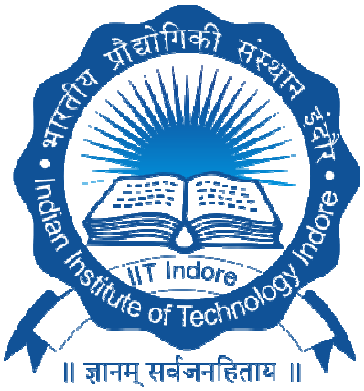
B. TECH. PROJECT REPORT

On

LIBRARY MANAGEMENT SYSTEM

BY

MADAN LAL DUSAD



DISCIPLINE OF COMPUTER SCIENCE AND ENGINEERING

INDIAN INSTITUTE OF TECHNOLOGY INDORE

December 2016

LIBRARY MANAGEMENT SYSTEM

A PROJECT REPORT

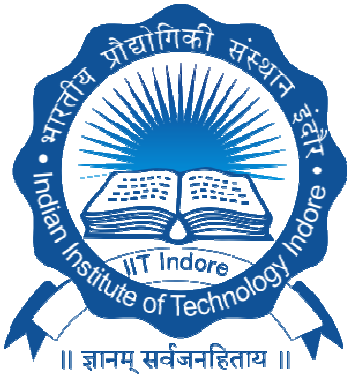
Submitted in partial fulfillment of the
Requirements for the award of the degrees

of
BACHELOR OF TECHNOLOGY
in

COMPUTER SCIENCE AND ENGINEERING

Submitted by:
MADAN LAL DUSAD

Guided by:
DR. SOMNATH Dey



INDIAN INSTITUTE OF TECHNOLOGY INDORE
DECEMBER 2016

CANDIDATE'S DECLARATION

We hereby declare that the project entitled **"LIBRARY MANAGEMENT SYSTEM"** submittedin partial fulfillment for the award of the degree of Bachelor of Technology in 'COMPUTER SCIENCE AND ENGINEERING' completed under the supervision of **DR. SOMNATH DEY,ASSISTANT PROFFESOR,COMPUTER SCIENCE AND ENGINEERING,**IIT Indore is an authentic work.

Further, I/we declare that I/we have not submitted this work for the award of any other degree elsewhere.

Signature and name of the student(s) with date

CERTIFICATE by BTP Guide(s)

It is certified that the above statement made by the students is correct to the best of my/our knowledge.

Signature of BTP Guide(s) with dates and their designation

Preface

This report on “LIBRARY MANAGEMENT SYSTEM" is prepared under the guidance of DR.SOMNATH DAY

Through this report we have tried to give a 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.

MADAN LAL DUSAD
B.Tech. IV Year
Discipline of COMPUTER SCIENCE AND ENGINEERING
IIT Indore

Acknowledgements

We wish to thank DR.SOMNATH DAY for his kind support and valuable guidance.

It is their help and support, due to which I became able to complete the design and technical report. Without their support this report would not have been possible.

I also express my gratitude to all the faculty members, parents and my fellow mates who have helped me to carry out this work. Last but not the least; I thank my almighty God for His blessing showed on me during this period.

MADAN LAL DUSAD
B.Tech. IV Year
Discipline of COMPUTER SCIENCE AND ENGINEERING
IIT Indore

Abstract

Library management system is a project which aims in developing a computerized system to maintain all the daily work of library .This project has many features which are generally not available in normal library management systems like facility of user login and a facility of teachers login .It also has a facility of admin login through which the admin can monitor the whole system .It also has facility of an online notice board where teachers can student can put up information about workshops or seminars being held in our colleges or nearby colleges and librarian after proper verification from the concerned institution organizing the seminar can add it to the notice board . 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. The librarian after logging into his account i.e. admin account cangenerate various reports such as student report, issue report, teacher report and book reportOverall 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.

Table of Contents

List of Tables

CHAPTER 1

INTRODUCTION

1.1. What is Library Management System

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. Library Management System which is very easy to use and fulfills all the requirement of a librarian. There are many features which helps librarian to keep records of available books as well as issued books. This software is available in both mode i.e. web-based or local host based. We provide best Library Management System of this planet.

Here is a list of some features of Library Management System-

- Keep record of different categories like; Books, Journals, Newspapers, Magazines, etc.
- Classify the books subject wise.
- Easy way to enter new books.
- Keep record of complete information of a book like; Book name, Author name, Publisher's name, Date/ Year of publication, Cost of the book, Book purchasing date/ Bill no.
- Easy way to make a check-out.
- Easy way to make a check-in.
- Automatic fine calculation for late returns.
- Different criteria for searching a book.
- Different kind of reports like; total no. of books, no. of issued books, no. of journals, etc.
- Easy way to know how many books are issued to a particular student.
- Easy way to know the status of a book.
- Event calendar for librarian to remember their dates.
- My Notes section for librarian to write any note.
- Online access for registered user to see the status of their books.
- No need to invest heavily on Hardware.
- Fast access to database
- Less error
- More Storage Capacity
- Search facility
- Look and Feel Environment

1.2.Types of User

All these modules are able to help librarian to manage the library. Library Management System which is very easy to use and fulfills all the requirement of a librarian.

I. ADMIN USER

It is used by librarian to manage the library using a computerized system where he/she can record various transactions like-

- Login
- Search Student
- Search book
- Add new student
- Delete student details
- Update student details
- Add new teacher
- Delete teacher details
- Update teacher details
- Add new book
- Delete book
- Add issued book details
- Add return book details
- Send dues details
- Listing all books
- Create notice

II. STUDENT USER

- Login
- Check issued book details
- Request for new book
- Request for create membership
- Request for discontinuing membership
- Pay library dues
- Create a event

III. TEACHER

- Login
- Suggestions Regarding Books
- Uploads Lecture Notes
- Check issued book details

CHAPTER 2

SYSTEM REQUIREMENTS

2.1 FUNCTIONAL REQUIREMENTS

2.1.1 LIBRAIAN

Admin login

This feature used by the Admin 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 access to.
- The user must be able to logout after they finished using system.

2.1.1.1 Search Student

DESCRIPTION OF FEATURE

This feature is found in student maintenance part. We can search student based on student id, student name,Branch.

Functional requirements

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

2.1.1.2 Search Books

DESCRIPTION OF FEATURE

This feature is found in book maintenance part. We can search book based on book id, book name, and 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 entered
- System must be able to show the filtered book in table view

2.1.1.3 Add New Students

Description of feature

This feature allows adding new students

Functional requirements

- System must be able to verify information
- System must be able to not allow two students having same user id.

2.1.1.4 Delete Students

Description of feature

This feature allows deleting students

Functional requirements

- System must be able to verify information
- System must be able to not allow delete other student's user id.

2.1.1.5 Update Student

Description of feature

This feature allows to updates information about students

Functional requirements

- System must be able to verify information
- System must be able to not allow update other student's information.

2.1.1.6 Add new library Staff

Description of feature

This feature allows adding new library staff

Functional requirements

- System must be able to verify information
- System must be able to not allow two staff having same user id.

2.1.1.7 Update Library Staff

Description of feature

This feature allows to updates information about staff

Functional requirements

- System must be able to verify information
- System must be able to not allow update other staff information.

2.1.1.8 Delete Library Staff

Description of feature

This feature allows deleting staff

Functional requirements

- System must be able to verify information.
- System must be able to not allow delete other staff user id.

