Exp.No – 12

Mini Project

Aim:

To Design a library management database (mini project) using Python package tkinter as frontend and MySQL as a backend database

Code:

```
import mysql.connector
import tkinter as tk
from tkinter import messagebox

# Connect to the MySQL database
db = mysql.connector.connect(
    host="localhost",
    user="root",
    password="Vidhya@12.",
    database="library"
)
cursor = db.cursor()

# Function to add a book to the database
def add_book():
    title = title_entry.get()
    author = author_entry.get()
    quantity = int(quantity_entry.get())
    sql = "INSERT INTO books (title, author, quantity) VALUES (%s, %s, %s)"
    val = (title, author, quantity)
    cursor.execute(sql, val)
    db.commit()
    messagebox.showinfo("Success", f"Book '{title}' added successfully.")

# Function to add a member to the database
def add_member():
    name = name_entry.get()
    email = email_entry.get()
    sql = "INSERT INTO members (name, email) VALUES (%s, %s)"
    val = (name, email)
    cursor.execute(sql, val)
    db.commit()
    messagebox.showinfo("Success", f"Member '{name}' added successfully.")

# Function to display all books in the database
def display_books():
    cursor.execute("SELECT * FROM books")
    result = cursor.fetchall()
    messagebox.showinfo("Books", "\n".join([str(row) for row in result]))
```

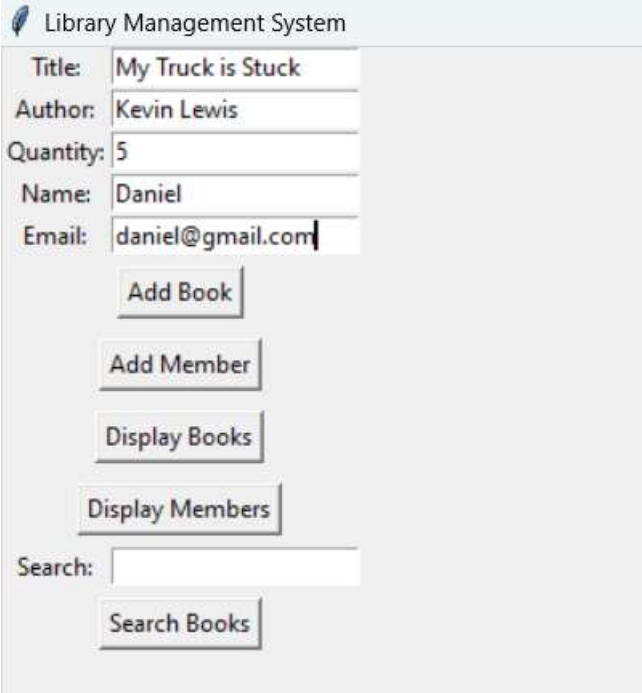
```
# Function to display all members in the database
def display_members():
    cursor.execute("SELECT * FROM members")
    result = cursor.fetchall()
    messagebox.showinfo("Members", "\n".join([str(row) for row in result]))

# Function to search for books by title
def search_books():
    term = search_entry.get()
    sql = "SELECT * FROM books WHERE title LIKE %s"
    val = ("%" + term + "%",)
    cursor.execute(sql, val)
    result = cursor.fetchall()
    if result:
        messagebox.showinfo("Search Results", "\n".join([str(row) for row in
result]))
    else:
        messagebox.showinfo("Search Results", "No matching books found.")

# Create tkinter window
root = tk.Tk()
root.title("Library Management System")

# Labels
tk.Label(root, text="Title:").grid(row=0, column=0)
tk.Label(root, text="Author:").grid(row=1, column=0)
tk.Label(root, text="Quantity:").grid(row=2, column=0)
tk.Label(root, text="Name:").grid(row=3, column=0)
tk.Label(root, text="Email:").grid(row=4, column=0)
tk.Label(root, text="Search:").grid(row=9, column=0)

# Entry fields
title_entry = tk.Entry(root)
author_entry = tk.Entry(root)
quantity_entry = tk.Entry(root)
name_entry = tk.Entry(root)
email_entry = tk.Entry(root)
search_entry = tk.Entry(root)

title_entry.grid(row=0, column=1)
author_entry.grid(row=1, column=1)
quantity_entry.grid(row=2, column=1)
name_entry.grid(row=3, column=1)
email_entry.grid(row=4, column=1)
search_entry.grid(row=9, column=1)

# Buttons
```

```
tk.Button(root, text="Add Book", command=add_book).grid(row=5, column=0,
columnspan=2, pady=5)
tk.Button(root, text="Add Member", command=add_member).grid(row=6, column=0,
columnspan=2, pady=5)
tk.Button(root, text="Display Books", command=display_books).grid(row=7,
column=0, columnspan=2, pady=5)
tk.Button(root, text="Display Members", command=display_members).grid(row=8,
column=0, columnspan=2, pady=5)
tk.Button(root, text="Search Books", command=search_books).grid(row=10,
column=0, columnspan=2, pady=5)

root.mainloop()

# Close the database connection
db.close()
```

