LIBRARY MANAGEMENT SYSTEM

Project Report By
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Abstract

This report describes the project development of Library Management System that was developed to manage the daily book transaction and manage the member, books record more efficiency. It can improve management of the book property in the library.

This library management system is mainly use by librarian i.e., library admin. Normal Librarian is able to manage the member maintenance module, book maintenance module and also the most important module in a library which is book transaction module. It has also a facility where student after logging in their accounts can see list of books issued and its issue date and return date and also the students can request the librarian to add new books by filling the book request form.

Overall this project of ours is being developed to help the students as well as staff of library to maintain the library in the best way possible and also reduce the human efforts.

CHAPTER 1
INTRODUCTION

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

- 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 issue
  - Request column for librarian for providing new books
  - A separate column for digital library
  - Student login page where student can find books issued by him/her and date of return.
  - A search column to search availability of books
  - A teacher login page where teacher can add any events being organized in the college
  - and important suggestions regarding books.
  - Online notice board about the workshop.

- 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 record various transactions like issue of books, return of books, addition of new books, addition of new students etc. 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. In addition, report module is also included in Library Management System. If user's position is admin, the user is able to generate different kinds of reports like lists of students registered, list of books, issue and return reports. 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.
- METHODOLOGY USED

  In Software Engineering model, It originally consists of 7 phases which is Requirement Specification, Design, Construction, Integration, Testing and Debugging, Installation and Maintenance. Firstly, we collect the requirement for the library system, and then we analyzed it. After analyzed the requirement, we proceed

to design stage. In the design phase, I design not only the user interface, but also the database design. The next phase in waterfall model after design phase is Construction phase. Construction phase is an important phase in waterfall model and it is a time consuming phase depends on programmer's ability. In Library Management System development, construction phase is using VB.Net coding to write the program. IT is very time consuming if the programmer don't understand the logic or still fresh to the coding. After done the coding phase, we will proceed to integration phase. In this phase, online web site and library system will share a same database to make integration between two applications. The next phase after integration is the testing and debugging phase. For testing module, it is separated into few types which are module testing, system testing, unit testing and user acceptance test. Once there is a bug founded, it will be solve immediately before the system is launched to ensure the system launched is bug free. Lastly, it is installation and maintenance phase. In this phase, the system will be installed at user side. After installed the system, maintenance is compulsory needed to ensure the system is always-on and up to date with latest technologies or latest business process. In my opinion, the time spent on earlier phases of SDLC can lead to greater economy in later stages. It is because in the earlier phase, a bug can be fixed in short time, less cost and less effort compared to later phases.

- OPERATION ENVIRONMENT

PROCESSOR PERFORMANCE	AMD A4 PROCESSOR OR BETTER
OPERATING SYSTEM	UBUNTU 16.O4 , WINDOWS 10
MEMORY	1GB RAM OR MORE
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

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 accident 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.

2.1.3 SYSTEM REQUIREMENTS

2.1.3.1 FUNCTIONAL REQUIREMENTS

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 and type 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.
- System must be able to not allow two books having same book id.

1.5 SEARCH BOOK

Description of feature

This feature is found in book maintenance part . we can search book based on book name and Book Stream.

Functional requirements

- System must be able to search the database based on select search type.
- System must be able to filter book based on name entered.
- System must be able to show the filtered book id's to issue.

1.5 ISSUE BOOKS AND RETURN BOOKS

Description of feature

This feature allows to issue and return books.

Functional requirements

-System must be able to enter issue information in database.
-System must be able to update number of books issued against user.
- System must be able to search if book is available or not before issuing books
-System should be able to enter issue and return date information.

2.2 EXISTING VS PROPOSED SYSTEM

i. Existing system does not have any facility of teachers login or student login where as proposed system will have a facility of student login as well as teacher's login

ii. Existing system does not have a facility of online reservation of books whereas proposed system has a facility of online reservation of books

iii. Existing system does not have any facility of online notice board where description of workshops happening in our college as well as nearby colleges is being provided.

iv. Existing system does not has any option of lectures notes uploaded by teachers whereas proposed system will have this facility

v. Existing system does not have any facility to generate student reports as well book issue reports whereas proposed system provides librarian with a tool to generate reports

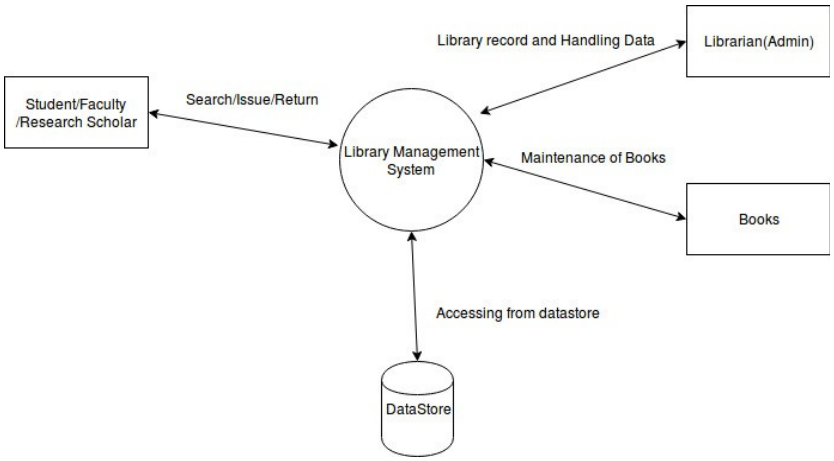
vi. Existing system does not has any facility for book request and sugeestions where as in proposed system after logging in to their accounts student can request books as well as provide suggestions to improve library

2.3 SOFTWARE TOOLS USED

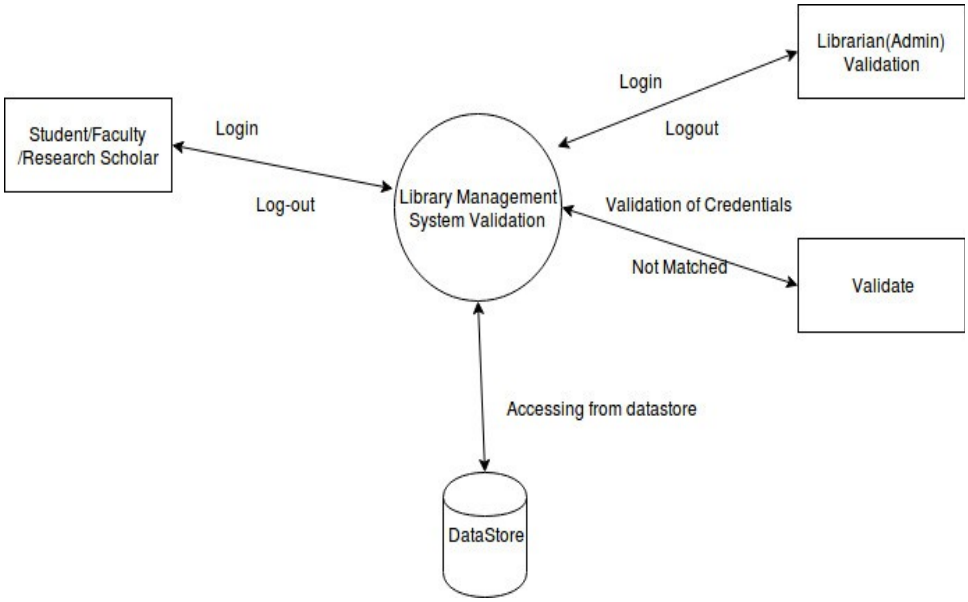
FRONTEND	–	HTML,CSS,JS
BACKEND	–	PHP, MYSQL

2.4 DATAFLOW DIAGRAM

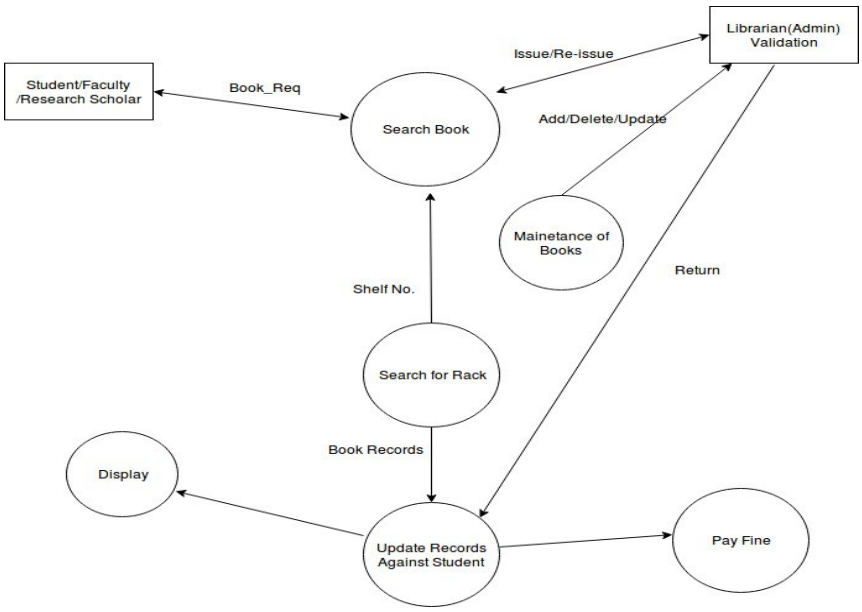
- LEVEL 0



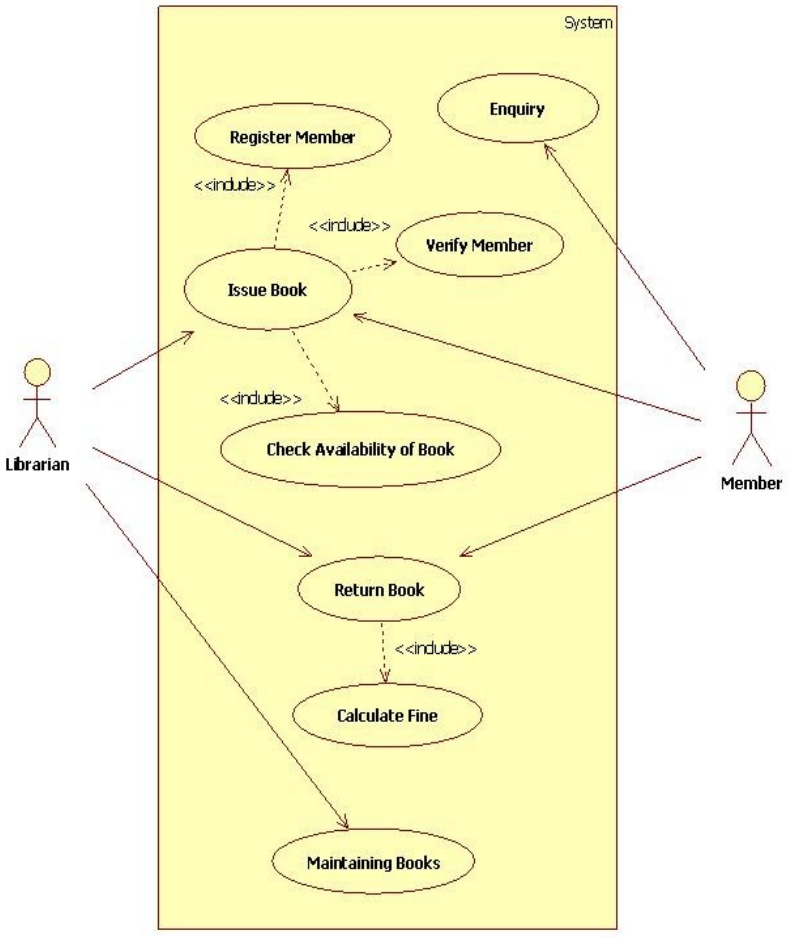
- LEVEL 1



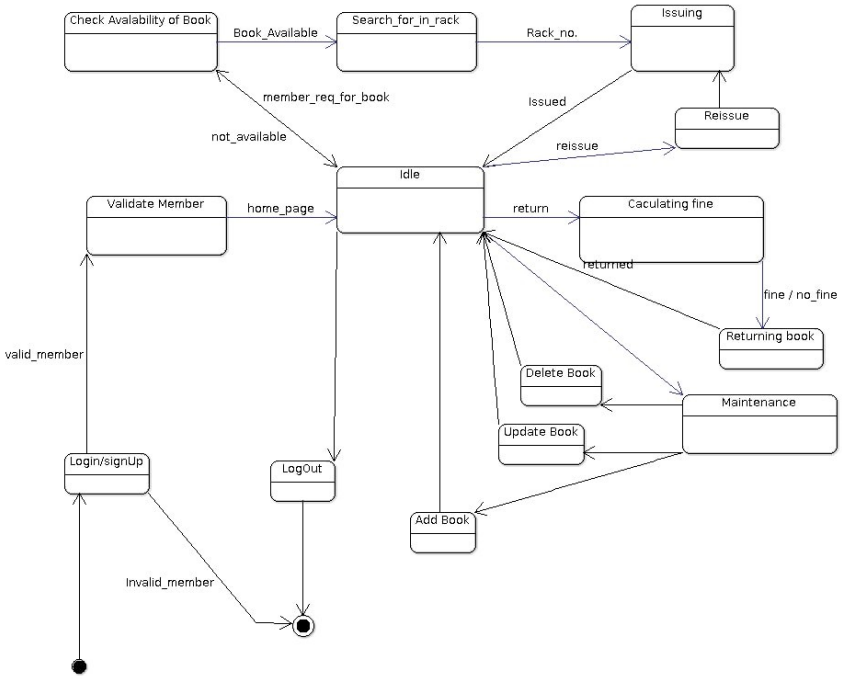
- LEVEL 2



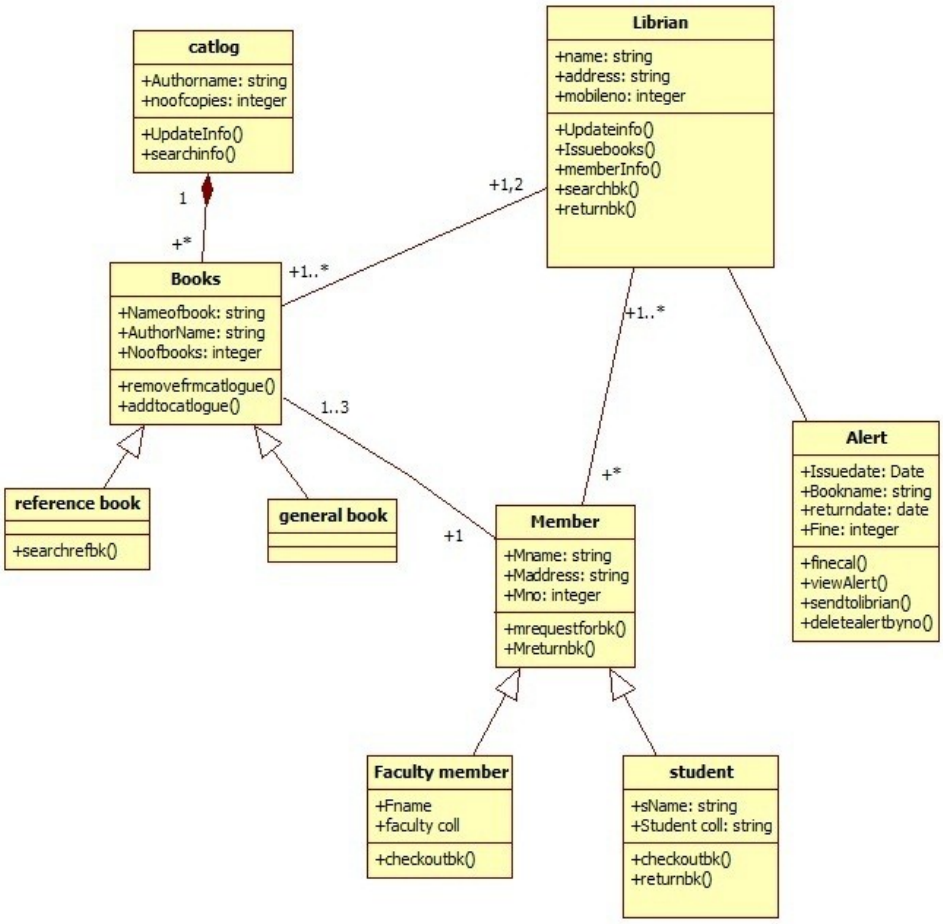