2.1.1.9 Add New Teacher

Description of feature

This feature allows adding new teacher

Functional requirements

- System must be able to verify information.
- System must be able to not allow two teachers having same user id.

2.1.1.10 Update teacher

Description of feature

This feature allows to updates information about teacher

Functional requirements

- System must be able to verify information.
- System must be able to not allow update other teacher information.

2.1.1.11 Delete Teacher

Description of feature

This feature allows deleting teacher id

Functional requirements

- System must be able to verify information
- System must be able to not allow delete other teacher user id.

2.1.1.12 Add New Books

Description of feature

This feature allows adding 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

2.1.1.13 Delete Books

Description of feature

This feature allows deleting books to the library

Functional requirements

- System must be able to verify information.
- System must be able to not allow delete other books id.

2.1.1.14 Add Issued Book Details

DESCRIPTION OF FEATURE

This feature allows issuing book and also viewing reports of book issued.

Functional requirements

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

2.1.1.15 Add Return Books Details

DESCRIPTION OF FEATURE

This feature allows returning books and also viewing reports of book issued.

Functional requirements

- System must be able to enter return information in database.
- System must be able to update number of books.
- System should be able to enter return date information

2.1.1.16 Event Edition

DESCRIPTION OF FEATURE

This feature allows teacher and student to add information about various workshops being conducted in college and colleges nearby.

Functional requirements

- System should be able to add detailed information about events.
- System should be able to display information on notice board available in the homepage of site.

2.1.1.2 STUDENT

Student Login

Description of feature

This feature used by the Student 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.

2.1.2.1 List of issued books

Description of feature

-This feature shows list of issued books.

2.1.2.4 Request for new books

Description of feature

- Student must be able to request for new book.

2.1.3 TEACHER

Teacher Login

Description of feature

This feature used by the Teacher 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.

2.1.3.1 Suggestions Regarding Books

Description of feature

Functional requirements

-The system must allow teacher to send suggestions regarding books.

2.1.3.2 Uploads Lecture Notes

Description of feature

Functional requirements

- The system must save all uploaded notes.

2.2 NONFUNCTIONAL REQUAIREMENTS

2.2.1 Performance Requirement

- The performance of the system should be fast and accurate
- Library Management System shall handle expected and non-expected errors in ways that prevent loss in information and long downtime period.
- The system should be able to handle large amount of data.

2.2.2 Security Requirement

- Normal users can just read information but they cannot edit or modify anything except their personal and some other information.
- Proper user authentication should be provided.
- No one should be able to hack users' password.

- There are separate accounts for admin and members such that no member can access the database and only admin has the rights to update the database.

2.3 SOFTWARE AND HARDWARE REQUIREMENTS

This section describes the software and hardware requirements of the system

2.3.1 SOFTWARE REQUIREMENTS

- Operating system- Windows 7 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.

2.3.2 HARDWARE REQUIREMENTS

- 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.

2.4 SOFTWARE TOOLS USED

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

2.4.1 Front end

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

HTML-HTML or Hyper Text Markup Language is the main markup language 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 for describing 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.

2.4.1.1 JAVA SCRIPT

JavaScript (JS) is a dynamic computer programming language. 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.

2.4.1.2 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: Hypertext Preprocessor, a recursive backronym.PHP code is interpreted by a web server 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.

2.4.2 BACK END-

The back end is designed using mysql which is used to design the databases

2.4.2.1 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 opens 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.

CHAPTER 3

SYSTEM DESIGN

3.1 Used Tables

STUDENT Table

FIELD_NAME	DATA_TYPE	SIZE	NULL	DESCRIPTION
STU_ID	INT	10	NOT	PRIMARY KEY
REG_NO	INT	10	NOT	
BRANCH	NVARCHAR	30	NOT	
SECTION	NVARCHAR	30	NOT	
YEAR_OF_ADM	INT	10	NOT	
SEMESTER	NVARCHAR	20	NOT	
ADDRESS	NVARCHAR	200	NOT	
EMAIL_ID	NVARCHAR	100	NOT	
MOBILE_NO	CHAR	10	NOT	
SEX	CHAR	2	NOT	

TEACHER TABLE

FIELD_NAME	DATA_TYPE	SIZE	NULL	DESCRIPTION
T_ID	INT	10	NOT	
NAME	NVARCHAR	30	NOT	
DESIGNATION	NVARCHAR	30	NOT	
BRANCH	NVARCHAR	10	NOT	
ADDRESS	NVARCHAR	200	NOT	
EMAIL_ID	NVARCHAR	100	NOT	
MOBILE_NO	CHAR	10	NOT	

SEX	CHAR	2	NOT	

BOOK TABLE

FIELD_NAME	DATA_TYPE	SIZE	NULL	DESCRIPTION
BOOK_ID	NVARCHAR	10	NOT	PRIMARY KEY
BOOK_TITLE	NVARCHAR	50	NOT	
AUTHOR_ID	NVARCHAR	10	NOT	
PUBLISHER_ID	NVARCHAR	10	NOT	
CATOGORY_ID	NVARCHAR	10	NOT	
ISBN	NVARCHAR	10	NOT	
PRICE	NVARCHAR	10	NOT	

BOOK TRANSACTION TABLE

FIELD_NAME	DATA_TYPE	SIZE	NULL	DESCRIPTION
BOOK_ID	NVARCHAR	10	NOT	PRIMARY KEY
MEMBER_ID	NVARCHAR	10	NOT	
ISSUE_DATE	DATE/TIME	10	NOT	
RETURN_DATE	DATE/TIME	10	NOT	
ACTUAL _RETURN_DATE	DATE/TIME	10	NOT	

STUDENT LOGIN TABLE

FIELD_NAME	DATA_TYPE	SIZE	NULL	DESCRIPTION
LOGIN_ID	INT	10	NOT	FOREIGN KEY
USER_NAME	NVARCHAR	255	NOT	FOREIGN KEY
PASSWORD	NVARCHAR	255	NOT	FOREIGN KEY

TEACHER LOGIN TABLE

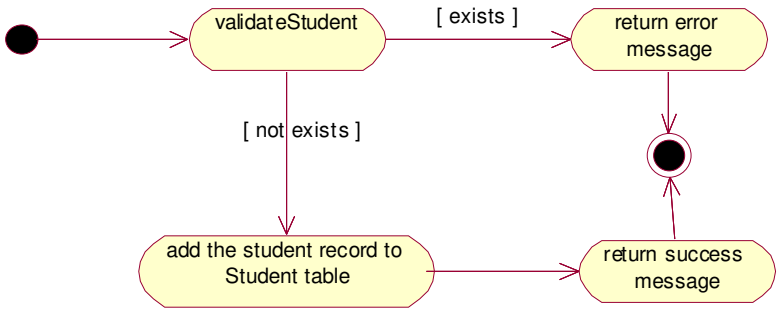
FIELD_NAME	DATA_TYPE	SIZE	NULL	DESCRIPTION
LOGIN_ID	INT	10	NOT	FOREIGN KEY
USER_NAME	NVARCHAR	255	NOT	FOREIGN KEY
PASSWORD	NVARCHAR	255	NOT	FOREIGN KEY

