LIBRARY MANAGEMENT SYSTEM

A Project

Submitted in Partial fulfillment for the

Award of the degree of

BACHELOR OF ENGINEERING

In

COMPUTER SCIENCE ENGINEERING

Submitted by

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Under the Guidance of

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2021-2022

DECLARATION BY THE CANDIDATES

We the undersigned solemnly declare that the report of the project work entitled

"LIBRARY MANAGEMENT SYSTEM" is based on our own work carried out during the course of our study under the guidance of Lect. Miss Preeti Manke, **Department of**

Computer Science & Engineering, Institute of Technology Korba(C.G).

We further declare that the statements made and conclusions drawn are an outcome of our project work.

(Signature of the Candidate)

Name: SAYAN SINHA ROY

ROLL NO:303002217007

CERTIFICATE BY THE SUPERVISOR

This is to certify that the project entitled **"LIBRARY MANAGEMENT SYSTEM"** is a record of work carried out by **SAYAN SINHA ROY (303002217007),** bearing Under my/our guidance and supervision for the award of Degree of **Bachelor of Engineering, Chhattisgarh Swami Vivekanand Technical University, Bhilai (C.G), India.**

To the best of my/our knowledge and belief the Project

1.Embodies the work of the candidate him/herself.

2. Has not been submitted for the award of any degree.

- Fulfils the requirement of the Ordinance relating to the B.E degree of the University and,
- Is up to the desired standard in respect of contents and is being referred to the

examiners.

_____

(Signature of the Guide)

Lect. Miss Preeti Manke

(Department of CSE/IT)

(Institute of Technology Korba (C.G))

Recommendation

The Project work as mentioned above is here by being recommended and forwarded for examination and evaluation.

_____

(Signature of the Head of Department)

Mrs. Preeti Manke

(HOD, Department of Computer Sc. & Engineering)

(Institute of Technology Korba (C.G)).

ACKNOWLEDGEMENT

At every outset we express my gratitude to almighty lord for showering his grace and blessing upon us to complete this project.

Although our name appears on the cover of this project, many people had contributed in some form or the other form to this project development. We could not done this project without the assistance or support of each of the following we thank you all.

We wish to place on our record our deep sense of gratitude to our project guide

Lect. Miss Preeti Manke, Dept. of C.S.E, I T Korba for their constant motivation and valuable help through the project work. Express our gratitude to

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We finally wish to extend our sincere thanks to those personalities who motivate us and have direct or indirect assistance in this project work.

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CHAPTER 1

INTRODUCTION

This chapter gives an overview about the aim , objectives ,background and operation environment of the system.

1.1 PROJECT AIMS AND OBJECTIVES

The project aims and objectives that will be achieved after completion of this project are discussed in this subchapter. The aims and objectives are as follows:

- Online book reading.
- A search column to search availability of books.
- Facility to download required book.
- Video tutorial for students.
- An Admin login page where admin can add books, videos or page sources
- Open link for Learning Websites

1.2 BACKGROUND OF PROJECT

Library Management System is an application which refers to library systems which are generally small or medium in size. It is used by librarian to manage the library using a computerized system where he/she can add new books and Page sources.

Books and student maintenance modules are also included in this system which would keep track of the students using the library and also a detailed description about the books a library contains. With this computerized system there will be no loss of book record or member record which generally happens when a non computerized system is used.

All these modules are able to help librarian to manage the library with more convenience and in a more efficient way as compared to library systems which are not computerized.

PROCESSOR :- INTEL CORE PROCESSOR FOR BETTER PERFORMANCE

OPERATING SYSTEM :- WINDOWS VISTA ,WINDOWS7, UBUNTU

MEMORY :- 1GB RAM OR MORE

HARD DISK SPACE :- MINIMUM 3 GB FOR DATABASE USAGE FOR FUTURE

DATABASE :- MY SQL

CHAPTER 2

SYSTEM ANALYSIS

In this chapter, we will discuss and analyze about the developing process of Library Management System including software requirement specification (SRS) and comparison between existing and proposed system . The functional and non functional requirements are included in SRS part to provide complete description and overview of system requirement before the developing process is carried out. Besides that, existing vs proposed provides a view of how the proposed system will be more efficient than the existing one.

2.1 SOFTWARE REQUIREMENT SPECIFICATION

2.1.1 GENERAL DESCRIPTION

PRODUCT DESCRIPTION:

Library Management System is a computerized system which helps user(librarian) to manage the library daily activity in electronic format. It reduces the risk of paper work such as file lost, file damaged and time consuming.

It can help user to manage the transaction or record more effectively and time saving.

PROBLEM STATEMENT:

The problem occurred before having computerized system includes:

🕐 File lost

When computerized system is not implemented file is always lost because of human environment.Some times due to some human error there may be a loss of records.

🕐 File damaged When a computerized system is not there file is always lost due to some accdent like spilling of water by some member on file accidentally.

Besides some natural disaster like floods or fires may also damage the files.

🕐 Difficult to search record

When there is no computerized system there is always a difficulty in searching of records if the records are large in number .

🕐 Space consuming

After the number of records become large the space for physical storage of file and records also increases if no computerized system is implemented.

🕐 Cost consuming

As there is no computerized system the to add each record paper will be needed which will increase the cost for the management of library.

2.1.2 SYSTEM OBJECTIVES

🕐 Improvement in control and performance

The system is developed to cope up with the current issues and problems of library .The system can add user, validate user and is also bug free.

🕐 Save cost

After computerized system is implemented less human force will be required to maintain the library thus reducing the overall cost.

🕐 Save time

Librarian is able to search record by using few clicks of mouse and few search keywords thus saving his valuable time.

🕐 Option of online Notice board

Librarian will be able to provide a detailed description of workshops going in the college as well as in nearby colleges

🕐 Lecture Notes

Teacher have a facility to upload lectures notes in a pdf file having size not more than 10mb

2.1.3 SYSTEM REQUIREMENTS

2.1.3.1 NON FUNCTIONAL REQUIREMENTS

🕐 Product Requirements

EFFICIENCY REQUIREMENT

When a library management system will be implemented librarian and user will easily acess library as searching and book transaction will be very faster .

RELIABILITY REQUIREMENT

The system should accurately performs member registration ,member validation ,

report generation, book transaction and search

USABILITY REQUIREMENT

The system is designed for a user friendly environment so that student and staff of library can perform the various tasks easily and in an effective way.

ORGANIZATIONAL REQUIREMENT

IMPLEMENTATION REQUIREMNTS

In implementing whole system it uses html in front end with php as server side scripting language which will be used for database connectivity and the backend ie

the database part is developed using mysql.

DELIVERY REQUIREMENTS

The whole system is expected to be delivered in six months of time with a weekly evaluation by the project guide.

2.1.3.2 FUNCTIONAL REQUIREMENTS

1. NORMAL USER

1.1 USER LOGIN

Description of feature

This feature used by the user to login into system. They are required to enter user id and

password before they are allowed to enter the system .The user id and password will be verified

and if invalid id is there user is allowed to not enter the system.

Functional requirements

-user id is provided when they register

-The system must only allow user with valid id and password to enter the system

-The system performs authorization process which decides what user level can acess to.

-The user must be able to logout after they finished using system.

1.2 REGISTER NEW USER

Description of feature

This feature can be performed by all users to register new user to create account.

Functional requirements

-System must be able to verify information

-System must be able to delete information if information is wrong

1.3 REGISTER NEW BOOK

Description of feature

This feature allows to add new books to the library

Functional requirements

-System must be able to verify information

-System must be able to enter number of copies into table.

1.5 SEARCH BOOK

This feature is found in book maintenance part . we can search book based on book id , book name , publication or by author name.

Functional requirements

- System must be able to search the database based on select search type
- System must be able to filter book based on keyword enterd
- System must be able to show the filtered book in table view

2.1.4 SOFTWARE AND HARDWARE REQUIREMENTS

This section describes the software and hardware requirements of the system

2.1.4.1 SOFTWARE REQUIREMENTS

🕐 Operating system- Windows 10 is used as the operating system as it is stable and supports more features and is more user friendly

🕐 Database MYSQL-MYSQL is used as database as it easy to maintain and retrieve records by simple queries which are in English language which are easy to understand and easy to write.

🕐 Development tools and Programming language- HTML is used to write the whole code and develop webpages with css, java script for styling work and php for sever side scripting.

2.1.4.2 HARDWARE REQUIREMENT

➢Intel core i5 2nd generation is used as a processor because it is fast than other processors an provide reliable and stable and we can run our pc for longtime.

By using this processor we can keep on developing our project without any

worries.

➢ Ram 1 gb is used as it will provide fast reading and writing capabilities

and will in turn support in processing.

Existing System:

■ Early days Libraries are managed manually. It required lot of time to record or to retrieve

the details. The employees who have to record the details must perform their job very

carefully. Even a small mistake would create a lot of problems. Security of information is

very less. Report generations of all the information is very tough task.

■ Maintenance of Library catalogue and arrangement of the books to the catalogue is very

complex task. In addition to its maintenance of member details, issue dates and return

dates etc. manually is a complex task.

■ All the operations must be performed in perfect manner for the maintenance of the library

with out any degradation which may finally result in the failure of the entire system.

Proposed System:

To solve the inconveniences as mentioned in the existing system, an Online Library is

proposed. The proposed system contains the following features:

○ The students will register them through Online

○ Individually each member will have his account through which he can access the

information he needs.

○ Book details like authors, number of copies totally maintained by library, present available number of books, reference books, non-reference books etc. all this information can be made handy.

○ Regarding the members designation, number of books was issued.

○ Issue dates and returns of each member is maintained separately and fine charged if there is any delay in returning the book.

○ Administrator can add, update the books.

○ Time consuming is low, gives accurate results, reliability can be improved with the help of security.

2.3 SOFTWARE TOOLS USED

The whole Project is divided in two parts the front end and the back end.

2.3.1 Front end

The front end is designed using of html , Php ,css, Java script

HTML- HTMLorHyper Text Markup Languageis the main markuplanguage for creating web pages and other information that can be displayed in a web browser.HTML is written in the form of HTML elements consisting of tags enclosed in angle brackets (like <html>), within the web page content. HTML tags most commonly come in pairs like <h1> and </h1>, although some tags represent empty elements and so are unpaired, for example <img>. The first tag in a pair is the start tag, and the second tag is the end tag (they are also called opening tags and closing tags). In between these tags web designers can add text, further tags,

comments and other types of text-based content. The purpose of a web browser is to read HTML documents and compose them into visible or audible web pages. The browser does not display the HTML tags, but uses the tags to interpret the content of the page.HTML elements form the building blocks of all websites. HTML allows images and objects to be embedded and can be used to create interactive forms. It provides a means to create structured documents by denoting structural semantics for text such as headings, paragraphs, lists, links, quotes and other items. It can embed scripts written in languages such as JavaScript which affect the behavior of HTML web pages.

CSS- Cascading Style Sheets(CSS) is a style sheet language used fordescribing the look and formatting of a document written in a markup language. While most often used to style web pages and interfaces written in HTML and XHTML, the language can be applied to any kind
of XML document, including plain XML, SVG and XUL. CSS is a cornerstone specification of the web and almost all web pages use CSS style sheets to describe their presentation.CSS is designed primarily to enable the separation of document content from document presentation, including elements such as the layout, colors, and fonts. This separation can improve content accessibility, provide more flexibility and control in the specification.
of presentation characteristics, enable multiple pages to share formatting, and reduce complexity and repetition in the structural content (such as by allowing for table less web design).CSS can also allow the same markup page to be presented in different styles for different rendering methods, such as on-screen, in print, by voice (when

read out by a speech-based browser or screen reader) and on Braille-based, tactile devices. It can also be used to allow the web page to display differently depending on the screen size or device on which it is being viewed. While the author of a document typically links that document to a CSS file, readers can use a different style sheet, perhaps one on their own computer, to override the one the author has specified. However if the author or the reader did not link the document to a specific style sheet the default style of the browser will be applied.CSS specifies a priority scheme to determine which style rules apply if more than one rule matches against a particular element. In this so-called cascade, priorities or weights are calculated and assigned to rules, so that the results are predictable.

JAVA SCRIPT- JavaScript(JS) is a dynamic computer programminglanguage. It is most commonly used as part of web browsers, whose implementations allow client side scripts to interact with the user, control the browser, communicate asynchronously, and alter the document content that is displayed. It is also being used in server-side programming, game development and the creation of desktop and mobile applications. JavaScript is a prototype-based scripting language with dynamic typing and has first-class functions. Its syntax was influenced by C. JavaScript copies many names and naming conventions from Java, but the two languages are otherwise unrelated and have very different semantics. The key design principles within JavaScript are taken from the Self and Scheme programming languages. It is a multi paradigm language, supporting object-oriented, imperative, and functional programming styles. The application of JavaScript to use outside of web pages—for example, in PDF documents, site-specific browsers, and

desktop widgets—is also significant. Newer and faster JavaScript VMs and platforms built upon them (notably Node.js) have also increased the popularity of JavaScript for server-side web applications. On the client side, JavaScript was traditionally implemented as an interpreted language but just-in-time compilation is now performed by recent (post-2012) browsers.

PHP- PHP is a server-side scripting language designed for web development but also used as a general-purpose programming language. PHP is now installed on more than 244 million websites and 2.1 million web servers. Originally created by Rasmus Lerdorf in 1995, the reference implementation of PHP is now produced by The PHP Group. While PHP originally stood for Personal Home Page, it now stands for PHP: HypertextPreprocessor, a recursive backronym.PHP code is interpreted by a webserver with a PHP processor module, which generates the resulting web page: PHP commands can be embedded directly into an HTML source document rather than calling an external file to process data. It has also evolved to include a command-line interface capability and can be used in standalone graphical applications. PHP is free software released under the PHP License. PHP can be deployed on most web servers and also as a standalone shell on almost every operating system and platform, free of charge.

MYSQL- MySQL("My S-Q-L", officially, but also called "My Sequel") is (as of July 2013) the world's second most widely used open-source relational database management system (RDBMS). It is named after co-founder Michael Widenius daughter, My. The SQL phrase stands for Structured Query Language. The MySQL development project

has made its source code available under the terms of the GNU General Public License, as well as under a variety

of proprietary agreements. MySQL was owned and sponsored by a single for-profit firm, the Swedish company MySQL AB, now owned by Oracle Corporation

.MySQL is a popular choice of database for use in web applications, and is a central component of the widely used LAMP open source web application software stack (and other 'AMP' stacks). LAMP is an acronym for "Linux, Apache, MySQL, Perl/PHP/Python." Free-software-open source projects that require a full-featured database management system often use MySQL. For commercial use, several paid editions are available, and offer additional functionality. Applications which use MySQL databases

include: TYPO3, MODx, Joomla, WordPress, phpBB, MyBB, Drupal and other software. MySQL is also used in many high-profile, large-scale websites, including Wikipedia, Google (though not for searches), Facebook, Twitter, Flickr, and YouTube

