MACHINE JOB SCHEDULING

Software Requirement Specification (SRS) Document

Sprint 1 Implementation

Project Timeline: 04.10.2022 to 11.10.2022

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1. Introduction: -

The introduction of the software requirement specification provides an overview of the entire software. The entire SRS with overview description purpose, scope, tools used and basic description. The aim of this document is to gather, analyze and give an in-depth insight into the complete Machine Job Scheduling application by defining the problem statement in detail. The detailed requirements of the Machine Job Scheduling application is provided in this document.

1.1. Purpose: -

1.1. Purpose: - The purpose of this document is to show the requirements for the “Machine Job Scheduling Application”, in which we will process jobs data and assign requested machines to the jobs then schedule for each machine is generated.

1.2. Intended Audience: -This document is intended to be read by, Client.

1.3. Intended Use: -

- Development Team
- Maintenance Team
- Clients

Since this a general-Purpose Software any one can access it.

1.4. Scope: -

In a manufacturing company, three machines are available to do manufacturing tasks, and the work of each machine is received from clients in different text files. It is necessary to create the machine job scheduling application, which will process the job data and assign the required machines to the jobs. Text files are created which include a schedule for each machine.

2. Overall Description: -

The goal of this project is to construct a machine job scheduling application. It accepts as input Job Description files containing the following data: Job No, Description, Machine No, Duration(in minutes), Client name (optional). Three machines are resources that can be used by several jobs. At time T1, all machines operate. Every time a machine is assigned to a task, "Duration" is increased and an entry is made in "Schedule". Job No., Start time, and End time are all listed in schedule entries.

2.1. Assumptions and Dependency: -

- System should have Ubuntu Linux installed.
- System should have either 4GB or more RAM.
- The service is used preferably on a desktop or laptop.

3. System Features and Requirements: -

3.1. Functionality: -

3.1.1. **MJ_01 : createList :** This function is primarily used to construct a linked list.

3.1.2. **MJ_02 : addToList :** This function is used to separate each word of the valid string and stores those words into structured format.

3.1.3. **MJ_03 : stringValid :** This function is used to determine whether the string present in the file given by the client is valid or not. Valid in the sense the string present in the file is in the format needed by the machine.

3.1.4. **MJ_04 : invalidFile :** This function is used to store the strings which are not valid into a text file named invalidRecord.txt.

3.1.5. **MJ_05 : displayList :** This function is used to display the contents of the valid strings present in the linkedlist.

3.1.6. **MJ_06 : validAdd :** This function stores the valid jobs that are needed to be performed by the machine into three text files for three different machines. It stores the information like job no.start time, and end time.

3.1.7. **MJ_07 : assignJob :** This function is used to fetch the file line by line and it checks if the line is valid or not, suppose if the line is valid then it appends the entry into the respective schedule files and if the line is invalid then it calls the invalid file function.

3.2. System Requirements: -

3.2.1. **Tools to be used:**

- Pthread Library
- C File Handling

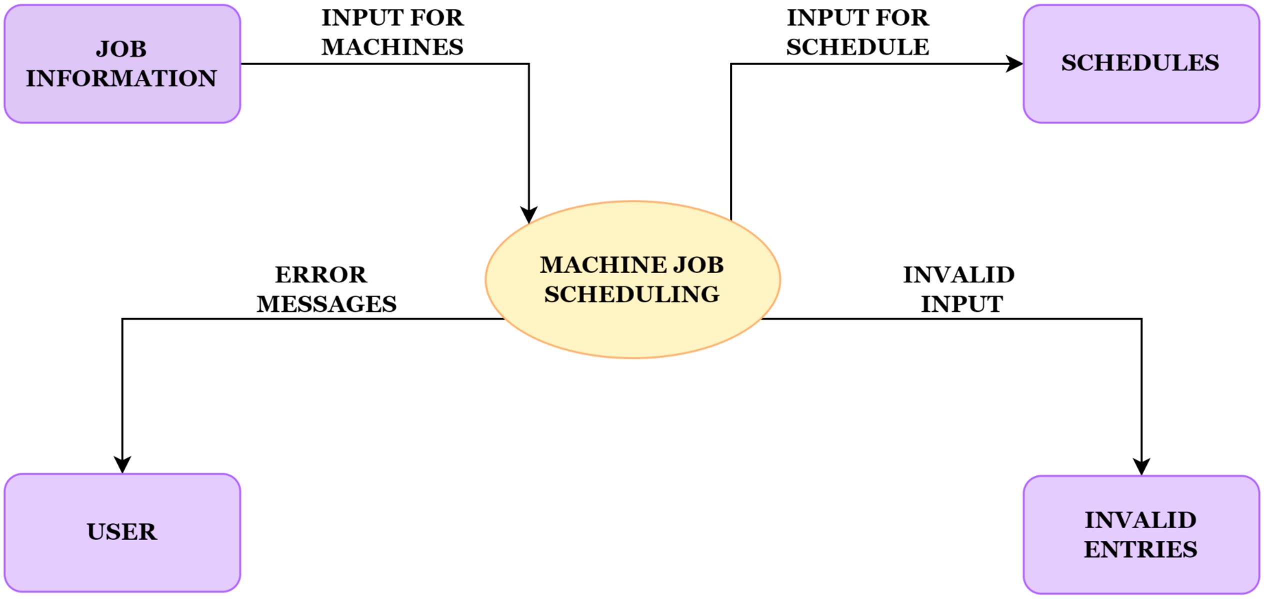
- C Language
- System Programming
- Gprof
- Gcov
- Cunit
- Valgrind
- GDB
- Makefile

