Project: Weather Forecast Application Development in JavaScript (200 marks)

Objective:

The objective of this assignment is to develop a weather forecast application using JavaScript, HTML, and CSS. The application should retrieve weather data from an API, display it in a user-friendly interface, and provide essential features such as location-based forecasts, current weather conditions, and extended forecasts.

Tasks:

1. **Set Up Project Structure: (5 marks)**
    - Create the basic project structure with HTML, CSS, and JavaScript files. You need to use Tailwind CSS in this project.
    - Set up a version control system (e.g., Git) for tracking changes throughout development.
    - Write relevant commit messages. At least 12 meaningful commit messages. Commit for HTML, CSS, JavaScript, and README files separately.

2. **Integration with Weather API**: **(10 marks)**
    - Research and select a suitable weather API provider (e.g., OpenWeatherMap, WeatherAPI, etc.).

3. **User Interface (UI) Design: (25 marks)**
    - Design a simple and intuitive user interface using HTML and Tailwind CSS (or both Tailwind and Vanilla CSS). **(10 marks)**
    - Ensure responsiveness for various screen sizes (desktop, iPad Mini, iPhone SE). **(15 marks - 5 marks on each screen)**
    - Do not thoroughly copy the reference UI. You can show your creativity to build a UI for this application. UI marks will depend on the creative UI design.

4. **Location-Based Forecast: (100 marks)**
    - Allow users to search for weather forecasts by city name. **(15 marks)**
    - Allow users to search weather forecasts for their current location. **(15 marks)**
    - Add user interaction features such as buttons and input fields for selecting locations and viewing different weather data. **(10 marks)**
    - Implement a dropdown menu for recently searched cities (you can add

recently searched cities in the dropdown using local or session storage). Initially, there should not be any dropdown since there is no searched city. Clicking on any city in the dropdown menu should update the weather data. **(20 marks)**

- Implement event listeners to handle user interactions and update the UI accordingly. **(10 marks)**
- Validate user inputs to prevent errors (e.g., invalid location, empty search queries. Display error messages nicely. **(10 marks)**
- Fetch and display location-specific weather forecasts (e.g., temperature, humidity, wind speed) for a user's location. **(15 marks)**
- Implement temperature unit toggle (°C/°F), only on today's temperature.
- Implement custom weather alerts for extreme temperatures (e.g., if temp is above 40 degrees, display an alert).
- Use appropriate icons or graphics to represent weather conditions (e.g., sunny, cloudy, rainy. If the weather condition is rainy, then turn into a rainy background dynamically. **(5 marks)**

5. Extended Forecast Display: (30 marks)

- Implement functionality to display extended weather forecasts for multiple days (e.g., 5-day forecast). **(15 marks)**
- Organize forecast data into a visually appealing and easy-to-read format. (date, temp, wind, and humidity information with relevant icons for temp, wind, and humidity in each card) **(15 marks)**

6. Error Handling and Validation: (20 marks)

- Handle API errors gracefully and display appropriate error messages to users. Display error messages properly on UI by using custom pop-ups or in clear text, instead of JS alert().

7. Documentation: (5 marks)

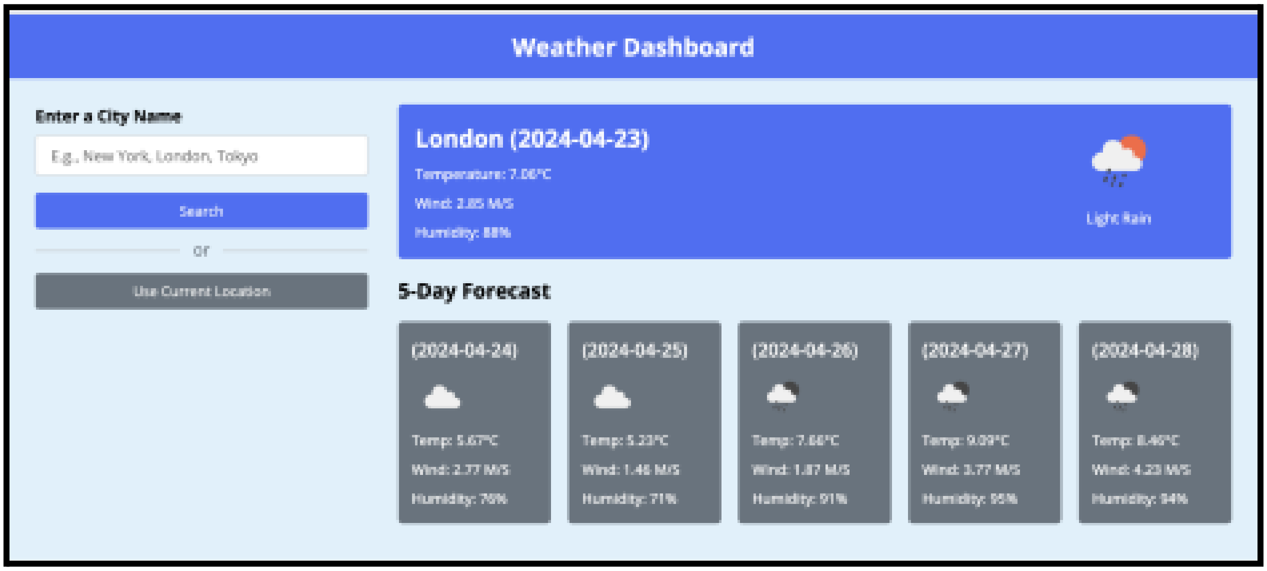
- Document the codebase, including comments and README.md file detailing setup instructions and usage. AI-generated unpolished README files will not be accepted.

Deliverables: (5 marks)

- Completed weather forecast application with all specified features implemented. GitHub repository containing the project code with version control history.

Do not send the node modules. Delete it manually before converting it into Zip.

Sample UI:
(Note: This is a sample UI, please do not copy this image exactly.)



Weather Dashboard

London (2024-04-23)

Temperature: 7.06°C

Wind: 2.85 M/S

Humidity: 88%

Light Rain

5-Day Forecast

(2024-04-24)
Temp: 5.67°C
Wind: 2.77 M/S
Humidity: 76%

(2024-04-25)
Temp: 5.23°C
Wind: 1.46 M/S
Humidity: 71%

(2024-04-26)
Temp: 7.66°C
Wind: 1.87 M/S
Humidity: 91%

(2024-04-27)
Temp: 9.09°C
Wind: 3.77 M/S
Humidity: 95%

(2024-04-28)
Temp: 8.40°C
Wind: 4.23 M/S
Humidity: 94%