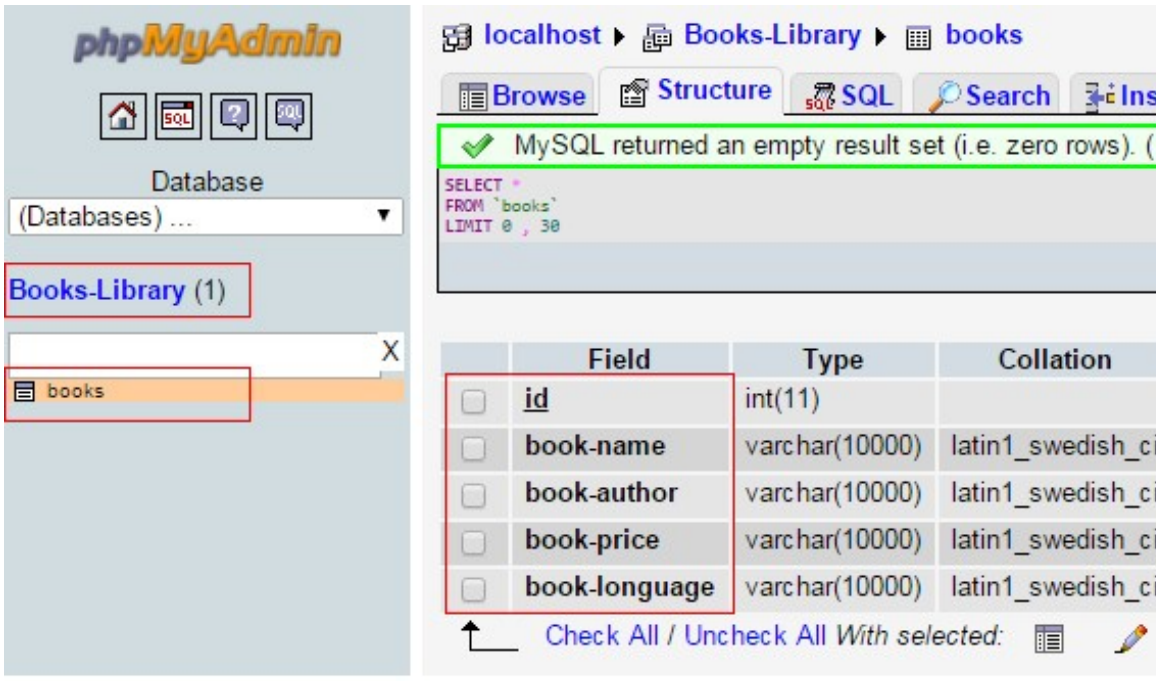
CHAPTER 3

SYSTEM DESIGN

3.1 TABLE DESIGN

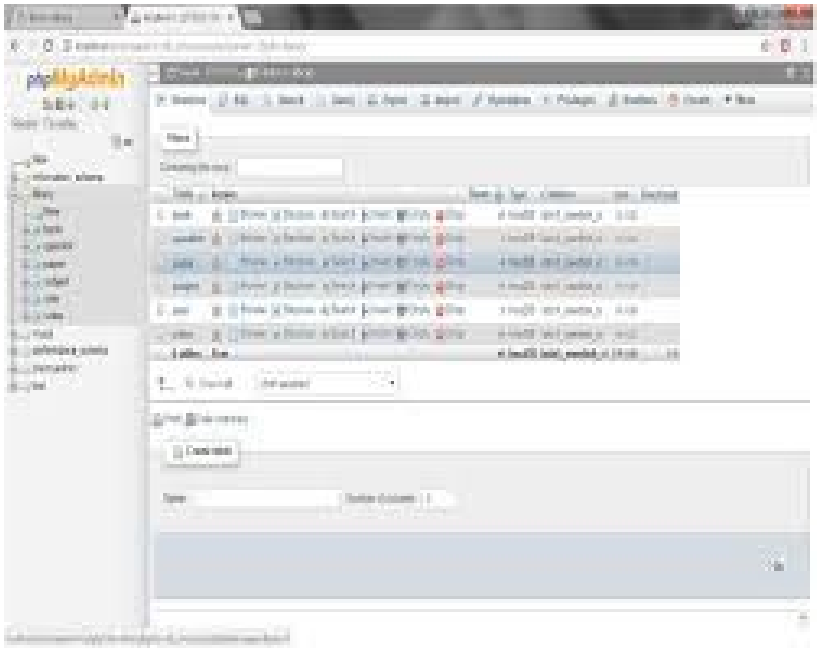
VARIOUS TABELS TO MAINTAIN INFORMATION

- Library Table from Database



