🌧️ Weather App (Taks 1: FE-2024-12-i)

Weather App is a high-performance, offline-capable Progressive Web App (PWA) that provides real-time weather data for cities worldwide. Built with **React**, **TypeScript**, **React Query**, **Vite**, and **Workbox**, it offers a seamless user experience with fast loading times, offline support, and a modern design.

🚀 Features

- ✅ **Real-time Weather Data** – Fetches up-to-date weather information for any city.
- ✅ **Search & Autocomplete** – Search for cities with a smooth and responsive autocomplete feature.
- ✅ **Favorites & Notes** – Save your favorite cities and add personal notes for each.
- ✅ **Offline Support** – View previously searched and favorited cities' weather data without an internet connection.
- ✅ **Geolocation Support** – Detects the user's location to provide instant weather updates.
- ✅ **Performance Optimized** – Uses React app performance optimization techniques (`React.memo`, `useMemo`, `React.lazy`, lazy-loading data using Intersetion Observer API, and more), and Vite for blazing-fast performance.
- ✅ **PWA Ready** – Installable on mobile and desktop powered by React Query cache persistence and Workbox service workers.
- ✅ **Unit Tested** – Thorough `Jest` & `@testing-library/react` unit tests to ensure reliability.

🛠️ Tech Stack

- **Frontend:** React + TypeScript + Vite
- **State Management:** React Hooks
- **Networking:** Fetch API + `@tanstack/react-query`
- **Caching & Offline Mode:** Workbox + LocalStorage
- **Routing:** React Router
- **Styling:** Tailwind CSS
- **Testing:** Jest + @testing-library/react
- **Deployment:** Netlify

📦 Development

Prerequisites

Ensure you have the following installed on your system:

- **Node.js**
- **npm**

📥 Step 1: Extract the ZIP Archive

1. **Extract** the ZIP file:

   - On Windows: Right-click the ZIP file and select **Extract All…**

  ○ On macOS/Linux: Use the terminal:

```
unzip weather-app.zip -d weather-app
```

2. Open the extracted folder in a terminal:

```
cd weather-app
```

🟢 Step 2: Install Dependencies

Run the following command to install all necessary dependencies:

- `npm install`

⚡ step 3: Run the App

Start the Development Server to launch the app in development mode:

- `npm run dev` This starts a local Vite-powered development server. Open http://localhost:5173 in your browser.

🧪 Running Tests

To run the unit tests:

- `npm run test-unit`

🏗️ Build for Production

To generate an optimized production build:

- `npm run build` This creates a dist/ folder containing minified, ready-to-deploy assets.
- Preview Production Build - `npm run preview` This serves the built app at http://localhost:4173

📥 Installing the PWA

You can access the web app by simply entering
🔗 **prismatic-eclair-33cbd8.netlify.app** in your browser.

However, if you wish to install it as a **desktop or mobile app,** follow the steps below:

📱 Installing as an App on Your Device

🖥️ **On Chrome (Desktop)**

1️⃣ Open **Google Chrome** and enter:
🔗 prismatic-eclair-33cbd8.netlify.app

2 Click the **install icon** 🏠 at the top-right of the address bar.

3 Click the **"Install"** button in the pop-up that appears.

📱 On Chrome (Mobile)

1 Open **Google Chrome** and enter:

🔗 prismatic-eclair-33cbd8.netlify.app

2 Open the browser menu (⋮) in the top-right corner.

3 Click **"Add to Home Screen"** 📌 .

4 Select **"Install"**. The app is now on your **home screen**!

🍏 On Safari (Desktop)

1 Open **Safari** and enter:

🔗 prismatic-eclair-33cbd8.netlify.app

2 Click the **Share** icon 📤 at the top-right of the browser.

3 Select **"Add to Dock"** 📌 .

4 The app is now installed on your **dock/home screen**!

🚀 Launching the PWA

Once installed, you can **access the app** in the following ways:

💻 From Homescreen (macOS)

1 Click on the **Launchpad** icon.

2 Locate and **click the app** to open it.

🌍 From Chrome Apps

1 Type `chrome://apps` in the Chrome address bar and press **Enter**.

2 Locate the **Weather App** 🌤️ and **click on it**.
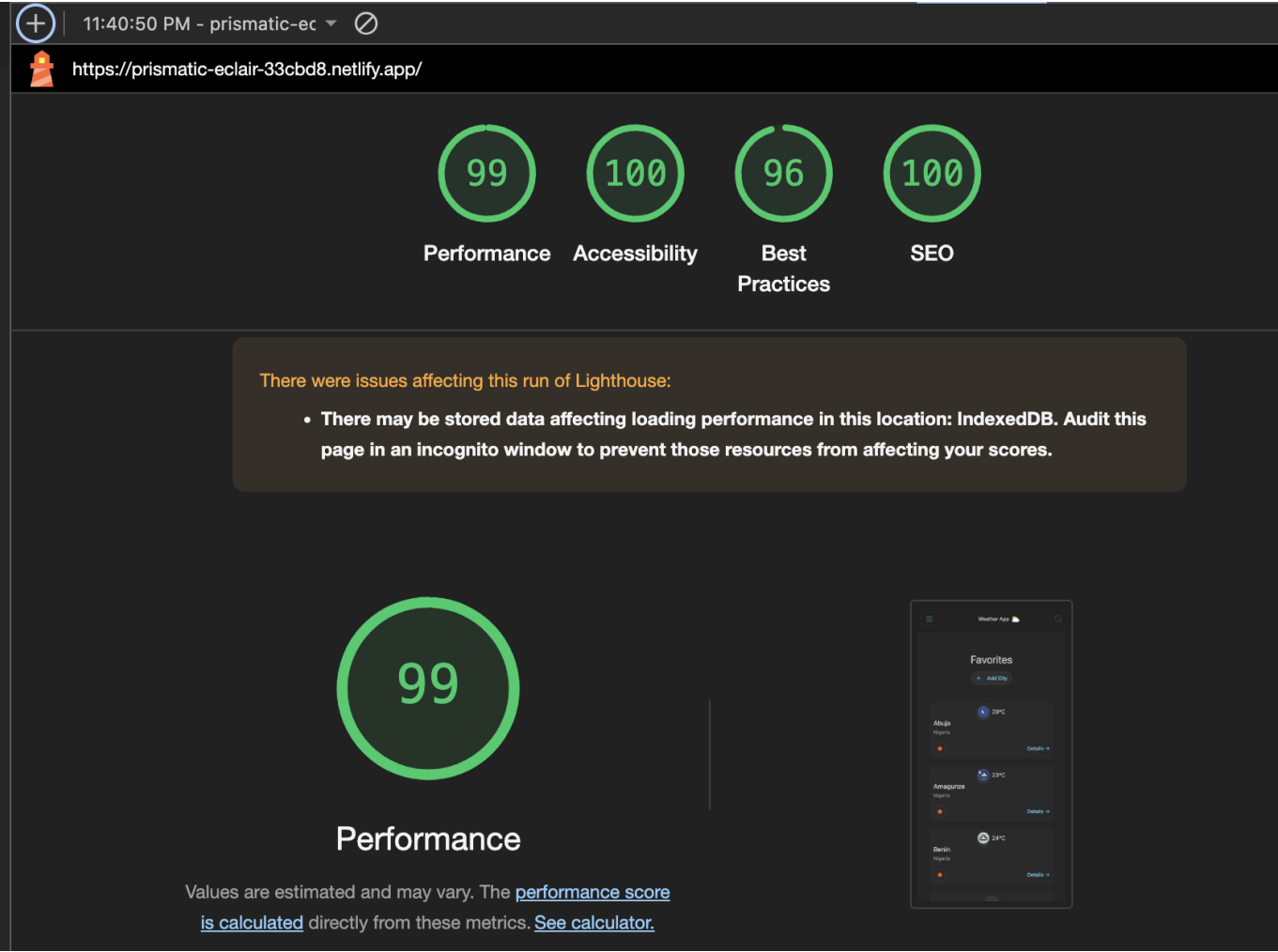

🗑️ Uninstalling the PWA

🗑️ From Chrome

1 Type `chrome://apps` in the Chrome address bar and press **Enter**.

2 Locate the **Weather App** 🌤️ and **right-click (Control-Click on Mac)** to open the **context menu**.

3 Click **"Uninstall"** ❌ .

🗑️ From Safari (Mac)

1 **Long-press** the **App Icon** on your home screen.

2 Tap **"Remove"** ❌ .

Lighthouse Report

- Best practices is only less than 100% because the app requests location on page load.