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A Presentation on:
Library Management System

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Abstract

The **Library Management System (LMS)** is a software tool designed to automate and simplify library operations. It supports **book management, student registration, admin control, borrowing/returning of books, and secure login**. The system enhances efficiency, reduces manual workload, and ensures accurate tracking of library resources using **file handling** and **role-based access**. Suitable for academic libraries, it offers a user-friendly interface and robust data management.

Keywords:

- *Add Book*
- *Add Student*
- *Add Staff*
- *Remove Record*
- *Update Record*
- *Search Record*
- *Show Records*
- *Issue Book*
- *Return Book*
- *Show Issued Records*
- *Logout*

Introduction

The project titled “Library Management System” is a library management software for monitoring and controlling the transactions maintain the records related to Book purchase, Issue Book, Return Book, Search Book and Member, Fine collection, and all the necessary requirements for the library to management. The purpose of the site is to computerizing and centralizing student and admin details is to simplify the task of maintaining records of library users and administrative staff.

The project “Library Management System” is developed in C-programming which are eligible for running in windows console screen. The library management system is fully automated library service and will be a web-based application where only the registered user can access to the system.

Background

In the past, most libraries used manual systems to keep records of books and members. This meant writing everything on paper, which was slow had more mistakes and was hard to manage when the library became big.

Today, many things are done with computers so using software to manage a library makes the work easier and faster. It also helps reduce mistakes and saves time.

The **Library Management System** project was created to make library tasks simple and well-organized. It helps in:

- Adding new users and books
- Issuing and returning books
- Searching for books
- Collecting fines

The system is made using **C programming**, and it works on the **Windows console screen**. The aim is to help librarians and students by **automating** the whole process.

This system is also meant to be **secure**, as only registered users can log in and use it. It gives a better way to keep track of books and people in the library.

Problem Statements

In many libraries, the work is still done by hand. This causes several problems, such as:

- Tracking books becomes challenging.
- Books and member records can get lost or damaged.
- It takes a long time to issue or return books
- It is difficult to search for books or check availability
- More errors happen when writing by hand.
- Keeping track of fines and due dates becomes confusing.

Objective

The main objective of this project is to build an application Library Management System using C Programming.

Applications

Schools and Colleges

- To manage textbooks, reference books, and student borrowing records
- To help teachers and students find books quickly

Public Libraries

- To handle large numbers of books and members
- To keep the library **organized** and efficient

Research Centers and Universities

- To track valuable research books and journals
- To ensure only **authorized** users can access certain materials.

Private Institutions and Training Centers

- To maintain small or medium-sized libraries for students and trainers

Offices or Organizations with In-house Libraries

- For managing books and reports within the organization
- To reduce time spent searching for materials.

Literature Review

- A Library Management System is designed to automate and manage daily library operations efficiently, especially in Open and Distance Learning (ODL) institutions.
- It includes advanced features like ID card-based login, centralized databases, theft detection, material circulation, and web-based reporting modules to enhance functionality.
- The system aims to simplify library processes, reduce manual work, save time and cost, and adapt to the changing needs of users.
- It includes separate modules for Admin, Librarian, and Students, each with its own login and specific roles, making the system more organized and user-friendly.

Methodology

To make the Library Management System, we first learned how a real library works. We saw that writing everything in registers takes a lot of time and causes many problems. So, we planned to create a computer program to help manage books and users easily.

We chose the **C programming language** because it is simple and works well on a basic computer. We decided to add important features like **adding books, issuing books, returning books, searching for books, and calculating fines.**

We started by making the main structure of the program, and then we created the smaller parts step by step. We used **functions, loops, and file handling** in C to write the code. File handling helped us save the data like book details and member information, even after the program was closed.

We also made a **login system**, so only the right person (admin) can use the system. The program has a **menu**, where users can choose what they want to do, like add a book or search for a book.

After writing the code, we tested every part to make sure it works well. If we found any mistake, we corrected it. In the end, we checked the whole system and found that it worked properly and was easy to use.

Algorithm

Step 1. Start

Step 2. Display: "1. Login

Step 3. IF Register then

 Input role of Admin

ELSE

 Input username, password

 IF valid then

 Show Dashboard

 ELSE

 Show error, retry

Step 4. WHILE Admin is logged in:

 Display options:

 1. Add Book

 2. Add Student

 3. Add Staff

 4. Remove Record

 5. Update Record

 5. Update Record

 6. Search Record

 7. Issue Book

 8. Return Book

 9. Show Issued Records

 10. Logout

Step 5. IF Issue Book:

 Input Book ID

 IF already issued then

 Show error

 ELSE

 Issue book, save record

Step 6. IF Return Book:

 Input Book ID

Step 7. IF Logout:

 Exit loop

Step 8: Stop

Flowchart

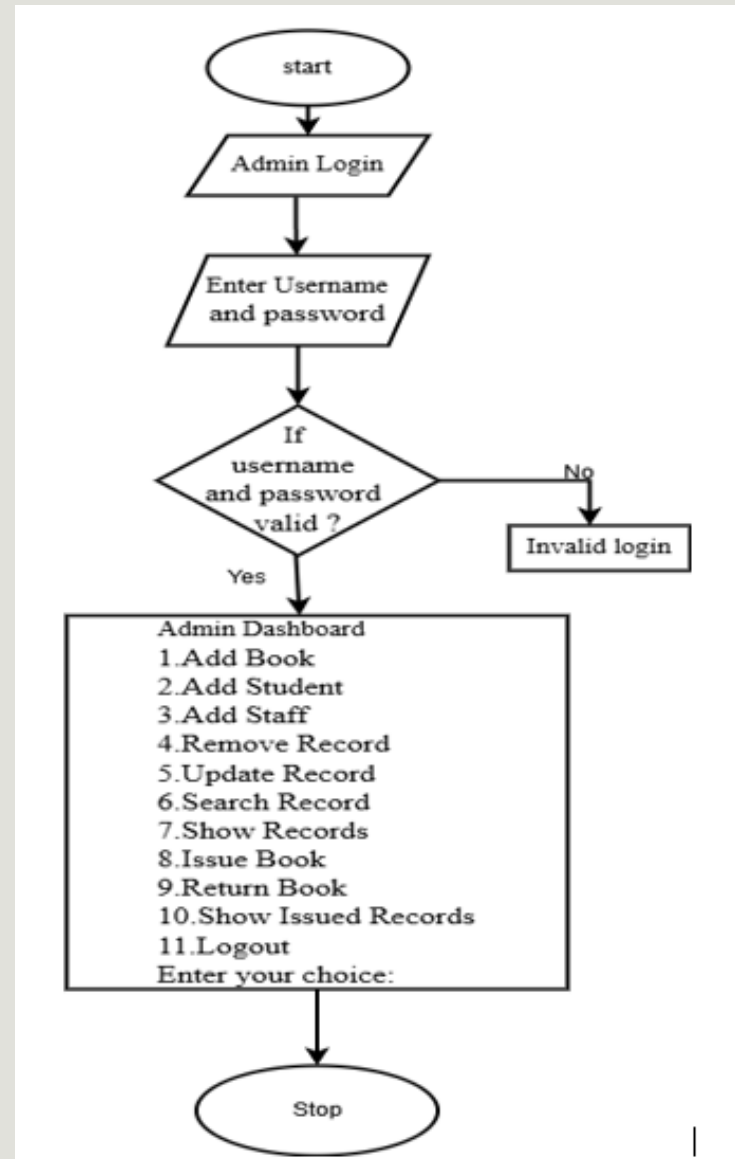


Figure 1: Flowchart: Library Management System

RESULT & DISCUSSION

Output

The Library Management System works well with important features like adding books, students, and staff, issue and returning book, Update, search, remove etc. Each action shows a clear success message to confirm it was done correctly. Users can easily remove or update records with instant feedback.

```
#####
#####
##### Library management System Project in C #####
#####
#####
-----
Admin Login
-----
Username: a
Password: *
Login successful!
```

