**CHAPTER 2**

**SOFTWARE REQUIREMENT SPECIFICATION**

This chapter focuses on the Software Requirement Specification of the product. A Software Requirement Specification is a complete description of the behaviour of the system to be developed. It contains functional and non-functional requirements and asset of use cases.

* 1. **OPERATING ENVIRONMENT**
     1. **Hardware Requirements**
* Printer
  + LAN Enabled
* Server and Client (Laptop)
  + P4 2.4GHz
  + 1GB RAM
  + 4GB or more hard disk
  + Network Interface Card
  + LAN Enabled and Connected
    1. **Software Requirements**

Operating system : Windows XP/Vista/7

Application Framework : .NET Framework 3.5 or later

Front End : C#

Database : MySQL

Database Connectivity : MYSQL Connector 6.8.3

* 1. **FUNCTIONAL REQUIREMENTS**
     1. **User and Administrator Authentication**

Before printing any document, a user has to use his/her login details to login and these will be verified by the software. If it is a success, the user is granted access and can give print. If not, he/she has to re-login. Similarly, the administrator is provided with a login pair which is used to login into the administrator software.

* + 1. **Advanced Filtering and Restrictions**

Each user and printer can be assigned to a group/department depending on each organization. Also the software can be used to view information about a particular user or printer. The project is based on the concept quota. Each user is assigned a total quota of pages to be used over a period of time. On the completion of this quota, the print job given by the user will be deleted automatically and he/she has to request for more quota before they begin printing again.

* + 1. **Track multiple local and server printers**

The software of capable of automatically detecting any printer connected over the lan and provides a functionality to add the same to the database. The method to track these server printers is very efficient.

* + 1. **Update main server database at regular intervals**

When a print job is given by a user, all the required details of this job is stored in a local database on the user’s machine. When a connection is established with the server machine, all the records are updated to the main server computer. Also the change in quota left is also stored in the database when the user logs out.

* + 1. **Track the users connected to LAN network**

When the administrator opens the software to add new users to the database, the software automatically scans the network and gives a list of users which are currently connected via the LAN to the network. The administrator can then select the users to be added and add them.

* + 1. **Customizable Report Generation and Tracking**

A customized report can be generated by the administrator for a particular user of the organization or with respect to a particular printer. This report can then be analysed. The tracking of print jobs is efficient and up to date.

* + 1. **Pop-ups and Alerts**

For all the possible errors that may occur, the software provides with a pop-up message clearly stating what the problem is and that if the user should try again later. If the cartridge level is below the threshold value, an email alert is sent to the administrator. Similarly an email is sent for each request of quota.

* 1. **NONFUNCTIONAL REQUIREMENTS**
     1. **Reliability**

Developed Tool should be reliable on windows platform. This tool will work properly in the presence of the .NET framework. Hence its reliability mainly depends on the correct recording of the job details mainly.

* + 1. **Availability**

High availability is a system design approach and associated service implementation that ensures a prearranged level of operational performance. It refers to the ability of the user community to access the system and the ability of the system resource to be available at all times.

* + 1. **Security**

Security would be ensured through the various authentication levels provided. It means based on the level of authorization they can able to play-around the tool.

* + 1. **Maintainability**

The ease with which the system can be modified to correct its defects, meet new requirements, make future maintenance easier, or cope with changed environment. The system should be maintainable, so as to allow future enhancements.

* + 1. **Robustness**

A robust system is one that can handle errors conditions gracefully, without failure. The system is designed to handle common errors.

* 1. **USER CHARACTERISTICS**
* Each administrator is given an unique user id and password, using this he/she can login and take further actions.
* Each user of the organization is provided with a separate user id and password to keep track of their account and quota.
* The administrator can add/delete users and printers.
* Each user can view his/her quota left after logging in and can request more quota if necessary.
* The administrator can also change the user/group quota based on the quota requests received.
* The administrator can view and generate reports based on a particular user or printer.
  1. **APPLICATION OF THE SOFTWARE**

In an organization, tracking print jobs from each user can be tiresome. Hence our software helps in keeping track of the same by recording each print job from every user. This software can be used in any large or small organization with a LAN network and all the systems connected to it. Also there should be network printers available which are also connected to the same LAN network.

* 1. **ADVANTAGES OF THE SYSTEM**

The advantages of this software are:

* Better management of print jobs and user/printer information.
* Authentication – The database will maintain the login details of each user used to login before printing any document. The credentials are checked along with the quota for that user.
* Maintaining Confidentiality – The administrator has a specified login and password which is known only by him/her. Only he/she can view the data and information related to the users of the organization using the unique username and password.
* Data Updation – A local xml file is created for quota and storing print job information. When the administrator is connected to the network, the data is updated to main database and deleted from the xml files.
* Reduce the overall printing cost - By keeping track of all the jobs and restrictive printing, the overall cost incurred in providing print services can be reduced.
* Automatic notification – A notification mail is instantly sent when the software detects that the printer cartridge level is lower than a fixed threshold value so that the downtime of the printer can be reduced.
* Easy to use user interface for both the user and the administrator of the organization.
  1. **SUMMARY**

This chapter describes the minimum hardware and software requirements for the software to run. It also gives the functional and non-functional requirements of the system. Then in brief, it describes the user characteristics and the application along with the advantages of the system.