EVENT TABLE FOR EVENT INFORMATION

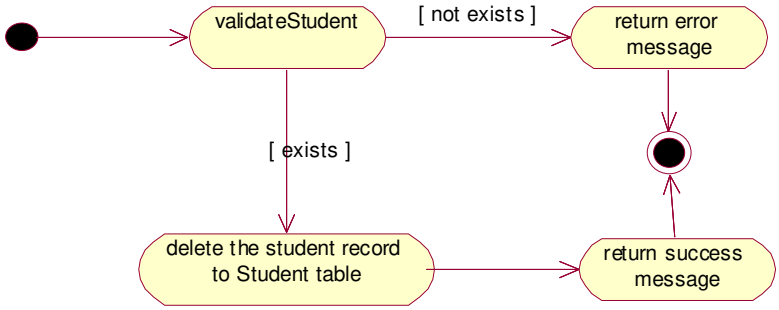
FIELD_NAME	DATA_TYPE	SIZE	NULL	DESCRIPTION
NAME	NVARCHAR	255	NOT	PRIMARY KEY
DATE	DATE	(YYYY/MM/DD)	NOT	
TIME	NVARCHAR	255	NOT	
CONTACT_NO	NVARCHAR	255	NOT	
EMAIL_ID	NVARCHAR	255	NOT	
VENUE	NVARCHAR	255	NOT	

3.2 Activity diagram of each operation

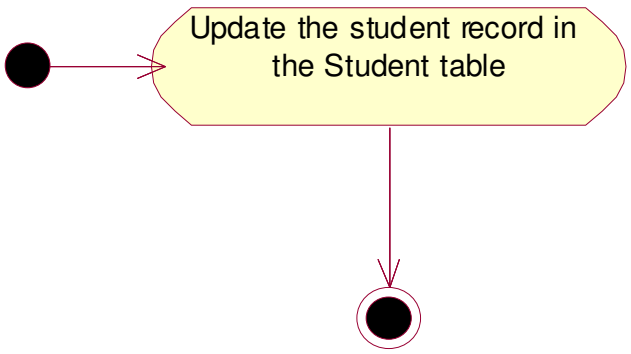
- **Add Student : add a new student**



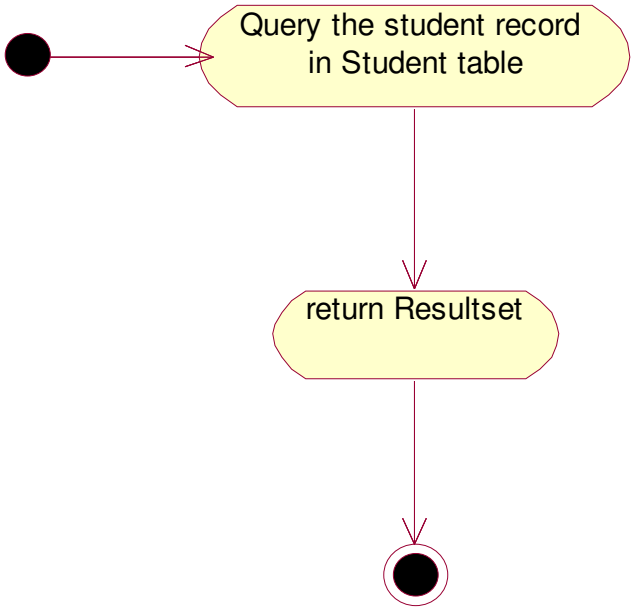
- **Delete Student : delete an existing student**



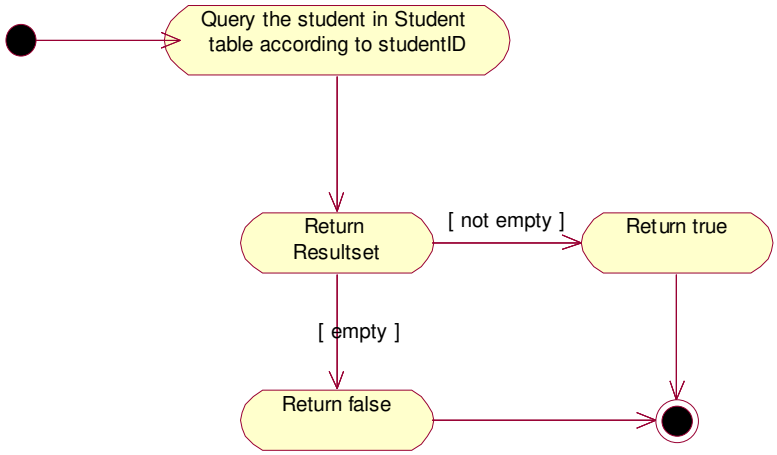
- **Update Student : update information of existing student**



