**Software Requirements Document for MTT Configuration File Editor**

**Part 1: Product Overview**

**And Assumptions**

**Prepared for Master of Software Engineering Capstone Project**

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**1. Problem Description**

The goal of the project is to develop the software for MTT Client Configuration File Editor. Only one user will use the software at any time. There are three major parts in the software – INI file syntax checker, section runtime estimator and section parameter tuner. The third one is used to allow user to tune the parameter of section to estimate the runtime.

Using the software, a user must be able to validate the type of configuration file, check the INI file syntax, estimate the section runtime, and tune the parameter in section. In addition, the user must be able to be noticed by software where the locations of syntax errors are. The INI file syntax is sort of complicated. It includes comments, sections, key-value pairs, funclets, perl code sections, and so on. Content is separated by newline symbols, backslashs, or special characters (i.e. “>>EOT” and “EOT”). The syntax error reporter needs to locate the error by line number. In addition, it also has to report the reason of error, which will help user to correct the syntax.

The section runtime estimator is used to help user estimate the runtime of each section in configuration file. As we known, the MPI testing configuration is based on the testing commands or requests written in each section of configuration file. Therefore different phase of testing process will be run in different time span based on what user have written in each section corresponding to each testing phase. Sometime the test may take hours even days to run. Therefore the estimator that the software provides will help user to plan the testing schedule well without actually running the test arbitrarily.

The tuner here will provide a functionality that allows user to use command to tune the parameters in section. Those parameters might affect the runtime of corresponding test section. By using command, user will tune the parameter and seeing the estimation result in real-time, which is handy for user to apply the approach that I mentioned above easier.

**1.1 Assumptions and additional requirements**

1. The configuration file type must be INI file (correct file extension).
2. The configuration file must satisfy the most basic INI file syntax requirement (i.e. correct comment symbol, correct section syntax, and so on).
3. The configuration file must contain all required default sections (i.e. MTT, MPI get, and so on)
4. In key-value pairs, the value of pair might be the name of other section that is called in this pair. Therefore the software should be able to connect different sections based on calling relationship.
5. The funclets are sequence of function names that are already defined. Each funclet has its own estimated runtime. Software should be able to dedicate those funclets occurring among the INI file and querying their runtimes from database to compute the total estimated runtimes.
6. User should be able to input command after software validated the configuration file in order to tune parameters in section. Therefore user should be able to use command to choose section first, then choosing parameter, and then input value. Finally the software would show the new estimated result to user. The validation of value that user input must be implemented based on different syntaxes of parameters.

**2. System Requirements**

The final product must run on a device running JAVA 7 or later version.

**3. User Characteristics**

The user must be able to use a device that can run JAVA 7 or later version. Basic knowledge of running java program in command line is required for running program, parsing target file, browsing parsing result and browsing estimation result. Basic knowledge of MTT Client Configuration File syntax is required for tuning the parameter in section.