3.3. System Features: -

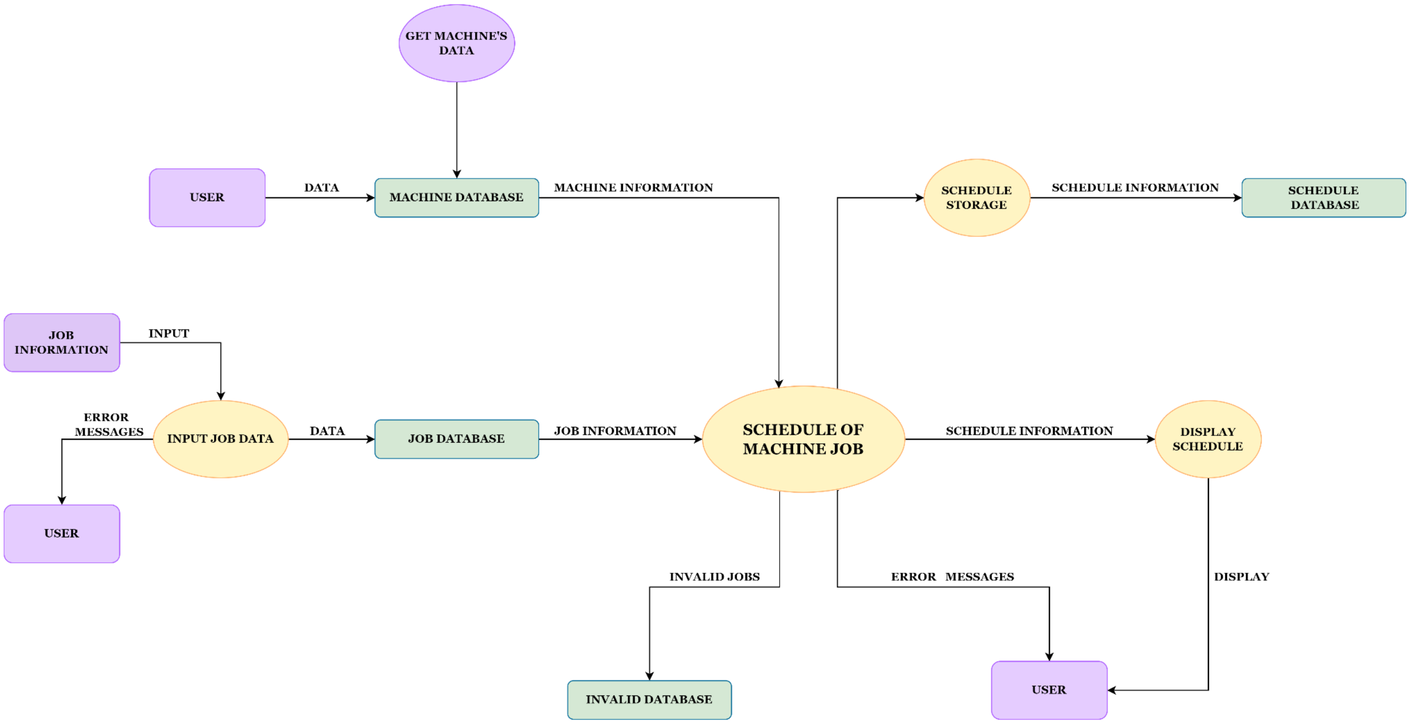
- **Supportability:** The system is easy to use.
- **Design Constraints:** The system is built using only C language.
- **Usability:** The automatic bowling scorer application can be used to replace the old means. Recording score by displaying various information to the player such as number of pins knocked down by each ball, the frame number which is currently going on, the cumulative score gained throughout the the end of each frame and the total number of points scored by the player after the completion of a total of ten frames.
- **Reliability & Availability:** The system is available 24/7 that is whenever the user would like to use the system, they can use it up to its functionalities.
- **Performance:** The system will work on the user's terminal.

4. DataFlow Diagram:

4.1. HLD –


JOB INFORMATION
INPUT FOR MACHINES
INPUT FOR SCHEDULE
SCHEDULES
MACHINE JOB SCHEDULING
ERROR MESSAGES
INVALID INPUT
USER
INVALID ENTRIES

4.2. LLD –


GET MACHINE'S DATA
USER
DATA
MACHINE DATABASE
MACHINE INFORMATION
SCHEDULE STORAGE
SCHEDULE INFORMATION
SCHEDULE DATABASE
JOB INFORMATION
INPUT
ERROR MESSAGES
INPUT JOB DATA
DATA
JOB DATABASE
JOB INFORMATION
SCHEDULE OF MACHINE JOB
SCHEDULE INFORMATION
DISPLAY SCHEDULE
USER
INVALID JOBS
ERROR MESSAGES
DISPLAY
INVALID DATABASE
USER