

- Create and manage databases
- Write SQL queries
- Analyze SQL queries

Chapter 2: Project

Project title: Library Management System[GUI,Database]

Features :

- Book Details
- ADD DATA
- SHOW DATA
- UPDATE DATA
- DELETE
- RESET
- EXIT

Language: Python [tkinter, sql]

Program Logic/Flow:

1. Initialize the main application window, set its title and size.

2. Create variables to store the information entered by the user (e.g., member type, PRN number, book details).
3. Design the GUI elements (labels, text boxes, buttons, etc.) using the Tkinter library to create a user-friendly interface.
4. Create a database connection using MySQL Connector and define a cursor to execute SQL queries.
5. Implement methods for adding data to the library database (adda_data), updating existing data (update), fetching data from the database (fetch_data), and deleting data (delete).
6. Implement the get_cursor method to populate the GUI elements with the data selected from the database.
7. Define methods for displaying the information entered by the user in the text box (showData) and resetting the GUI elements (reset).
8. Define an exit method (iExit) to confirm if the user wants to exit the application.
9. Bind the ListBox widget to the SelectBook method to display book details when a book is selected from the list.
10. Design the right section of the GUI to show a list of books available in the library and its details.
11. Create a Treeview widget to display the library data in tabular format.
12. Add functionality to the buttons (Add Data, Show Data, Update, Delete, Reset, Exit) to perform corresponding actions using the defined methods.
13. Run the main event loop (root.mainloop()) to start the application.

Overall, the project follows a GUI approach with user, and also allow to add, update, delete, view information of the user and it is also store data in MYSQL database and this project provide user friendly interface for managing library data.

Project Screenshots :

LIBRARY MANAGMENT SYSTEM

LIBRARY Membership Information

Member Type: Book Id:

PRN No: Book Title:

ID No: Author Name:

First Name: Date Borrowed:

Last Name: Date Due:

Address1: Days On Book:

Address2: Late Return Fine:

Post Code: Date Over Due:

Mobile: Actual Price:

Book Details

Head Firt Book
Learn Python The Hard
Python Programming
Secrete Raihsy
Python CookBook
Into to Machine Learnin
Fluent Python
Machine tecno
My Python
Joss Ellif guru
Elite Jungle python
Jungli Python
Mumbai Python
Pune Python
Machine python
Advance Python

Add Data **Show Data** **Update** **Delete** **Reset** **Exit**

| Member Type | PRN No. | Title | First Name | Last Name | Address1 | Address2 | Post ID | Mobile Number | Book ID | Book Title | Author | Date Of Borrowec | Date Due | Da |
|-------------|-----------|---------|------------|-----------|----------|----------|---------|---------------|---------|------------|--------|------------------|----------|----|
| Admin Staf | | | ih | hu | h | hu | D | D | huh | uh | uh | uh | uh | uh |
| Admin Staf | 123 | Q | | SQDW | | SS | D | D | | | D | DD | DD | DD |
| Student | bhbNI | N | JN | JN | JN | JNIN | JNI | NIN | JN | JN | JN | JN | JN | JN |
| Admin Staf | EDFE | FEFER | EFEF | FEG | EGFE | E | FEDF | EFEF | EFEE | BJB | B | BBJ | B | BB |
| Student | GAYGgYGYG | GYGGGGY | G | G | GYGGYGYG | G | | GG | NI | GYG | GG | G | GGG | G |
| Lecturer | UYZY3 | 1324 | ROHIT | KAMSA | U | | UH | H | U | H | UH | HI | HI | HI |

ADD AND SHOW DATA:

Library Management System

LIBRARY MANAGMENT SYSTEM

LIBRARY Membership Information

Member Type: **Student**

PRN No: **1**

ID No: **20bce117**

FirstName: **ROHIT**

LastName: **kANSAGARA**

Address1: **RAJKOT**

Address2: **RAJKOT**

Post Code: **360003**

Mobile: **U457487594759**

Book Id: **FNJDFN**

Book Title: **PYTHON**

Auther Name: **NEEDNWNDW**

Date Borrowed: **12-06-2002**

Date Due: **30-06-2004**

Days On Book: **15**

Late Return Fine: **50**

Date Over Due:

Actual Price: **500**

Book Details

Head Firt Book
Learn Python The Hard
Python Programming
Secrete Rahshy
Python CookBook
Into to Machine Learnin
Fluent Python
Machine tecno
My Python
Joss Ellif guru
Elite Jungle python
Jungli Python
Mumbai Python
Pune Python
Machine python
Advance Python

Member Type: **Student**

PRN No: **1**

ID No: **20bce117**

First Name: **ROHIT**

Last Name: **kANSAGARA**

Address1: **RAJKOT**

Address2: **RAJKOT**

Post Code: **360003**

Mobile No: **U457487594759**

Book ID: **FNJDFN**

Book Title: **PYTHON**

Auther: **NEEDNWNDW**

DateBorrowed: **12-06-2002**

DateDue: **30-06-2004**

DaysOnBook: **15**

LateRateFine: **50**

Add Data **Show Data** **Update** **Delete** **Reset** **Exit**

| Member Type | PRN No. | Title | First Name | Last Name | Address1 | Address2 | Post ID | Mobile Number | Book ID | Book Title | Auther | Date Of Borrowe: | Date Due | Da |
|-------------|------------|----------|------------|-----------|----------|----------|---------|---------------|---------|------------|-----------|------------------|------------|----|
| Admin Staf | | | | | | | | | | | | | | |
| Admin Staf | | hh | ih | hu | h | hu | hu | 360003 | uh | uh | uh | uh | uh | uh |
| Student | 1 | 20bce117 | ROHIT | kANSAGARA | RAJKOT | RAJKOT | 360003 | U457487594759 | FNJDFN | PYTHON | NEEDNWNDW | 12-06-2002 | 30-06-2004 | 15 |
| Admin Staf | 123 | Q | SQDW | SS | SS | SS | D | D | D | D | D | DD | DD | DD |
| Student | bhbNJI | N | JN | JN | JN | JNIN | JNI | NIN | JN | JN | JN | JN | JN | JN |
| Admin Staf | EDFE | FEFER | EFEF | FEG | EGFE | E | FEDF | EFEF | EFFE | B/B | B | BBJ | B | BB |
| Student | GAYGygYGVG | GYGGGGY | G | G | GYGGYGVG | G | GG | GG | NU | GYG | GG | G | GGG | G |

DELETE:

select the row

Library Management System

LIBRARY MANAGMENT SYSTEM

LIBRARY Membership Information

Member Type: **Admin Staf**

PRN No: **123**

ID No: **Q**

FirstName:

LastName: **SQDW**

Address1:

Address2: **SS**

Post Code: **D**

Mobile: **D**

Book Id:

Book Title:

Auther Name: **D**

Date Borrowed: **DD**

Date Due: **DD**

Days On Book: **DD**

Late Return Fine: **D**

Date Over Due: **D**

Actual Price: **D**

Book Details

Head Firt Book
Learn Python The Hard
Python Programming
Secrete Rahshy
Python CookBook
Into to Machine Learnin
Fluent Python
Machine tecno
My Python
Joss Ellif guru
Elite Jungle python
Jungli Python
Mumbai Python
Pune Python
Machine python
Advance Python

Add Data **Show Data** **Update** **Delete** **Reset** **Exit**

| Member Type | PRN No. | Title | First Name | Last Name | Address1 | Address2 | Post ID | Mobile Number | Book ID | Book Title | Auther | Date Of Borrowe: | Date Due | Da |
|-------------|------------|----------|------------|-----------|----------|----------|---------|---------------|---------|------------|-----------|------------------|------------|----|
| Admin Staf | | | | | | | | | | | | | | |
| Admin Staf | | hh | ih | hu | h | hu | hu | 360003 | uh | uh | uh | uh | uh | uh |
| Student | 1 | 20bce117 | ROHIT | kANSAGARA | RAJKOT | RAJKOT | 360003 | U457487594759 | FNJDFN | PYTHON | NEEDNWNDW | 12-06-2002 | 30-06-2004 | 15 |
| Admin Staf | 123 | Q | SQDW | SS | SS | SS | D | D | D | D | D | DD | DD | DD |
| Student | bhbNJI | N | JN | JN | JN | JNIN | JNI | NIN | JN | JN | JN | JN | JN | JN |
| Admin Staf | EDFE | FEFER | EFEF | FEG | EGFE | E | FEDF | EFEF | EFFE | B/B | B | BBJ | B | BB |
| Student | GAYGygYGVG | GYGGGGY | G | G | GYGGYGVG | G | GG | GG | NU | GYG | GG | G | GGG | G |

