Air Quality Index in San Francisco

[Draft]

Overview

- Visualizing Air Quality Index (AQI) data in San Francisco, CA from before and after COVID-19 crisis

  - comparing AQI for before and after lockdown.

  - studies show AQI levels in many cities have decreased during lockdown measures

    - subsequently increased when these cities began re-opening.

- **Question:** Are Americans safe for the future if we continue where we left off in increasing AQI over time?
  - resuming in-office work, opening large venues, factories, etc.

Purpose: Why we care

- **Problem**: Air-pollution produced by human activity contributes to climate change. Climate change affects everyone, but data suggests that marginalized and vulnerable groups are disproportionately impacted by the effects of climate change.

- **Purpose**: Observe air-pollution during an outlined time period in a specific region of the globe to hypothesize ways we can slow air-pollution.

Data Source: EPA.gov

- [Description of EPA]

- [Description of AQI]
  - [Description of pollutants]

Data Sources
- Environmental protection Agency (EPA) website -- https://www.epa.gov
- Airnow -- https://www.airnow.gov

Exploratory Analysis

- We wanted to examine …
  - [Why we selected focus]
  - [Matching the data]
  - [etc.]

Anticipated Results

- Dataframe suggested…
  - We looked at …
  - Then …

Plots: AQI vs. Time

[PNG image of plot or link to webpage/display]

Machine Learning Model

- **[Link to model]**

Tools Used

<u>Code</u>

Python in jupyter notebook for cleaning the data

1.   Gathered CSV's from EPA website
      a.   How we gathered data
2.   Imported into Jupyter notebook
3.   Cleaned by filtering for SF site
      a.   Code
4.   Exported as CSV
5.   Created tables and imported csvs into Postgres
6.   Joined then used SQL alchemy to gather joined csv
7.   Machine learning model
      a.   Why did we select these models?
      b.   Could we possibly do other models
      c.   Does this leave any room for future analysis/ ARIMA model

<u>Results</u>

**** model performed the best in predicting AQI

Graphs possible HTML/JAVA

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Possible Errors

- Missing data points
- Inconsistency in measuring sites
- …

Future Research

- Further examination into wildfires & their causes…
- Individual AQI over longer time period (i.e. 20 years)
- [etc…]

Fin

- [Final thoughts…]