Library Management System (User Manual)

Welcome to the Library Management System. It is a small project that is being created using the C programming language. It will provide a computerized version of an interactive library database which will benefit the students as well as the staff/teachers. In this application, the user/admin can perform basic library management tasks like making a search, view the added books, check the number of copies available, returning/ borrowing a book etc.

Modules of Library Management System:

- Add Books
- Delete Books
- Search Books
- View Available Books
- Issue Books
- Return Books
- Update/Modify Books

Features of the Library Management System

The user manual describes the various aspects of the application. Depending on whether it's registered user or an admin, the following are the features-

- Registered users will be greeted with a login page in which both students and admin have to login with their unique username and password.
- Depending on whether it's a user or an admin, the level of accessibility will vary.
- A user will have access to limited features. A user can make an issue, depending on the number of copies available or return a book within a stipulated time.
- A user can also view the list of the books available in the entire library database.
- A user can be both student and faculty.
- A student won't be allowed to issue a book, if it has less than three copies available.
- There is a maximum limit to the number of books that can be issued.
- The entire rights and permission are given to an admin. An admin has access to features like adding, deleting, issuing or modifying any book.
- The number of days for which a book can be issued depends on the number of copies available.

Working of the application

In the zip folder, there is the executable.exe file where the entire project can be run manually. Here, the working of the entire application with explanation is provided.

Main Screen:

  I.   When the program is being run from the compiler, the following welcome message is displayed in the terminal.

  II.   Press any key to proceed further.

  III.   In the Login page, enter the Username and Password which is registered in the database. The Username and Password are case sensitive.

  IV.   Now, depending on whether the registered user is an admin, the Main Menu will appear accordingly.
- If he/she is a normal user, then the following options will appear in the Main Menu:

- On logging in as an admin, following menu will be visible in the terminal:

```
####################################################################
###########                                             ###########
###########           Library management System         ###########
###########                                             ###########
####################################################################
--------------------------------------------------------------------
                            MAIN MENU
--------------------------------------------------------------------


1.Search Books
2.View Books
3.Borrow Book
4.Return Book
5.Add Book
6.Delete Book
7.Update Book
0.Exit


Enter choice => █
```

1. **Search Books**
   Through this option, the user can get access to any particular book. The search can be made by typing in the name of the book. If the required book is available in the database, then the program will display the book id along with the author name and the number of books in stock. The name of the book is case sensitive.

```
####################################################################
###########                                             ###########
###########           Library management System         ###########
###########                                             ###########
####################################################################
--------------------------------------------------------------------
                           SEARCH BOOKS
--------------------------------------------------------------------

Enter Book Name to search : XYZ building

Book id = 23456
Book name = XYZ building
Book authorName = Mr AB
In Stock = 5


Press any key to go to main menu.....█
```

2. View Books
In this menu option, the user will be able to view the entire book collection that is present in the library database along with their details.

```
################################################################
###########                                          ###########
###########          Library management System       ###########
###########                                          ###########
################################################################
----------------------------------------------------------------
                        VIEW BOOKS DETAILS
----------------------------------------------------------------
1.)
        Book id = 23456
        Book name = XYZ building
        Book authorName = Mr AB
        Books available = 5

2.)
        Book id = 34567
        Book name = Harry Potty
        Book authorName = J K Rowling
        Books available = 2

3.)
        Book id = 12347
        Book name = Story of my life
        Book authorName = Hellen Keller
        Books available = 3

4.)
        Book id = 12345
        Book name = ABC guide
        Book authorName = Hap
        Books available = 5

5.)
        Book id = 12346
        Book name = Kite
        Book authorName = Mr X
        Books available = 10
```

3. Borrow Book
Any faculty member/ student can borrow a book from this option. There is an upper limit to the number of books that can be issued. In this section, the user will be asked to type in the ID no. of the desired book. The program will check if the given ID is present in the database. If not, then it will display "Book not found" and will be asked to try again.

If a sufficient number of copies are available, then the book name along with its other details will be displayed on the screen. If it is the desired book, then the user can confirm it and the book will be issued successfully, noting the return date below.

```
################################################################
###########                                          ###########
###########          Library management System       ###########
###########                                          ###########
################################################################
----------------------------------------------------------------
                          BORROW BOOKS
----------------------------------------------------------------
Book ID NO  = 12367


Book id = 12367
Book name = Let Us C
Book authorName = CS
In Stock = 20
----------------------------------------------------------------

Confirm ? (Y/N) : y

Book Issued successfully.....

Please note the returning date.....
Returning Date  :        30/11/2021

Press any key to go to main menu.....▯
```

However it is to be noted that if the number of copies available for a particular book is less than 3, then the program will only allow it to be issued to a faculty member or admin. If a student tries to issue it, the screen will display the following message.

```
################################################################
###########                                          ###########
###########          Library management System       ###########
###########                                          ###########
################################################################
----------------------------------------------------------------
                          BORROW BOOKS
----------------------------------------------------------------
Book ID NO  = 34567


Book id = 34567
Book name = Harry Potty
Book authorName = J K Rowling
In Stock = 2


----------------------------------------
This book is not available for borrowing.
----------------------------------------

Press any key to go to main menu.....█
```

