Software Requirements Specification

for

Task Scheduling Simulator

Version 1.0 approved

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19/03/2015

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Revision History

Name	Date	Reason For Changes	Version

1. Introduction

1.1 Purpose

This document is about a task scheduling simulation software. This software is being developed by students from the Fluminense Federal University, to be presented in the course of project techniques and systems implementation (TCC00232). The product is a software capable of simulating a scheduler dealing with different tasks that need to be executed. The scheduler will use policies to schedule tasks, and after that will generate a report with the details of implementation.

1.2 Document Conventions

In this document, all the titles will be using Times font in the size 18 with bold. The subtitles, like "1.2 Document Conventions" are going to be Times size 14 with bold, and the normal text will be Times 14 without bolt.

1.3 Intended Audience and Reading Suggestions

This document is intended for computer scientists, information systems professionals, engineers, researchers, teachers and enthusiasts who are interested in the subject. For a better understanding of the material treated in this document, it is recommended a basic knowledge of operating systems, especially in the area of task schedulers.

1.4 Product Scope

The purpose of this software is to serve as a tool to simulate the execution of a scheduler. Using different tasks and different scheduling policies, the software will be able to simulate an execution and generate a report containing relevant information, such as time of entry and exit processes in the processor, and how long they stayed there.

The objectives of this project are educational. Its main objective is that students, in developing this software, acquire knowledge in project techniques and systems implementation.

1.5 References

JVM requirements
Link: http://java.com/en/download/help/sysreq.xml

2. Overall Description

2.1 Product Perspective

This software is new, and does not belong to any group, system, family or business. Also will not be marketed. As stated earlier, this is an academic work that aims to expand students' knowledge.

2.2 Product Functions

The main function of this software will be simulate the execution of different tasks in a scheduler, through different policies. For this, the user must edit a text file, entering some information, such as what are the processes in which time they will enter the system, and what is the scheduling policy used by the scheduler. The software will read this information, perform the simulation, and generate another text file, containing a simulation report. In this report will be recorded information as at what time each task was performed.

2.3 User Classes and Characteristics

2.4 Operating Environment

The software will be entirely implemented in Java 8, that is a multi platform environment. To run the software, the user will need a Java Virtual Machine (JVM) in version 8. With the JVM, this software can be runnable on Windows, Macintosh or Linux. So, the requirements for this software are going to be exactly the same requirements for the JVM, that you can see in this link: http://java.com/en/download/help/sysreq.xml

2.5 Design and Implementation Constraints

The software must be implemented in Java, without using any external library.

2.6 User Documentation

The user will have access to a manual that explains how to use the software, and to the Javadoc, that explains more details about the implementation, such as classes and methods.

2.7 Assumptions and Dependencies

As previously mentioned, the software will use the Java 8 platform. So far, we did not detect the need for any other external libraries.

3. External Interface Requirements

3.1 User Interfaces

All user interfaces will be made through text files and Option Panes. The user must enter an input text file, and run the software that will read the text file, perform the simulation and generate another text file with the simulation report. If the software experience any problems running, reading the text file or another possible problem, the user will be notified via an Option Pane.

3.2 Hardware Interfaces

As the implementation will be using Java Platform, all software interfaces directly with the hardware will be performed by Java Virtual Machine, without interference from developers of this project.

3.3 Software Interfaces

No interface with other software will be implemented. The Java platform will be in charge of the interface of the software on the operating system, so this will not be the responsibility of the programmers.

3.4 Communications Interfaces

No communication interface will be implemented.

4. System Features

4.1 System Feature - Scheduling Simulation

The one and main system feature will simulate executions of multiple tasks in a single processor . The scheduling system will support several policies . The user will inform through the a file text which policy and which tasks are going to be simulated. The system will read these information, run a simulation and generate a simulation report.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

5.2 Safety Requirements

5.3 Security Requirements

5.4 Software Quality Attributes

The software needs to be extensible. It means that needs to be easy to implement new features for this software. The developers are going to create a tutorial teaching how to implement a new scheduling policies.

5.5 Business Rules

6. Other Requirements