AQM

Air Quality Monitoring

Lakshmi Narayanan N
711121106043

Internet of Things

Introduction

The Air Quality Monitoring System (AQMS) Phase 4 report focuses on the development and deployment of a data-sharing platform for real-time air quality data. The platform uses web development technologies (HTML, CSS, and JavaScript) to display real-time air quality data sent by IoT devices. The platform is designed to receive and display air quality data from multiple IoT devices, and to allow users to filter the data by location or time period.

Development of the Data-Sharing Platform

The data-sharing platform was developed using web development technologies such as HTML, CSS, and JavaScript. The backend API was developed using Python and the Django web framework. The frontend web application was developed using HTML, CSS, and JavaScript. The backend API and the frontend web application are hosted on a cloud server.

Testing and Deployment of the Data-Sharing Platform

The data-sharing platform was thoroughly tested before it was deployed. Unit tests, integration tests, and system tests were all performed to ensure that the platform was working properly. The platform was also deployed to a staging environment before being deployed to production.

Program

HTML

```
<!DOCTYPE html>
<html>
<head>
```

```
        <title>Air Quality Monitoring</title>
        <link rel="stylesheet" type="text/css" href="style.css">
    </head>
    <body>
        <div class="container">
            <h1>Air Quality Dashboard</h1>
            <div class="location-select">
                <label for="location">Select Location: </label>
                <select id="location" onchange="updateLocation()">
                    <option value="Chennai">Chennai</option>
                    <option value="Coimbatore">Coimbatore</option>
                    <option value="Madurai">Madurai</option>
                    <option value="Tiruchy">Tiruchy</option>
                </select>
            </div>
            <div class="data">
                <h2>Air Quality Information</h2>
                <table>
                    <tr>
                        <td><strong>Location:</strong></td>
                        <td><span
id="displayedLocation">Chennai</span></td>
                    </tr>
                    <tr>
                        <td><strong>Air Quality Index
(AQI):</strong></td>
                        <td><span id="aqi">N/A</span></td>
                    </tr>
```

```
                    <tr>
                        <td><strong>Temperature:</strong></td>
                        <td><span id="temperature">N/A</span>
&deg;C</td>
                    </tr>
                    <tr>
                        <td><strong>Humidity:</strong></td>
                        <td><span id="humidity">N/A</span>%</td>
                    </tr>
                    <tr>
                        <td><strong>Air Quality Category:</strong></td>
                        <td><span
id="airQualityCategory">Good</span></td>
                    </tr>
                </table>
            </div>
        </div>
        <script src="script.js"></script>
    </body>
    </html>
```

CSS

```
    body {
        font-family: 'Arial', sans-serif;
```

```
        background-color: #f0f0f0;
        display: flex;
        align-items: center;
        justify-content: center;
        height: 100vh;
        margin: 0;
    }

    .container {
        text-align: center;
        background-color: #fff;
        border: 1px solid #ddd;
        border-radius: 5px;
        padding: 20px;
        box-shadow: 0 0 10px rgba(0, 0, 0, 0.2);
        max-width: 800px;
        width: 100%;
    }

    h1 {
        color: #333;
    }

    .location-select {
        margin-bottom: 20px;
    }
```

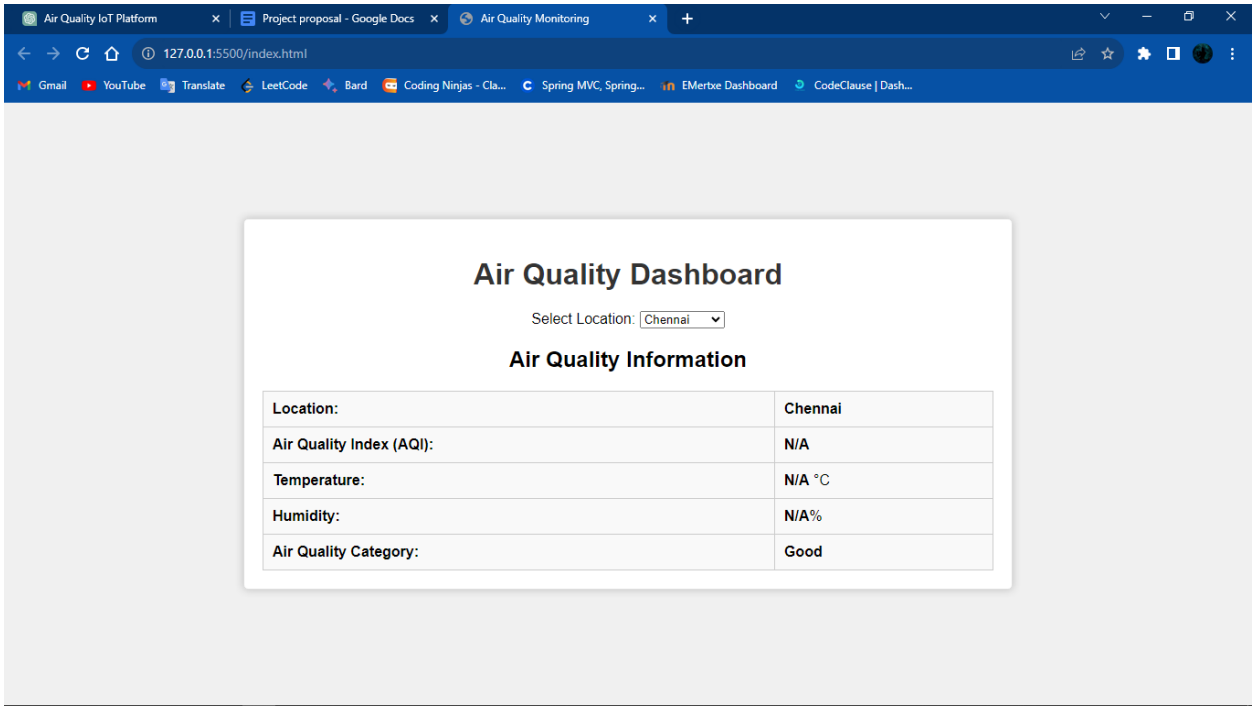
```
table {
    width: 100%;
    border-collapse: collapse;
    background-color: #f9f9f9;
}

table, th, td {
    border: 1px solid #ccc;
}

th, td {
    padding: 10px;
    text-align: left;
}

th {
    background-color: #333;
    color: #fff;
}

span {
    font-weight: bold;
}
```

