C PROGRAMMING PROJECT

Weather Forecasting System

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Variables:

1. **API_ENDPOINT**: This variable stores the URL of the OpenWeatherMap API endpoint that we use to retrieve weather data.

2. **API_KEY**: This variable stores the API key that we use to authenticate our API requests.

3. **struct weather**: This variable is a structure that stores the weather data that we retrieve from the API.

Functions:

1. handle_response(): This function is a callback function that is called by the `curl_easy_perform()` function when the API response is received. It extracts the weather data from the JSON response and stores it in the `struct weather` variable.

2. main(): This is the main function of the program. It takes the city name as an argument, builds the API request URL using `API_ENDPOINT` and `API_KEY`, and makes the API request using libcurl. It then extracts the weather data from the API response using the `handle_response()` function and displays it in a user-friendly format.

Files:

1. weather.c: This is the main source code file of the program. It contains the `main()` and `handle_response()` functions.

Datasets:

1. OpenWeatherMap API: This is the external dataset that we use to retrieve weather data.

Screenshots:

pi@gopi2: /home/allusers

```
pi@gopi2:/home/allusers $ python3 chapter7-weather.py
Enter City: LONDON
Forecast for  LONDON GB
Day :  1
light rain
Cloud Cover :  88
Temp Min :  3.2 degrees C
Temp Max :  8.5 degrees C
Humidity :  86 %
Wind Speed :  5.21 m/s

Day :  2
light rain
Cloud Cover :  68
Temp Min :  2.6 degrees C
Temp Max :  9.7 degrees C
Humidity :  84 %
Wind Speed :  5.76 m/s

Day :  3
clear sky
Cloud Cover :  8
Temp Min :  0.1 degrees C
Temp Max :  11.8 degrees C
Humidity :  95 %
Wind Speed :  4.02 m/s
```

```
Chennai
Weather report: Chennai

                Mist
 _ - _ - _ -    +31(36) °C
 _ - _ - _ -    → 7 km/h
 _ - _ - _ -    5 km
                0.3 mm

                          Mon 01 Aug
 Morning          Noon                Evening          Night
 \ /      Partly cloudy   \ /      Partly cloudy   \ /      Sunny      \ /      Clear
 _ /"".-.  +32(37) °C   _ /"".-.  +33(41) °C   .-.      +30(35) °C   .-.      +30(35) °C
 \_(  ).  ↑ 15-18 km/h  \_(  ).  ↖ 20-23 km/h  - (  ) -  ↖ 21-27 km/h - (  ) -  ↖ 20-27 km/h
 /(___(__)  10 km       /(___(__)  10 km       `-'      10 km       `-'      10 km
            0.0 mm | 0%            0.0 mm | 0%        / \      0.0 mm | 0%        / \      0.0 mm | 0%

                          Tue 02 Aug
 Morning          Noon                Evening          Night
 \ /      Sunny       \ /      Sunny       \ /      Sunny      \ /      Clear
  .-.      +31(36) °C   .-.      +35(45) °C   .-.      +31(38) °C   .-.      +30(35) °C
 - (  ) -  ↑ 16-18 km/h - (  ) -  ↖ 22-25 km/h - (  ) -  ↖ 21-24 km/h - (  ) -  ↖ 23-32 km/h
  `-'      10 km       `-'      10 km       `-'      10 km       `-'      10 km
 / \      0.0 mm | 0%  / \      0.0 mm | 0%  / \      0.0 mm | 0%  / \      0.0 mm | 0%

                          Wed 03 Aug
 Morning          Noon                Evening          Night
 \ /      Partly cloudy   _ /"".-.  Light rain sho…  .-.      Light rain  _ /"".-.  Patchy light d…
 _ /"".-.  +29(33) °C   ,\_(  ).  +30(35) °C   (  ).     +26(29) °C   ,\_(  ).  +27(30) °C
 \_(  ).  ↑ 12-15 km/h  /(___(__)  ↑ 19-24 km/h  (___(__)  ↖ 17-22 km/h  /(___(__)  ↑ 14-18 km/h
 /(___(__)  10 km       ' ' ' '    10 km       ' ' ' '    9 km       ' ' ' '    5 km
            0.0 mm | 0%  ' ' ' '    0.7 mm | 57%  ' ' ' '    0.8 mm | 75%  ' ' ' '    0.4 mm | 77%

Location: Corporation of Chennai, Chennai district, Tamil Nadu, India [13.0801721,80.2838331]
```

Thank You