**Team Number: 2**

**Team Members**:

Abid, Kaouther; Carlton, Mikaela; Dorsainvil, Erika; Fetter, William;  Hejazi, Belal; Hodzic, Melisa; Kafle, Rumani; Khant, Myatminn; Lane, Chris; Legg, Lorelei; Lopez, Grecia; Park, Sae; Robinson, Charisse

**Project Outline: Air Quality in New York City**

**Introduction**

• Air quality is a critical factor in public health and urban planning, especially in high-density areas like NYC.

• This project analyzes air pollution across different boroughs and compares pollutant levels over one year.

• The goal is to visualize trends and provide insights into the impact of air quality.

**Research Questions**

1. What are the trends in air pollution across NYC boroughs over time?

2. How do different pollutants compare in terms of concentration and impact?

3. Which areas in NYC experience the highest levels of pollution?

**Data Sources**

[• NYC Open Data - Air Quality](https://catalog.data.gov/dataset/air-quality)

[• NYC DOH - Real-time Air Quality Data](https://a816-dohbesp.nyc.gov/IndicatorPublic/data-features/realtime-air-quality/)

[• NYC Open Data API](https://data.cityofnewyork.us/api/views/c3uy-2p5r/rows.json?accessType=DOWNLOAD)

**Data Processing & Storage**

Database Selection:

• The dataset will be stored in a SQL or MongoDB database for efficient querying and visualization.

**Data Cleaning Tasks:**

• Remove missing or corrupted data.

• Standardize date formats and pollutant measurements.

• Normalize borough names and locations.

**Visualization Plan**

|  |  |  |
| --- | --- | --- |
| **Visualization** | **Library** | **Interactive Feature** |
| Time-Series Line Chart | Plotly (Python) | Dropdown to select borough & pollutant, hover for details |
| Geospatial Heatmap | Leaflet.js  (JavaScript) | Dropdown to filter pollutants, interactive heatmap |
| Borough Pollution Bar  Chart | D3.js JavaScrip) | Dropdown to filter pollutants, hover to see values |

**Additional Visuals**

• A summary dashboard to display key metrics.

**Usability Requirements**

• Ensure all scripts and visualizations run without errors.

• Incorporate a Python or JavaScript library not shown in class to enhance functionality.

• Provide user-driven interaction through:

• HTML dropdowns & filters for visualization customization.

**GitHub Repository Requirements**

• README.md must include:

• Overview of the project & objectives.

• Instructions for setting up and running the project.

• Ethical considerations in handling data.

• References for data sources and any external code used.

|  |  |  |
| --- | --- | --- |
| **Task Assignments:** |  |  |
| Task | Team Member(s) | Status |
| Data Collection & Cleaning | Team 2 | In progress 2/11 |
| Database Setup (Postgres-SQL) | Erika/Team | progress 2/11 |
| Time-Series Visualization (Plotly) | TBD | Not Started |
| Geospatial Heatmap (Leaflet.js) | TBD | Not Started |
| Borough Pollution Bar Chart (D3.js) | TBD | Not Started |
| Interactive Features Implementation | TBD | Not Started |
| README.md & Documentation | Team 2 | In progress 2/11 |
| Final Presentation Preparation | Team 2 | 2/18 (review), 2/20 |

**Project Deliverables**

• A functioning data visualization web application.

• Three key interactive visualizations.

• A hosted database storing NYC air quality data.

• A well-documented GitHub repository with clear setup instructions.

• A final presentation summarizing findings, trends, and recommendations.