**Exercise 3: Mocking File I/O**

You need to test a service that reads from and writes to files.

**FileReader.java :-**

package org.example1;  
  
public interface FileReader {  
 String read();  
}

**FileService.java :-**

package org.example1;  
  
public class FileService {  
  
 private final FileReader fileReader;  
 private final FileWriter fileWriter;  
  
 public FileService(FileReader fileReader, FileWriter fileWriter) {  
 this.fileReader = fileReader;  
 this.fileWriter = fileWriter;  
 }  
  
 public String processFile() {  
 String content = fileReader.read();  
 String processed = "Processed " + content;  
 fileWriter.write(processed);  
 return processed;  
 }  
}

**FileWriter.java :-**

package org.example1;  
  
public interface FileWriter {  
 void write(String data);  
}

FileServiceTest.java :-

package org.example1;  
  
import org.junit.jupiter.api.Test;  
import static org.mockito.Mockito.\*;  
import static org.junit.jupiter.api.Assertions.\*;  
  
public class FileServiceTest {  
  
 @Test  
 public void testServiceWithMockFileIO() {  
 // Step 1: Create mock objects  
 FileReader mockFileReader = *mock*(FileReader.class);  
 FileWriter mockFileWriter = *mock*(FileWriter.class);  
  
 // Step 2: Stub fileReader to return mock data  
 *when*(mockFileReader.read()).thenReturn("Mock File Content");  
  
 // Step 3: Inject mocks and test service logic  
 FileService fileService = new FileService(mockFileReader, mockFileWriter);  
 String result = fileService.processFile();  
  
 // Step 4: Assert and verify  
 *assertEquals*("Processed Mock File Content", result);  
 *verify*(mockFileReader, *times*(1)).read();  
 *verify*(mockFileWriter, *times*(1)).write("Processed Mock File Content");  
 }  
}

**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\_file</artifactId>  
 <version>1.0-SNAPSHOT</version>  
 <packaging>jar</packaging>  
  
 <name>Mocking\_file</name>  
 <url>http://maven.apache.org</url>  
  
 <properties>  
 <project.build.sourceEncoding>UTF-8</project.build.sourceEncoding>  
 </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>  
  
</project>

**Output :-**

