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# Introduction to Weather App

A weather application built using HTML, CSS, and JavaScript that fetches weather data from the OpenWeatherMap API. The app allows users to search for weather information by entering a city name and displays the current weather, air quality index, and sunrise/sunset times. It also includes a feature to view recently searched cities.

## Features

- Search for weather information by city name

- Display current temperature, weather description, humidity, and wind speed

- Show air quality index with color-coded indicators

- Display sunrise and sunset times

- Store and display recently searched cities using local storage

# Setup Instructions

## Prerequisites

- A modern web browser (e.g., Chrome, Firefox, Edge)

- Internet connection to fetch data from the OpenWeatherMap API

## Installation

### 1. \*\*Clone the repository:\*\*

```bash

git clone https://github.com/your-username/weather-app.git

cd weather-app

```

### 2. \*\*Open the project in your code editor:\*\*

```bash

code .

```

### 3. \*\*Sign up for an API key from OpenWeatherMap:\*\*

- Go to OpenWeatherMap and sign up for a free API key.

### 4. \*\*Add your API key to the project: \*\*

- Open the `script.js` file and replace `'YOUR\_API\_KEY'` with your actual API key.

```javascript

const APIKey = 'YOUR\_API\_KEY';

```

### 5. \*\*Open the `index.html` file in your browser: \*\*

- You can simply double-click the `index.html` file or use a live server extension in your code editor.

## Usage

### 1. \*\*Search for a city: \*\*

- Enter the name of a city in the search box and click the "Search" button.

- The app will display the current weather information for the entered city.

### 2. \*\*View recent cities: \*\*

- Click the "Recent Cities" button to view a dropdown menu of recently searched cities.

- Select a city from the dropdown to update the weather information.

## Code Structure

### - \*\*index.html\*\*:

The main HTML file containing the structure of the app.

### - \*\*styles.css\*\*:

The CSS file for styling the app.

### - \*\*script.js\*\*:

The JavaScript file containing the logic for fetching and displaying weather data.

## Functions

### ### `getWeatherData(city)`

Fetches weather data for the specified city from the OpenWeatherMap API and updates the UI with the fetched data.

### ### `addCityToLocalStorage(city)`

Adds the specified city to local storage if it is not already present.

### ### `populateDropdown()`

Populates the dropdown menu with cities stored in local storage.

### ### `displayForecast(data, lat, lon, temp)`

Displays the weather forecast for the specified location.

### ### `displayAQ(lat, lon)`

Displays the air quality index for the specified location.

### ### `getAmbienceData(city)`

Fetches and displays additional weather information such as sunrise and sunset times.

## Contributing

Contributions are welcome! Please fork the repository and create a pull request with your changes.

# Acknowledgements

- OpenWeatherMap for providing the weather API.

- Font Awesome for the icons used in the app.

- Moment.js for handling date and time formatting.

# API Documentation

## API Key @ Open Weather Map

a51436fe16293393a10f617c7eaf0bca

## API Call Url

[http://api.openweathermap.org/data/2.5/weather?q={city}&units=metric&appid={APIkey}](http://api.openweathermap.org/data/2.5/weather?q=%7bcity%7d&units=metric&appid=%7bAPIkey%7d)

## JSON Data Organisation

1. **Coordinates (**coord**)**:
   * lon: Longitude of the location (e.g., -180 to 180)
   * lat: Latitude of the location (e.g., -90 to 90)
2. **Weather (**weather**)**:
   * id: Weather condition ID (ranges from 200 to 804)
     + 200-232: Thunderstorm
     + 300-321: Drizzle
     + 500-531: Rain
     + 600-622: Snow
     + 701-781: Atmosphere (e.g., mist, smoke)
     + 800: Clear
     + 801-804: Clouds
   * main: Group of weather parameters (e.g., Clear, Clouds, Rain)
   * description: Weather condition within the group (e.g., clear sky, few clouds)
   * icon: Weather icon ID (e.g., 01d, 02n)
3. **Base (**base**)**:
   * base: Internal parameter (e.g., stations)
4. **Main (**main**)**:
   * temp: Temperature in Kelvin (e.g., -273.15 to 373.15)
   * feels\_like: Human perception of weather (similar range as temp)
   * temp\_min: Minimum temperature at the moment (similar range as temp)
   * temp\_max: Maximum temperature at the moment (similar range as temp)
   * pressure: Atmospheric pressure in hPa (e.g., 870 to 1085)
   * humidity: Humidity percentage (e.g., 0 to 100)
5. **Visibility (**visibility**)**:
   * visibility: Visibility in meters (e.g., 0 to 10,000)
6. **Wind (**wind**)**:
   * speed: Wind speed in meter/sec (e.g., 0 to 100)
   * deg: Wind direction in degrees (e.g., 0 to 360)
   * gust: Wind gust in meter/sec (e.g., 0 to 100)
7. **Rain (**rain**)**:
   * 1h: Rain volume for the last hour in mm (e.g., 0 to 500)
   * 3h: Rain volume for the last 3 hours in mm (e.g., 0 to 500)
8. **Clouds (**clouds**)**:
   * all: Cloudiness percentage (e.g., 0 to 100)
9. **Timestamp (**dt**)**:
   * dt: Time of data calculation in Unix, UTC (e.g., 0 to current Unix time)
10. **System (**sys**)**:
    * type: Internal parameter (e.g., 1, 2)
    * id: Internal parameter (varies)
    * country: Country code (ISO 3166-1 alpha-2, e.g., US, IN)
    * sunrise: Sunrise time in Unix, UTC (e.g., 0 to current Unix time)
    * sunset: Sunset time in Unix, UTC (e.g., 0 to current Unix time)
11. **Timezone (**timezone**)**:
    * timezone: Shift in seconds from UTC (e.g., -43200 to 50400)
12. **City ID (**id**)**:
    * id: City ID (varies)
13. **City Name (**name**)**:
    * name: City name (varies)
14. **Response Code (**cod**)**:
    * cod: Internal parameter (e.g., 200 for success, 404 for not found)

## 5 Days Forecast

https://api.openweathermap.org/data/2.5/forecast?lat={lat}&lon={lon}&appid=[{API key}](https://home.openweathermap.org/api_keys)

## Air Quality Index API URL

https://api.openweathermap.org/data/2.5/air\_pollution?lat={lat}&lon={lon}&appid={API key}

## Font Awesome Kit

<script src="https://kit.fontawesome.com/c21216cc75.js" crossorigin="anonymous"></script>

## Box Icon CDN

<link rel="stylesheet" href="https://unpkg.com/boxicons@latest/css/boxicons.min.css">

You can simply double-click the `index.html` file or use a live server extension in your code editor.

# Remarks

I am anticipating positive feedback on this app made in pure Java Script that of course, utilizes some cross-origin sources for data and images. Please feel free to suggest improvement in the app by mailing me at - [sibuspd@gmail.vom](mailto:sibuspd@gmail.vom)