**Project Report**

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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.

Features: The web application has the following features:

* Header displaying the name of the application with a brief explanation of it, the name of the location which the data is being displayed of, and the current time and day in that location.
* Search bar that allows the user to look for a specific location’s air quality data.
* Dashboard containing a slider that displays the current temperature and humidity in the chosen location, with a button that displays a graph showing the average temperature and humidity in the upcoming days when being pressed. The dashboard also displays the concentration levels of air pollutant agents in a dynamic way, allowing the user to understand the meaning behind the concentration of each pollutant. There is also a ranking of the best 5 cities in the world regarding air pollution, at the bottom part of the dashboard.
* Side navbar that allows the user to switch among the homepage, data and about.

Software used:

* HTML and CSS: These were used to set up all the structure and style of the web application.
* JavaScript: It was used to develop the logic working behind the website. Calls to the proxy server were done using the Fetch API, and the dynamism of the application was achieved through the use of DOM methods to access the elements inside it.
* NodeJS: It was used to create a simple proxy server that serves as an intermediary between the web application and the APIs’ endpoints. It was necessary to avoid possible CORS errors that might appear while making these calls.

APIs used:

* OpenWeatherAPI:
  + Air Pollution: It provides current, forecast and historical air pollution data for any coordinates on the globe. It is used to display the pollutants concentration.
  + Current Weather: Access current weather data for any location on Earth. It uses weather data that has been collected and processed from different sources such as global and local weather models, satellites, radars and a vast network of weather stations. It was used to display the current temperature and humidity.
  + Geocoding: It searchs for the location named based on coordinates. It was used in intermediray processes in main calls to make sure to have access to the right locations.
* WeatherAPI:
  + It offers realtime, hourly, daily and 15 min interval weather forecast. It was used to obtain the data being used to depict the graph of average weather and humidity.
* TimeAPI:
  + It offers accurate and reliable time information for any location in the world. It was used to display the time of the location the data is being displayed from.
* WAQIAPI:
  + It offers air quality index from any location in the world. The map endpoint was used in this project. This endpoint allows to send as a request parameter the boundaries for the search of cities and their air quality index. This API was used to display the top 5 cities with the best air quality index in the world.

Important Notes:

* The data displayed in the section “Best Air Quality Cities Ranking” it’s not a fully reliable data. However, the reason why the WAQIAPI was used for this project was that it was the only free API offering data in a way in which a ranking could be made up that I could find. As a better alternative for this API, it’s the IQAirAPI’s enterprise plan.
* Due to lack of time, proper responsiveness could not be added to the web application. Therefore, I would like to mention that I will keep working on this aspect of the application in order to improve its quality and make it suitable for all types of devices.