Library Management System

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Subject:-

2CS404 (Programming for Scientific Computing)

Content of project:-

- **1.ico:-** It will be used as the icon of GUI window.

- **Bg.png:-** It will be used as the background of GUI window.

- **Library_Management.py:-** Only file containing whole code, run this file first. Keep 1.ico and bg.png in same folder for display purpose.

Requirements for project:-

Packages:-

1. **Tkinter**: - Tkinter is a standard library in Python which is used for GUI application. Tkinter can be installed using pip. Run the following command in the command prompt to install Tkinter.

   pip install tk

2. **Datetime: -** Datetime module supplies classes to work with date and time. These classes provide a number of functions to deal with dates, times and time intervals. Run the following command in the command prompt to install Datetime.

   pip install DateTime

3. **Mysql-connector-python:** - This package contains the mysql.connector module. It provide access to MySQL Driver. It generates a connection between the programming language and the MySQL Server. Run the following command in the command prompt to install Mysql.connector.

   pip install mysql-connector-python

Database:-

1. **XAMPP:-** XAMPP is a free and open-source tool. It works like a local server in your system. This is required for getting access to database. Refer the following link for installation of it.
   https://www.c-sharpcorner.com/article/how-to-install-and-configure-xampp-in-windows-10/

   Database name:-
   library_management

   Table name:
   1. Login_librarian_tb
   2. Login_admin_tb
   3. Book_detail_tb
   4. issue_book

Project Details:-

This project consists of **Library Management System.** It deals with two categories of user i.e. Admin and Librarian. Librarians are the user who have access to Library and Admin is the user who had access to all details of Librarian. At first user has to logged in with their user id and password in accordance with the category (Admin or Librarian) in which they come.

Rights of Admin:-

- **Add User: -** Logged In Admin can add user (Librarian), thus in order to get access to library one must have to get approved by admin. Here user- id, name and password of user is registered.
- **View User: -** Logged In Admin can view the details (user id, name, passwords) of all users.
- **Delete User: -** Logged In Admin can delete user (Librarian) by mentioning user-id of particular user, after that this user doesn't has access to library.
- **Logout: -** To logout from device (It terminates the program).

Rights of Librarian:-

- **Add Books: -** Logged in Librarian can give books to library, or add its books to library system. Name of book, no. of copy, Author , edition, owner of books, etc details are need to be entered.
- **View Books: -** Logged in Librarian can view the books (and it's details) and its no. of copy available at current time in library.
- **Issue Books: -** Logged in Librarian can issue the books from Library. One can issue at max 3 books at time, they have to return it within 15 days durations.
- **Return Books: -** Logged in Librarian can return the book by mentioning book id.
- **Your Books: -** Logged in Librarian can see the list of books that has been issued by them. Along with the details of book , one can see the expiry date of issued books. So user can easily keep track of their record.
- **Logout: -** To logout from device (It terminates the program)..
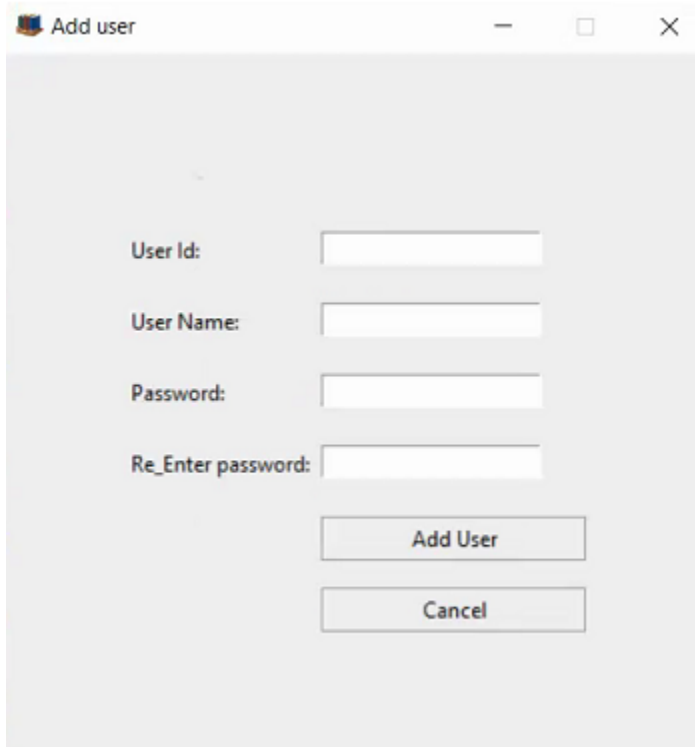
Input/output: -

Login: -
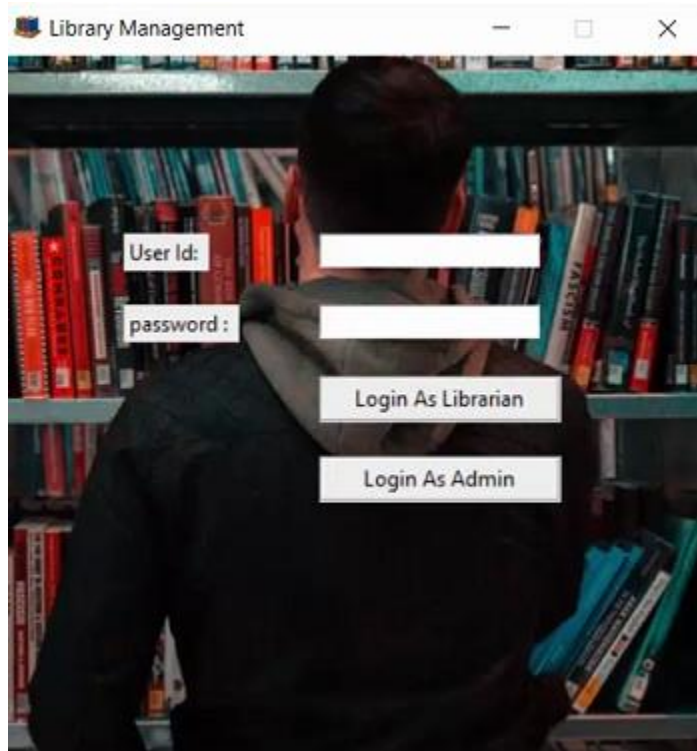
- User has to login as Librarian or Admin by mentioning his or her User Id and Password.

- There can be more than one Admin, but for now there is only one admin.
  Admin User id:- 19bce064   Admin password:- manan@064

- If User Id (of Librarian) is not registered, then it need to be registered by requesting to Admin and Admin will add User Id and Password to database.

- If User Id and Password will not match then it will show error message.

Login as Admin: -
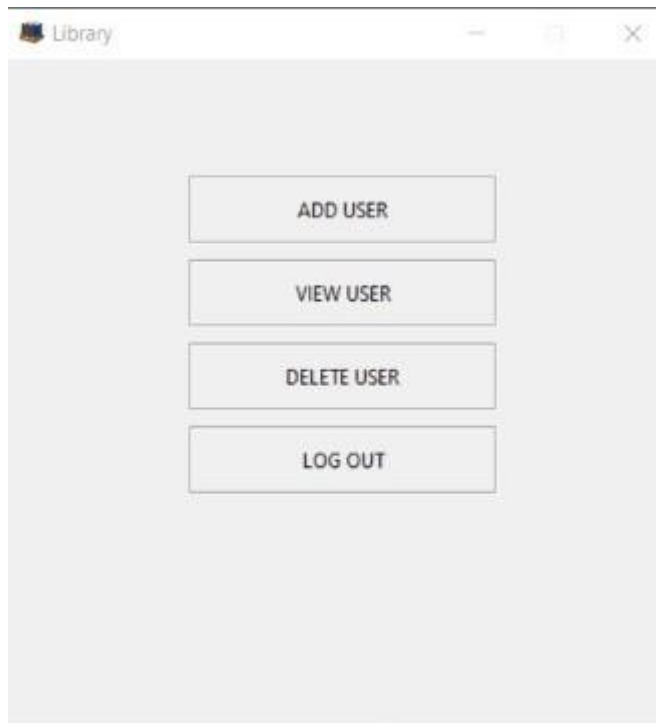
- After successfully Logged In as Admin, there are 4 options available as shown above.

- **Add User: -** Admin can add User (Librarian) to the database.

- **View User: -** Admin can view all Users (Librarian) that has been registered.

- **Delete User:** - Admin can delete User (Librarian) from the database.

- **Logout:** - Admin can Logout and go back to main login page.

Add User: -

- In order to complete process of adding User, admin has to fill above mentioned details.

- If password and re-password doesn't match, then it will display error message.

- If User Id already exists then it will display error message.

- In order to cancel the registration process, Admin can click on cancel button and go back to previous page.

View User: -

- Admin can view the User id, name and password of all registered User.

- To go back from this page to previous page, Admin has to click on Go Back button.
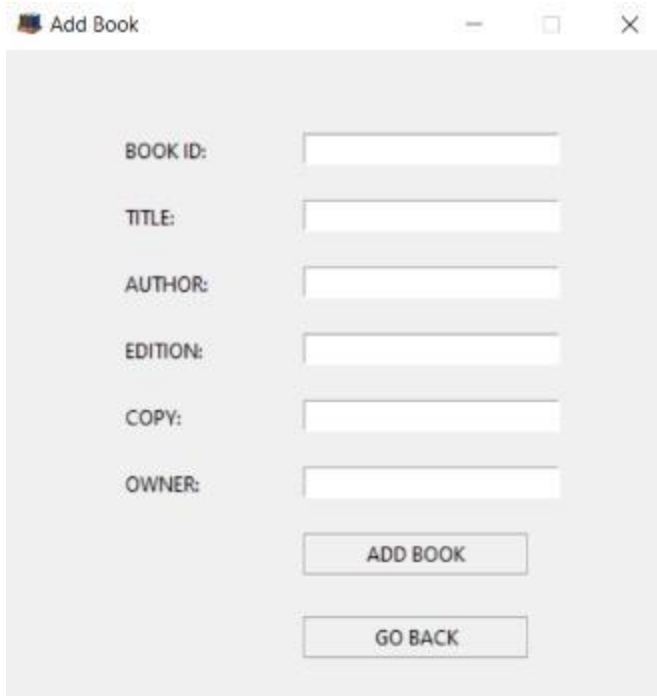
Delete User: -

- Admin has entered User Id of Librarian to be deleted and Admin password to delete the user from the database.

- After writing User Id and Password, Admin has to click on Delete User button to delete it. Or Admin can also click on Cancel, If Admin doesn't want to delete User.

- If User Id is not matched or Admin Password is incorrect, than it will show error message accordingly.

- If user has already issued books and not returned yet then, these books will be return to database.

Login as Librarian: -
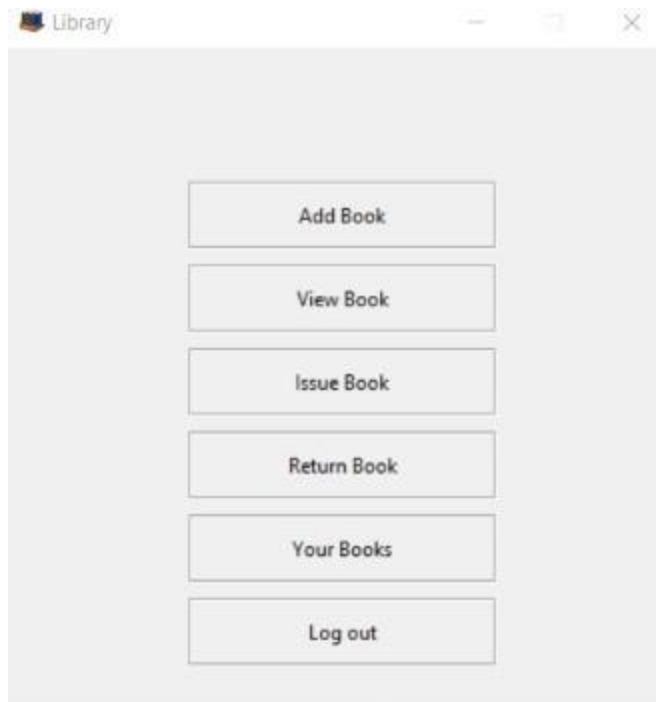
- After Login as Librarian, there are 6 options available to Librarian as shown above.

- **Add Book: -** Librarian can add books along with details of it in the Library collection (Database).

- **View Book:** - Librarian can view all the books and its details that are available for issue in the Library.

- **Issue Book:** - Librarian can select this option for issuing books.

- **Return Book: -**Librarian can select this option in order to return issued books.

- **Your Books:** -This option shows the book that has been issued by the librarian.

- **Log out: -** To go back to main login page, click on this button.

Add Book: -
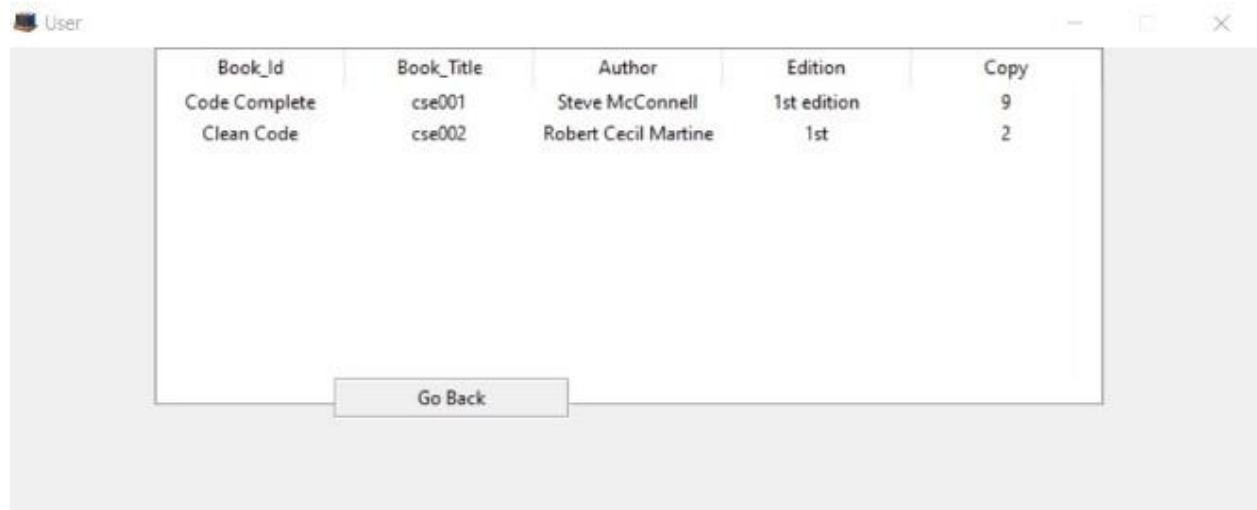
- Librarian has to fill up the details about the books, in order to add books to library.

- As sown above, these details include unique book id of a book, title of book, name of Author, Edition of the book, copy (total occurrence) of book, and the owner of book.

- Only after filling all these details, Librarian can add book to the Library (or Database).

- In order to Go Back to previous page, Go back button is to be selected.

View Book: -

Book_Id	Book_Title	Author	Edition	Copy
Code Complete	cse001	Steve McConnell	1st edition	9
Clean Code	cse002	Robert Cecil Martine	1st	2

Go Back

- Librarian can view the details and occurrence of the books that are available at that time for issue. All details of books are visible as shown above.