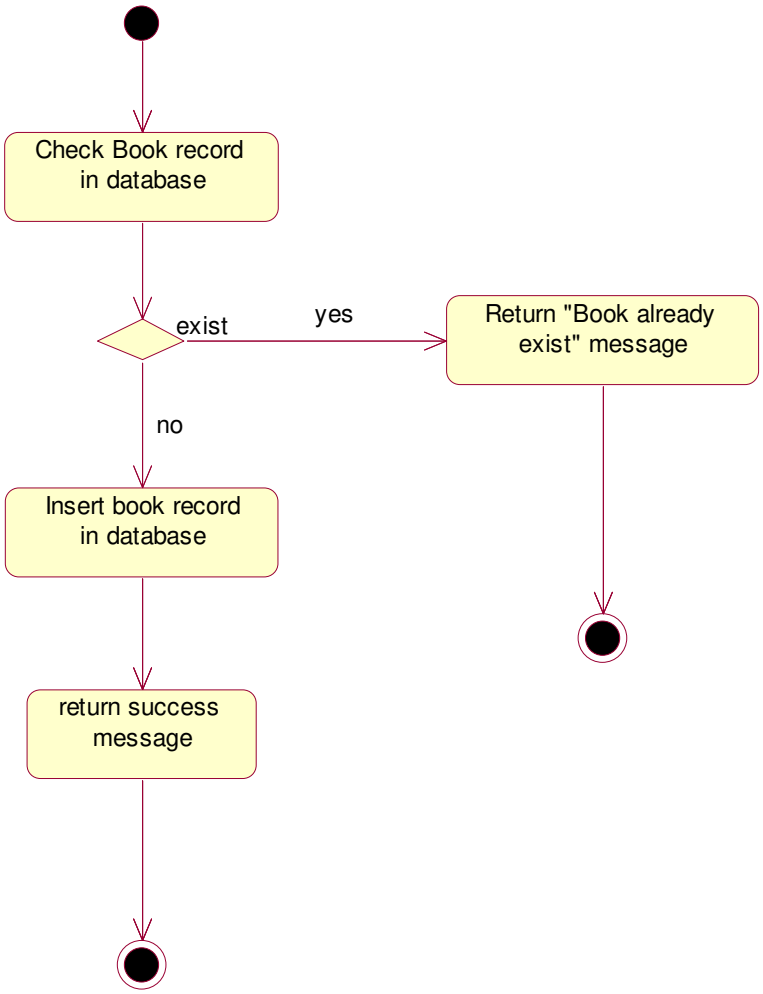
- **Search Student : search students**



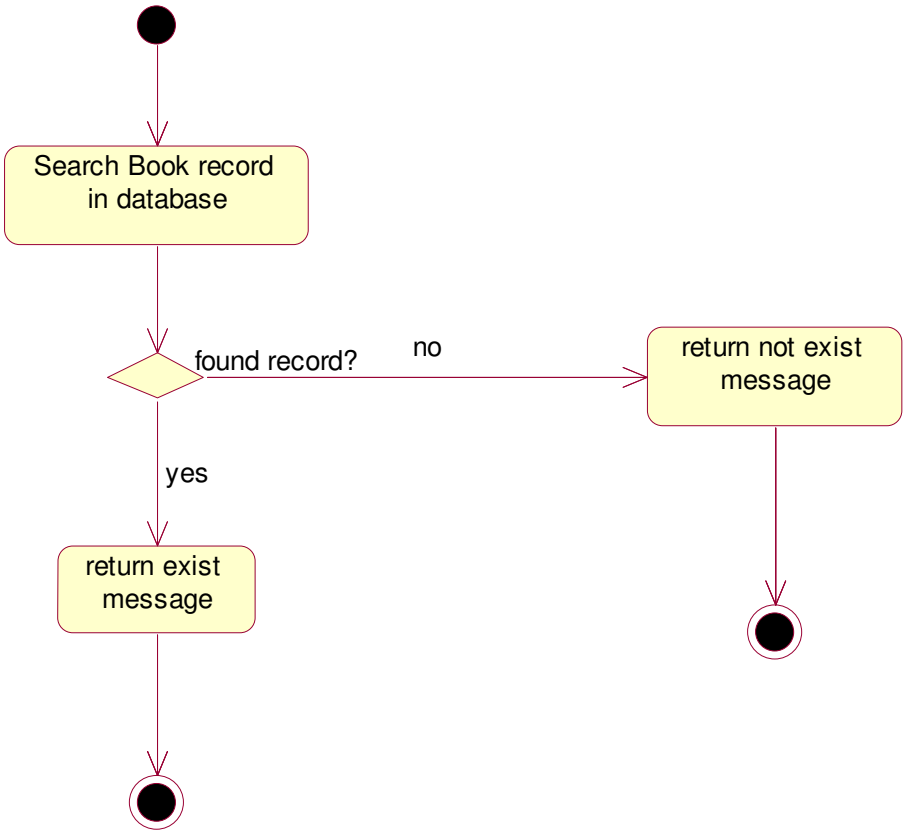
- **Validate Student : validate student**



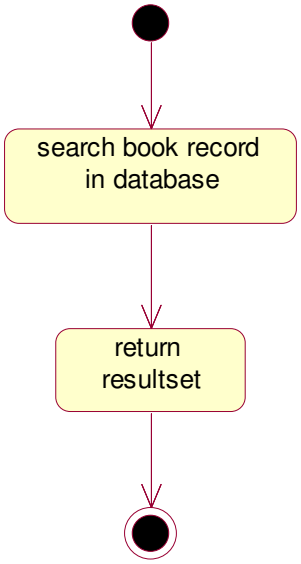
- **Add Book: Add a new book in database**



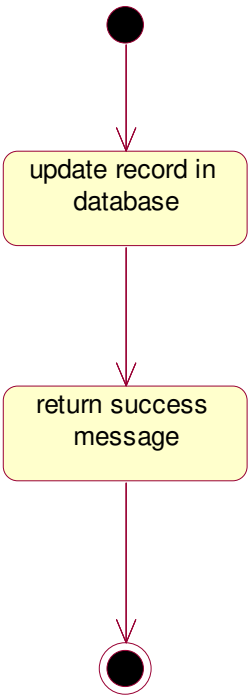
- **Exist: Check if the book record already exists in database.**



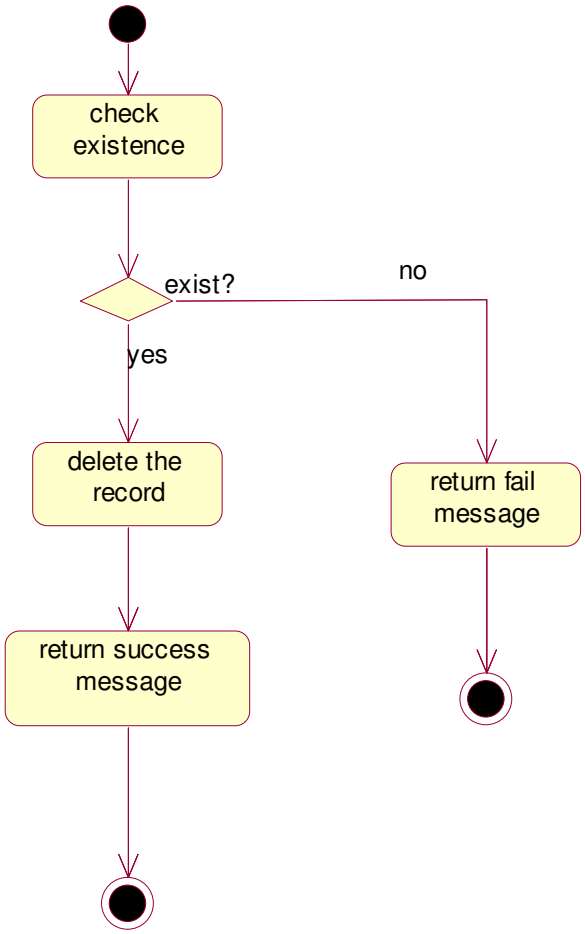
- **Search Book: Search books in database**



