Mini Project Report *on*

“Library Management System”

Submitted by

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ABSTRACT

Library is place where all kind of books are available. Library Management system is a web-based application. This system contains list of all the books and can be accessed by remote users concurrently from anywhere in the campus. But for that user must be registered user. This system is three tier architecture.

Client sends requests, on receiving the request the server processes it and extracts the data from database and sends the result back to the client This system provides separate interface and login for librarian, students and faculties. Librarian can modify database.

Users can search for books and renewal books online. They can get recommendation for new books to read. They can view the issue and return dates of any book and due they must pay. Thus, the management can take appropriate steps to improve the facilities. Users can renew the issue time for which they have issued the book.

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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:

- Students can Issue and Return books, and pay due fee
- A search column to search availability of books.
- Get all info of the given book.
- Facility to download required book.
- An Admin login page where admin can add books, and manage records.

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 maintain records.

This system will keep track of issue and returns of books done by student and also a detailed descriptions about the books in library. 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.

2. PROBLEM DEFINITION

A Library management system is a software that uses to maintain the record of the library. It contains work like the number of available books in the library, the number of books are issued or returning or renewing a book or late fine charge record, etc. Library Management Systems is software that helps to maintain a database that is useful to enter new books & record books borrowed by the members, with the respective submission dates. Moreover, it also reduces the manual record burden of the librarian.

Library management system allows the librarian to maintain library resources in a more operative manner that will help to save their time. It is also convenient for the librarian to manage the process of books allotting and making payment. Library management system is also useful for students as well as a librarian to keep the constant track of the availability of all books in a store.

3. TOOLS AND TECHNOLOGIES USED

This section describes the software and hardware requirements of the system and the technologies used.

3.1 SOFTWARE REQUIREMENTS

- Operating system- Windows 7 or higher 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 for styling work and php for sever side scripting.

3.2 HARDWARE REQUIREMENTS

- Intel core i5 2nd generation or higher is used as a processor because it is fast than other processors an provide reliable and stable and we can run our pc for long time. By using this processor, we can keep on developing our project without any worries.
- At least 1 gb RAM is used as it will provide fast reading and writing capabilities and will in turn support in processing.

3.3 TECHNOLOGIES USED

3.3.1 FRONT END

The front end is designed using of html , Php ,css.

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 behaviour of HTML web pages.

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 15
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.

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, colours, and fonts. This separation can improve content accessibility, provide more flexibility and control in the specification.

3.3.2 BACKEND

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.

4. DATABASE DESIGN

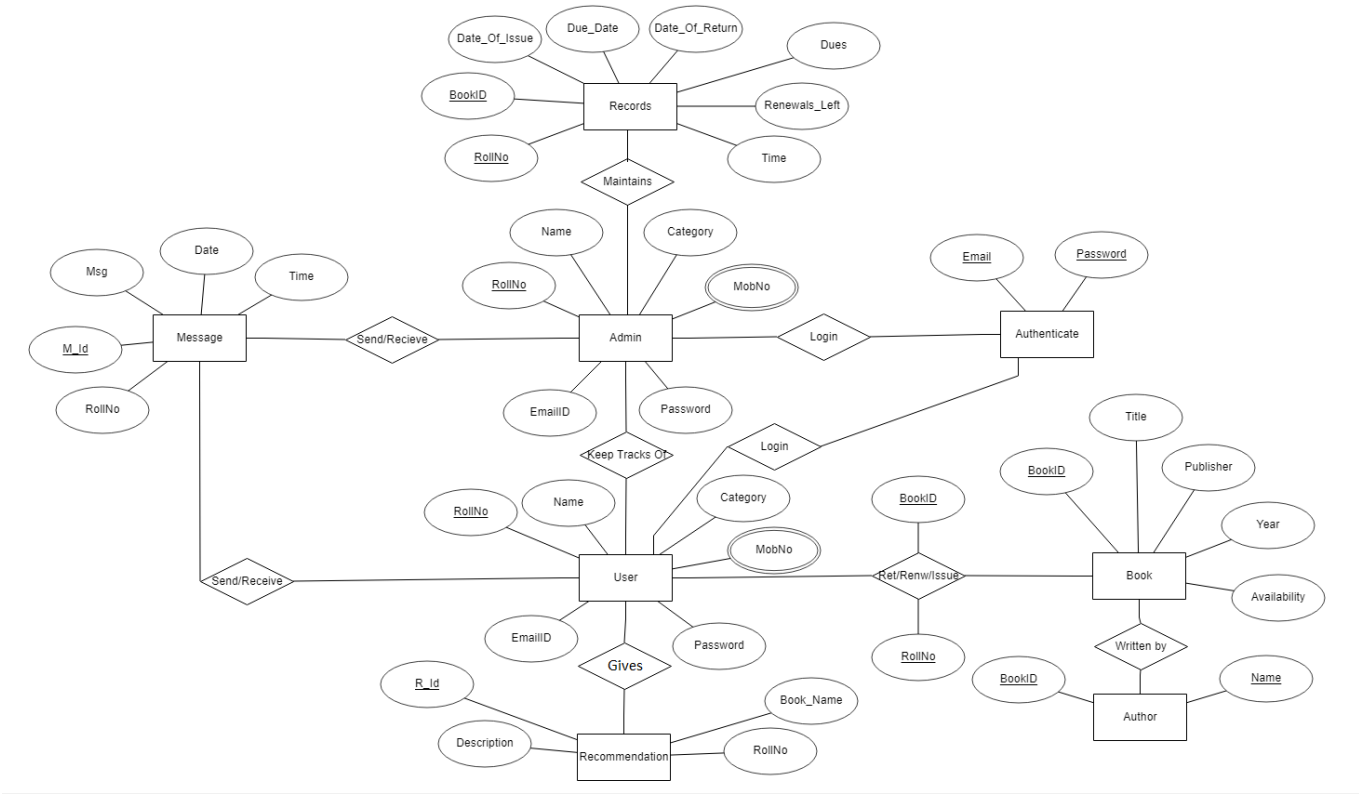


Fig. 1

5. DATABASE SCHEMA

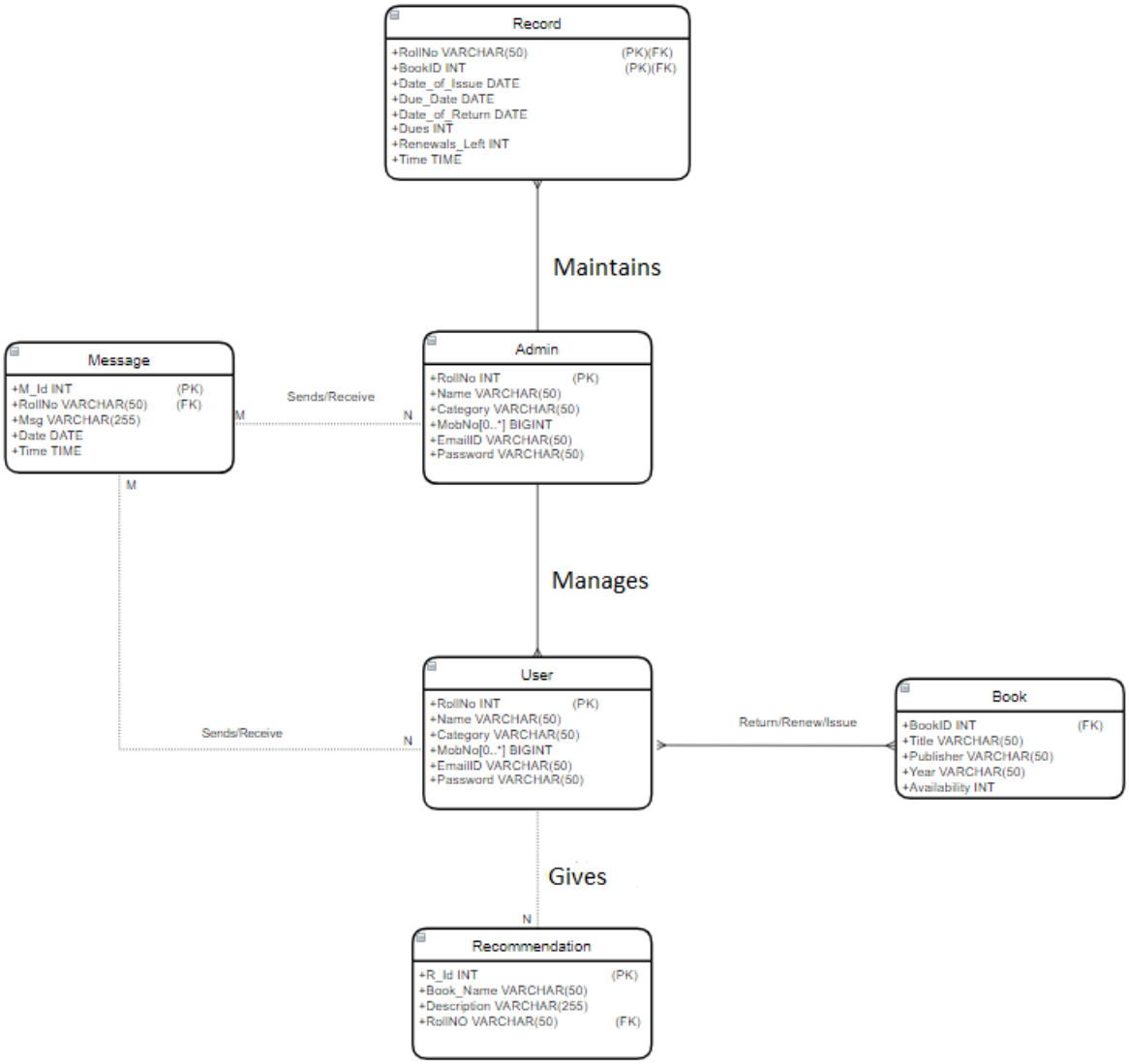


Fig. 2

6. DDL COMMANDS

USER TABLE

```
CREATE TABLE `user` (
  `RollNo` varchar(50) NOT NULL,
  `Name` varchar(50) DEFAULT NULL,
  `Type` varchar(50) DEFAULT NULL,
  `Category` varchar(50) DEFAULT NULL,
  `EmailId` varchar(50) DEFAULT NULL,
  `MobNo` bigint(11) DEFAULT NULL,
  `Password` varchar(50) DEFAULT NULL,
  PRIMARY KEY (`RollNo`),
  UNIQUE KEY `EmailId` (`EmailId`)
);
```

BOOK TABLE

```
CREATE TABLE `book` (
  `BookId` int(10) NOT NULL AUTO_INCREMENT,
  `Title` varchar(50) DEFAULT NULL,
  `Publisher` varchar(50) DEFAULT NULL,
  `Year` varchar(50) DEFAULT NULL,
  `Availability` int(5) DEFAULT NULL,
  PRIMARY KEY (`BookId`)
);
```

AUTHOR TABLE

```
CREATE TABLE `author` (
  `BookId` int(10) NOT NULL,
  `Author` varchar(50) NOT NULL,
  PRIMARY KEY (`BookId`,`Author`),
  CONSTRAINT `author_ibfk_1` FOREIGN KEY (`BookId`) REFERENCES `book` (`BookId`)
);
```

RECORD TABLE

```
CREATE TABLE `record` (
  `RollNo` varchar(50) NOT NULL,
  `BookId` int(10) NOT NULL,
  `Date_of_Issue` date DEFAULT NULL,
  `Due_Date` date DEFAULT NULL,
  `Date_of_Return` date DEFAULT NULL,
  `Dues` int(10) DEFAULT NULL,
  `Renewals_left` int(10) DEFAULT NULL,
  `Time` time DEFAULT NULL,
