**Junit Basic Testing**

**Question 1: Setting-up Junit**

**Scenario: Set up JUnit in your Java project to start writing unit tests**

**Pom.xml:**

<dependencies>

<dependency>

<groupId>junit</groupId>

<artifactId>junit</artifactId>

<version>4.13.2</version>

<scope>test</scope>

</dependency>

</dependencies>

**Question 3: Assertions in Junit**

**Scenario:**

**You need to use different assertions in JUnit to validate your test results.**

**Test.java:**

package com.testing;

import org.junit.Test;

import static org.junit.Assert.\*;

public class test {

@Test

public void test() {

// Assert equals

assertEquals(5, 2 + 3);

// Assert true

assertTrue(5 > 3);

// Assert false

assertFalse(5 < 3);

// Assert null

assertNull(null);

// Assert not null

assertNotNull(new Object());

// Assert same

String str = "hello";

assertSame(str, str);

// Assert not same

assertNotSame("hello", new String("hello"));

}

}

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

**Calculator.java:**

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:**

import org.junit.After;

import org.junit.Before;

import org.junit.Test;

import static org.junit.Assert.assertEquals;

public class CalculatorTest {

private Calculator calculator;

@Before

public void setUp() {

// Arrange: Initialize resources

calculator = new Calculator();

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

}

@After

public void tearDown() {

// Clean up resources

calculator = null;

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

}

@Test

public void testAddition() {

// Act

int result = calculator.add(5, 3);

// Assert

assertEquals(8, result);

}

@Test

public void testSubtraction() {

// Act

int result = calculator.subtract(10, 4);

// Assert

assertEquals(6, result);

}

}

