TDD using JUnit5 and Mockito

Mockito exercises

Exercise 1: Mocking and Stubbing

**Scenario:** You need to test a service that depends on an external API. Use Mockito to mock the external API and stub its methods.

**Answer :**

import static org.mockito.Mockito.\*;

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

import org.junit.jupiter.api.Test;

import org.mockito.Mockito;

interface ExternalApi {

String getData();

}

class MyService {

private ExternalApi api;

public MyService(ExternalApi api) {

this.api = api;

}

public String fetchData() {

return api.getData();

}

}

public class MyServiceTest {

@Test

public void testExternalApi() {

// Step 1: Create mock object

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

// Step 2: Stub method to return a predefined value

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

// Step 3: Use mock in service and assert expected result

MyService service = new MyService(mockApi);

String result = service.fetchData();

assertEquals("Mock Data", result);

}

}

If using Maven add this to pom.xml :

<dependencies>

<!-- JUnit 5 -->

<dependency>

<groupId>org.junit.jupiter</groupId>

<artifactId>junit-jupiter</artifactId>

<version>5.10.0</version>

<scope>test</scope>

</dependency>

<!-- Mockito -->

<dependency>

<groupId>org.mockito</groupId>

<artifactId>mockito-core</artifactId>

<version>5.12.0</version>

<scope>test</scope>

</dependency>

</dependencies>

**Test Output :**

MyServiceTest > testExternalApi() PASSED

Exercise 2: Verifying Interactions

**Scenario:** You need to ensure that a method is called with specific arguments.

**Answer :**

The dependency to mock :

public interface ExternalApi {

void getData();

}

Class under test :

public class MyService {

private final ExternalApi externalApi;

public MyService(ExternalApi externalApi) {

this.externalApi = externalApi;

}

public void fetchData() {

externalApi.getData(); // expected interaction

}

}

The test class (MyServiceTest.java) :

import org.junit.jupiter.api.Test;

import org.junit.jupiter.api.extension.ExtendWith;

import org.mockito.InjectMocks;

import org.mockito.Mock;

import org.mockito.junit.jupiter.MockitoExtension;

import static org.mockito.Mockito.verify;

@ExtendWith(MockitoExtension.class)

public class MyServiceTest {

@Mock

private ExternalApi mockApi;

@InjectMocks

private MyService service;

@Test

public void testVerifyInteraction() {

service.fetchData();

verify(mockApi).getData();

}

}