**TDD using JUnit5 and Mockito**

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

**//Calculator.java**

package com.AAA.patterns;

public class Calculator {

public int add(int a, int b) {

return a + b;

}

public int subtract(int a, int b) {

return a - b;

}

}

**//CalculatorTest.java**

package com.AAA.patterns;

import org.junit.jupiter.api.\*; // JUnit 5 imports

import static org.junit.jupiter.api.Assertions.\*; // JUnit 5 assert

public class CalculatorTest {

private Calculator calculator;

@BeforeEach

void setUp() {

calculator = new Calculator();

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

}

@AfterEach

void tearDown() {

calculator = null;

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

}

@Test

void testAddition() {

// Arrange

int a = 10;

int b = 5;

// Act

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

// Assert

assertEquals(15, result);

}

@Test

void testSubtraction() {

// Arrange

int a = 10;

int b = 3;

// Act

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

// Assert

assertEquals(7, 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 https://maven.apache.org/xsd/maven-4.0.0.xsd">

<modelVersion>4.0.0</modelVersion>

<groupId>AAA</groupId>

<artifactId>AAA\_Pattern</artifactId>

<version>0.0.1-SNAPSHOT</version>

<dependencies>

<!-- JUnit Jupiter (API + Engine) -->

<dependency>

<groupId>org.junit.jupiter</groupId>

<artifactId>junit-jupiter</artifactId>

<version>5.9.3</version>

<scope>test</scope>

</dependency>

</dependencies>

<build>

<plugins>

<!-- Correct Surefire Plugin version to support JUnit 5 -->

<plugin>

<groupId>org.apache.maven.plugins</groupId>

<artifactId>maven-surefire-plugin</artifactId>

<version>3.0.0-M9</version>

</plugin>

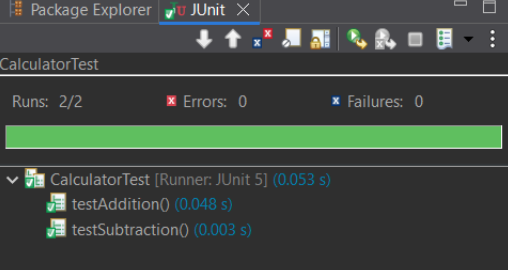
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</build>

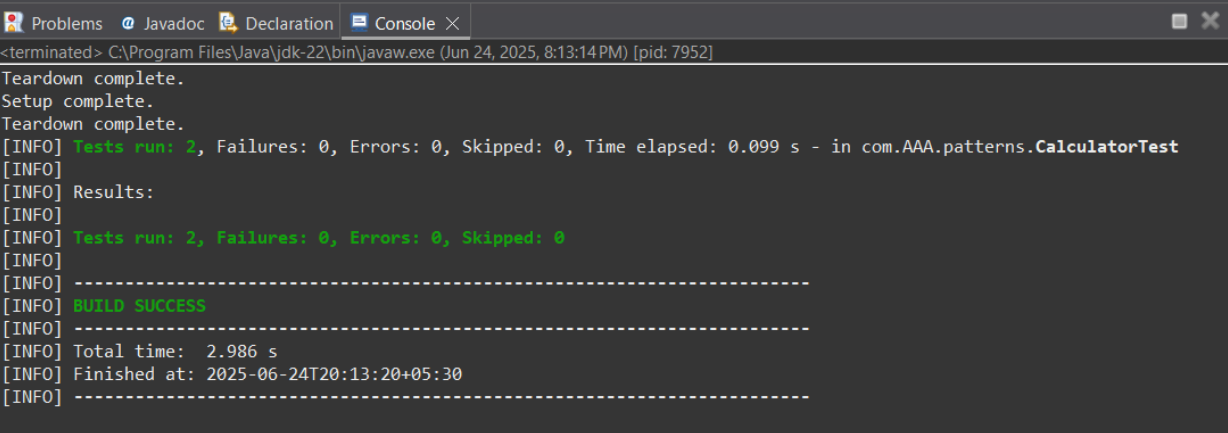
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**OUTPUT:**

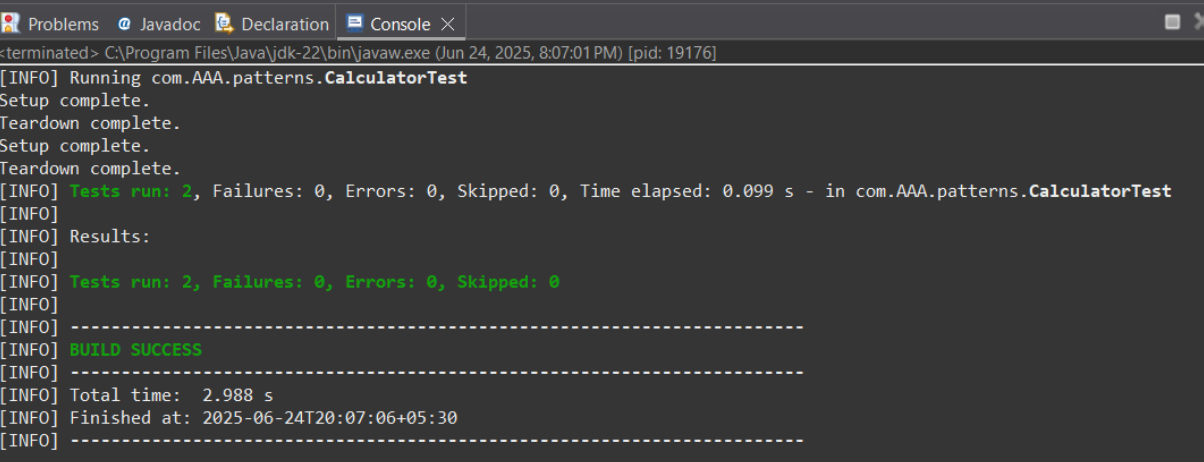
**Junit Test:**

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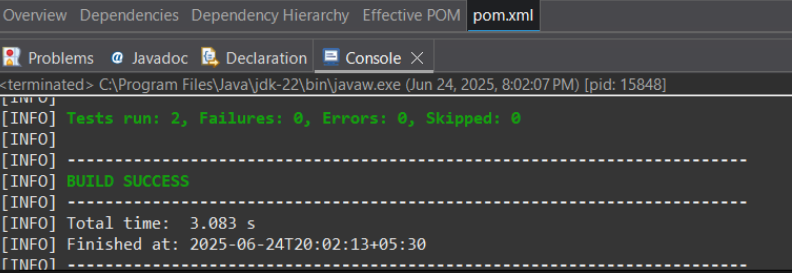
**Maven Test for CalculatorTest:**

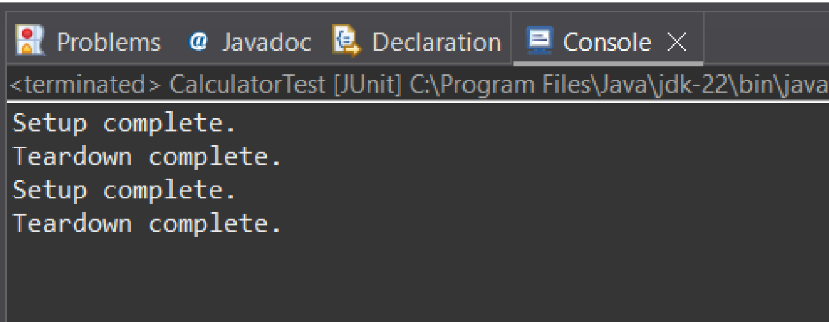
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**Maven Test for Calculator:**

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**Pom.xml:**

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