**Exercise 1: Mocking and Stubbing**

Code:

pom.xml:

add dependencies---

<dependency>

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

        <artifactId>junit-jupiter</artifactId>

        <version>5.10.0</version>

        <scope>test</scope>

    </dependency>

    <dependency>

        <groupId>org.mockito</groupId>

        <artifactId>mockito-core</artifactId>

        <version>5.11.0</version>

        <scope>test</scope>

    </dependency>

ExternalApi.java:

package com.example;

public interface ExternalApi {

    String getData();

}

MyService.java:

package com.example;

public class MyService {

    private ExternalApi externalApi;

    public MyService(ExternalApi externalApi) {

        this.externalApi = externalApi;

    }

    public String fetchData() {

        return externalApi.getData();

    }

}

MyServiceTest.java:

package com.example;

import org.junit.jupiter.api.Test;

import static org.junit.jupiter.api.Assertions.assertEquals;

import static org.mockito.Mockito.\*;

public class MyServiceTest {

    @Test

    public void testExternalApi() {

        // Step 1: Create a mock of ExternalApi

        ExternalApi mockApi = mock(ExternalApi.class);

        // Step 2: Stub the method to return predefined data

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

        // Step 3: Inject the mock into the service

        MyService service = new MyService(mockApi);

        // Act

        String result = service.fetchData();

        // Assert

        assertEquals("Mock Data", result);

    }

}

Output:

