**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**.**

**Ex1ExternalApi.java**

package demo;

public interface Ex1ExternalApi {

    String getData();

}

**Ex1MyService.java**

package demo;

public class Ex1MyService {

    private Ex1ExternalApi api;

    public Ex1MyService(Ex1ExternalApi api) {

        this.api = api;

    }

    public String fetchData() {

        return api.getData();

    }

}

**Ex1MyServiceTest.java**

package 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 Ex1MyServiceTest {

    @Test

    public void testExternalApi() {

        Ex1ExternalApi mockApi = Mockito.mock(Ex1ExternalApi.class);

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

        Ex1MyService service = new Ex1MyService(mockApi);

        String result = service.fetchData();

        assertEquals("Mock Data", result);

    }

}

**Pom.xml:**

<project xmlns="http://maven.apache.org/POM/4.0.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 https://maven.apache.org/xsd/maven-4.0.0.xsd">

  <modelVersion>4.0.0</modelVersion>

  <groupId>com.example</groupId>

  <artifactId>demo</artifactId>

  <version>0.0.1-SNAPSHOT</version>

  <name>Ex1\_Mocking\_Stubbing</name>

  <properties>

        <maven.compiler.source>17</maven.compiler.source> <!-- Java version -->

        <maven.compiler.target>17</maven.compiler.target>

        <junit.jupiter.version>5.10.0</junit.jupiter.version>

        <mockito.version>5.8.0</mockito.version>

        <bytebuddy.version>1.14.14</bytebuddy.version>

    </properties>

    <dependencies>

        <!-- JUnit 5 -->

        <dependency>

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

            <artifactId>junit-jupiter</artifactId>

            <version>${junit.jupiter.version}</version>

            <scope>test</scope>

        </dependency>

        <!-- Mockito Core -->

        <dependency>

            <groupId>org.mockito</groupId>

            <artifactId>mockito-core</artifactId>

            <version>${mockito.version}</version>

            <scope>test</scope>

        </dependency>

        <!-- Mockito JUnit Jupiter Integration -->

        <dependency>

            <groupId>org.mockito</groupId>

            <artifactId>mockito-junit-jupiter</artifactId>

            <version>${mockito.version}</version>

            <scope>test</scope>

        </dependency>

        <!-- Byte Buddy -->

        <dependency>

            <groupId>net.bytebuddy</groupId>

            <artifactId>byte-buddy</artifactId>

            <version>${bytebuddy.version}</version>

            <scope>test</scope>

        </dependency>

        <!-- Byte Buddy Agent -->

        <dependency>

            <groupId>net.bytebuddy</groupId>

            <artifactId>byte-buddy-agent</artifactId>

            <version>${bytebuddy.version}</version>

            <scope>test</scope>

        </dependency>

        <!-- AssertJ for fluent assertions -->

        <dependency>

            <groupId>org.assertj</groupId>

            <artifactId>assertj-core</artifactId>

            <version>3.24.2</version>

            <scope>test</scope>

        </dependency>

        <!-- Hamcrest for matchers -->

        <dependency>

            <groupId>org.hamcrest</groupId>

            <artifactId>hamcrest-library</artifactId>

            <version>2.2</version>

            <scope>test</scope>

        </dependency>

    </dependencies>

    <build>

        <plugins>

            <!-- Maven Surefire Plugin for running tests -->

            <plugin>

                <groupId>org.apache.maven.plugins</groupId>

                <artifactId>maven-surefire-plugin</artifactId>

                <version>3.1.2</version>

                <configuration>

                <argLine>-Dnet.bytebuddy.experimental=true</argLine>

            </configuration>

            </plugin>

        </plugins>

    </build>

</project>

**Output:**

