

IV Semester B.Tech. (CCE)
ICT 2266: DATABASE SYSTEMS LAB
MINI-PROJECT IMPLEMENTATION DOCUMENT

Library Management System

A PROJECT REPORT

submitted by

Vipin Vijayan Nair	200953031
Adithya Rao Kalathur	200953015
Vaishnavi	200953025
Sathvik Rangaiah Chanda	200953078



MANIPAL INSTITUTE OF TECHNOLOGY
MANIPAL
(A constituent unit of MAHE, Manipal)

ABSTRACT:

With the advancement of technology, it is imperative to exalt all the systems into a user-friendly manner. The Library Management system (LMS) acts as a tool to transform traditional libraries into digital libraries. In traditional libraries, the students/user has to search for books which are hassle process and there is no proper maintenance of database about issues/fines. The overall progress of work is slow and it is impossible to generate a fast report. The librarians have to work allotted for arranging, sorting books in the book sells. At the same time, they have to check and monitor the lend/borrow book details with its fine. It is a tedious process to work simultaneously in different sectors. LMS will assist the librarians to work easily. The LMS supports the librarians to encounter all the issues concurrently. The users need not stand in a queue for a long period to return/borrow a book from the library. The single PC contains all the data's in it. The librarians have to assess the system and provide an entry in it. Through LMS the librarian can find the book in the bookshelves. The LMS is designed with the basic features such as librarian can add/view/update/delete books and students' details in it. Once he/she ingress into the system they can modify any data's in the database. The complete model is developed in Dot net technology, the C# language is used to build the front end application whereas the SQL server is exploiting as database. The authorized person can only access the LMS system, they have to log in with their user id and password. As aforementioned that the LMS is designed in a user-friendly manner, so the admin can smoothly activate the system without expert advice. Every data is storing and retrieving from the SQL database so it is highly secure. Thus our system contributes its new approach towards the digital library setup.

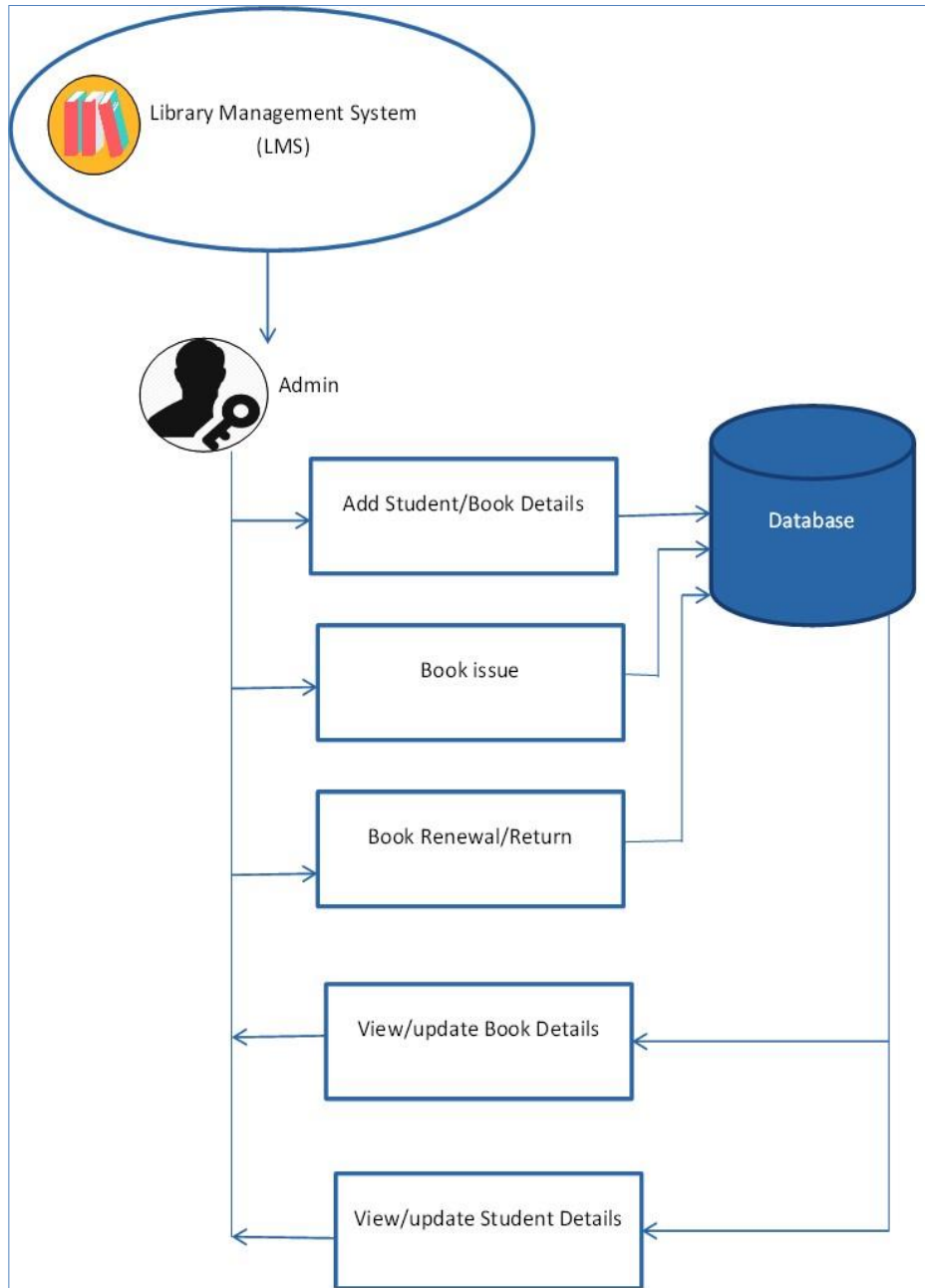
INTRODUCTION:

A library is a place where a huge collection of books and resources are available which can be accessible by the users. It acts as a brain for the institutions. It enhances the dissemination of knowledge and spiritual civilization among the students. The tons of books and research works are captivating the students to improvise their knowledge in all perspectives. It guides the students to promote their views differently. This knowledge optimizes the student to achieve a better result in academic as well as personal skill development. Improvisation in technology causes the demand for developing a way to enhance the traditional library set up to digital one. Numerous tedious processes reduce the efficiency of the library. For example, it always needs manual support to do any activities in the traditional library. The count and details of books are scribbled in the paper for reference. Each data is fetched in the notebook for future citations. To examine any data then they have to refer the notebooks. At the same time while distributing the books to the students they have to enter into the notebook where they need to represent the book id, distribution and renewal date, and student id. The librarians/staff have to assign a tag for each book and provide an id for it. They have to align

and arrange the books on the shelves and marked it. Missing or theft of the book builds a serious issue and confusion to the librarians. While collecting the book from the students they have to verify the penalties of the books. Therefore it causes a monotonous among the staff. Consequently, it builds an uninteresting among the student due to the slow progress of the staff. To evoke the library into the technological era, we presented a system called the Library Management system (LMS). It is an automatic system that reduces the work burden of the staff/librarians through a single click. It will manage, organize and oriented the library task. The LMS supports the librarian to add/view/delete/update details from the library stock. Here we integrate all the library data into the SQL server. Preliminarily the librarian has to add student and book details into the database. After that he/she can view/delete/update those details through the Library Management system. On account of this, the user can access the library at any time. The librarians can assist the data without any confusion. Each data are retrieved from the database. if he/she access any user details then it shows username, id, book details, and penalty details. They no need to write it on paper for any references. By editing the data they can change the parameter in it. In spite of working on the manual, the librarian can feel easy to handle the automatic system. It has more additional features such as librarian can maintain library records, student's history of penalties and issues. It always tracks the count of the book in the library and issued book details. This causes a flexible service for librarians and students. It is a user-friendly interface, so basic computer knowledge is enough to access the LMS. The system is a customizable and user-configurable one which causes it to use in different organizations. We represent the LMS with Admin module. We built the LMS in .Net Technology which is considered as the one of the upcoming technology in IT industries. By the integration of all the modules, it will be presented on the desktop of your computer. As aforementioned the data's are stored and secured in the database. The related data are stored together and maintained properly. It allows the user to create their database as per the requirement. The database gets manipulated by the programs which provide an interface between the databases. The database management system (DBMS) receives the command from the administrator based on the instruction it changes the data in the database. This instruction may load, retrieve or modify the existing database. It is better to assign a DBMS as a centralized one which helps multiple users to access the database in a controlled manner at a different location. Based on the scheme of DBMS, the system can assign a view mode for each user like some people can see only some data and authorized one can see all the data existing in the database. It offers both logical and physical data independence. The Open database connectivity (ODBC) provides an application programming interface that allows the client-side program to call the DBMS on the server-side.

