

A

**PROJECT REPORT**

ON

**“LIBRARY MANAGEMENT SYSTEM”**

Submitted to the **Jawaharlal Nehru Technological University** in partial fulfilment of the requirements for the award of the Degree of

**Bachelor of Technology**  
in  
**Computer Science and Engineering**  
By

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**ARJUN COLLEGE OF TECHNOLOGY AND SCIENCES**

Mount Opera Premises, Batasingaram (V), Hayathnagar (M), R.R. District



## ARJUN COLLEGE OF TECHNOLOGY AND SCIENCES

(Mount Opera Premises, Batasingaram (V), Hayathnagar (M), R.R. District)

### CERTIFICATE

This is to certify that the project report titled "**Library Management System**" being submitted by **Mr. GAUTAM JEE (14W81A0510)** in partial fulfilment for the award of **Bachelor of Technology in Computer Science and Engineering** to the **Jawaharlal Nehru Technological University** is a record of bonafide work carried out by him under our guidance and supervision.

The results embodied in this project report have not been submitted to any other University or Institute for the award of any Degree/Diploma.

**Mr. S. RAJESHWAR**  
**Professor & HoD (CSE)**

## **PROJECT EVALUATION CERTIFICATE**

This is to certify that the project report titled "**Library Management System**" being submitted by Mr. **GAUTAM JEE (14W81A0510)**, has been examined and adjudged as sufficient for the partial fulfilment for the degree of **Bachelor of Technology** in **Computer Science and Engineering** to the **Jawaharlal Nehru Technological University** from **Arjun College of Technology and Science**.

External Examiner:

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(Signature with Date)

Internal Examiner:

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(Signature with Date)

Head of Department

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(Signature with Date)

## **ACKNOWLEDGEMENT**

***"A project is completed when it starts working for you, rather than you working for it."***

..... *Scott Allen*

The satisfaction that accompanies on the successful completion of any task would be incomplete without the mention of people, whose ceaseless cooperation made it possible, whose constant guidance and encouragement crown all efforts with success. I am grateful to my project guide, the **Head of Department of CSE, Mr. S. RAJESHWAR** for the guidance, inspiration and constructive suggestions that helped me in the preparation of this project.

In addition, I would like to thank all the faculties of Department of Computer Science and my colleagues who have helped in successful completion of this project.

Last, but not the least, I would like to thank my parents for their love, affection and moral support for the care they took in this engineering life.

## **ABSTRACT**

Every college/school/institution has their library both for teachers and students use. The traditional system to manage them is either keeping track of them in a register or keeping a similar entry in computer in ms-excel format, etc. This working is fine until you don't require data from the logs, which becomes high-time consuming.

Library Management System helps in solving this issue. All data is stored in a structured database. Data is fetch in no time. Also making an entry and retrieving the record is very fast compared to the traditional method. The system is online so multiple users can use this system from different places.

Through the existing traditional system, library processes which is purely manual process becomes a time taking process. There are chances of having incorrect, redundant data entries. In the existing system, the user has to spend more time for simple queries/tasks also. The existing system is not secured and could be tampered and one person could be served at a time. The existing system also does not have user-friendly nature, user faces some difficulty during interaction with the traditional way of recording systems of notes, registers, etc.

This project is mainly designed to make the tasks performed by a librarian more comfortable and also provides a simple, one-roof platform to let the students/teachers who uses library for gaining knowledge via books, magazines, etc.

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## **INTRODUCTION**

Every college/school/institution has their library both for teachers and students use. The traditional system to manage them is either keeping track of them in a register or keeping a similar entry in computer in ms-excel format, etc. This working is fine until you don't require data from the logs, which becomes high-time consuming.

Library Management System helps in solving this issue. All data is stored in a structured database. Data is fetch in no time. Also making an entry and retrieving the record is very fast compared to the traditional method. The system is online so multiple users can use this system from different places.

### **Problems of Existing System**

Through the existing traditional system, library processes which is purely manual process becomes a time taking process. There are chances of having incorrect, redundant data entries. In the existing system, the user has to spend more time for simple queries/tasks also. The existing system is not secured and could be tampered and one person could be served at a time. The existing system also does not have user-friendly nature, user faces some difficulty during interaction with the traditional way of recording systems of notes, registers, etc.

### **Solutions of the Problems**

- Reliability: The project performs intended function with required precision; hence this project is very reliable.
- Feasibility & Scalability: The project maintenance is very easy and modifications can be made in the existing system in future. All data will locate as centralized. The system can easily be scaled up/down as per the requirements.
- Online Processing: The online processing of the project is very simple following the existing manual method without changes and suitable validation is provided for the easy and correct access of users.
- Security: Security measures are taken to avoid mishandling of database. Password restrictions are provided to enter into database. A correct password only will access to the database. Moreover, privileges to various users have also been considered at the database level restricting access of unauthorised users.

- Non Redundant Database: The database of the project is designed in way that most of the redundant data is removed, using Normalization techniques.
- High User-Friendly: The interface for the system is highly user-friendly, that is able to attract users and make their response with the system efficient.

## PURPOSE

The aim purpose of the project is to build an online portal for managing library tasks performed by any librarian, replacing their old traditional way which had lot of data & database related problems.

## PRELIMINARY IDEAS

The idea for this project begins from the time when I was in 1<sup>st</sup> year and saw our librarian madam using the traditional way for each and every library based tasks. Since that time I wanted to make the library tasks in an efficient and simple way by providing a system like this project has.

## PROJECT SCOPE

This project is mainly designed to make the tasks performed by a librarian more comfortable and also provides a simple, one-roof platform to let the students/teachers who uses library for gaining knowledge via books, magazines, etc.

This system is capable to be used in various colleges/institutes/universities who have their library and want to make it digital and online accessible.

This system is highly secure, user friendly, durable and scalable so could be used for a long time basis.

## **SOFTWARE REQUIREMENT & SPECIFICATION**

### **FUNCTIONAL REQUIREMENTS**

- Guest User capable to view the list of books/students/teachers.
- If the user is a student/teacher/administrator can login via respective login page using their respective user ID, username and a secret password. The password can be changed only by the respective user after their login.
- The student/teacher is able to view their own details only and list of books issued / returned by them.
- The administrator is able to register a new user, delete/update a user, view the details of any user either a student/teacher, books issued/returned by them.
- The administrator is also able to list down all the books/magazines/journals, add new items, delete/update existing items.
- The administrator can also update the ABOUT page of the system.

### **CAPABILITY REQUIREMENTS**

- The system must be capable to handle a huge number of requests at a time.
- The system must be secure, feasible, scalable with a high interactive UI.
- The password saved for each user must be encrypted.
- Only one user per user-id is capable to login at any moment.
- Only one user per browser session is allowed to make use of the system, to remove conflicts.

### **PERFORMANCE REQUIREMENTS**

- The requests processing time must be low, for this the overhead in the requests must be minimum.
- The webpage loading must be dynamic and this time must be minimum.

### **USER INTERFACE REQUIREMENTS**

- The UI must be interactive to let user perform task simply & easily.
- For all modules there must be a separate UI entity (web page), to let users easily flow through the system as per their requirement.
- Use of JavaScript, CSS, AJAX, Boot-strapping, etc., will provide easy searching, listing, entering the information as well as provides dynamic UI.

## Number of Modules

1. Administrator
2. Guest User
3. Student
4. Teacher
5. Books
6. Magazines
7. Journals

## Modules Description

### **1. Administrator- Librarian:**

Administrator is the owner of the system and can view, add or remove the users (students/teachers), books, journals & magazines, issues / returns books over a teacher/student account and can view the logs of issues or returns of books.

Administrator can even remove/update details what he adds and is capable to change own password.

### **2. Guest User:**

A guest user to the system is capable to just view the books/ journals/magazines available in the library and is able to view the “About” page of the system.

### **3. Student:**

A student of the college/institution/school first requests the Administrator to create his/her account and registers himself/herself as student. He has all the privileges as of guest and is also capable to check his/her books issue/return account; and can change the password of his/her account.

### **4. Teacher:**

A teacher of the college/institution/school first requests the Administrator to create his/her account and registers himself/herself as teacher. He has all the privileges as of guest and is also capable to check his/her books issue/return account; and can change the password of his/her account.

**4. Books:**

This module provides operational functions for books. Every user is allowed to search or view list of books. However only the administrator is capable to add new books, remove a book or update book details, and can manage the issue and return sections of the books.

**5. Magazines:**

This module provides operational functions for magazines. Every user is allowed to search or view list of magazines. However only the administrator is capable to add new magazine, remove a magazine or update magazine details.

**6. Journals:**

This module provides operational functions for journals. Every user is allowed to search or view list of journals. However only the administrator is capable to add new journal, remove a journal or update journal details.

## **INPUT & OUTPUT REQUIREMENTS**

The major inputs and outputs functions of the system are follows:

**Inputs:**

- Administrator enters his user id, username and password for login to authenticate in this system
- Administrator adds books, magazines, and journals to the system by entering details like id, title, publication, author, quantity, etc.
- Administrator registers student by entering registration details like student name, student id, student's hall ticket, contact, branch, department and year; whereas for teachers by entering registration details like teacher's name, teacher's id, teacher's university number, contact, branch and department.
- Administrator issues a book to teacher or student by entering the respective student id and book id.
- Student enters his user id, username and password for login to authenticate in this system.
- Teacher enters his user id, username and password for login to authenticate in this system.
- Teacher or Student can search for a book/journal/magazine by going to their respective page and entering the respective id or title of book/journal/magazine in the search form.

