**Logging Error Messages and Warning Levels**

**SLF4J Logging**

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This Java program demonstrates how to log error and warning messages using SLF4J (Simple Logging Facade for Java) in a temperature monitoring system. It simulates sensor data and provides meaningful logs for system diagnostics.

**Objective:**

* **Log Critical Failures:** Capture and log errors such as sensor failure using logger.error() to alert developers or monitoring tools.
* **Warn About Risk Conditions:** Use logger.warn() to notify about high temperature, low battery, or overused sensors that require attention.
* **Improve Observability:** Provide real-time feedback through logs to monitor system health and preempt potential issues.

**Implementation:**

### Create a Maven Java Project

**IntelliJ IDEA**: File → New → Project → Maven → Java SDK → Next

#### Add the dependencies in pom.xml

<dependencies>

<!-- SLF4J API -->

<dependency>

<groupId>org.slf4j</groupId>

<artifactId>slf4j-api</artifactId>

<version>1.7.30</version>

</dependency>

<!-- Logback (SLF4J implementation) -->

<dependency>

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

<artifactId>logback-classic</artifactId>

<version>1.2.3</version>

</dependency>

</dependencies>

**Create a Java Class to Use SLF4J**

**TemperatureMonitor.java:**

package org.example;

import org.slf4j.Logger;

import org.slf4j.LoggerFactory;

public class TemperatureMonitor {

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

public static void main(String[] args) {

double temperature = readSensor();

boolean batteryLow = true;

boolean sensorOverused = true;

if (temperature == -1) {

logger.error("Sensor failure detected. Unable to read temperature.");

System.out.println("Error: Could not read temperature.");

} else {

if (temperature > 40) {

logger.warn("High temperature detected: {}°C", temperature);

}

if (batteryLow) {

logger.warn("Sensor battery is low. Please replace it soon.");

}

if (sensorOverused) {

logger.warn("Sensor has exceeded recommended usage hours.");

}

System.out.println("Current temperature: " + temperature + "°C");

}

}

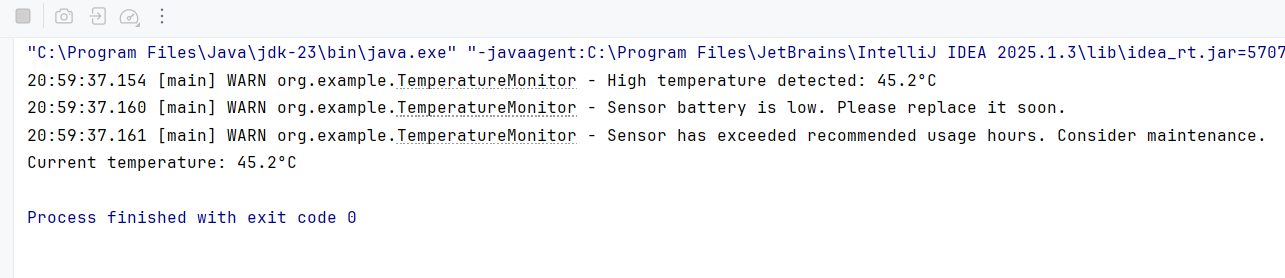
private static double readSensor() {

return 45.2;

}

}

**Output:**

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