**DATA STRUCTURE**

**MINI PROJECT**

**ONLINE LIBRARY MANAGEMENT**

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* **PROBLEM STATEMENT**

The project works on an online library system, in which the admin of the library (librarian) adds the books for everyone and every user who registers in this library can freely access and take that book is his own account.

* **FUNCTIONS / FEARTURES IN THE PROGRAM**

1. **Librarian functions: -**
   * + ***Add new books*:** The admin has the control over which book to be added in the library and how many copies of that book will be present in the library.
     + ***Remove books*:** The librarian can remove any book from the library whenever he wants or maybe remove extra copies of any book.
     + ***Display all books*:** The librarian can see all the books he has added with complete information of the book.

**2. User functions: -**

* + - ***Add new books*:** The users can add any book from the library using a unique book code, one at a time in their respective accounts.
    - ***Remove books*:** The user can remove an issued book from his account in order to make space for a new book.
    - ***Display user details*:** The user can see all his details with this function including his books.
    - ***Change Password*:** The user can change his password whenever the wants using this function with the help of his current password.
    - ***Delete account*:** The user can delete his whole account with a single command using this function.
* **SELECTED DATA STRUCTURE**

The project uses **“LINKED LIST”** data structure because this is a *dynamic data structure*, thus it can grow and shrink at runtime by allocating and deallocating memory. So there is no need to give initial size of linked list and hence *no memory wastage*. Also the *insertion and deletion of nodes is very easy* using a linked list. We can also implement other data structures like *Stack or Queue using Linked List* data structure.

Seeing these features, Linked List was the most appropriate data structure for this project.

* The project uses NESTED LINKED LIST to add the books in the user’s account.

**CODE**