## Massey University

## 159.251 Software Design and Construction

## Logging Tutorial

### Prerequisites (what you are expected to know before you come to the tutorial)

1. Understand the Git and Maven tutorials
2. Find dependencies on mvnrepository
3. Covered the lecture materials on logging

### Objectives

1. Use a logging framework (log4j)
2. Understand the separation of concerns in log4j

### Description

Download the project **loggingTutorial** from GitHub:

<https://github.com/jacobstringer/251-logging-tutorial>

This project contains a simple script (loggingTutorial.MergeTransactions) that attempts to read purchase transactions from several files, combines them, makes some simple calculations (transaction count, combined value, max value) and prints the results to the console. Note that some of the files referenced are missing, or have some have built-in errors. This is on purpose in order to trigger some exceptions.

此项目包含一个简单的脚本（loggingTutorial.MergeTransaction），它尝试从多个文件读取购买事务，将它们组合在一起，进行一些简单的计算（事务计数、组合值、最大值），并将结果打印到控制台。请注意，引用的一些文件丢失，或者有一些存在内置错误。这是为了触发一些异常而故意的。

In MergeTransactions, console logging is extensively used. In this tutorial, you have to do the following:

1. Find log4j (version 1) on the maven repository and add it as a dependency.
2. Replace console logging by log4j logging

用日志 4j 日志记录替换控制台日志记录

1. The log levels should be set according to the comments (see table in Hints)

日志级别应根据注释设置（请参阅提示中的表）

1. Use two loggers: one for file access (FILE), one for printing transaction data (TRANSACTIONS)

使用两个记录器：一个用于文件访问 （FILE），一个用于打印事务数据 （交易）

1. The FILE logger should log to a log file **logs.txt** and to the console

文件记录器应记录到日志文件日志.txt 和控制台

1. The TRANSACTIONS logger should only log to the console

交易记录器应仅记录到控制台

1. The format used should be a [simple layout](http://logging.apache.org/log4j/1.2/apidocs/org/apache/log4j/SimpleLayout.html)

使用的格式应该是一个简单的布局

1. Try to run the application with different log levels

尝试使用不同的日志级别运行应用程序

### Hints

Use git clone <url> to pull its contents into your folder (it will put them in a subfolder for you).

The log4j library, as of version 2, is now split into log4j-core and log4j-api on the maven repository. However, when programmatically configuring loggers, version 1 is easier to understand, so I recommend that version. This can be found under log4j still on the repo..

Remember, executing a maven project after running mvn compile can be done from the command line with (replacing the <>):

mvn exec:java “-Dexec.mainClass=<package>.<main class file name without ‘.java’>”

Comments found in MergeTransactions, and how this maps to log levels.

|  |  |
| --- | --- |
| **comment** | **intended log level** |
| // print some **info** for the user | INFO |
| // this is for **debugging** only | DEBUG |
| // print **warning** | WARN |
| // print **error** message and details | ERROR |

### Challenge for good students

Use the [pattern layout](http://logging.apache.org/log4j/1.2/apidocs/org/apache/log4j/PatternLayout.html) to generate a log file using the comma-separated values (csv) format. This means that you can open log files with excel or other spreadsheet software.

### What to Submit

A zipped project folder. After zipping, check this file by unzipping its content and verifying that all source code files are included.