The goal of this project is to analyze air quality data collected across Nebraska and evaluate whether air quality meets National Ambient Air Quality Standards (NAAQS). The project will identify locations with elevated pollutant concentrations and assess how environmental factors such as temperature, humidity, elevation, and geographic location influence air quality.

Project tasks will include collecting air quality data from PurpleAir sensors and analyzing pollutant concentrations for VOC, PM2.5, and PM10 using mean and median values. The analysis will identify the locations with the highest mean and median concentrations of these pollutants. Environmental factors will also be evaluated by analyzing humidity, elevation, and temperature to determine their impact on air quality results.

The next step will be an Air Quality Index (AQI) evaluation. PM2.5 and PM10 values will be compared to EPA AQI thresholds to identify any events classified as “unhealthy for sensitive populations.” If such events are identified, potential causes for elevated AQI values will be investigated through exploratory research.
The final step of the project will be documentation of all work completed. A fully documented Python analysis will be developed using Jupyter Notebooks. The analysis and results will be summarized in a technical report prepared for the client. Deliverables will include raw air quality data files, Python code used for analysis, documentation explaining the code, a written report summarizing findings and identified air quality concerns, and the completed Scope of Work.