**Week-2: (Module 4)**

**TDD using JUnit5 and Mockito**

**Exercise 4: Arrange-Act-Assert (AAA) Pattern, Test Fixtures, Setup and**

**Teardown Methods in Junit**

**Calculator.java**

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**

import org.junit.Test;  
import org.junit.\*;  
import static org.junit.Assert.\*;  
  
public class CalculatorTest {  
  
 private Calculator calc;  
 @Before  
 public void setUp(){  
 calc=new Calculator();  
 System.*out*.println("Setup: Calculator instance created");  
 }  
  
 @After  
 public void tearDown(){  
 System.*out*.println("Teardown: Test Completed\n");  
 }  
 @Test  
 public void testAdd() {  
 int res=calc.add(7,3);  
 *assertEquals*(10, res);  
 }  
  
 @Test  
 public void testSubtract() {  
 int res=calc.subtract(10,6);  
 *assertEquals*(4, res);  
 }  
  
 @Test  
 public void testMultiply() {  
 int res=calc.multiply(3,5);  
 *assertEquals*(15, res);  
 }  
  
 @Test  
 public void testDivide() {  
 int res=calc.divide(10,5);  
 *assertEquals*(2, res);  
 }  
  
 @Test(expected = IllegalArgumentException.class)  
 public void testDivideByZero() {  
 calc.divide(5, 0);  
 }  
}

Output:

