

Design Overview for <<Library Management System>>

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Summary of Program

The Library Management System is designed to assist librarians in efficiently managing book records, member information, and transactions such as checkouts and returns. The program allows librarians to add, update, and delete book and member records. Additionally, it tracks book checkouts and returns, ensuring that the library's inventory is always up-to-date. The system aims to streamline the management process and provide an easy-to-use interface for library staff.

SKETCH OF SAMPLE OUT OF PROGRAM:

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Library Management System
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1. Add New Book
2. Update Book Information
3. Delete Book
4. Add New Member
5. Update Member Information
6. Delete Member
7. Check Out Book
8. Return Book
9. View Library Inventory
10. View Member Activity Report
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Please select an option (1-10):
```

Required Data Types

Describe each of the records and enumerations you will create using the following table (one per record).

Table 1: <<Book Record >> details

Field Name	Type	Notes
BOOKID	Integer	Unique identifier for each book
Title	String	Title of book
Author	String	Author of book
Genre	String	Genre of book
Publish_date	integer	Date of book published
Status	enumeration	Status if book is available / checked out

Table 2: <<Member Record >> details

Field Name	Type	Notes
MemberID	Integer	Unique identifier for members
Name	String	Full name of member
Email	String	Email address of member
Phone number	String	Phone number of member
MembershipDate	String	Date when member joined membership

Table 3: <<status enumeration>> details

Value	Notes
Available	Book is in library
CheckedOut	Book is checked out

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Overview of Program Structure

List the main functions/procedures you are going to need to create this program. For each function/procedure provide its name and a brief description of what it will do.

Don't spend too long on this at this stage. Focus on the main things you think you are likely to need and you can build on this as your program develops.

Include a structure chart (once you have your proposal approved by your tutor)

Main Functions/Procedures:

1. **AddNewBook()**
 - Description: Collects book details from the librarian and adds a new book record to the system.
2. **UpdateBookInfo()**
 - Description: Allows the librarian to update details of an existing book record.
3. **DeleteBook()**
 - Description: Removes a book record from the system based on the BookID.
4. **AddNewMember()**
 - Description: Collects member details from the librarian and adds a new member record to the system.
5. **UpdateMemberInfo()**
 - Description: Allows the librarian to update details of an existing member record.
6. **DeleteMember()**
 - Description: Removes a member record from the system based on the MemberID.
7. **CheckOutBook()**
 - Description: Processes the checkout of a book by a member, updating the book's status to 'CheckedOut'.
8. **ReturnBook()**
 - Description: Processes the return of a book by a member, updating the book's status to 'Available'.
9. **ViewLibraryInventory()**
 - Description: Displays a list of all books in the library along with their current status.

10. ViewMemberActivityReport()

- Description: Generates a report of a member's activity, including books checked out and returned.

Structure chart

