

# Web Design Assignment: Air Quality Monitoring Dashboard

**Objective:** Create a responsive web application to monitor and display real-time air quality data, including temperature, humidity, PM2.5, PM10, NOx, NH3, CO2, SO2, and VOC levels. The application will utilize HTML, CSS, and JavaScript.

## Project Requirements

### 1. User Interface Design:

- Develop a clean, intuitive layout for the dashboard.
- Ensure responsiveness for both desktop and mobile devices.
- Include the following sections:
  - **Header:** Title of the application and a brief description.
  - **Navigation Bar:** Links to sections like Home, Data, and About.
  - **Main Dashboard:** Central area displaying real-time data and visualizations.
  - **Footer:** Include copyright information and external resource links.

### 2. Data Display:

- Use appropriate HTML elements to display the following data:
  - **Temperature** (°C)
  - **Humidity** (%)
  - **PM2.5** (µg/m³)
  - **PM10** (µg/m³)
  - **NOx** (ppb)
  - **NH3** (ppb)
  - **CO2** (ppm)
  - **SO2** (ppb)
  - **VOC** (ppb)
- Organize these values in a user-friendly manner, using cards or tables.

### 3. Visual Representation:

- Use JavaScript libraries like Chart.js or D3.js to create dynamic charts:
  - **Line Chart:** Visualize trends for temperature and humidity over time.
  - **Bar Charts:** Show levels of PM2.5, PM10, NOx, NH3, CO2, SO2, and VOC.
  - **Doughnut Chart:** Represent the distribution of various pollutants.

### 4. Real-time Data Updates:

- Simulate with stored data in CSV format using different plots.
- Simulate with real time JSON data using different plots

### 5. Styling:

- Use CSS for styling and layout, possibly utilizing a CSS framework like Bootstrap for responsiveness.
- Implement color coding to indicate air quality levels (e.g., green for good, yellow for moderate, red for unhealthy).

### 6. Accessibility:

- Ensure adherence to web accessibility guidelines (e.g., semantic HTML, alt text for images).

- Use clear fonts and sufficient color contrast for readability.
- 

## Deliverables

- **HTML Files:** Structure the web application using appropriate HTML5 elements.
  - **CSS Files:** Style the application to enhance visual appeal and usability.
  - **JavaScript Files:** Implement functionality for data fetching, chart rendering, and dynamic updates.
  - **Documentation:** Provide a README file explaining how to run the application, the simulation process, and any libraries used.
- 

## Evaluation Criteria

- **Functionality:** The dashboard should update in real-time and function as intended.
  - **Design:** The application should be visually appealing and easy to navigate.
  - **Code Quality:** Code should be organized, well-commented, and follow best practices.
  - **Responsiveness:** The application should adapt seamlessly to various devices and screen sizes.
- 

## Submission Instructions

- Submit a zip file containing all project files (HTML, CSS, JavaScript, images).
- Include a live demo link if possible (e.g., GitHub Pages, CodePen).

Feel free to use free APIs for this exercise.