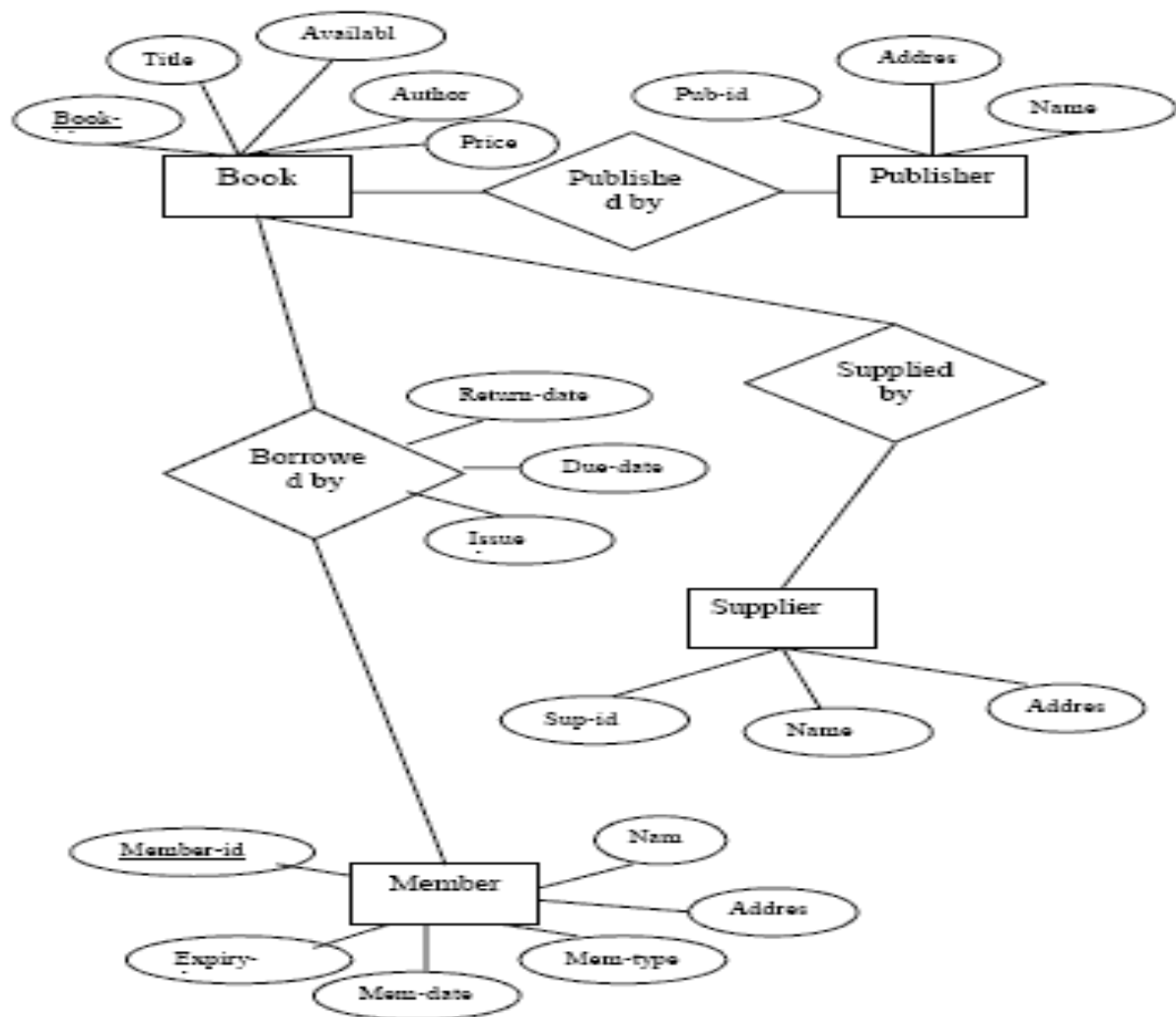
METHODOLOGY:

The following diagram depicted the block diagram of the proposed Library Management system (LMS).



ER Diagram:

The following diagram depicted the ER diagram of the proposed Library Management system (LMS).



Schema Diagram:

The following diagram depicted the Schema diagram of the proposed Library Management system (LMS).

Book Detail:

ISBN Number	Book Name	Book Price	Book Author	Book Category
-------------	-----------	------------	-------------	---------------

Member Detail:

Member ID	Member Name	Gender	Member Phone	Lifelong
-----------	-------------	--------	--------------	----------

Issue Book:

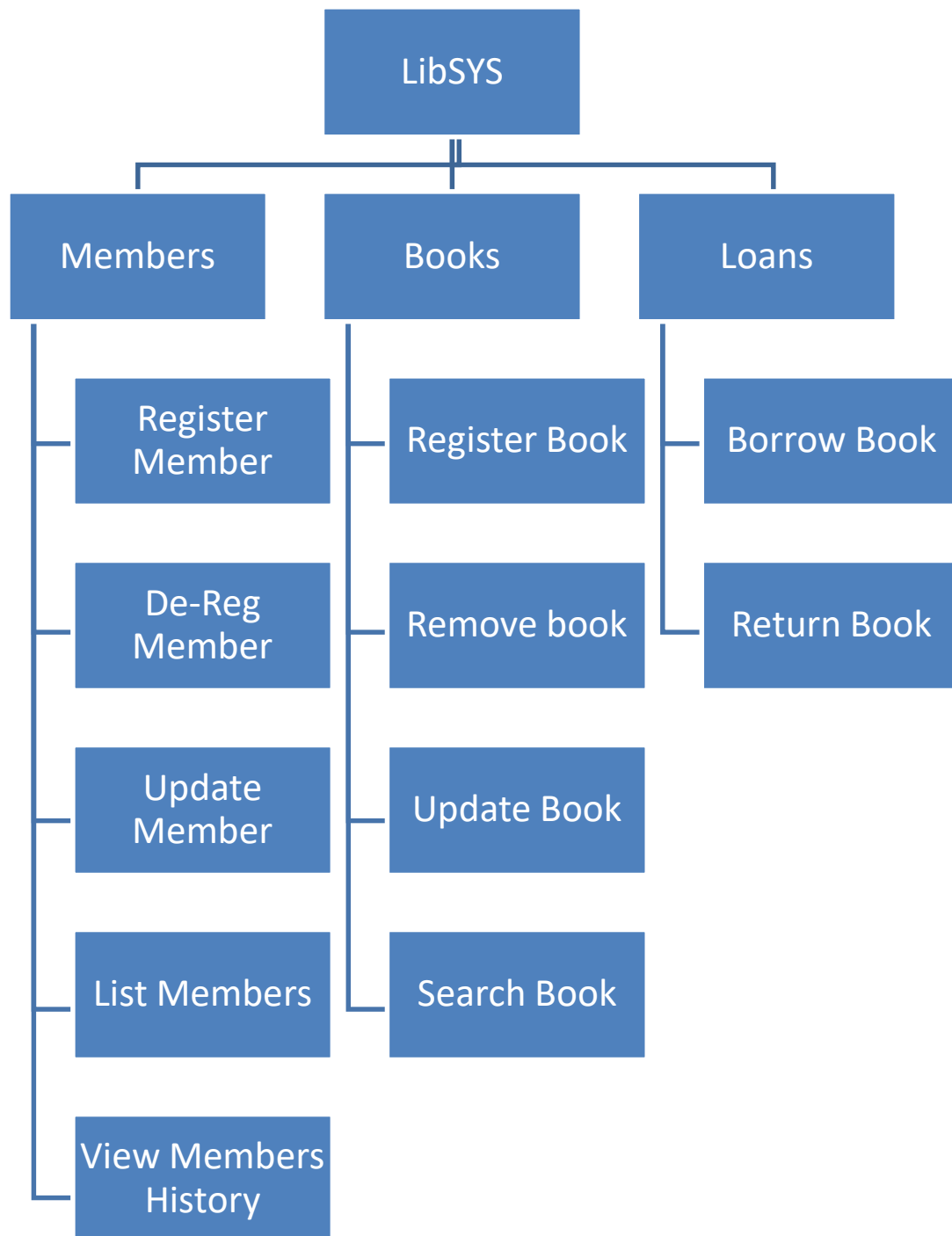
ISBN Number	Member ID	Ref Code	Borrow Date	Return Date
-------------	-----------	----------	-------------	-------------

Return Book:

Ref Code	ISBN Number	Member ID	Borrow Date	Return Date
----------	-------------	-----------	-------------	-------------

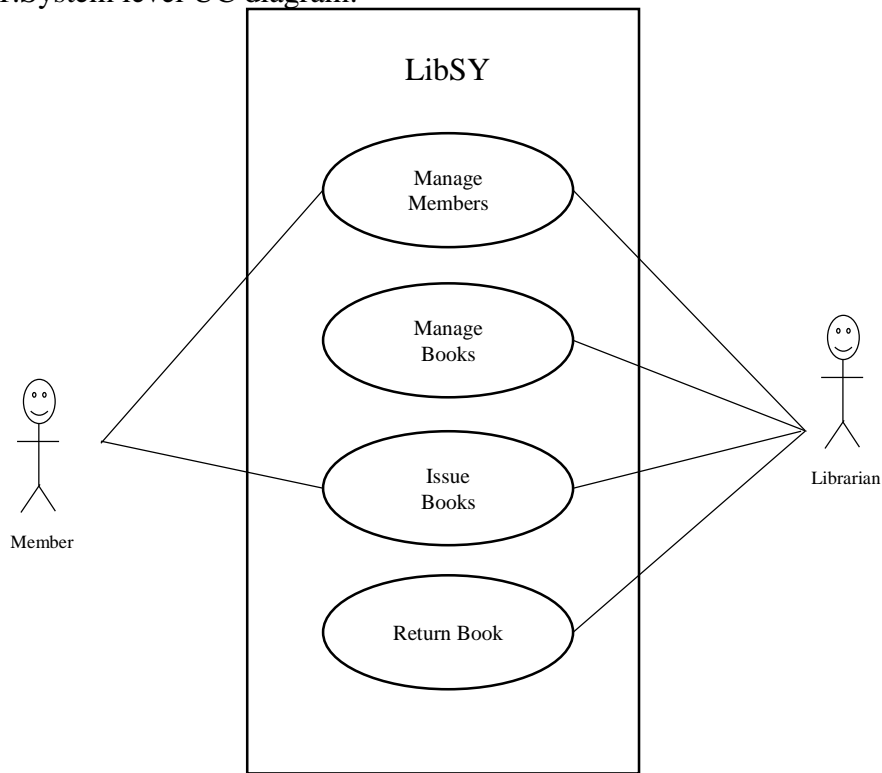
Functional Components:

The following hierarchy chart models the function requirements as a set of functional components for Library System (LibSYS).



