Weather Forecasting App using C++ with libcurl and JSON Parser

Project Title:
Weather Forecasting App using C++ with libcurl and JSON Parser

Developer:
Mahadeva Prasad

Project Overview:
This project is a command-line-based Weather Forecasting Application developed in C++. It fetches real-time weather data for any specified city using the OpenWeatherMap API. The project demonstrates the integration of networking libraries (libcurl) with JSON parsing (nlohmann/json) for practical API-based data retrieval.

Key Features:

- Fetches live weather data (city, temperature, weather description).
- Makes secure HTTP(S) requests using libcurl.
- Parses complex JSON response with nlohmann::json.
- Displays user-friendly weather output on the console.
- Built with error handling and debug messages.
- SSL certificate verification disabled for learning/testing purposes.

Technical Specifications:

- **Language:** C++
- **Libraries Used:**
    - libcurl (HTTP requests)
    - nlohmann/json (JSON parsing)
- **Platform:** Windows (MinGW, VS Code, Command Prompt)
- **API Used:** OpenWeatherMap REST API (https://openweathermap.org/)

Project Workflow:

1. The user compiles the C++ source with proper curl linking.
2. The application requests weather data for a predefined city.

3. Receives JSON response and parses required fields.
4. Displays data like City Name, Temperature (Kelvin), Weather Description.
5. Handles common errors like network failure, invalid API key, or parsing errors.

Use Case:
This project is ideal for beginners learning:

- REST API integration in C++
- Using third-party libraries in C++
- Handling real-time data formats like JSON
- Basic error handling in production-like scenarios

Future Enhancements:

- Add support for dynamic user input (city name).
- Temperature conversion (Kelvin to Celsius/Fahrenheit).
- Full SSL verification with CA bundle.
- Integration with GUI libraries (like Qt) for desktop weather app.