**EXERCISE 1: MOCKING AND STUBBING**

CONTEXT OF THE EXAMPLE:

This example simulates a service (MyService) that relies on an external API (ExternalApi). Using Mockito, we verify that the service correctly interacts with the external API by calling its getData() method during execution.

CODES:

pom.xml

<?xml version="1.0" encoding="UTF-8"?>  
<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 http://maven.apache.org/xsd/maven-4.0.0.xsd">  
 <modelVersion>4.0.0</modelVersion>  
  
 <groupId>com.dinesh</groupId>  
 <artifactId>Mockito\_1</artifactId>  
 <version>1.0-SNAPSHOT</version>  
  
 <properties>  
 <maven.compiler.source>20</maven.compiler.source>  
 <maven.compiler.target>20</maven.compiler.target>  
 <project.build.sourceEncoding>UTF-8</project.build.sourceEncoding>  
 </properties>  
 <dependencies>  
 <!-- JUnit 5 -->  
 <dependency>  
 <groupId>org.junit.jupiter</groupId>  
 <artifactId>junit-jupiter-api</artifactId>  
 <version>5.10.0</version>  
 <scope>test</scope>  
 </dependency>  
  
 <!-- JUnit 5 Engine -->  
 <dependency>  
 <groupId>org.junit.jupiter</groupId>  
 <artifactId>junit-jupiter-engine</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>  
  
</project>

MyServicetest.java

package com.dinesh;  
  
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() {  
 // Arrange: Create mock and stub the method  
 ExternalApi mockApi = *mock*(ExternalApi.class);  
 *when*(mockApi.getData()).thenReturn("Mock Data");  
  
 // Act: Inject mock into service and call method  
 MyService service = new MyService(mockApi);  
 String result = service.fetchData();  
  
 // Assert: Validate the expected result  
 *assertEquals*("Mock Data", result);  
 }  
}

ExternalApi.java

package com.dinesh;  
  
public interface ExternalApi {  
 String getData();  
}

Service.java

package com.dinesh;  
  
public class MyService {  
 private ExternalApi externalApi;  
  
 public MyService(ExternalApi externalApi) {  
 this.externalApi = externalApi;  
 }  
  
 public String fetchData() {  
 return externalApi.getData();  
 }  
}

OUTPUT:

