Frontend & Backend Tech Stack Overview

📊 Frontend (User Interface + Map Visualization)

Tools / Libraries Used:

- **Leaflet.js** → for live interactive map rendering and displaying AQI data points.
- **HTML5 + CSS** → for basic page layout and styling.
- **JavaScript (Vanilla)** → to fetch AQI data from APIs and render it dynamically on the map.
- **(Optionally earlier)**: React + Vite setup was attempted for a more advanced, component-driven frontend but your stable version runs on plain HTML/JS for now.

💾 Backend (Data Processing + Storage)

Tools / Services Used:

- **Supabase**
    - Acts as your cloud **PostgreSQL database backend**.
    - API layer to store AQI data and AI model predictions.
    - Real-time data fetching via REST-like API endpoints.
    - Role-Based Access Control (RLS), and Webhooks support for alerts.
- **Python API Scripts**
    - **Requests**: to fetch real-time AQI data from OpenWeather and Data.gov.in.
    - **Supabase-py**: to insert fetched AQI data and AI model results into Supabase.
    - **Scipy + Pandas**: to perform correlation analysis between official and AI-estimated values.
    - **OpenCV**: for image capture and preprocessing.
    - **PyTorch**: for AI model training and inference.