

# Project : AirAware Smart Air Quality Prediction System

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Group: 1

# MILESTONE 2

# Problem Statement

- Air pollution levels are rising and need continuous monitoring.
- Manual monitoring is slow and not easily accessible to the public.
- Users need a **simple web interface** to view real-time/processed air quality status.
- This project provides a clean solution using modern web technologies.

# Objectives

- Collect and store air quality data securely.
- Display pollutant levels in a clean, user-friendly dashboard.
- Provide visual indicators of air quality (good, moderate, hazardous).
- Enable easy expansion for future prediction models.

# Technologies Used

1. React.js: Used to build the user interface with reusable components for dynamic pages.
2. TypeScript: Adds type safety and makes the frontend code more reliable and structured.
3. HTML & CSS: Used to structure the pages and style the overall layout and design.
4. Tailwind CSS: Provides utility classes to quickly create responsive and consistent UI styling.
5. React Hooks: Used to manage component state and lifecycle logic within the UI.

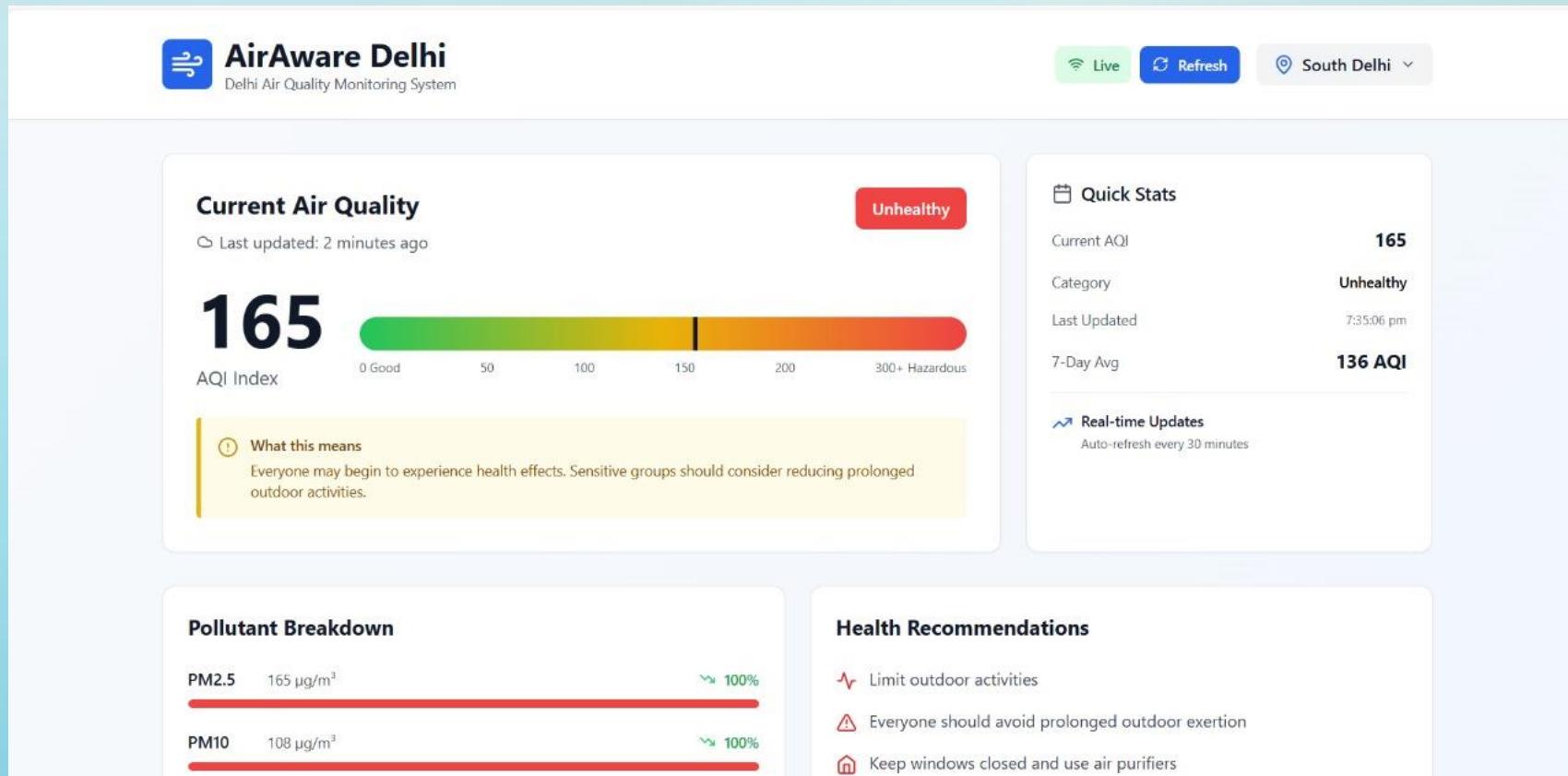
# Dashboard Features

- **Real-time Air Quality Display** – Shows the current AQI value clearly on the main dashboard.
- **Pollutant Breakdown** – Displays individual pollutant levels like PM2.5, PM10, CO, etc.
- **Color-Coded Status Indicator** – Uses colors like green/yellow/red to indicate air quality levels.
- **Clean and Responsive UI** – Automatically adapts to different screen sizes and devices.
- **Interactive Cards/Sections** – Shows different data blocks in well-structured, clickable UI components.
- **User-Friendly Layout** – Simple and intuitive design for easy navigation and quick understanding.

# My Contributions

- Integrated the **Weather API** to fetch real-time weather and air-quality data.
- Connected the app to **Supabase backend** and configured database tables.
- Stored weather API responses directly into Supabase for historical tracking.
- Set up environment variables and managed API keys securely.
- Debugged setup issues (npm, Supabase policies) and ensured smooth integration.

# Output screens



Everyone may begin to experience health effects. Sensitive groups should consider reducing prolonged outdoor activities.

### Pollutant Breakdown



Legend: PM = Particulate Matter, O3 = Ozone, NO<sub>2</sub> = Nitrogen Dioxide, SO<sub>2</sub> = Sulfur Dioxide, CO = Carbon Monoxide

### Health Recommendations

- ⚠️ Limit outdoor activities
- ⚠️ Everyone should avoid prolonged outdoor exertion
- 🏠 Keep windows closed and use air purifiers

#### Sensitive Groups Include:

Children   Elderly   Asthma patients   Heart disease   Active outdoors

### South Delhi

Mostly residential with upscale neighborhoods and lower pollution zones.

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Mostly residential with upscale neighborhoods and lower pollution zones.

Key Characteristics:

Residential areas

Green spaces

Lower traffic congestion

Commercial zones

### 7-Day Forecast

Predicted air quality trends

 AI Predictions



 Good (0-50)  Moderate (51-100)  Unhealthy (101-150)

 Updated hourly

Table Editor

air\_quality\_readings

schema public

+ New table

Search tables...

air\_quality\_readings

locations

predictions

Filter Sort Insert RLS policies Index Advisor Enable Realtime Role postgres

	id	uuid	location_id	uuid	aqi	int4	category	text	pm... nume...	pm... nume...	o3 nu
	0072b4c2-a34d-4450-9470-dd29919b73e	2c16df4a-bd99-43c7-a7ac-a435c...		195		Unhealthy		195.00	154.00	8.20	
	03b60638-2a08-483b-9fc0-938340c230c	d1dda0ef-c209-4980-84c1-866dc...		152		Unhealthy		152.00	119.00	5.70	
	03bcf4c9-d299-499f-b0b4-bc7fcebf35a9	d1dda0ef-c209-4980-84c1-866dc...		152		Unhealthy		152.00	119.00	5.70	
	04ed4ded-df66-4960-8106-cc5de63bece	2c16df4a-bd99-43c7-a7ac-a435c...		342		Hazardous		342.00	317.00	2.60	
	06a5b6a0-c2a4-4fce-8505-66d5b2d69fb	2c16df4a-bd99-43c7-a7ac-a435c...		206		Very Unhealthy		206.00	130.00	8.00	
	0e8d8899-2a39-45a6-88df-95f25f7633b5	e2536043-5c7c-419b-a41f-9318a4...		173		Unhealthy		173.00	101.00	21.60	
	11922789-6dc9-42e1-b15e-2b1350af3922	2c16df4a-bd99-43c7-a7ac-a435c...		205		Very Unhealthy		205.00	139.00	7.80	
	1249fc45-3565-4117-962a-c04273dfd89a	2c16df4a-bd99-43c7-a7ac-a435c...		206		Very Unhealthy		206.00	130.00	8.00	
	1434e522-8145-45a4-82d6-205bfc83f0c4	2c16df4a-bd99-43c7-a7ac-a435c...		333		Hazardous		333.00	294.00	2.50	
	16f4fdb5-c8e6-4242-893a-81c2c60dce53	2c16df4a-bd99-43c7-a7ac-a435c...		323		Hazardous		323.00	244.00	7.80	
	193a584a-41d1-409c-b490-2e102e267886	2c16df4a-bd99-43c7-a7ac-a435c...		270		Very Unhealthy		270.00	223.00	17.90	
	1fde7beb-511a-458a-be11-5ea17fcf381c	2c16df4a-bd99-43c7-a7ac-a435c...		264		Very Unhealthy		264.00	166.00	17.30	
	2092f5e9-f001-4178-86dc-c82ba74021c5	bc4c5653-caf8-4e01-a108-0b43c...		291		Very Unhealthy		291.00	282.00	1.50	
	2350cfcc1-995d-42bf-a719-50eab0a72a29	2c16df4a-bd99-43c7-a7ac-a435c...		200		Unhealthy		200.00	170.00	20.30	

