**File: SLF4J\_Logging\_Exercises (aba9de13-4fb7-41d9-9c34-d6c3c4f03678.pdf)**

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

**Steps:**

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

<dependency>

<groupId>org.slf4j</groupId>

<artifactId>slf4j-api</artifactId>

<version>1.7.30</version>

</dependency>

<dependency>

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

<artifactId>logback-classic</artifactId>

<version>1.2.3</version>

</dependency>

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

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");

}

}

**Exercise 2: Parameterized Logging**

**Steps:**

1. Ensure the SLF4J and Logback dependencies are included as above.
2. Create a Java class using parameterized logging:

import org.slf4j.Logger;

import org.slf4j.LoggerFactory;

public class ParameterizedLoggingExample {

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

public static void main(String[] args) {

String user = "John";

int loginAttempts = 3;

logger.info("User {} attempted to login {} times", user, loginAttempts);

}

}

**Exercise 3: Using Different Appenders**

**Steps:**

1. Include the same SLF4J and Logback dependencies in your pom.xml.
2. Create a logback.xml file in the src/main/resources directory with the following configuration:

<configuration>

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

<encoder>

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

</encoder>

</appender>

<appender name="file" class="ch.qos.logback.core.FileAppender">

<file>application.log</file>

<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" />

<appender-ref ref="file" />

</root>

</configuration>

1. Create a Java class to test the log configuration:

import org.slf4j.Logger;

import org.slf4j.LoggerFactory;

public class LoggingAppendersExample {

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

public static void main(String[] args) {

logger.info("Logging to both console and file.");

}

}