## Outputs:

- Every user can see the guest's user pages.
- Administrator can have his own web-pages.
- The output must be displayed on the same page where it is searched, usually in tabular form.
- After successful login the user must be redirected to proper logged-in page else the flow must remain there itself.
- After every operation like adding/updating/deleting of books/journals/magazines, registration of user, password changing, etc.; the successful/error warning must be displayed.
- After successful issue/return of the book the success/error message must be displayed.
- Before deleting any user/book/journal/magazine, there must be a confirmation to be displayed to alert the administrator for proper deletion.

## CONSTRAINT REQUIREMENTS

- One must be forwarded to their secret pages only after successful verification of their username and password combinations.
- There must be only one unique database entry for each user. (*The librarian must look for the Teacher's or Student's ID issued by college before registration. The library management system id must be unique for teachers and students separately.*)
- Any user having issued a book which is not returned, must be unable to de-register from the system, until he/she returns the book.
- The book which is available must only be displayed to be in the list to issue the book to any student/teacher.
- If a book is issued to any student, its data shall not be able to get modified until it is returned.
- A user must be able to change his/her password, only after their successful login.
- There must be only one book id, journal id or magazine id to be provided to any book. (*The librarian must write down the respective id on some pages over it.*)
- Any issued book must not be issued to other to provide consistency.

- An alert to be provided before any deletion of data entry from database.
- A user must only view their respective issued / returned books records.
- After returning of a book, by any user, the status of the book must become 'AVAILABLE'.
- The maximum number of authors for any book is restricted to 5.

## **SOFTWARE REQUIREMENTS**

- APACHE TOMCAT
- MYSQL
- NETBEANS IDE
- MYSQL WORKBENCH

## **HARDWARE REQUIREMENTS**

- CPU [1 GHz]
- SECONDARY MEMORY [200 MB]
- PHYSICAL MEMORY [512 MB]

## **SYSTEM ANALYSIS AND DESIGN**

System analysis and design is the phase of software development during which the team studies the requirements specified in the first phase with respect to available hardware and software technologies and prepares a system design document.

The system design document defines the overall system architecture.

It specifies the various hardware and software components of the system and interfaces between the components.

It includes the hierarchy of software components, rules for component selection, and interfaces between components. The design document serves as input to the next phase of the model.

\* The design of this system, has been made by the use of tools like MySQL Workbench (for database), Microsoft One-Note (for flow of controls & data in website), etc.

\* For proper analysis of designs, the data from MySQL Workbench was exported to PhpMyAdmin which also enabled to construct the database effectively in later stages.

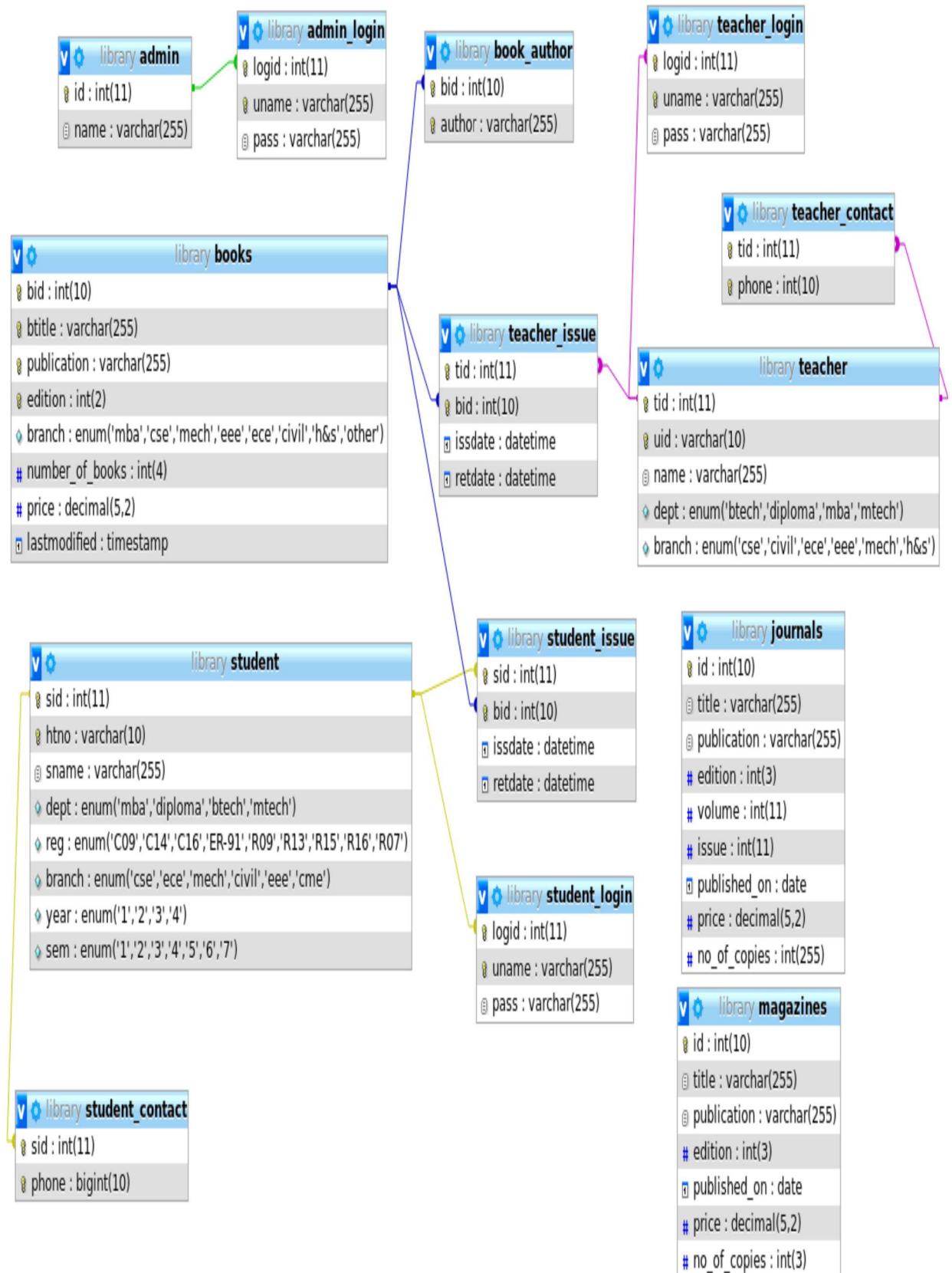


fig: ER Diagram for Online Library Management System

## **TESTING & DEBUGGING**

The developed system has undergone the following testing methods in ordered steps as:

1. Unit Testing
  - a) Ad-hoc
  - b) Black-box
  - c) White-box
2. Integration Testing
  - a) Top-down
  - b) Bottom-up
  - c) Regression
  - d) Smoke
3. Validation Testing
4. System Testing
  - a) Performance
  - b) Stress
  - c) Security
  - d) Recovery

After testing of the system, the following results & conclusions are:

1. Unit Testing: All the errors like erroneous computation, incorrect computation & improper control flow has been tested and debugged.
  - a) Ad-hoc: The random testing was on its way from the time it started and all the bugs found has been rectified.
  - b) Black-box: Every functionalities of each module has been tested for boundary values, domain values & with various command line.
  - c) White-box: Every segment of each module has been tested here for branch coverages, paths, data flow test, loop tests & compound condition coverage.

2. **Integration Testing:** This testing methodology was used to remove bugs like data losses across interfaces, improper results by sub-functions to major functions, individual imprecisions at unacceptable levels & global data structure problems.
  - a) Top-down: Starting from the root level (i.e., the index of root directory) to the leaves of various path or subdirectories, this testing was used. Many logistics bugs were found however has been removed.
  - b) Bottom-up: This approach was used to eliminate the need for any complex stubs. However none were found during testing.
  - c) Regression: This testing reduces ‘side effects’ during module-module communication. Each time any changes were made this testing was used, including the integration of new components.
  - d) Smoke: Each time the software is rebuilt (with new components), the smoke testing was performed by testing each & every module & function with the existing project.
3. **Validation Testing:** This testing was performed by focussing over the user-visible actions and user recognizable output of the system. This was successfully compromised when the system functioned in a manner that can be reasonably expected a the customer (as per the Software Requirements & Specifications).
  - a) Alpha Testing: This system has undergone all testing ways at alpha level, i.e., at the developer’s site by various colleagues, end-users, etc.
  - b) Beta Testing: The system has been opened public to undergo the Beta Testing, by its various interested users.
4. **System Testing:** A classic system testing - “The Finger Pointing” is been used to test the system.
  - a) Performance: The system has met all the non-functional requirements as defined in SRS documents and has been tested.
  - b) Stress: This testing helped to evaluate the system performance when it is stressed for a short period of time.
  - c) Security: This test was allowed to protect the system from improper testing and to protect the system from vulnerabilities of frontal attack.
  - d) Recovery: During this, the system was forced to fail in various ways. The use of Database like MySQL & scripting language like php has let this system to recover in all the cases. The recovery processes are automatic, however may require the administrator to restart the system services after the fail but the data integrity is maintained.

