**Exercise 1: Mocking and Stubbing**

**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.**

**Steps: 1. Create a mock object for the external API.**

**2. Stub the methods to return predefined values.**

**3. Write a test case that uses the mock object.**

**Solution Code:**

**import static org.mockito.Mockito.\*;**

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

**import org.mockito.Mockito;**

**public class MyServiceTest {**

**@Test public void testExternalApi() {**

**ExternalApi mockApi = Mockito.mock(ExternalApi.class); when(mockApi.getData()).thenReturn("Mock Data");**

**MyService service = new MyService(mockApi);**

**String result = service.fetchData();**

**assertEquals("Mock Data", result);**

**}**

**}**

**CODE:**

**MyService.java:**

package org.example;  
public class MyService {  
 private final ExternalApi api;  
 public MyService(ExternalApi api) {  
 this.api = api;  
 }  
 public String fetchData() {  
 return api.getData();  
 }  
}

**MyServiceTest.java:**

package org.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() {  
 ExternalApi mockApi = *mock*(ExternalApi.class);  
 *when*(mockApi.getData()).thenReturn("Mock Data");  
 MyService service = new MyService(mockApi);  
 String result = service.fetchData();  
 System.*out*.println("Fetched result: " + result);  
 *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 http://maven.apache.org/xsd/maven-4.0.0.xsd">  
 <modelVersion>4.0.0</modelVersion>  
  
 <groupId>com.example</groupId>  
 <artifactId>junit-mockito-demo</artifactId>  
 <version>1.0-SNAPSHOT</version>  
  
 <properties>  
 <maven.compiler.source>17</maven.compiler.source>  
 <maven.compiler.target>17</maven.compiler.target>  
 </properties>  
  
 <dependencies>  
 <!-- JUnit 5 -->  
 <dependency>  
 <groupId>org.junit.jupiter</groupId>  
 <artifactId>junit-jupiter</artifactId>  
 <version>5.9.3</version>  
 <scope>test</scope>  
 </dependency>  
  
 <!-- Mockito -->  
 <dependency>  
 <groupId>org.mockito</groupId>  
 <artifactId>mockito-core</artifactId>  
 <version>5.2.0</version>  
 <scope>test</scope>  
 </dependency>  
 </dependencies>  
  
 <build>  
 <plugins>  
 <plugin>  
 <groupId>org.apache.maven.plugins</groupId>  
 <artifactId>maven-surefire-plugin</artifactId>  
 <version>3.0.0-M7</version>  
 </plugin>  
 </plugins>  
 </build>  
</project>

**ExternalApi.java:**

package org.example;  
public interface ExternalApi {  
 String getData();  
}

**OUTPUT:**