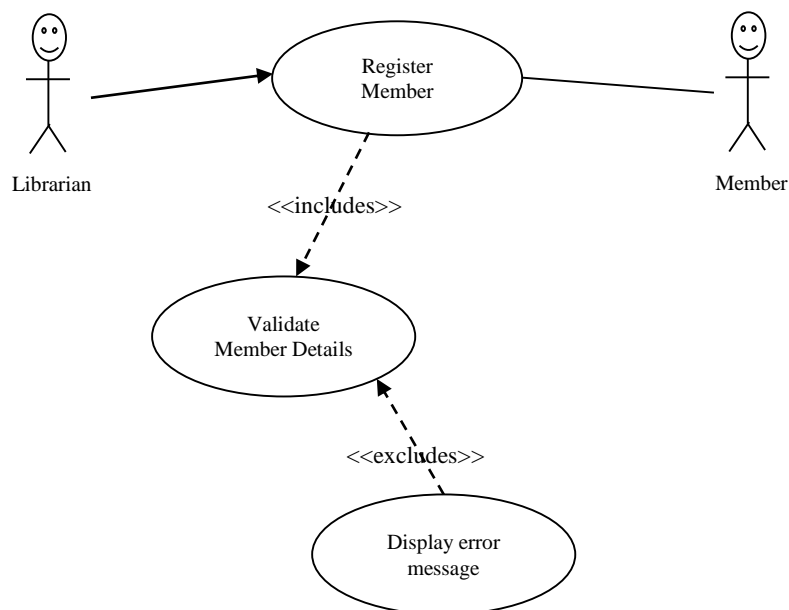
System Level Use Case Diagram

1. System level UC diagram:



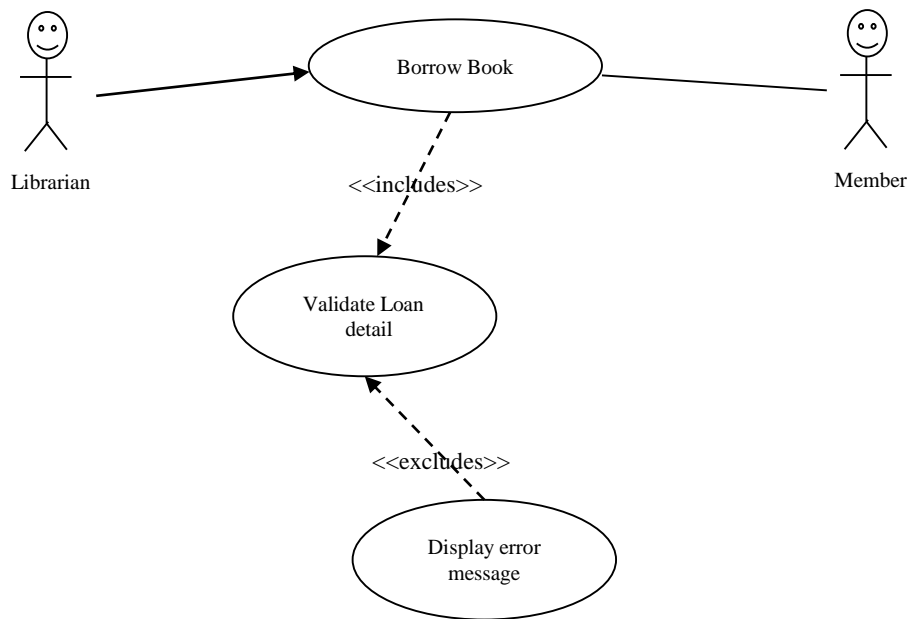
2. Manage members:

This module contains function for register member, de-register member, update member profile, list members and view member's history.



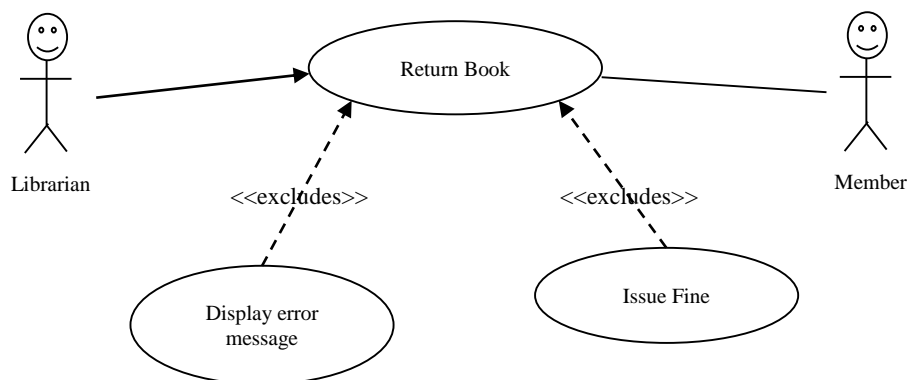
3.Issue Book:

Description: This function registers a loan on the system. Assume that each Member can borrow a book at least three days from the current date.