\*\*The use of NetBeans IDE, has let to overcome most of the specific errors.

## **IMPLEMENTATION**

From the System Analysis and Design, Database Tables are implemented on MySQL using PhpMyAdmin tool, that are capable to fulfil the requirements.

Following Figures and Tables depicts some samples of it.

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra
1	<b>id</b> 	int(11)			No	None		
2	<b>name</b> 	varchar(255)	latin1_swedish_ci		No	None		

TABLE: admin

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra
1	<b>logid</b> 	int(11)			No	None		
2	<b>uname</b> 	varchar(255)	latin1_swedish_ci		No	username		
3	<b>pass</b> 	varchar(255)	latin2_bin		No	password		

TABLE: admin\_login

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra
1	<b>bid</b> 	int(10)			No	None		AUTO_INCREMENT
2	<b>btitle</b> 	varchar(255)	latin1_swedish_ci		No	None		
3	<b>publication</b> 	varchar(255)	latin1_swedish_ci		Yes	NULL		
4	<b>edition</b> 	int(2)			Yes	NULL		
5	<b>branch</b> 	enum('mba', 'cse', 'mech', 'eee', 'ece', 'civil')	latin1_swedish_ci		Yes	NULL		
6	<b>number_of_books</b>	int(4)			No	None		
7	<b>price</b>	decimal(5,2)			No	None		
8	<b>lastmodified</b>	timestamp		on update CURRENT_TIMESTAMP	No	CURRENT_TIMESTAMP		ON UPDATE CURRENT_TIMESTAMP

TABLE: books

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra
1	<b>bid</b> 	int(10)			No	None		
2	<b>author</b> 	varchar(255)	latin1_swedish_ci		No	None		

TABLE: book\_author

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra
1	<b>id</b> 	int(10)			No	None		AUTO_INCREMENT
2	<b>title</b>	varchar(255)	latin1_swedish_ci		No	None		
3	<b>publication</b>	varchar(255)	latin1_swedish_ci		No	None		
4	<b>edition</b>	int(3)			Yes	NULL		
5	<b>volume</b>	int(11)			Yes	NULL		
6	<b>issue</b>	int(11)			Yes	NULL		
7	<b>published_on</b>	date			No	None		
8	<b>price</b>	decimal(5,2)			No	None		
9	<b>no of copies</b>	int(255)			No	None		

TABLE: journals

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra
1	<b>id</b> 	int(10)			No	None		AUTO_INCREMENT
2	<b>title</b>	varchar(255)	latin1_swedish_ci		No	None		
3	<b>publication</b>	varchar(255)	latin1_swedish_ci		Yes	NULL		
4	<b>edition</b>	int(3)			Yes	NULL		
5	<b>published_on</b>	date			No	None		
6	<b>price</b>	decimal(5,2)			Yes	NULL		
7	<b>no_of_copies</b>	int(3)			No	None		

TABLE: magazines

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra
1	<b>sid</b>	int(11)			No	None		AUTO_INCREMENT
2	<b>htno</b>	varchar(10)	latin1_swedish_ci		No	None		
3	<b>sname</b>	varchar(255)	latin1_swedish_ci		No	None		
4	<b>dept</b>	enum('mba', 'diploma', 'btech', 'mtech')	latin1_swedish_ci		Yes	NULL		
5	<b>reg</b>	enum('C09', 'C14', 'C16', 'ER-91', 'R09', 'R13', ...)	latin1_swedish_ci		Yes	NULL		
6	<b>branch</b>	enum('cse', 'ece', 'mech', 'civil', 'eee', 'cme')	latin1_swedish_ci		Yes	NULL		
7	<b>year</b>	enum('1', '2', '3', '4')	latin1_swedish_ci		Yes	NULL		
8	<b>sem</b>	enum('1', '2', '3', '4', '5', '6', '7')	latin1_swedish_ci		Yes	NULL		

TABLE : students

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra
1	<b>sid</b>	int(11)			No	None		
2	<b>phone</b>	bigint(10)			No	None		

TABLE : student\_contact

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra
1	<b>sid</b>	int(11)			No	None		
2	<b>bid</b>	int(10)			No	None		
3	<b>issdate</b>	datetime			No	CURRENT_TIMESTAMP		
4	<b>retdate</b>	datetime			Yes	NULL		

TABLE : student\_issue

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra
1	<b>login</b>	int(11)			No	<i>None</i>		
2	<b>uname</b>	varchar(255)	latin1_swedish_ci		No	<i>username</i>		
3	<b>pass</b>	varchar(255)	latin1_swedish_ci		No	<i>password</i>		

TABLE : student\_login

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra
1	<b>tid</b>	int(11)			No	<i>None</i>		AUTO_INCREMENT
2	<b>uid</b>	varchar(10)	latin1_swedish_ci		No	<i>None</i>		
3	<b>name</b>	varchar(255)	latin1_swedish_ci		No	<i>None</i>		
4	<b>dept</b>	enum('btech', 'diploma', 'mba', 'mtech')	latin1_swedish_ci		Yes	<i>NULL</i>		
5	<b>branch</b>	enum('cse', 'civil', 'ece', 'eee', 'mech', 'h&s')	latin1_swedish_ci		Yes	<i>NULL</i>		

TABLE : teacher

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra
1	<b>tid</b>	int(11)			No	<i>None</i>		
2	<b>phone</b>	int(10)			No	<i>None</i>		

TABLE: teacher\_contact

Name	Type	Collation	Attributes	Null	Default	Comments	Extra
<b>tid</b>	int(11)			No	<i>None</i>		
<b>bid</b>	int(10)			No	<i>None</i>		
<b>issdate</b>	datetime			No	CURRENT_TIMESTAMP		
<b>retdate</b>	datetime			Yes	<i>NULL</i>		

TABLE: Teacher\_Issue

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra
1	<b>logid</b>	int(11)			No	<i>None</i>		
2	<b>uname</b>	varchar(255)	latin1_swedish_ci		No	username		
3	<b>pass</b>	varchar(255)	latin1_swedish_ci		No	password		

TABLE : Teacher\_Login

Trigger name	insert student login
Table	student
Time	AFTER
Event	INSERT
Definition	<pre> 1 BEGIN 2 INSERT INTO `student_login` (`logid`, `uname`, `pass`) VALUES (new.sid, new.htno, new.sname); 3 END </pre>

fig: Implementation of Trigger on Student Registration

<b>Trigger name</b>	insert teacher login
<b>Table</b>	teacher
<b>Time</b>	AFTER
<b>Event</b>	INSERT
<b>Definition</b>	<pre> 1 BEGIN 2 INSERT INTO teacher_login VALUES (new.tid, new.uid, new.name); 3 END </pre>

fig: Implementation of Trigger on Teacher Registration

## CODE SNIPPETS

Here are some overview codes that are used to implement the Library Management System.

```

<?php
* @author GAUTAM JEE
* @facebook https://www.facebook.com/gautamkumar.burman
* @twitter https://twitter.com/gautam_burman
* @googleplus https://plus.google.com/kumargautamburman

require("libs/config.php");
$pageDetails = getPageDetailsByName($currentPage);
include("header.php");
?>
<div class="row main-row">
<div class="9u">

```

```

<section class="left-content">
    <h2><?php echo stripslashes($pageDetails["page_title"]); ?></h2>
    <?php echo stripslashes($pageDetails["page_desc"]); ?>
</section>

</div>

<!--sidebar starts-->
    <?php include("sidebar.php"); ?>
<!--sidebar ends-->
</div>

<?php
    include("footer.php");
?>

```

**index.php**

```

<?php
    require("libs/config.php");
    $pageDetails = getPageDetailsByName($currentPage);
    include("header.php");
?>

<div class="row main-row">
    <div class="8u">
        <section class="left-content">
            <h2><?php echo (stripslashes($pageDetails["page_title"])); ?></h2>
            <?php echo (stripslashes($pageDetails["page_desc"])); ?>
        </section>
    </div>
    <!--sidebar starts-->
        <?php include("sidebar.php"); ?>
    <!--sidebar ends-->
</div>

<?php
    include("footer.php");
?>

```

**about.php**

```

<?php
require("libs/config.php");
$pageDetails = getPageDetailsByName($currentPage);
include("header.php");
?>
<div class="row main-row">
<div class="8u">
<section class="left-content">
<h2><?php echo (stripslashes($pageDetails["page_title"])); ?></h2>
<?php echo (stripslashes($pageDetails["page_desc"])); ?>
</section>
</div>
<table class="bordered">
<tr>
<th><strong>Published On</strong> </th>
<th><strong>Title</strong> </th>
<th><strong>ID</strong> </th>
<th><strong>Publication</strong></th>
<th><strong>Edition</strong> </th>
<th><strong>Volume</strong></th>
<th><strong>Issue</strong> </th>
</tr>
<?php
$sql = "SELECT * FROM ". TABLE_JOURNALS . " WHERE 1 ORDER BY published_on DESC, title ASC , id ASC,
publication ASC";
try {
$stmt = $DB->prepare($sql);
$stmt->execute();
$results = $stmt->fetchAll();
} catch (Exception $ex) {
echo errorMessage($ex->getMessage());
}
foreach ($results as $rs) {
?>
<tr>
<td><?php echo $rs["published_on"]; ?></td>

