**Exercise 1: Logging Error Messages and Warning Levels**

**In this project, I implemented a Java application that demonstrates logging of error messages and warning levels using SLF4J (Simple Logging Facade for Java) with Logback as the underlying logging implementation.**

The setup began by creating a Maven-based Java project in IntelliJ IDEA Community Edition. I configured the pom.xml file to include the required dependencies for SLF4J and Logback. Specifically, I used slf4j-api version 2.0.13 and logback-classic version 1.4.14 to ensure compatibility and security.

Once the dependencies were configured, I created a simple Java class named LoggingExample that imports and utilizes SLF4J's Logger and LoggerFactory. Inside the main method, I used the logger to print an error message using logger.error() and a warning message using logger.warn().

Upon running the application, the log messages were successfully printed to the console in a structured format with timestamps, log levels, and the class name, confirming that the SLF4J logging setup with Logback is functional.

This exercise demonstrates the ability to integrate and utilize external logging libraries in Java projects using Maven, and how to produce meaningful log outputs for debugging and monitoring purposes.

**Code:**

**LoggingExample.com:**

package com.example;

import org.slf4j.Logger;

import org.slf4j.LoggerFactory;

public class LoggingExample {

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

    public static void main(String[] args) {

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

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

    }

}

**logback.xml:**

<configuration>

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

        <encoder>

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

        </encoder>

    </appender>

    <root level="debug">

        <appender-ref ref="STDOUT" />

    </root>

</configuration>

**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>logging-example</artifactId>

  <version>1.0-SNAPSHOT</version>

  <packaging>jar</packaging>

  <name>logging-example</name>

  <url>http://maven.apache.org</url>

  <properties>

    <project.build.sourceEncoding>UTF-8</project.build.sourceEncoding>

  </properties>

  <dependencies>

    <dependency>

      <groupId>org.slf4j</groupId>

      <artifactId>slf4j-api</artifactId>

      <version>2.0.13</version>

    </dependency>

    <dependency>

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

      <artifactId>logback-classic</artifactId>

      <version>1.4.14</version>

    </dependency>

  </dependencies>

</project>

**Output:**

