Weather Application

Overview

The Weather App is a graphical user interface (GUI) application developed with Python's Tkinter library. It provides real-time weather information for any specified city using the OpenWeatherMap API for weather data and the OpenCage Geocoding API for location data. Additionally, the application shows the local time of the queried city by utilizing the TimezoneFinder and pytz libraries.

Requirements

Libraries

The application depends on several Python libraries. Ensure the following libraries are installed:

- tkinter (included with Python)
- geopy
- timezonefinder
- requests
- pytz

API Keys

To function correctly, the application requires API keys from OpenWeatherMap and OpenCage. Sign up on their respective websites to obtain these keys and replace the placeholder strings in the code with your actual API keys.

- **Open WeatgerMap:** https://openweathermap.org/
- **OpenCage:** https://opencagedata.com/

Application Structure

Title Bar

The main window of the application is configured with a title, size, and position on the screen. The window is set to be non-resizable to maintain the layout consistency.

Main Function: getWeather

The `getWeather` function is responsible for fetching and displaying the weather information. It performs the following steps:

1. Retrieve City Name: Gets the city name entered by the user in the text field.

2. Geocode City Name: Uses the OpenCage API to obtain the latitude and longitude of the city.

3. Get Timezone and Local Time: Utilizes the TimezoneFinder and pytz libraries to determine the city's timezone and current local time.

4. Fetch Weather Data: Calls the OpenWeatherMap API to retrieve the current weather conditions.

5. Update UI: Displays the fetched weather data in the corresponding labels and fields within the application.

UI Elements

Search Box

The search box allows users to input the city name. It includes a text entry field for the city name and a search button that triggers the `getWeather` function.

Logo

A logo is displayed at a predefined location within the application window for visual branding and aesthetics.

Bottom Box

A decorative frame is placed at the bottom of the window to enhance the visual appeal of the application.

Time and Weather Information

Various labels and fields are included to display the current time, temperature, wind speed, humidity, weather condition, description, and atmospheric pressure. These elements are dynamically updated based on the retrieved data from the weather API.

Running the Application

Ensure that all the required image files (e.g., `search.png`, `search_icon.png`, `logo.png`, `frame.png`) are located in the same directory as the script or provide the correct paths to these files.

Upon execution, the application window will open. Enter a city name in the search box to retrieve and display the current weather information and local time for that location.