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

**Goal:**

* **Use AAA pattern:**
  + Arrange → Setup objects/data
  + Act → Call the method under test
  + Assert → Check result
* **Use @Before and @After to manage setup and cleanup**

**Calculator.java (in src/main/java/com/example)**

package com.example;

public class Calculator {

public int add(int a, int b) {

return a + b;

}

public int multiply(int a, int b) {

return a \* b;

}

}

**CalculatorTest.java (in src/test/java/com/example)**

**package com.example;**

import org.junit.Before;

import org.junit.After;

import org.junit.Test;

import static org.junit.Assert.\*;

public class CalculatorTest {

private Calculator calculator;

@Before

public void setUp() {

calculator = new Calculator();

System.out.println("Setting up calculator...");

}

@After

public void tearDown() {

calculator = null;

System.out.println("Tearing down calculator...");

}

@Test

public void testAdd() {

// Act

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

// Assert

assertEquals(5, result);

}

@Test

public void testMultiply() {

// Act

int result = calculator.multiply(4, 5);

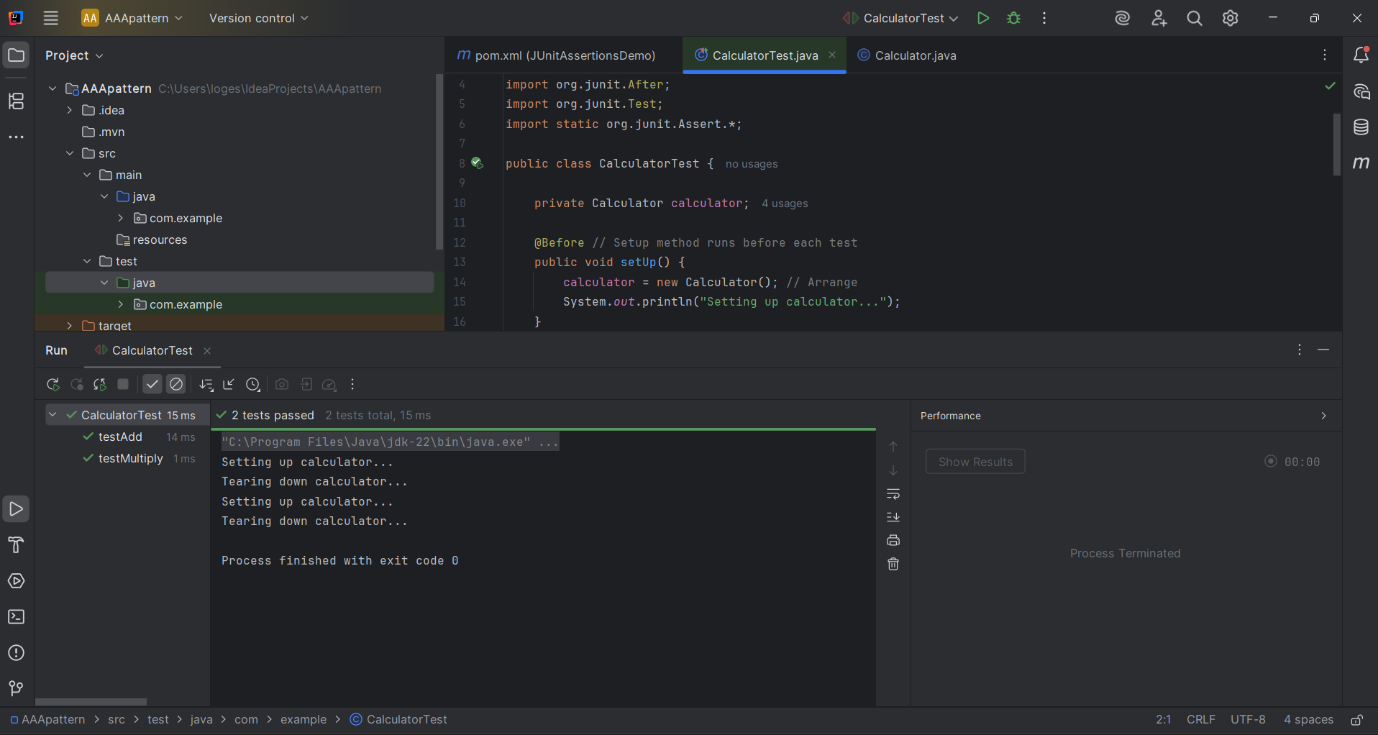
// Assert

assertEquals(20, result);

}

}

**Output ScreenShot:**

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