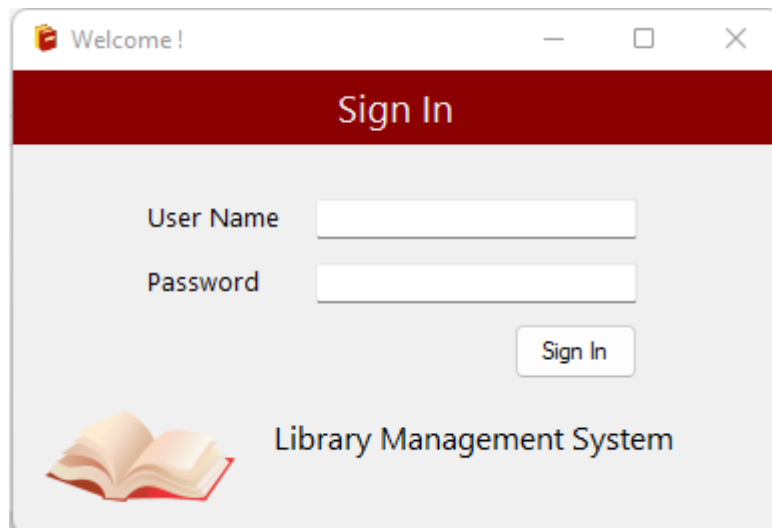
4.Return Book:

This function updates a loan item details of a member on the system and calculates fine upon book returned if book returned is overdue



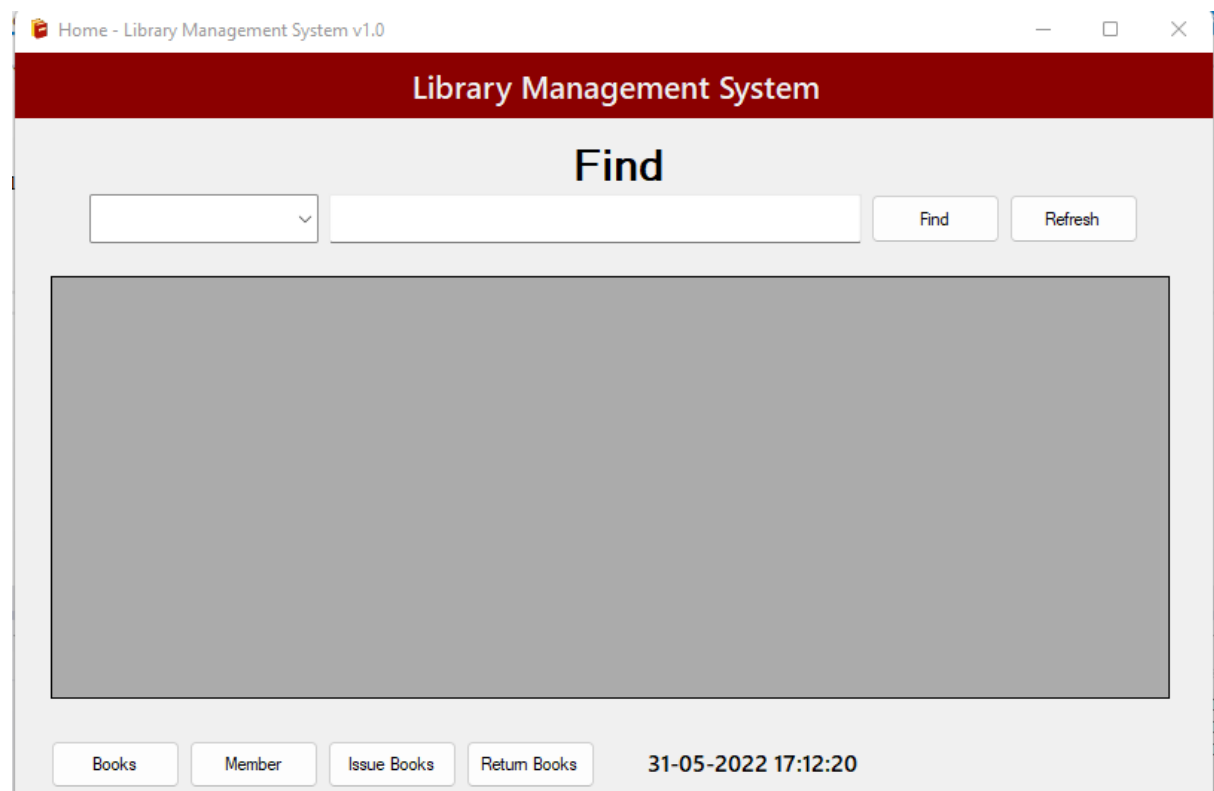
IMPLEMENTATION:

LMS contains an Admin module where it demonstrates the activities of the admin. Admin is considered as the authorized person to access the LMS system. He/she can access the LMS system through their user id and password. At the time of login, the system is loaded and opens the Home page where he/she has to enter the Id and password.



