Live Weather Update Using GUI

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Abstract

- In our application, we tend to provide the user with an easy handling tool to navigate through the weather of the cities across the world. Along with that the temperature, humidity and climate of that particular place.
- Users can compare and get an approximate forecast of the weather for the coming 5 days.We aim to display a Bar-Graph based on the temperature of the next 5 days of that selected city.
- This will help in understanding the weather pattern.OpenWeatherMap, json and matplotlib and PyOWM library will be used for the same.

Problem Definition

This project aims to provide a user-friendly application to predict weather. To create an application which will display the weather of a particular city in a GUI application. Along with the current day's temperature a bar-graph forecasting the temperature of the next five days will be displayed for the user to analyze. Python libraries will be used extensively for this project.

Description of the modules use

- **Json**

  JavaScript Object Notation is an open standard file format and data interchange format that uses human-readable text to store and transmit data objects consisting of attribute–value pairs and arrays. Used for web applications that communicate with a server.

- **PyOWM**

  PyOWM is a client Python wrapper library for OpenWeatherMap (OWM) web APIs. It allows quick and easy consumption of OWM data from Python applications via a simple object model and in a human-friendly fashion. PyOWM runs on Python 3.7+

- **OpenWeatherMap**

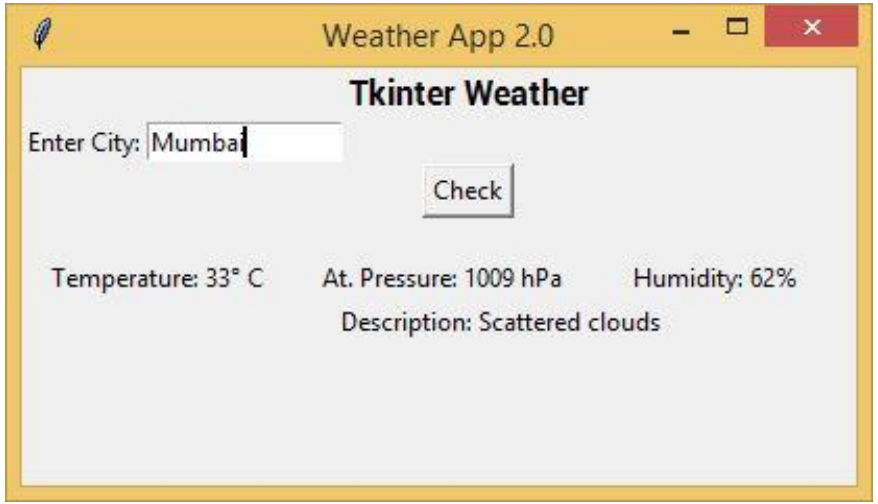
  OpenWeatherMap is an online service that provides global weather data via API, including current weather data, forecasts, nowcasts and historical weather data for any geographical location. It provides a minute-by-minute hyperlocal precipitation forecast for any location.

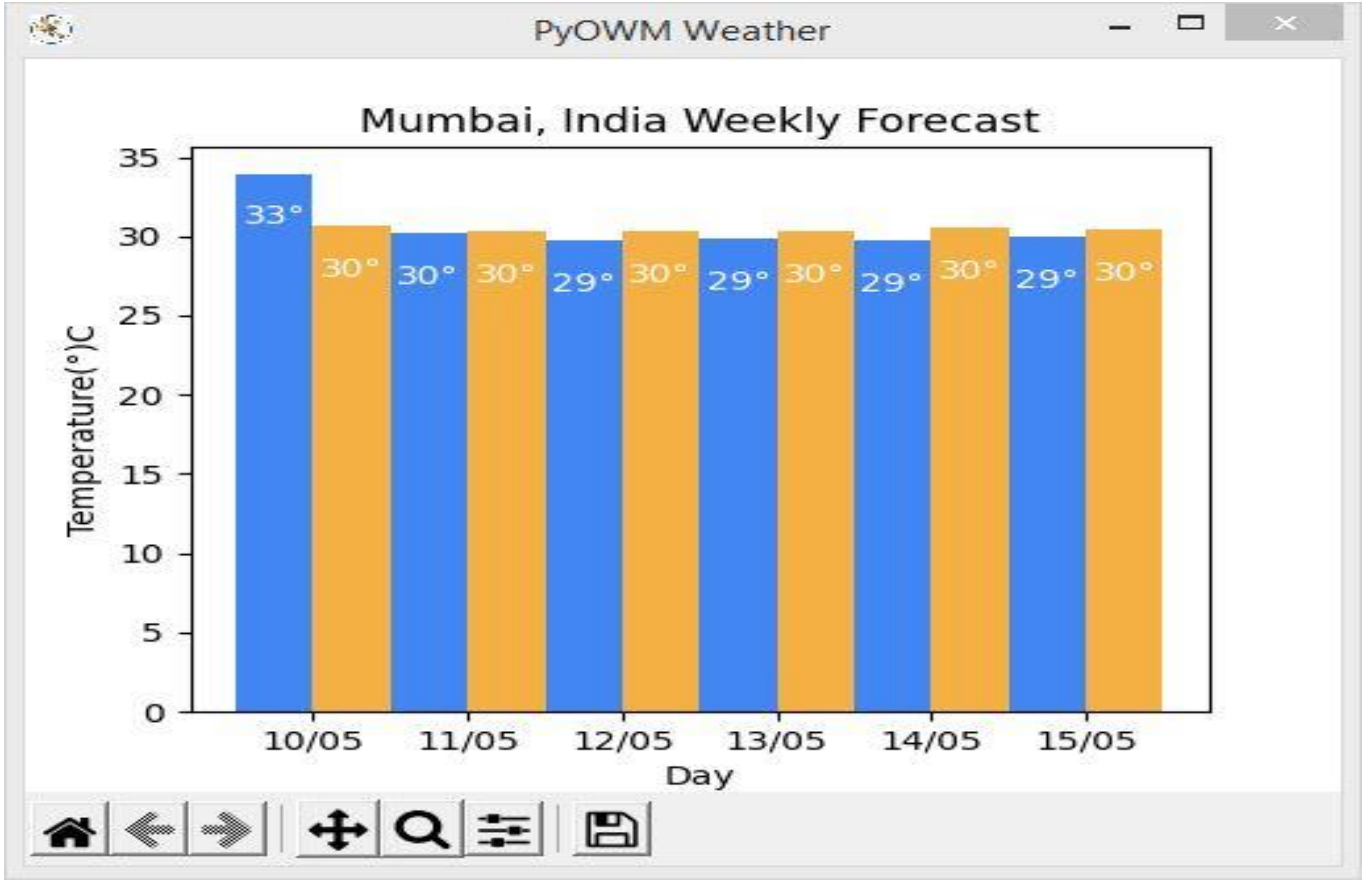
- **Matplotlib (Python library)**

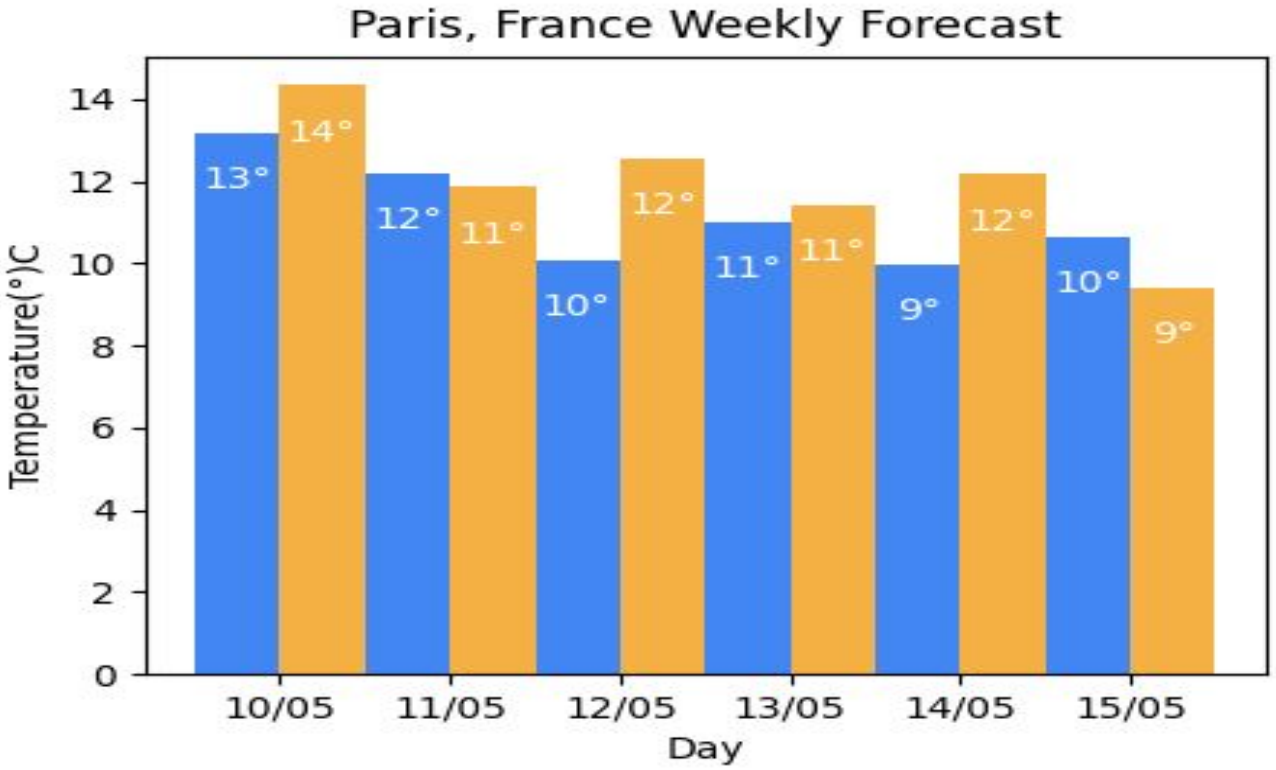
  Its numerical mathematics extension NumPy. It provides an object-oriented API for embedding plots into applications using general-purpose GUI toolkits like Tkinter, wxPython, Qt, or GTK. SciPy makes use of Matplotlib. We can create plots, histograms, power spectra, bar charts, error charts, scatter-plots, etc.

OUTPUT


Weather App 2.0
Tkinter Weather
Enter City:
Check


Weather App 2.0
Tkinter Weather
Enter City: Mumbai
Check
Temperature: 33° C
At. Pressure: 1009 hPa
Humidity: 62%
Description: Scattered clouds


PyOWM Weather
Mumbai, India Weekly Forecast
Temperature(°)C
35
30
25
20
15
10
5
0
33°
30°
30°
30°
29°
30°
29°
30°
29°
30°
29°
30°
10/05
11/05
12/05
13/05
14/05
15/05
Day


Paris, France Weekly Forecast
Temperature(°)C
0
2
4
6
8
10
12
14
13°
14°
12°
11°
10°
12°
11°
11°
9°
12°
10°
9°
10/05
11/05
12/05
13/05
14/05
15/05
Day

Conclusion

Thus, this report concludes how this project is initiated and how all the modules work accordingly one after the other. This project makes use of API and python modules and libraries to make our Live Weather Update using GUI.

It is an attempt to build an application to implement the above mentioned modules and learn about the vast set of facilities provided by the developers.

Future scope

- This application can be made more interactive and more modules can be added.
- Speech-to-text modules can be included to get the city from the user.
- Similarly, results could be received in a verbal form.
- Graph for various other parameters could be included.
- Rather than hard coring the cities OR making the user choose from a predefined set ; more flexibility could be provided.

Reference

- OpenWeatherMap Weather API

- Our public github repository
  https://github.com/Prathamesh247/WeatherProject

Thank You !