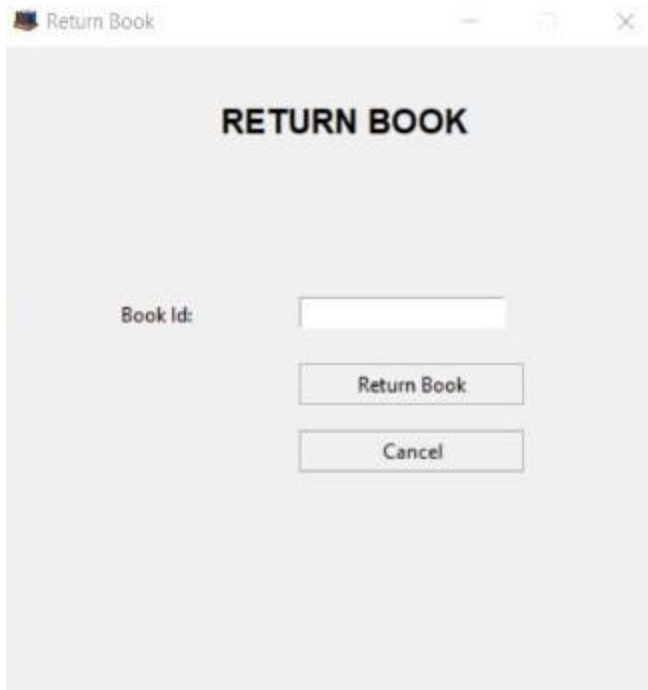- In order to go back to previous page, Librarian has to select Go back button.

Issue Book: -

- Librarian has to fill up above shown details in order to issue book.

- User id can't be different from the login user id. If it is same then it will display error message.

- If book id is incorrect or no. of books are out of stock than it will display error message accordingly.

- Difference between Issue date and Expiry date can be at most 15 days, otherwise, error message will be shown, also issue date can't go backward from current date.

- After filling out all these details, one must click on issue book in order to successfully complete the issuing process. One can also cancel the process and go back to previous page.

- At a time issuing process can be done at most 3 times, thus one can issue at max 3 books at a time.
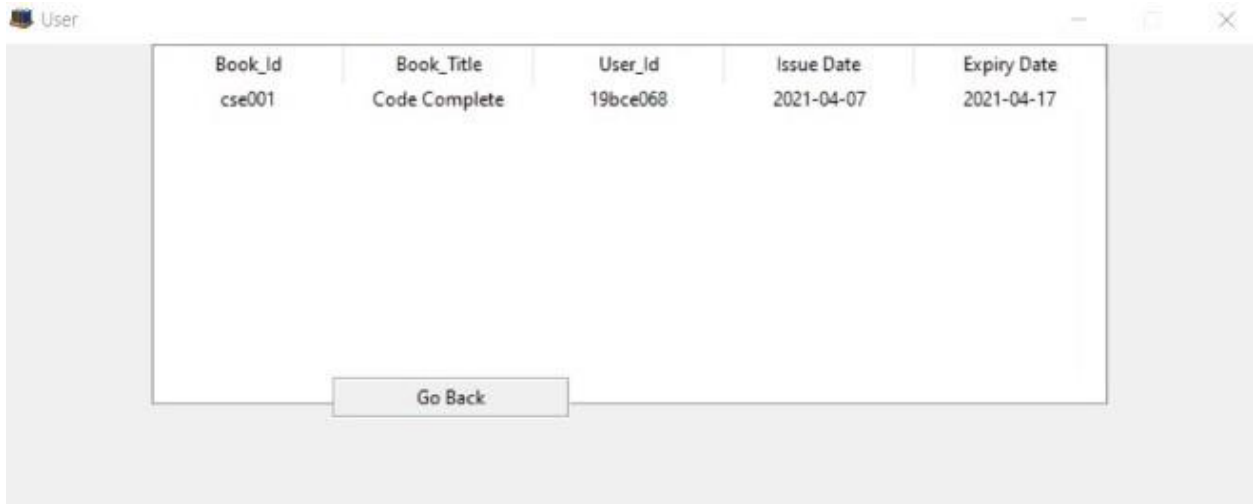
- After issuing books, occurrence of a particular issued book will be decremented accordingly from the Library database and add to issue database. Thus these books will be shown in the your book options.

Return Books: -

- In order to return book, one has to entered the book id and click on the return book button. Occurrence of book will incremented in the library database accordingly. On the other hand occurrence of book will be decremented in your book options (issue book database).

- In order to go back to previous page, one must have to click on Cancel button.

Your Books: -

Book_Id	Book_Title	User_Id	Issue Date	Expiry Date
cse001	Code Complete	19bce068	2021-04-07	2021-04-17

Go Back

- User can view the history of the books that has been issued by them and which are not returned yet, along with the dates (Issue date and Expiry date).

- In order to go back to previous page, one must click on Go back button.