2.5 USECASE DIAGRAM



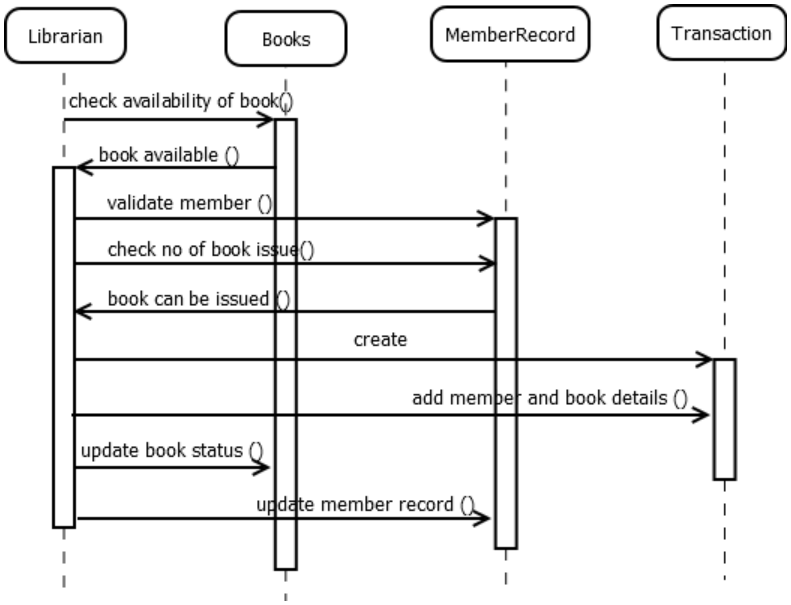
2.6 STATE DIAGRAM



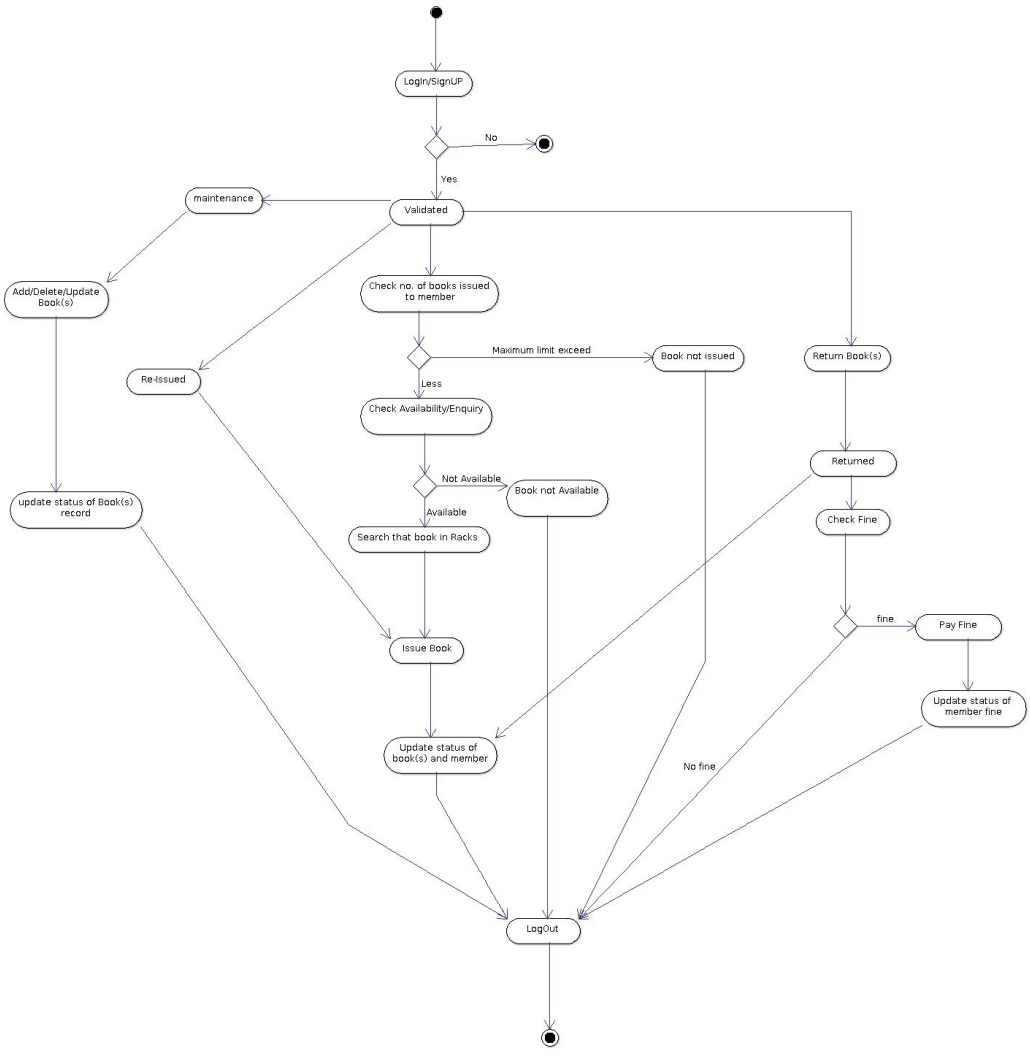
2.7 CLASS DIAGRAM



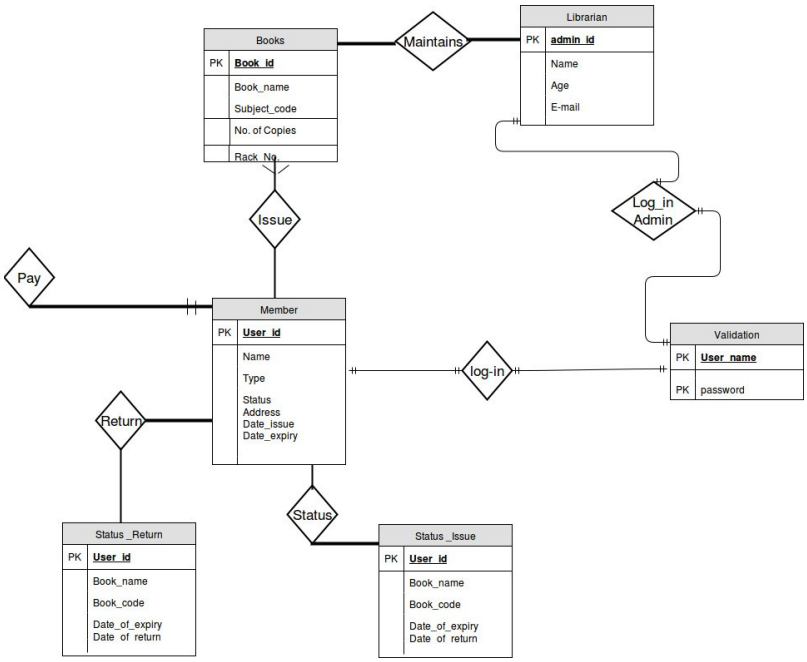
2.8 SEQUENCE DIAGRAM