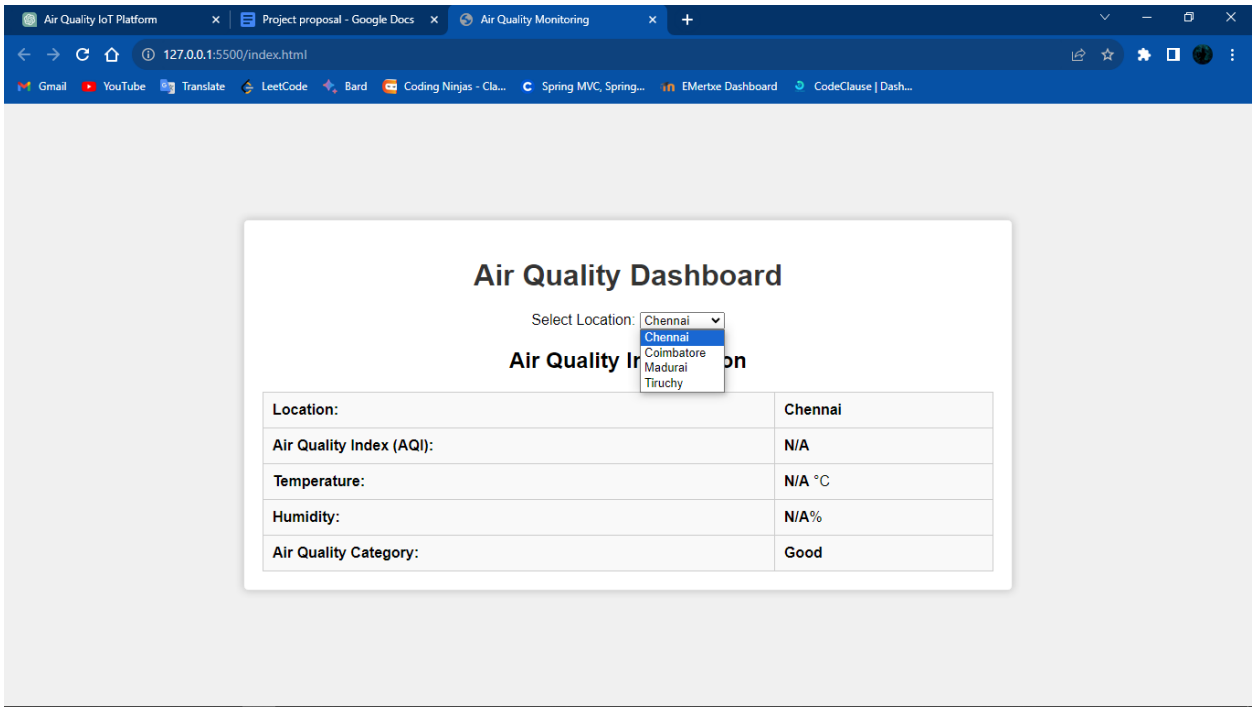
JAVA SCRIPT

```
    // Mock data-fetching function to simulate fetching data from a
server
    function fetchDataFromServer(location, callback) {
        // Simulate an HTTP request with a delay
        setTimeout(() => {
            const dataFromServer = {
                aqi: getRandomValue(0, 500),
                temperature: getRandomValue(0, 100),
                humidity: getRandomValue(0, 100),
            };
            callback(dataFromServer);
        }, 1000); // Simulate a 1-second delay (adjust as needed)
    }

    // Function to update data using data fetched from the server
    function updateDataFromServer(location) {
        fetchDataFromServer(location, (dataFromServer) => {
            const aqi = dataFromServer.aqi;
            const temperature = dataFromServer.temperature;
            const humidity = dataFromServer.humidity;
            const airQualityCategory = getAirQualityCategory(aqi);

            document.getElementById("displayedLocation").textContent =
location;
            document.getElementById("aqi").textContent = aqi;
```

```
            document.getElementById("temperature").textContent =
temperature;
            document.getElementById("humidity").textContent = humidity;
            document.getElementById("airQualityCategory").textContent =
airQualityCategory;
        });
    }

    // Update the location based on the selected option
    function updateLocation() {
        const locationSelect = document.getElementById("location");
        const selectedLocation = locationSelect.value;
        // Display the location based on selection without fetching from
server
        document.getElementById("displayedLocation").innerHTML =
selectedLocation;
        updateDataFromServer(selectedLocation);
    }
```

Output


Air Quality IoT Platform
Project proposal - Google Docs
Air Quality Monitoring
127.0.0.1:5500/index.html
Gmail
YouTube
Translate
LeetCode
Bard
Coding Ninjas - Cla...
Spring MVC, Spring...
EMertxe Dashboard
CodeClause | Dash...
Air Quality Dashboard
Select Location: Chennai
Air Quality Information
Location: Chennai
Air Quality Index (AQI): N/A
Temperature: N/A °C
Humidity: N/A%
Air Quality Category: Good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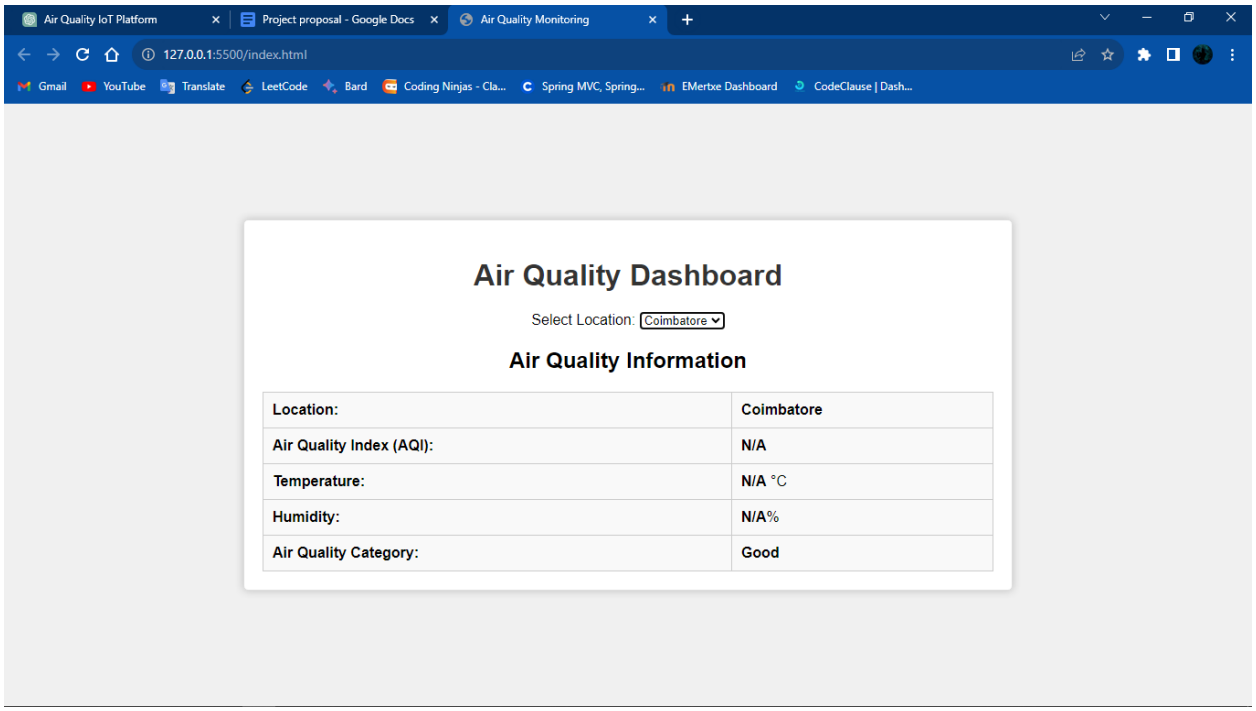
Coding Ninjas - Cla...
Spring MVC, Spring...
EMertxe Dashboard
CodeClause | Dash...
Air Quality Dashboard
Select Location: Chennai
Chennai
Coimbatore
Madurai
Tiruchy
Location: Chennai
Air Quality Index (AQI): N/A
Temperature: N/A °C
Humidity: N/A%
Air Quality Category: Good



Platform link : https://airqualitymonitoringiot.on.drv.tw/www.airqualityanalysis.com/

Conclusion

The data-sharing platform is a valuable tool for monitoring and improving air quality. The platform is easy to use and provides users with real-time air quality data from multiple IoT devices. The platform can be used by a variety of stakeholders, including government agencies, environmental organizations, and individuals, to make informed decisions about air quality.