  PRIMARY KEY (`RollNo`,`BookId`),
  KEY `BookId` (`BookId`),
  CONSTRAINT `record_ibfk_1` FOREIGN KEY (`RollNo`) REFERENCES `user` (`RollNo`),
  CONSTRAINT `record_ibfk_2` FOREIGN KEY (`BookId`) REFERENCES `book` (`BookId`)
);
```

MESSAAGE TABLE

```
CREATE TABLE `message` (
  `M_Id` int(10) NOT NULL AUTO_INCREMENT,
  `RollNo` varchar(50) DEFAULT NULL,
  `Msg` varchar(255) DEFAULT NULL,
  `Date` date DEFAULT NULL,
  `Time` time DEFAULT NULL,
  PRIMARY KEY (`M_Id`),
  KEY `RollNo` (`RollNo`),
  CONSTRAINT `message_ibfk_1` FOREIGN KEY (`RollNo`) REFERENCES `user` (`RollNo`)
);
```

RECOMMENDATION TABLE

```
CREATE TABLE `recommendations` (
  `R_ID` int(10) NOT NULL AUTO_INCREMENT,
  `Book_Name` varchar(50) DEFAULT NULL,
  `Description` varchar(255) DEFAULT NULL,
```

```
  `RollNo` varchar(50) DEFAULT NULL,
  PRIMARY KEY (`R_ID`),
  KEY `RollNo` (`RollNo`),
  CONSTRAINT `recommendations_ibfk_1` FOREIGN KEY (`RollNo`) REFERENCES `user`
(`RollNo`)
);
```

RENEW TABLE

```
CREATE TABLE `renew` (
  `RollNo` varchar(50) NOT NULL,
  `BookId` int(10) NOT NULL,
  PRIMARY KEY (`RollNo`,`BookId`),
  KEY `BookId` (`BookId`),
  CONSTRAINT `renew_ibfk_1` FOREIGN KEY (`RollNo`) REFERENCES `user` (`RollNo`),
  CONSTRAINT `renew_ibfk_2` FOREIGN KEY (`BookId`) REFERENCES `book` (`BookId`)
);
```

RETURN TABLE

```
CREATE TABLE `return` (
  `RollNo` varchar(50) NOT NULL,
  `BookId` int(10) NOT NULL,
  PRIMARY KEY (`RollNo`,`BookId`),
  KEY `BookId` (`BookId`),
  CONSTRAINT `return_ibfk_1` FOREIGN KEY (`RollNo`) REFERENCES `user` (`RollNo`),
  CONSTRAINT `return_ibfk_2` FOREIGN KEY (`BookId`) REFERENCES `book` (`BookId`)
);
```

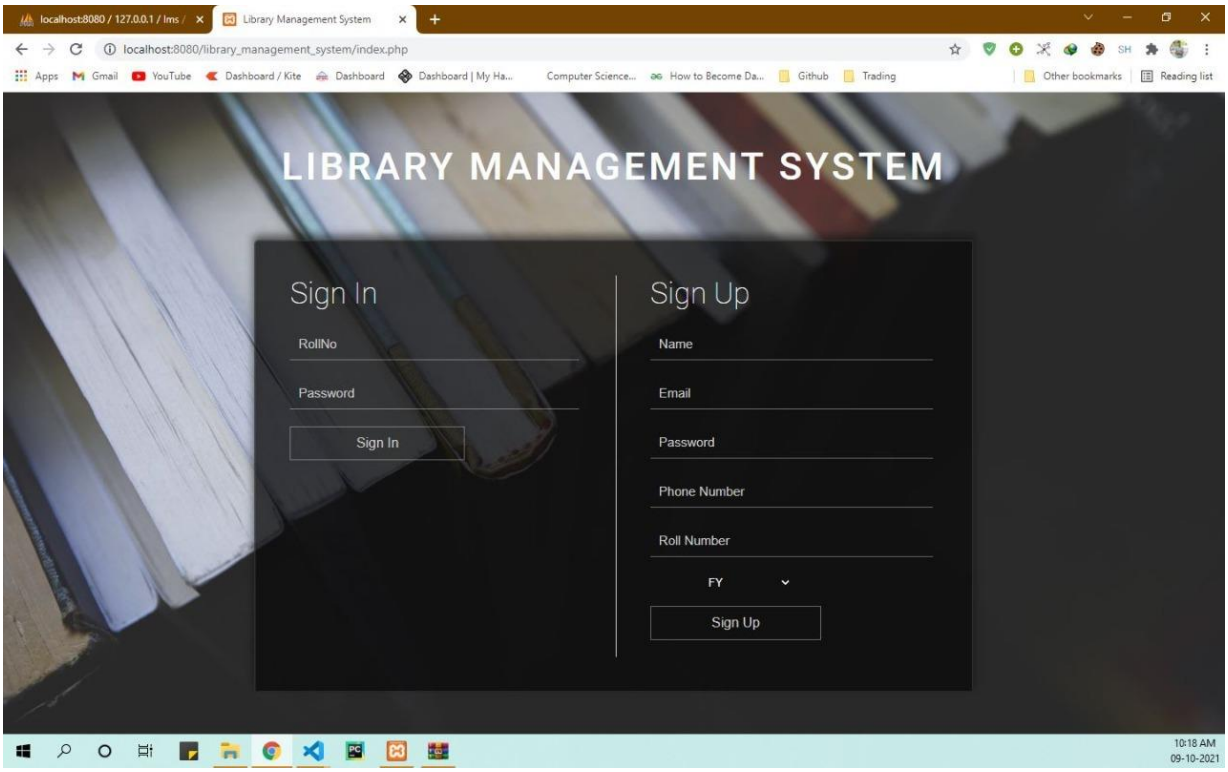
7. TRIGGERS

```
CREATE TRIGGER upd_ret
AFTER DELETE ON `return`
FOR EACH ROW
BEGIN
        UPDATE book
   SET Availability=Availability+1
   WHERE BookID = OLD.BookID;
END $
```

8. PL/SQL FUNCTION/PROCEDURE

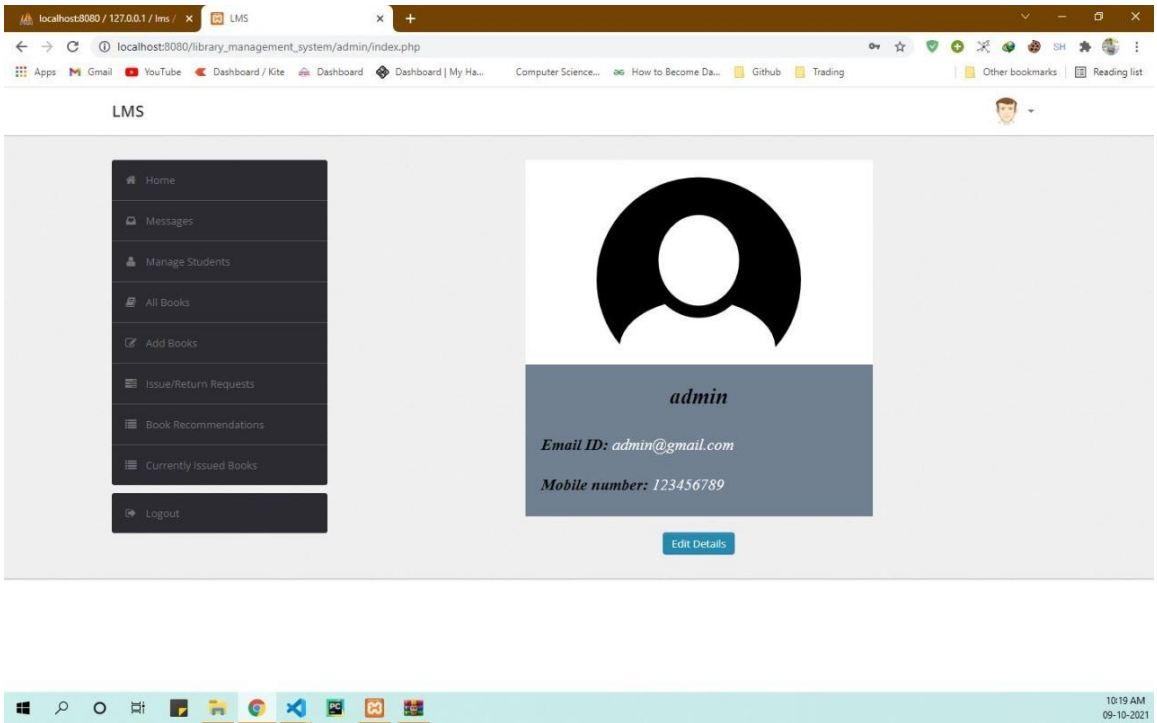
```
CREATE PROCEDURE Due (IN Fine INT)

BEGIN

    UPDATE record

  SET Due=(DATEDIFF(CURRDATE(),Due_Date)*fine);

END $
```

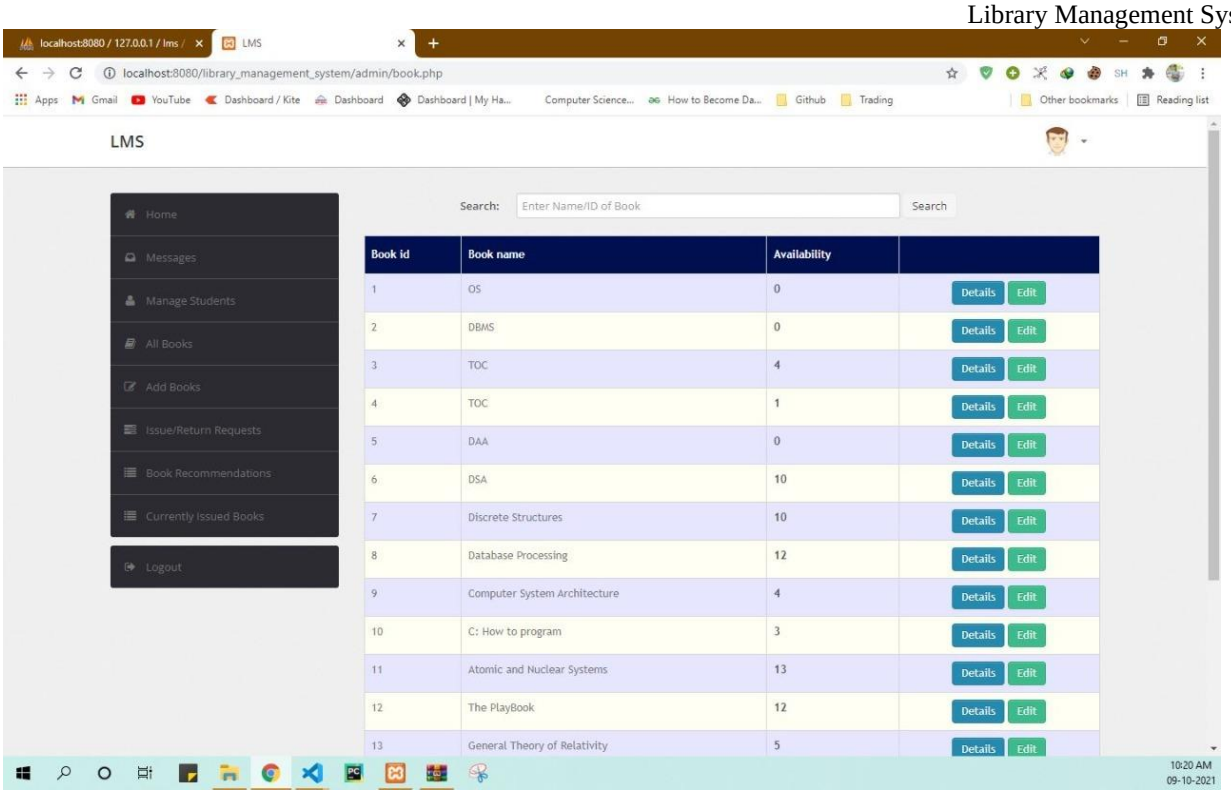
9. FRONTEND GUI SCREENSHOTS



Login Screen

9.1 ADMIN

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Availability
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2 DBMS 0
3 TOC 4
4 TOC 1
5 DAA 0
6 DSA 10
7 Discrete Structures 10
8 Database Processing 12
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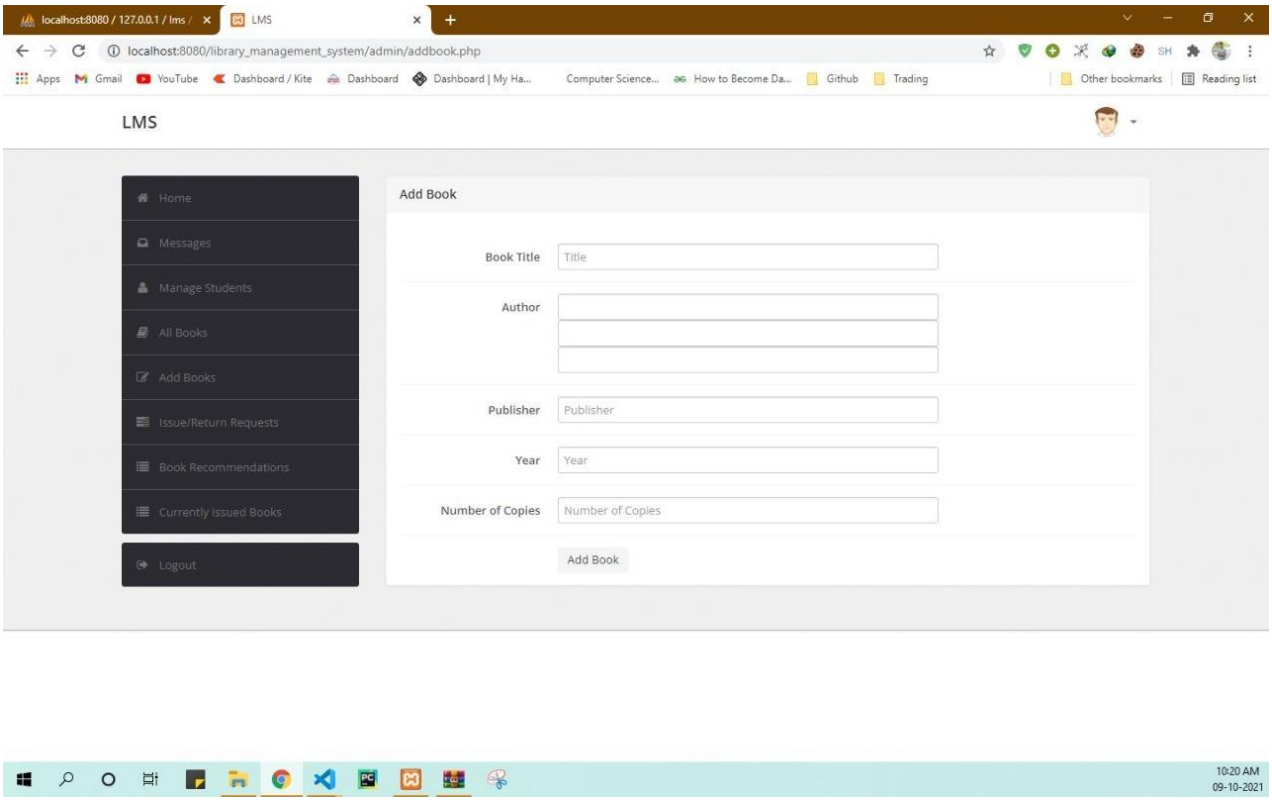
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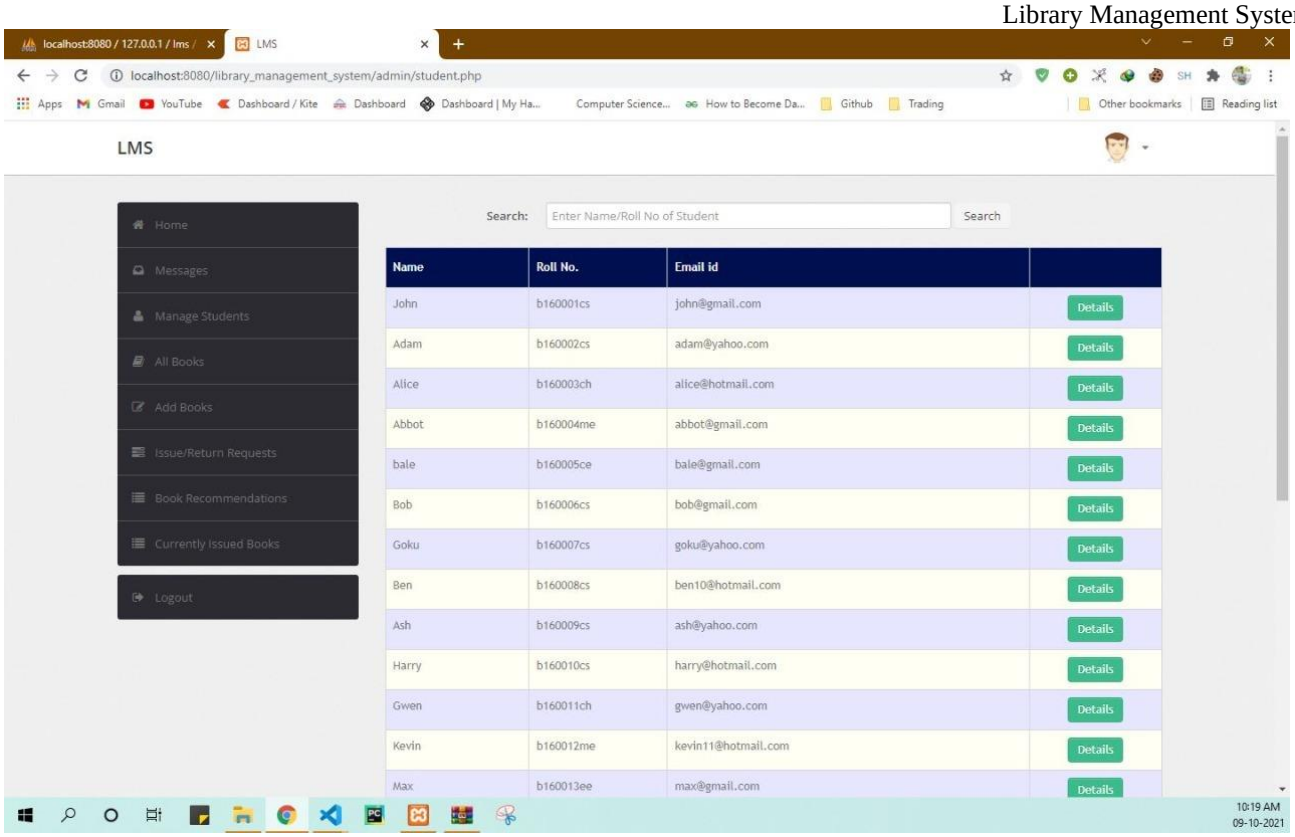
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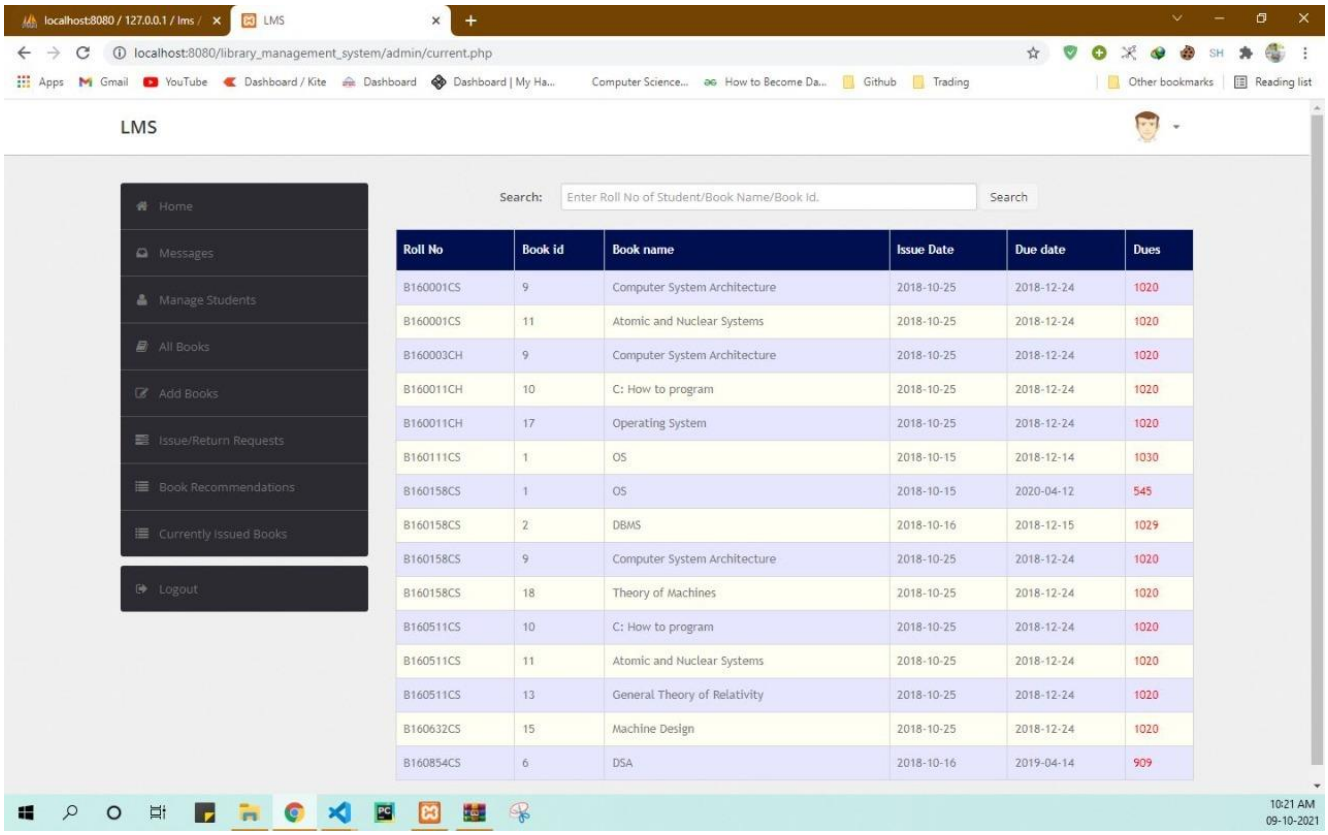
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Dues
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B160001CS 11 Atomic and Nuclear Systems 2018-10-25 2018-12-24 1020
B160003CH 9 Computer System Architecture 2018-10-25 2018-12-24 1020
B160011CH 10 C: How to program 2018-10-25 2018-12-24 1020
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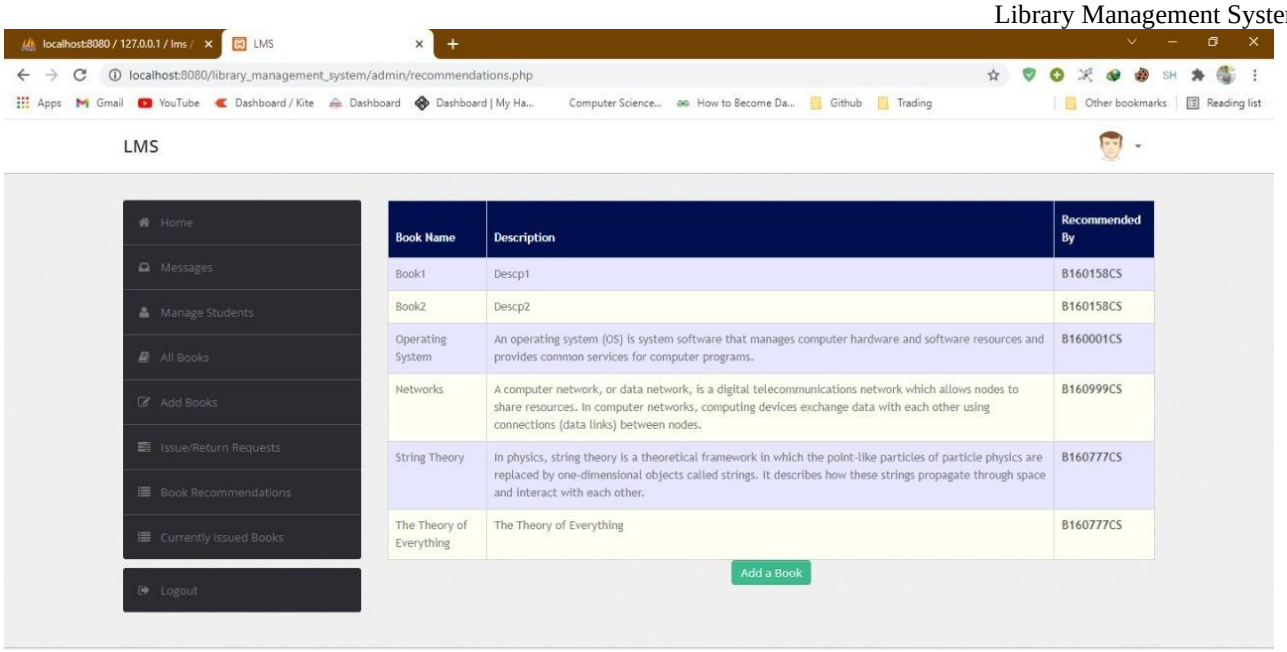
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Descp1
B160158CS
Book2
Descp2
B160158CS
Operating System
An operating system (OS) is system software that manages computer hardware and software resources and provides common services for computer programs.
B160001CS
Networks
A computer network, or data network, is a digital telecommunications network which allows nodes to share resources. In computer networks, computing devices exchange data with each other using connections (data links) between nodes.
B160999CS
String Theory
In physics, string theory is a theoretical framework in which the point-like particles of particle physics are replaced by one-dimensional objects called strings. It describes how these strings propagate through space and interact with each other.
B160777CS
The Theory of Everything
The Theory of Everything
B160777CS
Add a Book