Output:

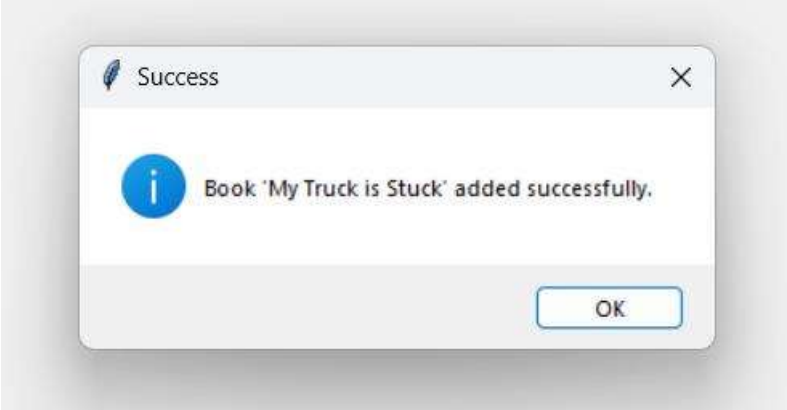
Frontend Design:

Main Page and add book and members details page:



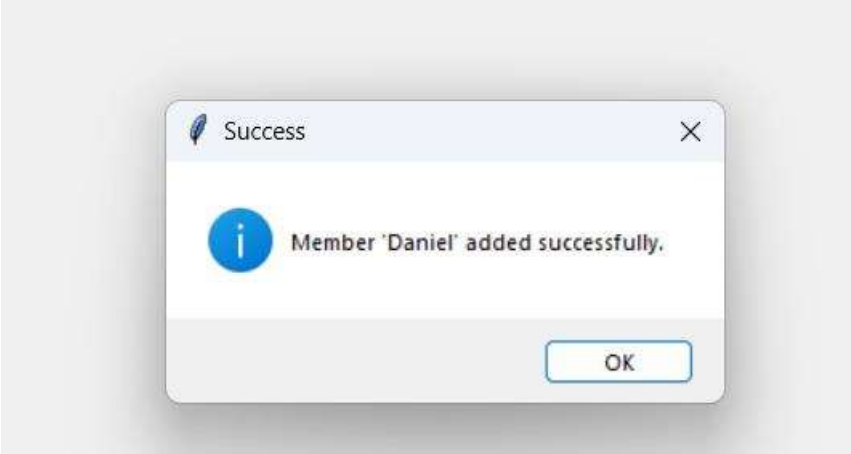
This page allows us to add book, add member , display books, display members and search the particular book details by the book name

Add Book Details Page:



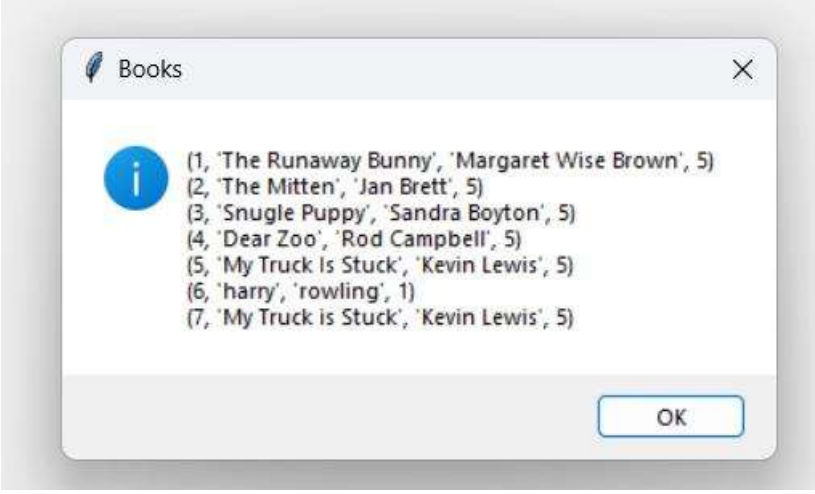
This indicates that if we click the add book button it adds the details of book to the books table

