**Library Management System**

*CLP Mini Project Report*

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# **Problem Statement**

Managing library records manually can be difficult and time-consuming. Keeping track of books, which user borrowed them, and handling returns often leads to confusion or errors. To solve this, I created a simple console-based Library Management System using C language. It helps automate these basic operations in a neat, organized way and the book can be borrowed/returned only after registration is completed.

**Objectives**

* To create a simple and effective system for library operations.
* To add and delete books as needed.
* To manage user registrations and allow issuing and returning of books.
* To track book status and who borrowed it.

**Methodology**

To build this project, I used the C programming language and kept everything simple using functions and structures.

1. I created two structures to store data: one for Books and one for Users.
2. Control Flow: A menu is displayed to the user, and they can select the option they want to perform.
3. Functions: Modular approach with separate functions for adding, deleting, searching books, issuing, returning, displaying, and registering users.
4. The system checks if the book is already issued or if the user is registered before doing any operation.

**Code Explanation**

*Struct Definitions:*

Book: Holds details like ID, title, author, ISBN, issue status, and issuedTo.

User: Holds user ID and name.

*Core Functionalities:*

addBook(): Adds a new book to the system.

deleteBook(): Deletes a book using its ID.

searchBook(): Searches and displays a book’s details by ID.

registerUser(): Registers a new user with a unique ID.

issueBook(): Issues a book to a registered user if available.

returnBook(): Returns a previously issued book.

displayBooks(): Displays a list of all books along with their current status.

*Main Function:*

A continuous loop displays the menu and handles user choices using a switch statement. The loop exits when the user selects the exit option.

**Conclusion**

The Library Management System developed using C provides a basic but functional model for handling common library operations like adding, deleting, issuing, and returning books. It supports user management and ensures that books are only issued to registered users. Working on this project helped me understand how real-world systems like library software work. I learned how to use structures, arrays, and functions together in a single project. While the program is sample, it effectively covers the core operations of a Library Management System. In the future, I can improve this by saving data to files.