**Logging using SLF4J**

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

**Task:**

Write a Java application that demonstrates logging error messages and warning levels

using SLF4J.

**Step-by-Step Solution:**

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

<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>

**2. 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");

}

}

**Program:**

**Pom.xml:**

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");

}

}

**LoggingExample.java**

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) {

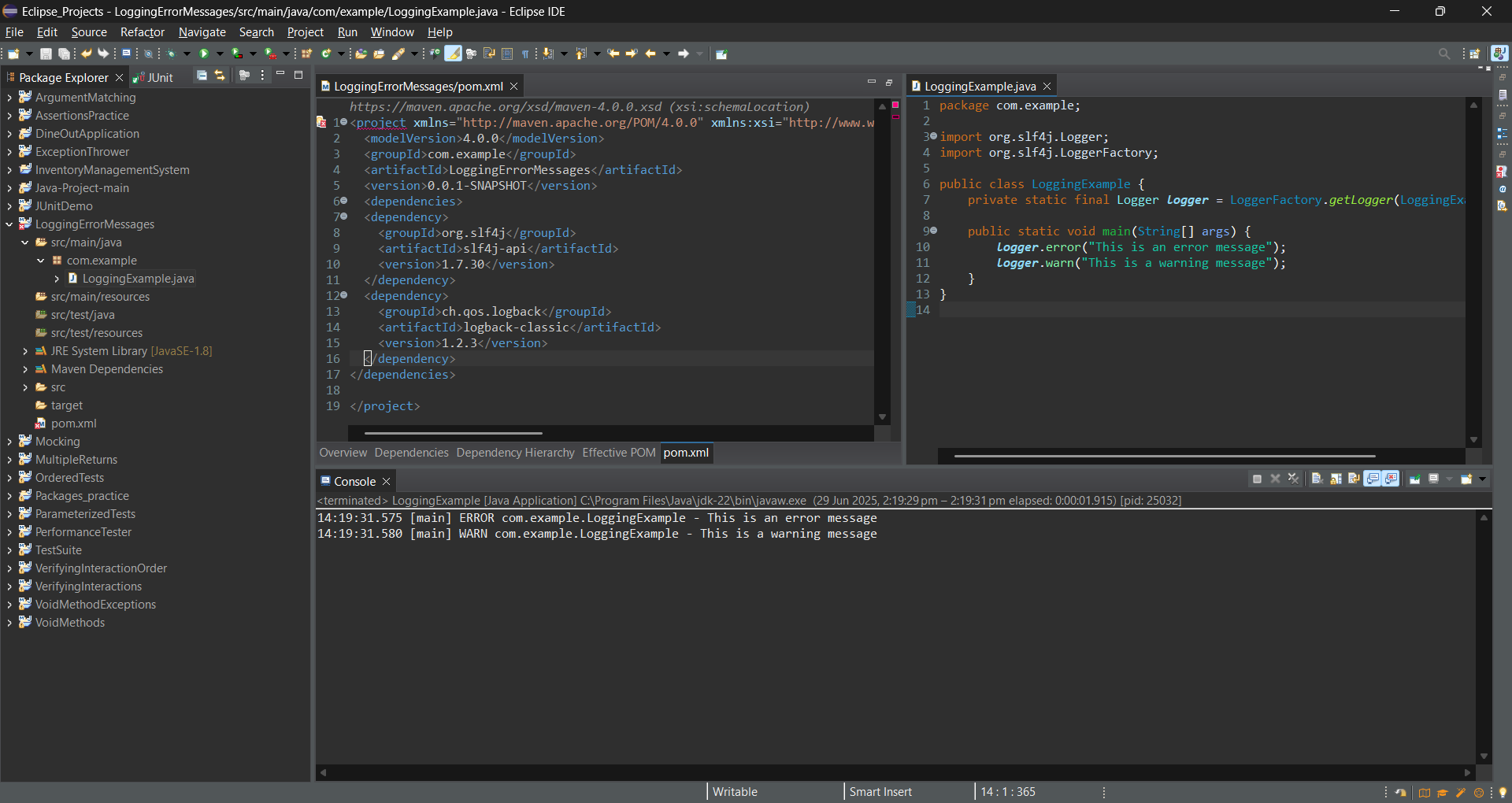
***logger***.error("This is an error message");

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

}

}

**Output:**



**Exercise 2: Parameterized Logging**

**Task:**

Write a Java application that demonstrates parameterized logging using SLF4J.

Step-by-Step Solution:

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

<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>

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

Write code for this.

**Program:**

**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 https://maven.apache.org/xsd/maven-4.0.0.xsd">

<modelVersion>4.0.0</modelVersion>

<groupId>com.example</groupId>

<artifactId>ParameterizedLogging</artifactId>

<version>0.0.1-SNAPSHOT</version>

<dependencies>

<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>

</dependencies>

</project>

**ParameterizedLoggingExample.java**

package com.example;

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 username = "Lohesh";

int age = 22;

