

PRINTING POOL

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Abstract— This paper proposes a project named Printing Pool (web application) that helps students in institutes or people in particular work places to get prints in efficient and easy way. Paperless homes and offices have been spoken about for many years. With advancements in technology and cloud based storage, there was a common perception that the need for paper would be a thing of the past, but the truth is very different. Very few homes are totally paperless, and even fewer businesses. The fact is worldwide we are using 50% more paper now than we did 30 years ago. We require printers in our day to day life for so many reasons. But mostly the printers are required in many institutes, colleges or in organizations to store the work in a form of a hard copy. Many institutes or colleges provide printers to the students, teachers and other staff of the college or the organizations provide printing services to employees of the company. The project "Printing Pool" simply aims to provide ease and convenience to provide printing services and making system maintenance easy for the colleges or for the offices.

Index Terms— Pool printing, printing server, client server system, client-server based printing system, print distribution algorithm

1 INTRODUCTION

The project "Printing Pool" simply aims to provide ease and convenience to provide printing services and making system maintenance easy for the colleges or for the offices. "Printing pool" system suggests the use of simple user account to each independent user who is supposed to use the printing services. Whenever user needs to utilize the proposed service he/she can log in to the account at the client site. User needs to provide credentials (user ID, password etc.) to get authenticated. User can send the documents to be printed to the server site (few printers are maintained) from his account. User can also view old history about the documents that was printed or the transactions that are made. Along with this user is also able to specify the type of print (colour or black & white) or if he requires document to be printed on single side or both sides of the page. As some colleges offer printing services with some cost, payment option is also available to the user in his account. He can recharge this account with money from the remote site. Money will be deducted from his account according to the no of pages and type of print requested. User simply sending requests to the remote site to get papers printed. At remote site many number of printers are arranged, so that if there's a work load then it can be

distributed over multiple printers.

This way user can send documents to the remote site at any time from machine which lies in network and it will be saved at remote site. It results in time saving and convenience to the user. Users also don't need to be physically present around the printers, the long queues that come up is avoided. User doesn't need to stand in queue and wait for his turn. Also money transaction frauds can be avoided. For maintenance it is convenient as all the printers are arranged and managed centrally. And the system is robust because no problem can occur as long as college server is up. Hence "Printing Pool" is a complete system program for any organization or institute. And it can be easily used in any small or large work space as it is easily adaptable.

2 MOTIVATION

Page printers are usually required at different working places. They are highly needed in offices or colleges/schools etc. Many offices or colleges provides printing services to the members at some cost or free. But here the number of printers provided for use by offices or colleges is limited hence it becomes little hectic for users to use the services.

In such a circumstances user usually faces problems like crowded places where printers are installed, waste of time as one need to wait until their turn comes and if computer on which printers are installed are out of service because of any reason then printer becomes completely unavailable. Also user may connect portable storage devices to computer for file transfer which may result desktop affected with virus.

A simple solution to overcome this problem is proposing a simple client-server type network where multiple printers are maintained at server site. Users are given a separate account where he can log in using required credentials. Whenever user needs to print any document he can send it to the server site. User can also state the number of copies or type of print required. Also payment option is available with user account and amount will be deducted from account according to the number of pages. Printing Pool provides simple yet very useful features such as location independence, robust system as work load can be distributed over all available printers, safe, easy to access, time saving, easy to maintain etc.

3 DESIGN

Figure 3.1 shows system architecture of Printing Pool. The application runs on Local Area Network. The overall system is divided in 2 parts-Client Side and Server Side. Client Side simply provides interface to the users of the system. A simple mail system is used to provide communication facility between client and server. Users first have to register themselves at server side with required information to create a user account. Once user account is created for user, he can log in using required credentials (ID and password). User can send the documents to be printed with mail which will reach at server side over a network.

The main components of the system are running at server side where few printers are installed and maintained. As user sends request mail containing documents to be

printed, it will be received at server site. When many users send requests at same time, they are stored in temporary queue according to time they have received by server and then these requests will be proceed in first come first serve manner. One by one job will be assigned to idle printer.

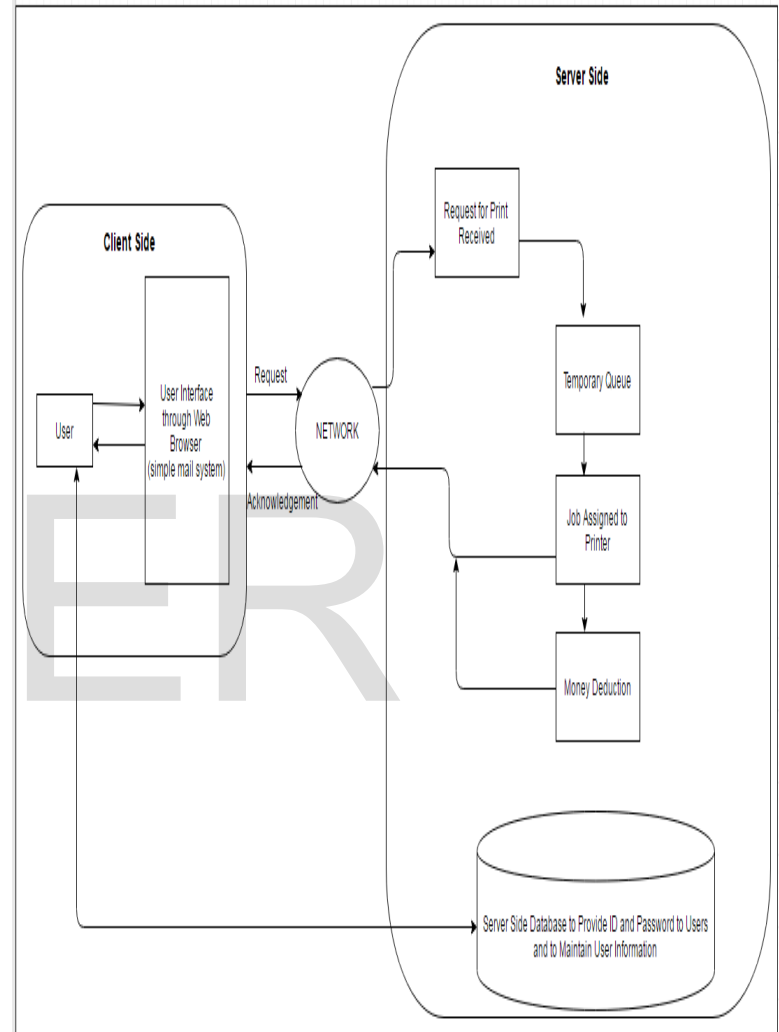


Figure 3.1 Printing Pool System Architecture

4 METHODOLOGY

Once the user visits to the website or homepage, he/s he needs to logins into the system. Login page consist of two things one is admin and other is student. If the user is already registered then he can proceed further ,if the user is not registered,then needs to enter the details and has to log

in again into the system. Admin Login consists of various functions like adding or deleting user and maintaining system change the password. User/Admin gets logged out once the task is completed.

5 ALGORITHM

Step 1: Start

Step 2: Login into system

Connection Established with database using
 SqlConnection con = new SqlConnection();

If the student has already registered then sign in else register.

Step 3: After Login

User can view status of the request he has made, available money in his account etc.

Step 4: User can also make new request by sending any other document at server site to be printed.

Step 5: After completing all activities user logs out.

Step 6: End.

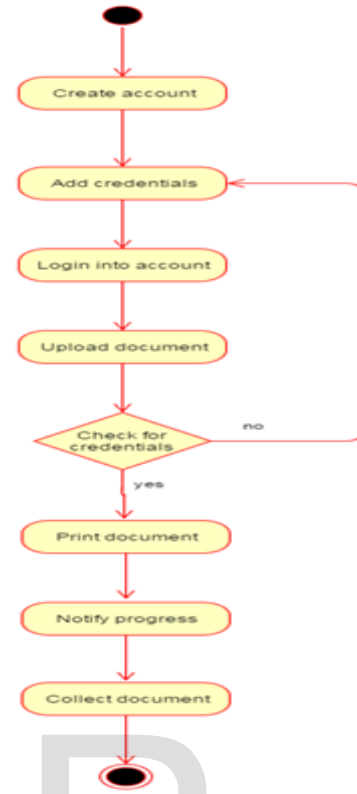
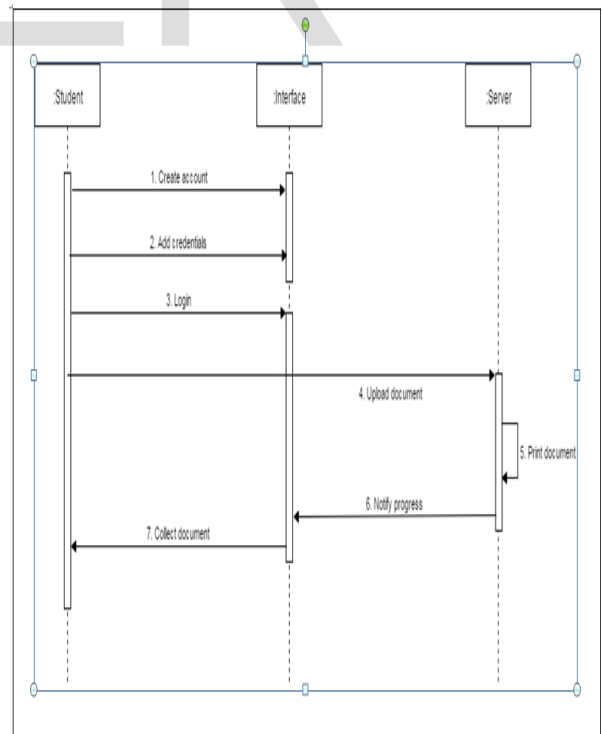


Figure 6.1 Activity Diagram of Printing Pool

6 FIGURES

6.1 Activity Diagram: Activity diagram is important diagram in UML to describe dynamic aspects of the system. Activity diagram is basically a flow chart to represent the flow from one activity to another activity. The activity can be described as an operation of the system.

6.2 Sequence Diagram: A Sequence diagram is an interaction diagram that shows how objects operate with one another and in what order. It is a construct of a message sequence chart. A sequence diagram shows object interactions arranged in time sequence. It depicts the objects and classes involved in the scenario and the sequence of messages exchanged between the objects needed to carry out the functionality of the scenario.



6.2 Sequence Diagram for Printing Pool

CONCLUSIONS

This project represents an idea that will give service to the users and reduce the efforts. Technologies were created by human beings for human beings to reduce his/her efforts and this project delivers an idea that can reduce the user's effort in this fast world. This is our effort to create a system that can provide very easy way to get our documents printed by using simple and latest technology. Also it beneficial in many ways as it saves user time and efforts too.

So far we have seen various technologies that are required in development of this project. We have done detailed study of those technologies and their uses. In next semester we are going to implement the actual application using all this technologies.

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