

Weather Data Visualization Platform

Project Overview

This project is a weather data visualization platform that allows users to fetch, visualize, and analyze weather data for specific locations over defined time periods. The platform offers interactive graphs, tables, and responsive design to ensure usability across all devices. It is built using modern web technologies and follows best practices for scalability and maintainability.

Features

- **Dynamic Weather Data Fetching:** Retrieve weather data for specific coordinates and time periods.
 - **Interactive Graphs:** Visualize temperature trends and patterns.
 - **Responsive Data Table:** Paginated and adaptive table to display weather data in detail.
 - **Responsive Design:** Optimized for all screen sizes, including mobile, tablet, and desktop.
 - **Loading Indicator:** Display a loading spinner or GIF while fetching data.
-

Project Flow

1. User Interaction

- **Dashboard:** The user enters latitude, longitude, start date, and end date.
- On form submission, weather data is fetched from the API.

2. Navigation

- **Route Management:** The user is navigated to the `ResultPage` where results are displayed.

3. Visualization

- **Graphs:** Data is visualized using Chart.js.
- **Tables:** Paginated tables show detailed weather metrics.

4. Responsive Design

- Adjustments are made based on screen size for an optimal user experience.

Tech Stack

Frontend

- **React.js:** For building the user interface.
- **Tailwind CSS:** For responsive and modern styling.
- **React Router:** For navigation and route management.
- **Chart.js:** For rendering interactive graphs.
- **React-spinners:** For rendering a loading State

Backend (API Service)

- **API:** Integration with external weather data APIs (e.g., Open-Meteo).

Dependencies

Ensure you have the following dependencies installed:

- React@18
- react-dom@18
- React-router-dom
- chart.js, react-chartjs-2
- TailwindCSS
- Axios
- React-spinners
- react-datepicker