***logger***.info("User {} has logged in.", username);

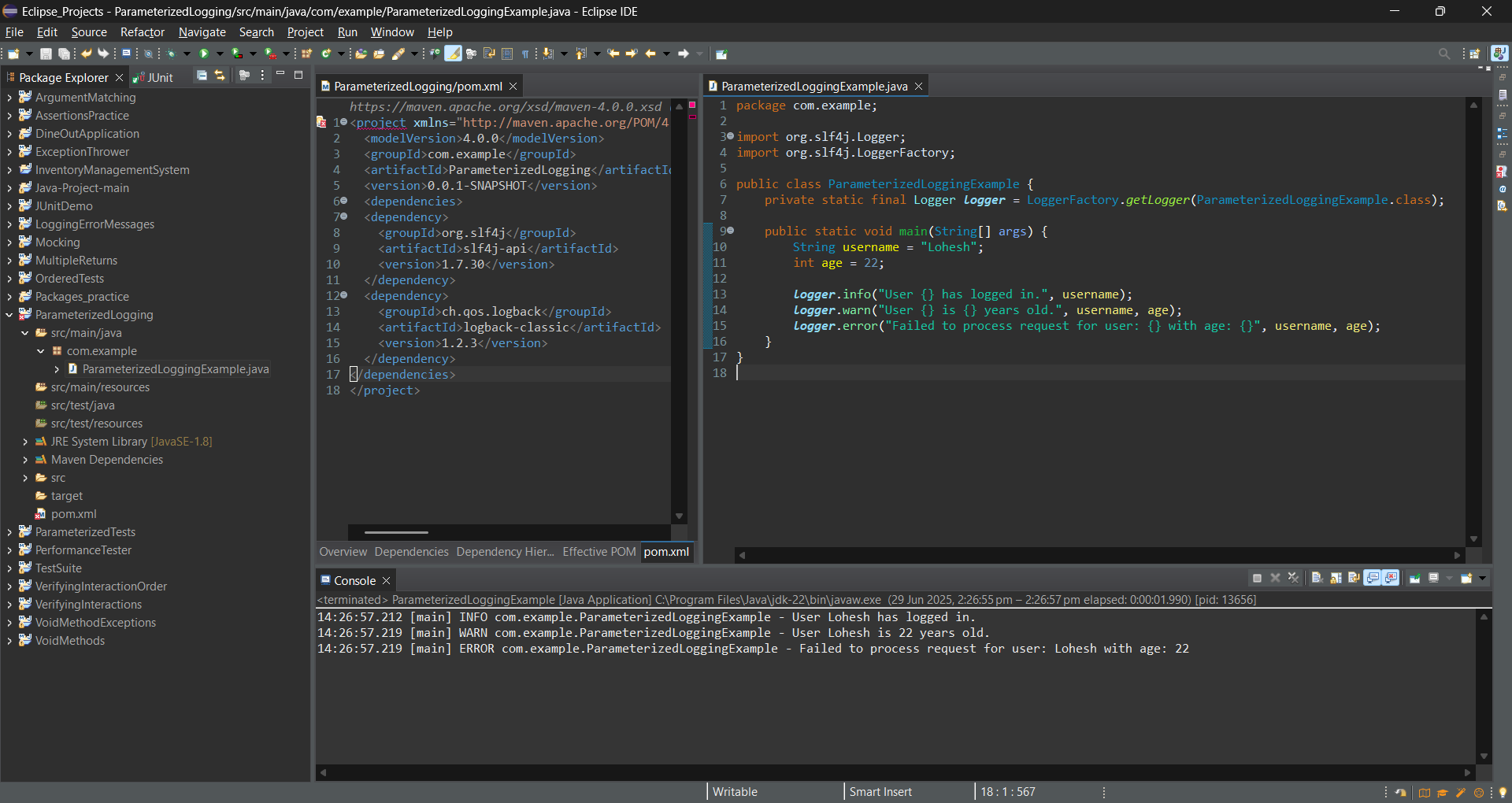
***logger***.warn("User {} is {} years old.", username, age);

***logger***.error("Failed to process request for user: {} with age: {}", username, age);

}

}

**Output:**



**Exercise 3: Using Different Appenders**

**Task:**

Write a Java application that demonstrates using different appenders with SLF4J.

**Step-by-Step Solution:**

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

<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>

**2. Create a `logback.xml` configuration file to define different appenders:**

<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>app.log</file>

<encoder>

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

</encoder>

</appender>

<root level="debug">

<appender-ref ref="console" />

<appender-ref ref="file" />

</root>

</configuration>

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

Write code for this.

**Program:**

**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 https://maven.apache.org/xsd/maven-4.0.0.xsd">

<modelVersion>4.0.0</modelVersion>

<groupId>com.example</groupId>

<artifactId>UsingDifferentAppenders</artifactId>

<version>0.0.1-SNAPSHOT</version>

<dependencies>

<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>

</dependencies>

</project>

**Logback.xml**

<configuration>

<!-- Console Appender -->

<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>

<!-- File Appender -->

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

<file>app.log</file>

<append>true</append>

<encoder>

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

</encoder>

</appender>

<!-- Root Logger with Both Appenders -->

<root level="debug">

<appender-ref ref="console" />

<appender-ref ref="file" />

</root>

</configuration>

**MultiAppenderLoggingExample.java**

package com.example;

import org.slf4j.Logger;

import org.slf4j.LoggerFactory;

public class MultiAppenderLoggingExample {

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

public static void main(String[] args) {

***logger***.debug("Debug level message");

***logger***.info("Info level message");

***logger***.warn("Warning level message");

***logger***.error("Error level message");

}

}

**Output:**

