**Weather Dashboard Project**

Hackathon Submission Template (Level-1-Solution)

**Use Case Title**: Weather Dashboard  
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**Introduction**

The Weather Dashboard is a web application that provides real-time weather updates for any city. It fetches current weather data and a 7-day forecast using the OpenWeather API. The dashboard features a user-friendly interface designed with Tailwind CSS and JavaScript for dynamic updates.

**Features**

* Search for weather information by entering a city name.
* Display current weather conditions including temperature, humidity, wind speed, and climate description.
* Show sunrise and sunset timings.
* Provide a 7-day weather forecast with temperature, weather conditions, and icons.
* Responsive and visually appealing UI with gradient background and glassmorphism effects.

**Technologies Used**

* **HTML5**: Structure of the web page.
* **CSS (Tailwind CSS)**: Styling and layout.
* **JavaScript**: Fetching API data and handling user interactions.
* **OpenWeather API**: Providing weather data.
* **GitHub (Optional)**: Version control and project management.

**Project Setup**

1. **Create an HTML File**
   * Define the page structure with a search input, a weather info section, and a forecast section.
2. **Apply CSS for Styling**
   * Use Tailwind CSS and custom styles for layout and aesthetics.
   * Implement glassmorphism effects for a modern look.
3. **JavaScript for API Integration**
   * Fetch weather data from OpenWeather API using the user's input.
   * Display current weather details dynamically.
   * Fetch and render a 7-day forecast.
4. **Handling API Calls**
   * Use fetch to retrieve data from OpenWeather API.
   * Parse JSON responses and update the UI accordingly.
   * Handle errors gracefully by displaying messages.

**Code Explanation**

**1. HTML Structure**

* Contains a div container for weather information.
* Includes an input field and search button to get city names.
* Displays weather details in dynamically updated paragraphs.

**2. CSS Styling**

* Background gradient applied using linear-gradient.
* Cards have glassmorphism effects with backdrop-filter: blur(15px);
* Responsive design with flexbox and grid layouts.

**3. JavaScript Logic**

**Fetching Current Weather**

async function fetchWeather() {

const city = document.getElementById('city').value;

const apiKey = "YOUR\_API\_KEY";

const response = await fetch(`https://api.openweathermap.org/data/2.5/weather?q=${city}&appid=${apiKey}&units=metric`);

const data = await response.json();

// Update DOM elements with weather details

}

**Fetching 7-Day Forecast**

const forecastResponse = await fetch(`https://api.openweathermap.org/data/2.5/forecast?lat=${coords.lat}&lon=${coords.lon}&appid=${apiKey}&units=metric`);

const forecastData = await forecastResponse.json();

* Filters data to show daily forecasts.
* Updates UI dynamically with forecast details.

**Error Handling**

* If the city is not found, an error message is displayed.
* If API requests fail, a generic error message appears.

**Enhancements and Future Improvements**

* Add geolocation-based weather detection.
* Include air quality index (AQI) data.
* Allow users to switch between Celsius and Fahrenheit.
* Store user preferences using local storage.

**Conclusion**

This Weather Dashboard is an interactive and visually appealing application that fetches and displays real-time weather data. It is built with HTML, Tailwind CSS, and JavaScript, using the OpenWeather API for accurate weather updates.