**JUnit Testing Exercises**

Exercise 1: Setting Up Junit

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Exercise 3: Assertions in Junit

Exercise 4: Arrange-Act-Assert (AAA) Pattern, Test Fixtures, Setup

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package com.klu.cognizant;

public class Calculator {

public int add(int a, int b) {

return a + b;

}

public int subtract(int a, int b) {

return a - b;

}

}

package com.klu.cognizant;

import static org.junit.Assert.\*;

import org.junit.Test;

public class CalculatorTest {

*@Test*

public void testAdd() {

Calculator calc = new Calculator();

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

}

*@Test*

public void testSubtract() {

Calculator calc = new Calculator();

*assertEquals*(1, calc.subtract(4, 3));

}

}

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import static org.junit.Assert.\*;

import org.junit.Test;

public class AssertionsTest {

@Test

public void testAssertions() {

assertEquals(5, 2 + 3);

assertTrue(5 > 3);

assertFalse(5 < 3);

assertNull(null);

assertNotNull(new Object());

}

}

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package com.klu.cognizant;

import static org.junit.Assert.\*;

import org.junit.\*;

public class Math {

private Calculator calc;

*@Before*

public void setUp() {

calc = new Calculator();

}

*@After*

public void tearDown() {

calc = null;

}

*@Test*

public void testAddition() {

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

*assertEquals*(5, result);

}

}

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**Mockito Hands-On Exercises**

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Exercise 1: Mocking and Stubbing

Exercise 2: Verifying Interactions

package com.klu.mockito\_demo;

public interface ExternalApi {

String getData();

}

package com.klu.mockito\_demo;

public class MyService {

private ExternalApi externalApi;

public MyService(ExternalApi externalApi) {

this.externalApi = externalApi;

}

public String fetchData() {

return externalApi.getData();

}

}

package com.klu.mockito\_demo;

import static org.mockito.Mockito.\*;

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

import org.junit.jupiter.api.Test;

import org.mockito.Mockito;

public class MyServiceTest {

// Exercise 1: Mocking and Stubbing

*@Test*

public void testExternalApi() {

ExternalApi mockApi = Mockito.*mock*(ExternalApi.class);

*when*(mockApi.getData()).thenReturn("Mock Data");

MyService service = new MyService(mockApi);

String result = service.fetchData();

*assertEquals*("Mock Data", result);

}

// Exercise 2: Verifying Interactions

*@Test*

public void testVerifyInteraction() {

ExternalApi mockApi = Mockito.*mock*(ExternalApi.class);

MyService service = new MyService(mockApi);

service.fetchData();

*verify*(mockApi).getData();

}

}

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