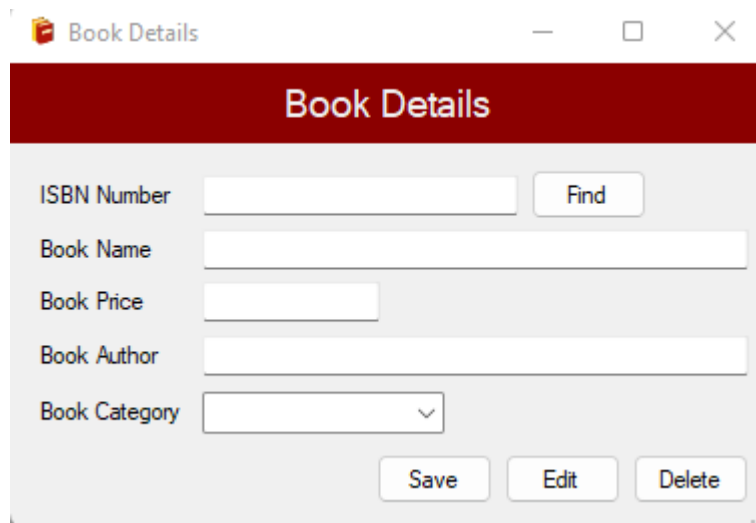
A screenshot of a web application window titled "Welcome!". The window has a red header bar with the text "Sign In" in white. Below the header, there are two input fields: "User Name" and "Password". To the right of the "Password" field is a "Sign In" button. At the bottom left, there is an icon of an open book. To the right of the icon, the text "Library Management System" is displayed.

Once he/she login to the system, then they can access/modify the data in it. The Admin can add students/Book details, issues the book, return the book, view/update the book, and view/update the student details



A screenshot of a web application window titled "Home - Library Management System v1.0". The window has a red header bar with the text "Library Management System" in white. Below the header, the word "Find" is centered. There is a search bar with a dropdown menu on the left and a "Find" button on the right. Below the search bar is a large gray rectangular area. At the bottom of the window, there are four buttons: "Books", "Member", "Issue Books", and "Return Books". To the right of these buttons is a timestamp: "31-05-2022 17:12:20".

Those adding data can be view/update/delete through Admin. The Admin can view and search any book through search option in LMS



