YEAR

2023

PRESENTERS

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Air Quality In USA

Data Visualization Course Project

CLASS

CCDS-311

THE DATASET

Introduction

The dataset is made up of air quality data that was collected in 2020, across the United States by outdoor sensors.

The dataset offers a clear and in-depth assessment of the regional variations in ozone concentrations in the United States.

Since every entry in the dataset includes data regarding air quality, it is an valuable tool for studying and examining ozone level trends as well as environmental conditions.

NEXT

Our Questions

01

Question:

Which monitoring state's average AQI results are the highest?

02

Question:

What is the amount of outlier observations?

03

Question:

What connection exists between ozone and air quality?

04

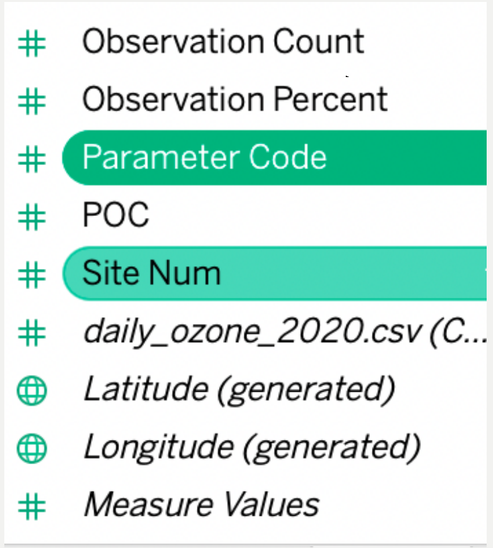
Question:

Analyzing what is the difference in ozone levels among cities?

NEXT

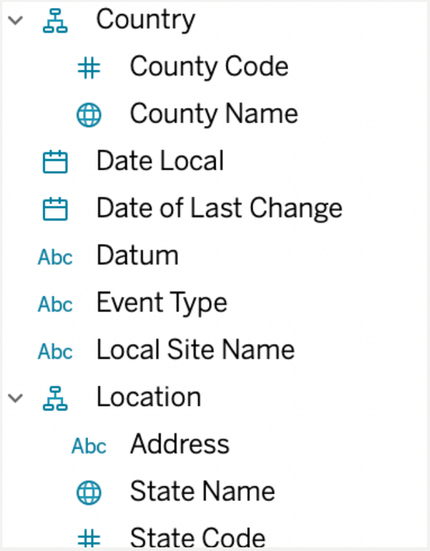
Fix data types, convert to measure or dimension, and/or create hierarchies. Perform at least two such tasks.

Task 1



CONVERT TO MEASURE

Convert Parameter Code and Site Num to measure



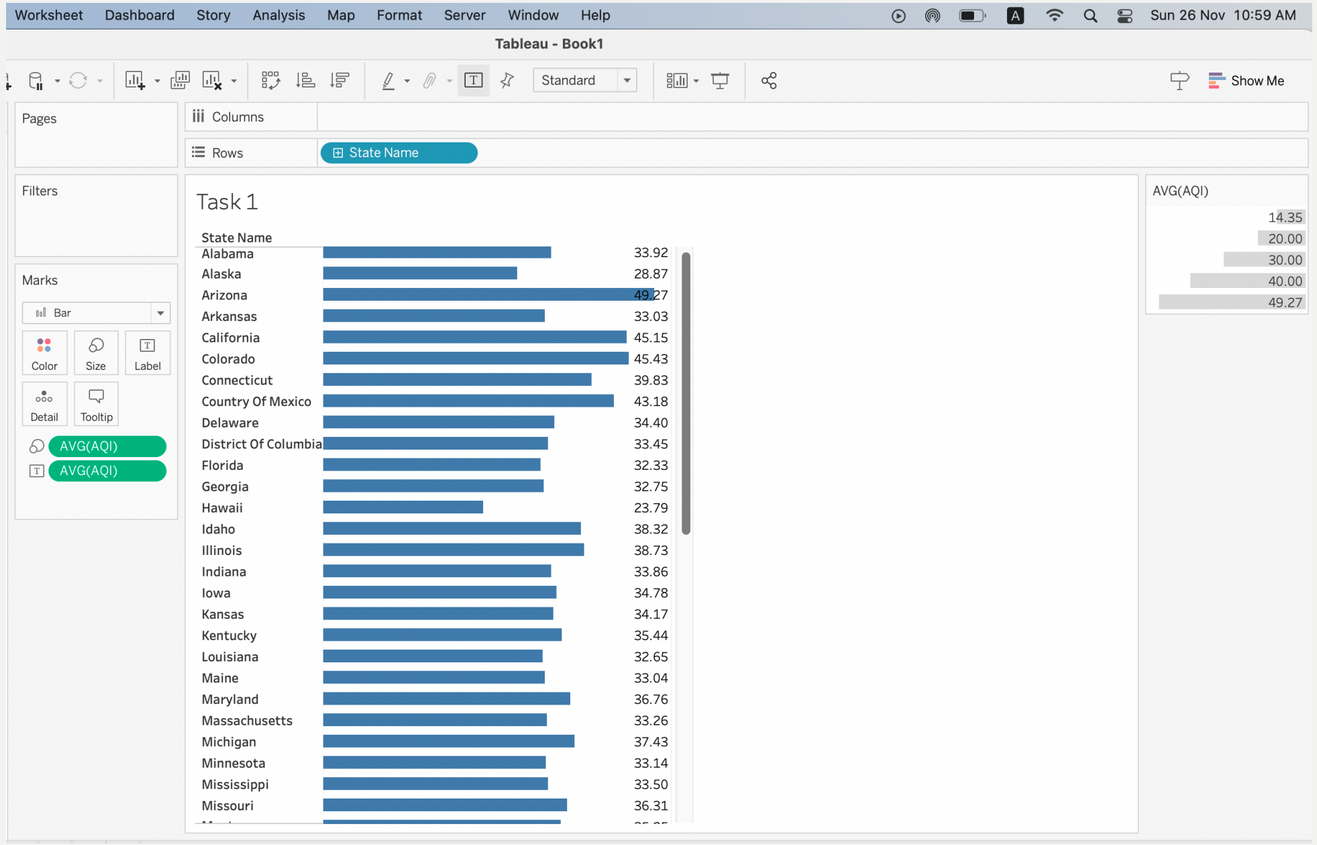
CREATE HIERARCHY

Hierarchy of Country w/ Country Name & Country Code

Hierarchy of Location w/ State Code, State Name, and Address

NEXT

Visualize single variables (at least one single categorical and one single continuous) relevant to your questions



Task 2

Part 1

WHICH MONITORING STATE'S AVERAGE AQI RESULTS ARE THE HIGHEST?

State Name (categorical)

We detected that the highest AQI value belonged to Arizona

NEXT

Visualize single variables (at least one single categorical and one single continuous) relevant to your questions

Task 2

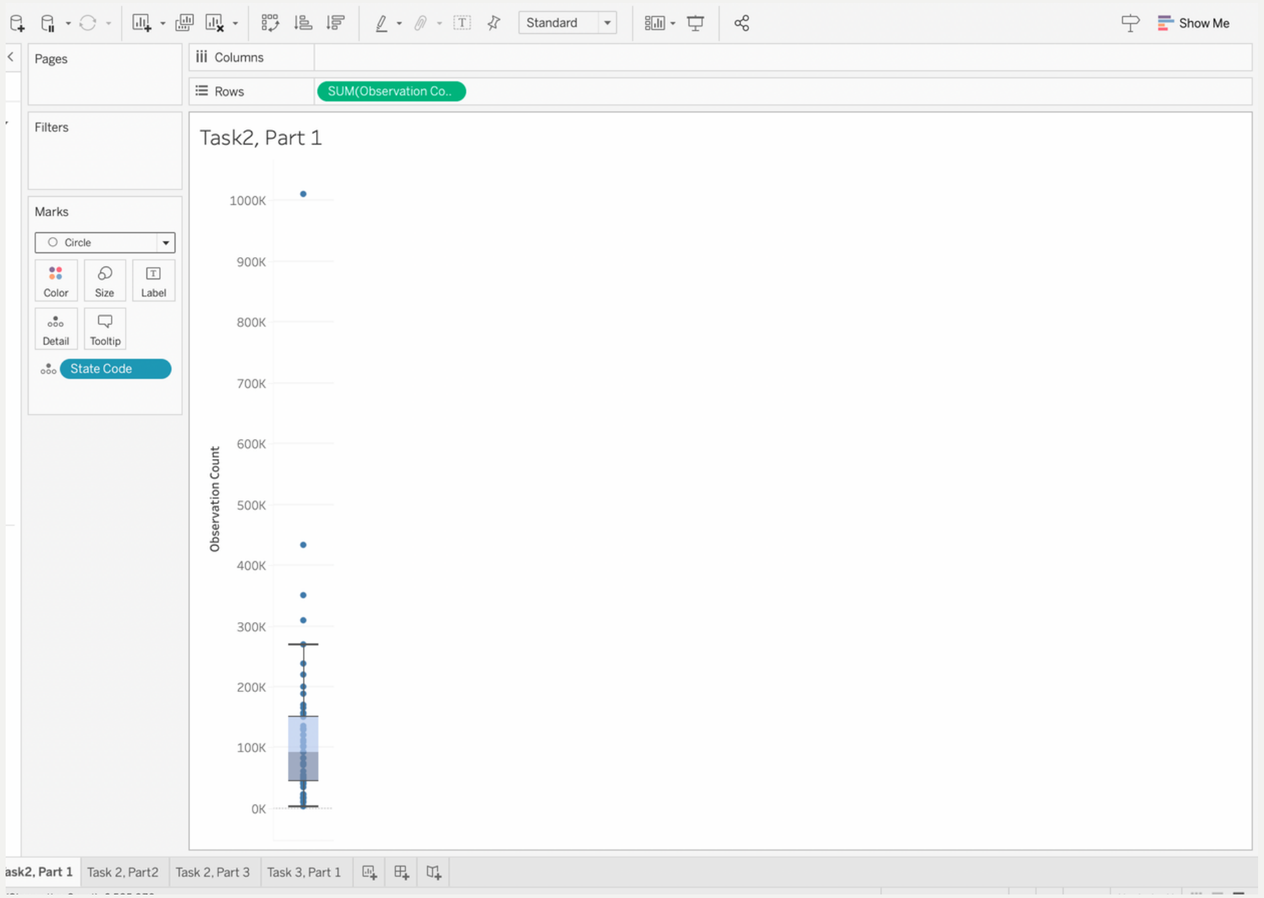
Part 1 continued

WHAT IS THE AMOUNT OF OUTLIER OBSERVATIONS?

Observation Percent (continuous)

There appear to be four outliers in the Sum of Observations

for the four states, which could indicate a mistake entry in the data.



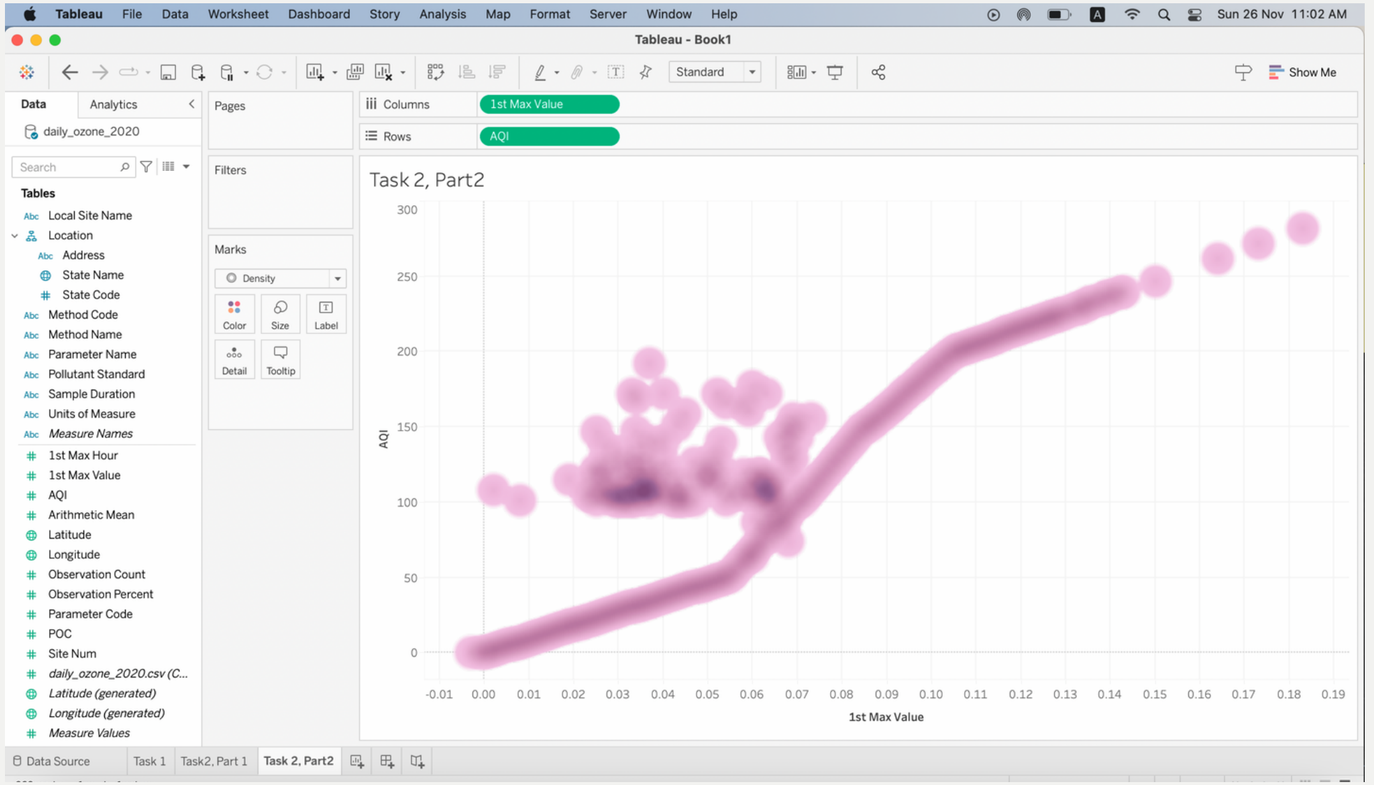
NEXT

Visualize two continuous variables versus each other (at least one visual required) relevant to your questions

Task 2

Part 2

WHAT CONNECTION EXISTS BETWEEN OZONE AND AIR QUALITY?



1st Max Value (continuous) & AQI (continuous)

We can see that when the max value of ozone increases, the AQI (Air Quality Index) is also likely to go up with it.

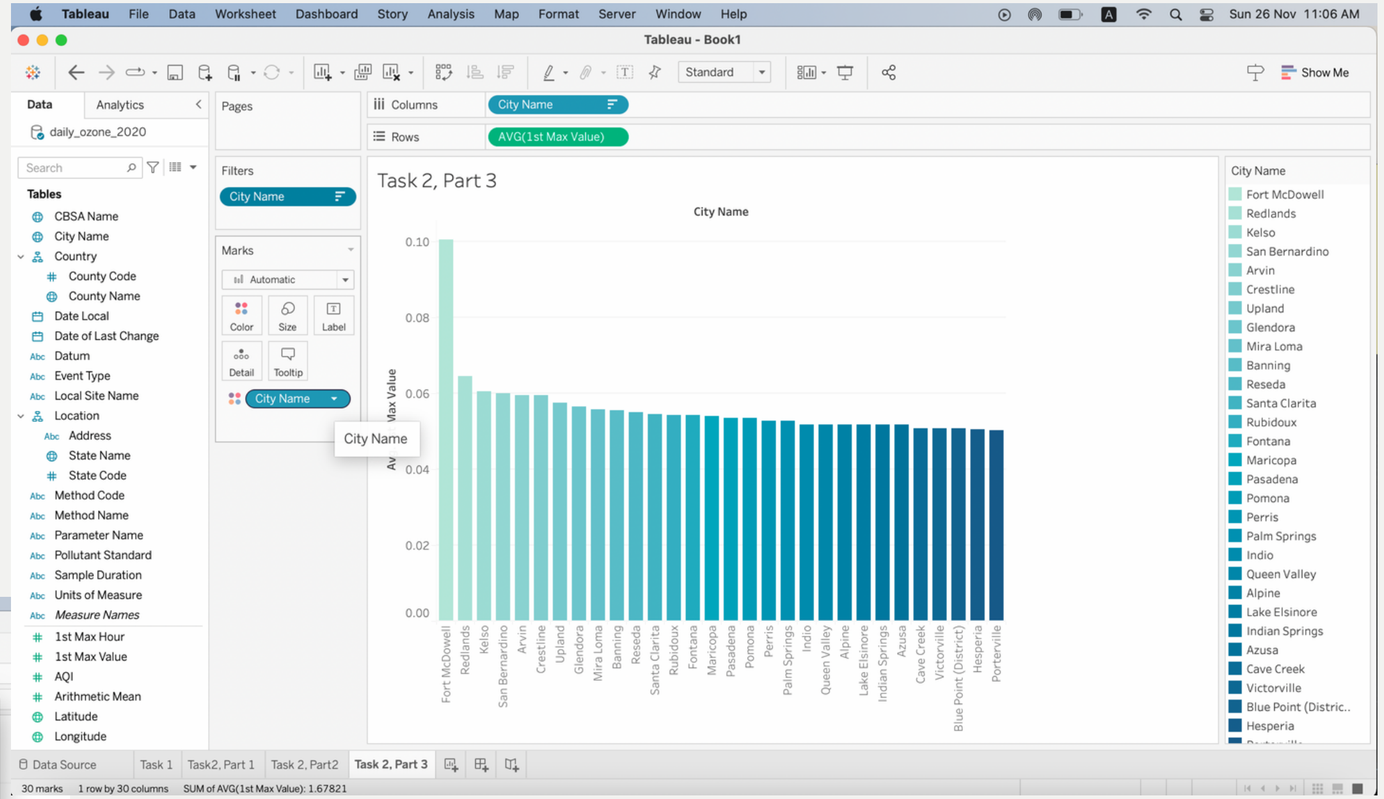
NEXT

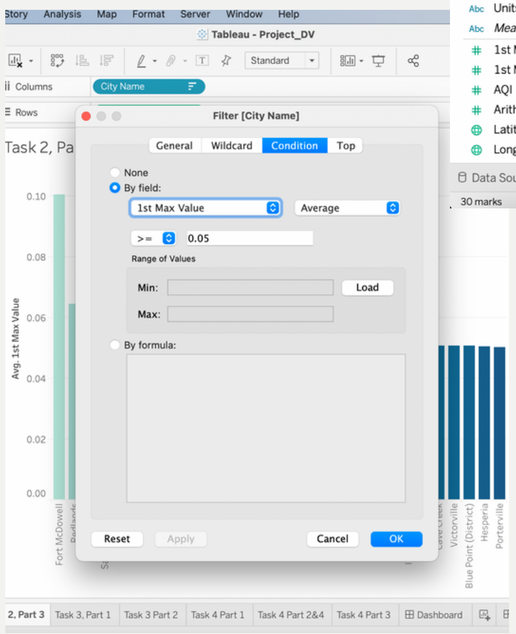
Visualize two variables of different types versus each other (at least one visual required) relevant to your questions.

Use at least one filter in your visualizations

Task 2

Part 3





ANALYZING, WHAT IS THE DIFFERENCE IN OZONE LEVELS AMONG CITIES?

City Name (categorical) & 1st Max Value (continuous)

We realized that between cities, there are different ozone levels, then we added a condition filter(task 4 part 4) to retrieve cities that have more than or equal to an 0.05 ozone level.

NEXT

Use at least 2 different geospatial visuals to answer your questions, include at least three different types of maps