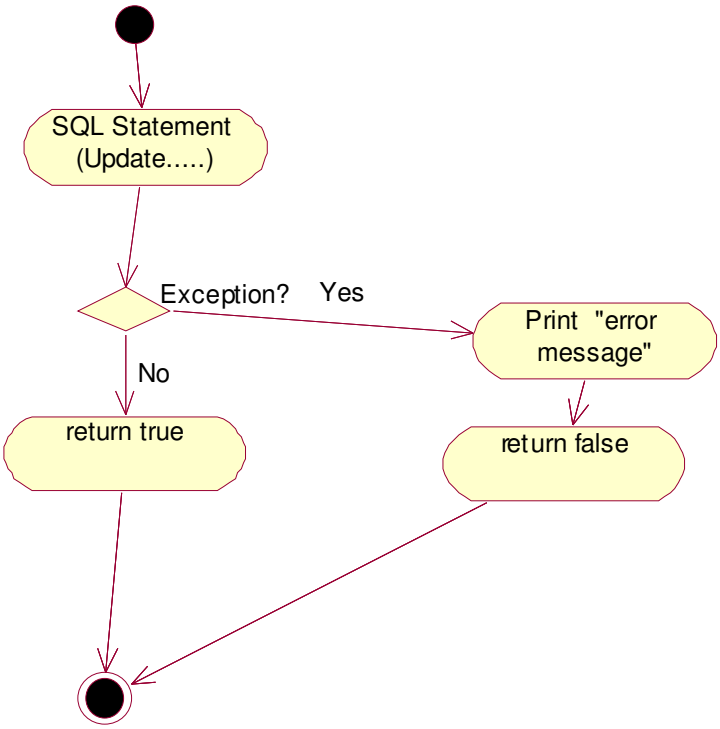
- **Update Book: modify book info**



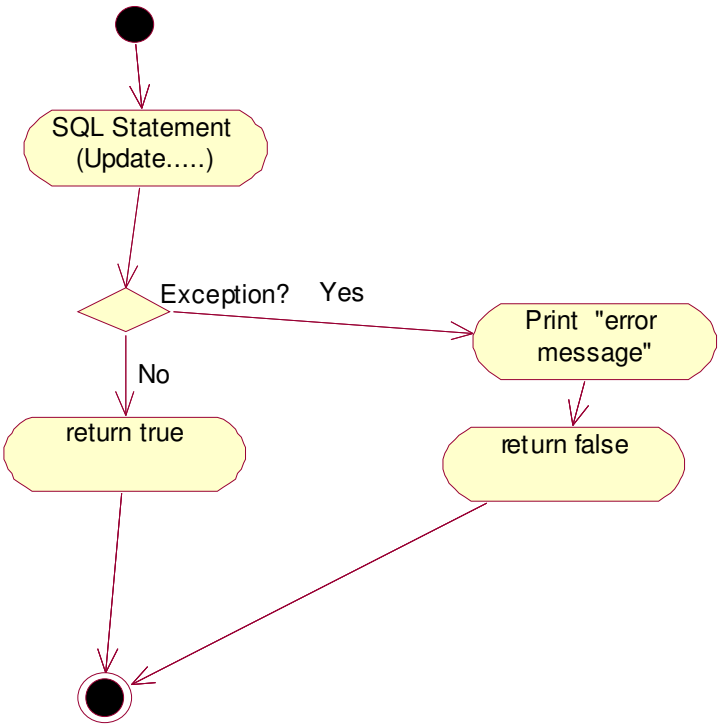
- **Delete Book: Delete a book in database**



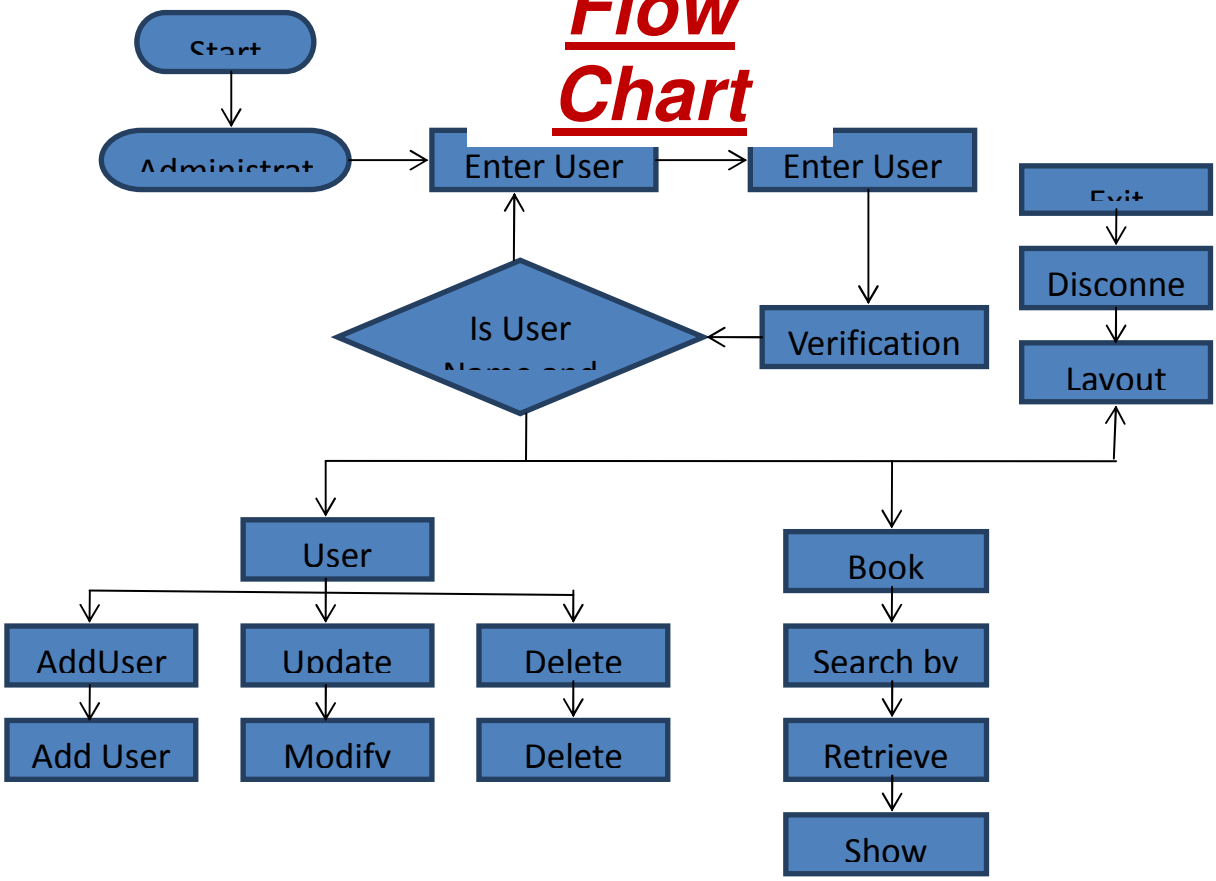
- **CheckIn() : check in one book**



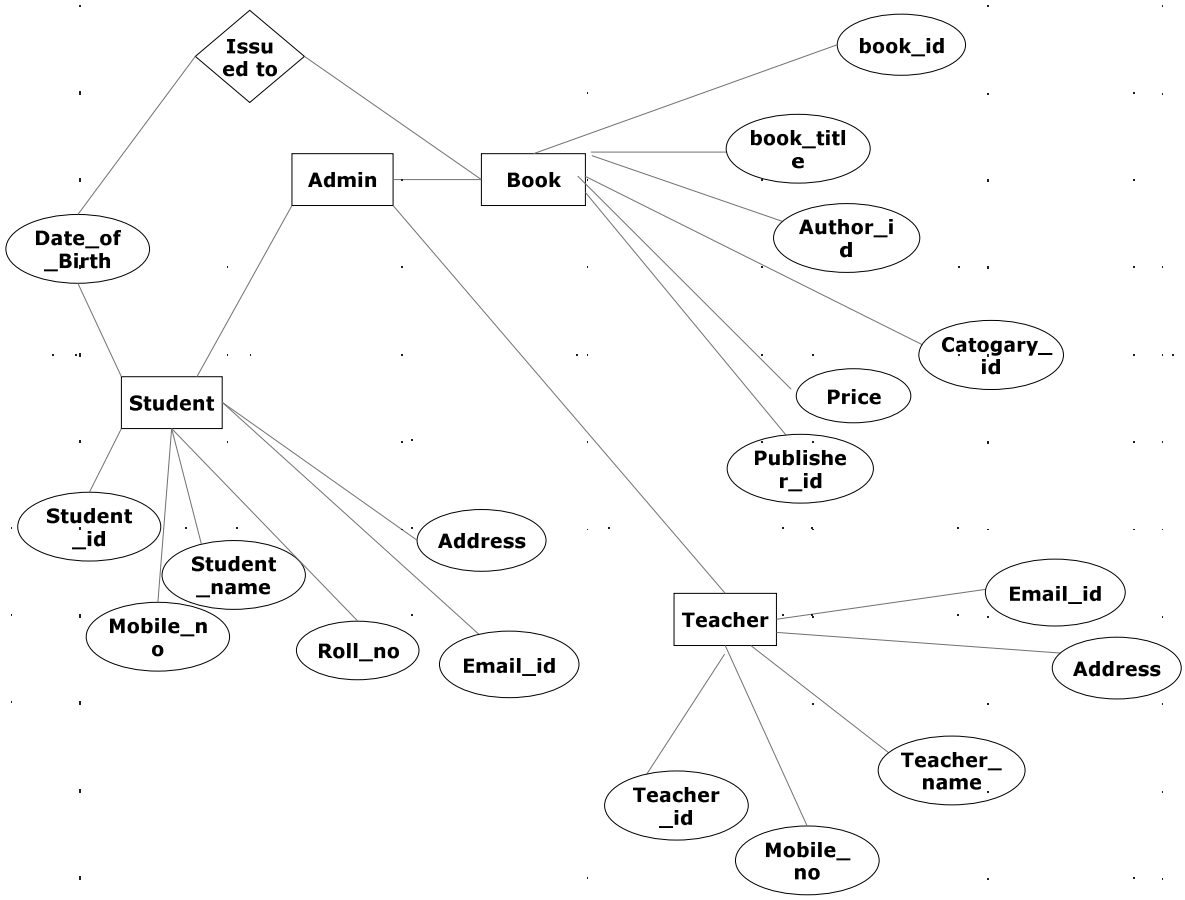
- **checkOut() : check out one book**



Flow Chart

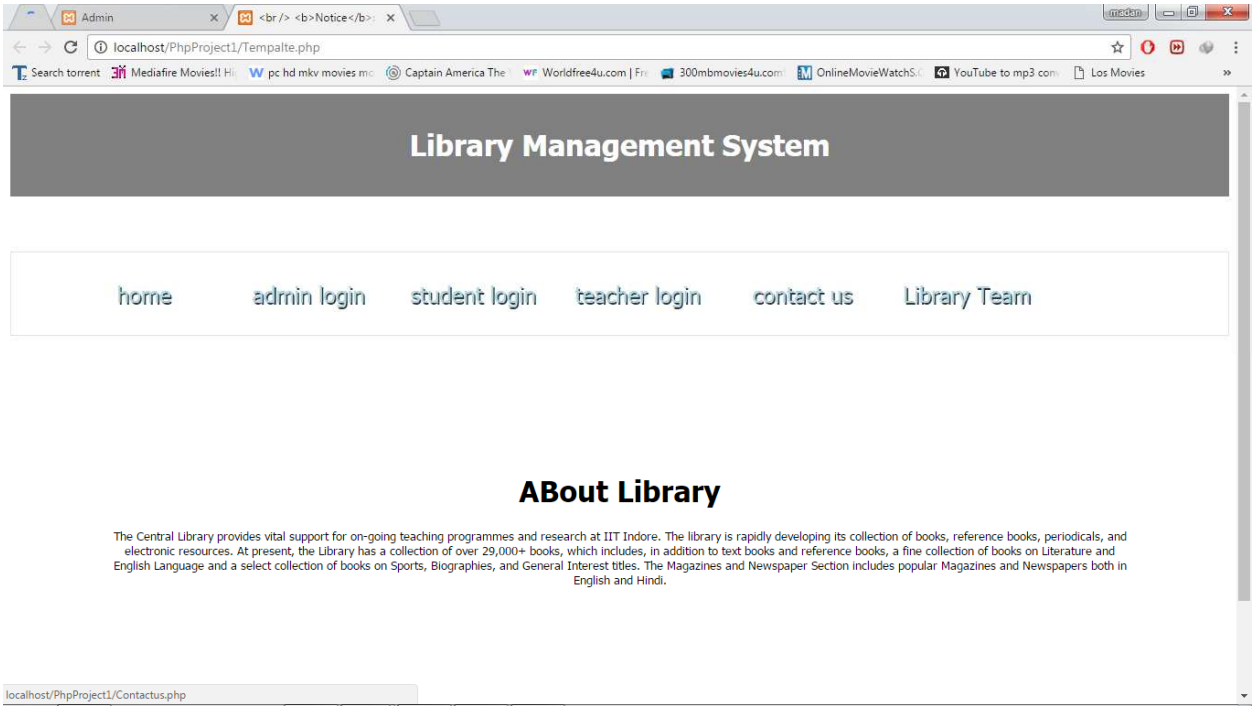

Start
Administrat
Enter User
Enter User
Exit
Disconne
Lavout
Is User
Verification
User
Book
AddUser
Update
Delete
Search by
Add User
Modify
Delete
Retrieve
Show

