**Exercise 1: Mocking Databases and Repositories**

You need to test a service that interacts with a database repository.

**Service.java :-**

package org.example1;  
  
public class Service {  
 private final Repository repository;  
  
 public Service(Repository repository) {  
 this.repository = repository;  
 }  
  
 public String processData() {  
 String data = repository.getData();  
 return "Processed " + data;  
 }  
}

**Repository.java :-**

package org.example1;  
  
public interface Repository {  
 String getData();  
}

**ServiceTest.java :-**

package org.example1;  
  
import org.junit.jupiter.api.Test;  
  
import static org.mockito.Mockito.\*;  
import static org.junit.jupiter.api.Assertions.\*;  
  
public class ServiceTest {  
  
 @Test  
 public void testServiceWithMockRepository() {  
 // Step 1: Create mock repository  
 Repository mockRepository = *mock*(Repository.class);  
  
 // Step 2: Stub the repository method  
 *when*(mockRepository.getData()).thenReturn("Mock Data");  
  
 // Step 3: Inject into service and test  
 Service service = new Service(mockRepository);  
 String result = service.processData();  
  
 // Step 4: Assert the expected result  
 *assertEquals*("Processed 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>org.example1</groupId>  
 <artifactId>Mocking\_database</artifactId>  
 <version>1.0-SNAPSHOT</version>  
  
 <properties>  
 <project.build.sourceEncoding>UTF-8</project.build.sourceEncoding>  
 <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>5.10.0</version>  
 <scope>test</scope>  
 </dependency>  
  
 <!-- Mockito -->  
 <dependency>  
 <groupId>org.mockito</groupId>  
 <artifactId>mockito-core</artifactId>  
 <version>5.11.0</version>  
 <scope>test</scope>  
 </dependency>  
 </dependencies>  
  
 <build>  
 <plugins>  
 <plugin>  
 <groupId>org.apache.maven.plugins</groupId>  
 <artifactId>maven-surefire-plugin</artifactId>  
 <version>3.1.2</version>  
 <configuration>  
 <argLine>-XX:+EnableDynamicAgentLoading</argLine>  
 </configuration>  
 </plugin>  
 </plugins>  
 </build>  
</project>

**Output :-**