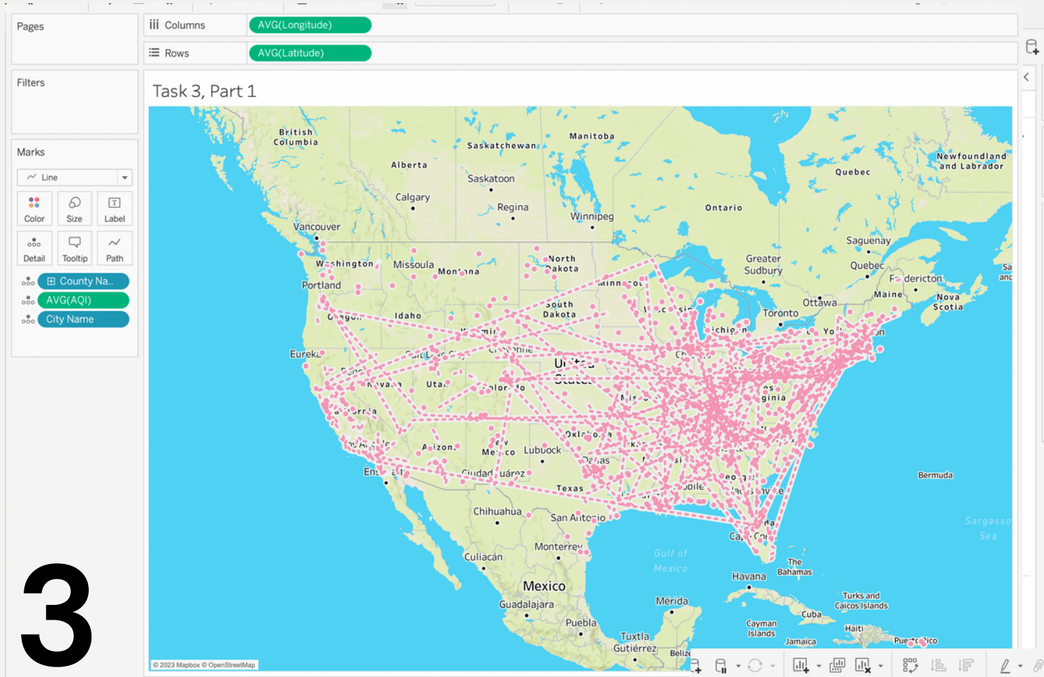
Task 3

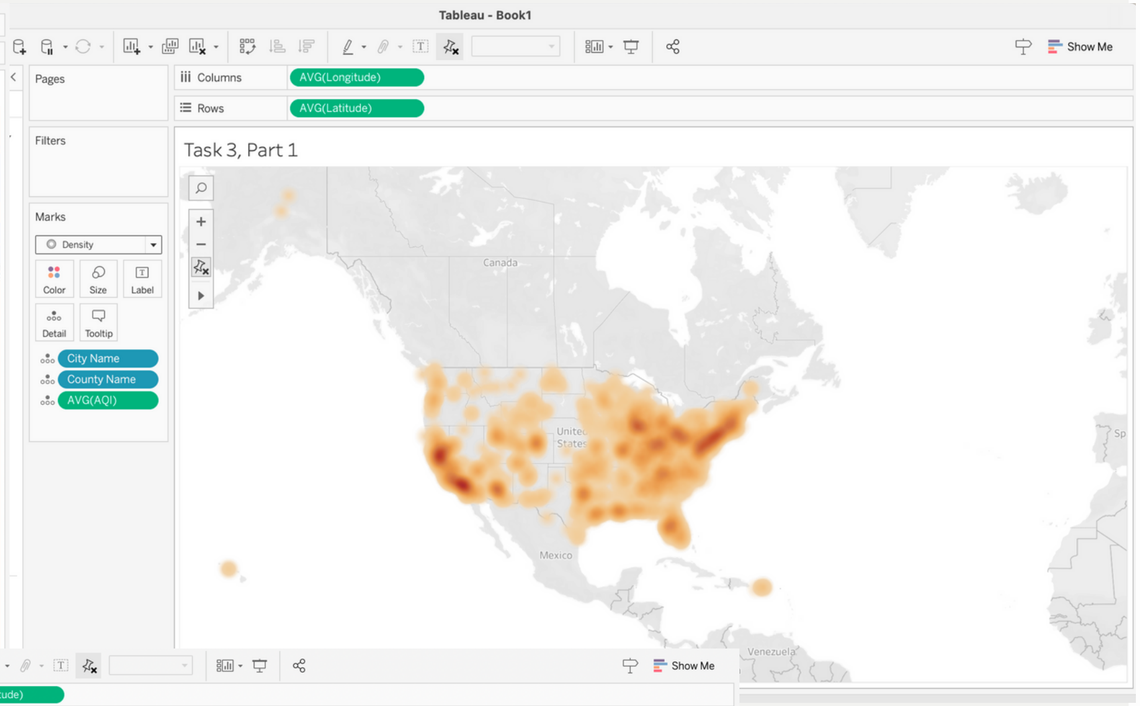
Part 1

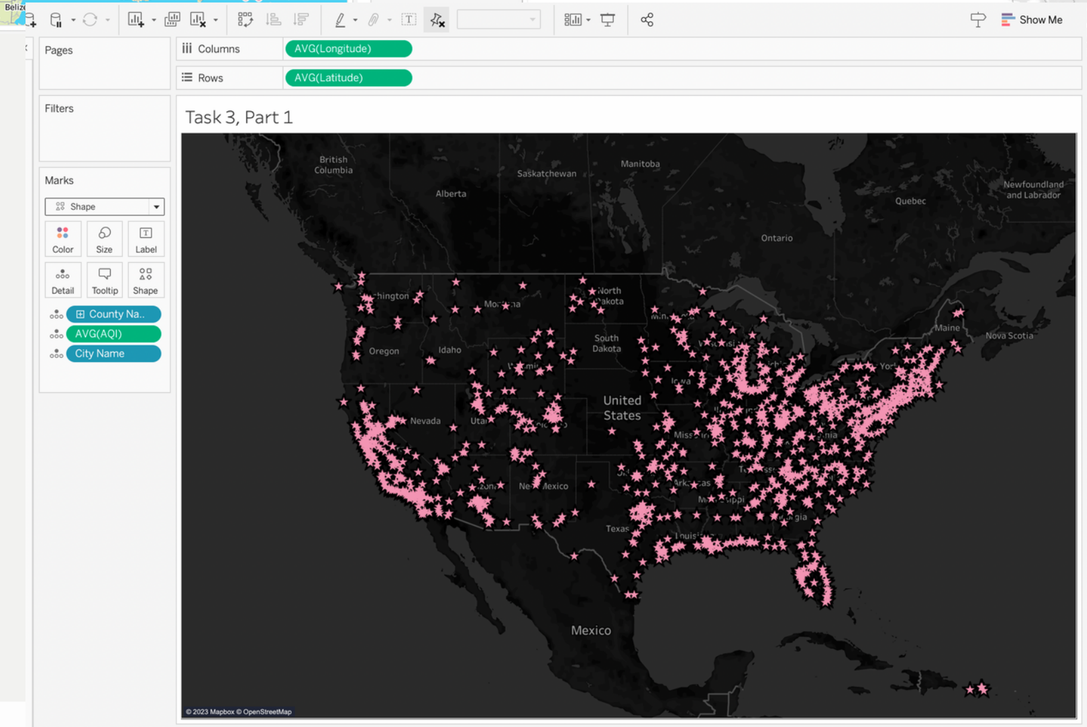
ANALYZING THE AVERAGE AQI BY COUNTRY AND CITY NAME

Using Filled map, Density map, and Line map.

Using these maps helped us visualize and see that the East had a higher AQI.







NEXT

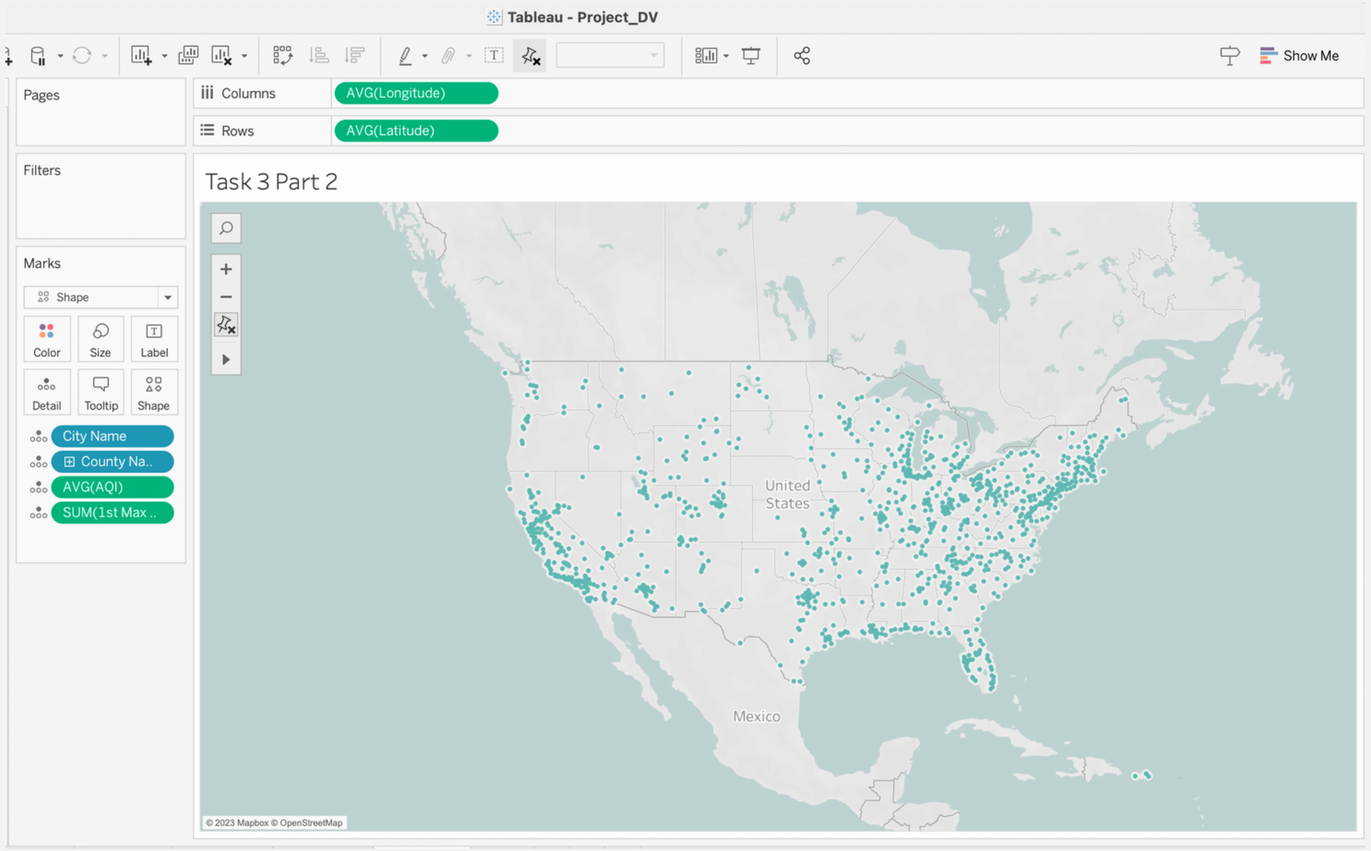
Four visual attributes should be used in these visualizations

Task 3

Part 2

USING 4 VISUAL ATTRIBUTES

1. **City Name**
2. **Country Name**
3. **AQI**
4. **1st Max Hour**



NEXT

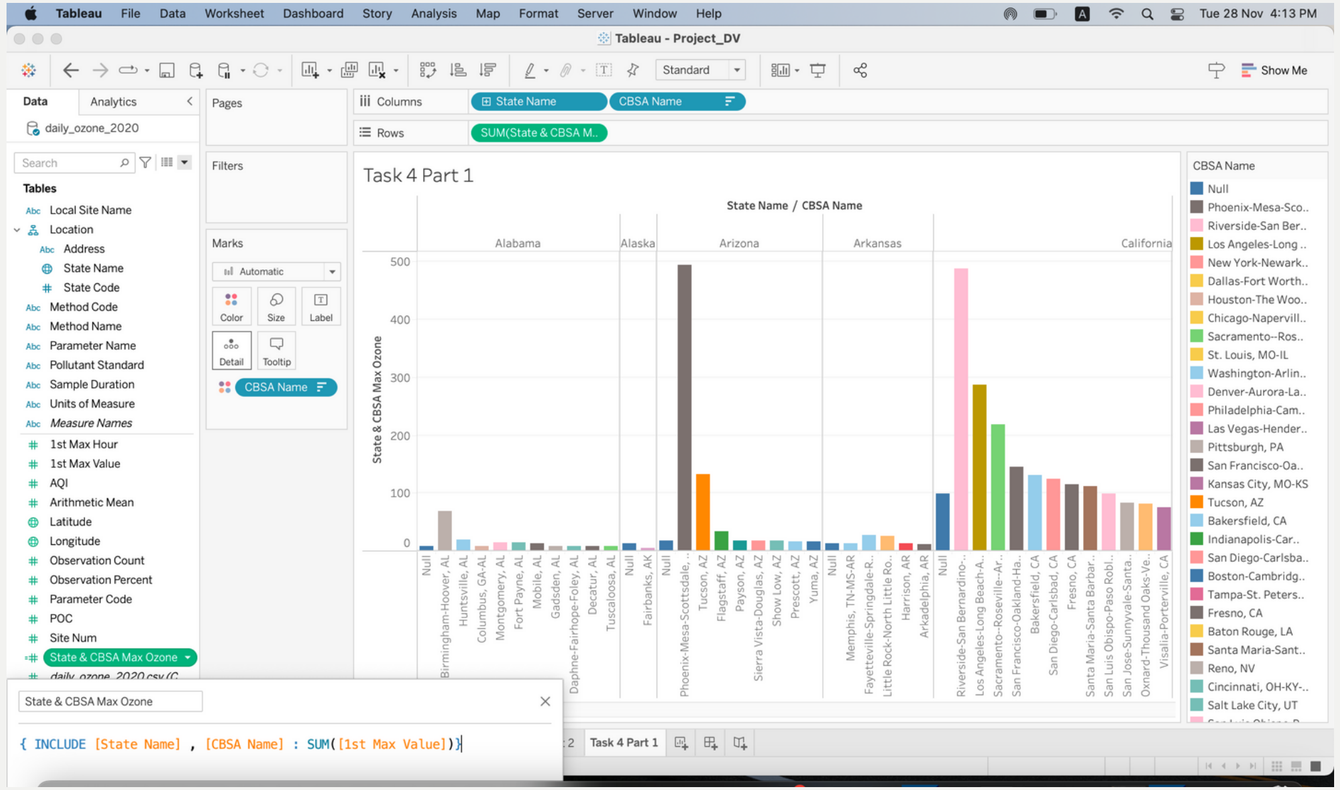
Use at least one LOD expression

Task 4

Part 1

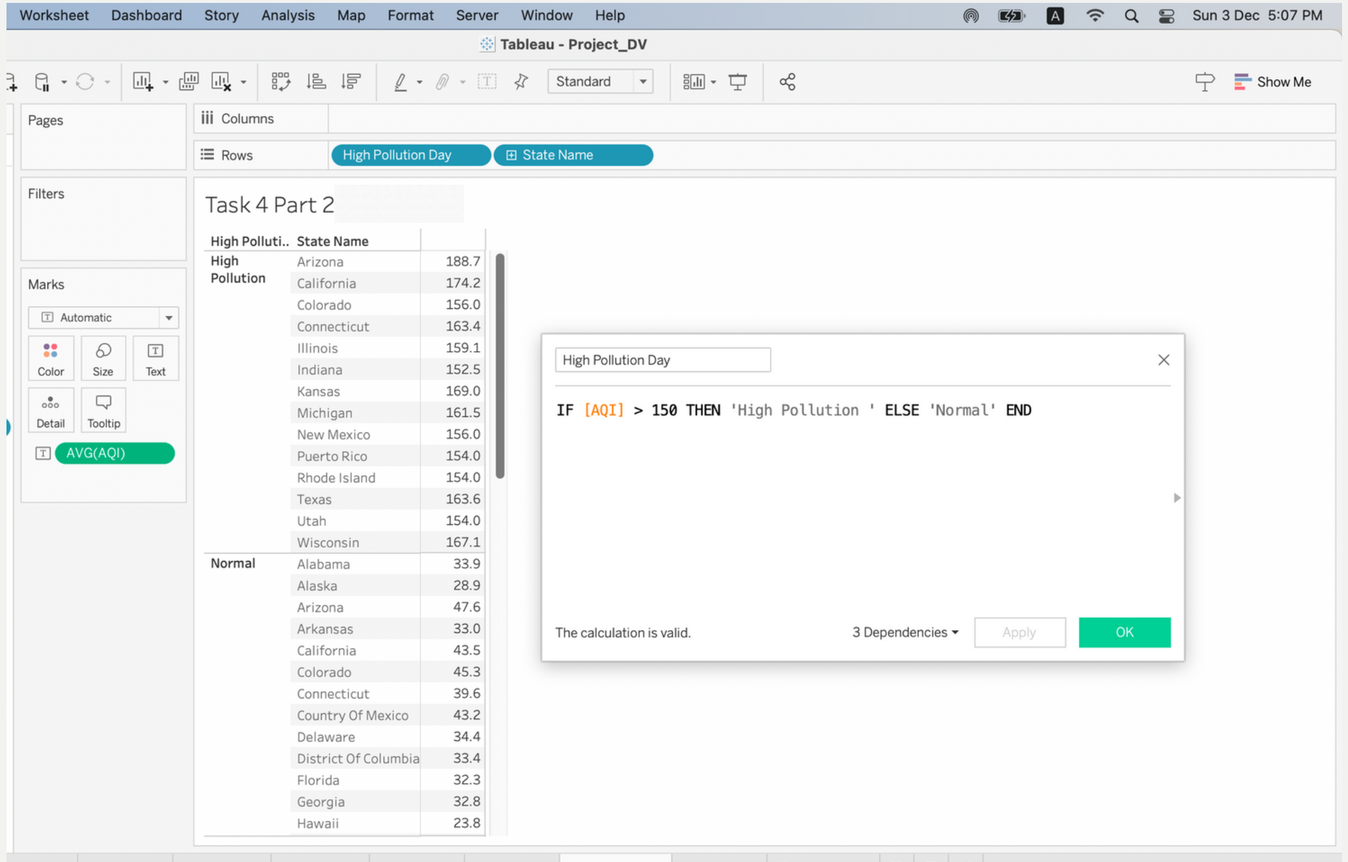
LOD EXPRESSION

We used INCLUDE LOD Expression for calculating the sum of Max Ozone Value in each State and CBSA.



NEXT

Use at least one calculated field



Task 4

Part 2

FLAGGING EACH DAY THATS CONSIDERED A “HIGH POLLUTION DAY” BASED ON THE THRESHOLD AQI VALUE

This showed us most days had normal pollution.

Calculated fields allow you to create new data from data that already exists in your data source.