Now,click the delete button:

LIBRARY MANAGMENT SYSTEM

LIBRARY Membership Information

| | | | |
|-------------|--|-------------------|--|
| Member Type | | Book Id | |
| PRN No | | Book Title: | |
| ID No: | | Auther Name: | |
| FirstName | | Date Borrowed: | |
| LastName | | Date Due: | |
| Address1 | | Days On Book: | |
| Address2 | | Late Return Fine: | |
| Post Code | | Date Over Due: | |
| Mobile | | Actual Price: | |

Book Details

| | |
|-------------------------|--|
| Head Firt Book | |
| Learn Python The Hard | |
| Python Programming | |
| Secrete Rahshy | |
| Python CookBook | |
| Into to Machine Learnin | |
| Fluent Python | |
| Machine tecno | |
| My Python | |
| Joss Ellif guru | |
| Elite Jungle python | |
| Jungli Python | |
| Mumbai Python | |
| Pune Python | |
| Machine python | |
| Advance Python | |

Add Data Show Data Update Delete Reset Exit

| Member Type | PRN No. | Title | First Name | Last Name | Address1 | Address2 | Post ID | Mobile Number | Book ID | Book Title | Auther | Date Of Borrowec | Date Due | Da |
|-------------|-----------|----------|------------|-----------|----------|----------|---------|---------------|---------|------------|-----------|------------------|------------|----|
| Admin Staf | | hh | ih | hu | h | hu | hu | 360003 | huh | uh | uh | uh | uh | uh |
| Admin Staf | 1 | 20bce117 | ROHIT | kANSAGARA | RAJKOT | RAJKOT | 360003 | U457487594759 | FNJDFN | PYTHON | NEEDNWNDW | 12-06-2002 | 30-06-2004 | 15 |
| Student | bhbNI | N | JN | JN | JN | JNIN | JNI | NIN | JN | JN | JN | JN | JN | JN |
| Admin Staf | EDFE | FEFER | EFEF | FEG | EGFE | E | FEDF | EFEF | EFEF | B/B | B | BBJ | B | BB |
| Student | GAYGgYGYG | GYGGGGY | G | G | GYGGYGYG | G | | GG | NI | GYG | GG | G | GGG | G |
| Lecturer | UYZY3 | 1324 | ROHIT | KAMSA | U | | UH | H | U | H | UH | | HI | HI |

Update:

Click the row you want to update.

Fill the details which you want to update in LIBRARY membership information table.

And after click the update button.

For ex.here I am select 20bce117 id no.'s row:

I want to update lastname here therefore in this table I enter current lastname and then enter the update button.

LIBRARY MANAGMENT SYSTEM

LIBRARY Membership Information

| | | | |
|-------------|---------------|-------------------|------------|
| Member Type | Student | Book Id | FNJDFN |
| PRN No | 1 | Book Title: | PYTHON |
| ID No: | 20bce117 | Auther Name: | NEEDNWNDW |
| FirstName | ROHIT | Date Borrowed: | 12-06-2002 |
| LastName | kANS | Date Due: | 30-06-2004 |
| Address1 | RAJKOT | Days On Book: | 15 |
| Address2 | RAJKOT | Late Return Fine: | 50 |
| Post Code | 360003 | Date Over Due: | |
| Mobile | U457487594759 | Actual Price: | 500 |

