, 5);

System.out.println("Multiplication: " + result);

assertEquals(15, result);

}

@Test

public void testDivide() {

Calculator calc = new Calculator();

int result = calc.divide(20, 4);

System.out.println("Division: " + result);

assertEquals(5, result);

}

@Test

public void testDivideByZero() {

Calculator calc = new Calculator();

System.out.println("Testing divide by zero...");

assertThrows(IllegalArgumentException.class, () -> calc.divide(10, 0));

}

}

