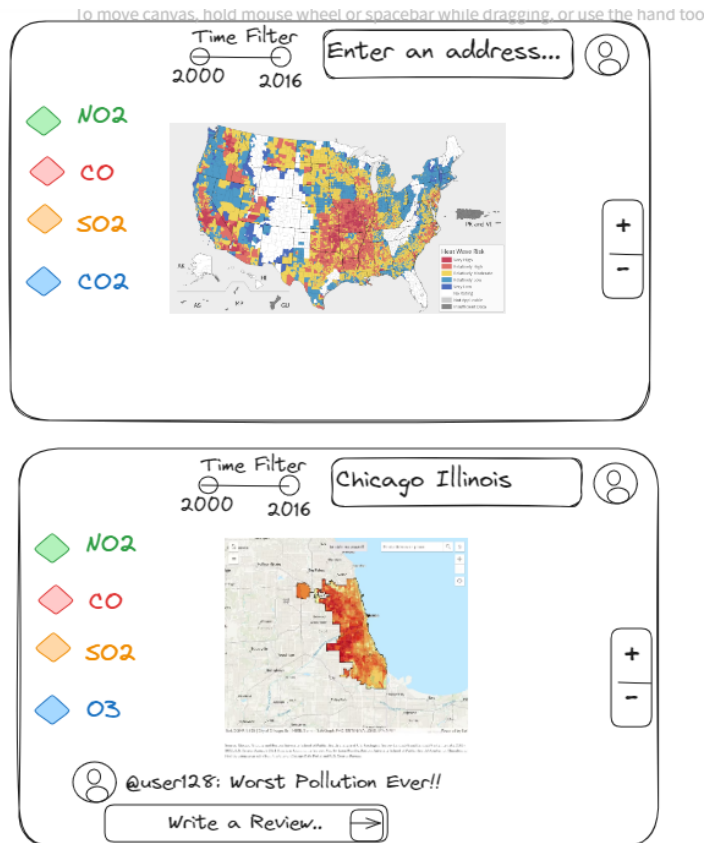


EcoHealth Insights Project Proposal

1. <https://www.kaggle.com/datasets/sogun3/uspollution> The data will be in CSV format. We will use the MySQL cloud database on GCP to query the attributes we need. The attributes we will need are:
 - a. State Code
 - b. City Code
 - c. County Code
 - d. NO2 Mean
 - e. O3 Mean
 - f. SO2 Mean
 - g. CO Mean
2. Users will be able to choose their state or county, where data is available, to view concentrations of pollutants both at particular points in time, as well as over a range of time captured in the dataset. Users will be able to visualize which areas have the “worst” pollution levels, visualized by a color coded scale. There will be information on what health issues each pollutant can bring, as well as a place for users to leave reviews on the pollutant levels of an area.
3. Users will be able to input particular pollution values and receive a score on how dangerous it would be. We could implement this in the backend with JavaScript and come up with our own scoring system or research other potential scoring methods.
4. Project Title: Pollution Visualization Application
5. Pollution is a critical concern in the United States, with adverse health effects that vary across different regions. This project aims to develop a frontend application that will provide a user-friendly interface to explore pollution levels in different areas of the United States. The application will focus on displaying time-averaged heatmaps for individual pollutants, such as nitrogen dioxide (NO2), carbon monoxide (CO), and sulfur dioxide (SO2) data by region. The goal is to inform users on pollutants in each area, show potential health concerns with pollutants, while also allowing users to input their own reviews on how bad pollutants are in an area. This will provide policy-makers, researchers, and the general population valuable insights on air quality, pollution, and public health concerns.
6. Our application will be a website with an interactive map that allows users to see heatmap analysis of pollutants in specific areas at the State, City, or County Level. This will allow users to gauge pollution of an area so they may be informed on the potential health dangers and areas to avoid due to low air quality.
7. Our application is useful because it will provide users insight on where heavily polluted areas are and what to avoid. If someone is looking for a home, for example, they could go to our web application and see if the area they are looking at moving into is heavily polluted. AirNow.gov is a website that works similarly, but they do not show specific pollutants, instead their map shows air quality.
8. <https://www.kaggle.com/datasets/sogun3/uspollution> Our dataset contains measurements in parts per billion for four pollutants of interest: nitrogen dioxide, sulfur

dioxide, carbon monoxide and ozone. All data was scraped from the U.S. EPA website, and was initially obtained by the EPA between 2000 and 2016. Each observation is associated with the county and state where the air quality monitor was located at the time of measurement.

9. The website will have an interactive map of the United States that they can scroll and zoom into. There will be a time filter that users can adjust. There will be a search bar that users can enter an address, city, or state into. There are buttons that filter based on the pollutant. Once selecting an area, users can leave feedback “reviews” on the area’s pollution. Users should also be able to see their review history and search history



9b. Drew will lead the initial data discovery to gather the attributes listed in part 1. We will work as a team to finish the city, state, and county querying, as they will likely be similar code. Aaron will lead the user information development. He will be responsible for the login, user info, and history implementations. Arnav will lead development on time functionality and querying. This involves hooking up the time filter to the database. Drew will lead UI and UX for the frontend. We are planning on using React in a NodeJS environment with MaterialUI packages. Aaron will lead development on health concern pop ups for each pollutant. Arnav will lead development on the pollution score feature. Drew will be responsible for the heat map implementation and the scrolling/zooming of the map (the interactiveness). We plan on doing agile sprints where we reassess who

can spearhead each utility as we come across them in development, but for now those are the main responsibilities.