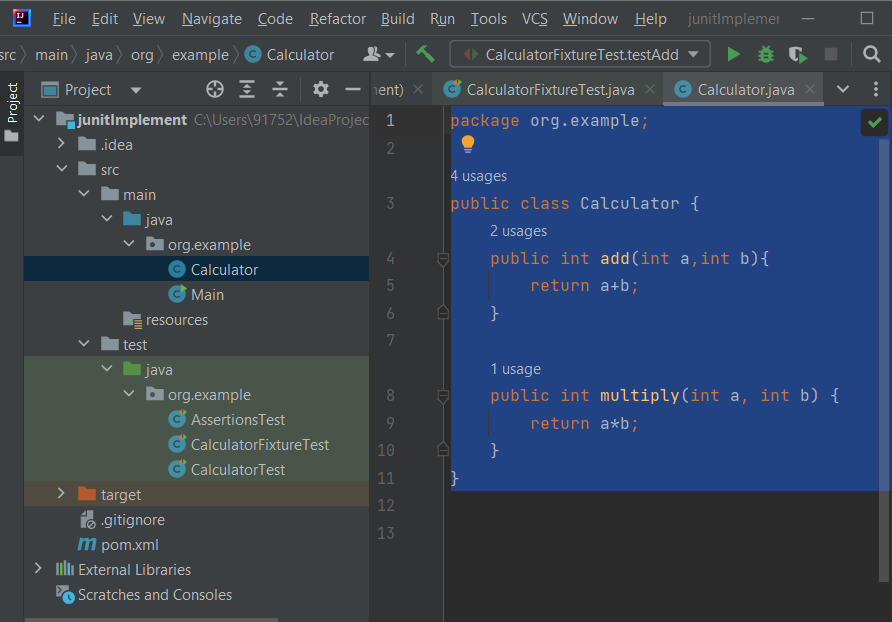
Exercise-4 - Arrange-Act-Assert(AAA) Pattern Test Fixtures, Setup and Teardown Methods in JUnit

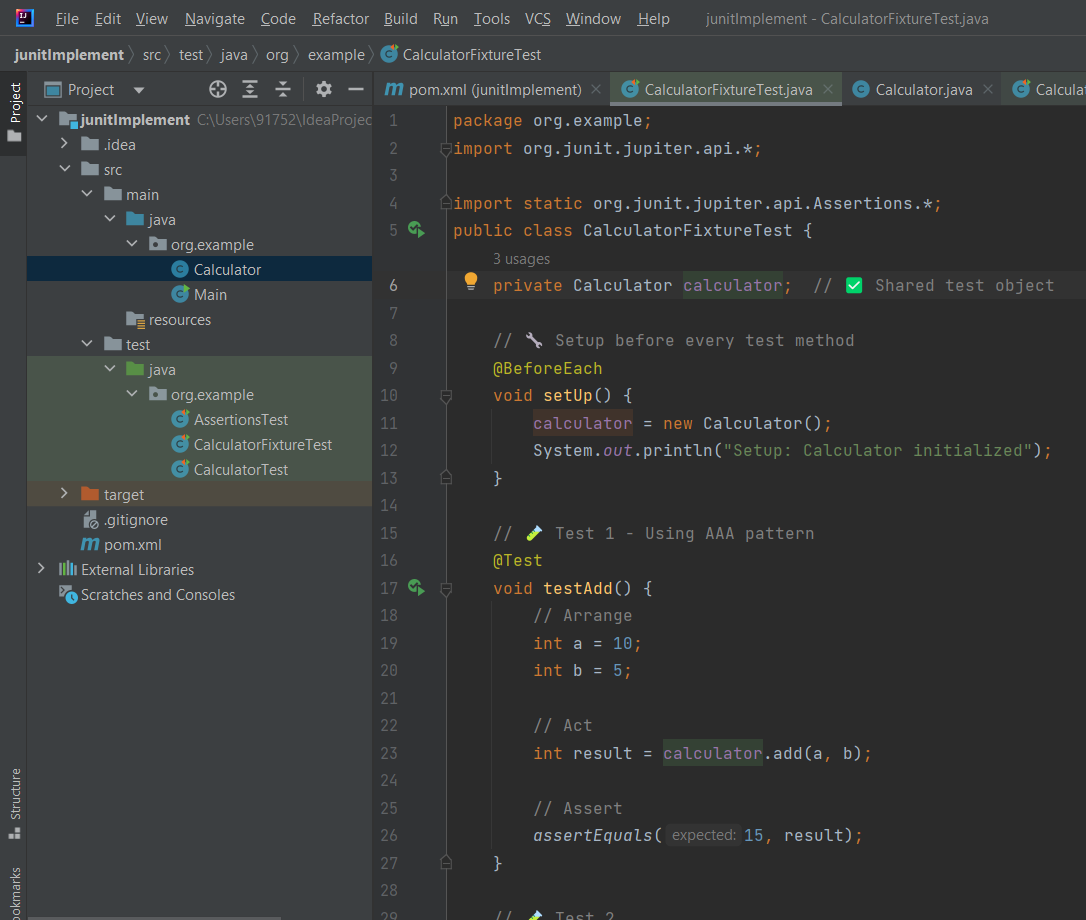
1- Calculator.java

package org.example;  
  
public class Calculator {  
 public int add(int a,int b){  
 return a+b;  
 }  
  
 public int multiply(int a, int b) {  
 return a\*b;  
 }  
}

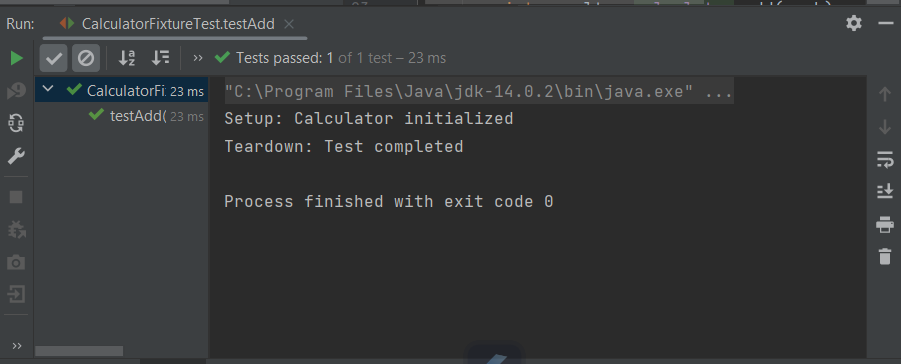


2-CalculatorFixtureTest.java

package org.example;  
import org.junit.jupiter.api.\*;  
  
import static org.junit.jupiter.api.Assertions.\*;  
public class CalculatorFixtureTest {  
 private Calculator calculator; // ✅ Shared test object  
  
 // 🔧 Setup before every test method  
 @BeforeEach  
 void setUp() {  
 calculator = new Calculator();  
 System.*out*.println("Setup: Calculator initialized");  
 }  
  
 // 🧪 Test 1 - Using AAA pattern  
 @Test  
 void testAdd() {  
 // Arrange  
 int a = 10;  
 int b = 5;  
  
 // Act  
 int result = calculator.add(a, b);  
  
 // Assert  
 *assertEquals*(15, result);  
 }  
  
 // 🧪 Test 2  
 @Test  
 void testMultiply() {  
 // Arrange  
 int a = 3;  
 int b = 4;  
  
 // Act  
 int result = calculator.multiply(a, b);  
  
 // Assert  
 *assertEquals*(12, result);  
 }  
  
 // 🧹 Teardown after every test method  
 @AfterEach  
 void tearDown() {  
 System.*out*.println("Teardown: Test completed");  
 }  
}



Output-



3-pom.xml

<?xml version="1.0" encoding="UTF-8"?>  
<project xmlns="http://maven.apache.org/POM/4.0.0"  
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"  
 xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apache.org/xsd/maven-4.0.0.xsd">  
 <modelVersion>4.0.0</modelVersion>  
  
 <groupId>org.example</groupId>  
 <artifactId>junitImplement</artifactId>  
 <version>1.0-SNAPSHOT</version>  
  
 <properties>  
 <maven.compiler.source>14</maven.compiler.source>  
 <maven.compiler.target>14</maven.compiler.target>  
 <project.build.sourceEncoding>UTF-8</project.build.sourceEncoding>  
 </properties>  
  
 <dependencies>  
 <!-- https://mvnrepository.com/artifact/org.junit.jupiter/junit-jupiter-api -->  
  
 <dependency>  
 <groupId>org.junit.jupiter</groupId>  
 <artifactId>junit-jupiter-engine</artifactId>  
 <version>5.10.0</version>  
 <scope>test</scope>  
 </dependency>  
 <dependency>  
 <groupId>junit</groupId>  
 <artifactId>junit</artifactId>  
 <version>4.13.2</version>  
 <scope>test</scope>  
 </dependency>  
  
 </dependencies>s  
  
</project>