Figure 2: Admin Login Page

```
-----
Admin Dashboard
-----
1.Add Book
2.Add Student
3.Add Staff
4.Remove Record
5.Update Record
6.Search Record
7.Show Records
8.Issue Book
9.Return Book
10.Show Issued Records
11Logout
Enter your choice: |
```

Figure 3: Admin Dashboard

```

-----
Enter Book Detail Of 1
-----
Enter Book Name: c+
Enter author: denish
Enter publisher: denish
Enter ISBN: 1230
Enter year: 2021
Number of Books: 20
Books added successfully.

```

Figure 4: Adding Book

```

Enter your choice: 8
Enter student ID: STD1041
Enter student name: Arya
Enter phone: 9812345678
Enter Book Title: math
Enter Book Author: peter
Enter Book ISBN: 1232
----Book issued successfully on 2025-06-21!----

```

Figure 5: Issue Book

```

Enter Student Name: Arya
Enter Student ID: STD1041
Enter Student Phone: 9812345678
Enter Book Title: math
Enter Book Author: peter
Enter Book ISBN: 1232
---Book returned successfully on 2025-06-21.---
No fine.

```

Figure 6: Return Book

```

-----
Search Record Menu
-----
1. Search Book
2. Search Student
3. Search Staff
0. Cancel
Enter your choice: 1
Enter keyword to search: denish
Title: c++ | Author: denish | Publisher: denish | ISBN: 1230 | Year: 2021 | Copies: 20

```

Figure 7: Searching Books

Show Book List					
Title	Author	Publisher	ISBN	Year	Number of Book
c++	denish	denish	1230	2021	20
c	denish	denish	1231	2012	15
math	peter	peter	1232	2013	25

Figure 8: Showing Books list

```

Enter Student Detail Of 1:
Enter Student Name: Arya
Enter email: arya@gmail.com
Enter phone: 9812345678
Enter address: ktm
Enter age: 20

Student added successfully with ID: STD1041

```

Figure 9: Adding Student

```

Enter your choice: 2
Enter ID of the students to remove: STD1053
----- student with ID STD1053 removed successfully.-----

```

Figure 10: Removing Student

```

Enter your choice: 2
Enter ID of the student to update: STD1467
Updating student with ID STD1467:
Enter new name: sujit
Enter new email: sujit123@gmail.com
Enter new phone: 98123456788
Enter new address: ktm
Enter new age: 22

--- Student updated successfully.---

```

Figure 11: Updating Student

```
0. cancel
Enter your choice: 2
Enter keyword to search: 3456788
Name: sujit | ID: STD1467 | Email: sujit123@gmail.com | Phone: 98123456788 | Address: ktm | Age: 22
```

Figure 12: Searching Student

```
Number of staff to add: 2
-----
Enter Staff Detail Of 1:
-----
Enter Staff Name: bishal
Enter email: bishal123@gmail.com
Enter password: *****
Enter phone: 981234568
Enter address: ktm
Enter age: 23

----- Staff added successfully with ID: STF1041-----
```

Figure 13: Adding Staff

```
Enter your choice: 3
Enter ID of the staff to update: STF7724
----- Updating staff with ID STF7724 -----
Enter new name: shyam
Enter new email: shyam123@gmail.com
Enter new password: ****
Enter new phone: 985246133
Enter new address: kathmandu
Enter new age: 20
--- Staff with ID STF7724 updated successfully. ---
```

Figure 14: Updating Staff

Gantt Chart

Time	Weeks 1	Weeks 2	Weeks 3	Weeks 4	Weeks 5
Requirement Analysis					
System Design					
Cooding					
Testing					
Documentation					

Figure 15: Gantt Chart

Conclusions

The Library Management System makes it easy to add, search, update, and delete books and user information. It allows secure login for admins and staff, keeps track of books issued and returned, and saves all data in files. This project uses basic C programming to help manage a library more quickly and clearly. In the future, more features can be added to make it even better.

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