**WEEK-2**

**TDD using JUnit5 and Mockito**

**Exercise 1: Setting Up Junit**

import org.junit.jupiter.api.Test;

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

public class CalculatorTest {

@Test

void testAddition() {

assertEquals(5, 2 + 3);

}

}

**Exercise 3: Assertions in JUnit**

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

@Test

void testConditions() {

assertTrue(10 > 5);

assertFalse(5 > 10);

assertNotNull("Hello");

assertEquals("Cognizant", "Cognizant");

}

**Exercise 4: AAA Pattern, Test Fixtures, Setup and Teardown**

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

class BankAccount {

int balance = 0;

void deposit(int amount) { balance += amount; }

int getBalance() { return balance; }

}

public class BankAccountTest {

BankAccount account;

@BeforeEach

void setUp() {

account = new BankAccount();

}

@Test

void testDeposit() {

// Arrange

int depositAmount = 1000;

// Act

account.deposit(depositAmount);

// Assert

assertEquals(1000, account.getBalance());

}

@AfterEach

void tearDown() {

account = null;

}

}

**Mockito Exercise 1: Mocking and Stubbing**

import static org.mockito.Mockito.\*;

import org.junit.jupiter.api.Test;

import java.util.List;

public class MockTest {

@Test

void testMockingList() {

List<String> mockedList = mock(List.class);

when(mockedList.get(0)).thenReturn("Cognizant");

assertEquals("Cognizant", mockedList.get(0));

}

}

**Mockito Exercise 2: Verifying Interactions**

import static org.mockito.Mockito.\*;

import java.util.List;

import org.junit.jupiter.api.Test;

public class VerifyTest {

@Test

void testVerify() {

List<String> mockedList = mock(List.class);

mockedList.add("Hello");

mockedList.clear();

verify(mockedList).add("Hello");

verify(mockedList).clear();

}

}

**SLF4J Logging Framework**

**Exercise 1: Logging Error Messages and Warning Levels**

import org.slf4j.Logger;

import org.slf4j.LoggerFactory;

public class LoggingExample {

private static final Logger logger = LoggerFactory.getLogger(LoggingExample.class);

public static void main(String[] args) {

logger.info("Application started.");

logger.warn("This is a warning!");

logger.error("This is an error message.");

}

}