```

```

<td><?php echo stripslashes($rs["title"]); ?></td>
<td><?php echo stripslashes($rs["id"]); ?></td>
<td><?php echo stripslashes($rs["publication"]); ?></td>
<td><?php echo stripslashes($rs["edition"]); ?></td>
<td><?php echo stripslashes($rs["volume"]); ?></td>
<td><?php echo stripslashes($rs["issue"]); ?></td>
</tr>
<?php
}
?>
</table>
<!--sidebar starts-->
<?php include("sidebar.php"); ?>
<!--sidebar ends-->
</div>
<?php
include("footer.php");
?>

```

**journals.php**

```

<?php
require("libs/config.php");
$pageDetails = getPageDetailsByName($currentPage);
include("header.php");
?>
<div class="row main-row">
<div class="8u">
<section class="left-content">
<h2><?php echo (stripslashes($pageDetails["page_title"])); ?></h2>
<?php echo (stripslashes($pageDetails["page_desc"])); ?>
</section>
</div>
<table class="bordered">
<tr>
<th><strong>Published On</strong> </th>

```

```

<th><strong>Title</strong> </th>
<th><strong>ID</strong> </th>
<th><strong>Publication</strong></th>
<th><strong>Edition</strong> </th>
<th><strong>Volume</strong></th>
<th><strong>Issue</strong> </th>

</tr>
<?php

$sql = "SELECT * FROM ". TABLE_MAGAZINES . " WHERE 1 ORDER BY published_on DESC, title ASC , id
ASC, publication ASC";

try {

$stmt = $DB->prepare($sql);

$stmt->execute();

$results = $stmt->fetchAll();

} catch (Exception $ex) {

echo errorMessage($ex->getMessage());

}

foreach ($results as $rs) {

?>

<tr>

<td><?php echo $rs["published_on"]; ?></td>
<td ><?php echo stripslashes($rs["title"]); ?></td>
<td><?php echo stripslashes($rs["id"]); ?></td>
<td ><?php echo stripslashes($rs["publication"]); ?></td>
<td><?php echo stripslashes($rs["edition"]); ?></td>
<td><?php echo stripslashes($rs["volume"]); ?></td>
<td><?php echo stripslashes($rs["issue"]); ?></td>

</tr>
<?php

}

?>

</table>

<!--sidebar starts-->

<?php include("sidebar.php"); ?>

<!--sidebar ends-->

</div>

```

```

<?php
include("footer.php");
?>

magazines.php

<?php
$page_id = $pageDetails["page_id"];
if ($_GET["id"] <> "") {
    // if we are on page.php page. get the parent id and fetch their related subpages
    $sql = "SELECT * FROM ". TABLE_PAGES . " WHERE status = 'A' AND parent = :parent ORDER BY sort_order ASC";
    try {
        $stmt = $DB->prepare($sql);
        $stmt->bindValue(":parent", db_prepare_input($pageDetails["parent"]));
        $stmt->execute();
        $pagesResults = $stmt->fetchAll();
    } catch (Exception $ex) {
        echo errorMessage($ex->getMessage());
    }
} elseif ($page_id <> "") {
    // On any other Page get the page id and fetch their related subpages
    $sql = "SELECT * FROM ". TABLE_PAGES . " WHERE status = 'A' AND parent = :parent ORDER BY sort_order ASC";
    try {
        $stmt = $DB->prepare($sql);
        $stmt->bindValue(":parent", db_prepare_input($page_id));
        $stmt->execute();
        $pagesResults = $stmt->fetchAll();
    } catch (Exception $ex) {
        echo errorMessage($ex->getMessage());
    }
}
?>
<div class="3u">
<?php
if (count($pagesResults) > 0) {

```

```

?>

<section>
    <h2>CONTENTS</h2>
    <div>
        <div class="row">
            <div class="12u">
                <ul class="link-list">
                    <?php foreach ($pagesResults as $rs) { ?>
                        <li><a href="page.php?id=<?php echo easy_crypt($rs["page_alias"]); ?>"><?php echo stripslashes($rs["page_title"]); ?></a></li>
                    <?php } ?>
                </ul>
            </div>
        </div>
    </div>
</section>
<?php } ?>
</div>

```

**sidebar.php**

```

<html>
    <head>
        <title><?php echo stripslashes($pageDetails["page_title"]); ?> - <?php echo SITE_NAME; ?></title>
        <link rel="icon" href="images/logo.png" type="image/x-icon" />
        <meta http-equiv="content-type" content="text/html; charset=utf-8" />
        <meta name="description" content="<?php echo stripslashes($pageDetails["meta_desc"]); ?>" />
        <meta name="keywords" content="<?php echo stripslashes($pageDetails["meta_keywords"]); ?>" />
        <link href='http://fonts.googleapis.com/css?family=Ubuntu+Condensed' rel='stylesheet' type='text/css'>
    <style>
        /* Dropdown Button */
        .dropbtn {
            cursor: pointer;
        }
        /* The container <div> - needed to position the dropdown content */
        .dropdown {

```

```

position: relative;
display: inline-block;
}

/* Dropdown Content (Hidden by Default) */

.dropdown-content {
display: none;
position: fixed;
z-index: 1;
}

/* Show the dropdown menu on hover */

.dropdown:hover .dropdown-content {
display: inline-block;
font-size: smaller;
background-color: gray;
}

</style>

<script src="js/jquery.min.js"></script>

<noscript>
<link rel="stylesheet" href="css/skel-noscript.css" />
<link rel="stylesheet" href="css/style.css" />
<link rel="stylesheet" href="css/style-desktop.css" />
</noscript>

<!--[if lte IE 9]><link rel="stylesheet" href="css/ie9.css" /><![endif]-->
<!--[if lte IE 8]><script src="js/html5shiv.js"></script><![endif]-->

</head>

<body>
<!-- **** -->

<div id="header-wrapper">
<div class="container">
<div class="row">
<div class="12u">
<header id="header">
<h1><a href=<?php echo getHomeURL(); ?>" id="logo"><?php echo SITE_NAME; ?></a></h1>
<nav id="nav">
<a href="about.php" <?php echo ($currentPage == "About") ? ' class="current-page-item"' : '' ?>
>About</a>

```

```

        <a href="books.php" <?php echo ($currentPage == "Books") ? ' class="current-page-item"' : '' ?
>>Books</a>

                <a href="magazines.php" <?php echo ($currentPage == "Magazines") ? ' class="current-page-item"' : '' ?>>Magazines</a>

                <a href="journals.php" <?php echo ($currentPage == "Journals") ? ' class="current-page-item"' : '' ?>>Journals</a>

                <div class="dropdown">
                    <a href="" class="dropbtn">Login</a>
                    <div class=" dropdown-content">
                        <a href="/student">STUDENT</a><br/>
                        <a href="/teacher">TEACHER</a>
                    </div>
                </div>
            </nav>
        </header>
    </div>
    </div>
    </div>
    <?php
if ($currentPage == "index") {
    try {
        $stmt = $DB->prepare("SELECT * FROM ". TABLE_TAGLINE . " WHERE 1 LIMIT 1");
        $stmt->bindValue(":pname", $pageAlias);
        $stmt->execute();
        $details = $stmt->fetchAll();
    } catch (Exception $ex) {
        echo errorMessage($ex->getMessage());
    }
}
?>
<div id="banner-wrapper">
    <div class="container">
        <div class="row">
            <div class="12u">
                <div id="banner">
                    <h2><?php echo stripslashes($details[0]['tagline1']); ?></h2>

```

```

<span><?php echo stripslashes($details[0]["tagline2"]); ?></span>
</div>
</div>
</div>
</div>
</div>
<?php } ?>
<div id="main">
<div class="container">
header.php

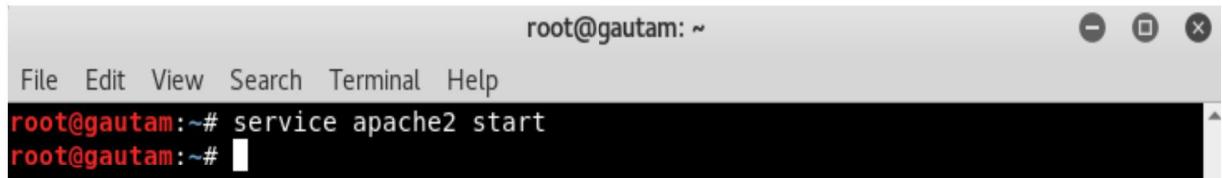
</div>
</div><center>
<div id="footer-wrapper">
<div class="container">
<div class="row">
<div class="12u" style="text-decoration: none;" href="contact-me.php" target="_blank">14W81A0510</a> | 2014 - <?php echo date("Y"); ?> | All rights Reserved<a href="#" style="border: 1px solid #e1e1e1; border-bottom: 0; color: grey; right: 0; padding: 10px 20px; position: absolute; text-decoration: none; ">Go To Top</a></div>
</div>
</div>
</div> </center>
</div>
<!-- **** -->
<script src="js/config.js"></script>
<script src="js/skel.min.js"></script>
<script src="js/skel-panels.min.js"></script>
</body>
<!--.scrollToTop {
    border: 1px solid #e1e1e1; border-bottom: 0; padding: 10px 20px; -webkit-top-left-border-radius: 8px; -moz-top-left-border-radius: 8px; border-top-left-radius: 8px; -webkit-top-right-border-radius: 8px; -moz-top-right-border-radius: 8px; border-top-right-radius: 8px;
} -->
</html>
footer.php

```

## DEPLOYMENT

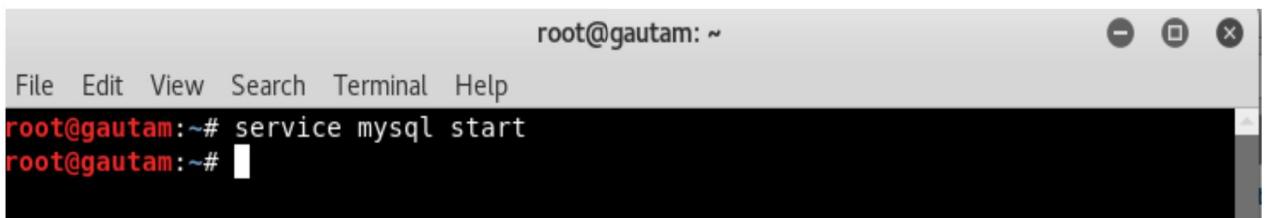
The deployment of the system has been performed using some specific tools by the following ways:

1. Deployment of Web Server (Apache-2 or later)



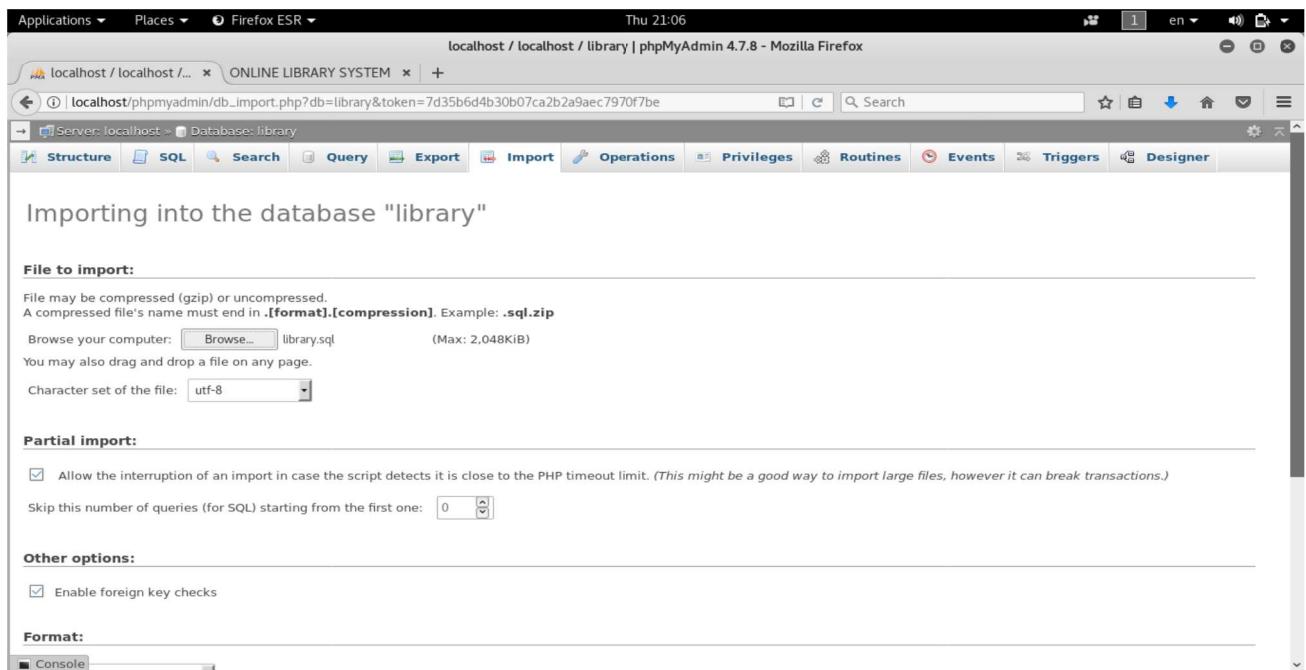
```
root@gautam: ~
File Edit View Search Terminal Help
root@gautam:~# service apache2 start
root@gautam:~#
```

2. Deployment of MySQL Server.



```
root@gautam: ~
File Edit View Search Terminal Help
root@gautam:~# service mysql start
root@gautam:~#
```

3. Importing the '*library*' database to MySQL using PhpMyAdmin.



The screenshot shows the 'Import' page of the phpMyAdmin interface. The URL is `localhost / localhost / library | phpMyAdmin 4.7.8 - Mozilla Firefox`. The main title is 'Importing into the database "library"'.

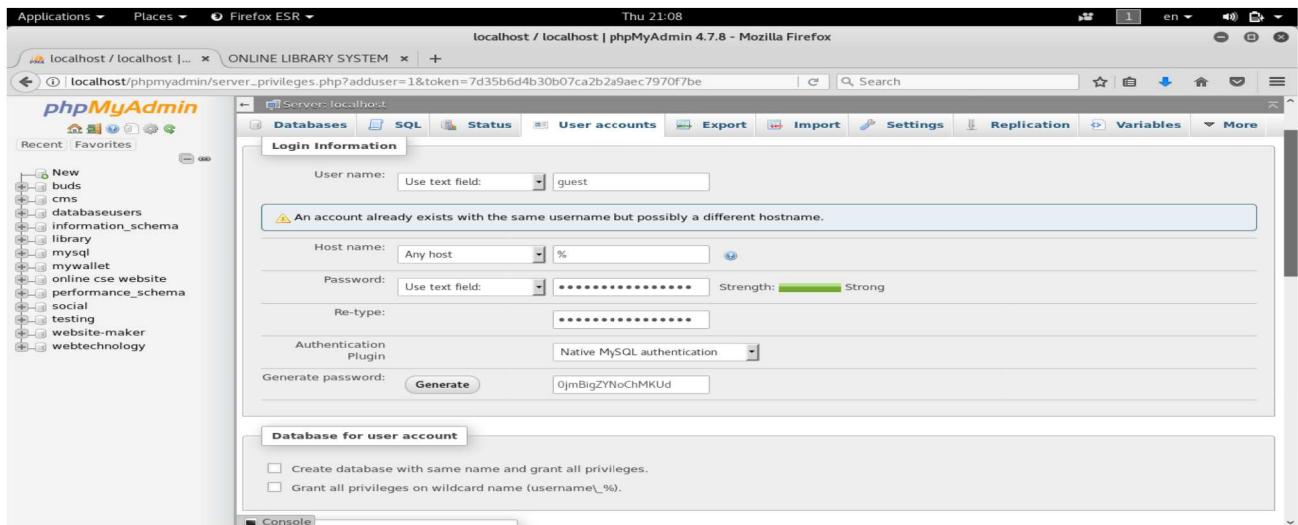
**File to import:**  
 File may be compressed (gzip) or uncompressed.  
 A compressed file's name must end in **[format].[compression]**. Example: `.sql.zip`  
 Browse your computer:  `library.sql` (Max: 2,048KIB)  
 You may also drag and drop a file on any page.  
 Character set of the file:

**Partial import:**  
 Allow the interruption of an import in case the script detects it is close to the PHP timeout limit. (This might be a good way to import large files, however it can break transactions.)  
 Skip this number of queries (for SQL) starting from the first one:

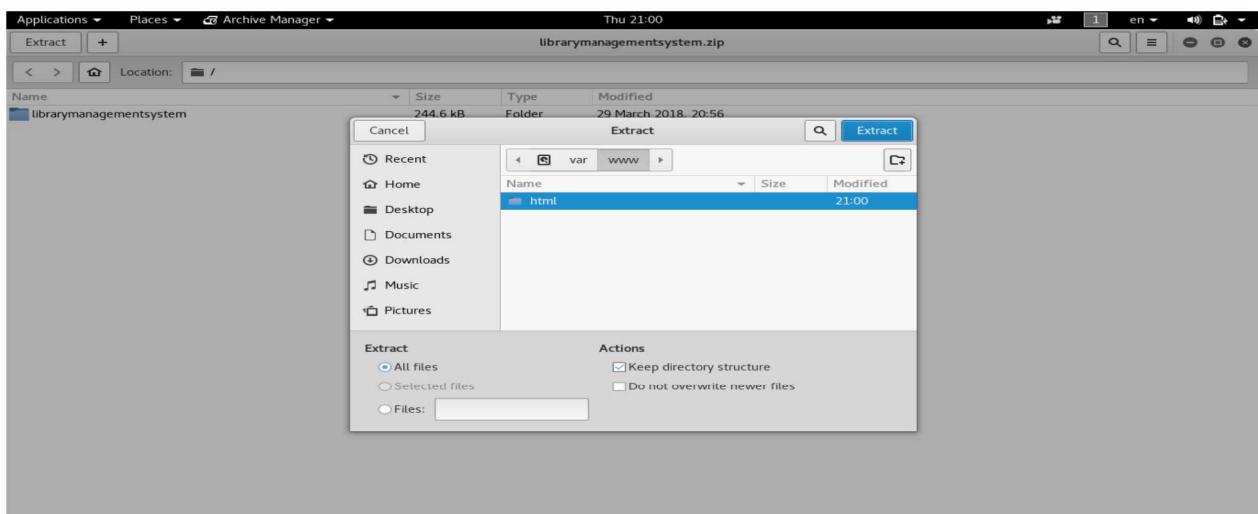
**Other options:**  
 Enable foreign key checks

**Format:**  
 Console

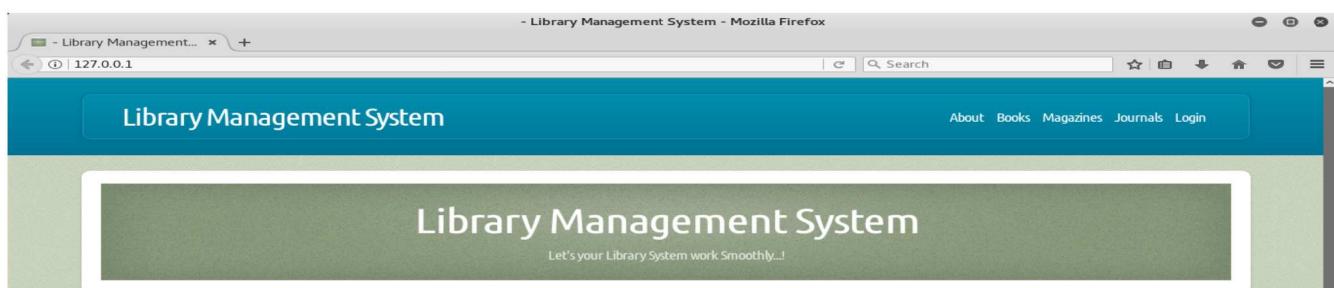
1. Adding users – “*guest, student, teacher and admin*” to ‘library’ database with specified privileges.



2. Extracting the ‘Library Management System’ webpages to the web-server’s root folder.



3. Verifying the system.



## MAINTENANCE

The system has undergone testing and debugging in most of the possible ways, but as specified by experts, the Debugging always have 2 outcomes:-

- 1.** The cause will be found and corrected.
- 2. The cause will never be found but will appear magically anytime & anywhere, which no one could predict.**

So there must be a Maintenance System, for any system. The “*Library Management System*”, has been developed in such a way that requires minimum maintenance. Most of the time if failure occurs, the system can be restarted by restarting the database service and web-server service.



Fig: To restart services of Apache and MySQL.

\* *The administrator also has the privilege to login to the database using UI tool like PhpMyAdmin, and may correct the database if required at the time of maintenance.*

The screenshot shows the phpMyAdmin interface for the 'library' database. The left sidebar lists tables: admin, admin\_login, books, book\_author, event, journals, magazines, student, student\_contact, student\_issue, student\_login, teacher, teacher\_contact, teacher\_issue, teacher\_login. The main area shows the structure of the 'journals' table, which has 9 rows and 15 columns. The columns are: id (Type: int(11), Collation: latin1\_swedish\_ci, Size: 4), date (Type: date, Collation: latin1\_swedish\_ci, Size: 10), issue (Type: int(11), Collation: latin1\_swedish\_ci, Size: 4), page (Type: int(11), Collation: latin1\_swedish\_ci, Size: 4), title (Type: varchar(255), Collation: latin1\_swedish\_ci, Size: 255), author (Type: varchar(255), Collation: latin1\_swedish\_ci, Size: 255), publisher (Type: varchar(255), Collation: latin1\_swedish\_ci, Size: 255), price (Type: float, Collation: latin1\_swedish\_ci, Size: 10,0), quantity (Type: int(11), Collation: latin1\_swedish\_ci, Size: 4), status (Type: enum('Available','Borrowed'), Collation: latin1\_swedish\_ci, Size: 1), category (Type: enum('Fiction','Non-Fiction'), Collation: latin1\_swedish\_ci, Size: 1), genre (Type: enum('Mystery','Science Fiction','Romance','Thriller'), Collation: latin1\_swedish\_ci, Size: 1), rating (Type: float, Collation: latin1\_swedish\_ci, Size: 10,2), and remarks (Type: text, Collation: latin1\_swedish\_ci, Size: 65535).

## **RESULT & ANALYSIS**

***“The Result can be obtained and analysed in its best way by Feasibility Study...”***

### **Feasibility Study**

This study is to get better understanding of problems and reasons by studying existing system, if available.

- are there feasible solutions?
- is the problem worth solving?

This in detail includes:

- Consider different alternatives.
- Estimate costs and benefits for each alternatives.
- Essentially covers other steps for methodology (analysis, design, etc.) in a ‘capsule’ form.
- Make a formal report and present it to management and users, review here confirms the following:
  - will alternatives be acceptable
  - are we solving the right problems
  - does any solution promise a significant return
- users/management select the alternative

#### **1. Technical Feasibility:**

- a) Understand the different technologies involved in the proposed system.

Ans: All the technologies involved are open source.

- b) Find out whether the organization currently possesses the required technologies.

Ans: Most organizations like college/institutes/schools already has at least 1 computer-system for librarian. The “*Library Management System*”, can be installed there using all open-source tools.

#### **2. Operational Feasibility:**

- a) Is there sufficient support for the project from management from users?

Ans: Every one want their processes to run smoothly in a simple automated way having security, integrity & durability over their data.

- b) Are the current business methods acceptable to the user?

Ans: This is one of the cheapest mode.

## 1. Economic Feasibility

### a) Costs:

- One-time initial costs include equipment, training, software development, consultation, site-preparation.
- Recurring costs includes salaries, supplies, maintenance, rentals, depreciation.
- Fixed and variable costs- might vary with volume of workload

### b) Benefits:

- Benefits could be tangible (i.e., quantifiable) or intangible.
- Saving tangible benefits could include:
  - Saving in salaries.
  - Saving in material or inventory costs.
  - More production.
  - Reduction in operational costs, etc.

## RESULT SNIPPETS

The screenshot shows a Mozilla Firefox browser window with the title "About - Library Management System - Mozilla Firefox". The address bar shows the URL "127.0.0.1/about.php". The page content is as follows:

**Library Management System**

**About**

A one roof where you can get all your works of library being digital.

**CONTENTS**

- [Registering Yourself](#)
- [Logging into your Account](#)
- [Issuing / Returning a Book](#)
- [Changing Your Password](#)

**Books**

List of all books available.

<<<— Kindly keep the books in the proper line and floor after use.—>>>

Brand	ID	Title	Status	Authors	Publication	Edition	Line	Floor
mba	23020	Managerial Economics and Financial Analysis	Available : Reference	A R Aryasri	Tata McGraw Hill	2	2	2
cse	24179	web technologies	Available	ga	Oxford	4	0	0
cse	17312	UML 2 Toolkit	Available	Brain Lyons, David Fado, Hans-Erik Eriksson, Magnus Penker	Wiley	2	0	0
cse	25875	software testing techniques	Available	None	Dreamtech	2	0	0
cse	2252	DISTRIBUTED SYSTEM	Available	George Coulouris, Jean Dollimore	Pearson	2	0	0
cse	8639	Cryptography and Network Security	Available	William Stallings	Pearson	4	0	0
cse	25121	computer system architecture	Available	m. morris mano	pearson	3	0	0
	127.0.0.1/books.php	digital electronics	Available	moriss mano		0	0	0