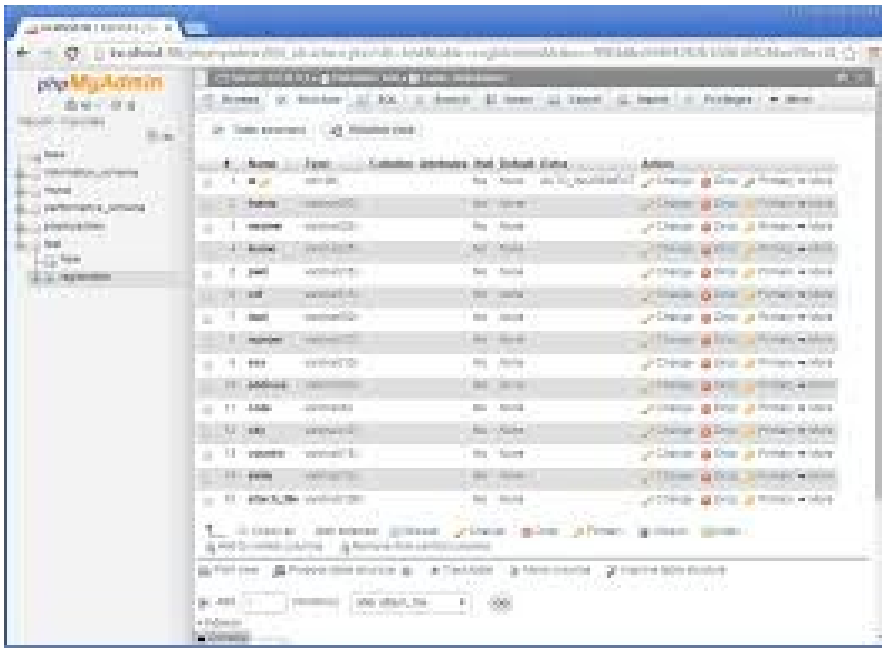
➢ Admin Table from Database

➢ Subjects Table from Database



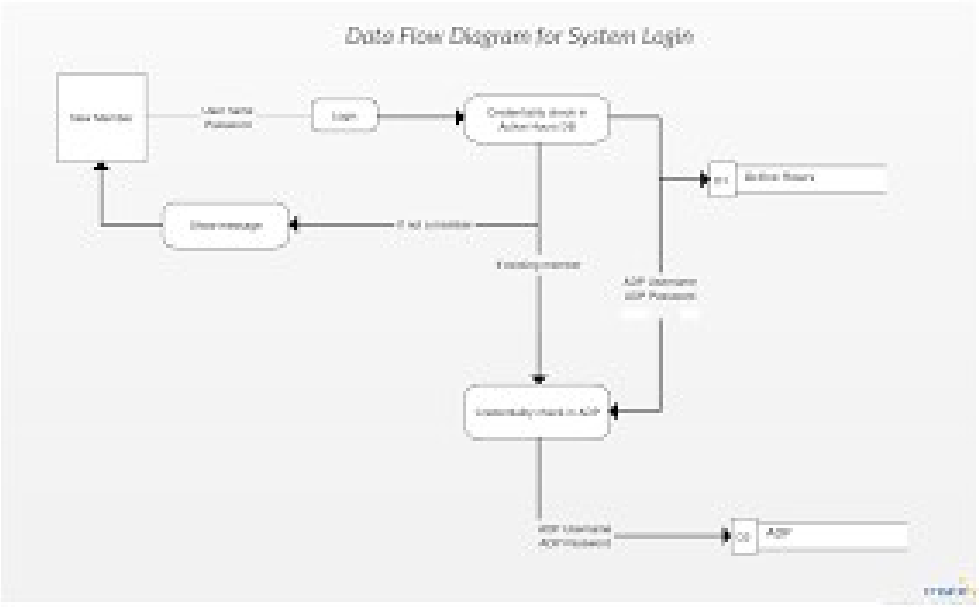
➢ Books Table from Database Books Table from

Database

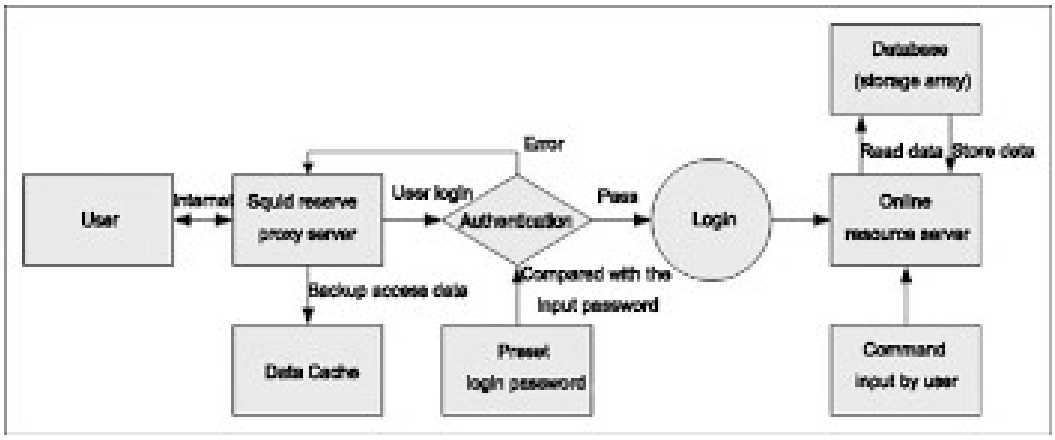


3.2 DATA FLOW DIAGRAMS

DATA FLOW DIAGRAM FOR ADMIN LOGIN



After entering to the home page of the website , Admin can choose the Admin Login option where they are asked to enter username & password , and if he/she is a valid user then a teacher login page will be displayed.



After entering to the home page of the website , student can choose the USER LOGIN option

where they are asked to enter username & password , and if he/she is a valid user then a

student login page will be displayed.

CHAPTER 4

SYSTEM TESTING

The aim of the system testing process was to determine all defects in our project .The

program was subjected to a set of test inputs and various observations were made and based

on these observations it will be decided whether the program behaves as expected or not. Our

Project went through two levels of testing

1.Unit testing

2.integration testing

UNIT TESTING

Unit testing is undertaken when a module has been created and succesfully reviewed .In order

to test a single module we need to provide a complete environment ie besides the module we

would require

- The procedures belonging to other modules that the module under test calls
- Non local data structures that module accesses

- A procedure to call the functions of the module under test with appropriate parameters

1. Test For the admin module

   - Testing admin login form-This form is used for log in of administrator of the system.In this we enter the username and password if both are correct administration page will open other wise if any of data is wrong it will get redirected back to the login page and again ask for username and password

   - Student account addition- In this section the admin can verify student details from student academinc info and then only add student details to main library database it contains add and delete buttons if user click add button data will be added to student database and if he clicks delete button the student data will be deleted

   - Book Addition- Admin can enter details of book and can add the details to the main book table also he can view the books requests .

2. Test for Student login module

   - Test for Student login Form-This form is used for log in of Student .In this we enter thelibraryid, username and password if all these are correct student login page will open other wise if any of data is wrong it will get redirected

back to the login page and again ask for libraryid, username and password.

- Test for account creation- This form is used for new account creation when student does not fill the form completely it asks again to fill the whole form when he fill the form fully it gets redirected to page which show waiting for conformation message as his data will be only added by administrator after verification.

INTEGRATION TESTING

In this type of testing we test various integration of the project module by providing the input

.The primary objective is to test the module interfaces in order to ensure that no errors are occurring when one module invokes the other module.

CHAPTER 5

CONCLUSION & FUTURE SCOPE

This website provides a computerized version of library management system which will benefit the students as well as the staff of the library.

It makes entire process online where student can search books, staff can generate reports and

do book transactions. It also has a facility for student login where student can login and can see

status of books issued as well request for book or give some suggestions. It has a facility of

teacher’s login where teachers can add lectures notes and also give necessary suggestion to

library and also add info about workshops or events happening in our college or nearby college

in the online notice board.

There is a future scope of this facility that many more features such as online lectures video

tutorials can be added by teachers as well as online assignments submission facility , a feature of

group chat where students can discuss various issues of engineering can be added to this project

thus making it more interactive more user friendly and project which fulfills each users need in

the best way possible.