**File: JUnit\_Testing\_Exercises**

**Exercise 1: Setting Up JUnit**

**Steps:**

1. Create a new Java project in your IDE such as IntelliJ IDEA or Eclipse.
2. Add the JUnit dependency to your project. If using Maven, add the following to your pom.xml:

<dependency>

<groupId>junit</groupId>

<artifactId>junit</artifactId>

<version>4.13.2</version>

<scope>test</scope>

</dependency>

1. Create a new test class under src/test/java.

**Exercise 2: Writing Basic JUnit Tests**

**Java Class:**

public class Calculator {

public int add(int a, int b) {

return a + b;

}

}

**JUnit Test Class:**

import org.junit.Test;

import static org.junit.Assert.\*;

public class CalculatorTest {

@Test

public void testAdd() {

Calculator calc = new Calculator();

assertEquals(5, calc.add(2, 3));

}

}

**Exercise 3: Assertions in JUnit**

**Solution Code:**

import org.junit.Test;

import static org.junit.Assert.\*;

public class AssertionsTest {

@Test

public void testAssertions() {

assertEquals(5, 2 + 3);

assertTrue(5 > 3);

assertFalse(5 < 3);

assertNull(null);

assertNotNull(new Object());

}

}

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

**Example Code:**

import org.junit.Before;

import org.junit.After;

import org.junit.Test;

import static org.junit.Assert.\*;

public class SampleTest {

private Calculator calc;

@Before

public void setUp() {

calc = new Calculator();

}

@After

public void tearDown() {

calc = null;

}

@Test

public void testAdd() {

int result = calc.add(2, 3);

assertEquals(5, result);

}

}