**Exercise 1: Setting Up Junit**

**Code:**

<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/maven-v4\_0\_0.xsd">

  <modelVersion>4.0.0</modelVersion>

  <groupId>com.example</groupId>

  <artifactId>demo</artifactId>

  <packaging>jar</packaging>

  <version>1.0-SNAPSHOT</version>

  <name>demo</name>

  <url>http://maven.apache.org</url>

  <dependencies>

    <dependency>

        <groupId>junit</groupId>

        <artifactId>junit</artifactId>

        <version>4.13.2</version>

        <scope>test</scope>

    </dependency>

  </dependencies>

</project>

**Output:**

A screenshot of a computer

AI-generated content may be incorrect.

**Exercise 3: Assertions in JUnit**

**Code:**

package com.example;

import org.junit.jupiter.api.Test;

import static org.junit.jupiter.api.Assertions.\*;

public class AssertionsTest {

    public void testAssertions() {

        assertEquals(5, 2 + 3);

        assertTrue(5 > 3);

        assertFalse(5 < 3);

        assertNull(null);

        assertNotNull(new Object());

    }

}

**Output:**

A screenshot of a computer program

AI-generated content may be incorrect.

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

**Code:**

public class Calculator {

    public int add(int a, int b) {

    return a + b;

    }

    public int subtract(int a, int b) {

        return a - b;

    }

}

import static org.junit.Assert.\*;

import org.junit.Before;

import org.junit.After;

import org.junit.Test;

public class CalculatorTest {

    private Calculator calculator;

    @Before // Setup method (runs before each test)

    public void setUp() {

        calculator = new Calculator();

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

    }

    @After // Teardown method (runs after each test)

    public void tearDown() {

        calculator = null;

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

    }

    public void testAddition() {

        int result = calculator.add(10, 5);

        assertEquals(15, result);

    }

    public void testSubtraction() {

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

        assertEquals(6, result);

    }

}

**Output:**

A black screen with colorful lights

AI-generated content may be incorrect.