**Week2\_Logging Error Messages and Warning Levels**

## Exercise 1: Logging Error Messages and Warning Levels

**Scenario:**

**Write a Java application that demonstrates logging error messages and warning levels using SLF4J.**

**Steps:**

1. **Add SLF4J and Logback dependencies to your pom.xml file:**

*<?*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>org.example</groupId>  
 <artifactId>ErrorMessages\_WarningSignals</artifactId>  
 <version>1.0-SNAPSHOT</version>  
  
 <properties>  
 <maven.compiler.source>24</maven.compiler.source>  
 <maven.compiler.target>24</maven.compiler.target>  
 <project.build.sourceEncoding>UTF-8</project.build.sourceEncoding>  
 </properties>  
  
 <dependencies>  
 *<!-- Add these two dependencies here -->  
  
 <!-- The SLF4J API (The logging "interface" your code uses) -->* <dependency>  
 <groupId>org.slf4j</groupId>  
 <artifactId>slf4j-api</artifactId>  
 <version>1.7.30</version>  
 </dependency>  
  
 *<!-- The Logback Implementation (The engine that does the logging) -->* <dependency>  
 <groupId>ch.qos.logback</groupId>  
 <artifactId>logback-classic</artifactId>  
 <version>1.2.3</version>  
 </dependency>  
 </dependencies>  
</project>

1. **Create a Java class that uses SLF4J for logging:**

-- **Create a Logging Configuration File : logback.xml**

<configuration>  
 *<!-- This defines WHERE to send the logs. We are calling our destination "STDOUT" -->  
 <!-- and telling it to use the console. -->* <appender name="STDOUT" class="ch.qos.logback.core.ConsoleAppender">  
 <encoder>  
 *<!-- This defines the FORMAT of each log message. -->* <pattern>%d{HH:mm:ss.SSS} [%thread] %-5level %logger{36} - %msg%n</pattern>  
 </encoder>  
 </appender>  
  
 *<!-- This is the main switch. It sets the logging level for the whole -->  
 <!-- application and tells it to use the "STDOUT" destination we defined above. -->* <root level="info">  
 <appender-ref ref="STDOUT" />  
 </root>  
</configuration>

-- **Create the Java Application : LoggingExample**

package org.example;  
  
*// Import the SLF4J classes (the "universal remote" buttons)*import org.slf4j.Logger;  
import org.slf4j.LoggerFactory;  
  
public class LoggingExample {  
  
 *// 1. Get a logger instance from the factory.  
 // This is a standard, required pattern. It creates a logger  
 // specifically for this class. It's static so there's only one  
 // logger instance for the whole class, not one per object.* private static final Logger *logger* = LoggerFactory.*getLogger*(LoggingExample.class);  
  
 public static void main(String[] args) {  
 *// 2. Use the logger to send messages at different levels.  
  
 // An ERROR is a critical problem that prevents normal operation.  
 logger*.error("This is an error message");  
  
 *// A WARN is for unexpected situations that might lead to problems,  
 // but the application can still continue.  
 logger*.warn("This is a warning message");  
  
 *// An INFO message is for tracking the normal flow of the application.  
 // This will also be visible because our root level in logback.xml is "info".  
 logger*.info("This is an info message");  
  
 *// A DEBUG message is for detailed diagnostic information for developers.  
 // This will NOT be visible because our root level is "info", which is higher.  
 logger*.debug("This is a debug message. You won't see this.");  
 }  
}

Output