2.9 ACTIVITY DIAGRAM



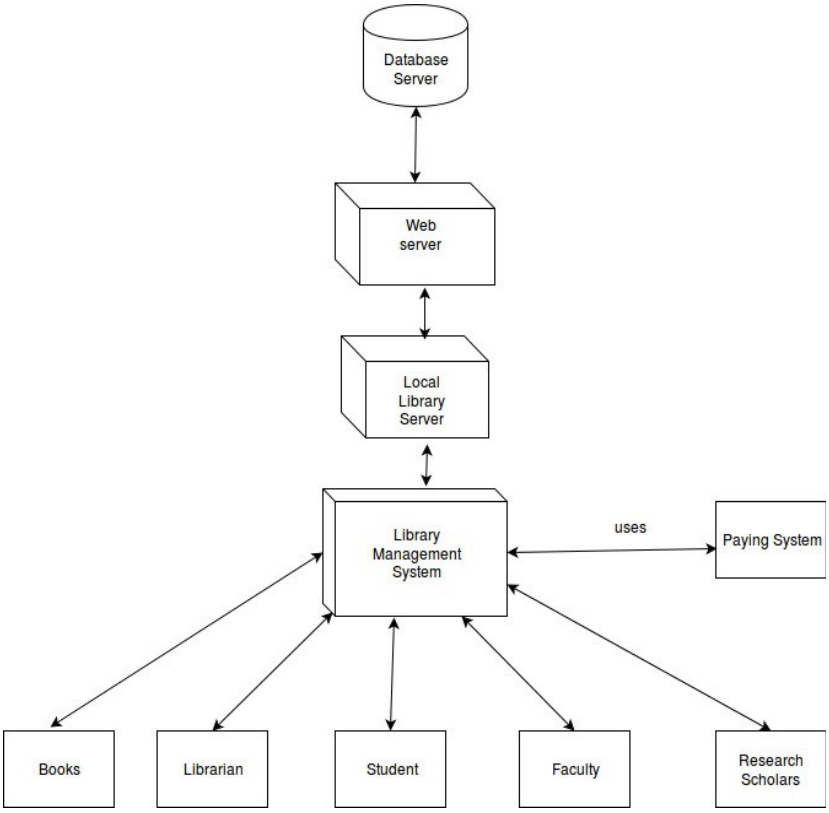
2.10 ER DIAGRAM



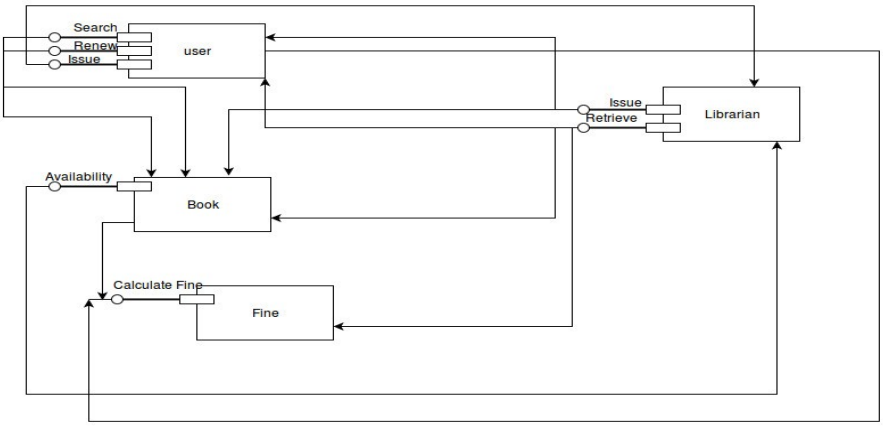
CHAPTER 3
SYSTEM DESIGN

This chapter will discuss about System Design phase which is one