 Also, the program is designed in such a way that no individual can issue the same book more than once. If a user attempts to do it, the following message will be displayed on the screen.

```
###################################################################
###########                                             ###########
###########          Library management System          ###########
###########                                             ###########
###################################################################
-------------------------------------------------------------------
                          BORROW BOOKS
-------------------------------------------------------------------
Book ID NO  = 12345

Book ID : 12345 is already issued to user : happy.

Press any key to go to main menu.....▯
```

4. **Return Book**

   Any book that was issued earlier can be returned through this option. In this
   section, the terminal displays the name of the issued books along with their
   IDs. In order to return a particular book enter its ID. If the user has borrowed
   the book then only those books will be returned. If a user enters some other
   book ID or thing the program will ask to enter the correct Book ID for 3 times.
   After entering the correct Book ID, the user will be asked to confirm the
   returning process. The following message will appear in the terminal,
   confirming the return.

```
###################################################################
###########                                             ###########
###########          Library management System          ###########
###########                                             ###########
###################################################################
-------------------------------------------------------------------
                          RETURN BOOKS
-------------------------------------------------------------------
1.        -        12347   -        Story of my life
2.        -        12345   -        ABC guide
3.        -        12367   -        Let Us C
4.        -        12346   -        Kite
5.        -        12398   -        Harry Potter
-------------------------------------------------------------------

Enter Book ID to return = 3

Please enter correct book id....12347

Enter Book ID to return = 12347


-------------------------------------------------------------------

Confirm Return ? (Y/N) : Y


Book Returned Successfully.

Press any key to go to main menu.....▯
```

For admins:

5. Add books:

Only admins can add a book into the library using this option. In this section, the admin will be asked to type in a new unique ID no. of the book that they want to add. Then the admin must give the name of the book and the name of the author. Finally the admin must specify the total number of books that they would like to add.

```
####################################################################
############                                            ############
############          Library management System         ############
############                                            ############
####################################################################
--------------------------------------------------------------------
                             ADD NEW BOOK
--------------------------------------------------------------------
                     ENTER BOOK DETAILS BELOW:
--------------------------------------------------------------------

Book ID NO  = 13678

Book Name   = Animal Farm

Author Name  = Orwell

Enter number of books in stock : 13
```

Back to the main menu, on pressing option 2, View Books, it can be seen that the book has been added.

```
                    Books available = 9

        6.)
                Book id = 12367
                Book name = Let Us C
                Book authorName = CS
                Books available = 20

        7.)
                Book id = 12398
                Book name = Harry Potter
                Book authorName = J K Rolling
                Books available = 4

        8.)
                Book id = 12490
                Book name = Testing Book
                Book authorName = Testing
                Books available = 5

        9.)
                Book id = 13678
                Book name = Animal Farm
                Book authorName = Orwell
                Books available = 13


        Press any key to go to main menu.....
```

6. Delete books:

The admin can also delete/remove a book from the library. In this section, the admin must specify the ID no. of the book they wish to remove.

```
##################################################################
############                                          ############
############          Library management System       ############
############                                          ############
##################################################################
------------------------------------------------------------------
                          DELETE BOOK
------------------------------------------------------------------
Enter Book ID NO. for delete : 13678

Record deleted successfully.....

Press any key to go to main menu.....█
```

And upon viewing the books, one can see that the book has been removed.

```
              Books available = 5

    5.)
              Book id = 12346
              Book name = Kite
              Book authorName = Mr X
              Books available = 9

    6.)
              Book id = 12367
              Book name = Let Us C
              Book authorName = CS
              Books available = 20

    7.)
              Book id = 12398
              Book name = Harry Potter
              Book authorName = J K Rolling
              Books available = 4

    8.)
              Book id = 12490
              Book name = Testing Book
              Book authorName = Testing
              Books available = 5


    Press any key to go to main menu.....█
```

7. Update books:

The admin can also update any book they like in the library. In this section, the admin must specify the book ID that they wish to update. After that, they can change the name of the book, the name of the author and the available stock.

```
######################################################################
###########                                              ###########
###########            Library management System         ###########
###########                                              ###########
######################################################################
----------------------------------------------------------------------
                           UPDATE BOOK
----------------------------------------------------------------------
Enter Book ID No to update = 12490

Book Name  = Testing book

Author Name  = Someone else

Enter number of books in stock : 3
```

Upon viewing, we can see that it has been updated.

```
    5.)
            Book id = 12346
            Book name = Kite
            Book authorName = Mr X
            Books available = 9

    6.)
            Book id = 12367
            Book name = Let Us C
            Book authorName = CS
            Books available = 20

    7.)
            Book id = 12398
            Book name = Harry Potter
            Book authorName = J K Rolling
            Books available = 4

    8.)
            Book id = 12490
            Book name = Testing book
            Book authorName = Someone else
            Books available = 3


    Press any key to go to main menu.....
```

V. Once you are done with the program, press 0, Exit. "Thank You " message will be displayed in the terminal.

❖ The flowchart shown below sums up the mechanism of the application: