

St. Joseph's College of Engineering and Technology Palai

CST204 | Database Management Systems

GROUP PROJECT

LIBRARY MANAGEMENT SYSTEM

lms Program report

Group 5

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Contents

✚ Introduction	3
✚ Problem Statement	4
✚ Requirements	5
✚ Schema Diagram	6
✚ Project Overview	7
● LMS	7
● Admin	8
● Student	14
● Faculty	17
● Database	18
✚ About us	19
✚ A Glance to our project	20
✚ Conclusion	21
✚ Appendix	22

Introduction

Our project library management system is a complete DBMS-based solution for data management for a library. This system efficiently maintains, organizes, and handles countless books systematically to implement a library management interface. This system is to provide instant and accurate data regarding any type of book, thereby saving a lot of time and effort.

The main objective of the project is

- To develop a library data management system with logins for admin, faculty and student.

Problem Statement

Library Data Management

If you're an avid reader, then chances are, you must've gone to a library. And you may already know how many books a library has to keep track of. Libraries don't have a lot of staff, but they have to keep a record of all the books they have and the books they have lent. You can simplify the management of a library's data.

You should start with students and faculties, i.e., people can get books from the library. Now, there would be a significant difference between the number of books a student can get and the number of books a faculty can get. So, add those limits in your system as well. Then, every book would have a unique ID.

Books with the same title and author would have different IDs according to their copies. You'll have to add entries for every book. And then, add the details of who issued the book and when with the duration of their ownership. Your DBMS-based solution should also have details on the books that people haven't returned and the due fines.

Requirements

Functional Requirements:

The users are required to enter user id and password before they are allowed to enter the system. The user id and password is verified with the database to enter the system.

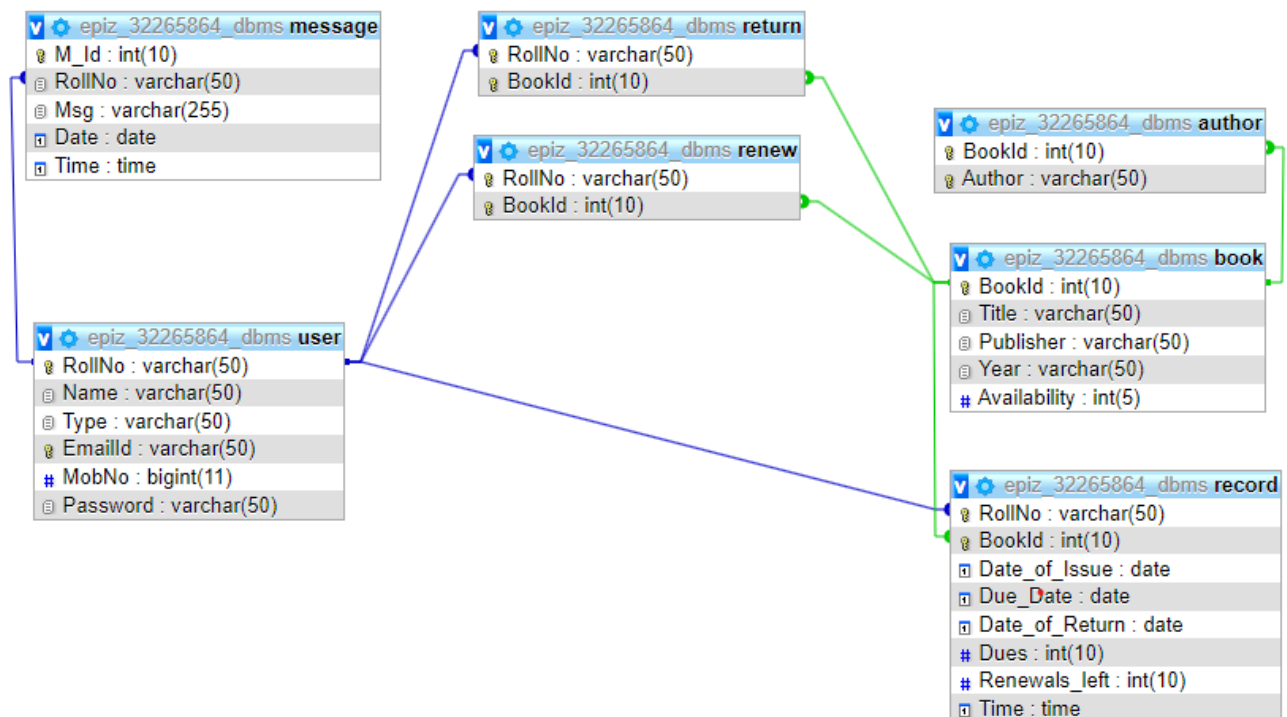
- User account is provided when they register
- The system must only allow user with unique valid id and password to enter the system
- The system performs an authorization process which decides what user level can access to.
- The user must be able to logout after they finished using the system.

System Requirements:

The website can be accessed on any device with browser support with backend or internet service.