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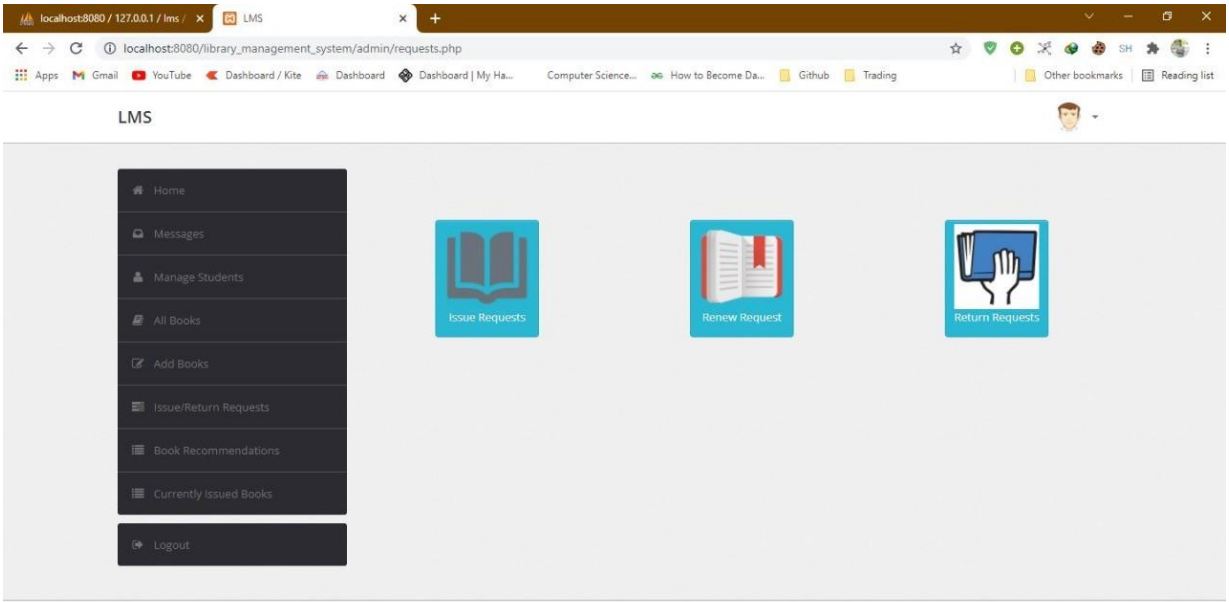
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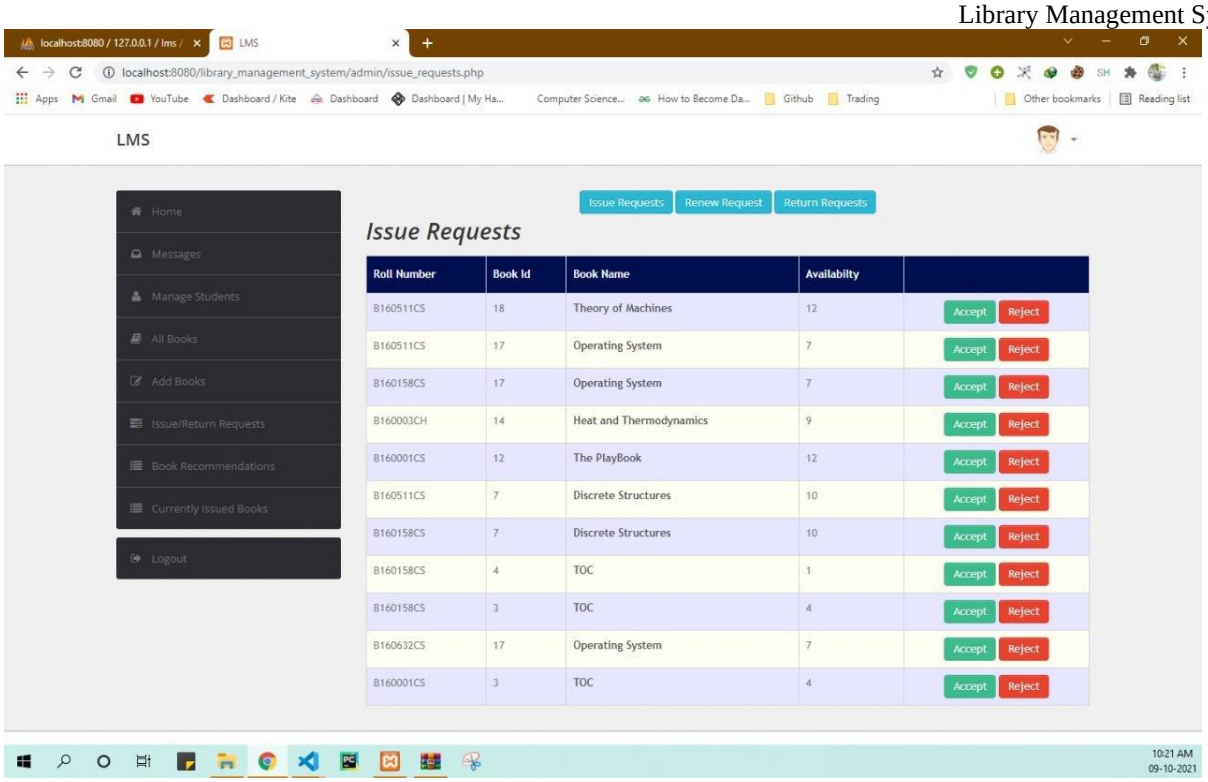
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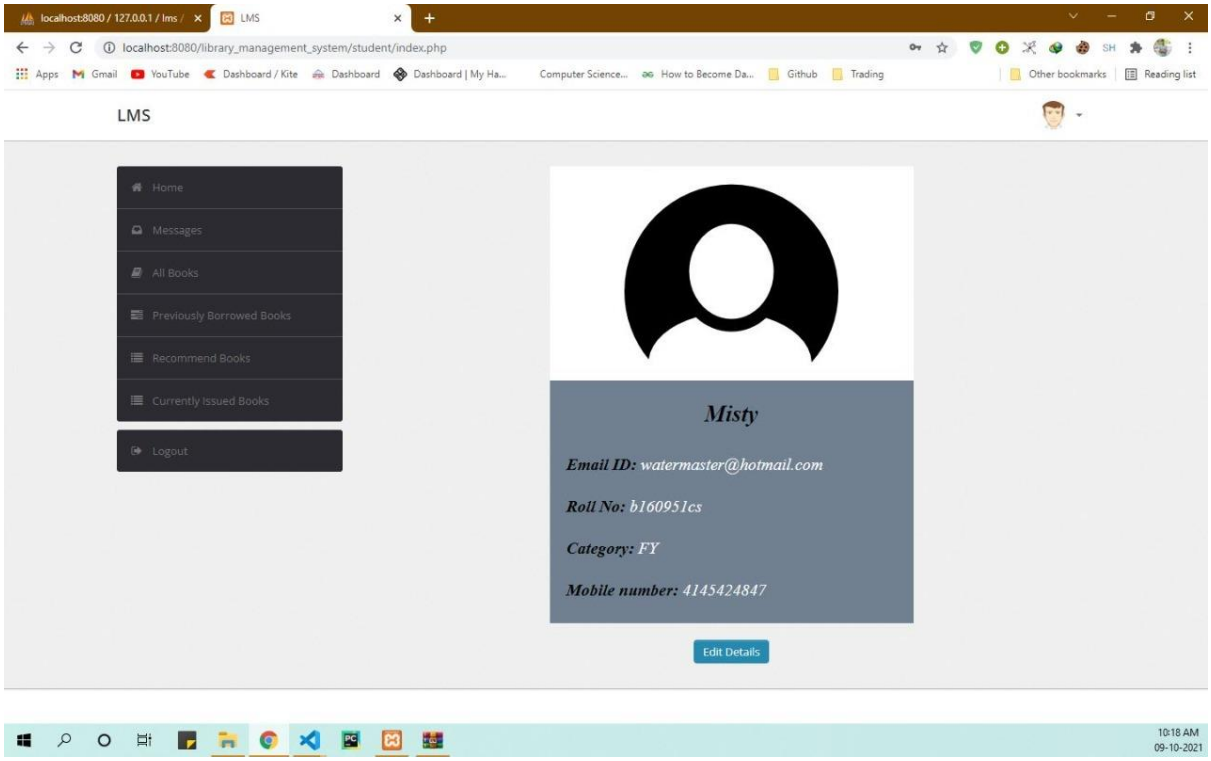
9.2 USER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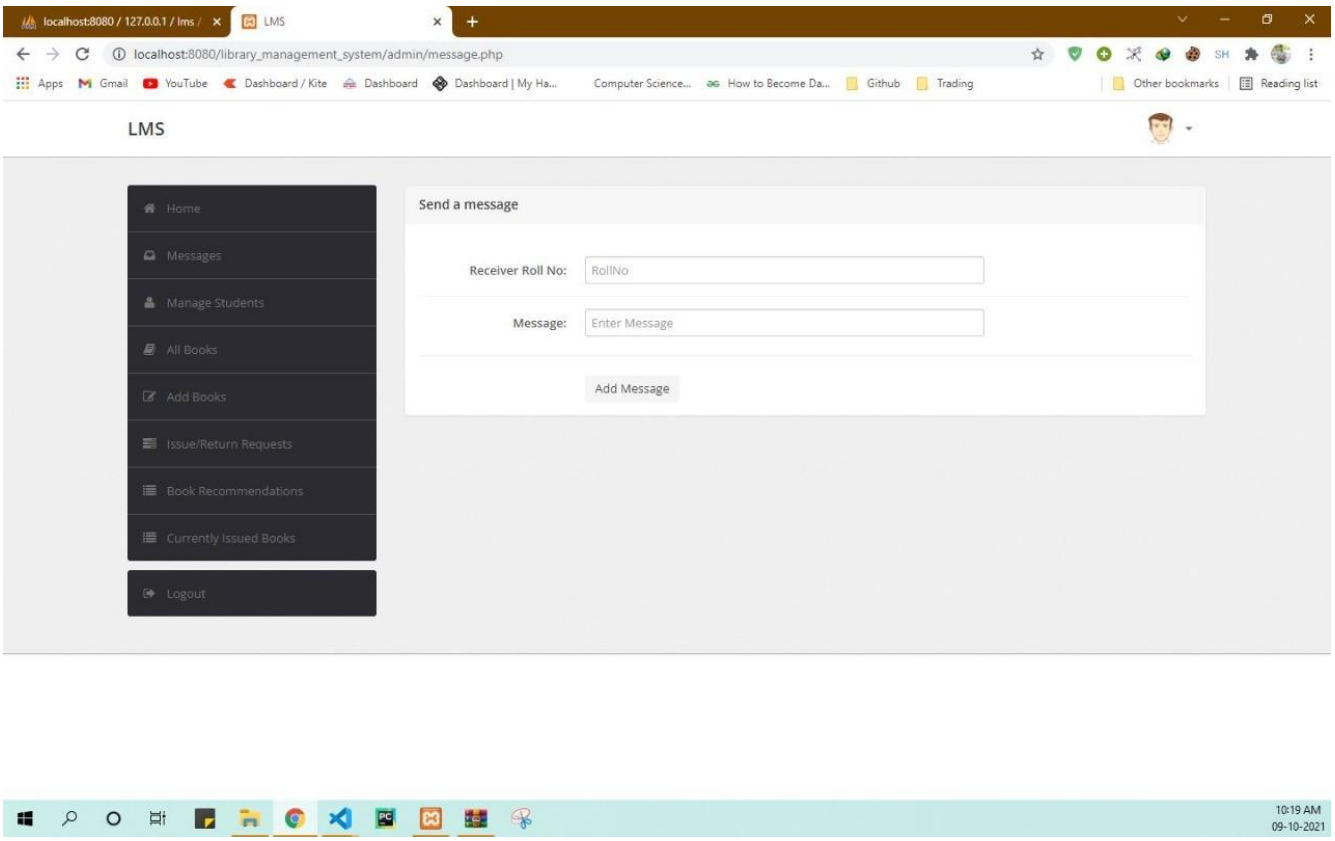
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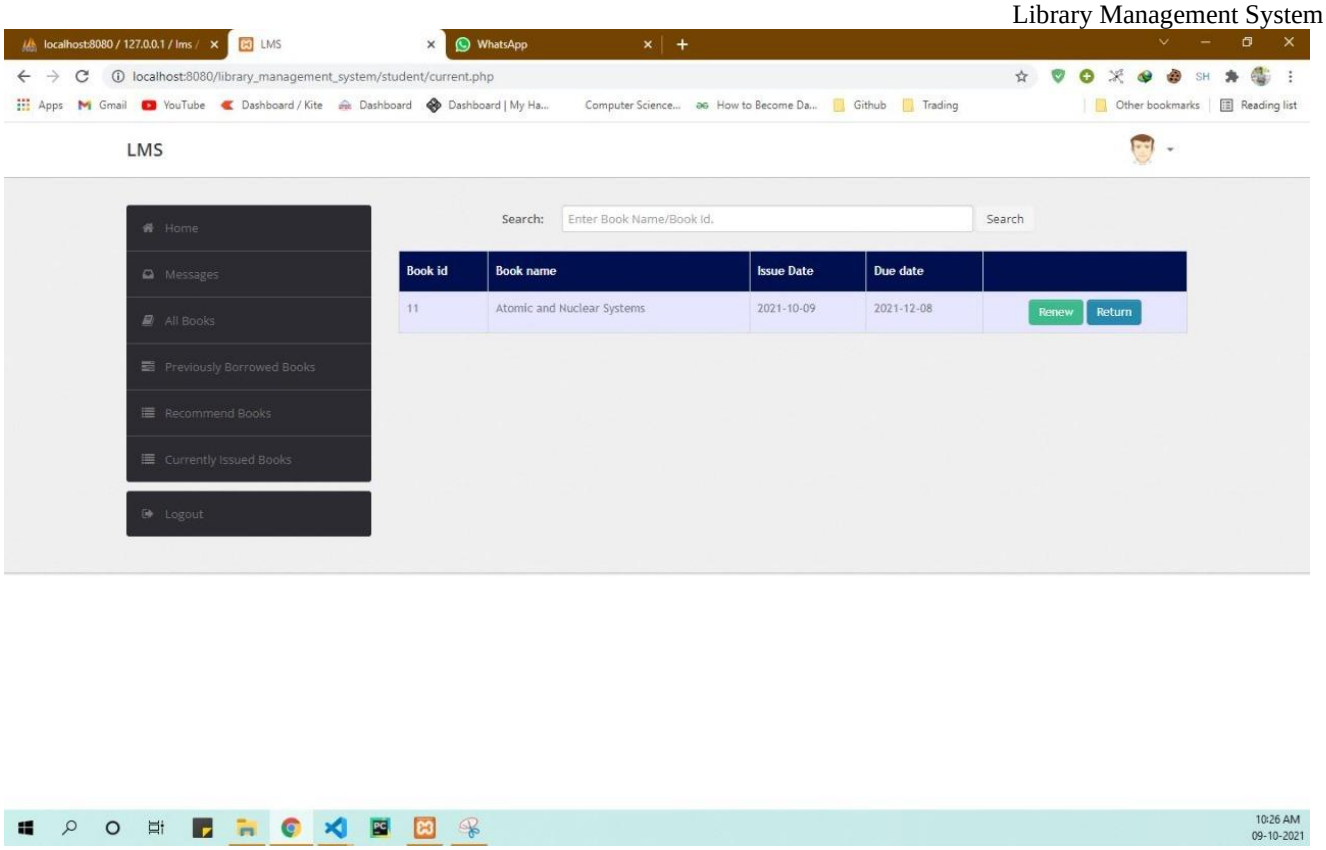

10. CONCLUSION

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 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 user login where user can get recommendations of new books base on the category they like.

11. REFERENCES

https://www.myschoolr.com/blog/why-need-a-library-management-system.html

https://app.creately.com/diagram/kQXx1FylDWq/edit

https://www.lucidchart.com/pages/examples/er-diagram-tool

https://erdplus.com/standalone