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

**App.java :-**

package org.example1;  
  
public class App {  
 public int add(int a, int b) {  
 return a + b;  
 }  
  
 public int subtract(int a, int b) {  
 return a - b;  
 }  
}

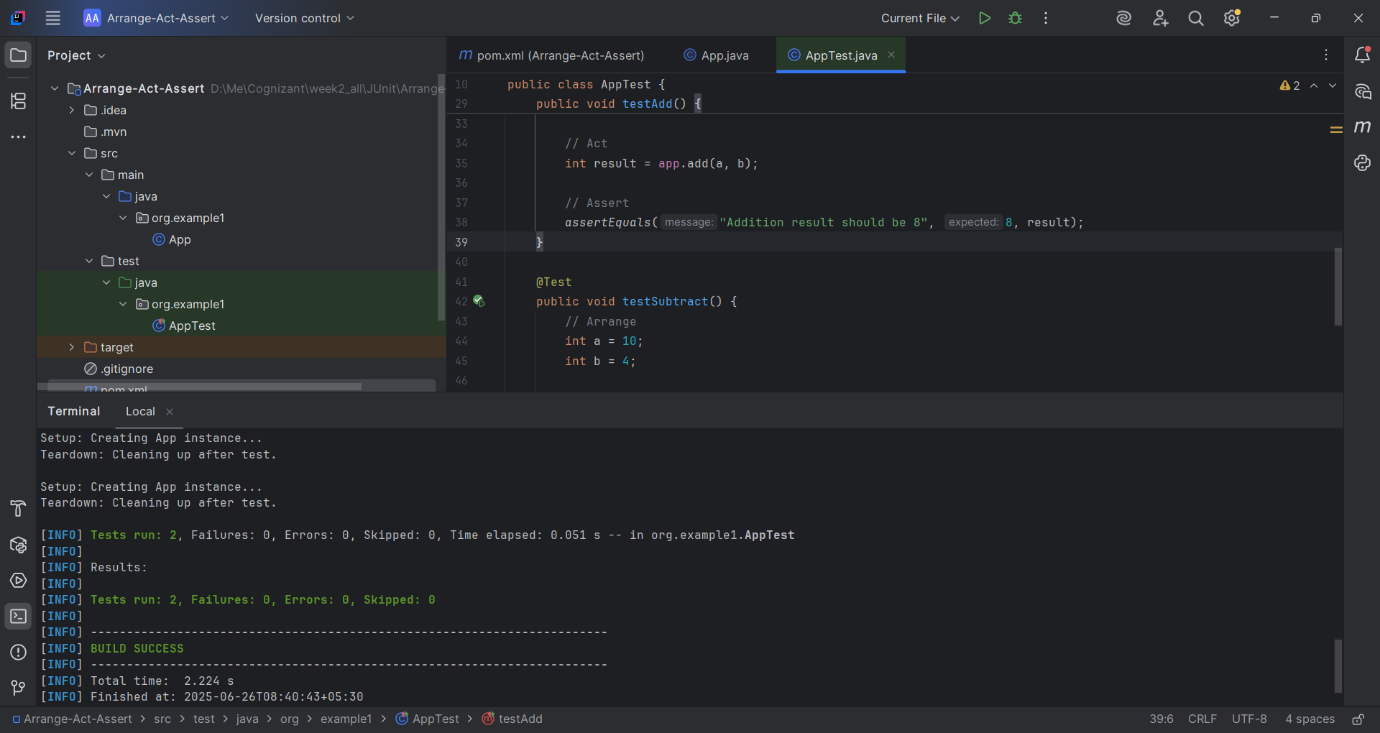
**AppTest.java :-**

package org.example1;  
  
import org.junit.After;  
import org.junit.Before;  
import org.junit.Test;  
  
import static junit.framework.Assert.*assertEquals*;  
import static org.junit.Assert.\*;  
  
public class AppTest {  
  
 private App app;  
  
 // Setup method: runs before every @Test  
 @Before  
 public void setUp() {  
 System.*out*.println("Setup: Creating App instance...");  
 app = new App();  
 }  
  
 // Teardown method: runs after every @Test  
 @After  
 public void tearDown() {  
 System.*out*.println("Teardown: Cleaning up after test.\n");  
 app = null;  
 }  
  
 @Test  
 public void testAdd() {  
 // Arrange  
 int a = 5;  
 int b = 3;  
  
 // Act  
 int result = app.add(a, b);  
  
 // Assert  
 *assertEquals*("Addition result should be 8", 8, result);  
 }  
  
 @Test  
 public void testSubtract() {  
 // Arrange  
 int a = 10;  
 int b = 4;  
  
 // Act  
 int result = app.subtract(a, b);  
  
 // Assert  
 *assertEquals*("Subtraction result should be 6", 6, result);  
 }  
}

**pom.xml :-**

<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.example1</groupId>  
 <artifactId>Arrange-Act-Assert</artifactId>  
 <version>1.0-SNAPSHOT</version>  
 <packaging>jar</packaging>  
  
 <name>Arrange-Act-Assert</name>  
 <url>http://maven.apache.org</url>  
  
 <properties>  
 <project.build.sourceEncoding>UTF-8</project.build.sourceEncoding>  
 </properties>  
  
 <dependencies>  
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 <groupId>junit</groupId>  
 <artifactId>junit</artifactId>  
 <version>3.8.1</version>  
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 <groupId>junit</groupId>  
 <artifactId>junit</artifactId>  
 <version>4.13.2</version>  
 <scope>test</scope>  
 </dependency>  
 </dependencies>  
</project>

**Output :-**

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