



Analysis of air quality in UPC classrooms: Environmental Health

Project Proposal and Work Plan

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Project overview and goals (from Project Proposal)

The project is being carried out at *Universitat Politècnica de Catalunya*. It consists on analyzing the air quality within the classrooms of *Campus Sud*, a specific zone of the university. Historical air quality data has been collected over the past years, which will be the base resource for this project. In more detail, the data analysis will be performed visually, creating visualizations that facilitate the achievement of the project's goals in an understandable and user-friendly way.

The project main goals are:

1. Clean the data to ensure reliability and suitability for future analysis.
2. Create visualizations that best address the questions I aim to answer, facilitating their interpretation.
3. Develop an application/interface that integrates all visualizations cohesively and in a user-friendly manner.
4. Describe the relationship between energy consumption and both external and internal temperatures.
5. Compare the air quality across different classrooms and identify the primary factors affecting it.

Done

I downloaded and cleaned all the data, filling in missing values and ensuring a suitable structure for its purpose. Additionally, I analyzed the presence of outliers, identifying some days in December 2023 with nonsensical values and fixed them by substituting them with other correct proximity values.

Once I had reliable data, I created some visualizations related to energy consumption and campus temperature. Two noteworthy visualizations are: one that shows the difference between temperatures on different floors of the same building, and the other that shows the average trends of energy consumption at different hours of the day for all the seasons of the year. I added all the plots to the Streamlit app, which is now taking shape. I can already see some outcomes emerging from my visualizations.

I'm also documenting some of the important steps of the process for future reference.

To do...

The next steps involve continuing to create plots and extracting more insights about the topic. It's also essential to organize the Streamlit app into different pages and document the outcomes of each chart to enhance understanding. After that, I'll need to write the project's documentation, deeping into the concepts I've been working with to draw interesting conclusions.



Work Plan

Tasks and Milestones. Gantt Diagram

Tasks:

1. Take a look at Sirena's air quality data and gain a comprehensive understanding.
Time period: 1 - 10 March
2. Download the relevant data for the project.
Time period: 10 March
3. Clean and format the data to ensure it's adequate for the project.
Time period: 11 - 20 March
4. Generate some questions to solve (project's initial goals brainstorming)
Time period: 15 - 20 March
5. Learn about visualization libraries that suit the project's needs.
Time period: 20 - 30 March
6. Create charts to solve some of the initial questions, involving iterative refinement based on supervisor's feedback and new questions that might emerge.
Time period: 20 March - 20 May
7. Document project process.
Time period: 1 March - 15 June (during the whole project)
8. Design and develop an application/interface that integrates all the visualizations.
Time period: 20 May - 15 June
9. Write the final memories of the project, with its findings and conclusions.
Time period: 1 June - 15 June
10. Prepare the project presentation.
Time period: 15 June - 25 June

Milestones:

1. Submission of the initial project plan (15 March 2024)
2. Submission of the progress report for critical project review (30 April 2024)
3. Submission of the project final report (aprox. 15 June 2024)
4. Project presentation (aprox. 25 June 2024)

Green tasks are completed.

Orange tasks are in progress

Meeting and communication plan

We have agreed to schedule a fixed meeting every two weeks to monitor the process. However, communication is open at all times via Discord or Email, so that any spontaneous questions or concerns can be addressed.

We're following the meeting and communication plan as previously defined.