



University of Central Punjab

FACULTY OF INFORMATION TECHNOLOGY

Introduction to Computing-LAB

Term Project: Fall-2024

Project Title:

“Library Management System”

Project Overview:

The Library Management System (LMS) is designed to simulate a fully functional library environment, allowing users to efficiently manage various aspects of library operations. This system provides a comprehensive solution for handling books, members, borrowing and returning processes, and maintaining accurate library records.

Develop a comprehensive C++ program to simulate and manage various aspects of a **Library Management System**. This project will allow students to practice and reinforce their understanding of fundamental programming concepts, including arrays, loops, character arrays, and conditional statements. The system must provide a user-friendly, menu-driven interface to interact with various library functionalities.

Objectives and goals:

Our primary goal is to enable you to effectively apply basic programming concepts to create a functional and interactive system. By the end of this project, you will learn;

- How to design and implement a menu-driven system using arrays, loops, and conditional statements.
- Managing and organizing data using simple arrays and character arrays.
- Enhancing problem-solving and debugging skills through hands-on practice.

Features to Implement:

1. Library Information and Book Management:

- Store and display details of books available in the library:
 - ❖ **Book Details:** Title, Author, Genre, ISBN, and Availability Status.
- Use arrays to store book information and update the availability status when books are borrowed or returned.
- Add an initial collection of at least 20 books with predefined details.

2. Member Management:

- Store details of library members:
 - ❖ **Member Details:** Name, Member ID, Age, and Address.
- Use an array to manage a list of 10 members and allow new members to be added.

3. Borrowing and Returning Books:

- Simulate a borrowing system where members can borrow up to 3 books at a time.
- Track which member has borrowed which books.
- Allow returning books and update the availability status and member's borrowing record.

4. Search and Filter Options:

- Search for a book by Title, Author, or ISBN.
- Filter books by Genre or Availability.
- Search for members by Member ID or Name.

5. Generate Reports:

- Display a list of all books and their availability status.
- Display a list of all members and their borrowed books.
- Generate overdue reports by tracking borrowing dates and due dates (basic implementation using days since borrowing).

6. Exit:

- Provide an option to exit the program gracefully.

Additional Details:

Constraints:

- Use **simple arrays** to store data for books, members, and transactions
- Use character arrays for strings such as book titles, author names, and member names.
- Implement all logic using **loops** and **if-else statements** only.
- **No built-in or user-defined functions** are allowed.

Expected Output:

The program should provide the following outputs:

- List of books, their details, and availability.
- List of members and their borrowing records.
- Search results for books and members.
- Overdue report based on borrowing history.

Deliverables:

- Complete C++ source code for the Library Management System.
- A report explaining the program's structure and functionality.

Evaluation Criteria:

- Completeness and correctness of the implemented features.
- Efficient and readable use of arrays, loops, and conditional statements.
- Creativity in presenting outputs (e.g., tables, neat formatting).
- 20% Marks for submission and 70% Marks for the Viva/Presentation.

Evaluation Criteria	
Project Submission	Viva / Presentation
20%	80%

Sample Menu:

Welcome to the Library Management System

1. View Library Information
2. Add New Member
3. Borrow a Book
4. Return a Book
5. Search for Books or Members
6. Generate Reports
7. Exit

Enter your choice:

✧ *Best of Luck!* ✧