**Magazines**

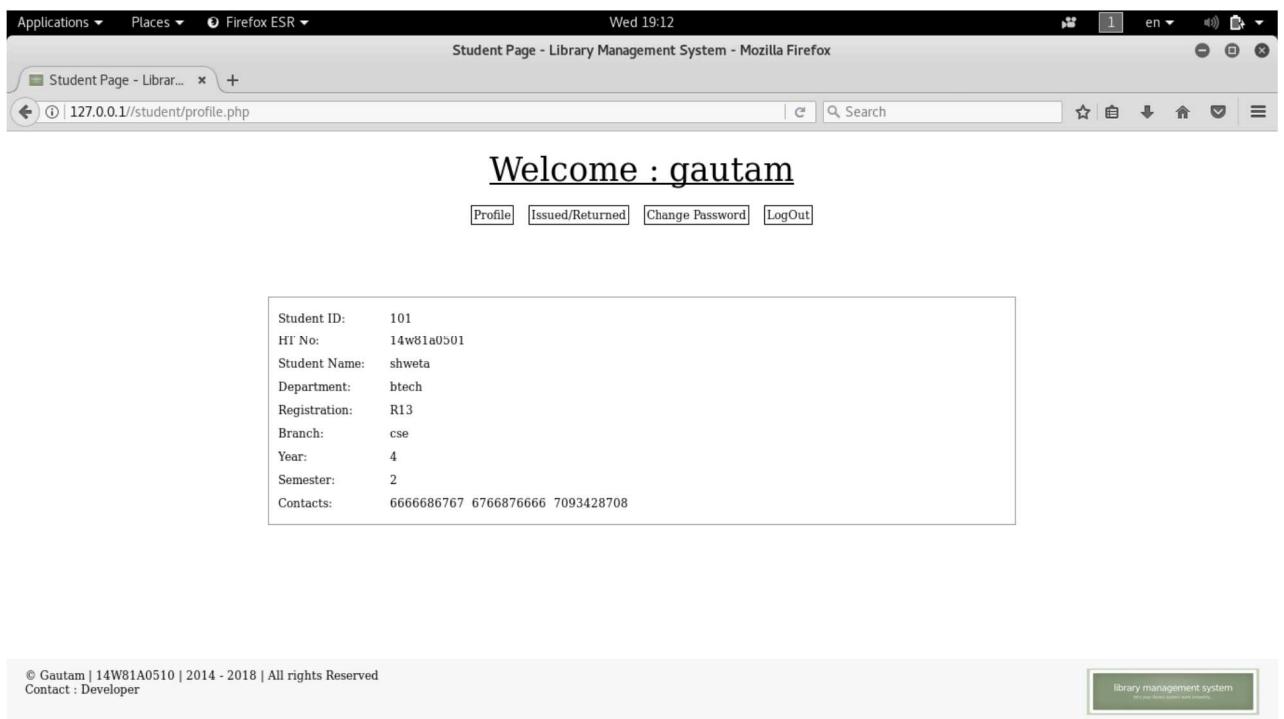
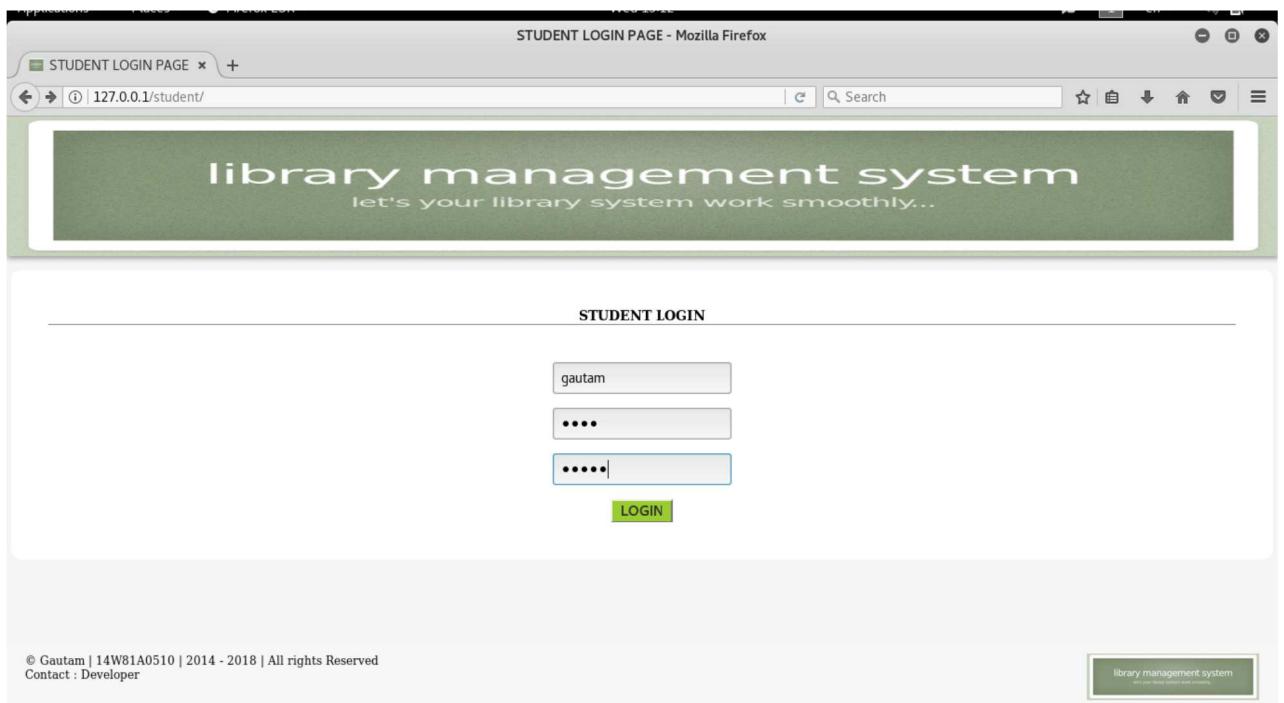
List of all magazines.

Published On	Title	ID	Publication	Edition	Volume	Issue
2018-04-11	pratiyogita darpan	87342	hindustan times	73	87	34
2017-01-10	employment news	67980	govt of india	7	89	32

**Journals**

List of all journals.

Published On	Title	ID	Publication	Edition	Volume	Issue
2018-04-11	isro weekly journal	234882	isro	66	5	36
2018-01-11	computer security	234879	ieee	78	23	16



**Books Issued / Returned**

Book ID	Title	Issued On
23021	Managerial Economics and Financial Analysis	2018-04-10 04:59:46

**Returned Books History**

Book ID	Title	Issued Date	Returned Date
23021	Managerial Economics and Financial Analysis	2018-04-10 04:59:46	2018-04-10 20:06:01

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Contact : Developer

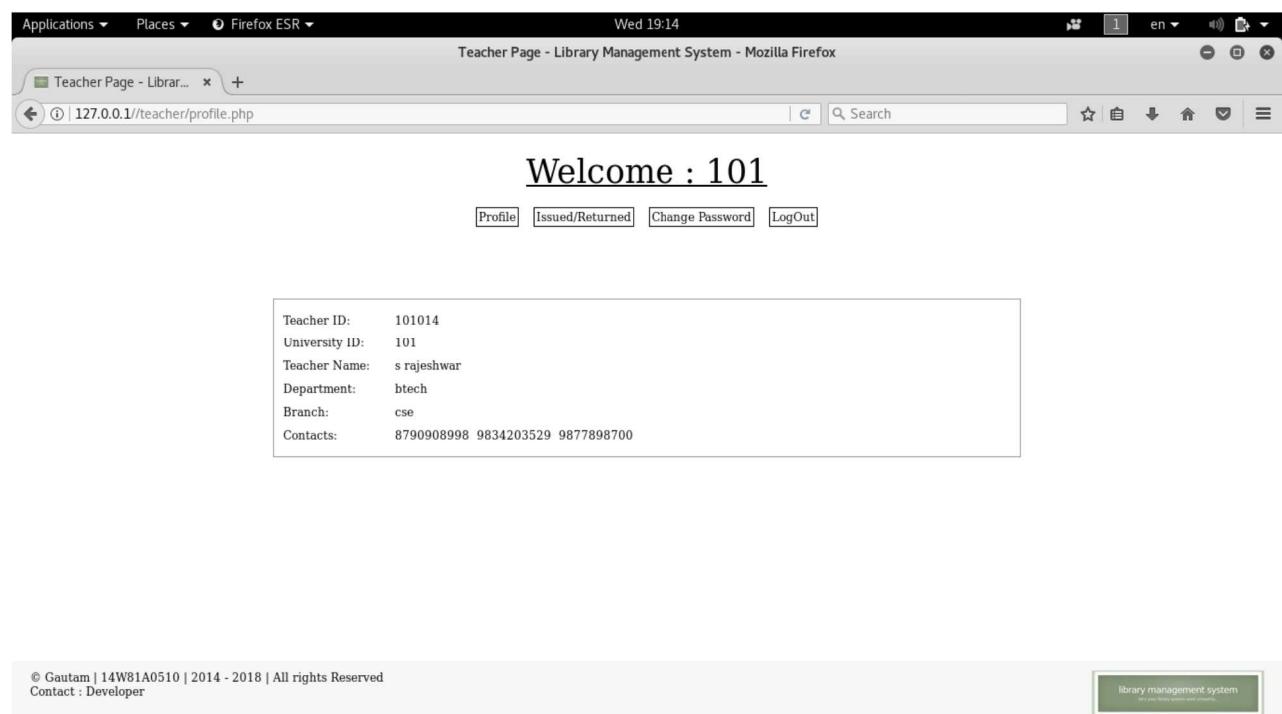
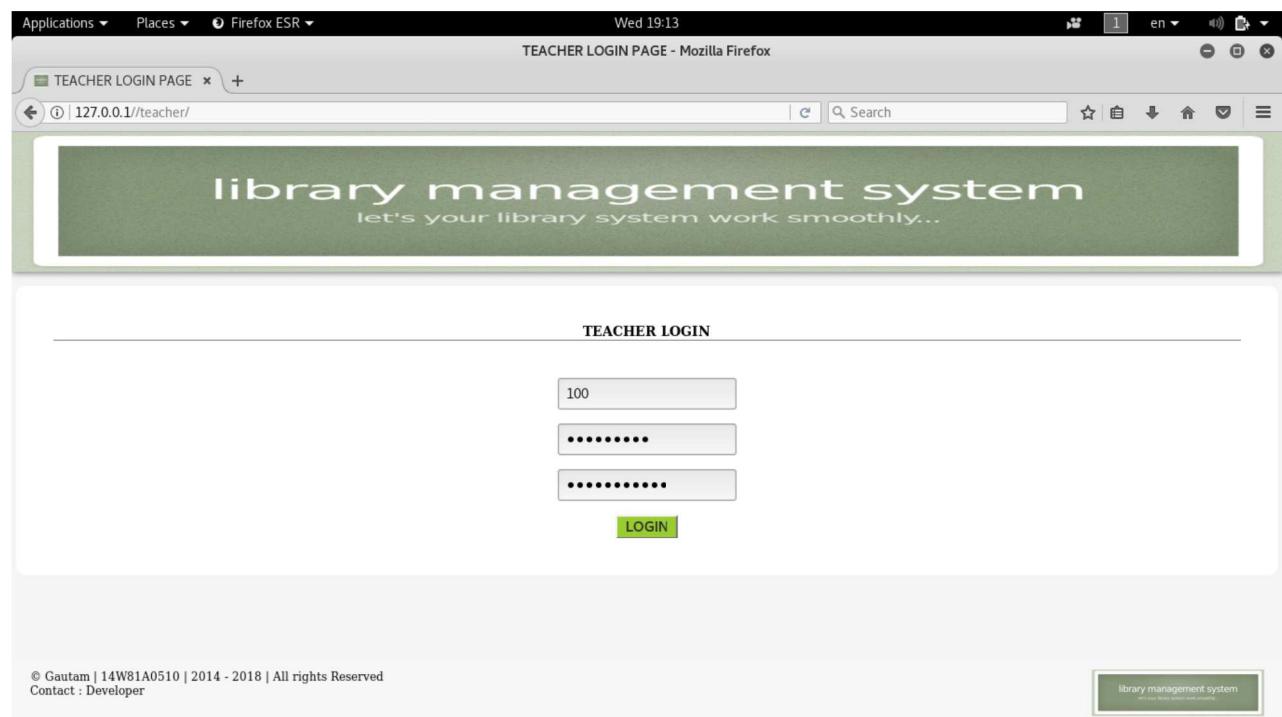
**Change Your Password**

Profile   Issued/Returned   Change Password   LogOut

Password Changed !

