Exercise 1: Logging Error Messages and Warning Levels

import org.slf4j.Logger;

import org.slf4j.LoggerFactory;

public class ApplicationLogging {

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

public void processData(String input) {

logger.info("Starting data processing for input: {}", input);

try {

if (input == null || input.isEmpty()) {

logger.warn("Received empty input - using default value");

input = "default";

}

int value = Integer.parseInt(input);

logger.debug("Parsed integer value: {}", value);

if (value < 0) {

logger.error("Negative values are not allowed: {}", value);

throw new IllegalArgumentException("Negative value");

}

logger.info("Processing completed successfully");

} catch (NumberFormatException e) {

logger.error("Failed to parse input: {}", input, e);

}

}

public static void main(String[] args) {

ApplicationLogging app = new ApplicationLogging();

logger.trace("Trace message - most detailed");

logger.debug("Debug message - for development");

logger.info("Info message - normal operation");

logger.warn("Warning message - potential issue");

logger.error("Error message - serious problem");

app.processData("123");

app.processData("");

app.processData("abc");

app.processData("-5");

}

}

<dependencies>

<dependency>

<groupId>org.slf4j</groupId>

<artifactId>slf4j-api</artifactId>

<version>1.7.36</version>

</dependency>

<dependency>

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

<artifactId>logback-classic</artifactId>

<version>1.2.11</version>

</dependency>

</dependencies>