**QUESTION:**

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

**Scenario: You need to organize your tests using the Arrange-Act-Assert (AAA) pattern and use setup and teardown methods.**

**Steps:**

1. Write tests using the AAA pattern.

2. Use @Before and @After annotations for setup and teardown methods.

**CODE:**

import org.junit.Before;

import org.junit.After;

import org.junit.Test;

import static org.junit.Assert.assertEquals;

public class CalculatorTest {

private Calculator calculator;

// Setup method – runs before each test

@Before

public void setUp() {

calculator = new Calculator();

System.out.println("Setup complete.");

}

// Teardown method – runs after each test

@After

public void tearDown() {

calculator = null;

System.out.println("Teardown complete.");

}

@Test

public void testAddition() {

// Arrange

int a = 10;

int b = 5;

// Act

int result = calculator.add(a, b);

// Assert

assertEquals(15, result);

}

@Test

public void testSubtraction() {

// Arrange

int a = 20;

int b = 8;

// Act

int result = calculator.subtract(a, b);

// Assert

assertEquals(12, result);

}

}

**MAIN CLASS:**

public class Calculator {

public int add(int a, int b) {

return a + b;

}

public int subtract(int a, int b) {

return a - b;

}

**OUTPUT:**

Setup complete.

Teardown complete.

Setup complete.

Teardown complete.

Tests run: 2, Failures: 0, Errors: 0, Skipped: 0

BUILD SUCCESS