**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.

**Solution:**

The AAA pattern is a structure followed in unit testing to write clean, readable, and well-organized tests.

* **Arrange:** Prepare the objects and set the initial conditions.
* **Act:** Perform the action you want to test (usually calling a method).
* **Assert:** Check that the result is what you expect

**Test Case Code:**

**//class name Calculator**

package org.sampleprogram;  
  
public class Calculator {  
 public int add(int a, int b, int c){  
 return (a+b+c);  
 }  
 public int subtract(int a,int b, int c){  
 return (a-b-c);  
 }  
}

**//class name CalculatorTest**import org.junit.After;  
import org.junit.Before;  
import org.junit.Test;  
import org.junit.jupiter.api.AfterEach;  
import org.junit.jupiter.api.BeforeEach;  
import org.sampleprogram.Calculator;  
  
import static org.junit.Assert.*assertEquals*;  
  
public class CalculatorTest {  
 // ARRANGE  
 Calculator c = new Calculator();  
 // ACT  
 @Before  
 public void beforeDisplay(){  
 System.*out*.println("setup calculator");  
 }  
 @Test  
 public void addition(){  
 //ASSERT  
 *assertEquals*(100,c.add(10,40,50));  
 }  
 @Test  
 public void subtraction(){  
 //ASSERT  
 *assertEquals*(50,c.subtract(100,30,20));  
 }  
 @After  
 public void afterDisplay(){  
 System.*out*.println("teardown calculation");  
 }  
}

**Output:**

**Testcase Passed**