Book Details

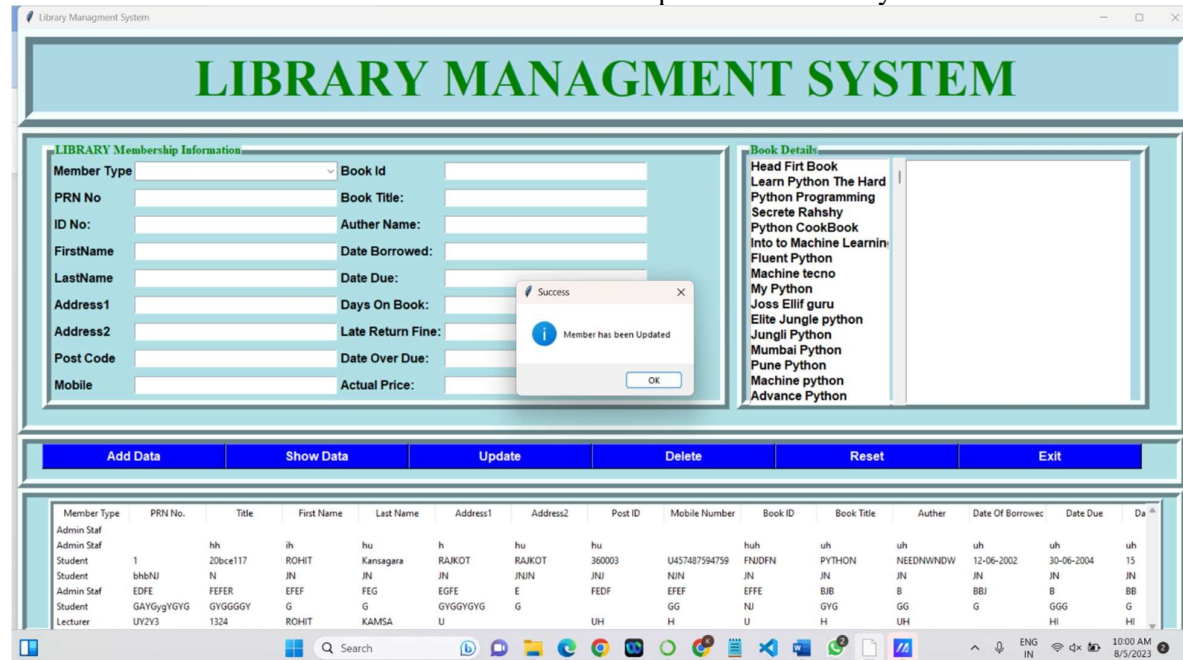
| | |
|-------------------------|--|
| Head Firt Book | |
| Learn Python The Hard | |
| Python Programming | |
| Secrete Rahshy | |
| Python CookBook | |
| Into to Machine Learnin | |
| Fluent Python | |
| Machine tecno | |
| My Python | |
| Joss Ellif guru | |
| Elite Jungle python | |
| Jungli Python | |
| Mumbai Python | |
| Pune Python | |
| Machine python | |
| Advance Python | |

Add Data Show Data Update Delete Reset Exit

| Member Type | PRN No. | Title | First Name | Last Name | Address1 | Address2 | Post ID | Mobile Number | Book ID | Book Title | Auther | Date Of Borrowec | Date Due | Da |
|-------------|-----------|----------|------------|-----------|----------|----------|---------|---------------|---------|------------|-----------|------------------|------------|----|
| Admin Staf | | hh | ih | hu | h | hu | hu | 360003 | huh | uh | uh | uh | uh | uh |
| Admin Staf | 1 | 20bce117 | ROHIT | kANS | RAJKOT | RAJKOT | 360003 | U457487594759 | FNJDFN | PYTHON | NEEDNWNDW | 12-06-2002 | 30-06-2004 | 15 |
| Student | bhbNI | N | JN | JN | JN | JNIN | JNI | NIN | JN | JN | JN | JN | JN | JN |
| Admin Staf | EDFE | FEFER | EFEF | FEG | EGFE | E | FEDF | EFEF | EFEF | B/B | B | BBJ | B | BB |
| Student | GAYGgYGYG | GYGGGGY | G | G | GYGGYGYG | G | | GG | NI | GYG | GG | G | GGG | G |
| Lecturer | UYZY3 | 1324 | ROHIT | KAMSA | U | | UH | H | U | H | UH | | HI | HI |

Entry is updated successfully.

We also see that id :20bce117 row there lastname is updated successfully



RESET:

If you want to reset the table or add new details in table then you click the reset button for reset the table value.

EXIT:

If you want to exit this system then click the exit button.

Conclusion:

In conclusion, the code implements a Library Management System using the Tkinter library for the graphical user interface and MySQL Connector for the database connectivity. It allows users to perform various actions related to library management, such as adding, updating, deleting, and viewing library member details and book information.

Database Connectivity: The system uses MySQL as the database to store and manage library-related data. It establishes a connection with the database, executes SQL queries, and fetches or updates data as per the user's actions.

Overall, the serves as a foundation for building a functional Library Management System and can be further expanded and customized based on specific requirements and user needs.