Book Details

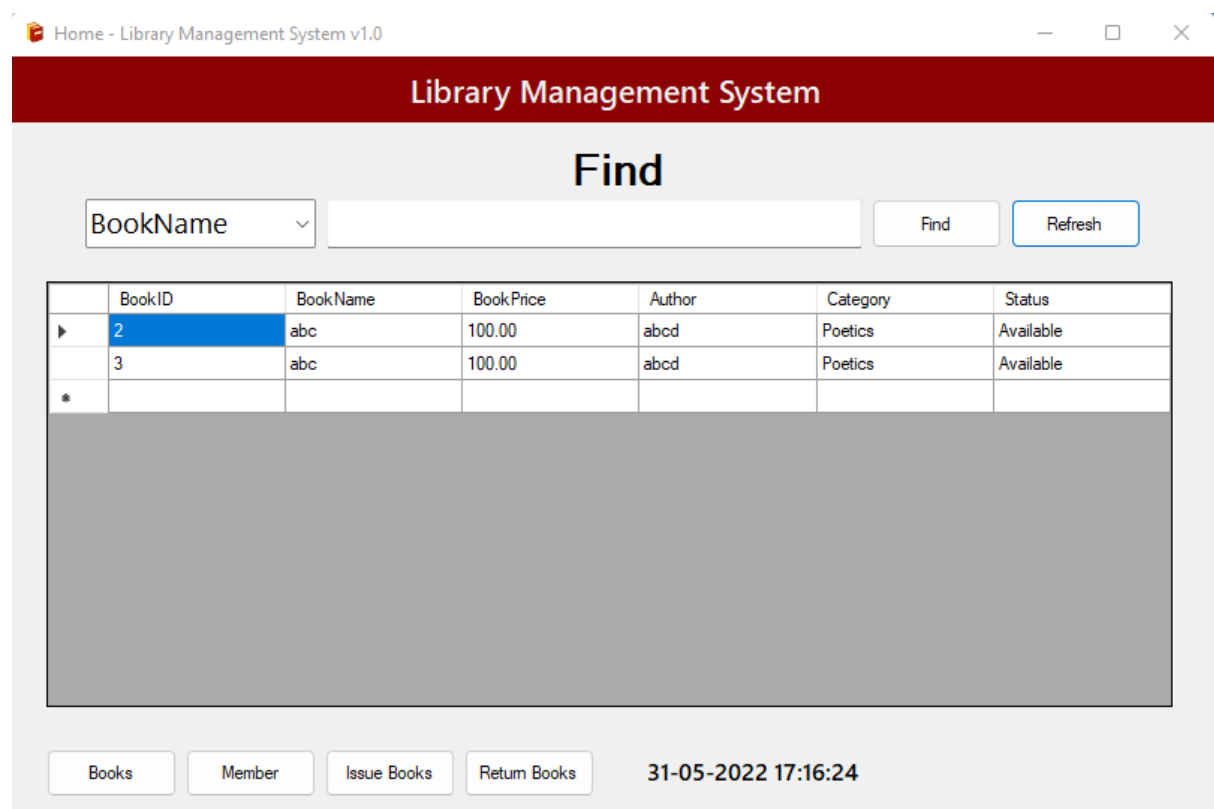
ISBN Number

Book Name

Book Price

Book Author

Book Category



Library Management System

Find

BookName

	BookID	BookName	BookPrice	Author	Category	Status
▶	2	abc	100.00	abcd	Poetics	Available
	3	abc	100.00	abcd	Poetics	Available
*						

31-05-2022 17:16:24

In LMS, while adding the member details we enroll the member id, name, gender, member number, lifelong, etc.. Similarly to add a new book we enroll the book id, author name, prices etc.

Member Details

Member ID

Member Name

Gender ☐ Male ☐ Female

Member Phone ☐ Life Long

	NIC	MemberName	Phone	Gender	Lifelong
▶	1	asdf	123456789	male	yes
	2	qwerty	234567890	male	yes
	3	aswqerx	3242454443	male	yes
*					

In LMS while issuing the book we need to enter the book id or the isbn number, member id, ref code, borrow date and return date.

Issue Books

ISBN Number

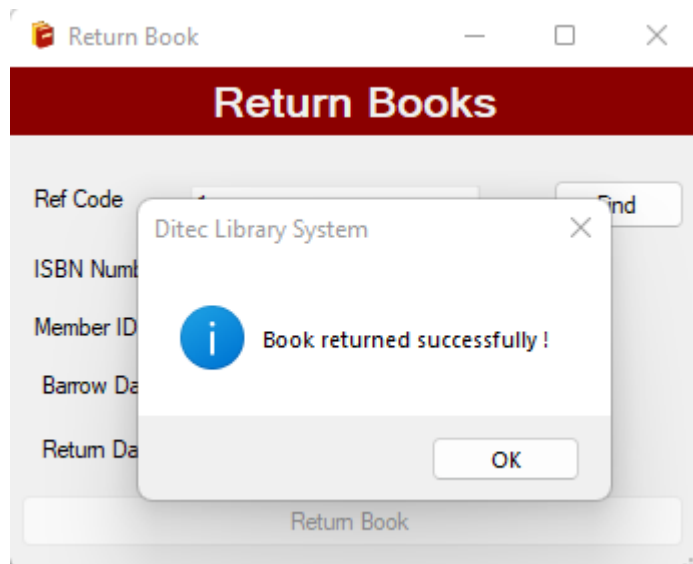
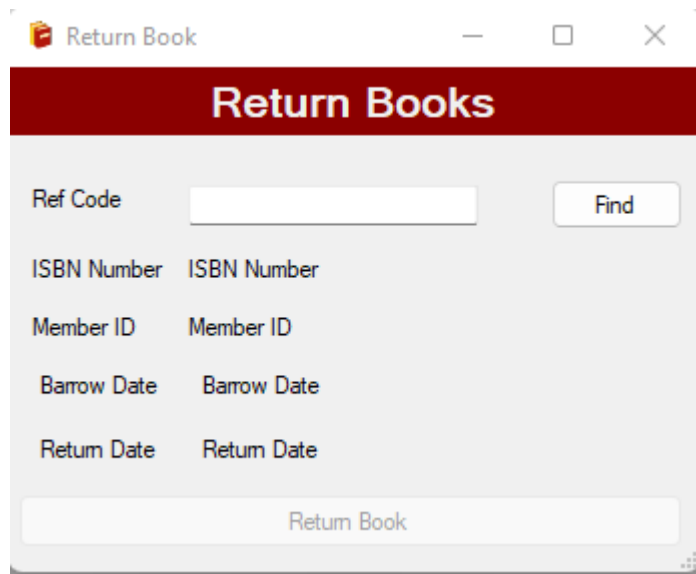
Member ID

Ref Code

Barrow Date

Return Date

In LMS while returning the book we just need to enter the ref code and the other details like isbn number, borrow date and return date are shown on the screen. If the day of returning the book is more than the actual return date then we will have to pay the fine.



Conclusion:

The hindrance and issues of the traditional library are identified and promote it to easy access for the libraries. In the Library Management system, the librarian can add/update/remove the student and book details into the database. The students have a Unique ID for accessing any book from the library. Through the ID, the librarian can check the user details, fine payment, and book details. The LMS reduces labor work and makes the system efficient. In future work, we planned to enhance the LMS by integrating the LMS with Local area Network (LAN) which increases the efficiency of the system.