ER DIAGRAM

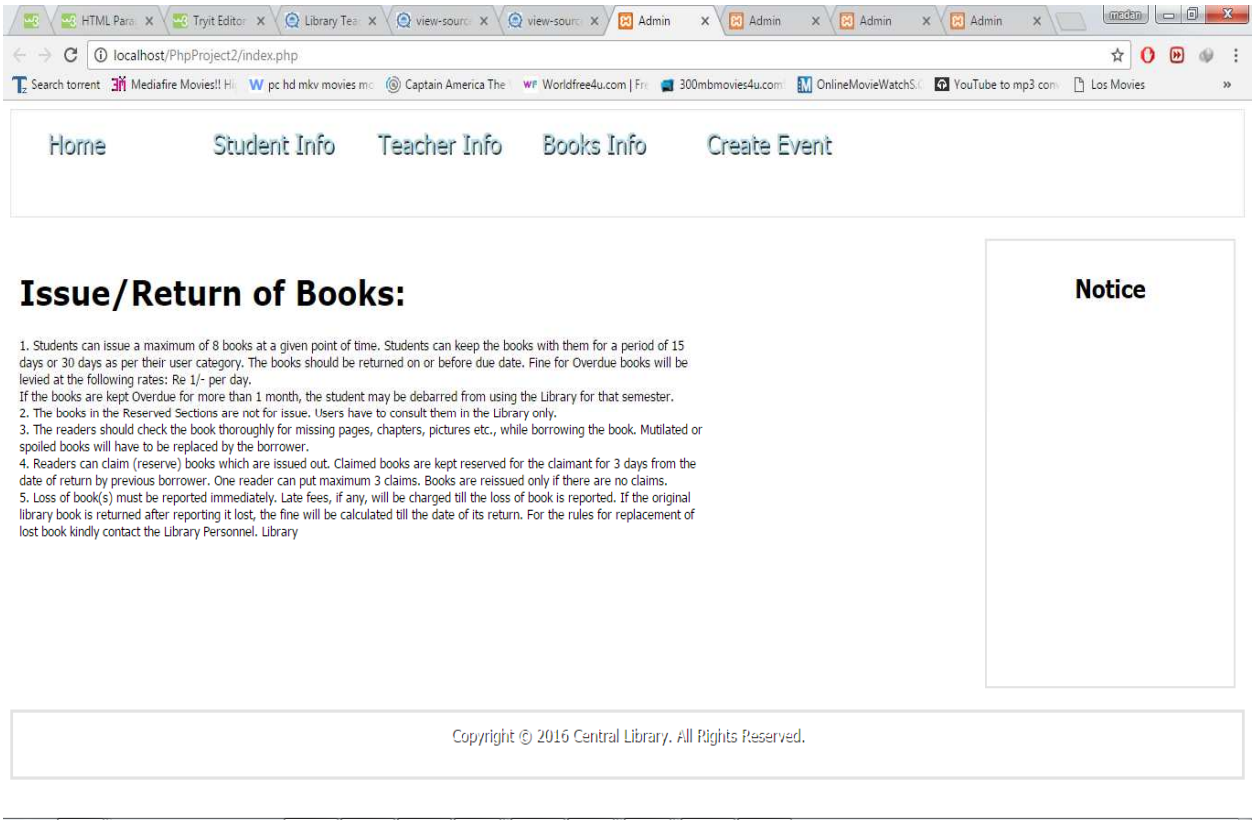


3.3 Some implementation screen shots

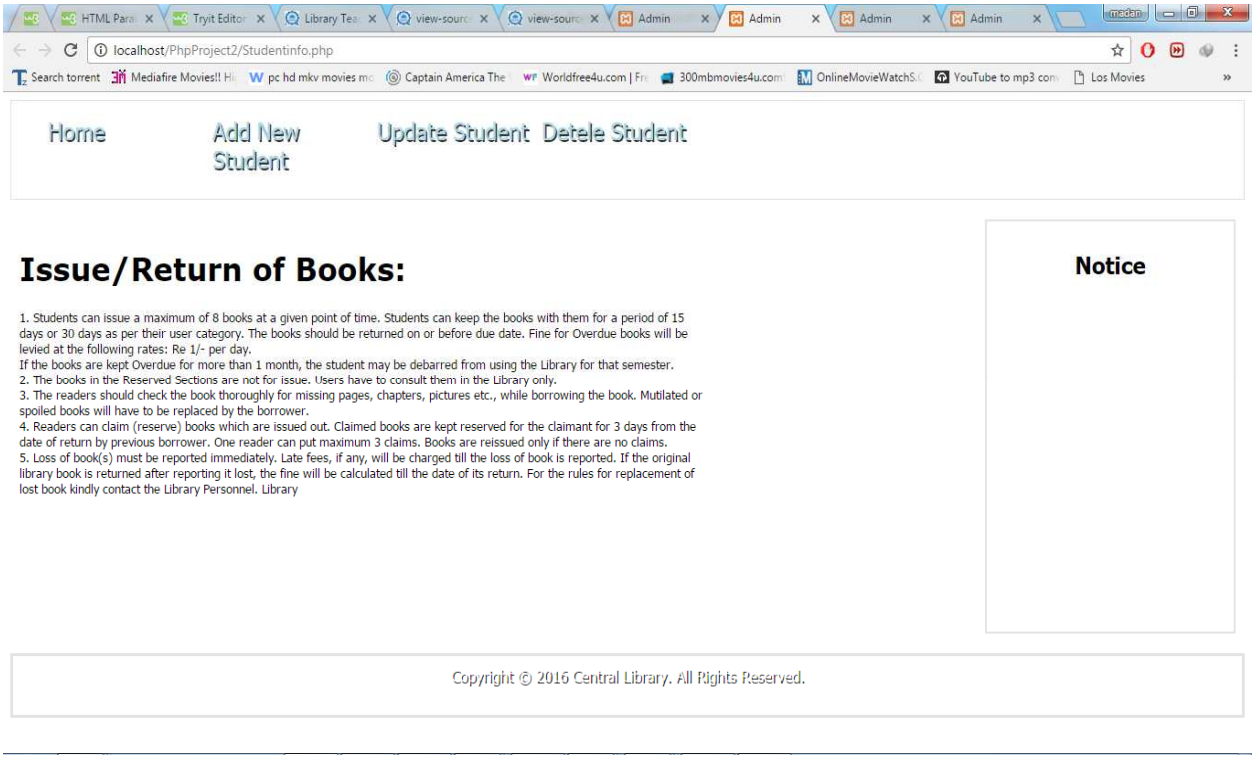
- **Library Home Page**



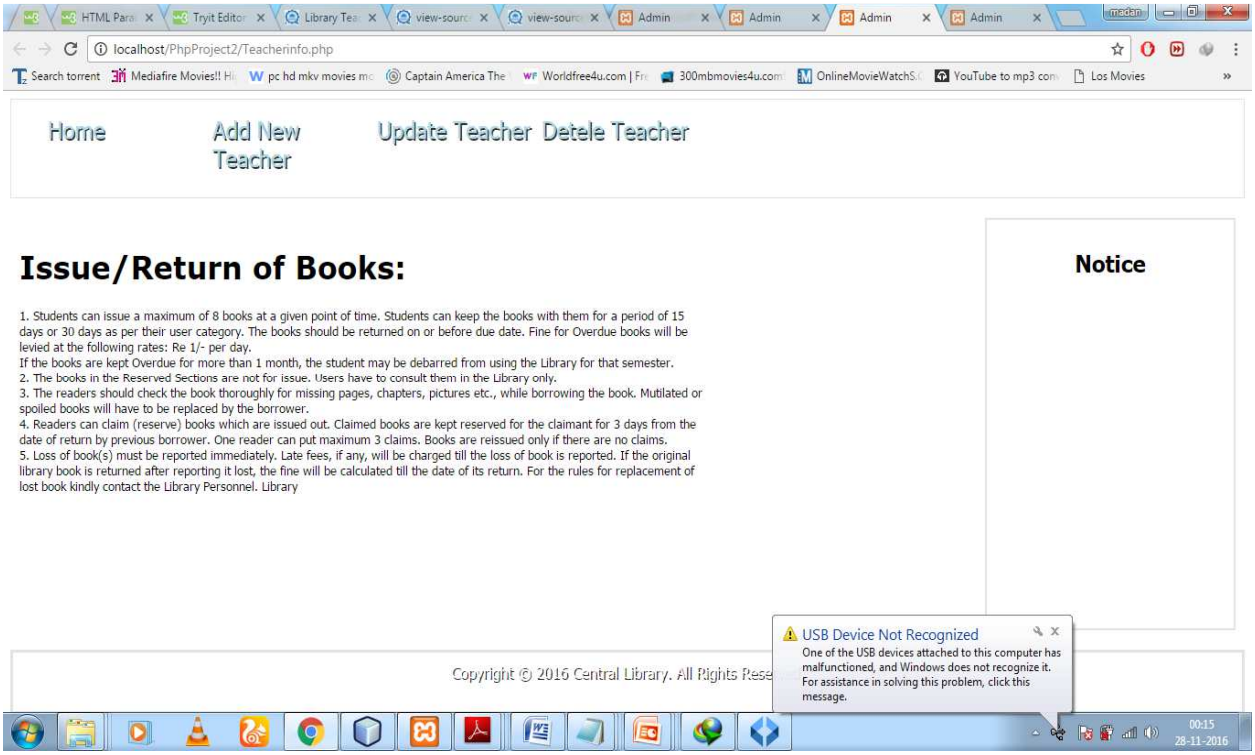
- **Admin Home**



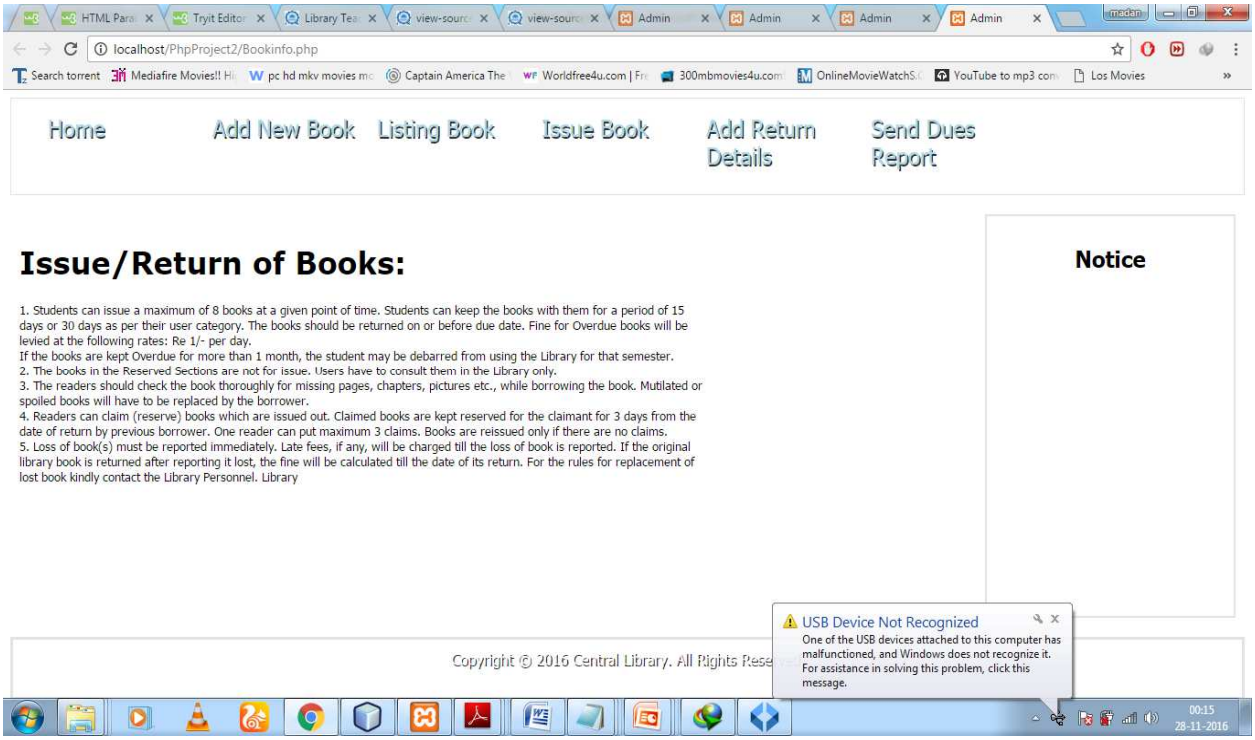
- **Student Info**



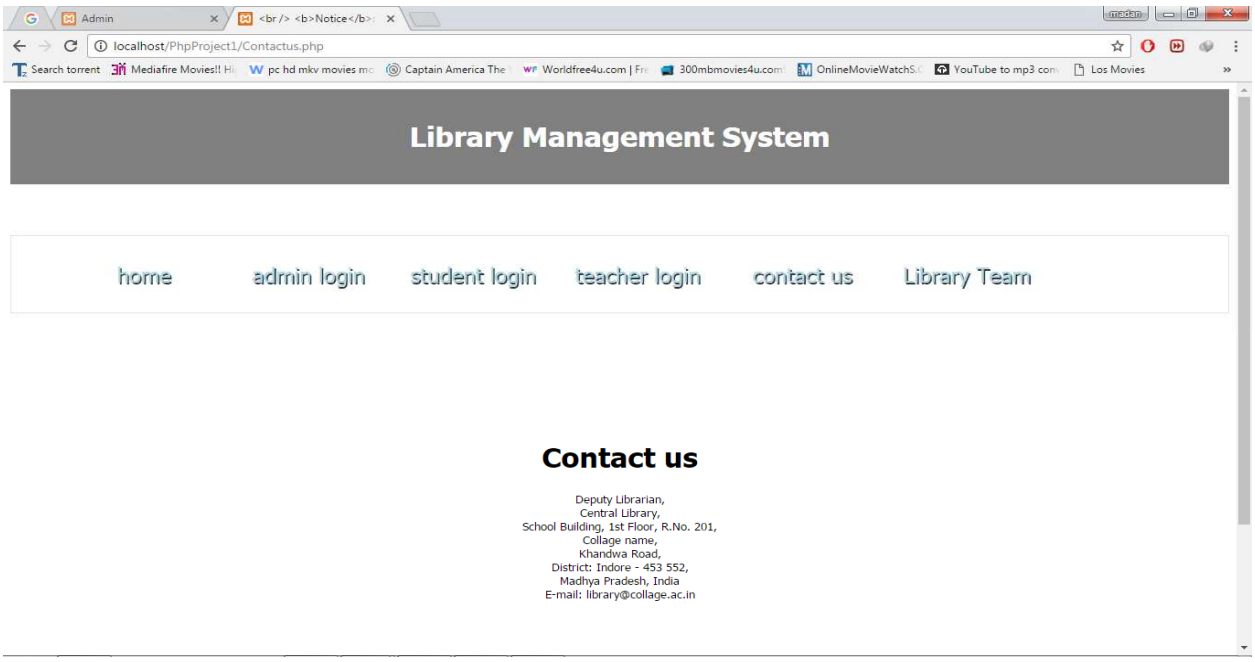
- **Teacher Info**



- **Book Info**


localhost/PhpProject2/Bookinfo.php
Home
Add New Book
Listing Book
Issue Book
Add Return Details
Send Dues Report
Issue/Return of Books:
1. Students can issue a maximum of 8 books at a given point of time. Students can keep the books with them for a period of 15 days or 30 days as per their user category. The books should be returned on or before due date. Fine for Overdue books will be levied at the following rates: Re 1/- per day.
If the books are kept Overdue for more than 1 month, the student may be debarred from using the Library for that semester.
2. The books in the Reserved Sections are not for issue. Users have to consult them in the Library only.
3. The readers should check the book thoroughly for missing pages, chapters, pictures etc., while borrowing the book. Mutilated or spoiled books will have to be replaced by the borrower.
4. Readers can claim (reserve) books which are issued out. Claimed books are kept reserved for the claimant for 3 days from the date of return by previous borrower. One reader can put maximum 3 claims. Books are reissued only if there are no claims.
5. Loss of book(s) must be reported immediately. Late fees, if any, will be charged till the loss of book is reported. If the original library book is returned after reporting it lost, the fine will be calculated till the date of its return. For the rules for replacement of lost book kindly contact the Library Personnel. Library
Notice
