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Roll no: 41		**Tutorial No: 7**
Title of LAB Assignment: To write, test, and debug Basic Python programs.		
DOP: 25-09-2023		**DOS:02-10-2023**
CO Mapped:	**PO Mapped:**	**Signature:**

1. Aim:
The aim of this project is to create a login system with a sign-up feature using Python and the tkinter library. This system will allow users to register and log in securely.

2. Theory:
In this project, we will create a graphical user interface (GUI) application that includes two main features:

Sign-up: Users can register by providing a username and password. The entered data will be stored in an SQLite database for later use.

Login: Users can enter their username and password to log in. The application will check if the credentials match those stored in the database and provide access if they are correct.
We'll use the tkinter library for the graphical interface and SQLite for database operations.

Code:

```
import tkinter as tk
import sqlite3

# Connect to the SQLite database (this will create the database if it doesn't
exist)
conn = sqlite3.connect('user_database.db')
cursor = conn.cursor()

# Create a 'users' table if it doesn't exist
cursor.execute('''
    CREATE TABLE IF NOT EXISTS users (
        id INTEGER PRIMARY KEY,
        username TEXT NOT NULL,
        password TEXT NOT NULL
    )
''')

# Commit the changes and close the connection
conn.commit()
conn.close()

def signup():
    username = entry_username.get()
    password = entry_password.get()

    # Connect to the SQLite database
    conn = sqlite3.connect('user_database.db')
    cursor = conn.cursor()

    # Insert user into the 'users' table
    cursor.execute("INSERT INTO users (username, password) VALUES (?, ?)",
(username, password))
    conn.commit()
    conn.close()

    message.config(text="Registration successful")

def login():
    username = entry_username.get()
    password = entry_password.get()
```

```
    # Connect to the SQLite database
    conn = sqlite3.connect('user_database.db')
    cursor = conn.cursor()

    # Check if the provided credentials are in the database
    cursor.execute('SELECT * FROM users WHERE username=? AND password=?',
(username, password))
    user = cursor.fetchone()

    if user:
        message.config(text="Login successful")
    else:
        message.config(text="Login failed")

    conn.close()

# Create the main window
window = tk.Tk()
window.title("Login Page")

# Create a frame for better organization
frame = tk.Frame(window)
frame.pack(pady=10)

# Create and place widgets
label_username = tk.Label(frame, text="Username:")
entry_username = tk.Entry(frame)
label_password = tk.Label(frame, text="Password:")
entry_password = tk.Entry(frame, show="*")  # Password field
button_login = tk.Button(frame, text="Login", command=login)
button_signup = tk.Button(frame, text="Sign Up", command=signup)
message = tk.Label(window, text="")

label_username.grid(row=0, column=0, padx=10, pady=5, sticky="e")
entry_username.grid(row=0, column=1, padx=10, pady=5)
label_password.grid(row=1, column=0, padx=10, pady=5, sticky="e")
entry_password.grid(row=1, column=1, padx=10, pady=5)
button_login.grid(row=2, column=0, padx=10, pady=10)
button_signup.grid(row=2, column=1, padx=10, pady=10)
message.pack(pady=5)

# Customize the window size and appearance
window.geometry("300x250")
window.configure(bg="lightgray")
frame.configure(bg="lightgray")

window.mainloop()
```

Output:

Login/SignUP: