CODTECH INTERNSHIP

TASK 1: API INTEGRATION AND DATA VISUALIZATION

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INTRODUCTION:

This project is a Weather Forecast Application developed using Python and the OpenWeatherMap API. It is designed to display real-time weather information such as temperature, humidity, pressure, and weather description for Delhi City.

To make the data more clear and interactive, I have used Matplotlib to generate a visual graph of the weather parameters.
API Key Used: 60681d208d172c85f3cf41c6ea8bdc9b

This project showcases skills in API handling, JSON data extraction, and graphical visualization in Python.

CODE:

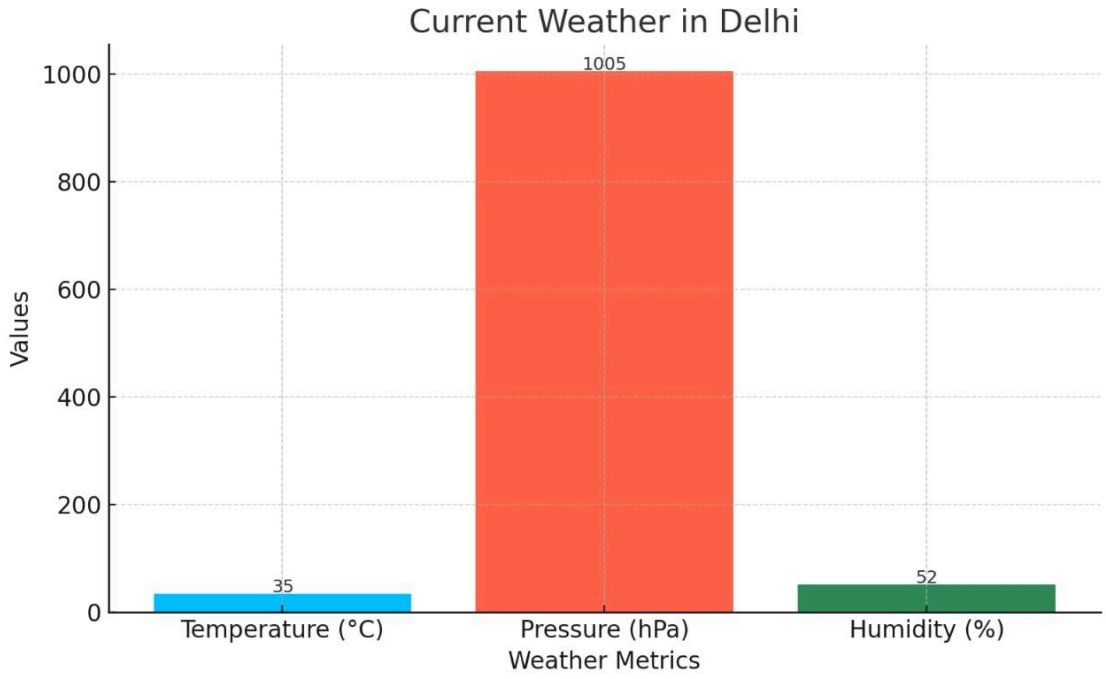
```
import requests
import matplotlib.pyplot as plt

# API key and city
my_api_key = "60681d208d172c85f3cf41c6ea8bdc9b"
my_city = "Delhi"

# API endpoint
complete_url =
f"http://api.openweathermap.org/data/2.5/weather?q={my_city}&appid={my_
api_key}&units=metric"

# Fetch weather data
weather_data = requests.get(complete_url).json()

# Check if city data is found
```

```
if weather_data["cod"] == 200:
    temp = weather_data["main"]["temp"]
    press = weather_data["main"]["pressure"]
    humid = weather_data["main"]["humidity"]
    desc = weather_data["weather"][0]["description"]

    print(f"Weather Report for: {my_city}")
    print(f"Temperature: {temp}°C")
    print(f"Pressure: {press} hPa")
    print(f"Humidity: {humid}%")
    print(f"Condition: {desc}")

    # Graph Data
    features = ['Temperature (°C)', 'Pressure (hPa)', 'Humidity (%)']
    readings = [temp, press, humid]

    # Plotting graph
    plt.figure(figsize=(8, 5))
    bars = plt.bar(features, readings, color=['deepskyblue', 'tomato',
'seagreen'])

    # Adding value labels on top of each bar
    for bar in bars:
        yval = bar.get_height()
        plt.text(bar.get_x() + bar.get_width()/2, yval + 2, round(yval,
2), ha='center', fontsize=9)

    plt.title(f"Current Weather in {my_city}")
    plt.xlabel("Weather Metrics")
    plt.ylabel("Values")
    plt.grid(axis='y', linestyle='--', alpha=0.5)
    plt.tight_layout()
    plt.show()

else:
    print("Sorry, weather data for this city is not available.")
```

OUTPUT:

Weather Report for: Delhi

Temperature: 35°C
Pressure: 1005 hPa
Humidity: 52%
Condition: scattered clouds



CONCLUASION:

Through this project, I successfully developed a Weather Forecast Application for Delhi City using Python and the OpenWeatherMap API. The application fetches and displays real-time weather details like temperature, pressure, humidity, and weather conditions.

By adding a graphical visualization using Matplotlib, the data becomes more engaging and easy to understand. This project helped me enhance my skills in API integration, JSON handling, and data visualization with Python.