of the SDLC phase. The GUI design, database design will be carried out in this chapter.

3.1 ARCHITECTURAL DESIGN

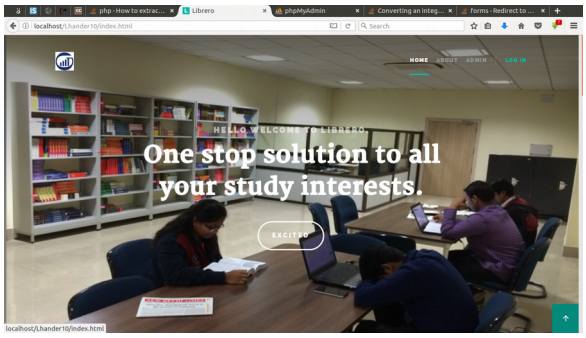


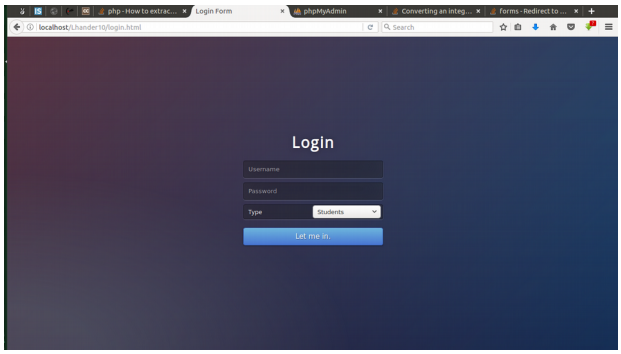
3.2 COMPONENT DESIGN

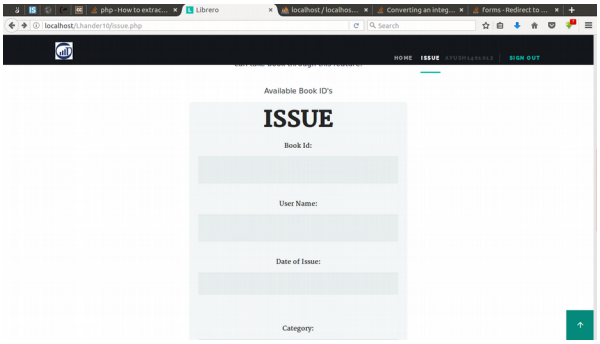


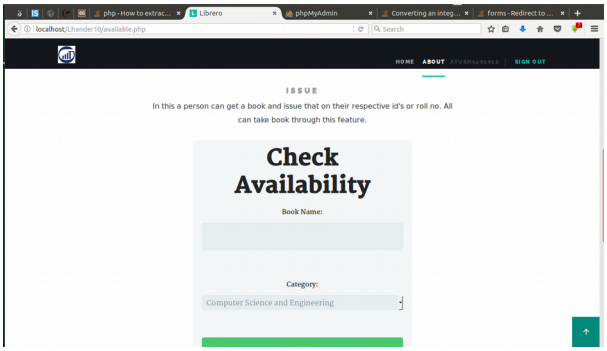
CHAPTER 4
Code Construction

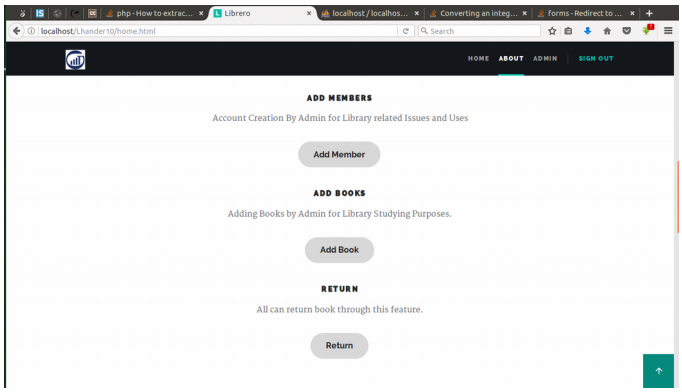
Some of the snapshots of the interfaces are as follows-

