**A Comparative Analysis of**

**Nashville’s Air Quality**

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**Executive Summary**

*This project is an exploratory analysis of Nashville’s air quality. The scope of this project includes a study of various known respiratory irritants such as allergens and airborne particulates. It also considers trends across time to see if there are certain years, seasons, or times of day during which airborne irritants are worse than others. A comparison of air quality from regions of differing terrains (the coastal region of San Diego, California and the mountainous region of Denver, Colorado) will also be provided to determine specific factors that may contribute to the commonly observed increase in respiratory issues to residents who move to Nashville.*

*The data for this project will be obtained from the following sources:*

[*https://www.pollen.com/research/*](https://www.pollen.com/research/)

[*https://www.epa.gov/outdoor-air-quality-data*](https://www.epa.gov/outdoor-air-quality-data)

*[Optional]* [*https://data.world/data-society/us-air-pollution-data*](https://data.world/data-society/us-air-pollution-data)

**Motivation**

*It wasn’t until my family and I moved to Nashville in 2015 that we began to experience respiratory issues. In asking around, I quickly learned we were not alone in this phenomenon. Researching further, it became apparent there were multiple potential causal factors. This project is a proactive effort to explore those factors to equip myself, my family and my fellow Nashville residents with information about what may be contributing to, or causing, these respiratory issues.*

**Data Question**

*How does Nashville’s air quality compare to other popular places of residence such as San Diego, California, and Denver, Colorado? Are there any observed differences that might explain why so many new residents to Nashville experience an increase in respiratory discomfort/irritation?*

**Minimum Viable Product (MVP)**

*The final capstone project will provide a series of visualizations showing air quality comparisons between San Diego, Denver and Nashville of local allergens as well as airborne particulates. It will note any major differences that may be causal factors in the increase of respiratory issues for residents who move from either coastal or mountainous regions to highly forested regions such as Nashville. Allergen surveys from Nashville, San Diego and Denver will be considered in addition to general air quality reports from these three cities.*

*The analysis will be performed using Python and visualizations will be exported to, or fine-tuned using, Tableau, which will be used to present the project. The intended audience are those with an interest in how Nashville’s air quality compares to that of major cities in differing terrains.*

**Schedule (through Jan 5, 2023)**

1. Get the Data (Dec 2, 2022 - Friday)
2. Clean & Explore the Data (Dec 9, 2022 - Friday)
3. Create Presentation of your Analysis (Dec 14, 2022 - Wednesday)

* Should be a presentation, but could include a Jupyter Notebook or dashboard in Excel, Tableau, or PowerBI

1. Internal demos (Dec 16, 2022 - Friday)
2. Demo Day!! (Jan 5, 2023 - Thursday)

**Data Sources**

[*https://www.epa.gov/*](https://www.epa.gov/outdoor-air-quality-data)

[*https://data.world/data-society/us-air-pollution-data*](https://data.world/data-society/us-air-pollution-data)

[*https://www.pollen.com/research/*](https://www.pollen.com/research/)

**Known Issues and Challenges**

* *This project will involve a significant amount of webscraping of pollen information from the* [*https://www.pollen.com/research/*](https://www.pollen.com/research/) *website.*
* *It will also likely require acquisition of an api key for pulling in API data from the* [*https://www.epa.gov/*](https://www.epa.gov/) *website.*