- PC / Phone
- Web Browser
- My SQL
- local database / Internet Connection

Schema Diagram



Project Overview

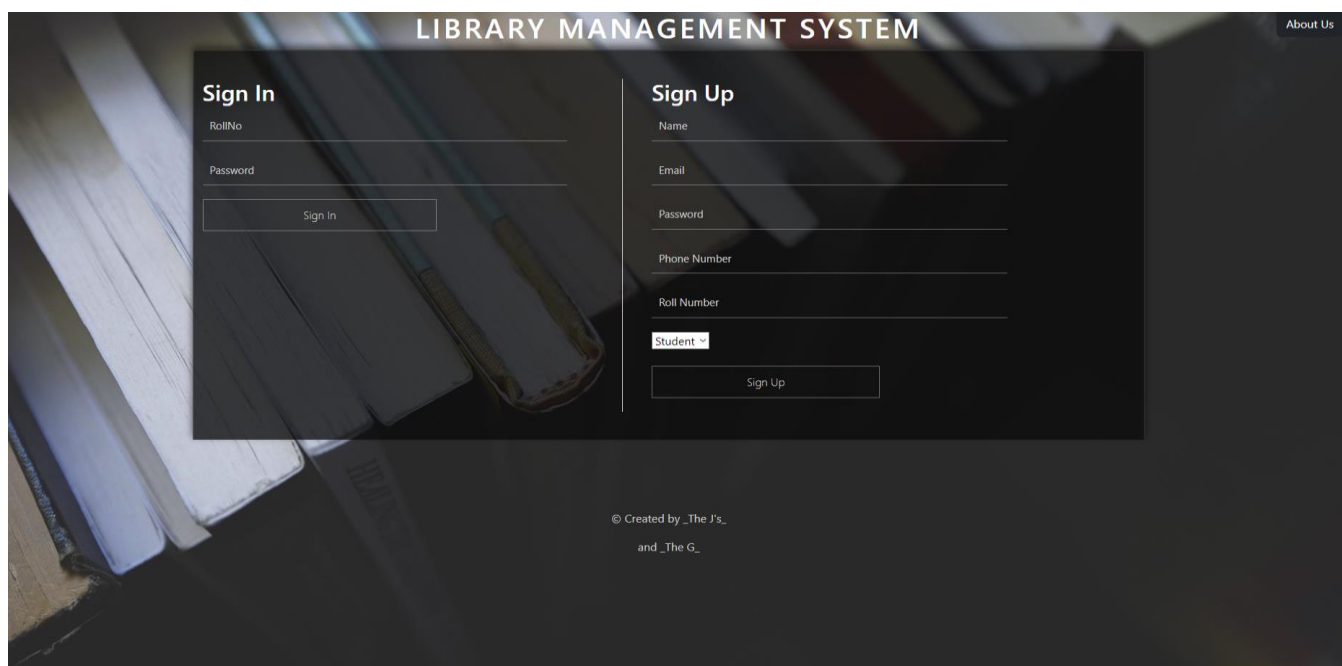
LMS:

The library management system is designed to manage all the functions of a library. It helps librarians to maintain the database of new books and the books that are borrowed by members along with their due dates.

This system efficiently maintains, organizes, and handles countless books systematically to implement a library management interface.

The system allows the Admin/Librarian to track the records of the number of books in the library, how many books are issued, or how many books have been returned or renewed or late fine charges, etc.

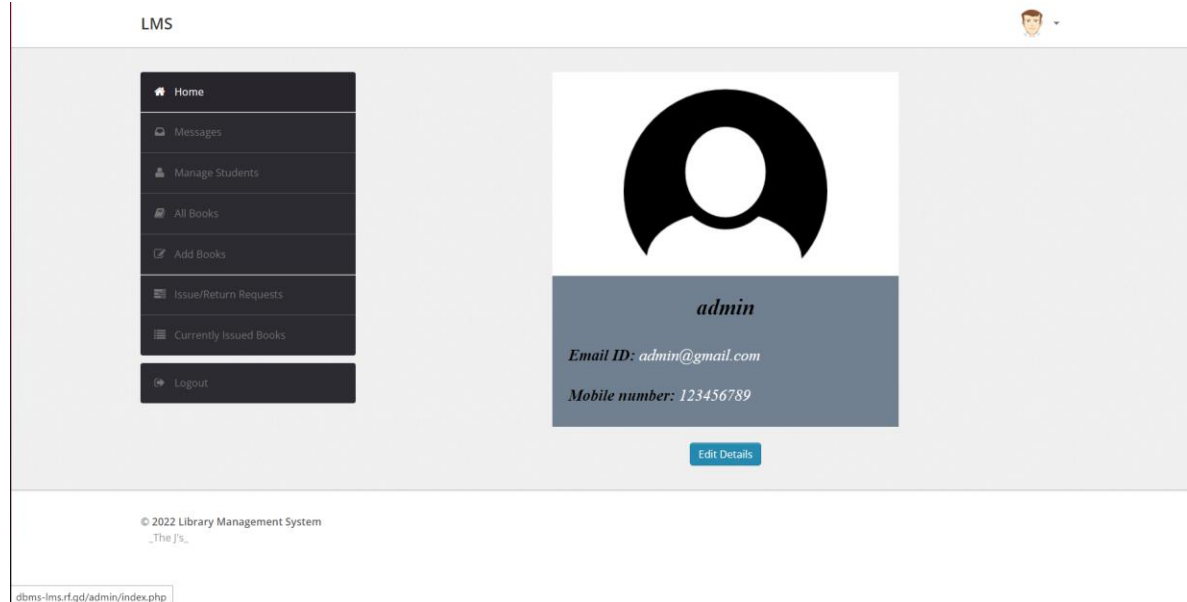
You can find books in an instant, issue/reissue books quickly, and manage all the data efficiently and orderly using this system. The purpose of a library management system is to provide instant and accurate data regarding any type of book, thereby saving a lot of time and effort.



Admin :

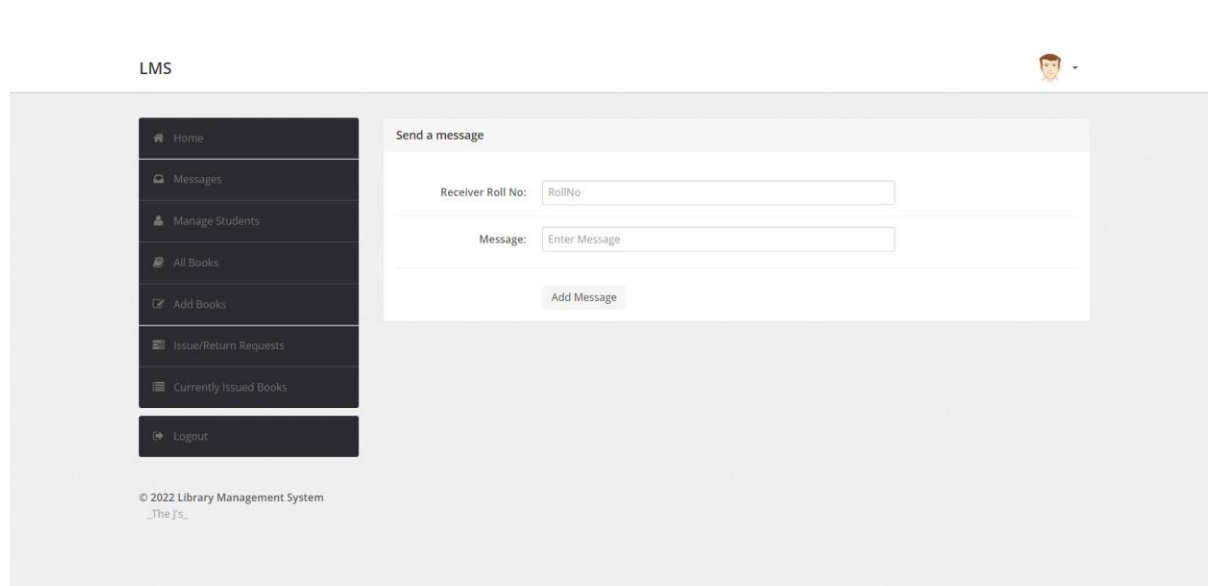
The Admin/librarian maintains the whole system. Admin manages the requests of the user to use the library system. Admin can accept or limit the requests of the students or faculty. Only the admin can modify the records in the system.

Home Page



The screenshot shows the LMS Home Page for an admin user. The page has a light gray background. On the left, there is a dark gray sidebar with a list of menu items: Home, Messages, Manage Students, All Books, Add Books, Issue/Return Requests, Currently Issued Books, and Logout. The main content area is white. At the top right, there is a small profile icon of a person. In the center, there is a large black silhouette of a person's head and shoulders. Below this, there is a blue box containing the text: **admin**, *Email ID: admin@gmail.com*, and *Mobile number: 123456789*. Below the blue box is a blue button labeled "Edit Details". At the bottom left, there is a copyright notice: "© 2022 Library Management System _The j's_". At the bottom left, there is a URL: "dbms-lms.ft.gd/admin/index.php".

Message Page



The screenshot shows the LMS Message Page for an admin user. The page has a light gray background. On the left, there is a dark gray sidebar with a list of menu items: Home, Messages, Manage Students, All Books, Add Books, Issue/Return Requests, Currently Issued Books, and Logout. The main content area is white. At the top right, there is a small profile icon of a person. In the center, there is a white box with a light gray border. Inside the box, there is a form titled "Send a message". The form has two input fields: "Receiver Roll No:" with a placeholder "RollNo" and "Message:" with a placeholder "Enter Message". Below the input fields is a gray button labeled "Add Message". At the bottom left, there is a copyright notice: "© 2022 Library Management System _The j's_".

- In this page the admin can send messages to a specific user.

Manage User Details Page

LMS

Search: Search

Name	Roll No.	Email id	
Jimmy	20cs068	jimjo13@gmail.com	Details
Jerry	30	jerry@123.com	Details
John	b160001cs	john@gmail.com	Details
Adam	b160002cs	adam@yahoo.com	Details
Alice	b160003ch	alice@hotmail.com	Details
Abbot	b160004me	abbot@gmail.com	Details
bale	b160005ce	bale@gmail.com	Details
Bob	b160006cs	bob@gmail.com	Details
Goku	b160007cs	goku@yahoo.com	Details
Ben	b160008cs	ben10@hotmail.com	Details
Ash	b160009cs	ash@yahoo.com	Details
Harry	b160010cs	harry@hotmail.com	Details
Gwen	b160011ch	gwen@yahoo.com	Details

dbms-lms.rf.gd/admin/student.php

- In this page the Admin can get the details of any student or faculty.
- The Admin can also delete the details of a student/faculty.

LMS

Student Details

Name: Jimmy


Roll No: 20cs068

Email Id: jimjo13@gmail.com

Mobile No: 8129210600

[Go Back](#)

All Books

LMS 


Search: Search

Book id	Book name	Availability	
1	OS	0	Details Edit
2	DBMS	0	Details Edit
3	TOC	4	Details Edit
4	TOC	1	Details Edit
5	DAA	0	Details Edit
6	DSA	10	Details Edit
7	Discrete Structures	10	Details Edit
8	Database Processing	12	Details Edit
9	Computer System Architecture	4	Details Edit
10	C: How to program	3	Details Edit
11	Atomic and Nuclear Systems	12	Details Edit
12	The PlayBook	12	Details Edit
13	General Theory of Relativity	5	Details Edit

dbms-lms.rf.gd/admin/book.php

- In this page the Admin can access the details of the book.
- The Admin can edit the details of the book such as availability, name, etc.

Add Books

LMS 

Add Book

Book Title

Author

Publisher

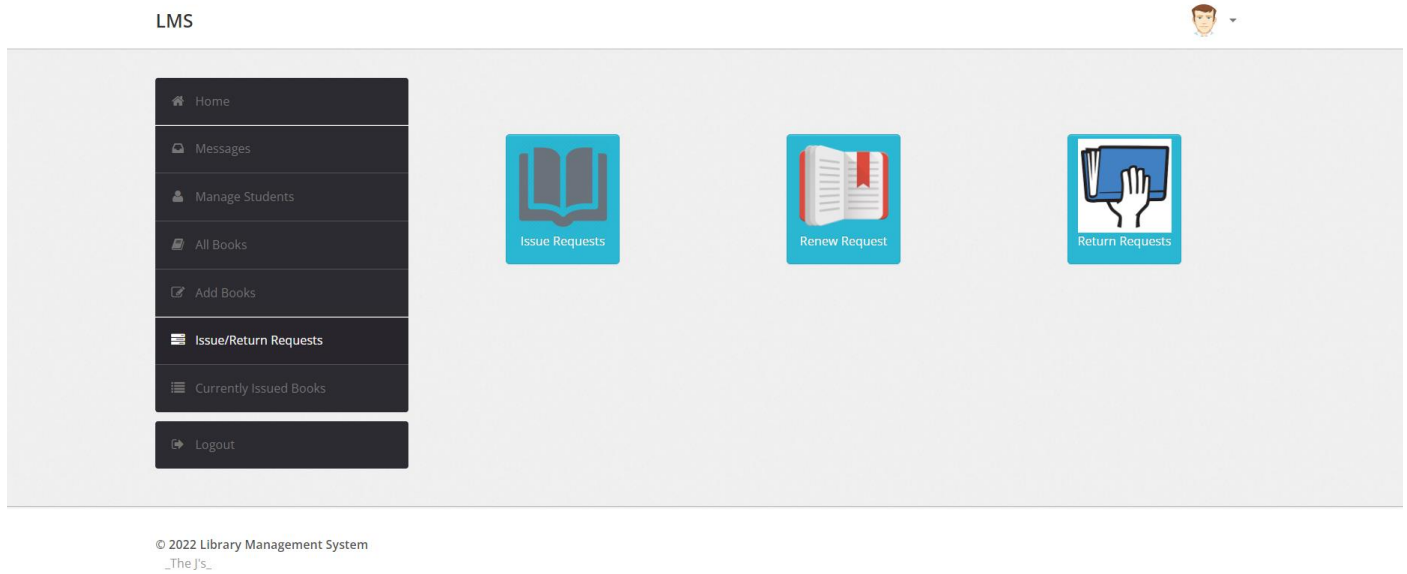
Year

Number of Copies

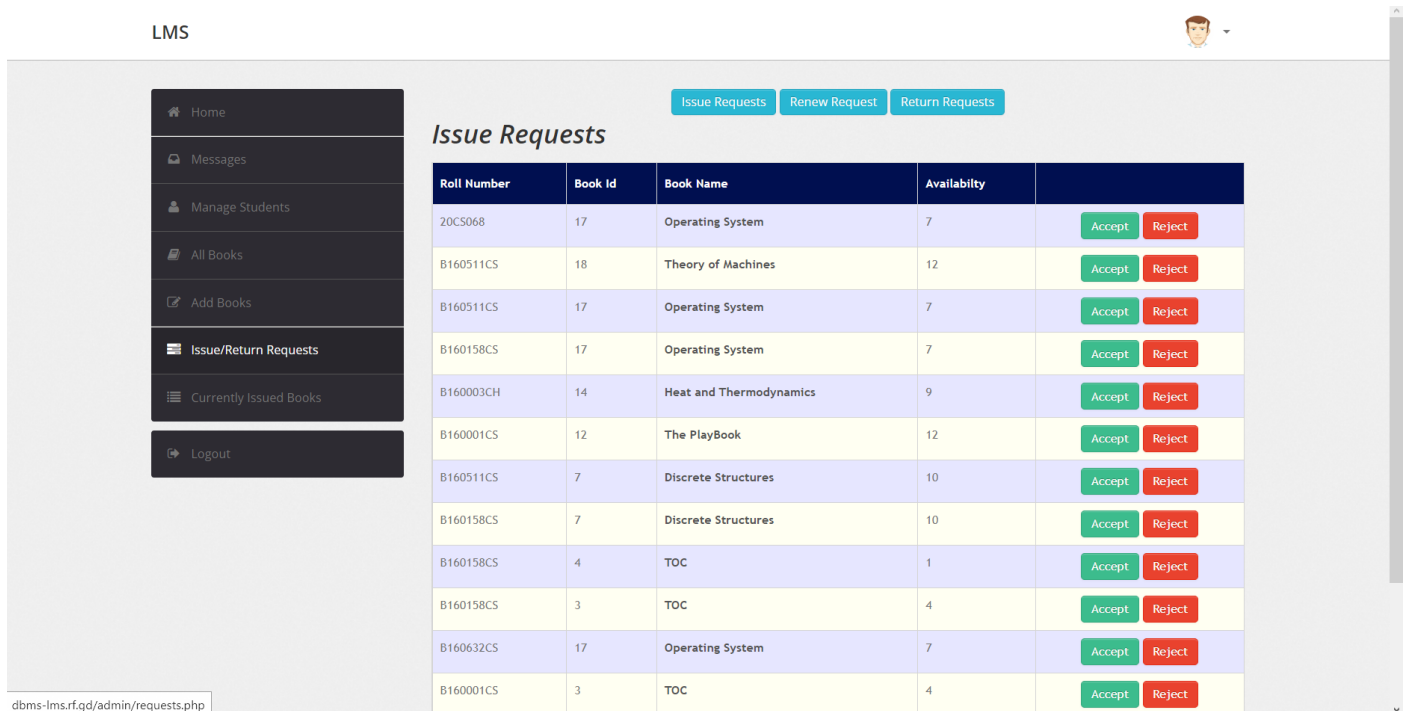
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- In this page the Admin can add a new book and enter details.

Issue/Return Requests



Issue Requests



- In this page the Admin can accept or reject issue requests sent by faculties and students.

Renew Requests

LMS



[Home](#)
[Messages](#)
[Manage Students](#)
[All Books](#)
[Add Books](#)
[Issue/Return Requests](#)
[Currently Issued Books](#)
[Logout](#)

Issue RequestsRenew RequestReturn Requests

Renew Requests

Roll Number	Book Id	Book Name	Renewals Left	
B160001CS	11	Atomic and Nuclear Systems	1	Accept
B160158CS	2	DBMS	1	Accept
B160158CS	9	Computer System Architecture	1	Accept
B160158CS	18	Theory of Machines	1	Accept
B160511CS	11	Atomic and Nuclear Systems	1	Accept

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- In this page the Admin can accept renew requests sent by faculties and students.

Return Requests

LMS



[Home](#)
[Messages](#)
[Manage Students](#)
[All Books](#)
[Add Books](#)
[Issue/Return Requests](#)
[Currently Issued Books](#)
[Logout](#)

Issue RequestsRenew RequestReturn Requests

Return Requests

Roll Number	Book Id	Book Name	Dues	
-------------	---------	-----------	------	--

- In this page the Admin can accept return requests sent by faculties and students.

Currently Issued Books

LMS



Home

Messages

Manage Students

All Books

Add Books

Issue/Return Requests

Currently Issued Books

Logout

Search:

Search

Roll No	Book id	Book name	Issue Date	Due date	Dues
20CS068	17	Operating System	2022-08-02	2022-10-01	0
30	11	Atomic and Nuclear Systems	2022-08-02	2022-10-01	0
B160001CS	9	Computer System Architecture	2022-10-25	2022-12-24	0
B160001CS	11	Atomic and Nuclear Systems	2022-10-25	2022-12-24	0
B160003CH	9	Computer System Architecture	2022-10-25	2022-12-24	0
B160011CH	10	C: How to program	2022-10-25	2022-12-24	0
B160011CH	17	Operating System	2022-10-25	2022-12-24	0
B160111CS	1	OS	2022-10-15	2022-12-14	0
B160158CS	1	OS	2022-10-15	2020-04-12	842
B160158CS	2	DBMS	2022-10-16	2022-12-15	0
B160158CS	9	Computer System Architecture	2022-10-25	2022-12-24	0
B160158CS	18	Theory of Machines	2022-10-25	2022-12-24	0
B160511CS	10	C: How to program	2022-10-25	2022-12-24	0
B160511CS	11	Atomic and Nuclear Systems	2022-10-25	2022-12-24	0
B160511CS	13	General Theory of Relativity	2022-10-25	2022-12-24	0
B160622CS	15	Machine Design	2022-10-25	2022-12-24	0

dbms-lms.rf.gd/admin/current.php

- In this page admin can see the details of the currently issued books.

Student User:

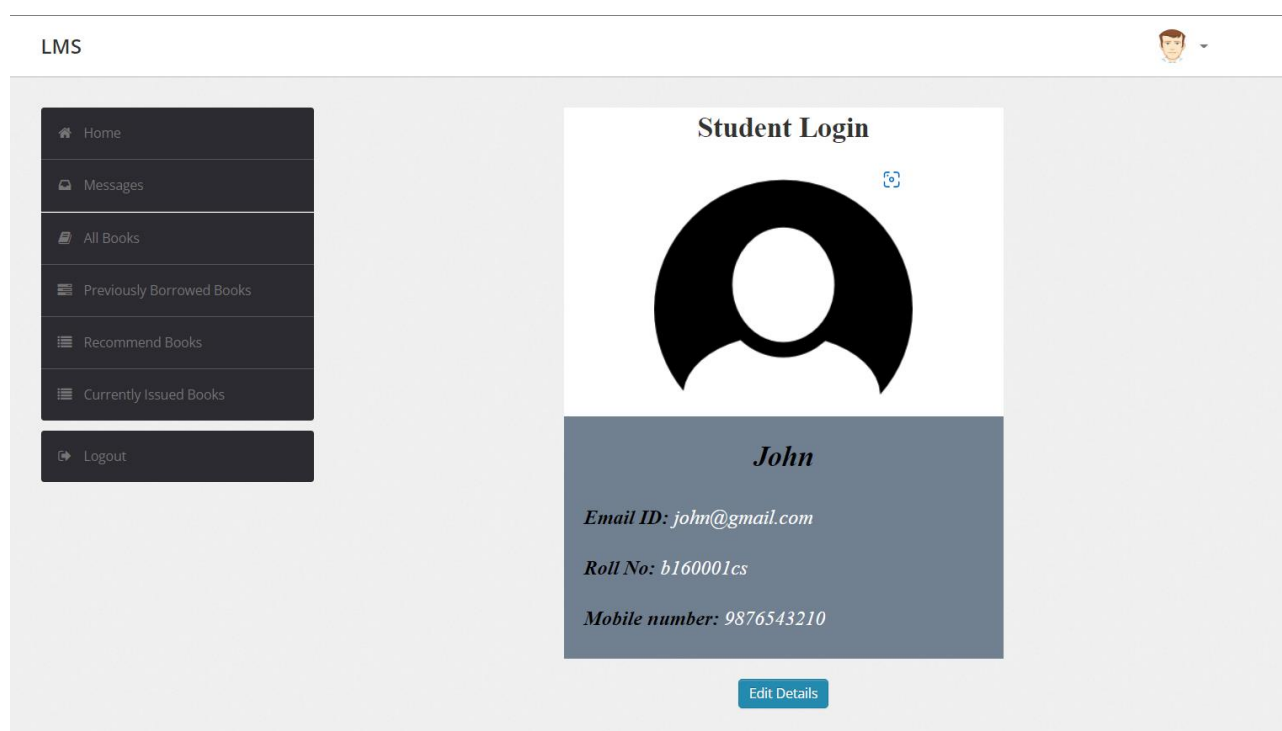
New users can register a new account using signup and existing users can login with their roll no and password.

Logged in students have access to the library management system.

The features include view messages, view all books, previously borrowed books, recommended books and currently issued books. Aso, students have restricted access to the library and have a limit in requesting more than 3 books at a time.

A student user can keep a book upto a period of 60 days. Late submission will have a fine of 60rs and increases with 1rs/day.

Home Page



- students can view and edit their details on the profile page.

Message Page

LMS



	Message		
	Message	Date	Time
	Your request for issue of BookId: 9 has been accepted	2022-10-25	23:30:41
	Your request for issue of BookId: 11 has been accepted	2022-10-25	23:27:57

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- students can see the messages received from the admin.
- Here the student can see whether their request for issue/renew/return has been approved or rejected.

All Books Page


LMS



	Search: <input type="text" value="Enter Name/ID of Book"/> <input type="button" value="Search"/>		
	You reached your limit, you can't request any more books.		
	Book id	Book name	Availability
	11	Atomic and Nuclear Systems	AVAILABLE
	18	Theory of Machines	AVAILABLE
	12	The PlayBook	AVAILABLE
	8	Database Processing	AVAILABLE
	7	Discrete Structures	AVAILABLE
	6	DSA	AVAILABLE
	14	Heat and Thermodynamics	AVAILABLE
	16	Nuclear Physics	AVAILABLE
	17	Operating System	AVAILABLE
	15	Machine Design	AVAILABLE
	13	General Theory of Relativity	AVAILABLE
	9	Computer System Architecture	AVAILABLE
	3	TOC	AVAILABLE
	10	C: How to program	AVAILABLE
	4	TOC	AVAILABLE
	5	DAA	NOT AVAILABLE
	2	DBMS	NOT AVAILABLE
	1	OS	NOT AVAILABLE

- In this page the student can get the details and check the availability of any books.
- Here they can request for a book.
- A student can only request 3 books maximum.

Previously Borrowed Books Page

LMS 

[Home](#)
[Messages](#)
[All Books](#)
[Previously Borrowed Books](#)
[Currently Issued Books](#)
[Logout](#)


Search:

Book id	Book name	Issue Date	Return Date
12	The PlayBook	2022-08-02	2022-08-02

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- The 'Previously Borrowed Books' page shows the details of the books borrowed.
- Details include Book id, Book name, Issued Date, Return Date.

Currently Issued Books Page

LMS 

[Home](#)
[Messages](#)
[All Books](#)
[Previously Borrowed Books](#)
[Currently Issued Books](#)
[Logout](#)

Search:

Book id	Book name	Issue Date	Due date	
9	Computer System Architecture	2022-10-25	2022-12-24	<input type="button" value="Renew"/> <input type="button" value="Return"/>
11	Atomic and Nuclear Systems	2022-10-25	2022-12-24	<input type="button" value="Renew"/> <input type="button" value="Return"/>

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- In this page the student gets details of the books currently issued.
- The student can also request for renew/return of issued books.


Faculty User:

Faculty have elevated privileges than student users.

Logged in faculty users have access to the library management system with no constraints like student users. Faculty have unlimited access to books without any limit.

All Books Page

LMS



Home

Messages

All Books

Previously Borrowed Books

Currently Issued Books

Logout

Search:

Book id	Book name	Availability	
11	Atomic and Nuclear Systems	AVAILABLE	<input type="button" value="Details"/> <input type="button" value="Issue"/>
18	Theory of Machines	AVAILABLE	<input type="button" value="Details"/> <input type="button" value="Issue"/>
12	The PlayBook	AVAILABLE	<input type="button" value="Details"/> <input type="button" value="Issue"/>
8	Database Processing	AVAILABLE	<input type="button" value="Details"/> <input type="button" value="Issue"/>
7	Discrete Structures	AVAILABLE	<input type="button" value="Details"/> <input type="button" value="Issue"/>
6	DSA	AVAILABLE	<input type="button" value="Details"/> <input type="button" value="Issue"/>
14	Heat and Thermodynamics	AVAILABLE	<input type="button" value="Details"/> <input type="button" value="Issue"/>
16	Nuclear Physics	AVAILABLE	<input type="button" value="Details"/> <input type="button" value="Issue"/>
17	Operating System	AVAILABLE	<input type="button" value="Details"/> <input type="button" value="Issue"/>
15	Machine Design	AVAILABLE	<input type="button" value="Details"/> <input type="button" value="Issue"/>
13	General Theory of Relativity	AVAILABLE	<input type="button" value="Details"/> <input type="button" value="Issue"/>
9	Computer System Architecture	AVAILABLE	<input type="button" value="Details"/> <input type="button" value="Issue"/>
3	TOC	AVAILABLE	<input type="button" value="Details"/> <input type="button" value="Issue"/>
10	C: How to program	AVAILABLE	<input type="button" value="Details"/> <input type="button" value="Issue"/>
4	TOC	AVAILABLE	<input type="button" value="Details"/> <input type="button" value="Issue"/>
5	DAA	NOT AVAILABLE	<input type="button" value="Details"/>
2	DBMS	NOT AVAILABLE	<input type="button" value="Details"/>
1	OS	NOT AVAILABLE	<input type="button" value="Details"/>

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- In this page the faculty can get details of the books in the system.
- The faculty can request more than 3 books.
- All other access is the same as the student user.

Database using MYSQL

A glance to the tables in the local database created using SQL queries.

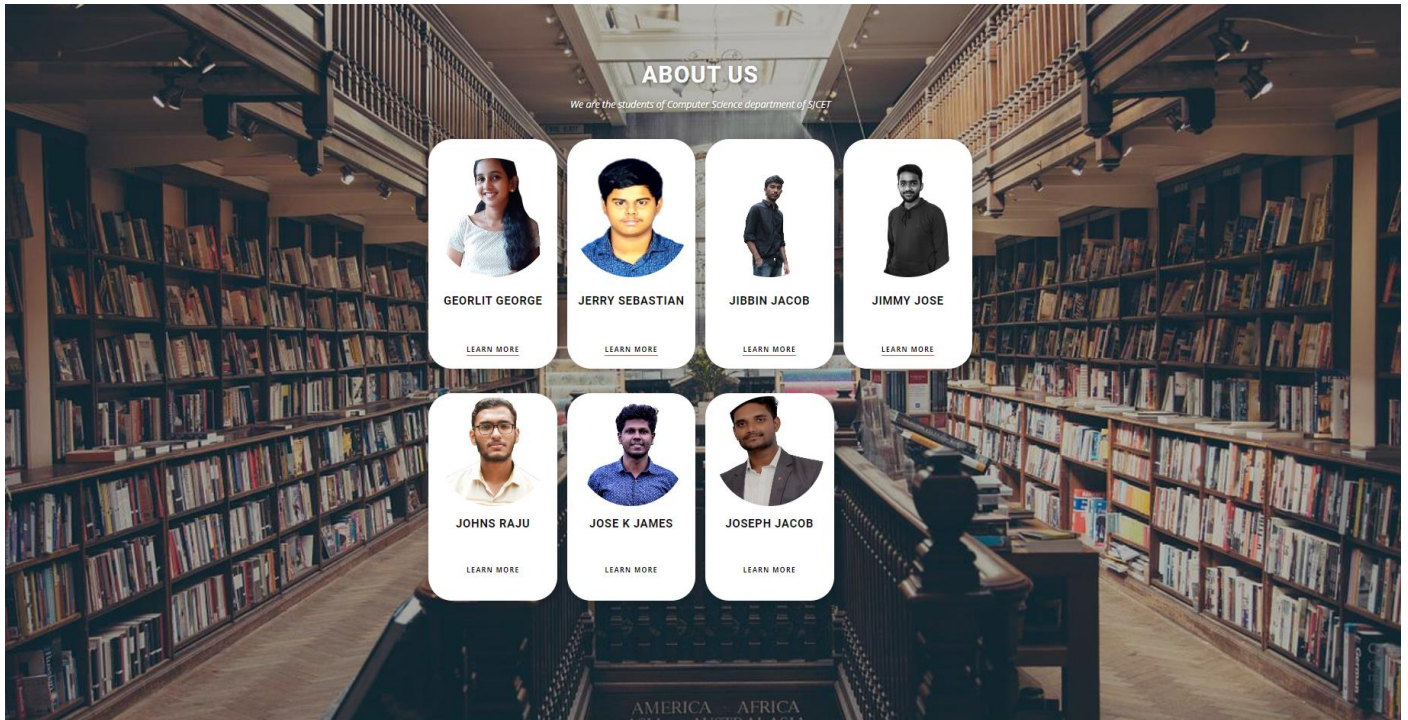
There are 7 different tables to handle the management system.

Database serves the request from the front-end to modify or fetch the data.

The screenshot displays the phpMyAdmin interface for a database named 'Ims'. The left sidebar shows the database structure, including 'college', 'information_schema', 'Ims', 'mysql', 'performance_schema', 'phpmyadmin', and 'test'. The 'Ims' database is selected, and the 'Structure' tab is active. The main panel shows a list of 7 tables: author, book, message, record, renew, return, and user. Each table has a set of actions (Browse, Structure, Search, Insert, Empty, Drop) and a star icon. The table 'author' has 21 rows, 'book' has 18 rows, 'message' has 33 rows, 'record' has 29 rows, 'renew' has 5 rows, 'return' has 5 rows, and 'user' has 28 rows. The total size of the database is 192.0 KiB.

Table	Action	Rows	Type	Collation	Size
<input type="checkbox"/> author	★ Browse Structure Search Insert Empty Drop	21	InnoDB	latin1_swedish_ci	16.0 KiB
<input type="checkbox"/> book	★ Browse Structure Search Insert Empty Drop	18	InnoDB	latin1_swedish_ci	16.0 KiB
<input type="checkbox"/> message	★ Browse Structure Search Insert Empty Drop	33	InnoDB	latin1_swedish_ci	32.0 KiB
<input type="checkbox"/> record	★ Browse Structure Search Insert Empty Drop	29	InnoDB	latin1_swedish_ci	32.0 KiB
<input type="checkbox"/> renew	★ Browse Structure Search Insert Empty Drop	5	InnoDB	latin1_swedish_ci	32.0 KiB
<input type="checkbox"/> return	★ Browse Structure Search Insert Empty Drop	5	InnoDB	latin1_swedish_ci	32.0 KiB
<input type="checkbox"/> user	★ Browse Structure Search Insert Empty Drop	28	InnoDB	latin1_swedish_ci	32.0 KiB
7 tables Sum		139	InnoDB	utf8mb4_general_ci	192.0 KiB

About Us



A Glance to our Project

website link

<http://dbms-lms.rf.gd/>

GitHub link

<https://github.com/cyberianzed/lms>

Conclusion

The library data management system has been developed and deployed as per the requirements stated in the problem statement. The website provides a computerized version of library management system which will benefit the students as well as the staff of the library. It has different logins with upgraded privileges and functionalities.

The requirements used in preparing this code,

- Frontend – HTML, CSS, JS, PHP
- Backend – PHP, MySQL
- IDE used – VS Code
- Operating System - Windows 11

Appendix

For this project we use all possible resources to extend our knowledge on this topic.

References

www.w3resource.com

Steven Feuerstein, Bill Pribyl ., PL/SQL Programming, O'Reilly Media, 2014

Fundamentals of Database Systems by R., Navathe,S.B. Elmasri