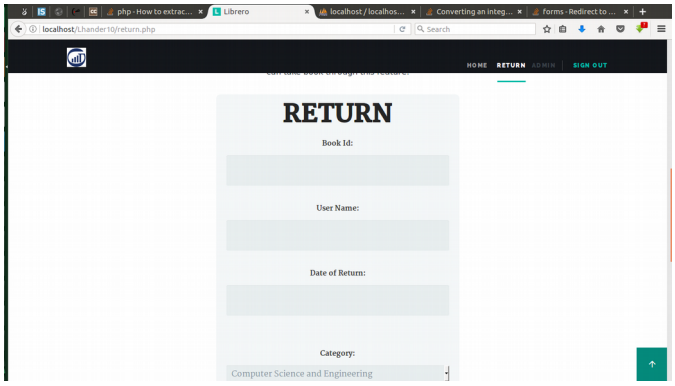












CHAPTER 5
Testing

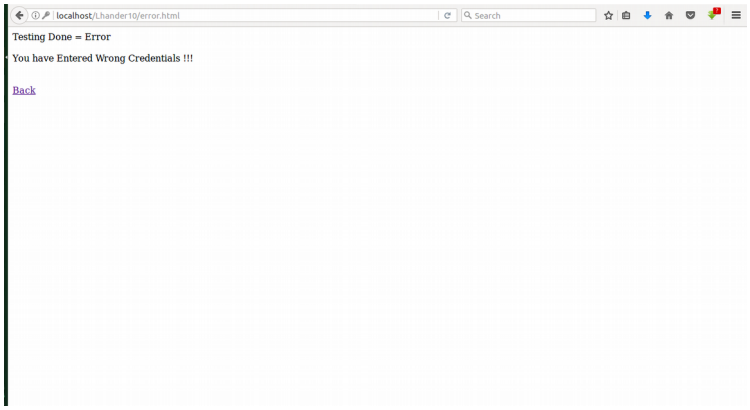
The aim of the system testing process was to determine all defects in our project .The program was subjected to a set of test inputs and various observations were made and based on these observations it will be decided whether the program behaves as expected or not. Our Project went through two levels of testing

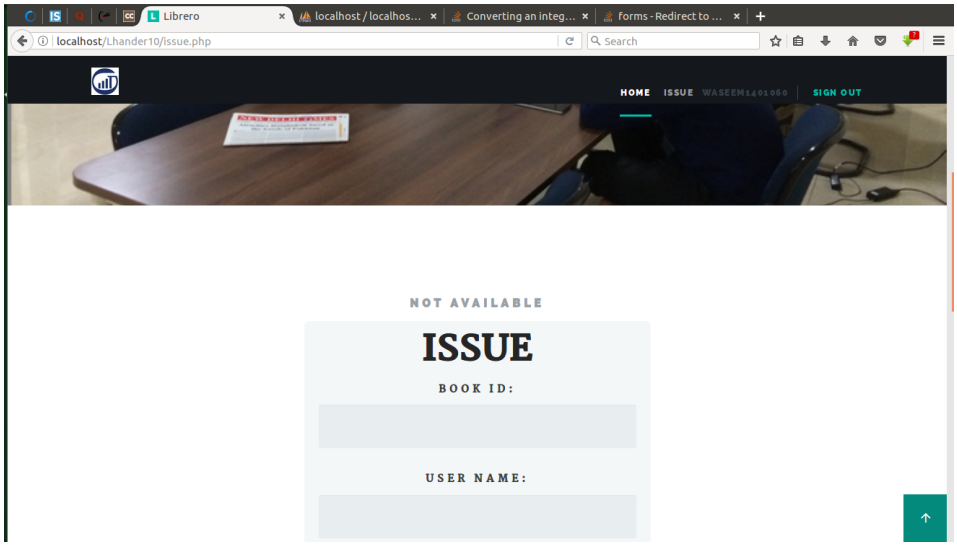
- Unit testing
- Integration testing

5.1 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.





Similarly other test cases can also be written as this.

5.2 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 6
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 give necessary suggestion to library. 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.

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