TDD using JUnit5 and Mockito

**Exercise 1: Parameterized Tests**

Scenario:

You want to test a method that checks if a number is even. Instead of writing multiple test

cases, you will use parameterized tests to run the same test with different inputs.

Steps:

1. Create a new Java class `EvenChecker` with a method `isEven(int number)`.

2. Write a parameterized test class `EvenCheckerTest` that tests the `isEven` method with

different inputs.

3. Use JUnit's `@ParameterizedTest` and `@ValueSource` annotations

**Ans:**

**// EvenChecker.java**

**package com.example;**

**public class EvenChecker {**

**public boolean isEven(int number) {**

**return number % 2 == 0;**

**}**

**}**

**// EvenCheckerTest.java**

**package com.example;**

**import org.junit.jupiter.params.ParameterizedTest;**

**import org.junit.jupiter.params.provider.ValueSource;**

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

**public class EvenCheckerTest {**

**private final EvenChecker evenChecker = new EvenChecker();**

**@ParameterizedTest**

**@ValueSource(ints = {2, 4, 6, 8, 10, 0, -2, -4})**

**void testEvenNumbers(int number) {**

**assertTrue(evenChecker.isEven(number), number + " should be even");**

**}**

**@ParameterizedTest**

**@ValueSource(ints = {1, 3, 5, 7, 9, -1, -3})**

**void testOddNumbers(int number) {**

**assertFalse(evenChecker.isEven(number), number + " should be odd");**

**}**

**}**

**Exercise 2**: Test Suites and Categories

Scenario:

You want to group related tests into a test suite and categorize them.

Steps:

1. Create a new test suite class `AllTests`.

2. Add multiple test classes to the suite.

3. Use JUnit's `@Suite` and `@SelectClasses` annotations

**Ans:**

**// AllTests.java**

**package c.alculator.ex;**

**import org.junit.platform.suite.api.SelectClasses;**

**import org.junit.platform.suite.api.Suite;**

**@Suite**

**@SelectClasses({**

**CalculatorTest.class,**

**EvenCheckerTest.class**

**})**

**public class AllTests {**

**// This class remains empty, it's used only as a holder for the above annotations**

**}**

**//CalculatorTest.java**

**package calculator.ex;**

**import org.junit.jupiter.api.Test;**

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

**public class CalculatorTest {**

**Calculator calc = new Calculator();**

**@Test**

**void testAdd() {**

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

**}**

**}**

**//EvenCheckerTest.java**

**package calculator.ex;**

**import org.junit.jupiter.params.ParameterizedTest;**

**import org.junit.jupiter.params.provider.ValueSource;**

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

**public class EvenCheckerTest {**

**EvenChecker checker = new EvenChecker();**

**@ParameterizedTest**

**@ValueSource(ints = {2, 4, 6})**

**void testIsEven(int number) {**

**assertTrue(checker.isEven(number));**

**}**

**}**