WEATHER APPLICATION USING PYTHON

Subtitle: A simple weather forecast app

Presented by:

- **Kajal Yadav**
- **Kareena**
- **Kavita**

Under the supervision:-
Aman Sharma
(Lecturer Computer Science, Project Coordinator

B.B.S Groups of Institutions & Technology

INTRODUCTION....

- **Objective:**
- Build a weather application to retrieve real-time weather information from OpenWeatherMap API.
- The app will display current weather details, including temperature, humidity, and wind speed,
based on the user's city input.
- **Tools used:**
- Python Programming Language
- Requests Library
- OpenWeatherMap API

Project Flow

- **Steps Involved:**

  - **1User) Input:** The user enters a city name.
  - **2) API Request:** The application sends a request to the OpenWeatherMap API.
  - **3) Response Parsing:** The application processes the response to extract weather information.
  - **4) Display Data:** The weather data (temperature, humidity, wind speed) is displayed to the user.

What is open weather API

- Provides weather data via API.
- Real-time weather data, forecasts, and historical weather data.

- **API Key:**
  - A unique key required to access data.
  - Ensure that the key is kept private and secure.
- **API URL:**
  - Example: http://api.openweathermap.org/data/2.5/weather

Python Code Explanation

- **Importing Libraries:**
  - requests: To make HTTP requests to the OpenWeatherMap API.
  - Json: TO parse the response
- **Key Variables:**
  - Api_key: Your unique API key from OpenWeatherMap.
  - base_url: The base URL for accessing weather data.
- **Request URL Construction:**
  - URL built dynamically based on user input for city.
  - units=metric: Specifies that the temperature should be in Celsius.

CODE SNIPPED OF PROJECT

w2.py - C:\Users\yuvra\AppData\Local\Programs\Python\Python313\w2.py (3.13.0)

File Edit Format Run Options Window Help

```
import requests

Api_key = '6e6f9659fef62e5c5d1103979100d281'
base_url = 'http://api.openweathermap.org/data/2.5/weather'

city = input('Enter a city/state name: ')

request_url = f"{base_url}?appid={Api_key}&q={city}"
response = requests.get(request_url)

if response.status_code==200:

    data = response.json()
    weather = data['weather'][0]['description']
    temperature = round(data['main']['temp']- 273.15,2 ) # for celsius
    humidity = data['main']['humidity']
    wind_speed = data['wind']['speed']

    print('Weather: ', weather)
    print('Temperature: ', temperature)
    print('humidty: ',humidity)
    print('wind_speed: ',wind_speed)
else:
    print("An error occured... ")
```

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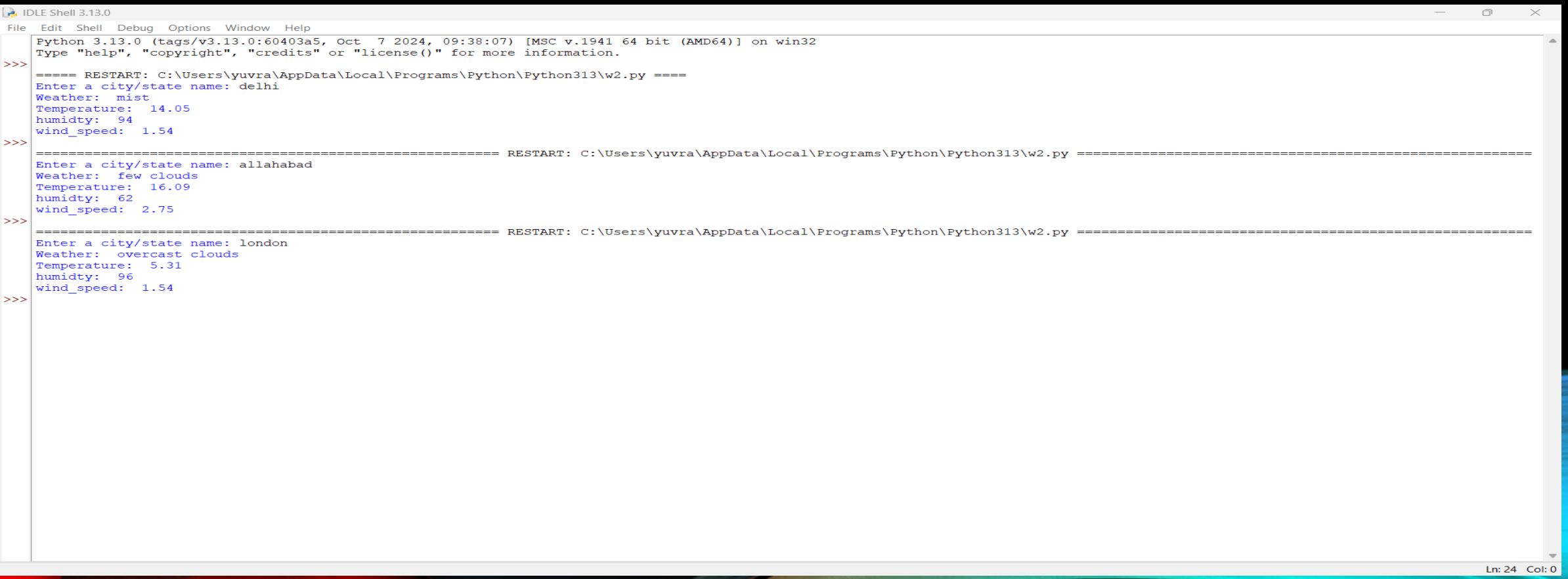
“EXAMPLE OUTPUT”



ERROR HANDLING

ERROR SCENARIOS:
INVALID CITY NAME OR INCORRECT API KEY.
CONNECTIVITY ISSUES WITH THE OPENWEATHERMAP API.
ERROR MESSAGES:
EXAMPLE: "CITY NOT FOUND" OR "AN ERROR OCCURRED...".

Error Handling

- **What Happens on Error:**
  - If the city is not found, show a message: "Error fetching weather data."
  - Handle API request errors gracefully.

Conclusion

- **Summary:** A simple app that fetches and displays weather data for any city.
- **Thank You!**