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Problem Statement Number: 147

Problem Statement:

147: MERN Stack - Development Weather Dashboard:
Context: Forecasts, alerts. Learners build WeatherWatch
MERN. Challenge: Live data, histories, alerts. Custom
locations. Requirements: Core Features include Frontend:
Maps, charts; Backend: Weather APIs mock; Database:
Locations, alerts; Authentication: JWT; UI/UX: Forecasts.
Advanced Features Optional): Clothing suggests. History.
Deliverables: Dashboard. Example User Flow: Add city.
View 7-day. Rain alert.

Website Link : [Weather Watch](#)

Proposed Solution:

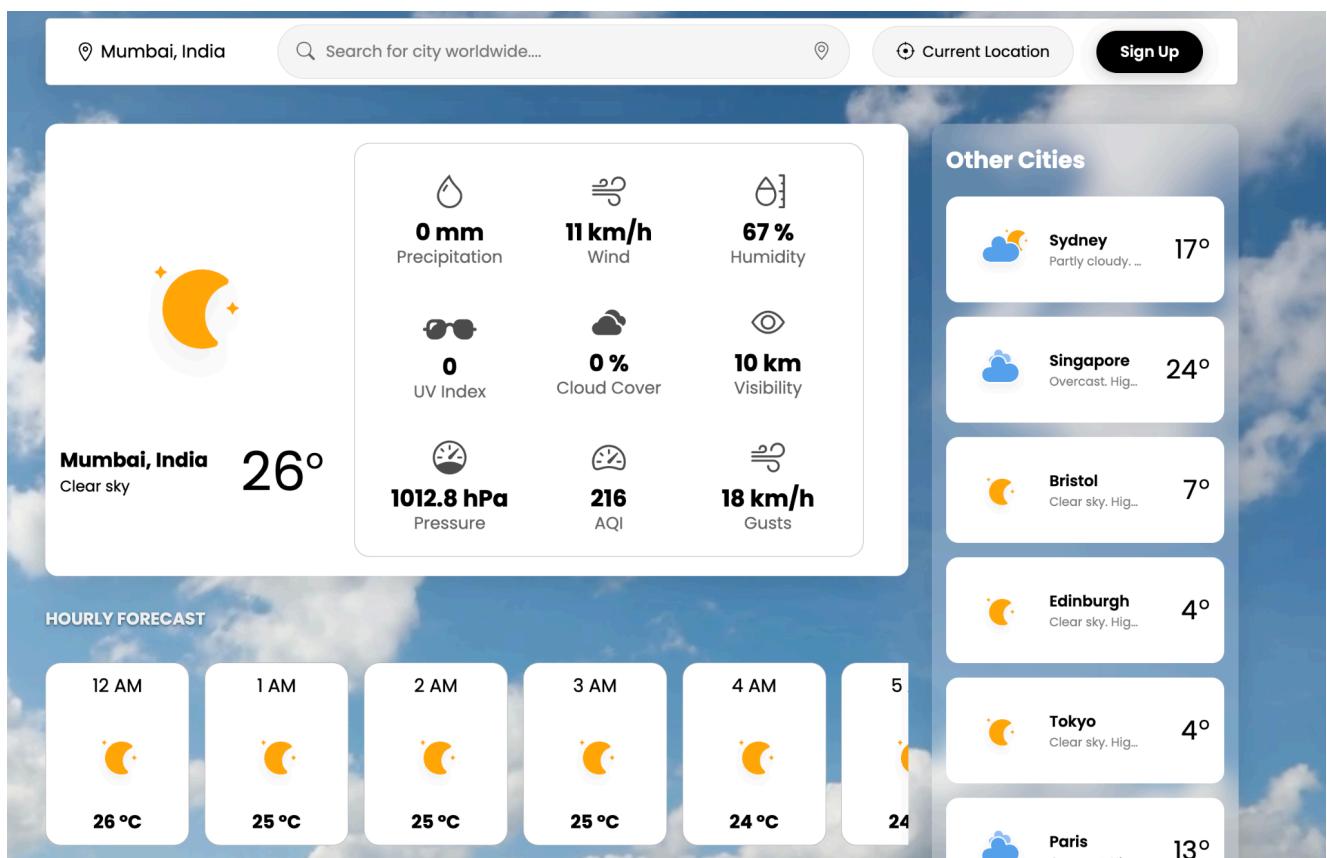
Weather Watch is a full-stack web application that provides **live weather updates, 21-day forecasts, current location-based weather, and simple weather alerts**. It is built using the **MERN stack (MongoDB, Express.js, React.js, and Node.js)** and uses **free weather APIs like Open-Meteo** to fetch real-time weather data.

The application shows important weather details such as **temperature, humidity, wind speed, UV index, and air quality (AQI)** in a clean dashboard. Users can also see the weather forecast using simple UI

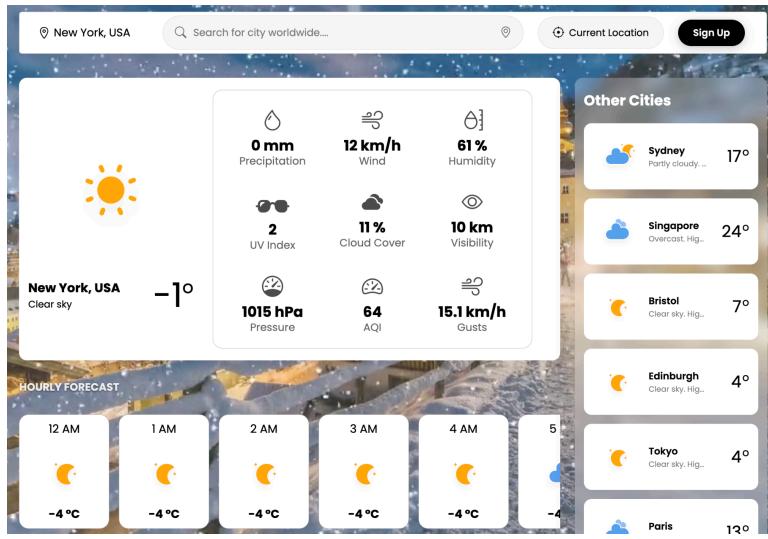
The backend is developed using **Node.js and Express.js** and provides APIs for **user authentication using JWT** and weather data fetching. User passwords are **securely hashed using bcrypt** and stored in **MongoDB with Mongoose**.

The frontend is built with **React.js** and uses a component-based structure. The dashboard opens by default and displays weather cards, a **21-day forecast chart**, simple **JavaScript alert popups** for weather alerts, and **basic clothing suggestions**.

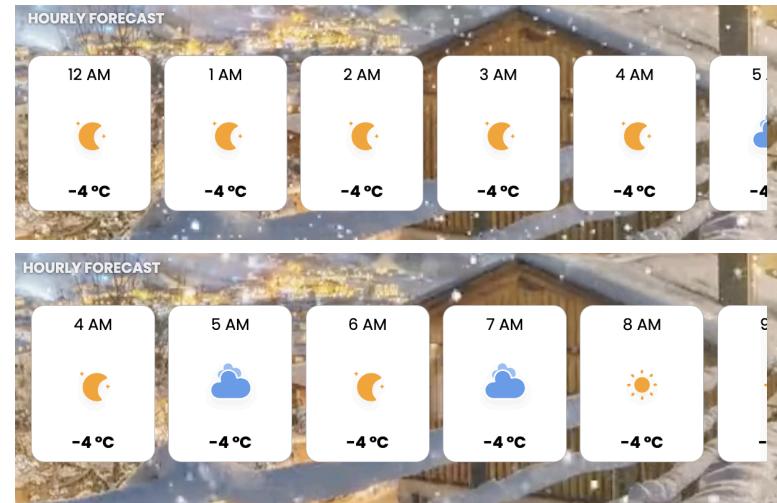
Main Weather Dashboard :



