**SL4J Logging exercises**

**Exercise 1: Logging Error Messages and Warning Levels** using **SLF4J with Logback**:

### **Objective**

To demonstrate how to log error messages and warning levels in a Java application using SLF4J with the Logback backend.

### **Step 1: Add SLF4J and Logback Dependencies in pom.xml**

If you're using **Maven**, include the following dependencies:

<dependencies>

<!-- SLF4J API -->

<dependency>

<groupId>org.slf4j</groupId>

<artifactId>slf4j-api</artifactId>

<version>1.7.30</version>

</dependency>

<!-- Logback Classic Implementation -->

<dependency>

<groupId>ch.qos.logback</groupId>

<artifactId>logback-classic</artifactId>

<version>1.2.3</version>

</dependency>

</dependencies>

🔍 **Why SLF4J + Logback?** SLF4J is a facade or abstraction for various logging frameworks (e.g., java.util.logging, log4j). Logback is a powerful backend implementation that works seamlessly with SLF4J.

### **Step 2: Create the Java Class Using SLF4J**

Here’s the complete Java class that logs error and warning messages:

import org.slf4j.Logger;

import org.slf4j.LoggerFactory;

public class LoggingExample {

// Create a logger for this class

private static final Logger logger = LoggerFactory.getLogger(LoggingExample.class);

public static void main(String[] args) {

// Log an error message

logger.error("This is an error message");

// Log a warning message

logger.warn("This is a warning message");

}

}

### **Step 3: Optional – Customize Log Output with logback.xml**

You can customize how your logs appear (format, log level, etc.) by adding a logback.xml file under src/main/resources/:

<configuration>

<appender name="CONSOLE" class="ch.qos.logback.core.ConsoleAppender">

<encoder>

<pattern>%d{yyyy-MM-dd HH:mm:ss} [%thread] %-5level %logger{36} - %msg%n</pattern>

</encoder>

</appender>

<root level="debug">

<appender-ref ref="CONSOLE" />

</root>

</configuration>

### **Expected Output in Console**

vbnet

2025-06-27 23:59:59 [main] ERROR LoggingExample - This is an error message

2025-06-27 23:59:59 [main] WARN LoggingExample - This is a warning message

### **Notes**

* SLF4J supports various log levels: trace, debug, info, warn, and error.
* The logger instance is typically static and final, and it is recommended to pass the class name to LoggerFactory.getLogger().