Add Members Details Page:



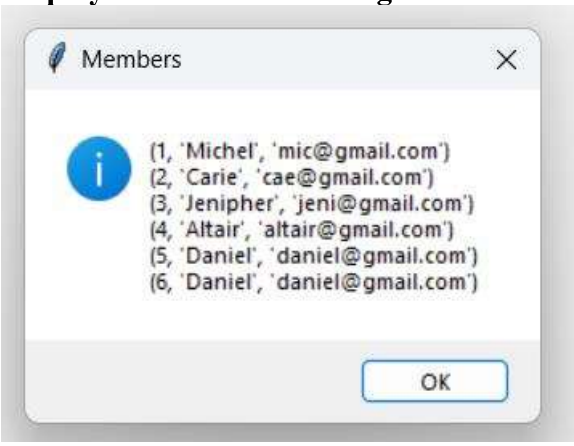
This indicates that if we click the add member button it adds the details of member to the members table

Display Book Details Page:



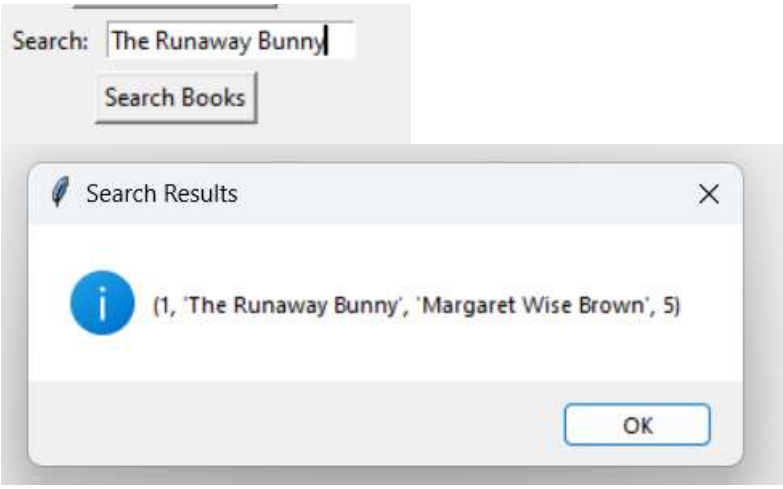
By using this page, we can see all the book's records.

Display Members Detail Page:



By using this page, we can see all the member's records.

Search Details Page:



This is the search page. We can search the details of the books by their names. And it fetches the details of the particular book which is stored in library database

Backend Design:

Books Table:

```
1 • SELECT * FROM library.books;
```

Result Grid | Filter Rows: | Edit: | Export/Import:

book_id	title	author	quantity
1	The Runaway Bunny	Margaret Wise Brown	5
2	The Mitten	Jan Brett	5
3	Snugle Puppy	Sandra Boyton	5
4	Dear Zoo	Rod Campbell	5
5	My Truck Is Stuck	Kevin Lewis	5
6	harry	rowling	1

Members Table:

```
1 • SELECT * FROM library.members;
```

Result Grid | Filter Rows: | Edit: | Export/Import:

mem_id	name	email
1	Michel	mic@gmail.com
2	Carie	cae@gmail.com
3	Jenipher	jeni@gmail.com
4	Altair	altair@gmail.com
5	Daniel	daniel@gmail.com
6	Daniel	daniel@gmail.com
NULL	NULL	NULL

MySQL has been used for the backend database. This Stores and displays the data entered in frontend

Result:

Thus the Library Management Database(mini project) is executed successfully