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Feedback  Search... K ? 💡 🔗 💡 ✚

### Table Editor

schema public ▼

+ New table ▼

Search tables... ▼ Filter

**locations**

Insert ▼ Filter Sort 1 RLS policy Index Advisor Enable Realtime Role postgres Book Copy

	<small>Or</small> id <small>uuid</small>	name <small>text</small>	latitude <small>numeric</small>	longitude <small>numeric</small>	created_at <small>timestampz</small>	
	1e0bf9de-cb82-4cf7-9a81-2b63f701d60a	East Delhi	28.613900	77.256400	2025-12-04 13:36:16.36601+00	<small>+</small>
	2c16df4a-bd99-43c7-a7ac-a435c6bee941	North Delhi	28.704100	77.102500	2025-12-04 13:36:16.36601+00	
	37cd485f-2046-4c37-a3e9-60f90728961e	New Delhi	28.613900	77.209000	2025-12-04 13:36:16.36601+00	
	bc4c5653-caf8-4e01-a108-0b43cb5d302f	West Delhi	28.669200	77.050500	2025-12-04 13:33:30.83526+00	
	d1ddaaef-c209-4980-84c1-866dc0019daa	Central Delhi	28.632800	77.219700	2025-12-04 13:33:30.83526+00	
	e2536043-5c7c-419b-a41f-9318a4183f4e	South Delhi	28.524400	77.185500	2025-12-04 13:36:16.36601+00	

Table Editor / SaiSreya96's Org FREE / airAware / main PRODUCTION / Connect

Feedback Search... ⌘K ⓘ ⓘ ⓘ ⓘ ⓘ

**predictions**

Filter Sort Insert RLS policy Index Advisor Enable Realtime Role postgres

id prediction\_date predicted\_aqi predicted\_category confidence\_score created\_at

	id	prediction_date	predicted_aqi	predicted_category	confidence_score	created_at
	05d13ddd-aab4-4cf8-afa8-6e32f336dbab	2025-12-20	155	Unhealthy	90.00	2025-12-18 13:30:53
	0c62dd12-b417-44ea-8c89-73a49aa71d30	2025-12-21	143	Unhealthy for Sensitive Groups	90.00	2025-12-18 13:30:53
	185bf368-35fe-43a3-85d6-5c85f872385d	2025-12-18	155	Unhealthy	90.00	2025-12-18 13:30:53
	1ad50d94-a9e0-4160-ad52-85d696c0d19	2025-12-18	135	Unhealthy for Sensitive Groups	90.00	2025-12-18 13:30:53
	1e64a1c0-13cd-4d2f-9bdb-0c3625924673	2025-12-23	155	Unhealthy	90.00	2025-12-18 13:30:53
	27bec273-a2bd-4879-9e7f-3b54dbc9e9b1	2025-12-21	136	Unhealthy for Sensitive Groups	90.00	2025-12-18 13:30:53
	2ca57244-3b20-4f23-b8b8-0628f076658e	2025-12-19	132	Unhealthy for Sensitive Groups	90.00	2025-12-18 13:30:53
	2e4e9755-499e-4a96-b72d-a5d01a2fcbe1	2025-12-19	151	Unhealthy	90.00	2025-12-18 13:30:53
	427b3031-c3ed-4886-86bb-0ab6b3348d6e	2025-12-19	171	Unhealthy	90.00	2025-12-18 13:30:53
	477bac9c-2723-42be-ba71-2ba08fdb3157	2025-12-24	127	Unhealthy for Sensitive Groups	90.00	2025-12-18 13:30:53
	4bf91354-2e24-448d-b8f8-401476ce6cc0	2025-12-24	132	Unhealthy for Sensitive Groups	90.00	2025-12-18 13:30:53
	51eb3a1e-e214-4f1c-a6c3-0342cc9e4078	2025-12-18	165	Unhealthy	90.00	2025-12-18 13:30:53
	55b1adc4-0546-47ac-aa2c-386fca000000	2025-12-19	142	Unhealthy for Sensitive Groups	90.00	2025-12-18 13:30:53
	5b5f0c09-d764-44cd-a04e-cc319098f110	2025-12-24	131	Unhealthy for Sensitive Groups	90.00	2025-12-18 13:30:53

**THANK YOU!**