NEXT

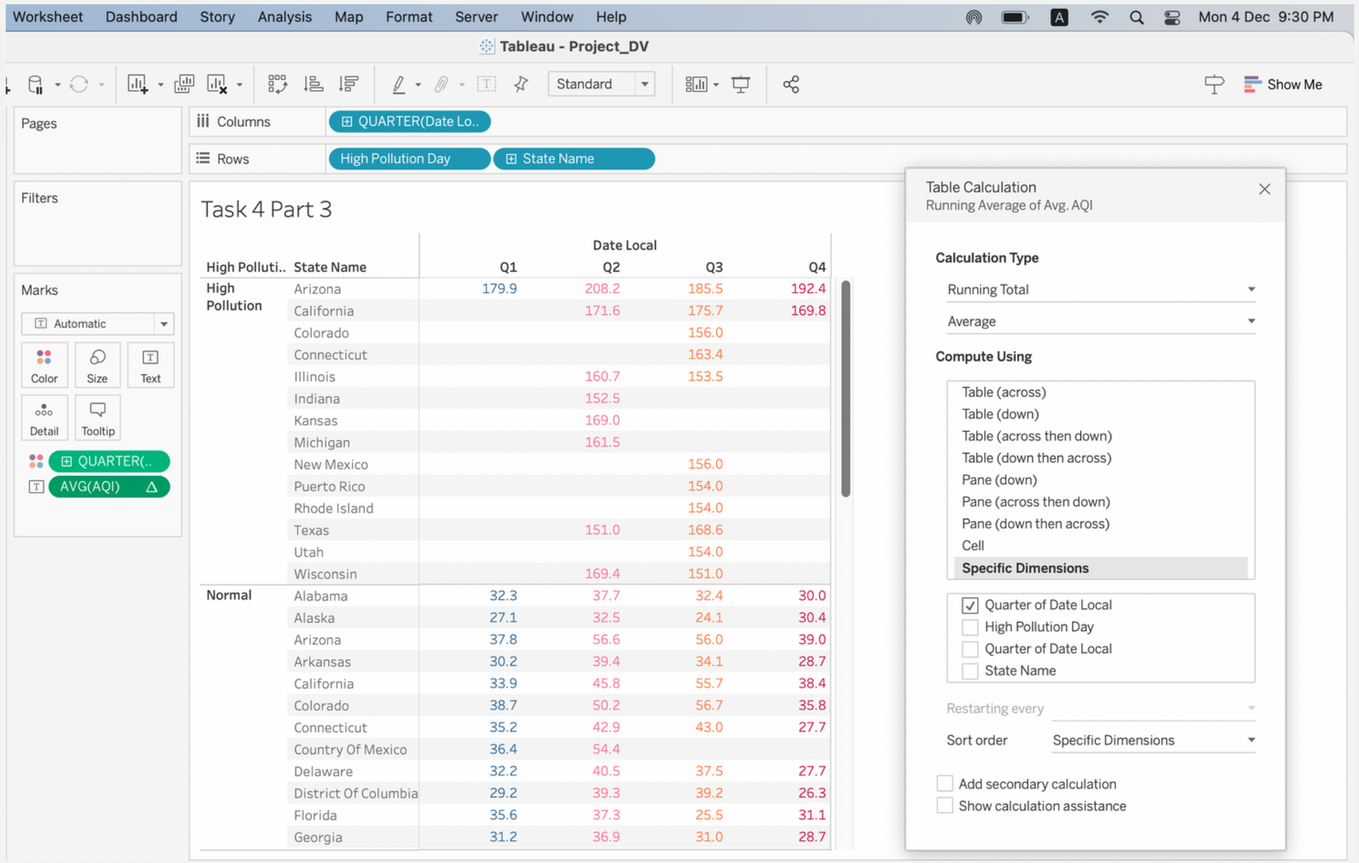
Use at least one table calculation

Task 4

Part 3

CALCULATING THE AVERAGE OF THE 4 QUARTERS IN THE YEAR

Using Table Calculation



filtered out of the visualization. You can use table calculations for a variety of purposes, including: Transforming values to rankings.

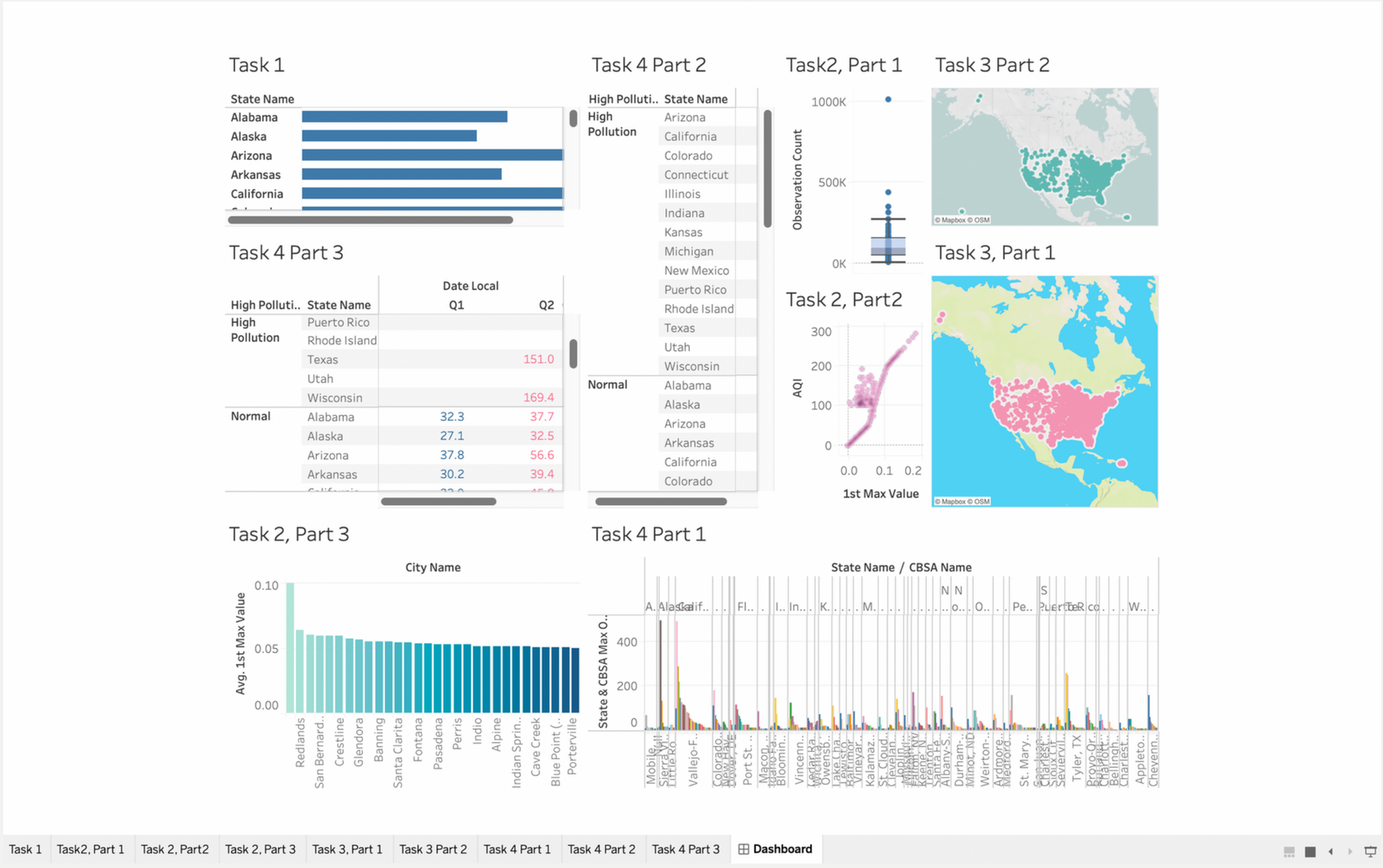
NEXT

create interactive, real-time visualizations in minutes.

Task 4

Part 5

DASHBOARD



NEXT

Thank You. ☺