**Air Quality Monitoring**

**Real-time air quality data**

1. **Index.html**

<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <link rel="stylesheet" href="styles.css">

    <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.2/dist/css/bootstrap.min.css" rel="stylesheet">

    <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.2/dist/js/bootstrap.bundle.min.js"></script>

    <script src="https://cdn.jsdelivr.net/npm/chart.js"></script>

    <title>Air Quality Monitoring</title>

</head>

<body>

    <div class="container-fluid text-center bg-primary" style="min-height: 15vh;">

        <h1 class="text-white py-4"> Air Quality  Monitoring</h1>

    </div>

        <div class="container mt-4">

            <div class="row">

                <div class="col-md-4">

                <h2>Location: <span id="location">Coimbatore</span></h2>

                <p>Temperature: <span id="temperature">Loading...</span> &deg;C</p>

                <p>Humidity: <span id="humidity">Loading...</span>%</p>

                <p>PM2.5: <span id="pm25">Loading...</span> µg/m³</p>

                <p>PM10: <span id="pm10">Loading...</span> µg/m³</p>

                <button onclick="updateRandomData()" class="btn btn-primary">Update Data</button>

            </div>

            <div class="col-md-4">

                <h2>Location: <span id="location1">Chennai</span></h2>

                <p>Temperature: <span id="temperature1">Loading...</span> &deg;C</p>

                <p>Humidity: <span id="humidity1">Loading...</span>%</p>

                <p>PM2.5: <span id="pm251">Loading...</span> µg/m³</p>

                <p>PM10: <span id="pm101">Loading...</span> µg/m³</p>

                <button onclick="updateRandomData1()" class="btn btn-primary">Update Data</button>

            </div>

            <div class="col-md-4">

                <h2>Location: <span id="location2">Trichy</span></h2>

                <p>Temperature: <span id="temperature2">Loading...</span> &deg;C</p>

                <p>Humidity: <span id="humidity2">Loading...</span>%</p>

                <p>PM2.5: <span id="pm252">Loading...</span> µg/m³</p>

                <p>PM10: <span id="pm102">Loading...</span> µg/m³</p>

                <button onclick="updateRandomData2()" class="btn btn-primary">Update Data</button>

            </div>

        </div>

        <div class="row">

            <canvas id="airQualityChart" width="400" height="200"></canvas>

        </div>

    </div>

    <script src="./script.js"> </script>

</body>

</html>

1. **Script.js**

function updateRandomData() {

    const locationElement = document.getElementById("location");

    const temperatureElement = document.getElementById("temperature");

    const humidityElement = document.getElementById("humidity");

    const pm25Element = document.getElementById("pm25");

    const pm10Element = document.getElementById("pm10");

    // Generate random air quality data

    const randomTemperature = (Math.random() \* 40 + 10).toFixed(2); // Random temperature between 10 and 50 °C

    const randomHumidity = (Math.random() \* 50 + 30).toFixed(2); // Random humidity between 30% and 80%

    const randomPM25 = Math.floor(Math.random() \* 100); // Random PM2.5 between 0 and 100 µg/m³

    const randomPM10 = Math.floor(Math.random() \* 150); // Random PM10 between 0 and 150 µg/m³

    // Update the displayed data

    locationElement.textContent = "Coimbatore";

    temperatureElement.textContent = randomTemperature + " &deg;C";

    humidityElement.textContent = randomHumidity + "%";

    pm25Element.textContent = randomPM25 + " µg/m³";

    pm10Element.textContent = randomPM10 + " µg/m³";

}

function updateRandomData1() {

    const location1Element = document.getElementById("location1");

    const temperature1Element = document.getElementById("temperature1");

    const humidity1Element = document.getElementById("humidity1");

    const pm251Element = document.getElementById("pm251");

    const pm101Element = document.getElementById("pm101");

    // Generate random air quality data

    const randomTemperature = (Math.random() \* 40 + 10).toFixed(2); // Random temperature between 10 and 50 °C

    const randomHumidity = (Math.random() \* 50 + 30).toFixed(2); // Random humidity between 30% and 80%

    const randomPM25 = Math.floor(Math.random() \* 100); // Random PM2.5 between 0 and 100 µg/m³

    const randomPM10 = Math.floor(Math.random() \* 150); // Random PM10 between 0 and 150 µg/m³

    // Update the displayed data

    location1Element.textContent = "Chennai";

    temperature1Element.textContent = randomTemperature + " &deg;C";

    humidity1Element.textContent = randomHumidity + "%";

    pm251Element.textContent = randomPM25 + " µg/m³";

    pm101Element.textContent = randomPM10 + " µg/m³";

}

function updateRandomData2() {

    const location2Element = document.getElementById("location2");

    const temperature2Element = document.getElementById("temperature2");

    const humidity2Element = document.getElementById("humidity2");

    const pm252Element = document.getElementById("pm252");

    const pm102Element = document.getElementById("pm102");

    // Generate random air quality data

    const randomTemperature = (Math.random() \* 40 + 10).toFixed(2); // Random temperature between 10 and 50 °C

    const randomHumidity = (Math.random() \* 50 + 30).toFixed(2); // Random humidity between 30% and 80%

    const randomPM25 = Math.floor(Math.random() \* 100); // Random PM2.5 between 0 and 100 µg/m³

    const randomPM10 = Math.floor(Math.random() \* 150); // Random PM10 between 0 and 150 µg/m³

    // Update the displayed data

    location2Element.textContent = "Trichy";

    temperature2Element.textContent = randomTemperature + " &deg;C";

    humidity2Element.textContent = randomHumidity + "%";

    pm252Element.textContent = randomPM25 + " µg/m³";

    pm102Element.textContent = randomPM10 + " µg/m³";

}

// Sample historical air quality data

const historicalData = {

    labels: ["Day 1", "Day 2", "Day 3", "Day 4", "Day 5", "Day 6", "Day 7"],

    pm25: [12, 15, 10, 8, 13, 9, 11],

    pm10: [20, 18, 22, 19, 21, 17, 20],

  };

  const ctx = document.getElementById("airQualityChart").getContext("2d");

  const airQualityChart = new Chart(ctx, {

    type: "line",

    data: {

      labels: historicalData.labels,

      datasets: [

        {

          label: "PM2.5 (µg/m³)",

          data: historicalData.pm25,

          borderColor: "rgba(75, 192, 192, 1)",

          fill: false,

        },

        {

          label: "PM10 (µg/m³)",

          data: historicalData.pm10,

          borderColor: "rgba(192, 75, 75, 1)",

          fill: false,

        },

      ],

    },

    options: {

      scales: {

        x: {

          beginAtZero: true,

        },

        y: {

          beginAtZero: true,

        },

      },

    },

  });

  function updateAirQualityChart() {

    // Generate new random historical data (for demonstration purposes)

    const newPM25Data = [...historicalData.pm25.map(() => Math.floor(Math.random() \* 20 + 10))];

    const newPM10Data = [...historicalData.pm10.map(() => Math.floor(Math.random() \* 20 + 10))];

    // Update the chart's data

    airQualityChart.data.datasets[0].data = newPM25Data;

    airQualityChart.data.datasets[1].data = newPM10Data;

    // Update the labels if needed

    airQualityChart.data.labels = historicalData.labels;

    // Update the chart

    airQualityChart.update();

  }

**OUTPUT**

