**Weather Web Application: Detailed User Guide and Feature Documentation**

This documentation provides a comprehensive guide to using the Weather Web Application, covering its features, navigation, and customization options. The web application is designed to offer real-time weather updates, detailed forecasts, alerts, and interactive maps. It aims to provide a smooth user experience with both desktop and mobile browsers.

**1. Getting Started**

**Accessing the Application:**

* Open a web browser (e.g., **Google Chrome**, **Mozilla Firefox**, **Microsoft Edge**, or **Safari**) and navigate to the Weather Web Application URL: **[App URL]**.
* The web application is **responsive**, meaning it adapts to various screen sizes, including mobile devices and tablets.

**Initial Setup:**

* Upon first visit, the app will request permission to access your **location** to deliver accurate local weather data.
  + Click **"Allow"** for location-based weather updates or deny it to manually enter your location.
* You will also be prompted to choose between **Celsius** or **Fahrenheit** as your preferred temperature unit (modifiable in the settings).

**2. Home Screen Features**

The **Home Screen** serves as the main interface of the Weather Web Application, where users can view current conditions and forecasts.

**A. Current Weather Summary**

* **Location**: Displays the automatically detected or manually entered location at the top of the screen.
* **Temperature**: Shows the current temperature with an appropriate weather condition icon (e.g., sunny, rainy, cloudy).
* **Weather Description**: Short description of current conditions (e.g., "Partly Cloudy").
* **Additional Weather Metrics**:
  + **Feels Like Temperature**: Adjusted temperature based on wind and humidity.
  + **Humidity**: Displayed as a percentage.
  + **Wind Speed**: Measured in kilometers per hour (km/h) or miles per hour (mph), depending on your settings.
  + **UV Index**: Indicates the intensity of ultraviolet radiation at your location.
  + **Air Quality Index (AQI)**: Displays air pollution levels based on local air quality data.

**B. Hourly Forecast**

* Scroll horizontally through the next 12 hours to see predicted temperatures, precipitation probabilities, and icons for weather conditions (e.g., rain, cloud cover).
* Hovering over each time block will provide additional details, such as wind speed and humidity.

**C. 5-Day Forecast**

* Below the hourly forecast, users can access the **7-day weather forecast**, which includes:
  + **High/Low Temperatures**: Daily maximum and minimum temperatures.
  + **Weather Icon**: Representation of the primary weather condition for the day (e.g., thunderstorms, clear skies).
  + **Precipitation Probability**: Expressed as a percentage.
  + **Wind Speed**: Helps determine whether windy conditions are expected on a specific day.

**3. Weather Details Screen**

Clicking on any day in the 5-day forecast or any hour in the hourly forecast will bring you to a **detailed weather screen**. Here, you can explore more granular weather information, such as:

**A. Weather Breakdown:**

* **Detailed Temperature Profile**: The screen displays high/low temperatures with temperature fluctuations throughout the day (morning, afternoon, evening).
* **Extended Metrics**:
  + Humidity, wind speed, visibility, pressure, UV index, and AQI.

**B. Interactive Weather Map:**

* Located at the bottom of the screen, this map shows **real-time weather patterns** using an interactive interface powered by **Google Maps** or **Leaflet.js**.
* You can toggle different layers to view:
  + **Precipitation**: Rainfall in the region.
  + **Cloud Cover**: Cloud density.
  + **Storm Tracking**: For viewing storm progression and patterns.
* Users can zoom in and out to view local, regional, or global weather patterns.

**4. Settings and Customization**

**A. Accessing Settings**

* The **Settings** button is located in the top-right corner of the home screen.
* Clicking on this icon will open a drop-down menu where users can adjust preferences.

**B. Customization Options**

1. **Units**:
   * **Temperature**: Toggle between Celsius and Fahrenheit.
   * **Wind Speed**: Choose between kilometers per hour (km/h) and miles per hour (mph).
2. **Notifications**:
   * Toggle **weather notifications** on/off. Choose to receive:
     + **Severe Weather Alerts**: Get notified when extreme conditions like storms or heatwaves are expected.
     + **Daily Weather Summary**: A morning notification with the day's forecast.
3. **Location Settings**:
   * Manage your location settings:
     + **Automatic Location**: The app will use geolocation services to automatically detect your location.
     + **Manual Location**: Users can enter multiple cities or regions for custom weather updates.
   * Switch between saved locations for quick access to different areas’ weather.
4. **Language**:
   * Choose the preferred language from the list of supported languages.

**5. Additional Features**

**A. Severe Weather Alerts**

* Severe weather alerts will appear as **push notifications** or in-app alerts when extreme conditions (e.g., storms, tornadoes, floods) are detected for your location.
* Clicking on an alert provides more detailed information, including expected timeframes, safety tips, and affected areas.
* Alerts can be managed in the **Settings** section to choose which types of alerts to receive.

**B. Search for a Location**

* You can search for the weather in different regions by typing a city or location into the **Search Bar** located at the top of the screen.
* The application will display real-time weather updates for the selected location and allow you to add it to your list of saved locations for easy access.

**C. Dark Mode**

* The web application supports **Dark Mode** to reduce eye strain in low-light environments.
* To enable Dark Mode, toggle the switch located in the Settings menu. This feature switches the interface to a darker color palette, preserving energy on devices with OLED screens and improving the user experience in nighttime conditions.

**D. Data Refresh & Offline Mode**

* **Data Auto-Refresh**: The app automatically updates weather data every 15 minutes to ensure accuracy.
* **Offline Mode**: Recent weather data and forecasts are cached so you can access them when you’re offline or experiencing poor network conditions. Cached data will display the most recent weather updates until the connection is restored.

**6. Interactive Weather Map**

**Accessing the Map:**

* The **Interactive Map** is accessible from the home screen or weather details screen by clicking on the "Map" tab or icon.

**Using the Map:**

* The map uses a default **satellite view** but can be changed to different layers:
  1. **Precipitation Layer**: Visualizes areas where rain or snow is falling in real-time.
  2. **Temperature Layer**: Displays color-coded areas indicating temperature variations across a region.
  3. **Cloud Cover Layer**: Shows the extent of cloud cover, helpful for tracking storms.
* You can zoom in and out of the map using your mouse or pinch-to-zoom on mobile devices.
* **Hover** over different areas on the map to get localized weather data, including current temperature, wind speed, and weather conditions.

**7. Troubleshooting & FAQs**

**A. Common Issues:**

1. **Location Services Not Working**:
   * If the app cannot detect your location, ensure that your browser’s location services are enabled. Try refreshing the page or manually inputting your location.
2. **Weather Data Not Updating**:
   * Ensure you have a stable internet connection. If the app still doesn’t update, try clearing your browser cache and reloading the page.
3. **Push Notifications Not Received**:
   * Verify that notifications are enabled in both the app’s settings and your browser’s notification settings. Some browsers may block notifications by default.

**B. Frequently Asked Questions (FAQs):**

* **How do I change my location?**
  + You can change your location by clicking on the location name at the top of the screen or by going to the **Settings** menu.
* **Can I add multiple locations?**
  + Yes, you can add multiple locations in the settings and quickly switch between them from the home screen.
* **How frequently is the weather updated?**
  + Weather data is automatically refreshed every 15 minutes. However, you can manually refresh by reloading the page.

**8. Conclusion**

The Weather Web Application provides users with a rich, interactive experience for accessing real-time weather updates, forecasts, and alerts. With features like severe weather notifications, customizable settings, and an interactive map, the app ensures that users stay informed and prepared for varying weather conditions. The app is intuitive, flexible, and responsive, making it a reliable tool for planning daily activities and monitoring weather patterns.