Live Weather Forecast Dashboard

A comprehensive Power BI solution delivering real-time weather intelligence across five major Indian cities—Hyderabad, Kolkata, Lucknow, Shillong, and Noida. This dynamic dashboard transforms complex meteorological data into actionable insights through intuitive visualizations and API-driven analytics.

Project Objective

Real-Time Environmental Intelligence

Monitor and analyze critical weather metrics including temperature fluctuations, humidity levels, wind patterns, atmospheric pressure, visibility conditions, and air quality indices. Our dashboard enables stakeholders to quickly understand environmental conditions and make informed decisions based on current climatic data.

The system provides comprehensive coverage of key atmospheric variables, delivering insights that support public health advisories, operational planning, and environmental policy development across diverse geographic regions.

Climate Monitoring

Track temperature and humidity trends

Atmospheric Analysis

Measure wind speed and pressure

Air Quality Tracking

Monitor AQI and pollution levels

Technology Stack

Power BI

Core platform for creating interactive visualizations and comprehensive dashboard design with responsive layouts

Power Query

Advanced data cleaning, transformation, and ETL processes ensuring data quality and consistency

DAX Expressions

Complex KPI calculations including AQI computations, color coding logic, and dynamic suggestions

API Integration

Real-time data retrieval from OpenWeather API providing live meteorological updates across all monitored cities

Data Modeling

Sophisticated relationship structures enabling dynamic city selection and seamless measure calculations

Dashboard Capabilities

Live Weather Metrics

- Real-time temperature, humidity, and wind speed tracking
- Visibility range and atmospheric pressure monitoring
- UV index analysis for sun exposure safety
- Sunrise and sunset time visualization

Advanced Analytics

- 7-day weather forecast with trend analysis
- Precipitation probability with visual indicators
- Air Quality Index with color-coded severity levels
- Intelligent DAX-powered health suggestions

1. ### City Selection

   Navigate between Hyderabad, Kolkata, Lucknow, Shillong, and Noida

2. ### Data Refresh

   API calls fetch latest weather conditions automatically

3. ### Visual Updates

   Dashboard responds dynamically to new data inputs

4. ### Insights Display

   Color-coded alerts and actionable recommendations appear

Key Insights Delivered

Weather Pattern Recognition

The dashboard reveals dynamic weather patterns and atmospheric trends across multiple geographic locations, enabling pattern identification and comparative analysis between cities with distinct climatic characteristics.

Air Quality Intelligence

Real-time AQI monitoring identifies pollution levels and air quality variations, providing critical data for public health advisories and environmental awareness campaigns across urban and semi-urban regions.

Actionable Recommendations

DAX-driven suggestion engine delivers context-aware guidance—from "Air quality is excellent for outdoor activities" to "Sensitive groups should limit exposure"—supporting informed decision-making for citizens and policymakers alike.

Project Impact & Value

5	10+	7
Cities Monitored	Key Metrics	Forecast Days
Real-time coverage across diverse geographic regions	Comprehensive environmental and atmospheric data points	Extended weather trend visualization and planning

Demonstrating Advanced BI Capabilities

This dashboard showcases sophisticated data modeling techniques, seamless real-time API integration, and advanced DAX-based analytical thinking. It represents practical application of Data Analytics and Business Intelligence skills in environmental monitoring, smart city initiatives, and public health management.

The project demonstrates proficiency in translating complex data streams into user-friendly visualizations that drive meaningful insights and support evidence-based decision-making for environmental and urban planning stakeholders.