Enter New Password
Repeat New Password
Change Now

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Contact : Developer



The screenshot shows a Firefox browser window titled "Teacher Page - Library Management System - Mozilla Firefox". The URL in the address bar is "127.0.0.1//teacher/issret.php". The page displays two tables: "Issued Books" and "Returned Books History".

Book ID	Title	Issued On
200	chemistry	2018-04-11 03:03:18
200	chemistry	2018-04-11 02:36:04
300	digital electronics	2018-04-11 01:29:40

Book ID	Title	Issued Date	Returned Date
200	chemistry	2018-04-11 16:50:04	
200	chemistry	2018-04-11 02:36:33	
300	digital electronics	2018-04-11 01:29:57	

At the bottom left, it says "© Gautam | 14W81A0510 | 2014 - 2018 | All rights Reserved Contact : Developer". At the bottom right, there is a logo for "library management system".

The screenshot shows a Firefox browser window titled "LIBRARIAN LOGIN PAGE - Mozilla Firefox". The URL in the address bar is "127.0.0.1/librarian/". The page features a header with the text "library management system" and "let's your library system work smoothly...". Below the header is a "LIBRARIAN LOGIN" form with fields for "admincse" and a password (represented by dots). A green "LOGIN" button is at the bottom.

At the bottom left, it says "© Gautam | 14W81A0510 | 2014 - 2018 | All rights Reserved Contact : Developer". At the bottom right, there is a logo for "library management system".

Welcome to the Librarian Page

The librarian can manage the database from here.

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Contact : Developer

Issued / Returned Books History

Add Book

Branch	ID	Title	Reference	Status	Authors	Publication	Edition	Price	Line	Floor	Last Modified	Action	Issue to
cse	24179	web technologies	NO	Available	ga	Oxford	4	410.00	0	0	2018-04-11 03:23:30	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>	Student Teacher
cse	17312	UML 2 Toolkit	NO	Available	Brain Lyons, David Fado, Hans-Erik Eriksson, Magnus Penker	Wiley	2	429.00	0	0	2018-04-10 04:21:36	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>	Student Teacher
cse	25875	software testing techniques	NO	Available	None	Dreamtech	2	350.00	0	0	2018-04-03 18:06:29	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>	Student Teacher
cse	2252	DISTRIBUTED SYSTEM	NO	Available	George Coulouris, Iain	Pearson	2	0.00	0	0	2018-04-10 04:26:22	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>	Student Teacher

The screenshot shows a Firefox browser window titled "Librarian Page - Library Management System - Mozilla Firefox". The URL in the address bar is "127.0.0.1/librarian/managemagazines.php". The page header includes "Manage Magazines" and navigation links for Home, BOOKS, STUDENTS, TEACHERS, JOURNALS, MAGAZINES, and LogOut. Below the header is a table titled "Add Magazine" with two rows of data:

Published On	Title	ID	Publication	Edition	Volume	Issue	Price	Number of Copies	Action
2018-04-11	pratiyogita darpan	87342	hindustan times	73	87	34	34789.00	8	<a href="#">View</a>   <a href="#">Edit</a>   <a href="#">Delete</a>
2017-01-10	employment news	67980	govt of india	7	89	32	7.00	5	<a href="#">View</a>   <a href="#">Edit</a>   <a href="#">Delete</a>

At the bottom of the page, there is a footer with copyright information: "© Gautam | 14W81A0510 | 2014 - 2018 | All rights Reserved" and "Contact : Developer". A "library management system" logo is also present.

The screenshot shows a Firefox browser window titled "Librarian Page - Library Management System - Mozilla Firefox". The URL in the address bar is "127.0.0.1/librarian/edit\_book.php?edit=24179". The page header includes "Edit Book" and navigation links for Home, BOOKS, STUDENTS, TEACHERS, JOURNALS, MAGAZINES, and LogOut. Below the header is a form for editing a book record with ID 24179:

**Book Id: 24179**

*Title:	web technologies	
*Authors:	ga Author 3 Author 5	Author 2 Author 4
*Status:	Available	
*Reference ?	<input checked="" type="radio"/> NO <input type="radio"/> YES	
*Publication:	Oxford	
*Edition:	4	
*Branch:	<input checked="" type="radio"/> CSE <input type="radio"/> ECE <input type="radio"/> EEE <input type="radio"/> CIVIL <input type="radio"/> MECH <input type="radio"/> MBA <input type="radio"/> H&S <input type="radio"/> OTHER	
*Price:	410.00	
*Line:	0	
*Floor:	0	
<input type="button" value="Save"/> <input type="button" value="back to lists"/>		

Applications ▾ Places ▾ Firefox ESR ▾

Wed 19:52

Librarian Page - Library Management System - Mozilla Firefox

Librarian Page - Librar... +

127.0.0.1//librarian/view\_book.php?bid=24179

Search

View Book

Home BOOKS STUDENTS TEACHERS JOURNALS MAGAZINES LogOut

Book ID:	24179
Title:	web technologies
Authors:	ga
Status:	Available
Reference:	no
Publication:	Oxford
Edition:	4
Branch:	cse
Price:	410.00
Line:	0
Floor:	0
Last Modified:	2018-04-11 03:23:30

Edit Delete back to lists

**Issued History**

Student ID	Issued Date	Returned Date
89236	2018-04-11 01:29:08	2018-04-11 01:31:08

Applications ▾ Places ▾ Firefox ESR ▾

Wed 19:52

Librarian Page - Library Management System - Mozilla Firefox

Librarian Page - Librar... +

127.0.0.1//librarian/return\_student.php?edit=89236

Search

Return Book from Student

Home BOOKS STUDENTS TEACHERS JOURNALS MAGAZINES LogOut

Student ID:	89236
HT Number:	16w81a0901
Student Name:	raju
*Book ID:	---Select Book ID---
*Student's Password:	

Return back to lists

**Books Already Issued and Returned**

Book ID	Title	Issued On	Returned On
24179	web technologies	2018-04-11 01:29:08	2018-04-11 01:31:08
8639	Cryptography and Network Security	2018-04-11 01:29:02	2018-04-11 01:31:03
200	chemistry	2018-04-11 01:28:54	2018-04-11 01:29:26

The screenshot shows a Firefox browser window titled "Librarian Page - Library Management System - Mozilla Firefox". The URL in the address bar is "127.0.0.1/librarian/issue\_student.php?edit=89236". The page header includes "Applications", "Places", and "Firefox ESR". The main content area has a title "Issue Book to Student" and a navigation menu with links to "Home", "BOOKS", "STUDENTS", "TEACHERS", "JOURNALS", "MAGAZINES", and "LogOut". Below the menu is a form with fields for "Student ID" (89236), "HT Number" (16w81a0901), "Student Name" (raju), "Book ID" (dropdown menu showing "---Select Book ID---"), "Student's Password" (text input), and two buttons "Issue" and "back to lists". At the bottom, a section titled "Books Already Issued" displays a table with columns "Book ID", "Title", and "Issued On". The footer contains copyright information: "© Gautam | 14W81A0510 | 2014 - 2018 | All rights Reserved" and "Contact : Developer". A logo for "library management system" is also present.

The screenshot shows a Firefox browser window titled "- Library Management System - Mozilla Firefox". The URL in the address bar is "127.0.0.1/contact-me.php". The page header includes "Applications", "Places", and "Firefox ESR". The main content area features a blue header bar with the text "Library Management System" and navigation links for "About", "Books", "Magazines", "Journals", and "Login". Below the header is a section titled "Contact Me" containing a form with fields for "Name", "Email", "Subject", and "Message", each with a corresponding text input box. A "send" button is located at the bottom of the form. The right side of the page has a vertical scrollbar.

## **CONCLUSION & BIBLIOGRAPHY**

### **CONCLUSION**

This Library Management System is one in all tool that is capable to overcome all the failures of previous systems, with a high economic, cost & technology feasibility. That could be easily implemented and maintained. This system is highly scalable and can be turned to different views with minor changes in no time. This system also provides a high level of security over data. This system is very must resistant to failures and is highly durable with a lot of options of recovery.

This is one of the best system for Library use till date.

### **BIBLIOGRAPHY & REFERENCES**

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