USB Device Not Recognized
One of the USB devices attached to this computer has malfunctioned, and Windows does not recognize it. For assistance in solving this problem, click this message.
Copyright © 2016 Central Library. All Rights Rese

- **Contact us**


localhost/PhpProject1/Contactus.php
Library Management System
home
admin login
student login
teacher login
contact us
Library Team
Contact us
Deputy Librarian,
Central Library,
School Building, 1st Floor, R.No. 201,
Collage name,
Khandwa Road,
District: Indore - 453 552,
Madhya Pradesh, India
E-mail: library@collage.ac.in

CHAPTER IV

Conclusion

The system was realized by structured analysis and development methods. System run well at present, although the system function was simpler, its implementation was a relief to librarians working pressure had reached the expected goal. The system was able to process and update the database with more ease. It helped in developing a total integrated system.

After we have completed the project we are sure the problems in the existing system would overcome. The Library Management System process made computerized toreduce human errors and to increase the efficiency. The main focus of this project is to lessenhuman efforts. The maintenance of the records is made efficient, as all the records are stored in the ACCESS database, through which data can be retrieved easily. The navigation control is provided in all the forms to navigate through the large amount of records. If the numbers of records are very large then user has to just type in the search string and user gets the results immediately. The editing is also made simpler. The user has to just type in the required field andpress the update button to update the desired field.

References

Internet

w3schools.com

https://www.tutorialspoint.com/php