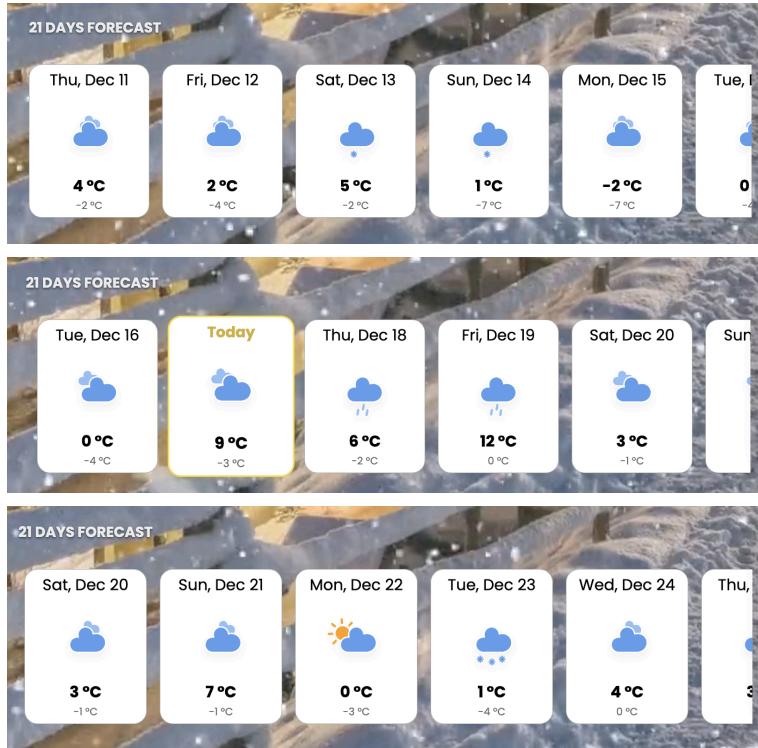
Changing City :



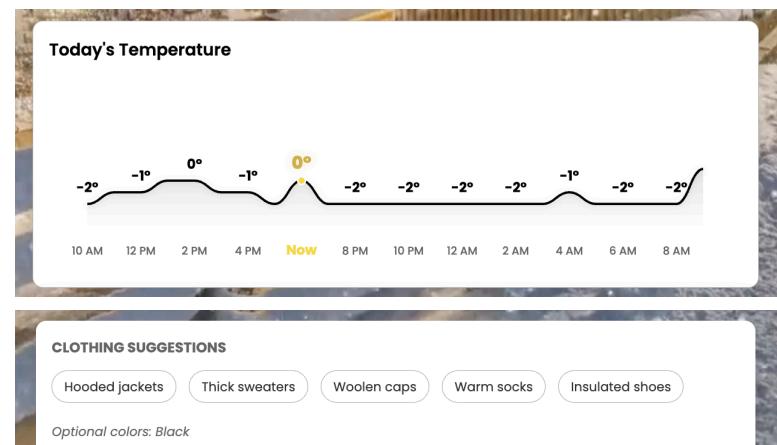
Hourly Forecast (New York) :



21 Day Forecast Chart (New York)



Today Temperature Graph And Clothing Suggestions:



Weather Alert (New York):

New York, USA
Clear sky
0°

Alert

Snowfall Alert! Snowfall incoming ☃

OK

UV Index: 2 | Cloud Cover: 11% | Visibility: 10 km | Gusts: 14 km/h

Pressure: 1015 hPa | AQI: 64

HOURLY FORECAST

12 AM	1 AM	2 AM	3 AM	4 AM	5 AM
-4°C	-4°C	-4°C	-4°C	-4°C	-4°C

21 DAYS FORECAST

Thu, Dec 11	Fri, Dec 12	Sat, Dec 13	Sun, Dec 14	Mon, Dec 15	Tue, Dec 16
4°C	2°C	5°C	1°C	-2°C	0°C

Other Cities :

Other Cities

- Sydney: 17° Partly cloudy...
- Singapore: 24° Overcast, Hig...
- Bristol: 7° Clear sky, Hig...
- Edinburgh: 4° Clear sky, Hig...
- Tokyo: 4° Clear sky, Hig...
- Paris: 13° Overcast, Hig...
- York: 4° Mainly clear, H...
- Berlin: 3° Mainly clear, H...

New York, USA
Clear sky
0°

Precipitation: 0 mm | Wind: 12 km/h | Humidity: 60%
UV Index: 2 | Cloud Cover: 11% | Visibility: 10 km | Gusts: 14 km/h

Pressure: 1015 hPa | AQI: 64

HOURLY FORECAST

4 AM	5 AM	6 AM	7 AM	8 AM	9 AM
-4°C	-4°C	-4°C	-4°C	-4°C	-4°C

21 DAYS FORECAST

Thu, Dec 11	Fri, Dec 12	Sat, Dec 13	Sun, Dec 14	Mon, Dec 15	Tue, Dec 16
4°C	2°C	5°C	1°C	-2°C	0°C

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4°C	2°C	5°C	1°C	-2°C	0°C

Today's Temperature

CLOTHING SUGGESTIONS

- Hooded jackets
- Thick sweaters
- Woolen caps
- Warm socks
- Insulated shoes

Optional colors: Black