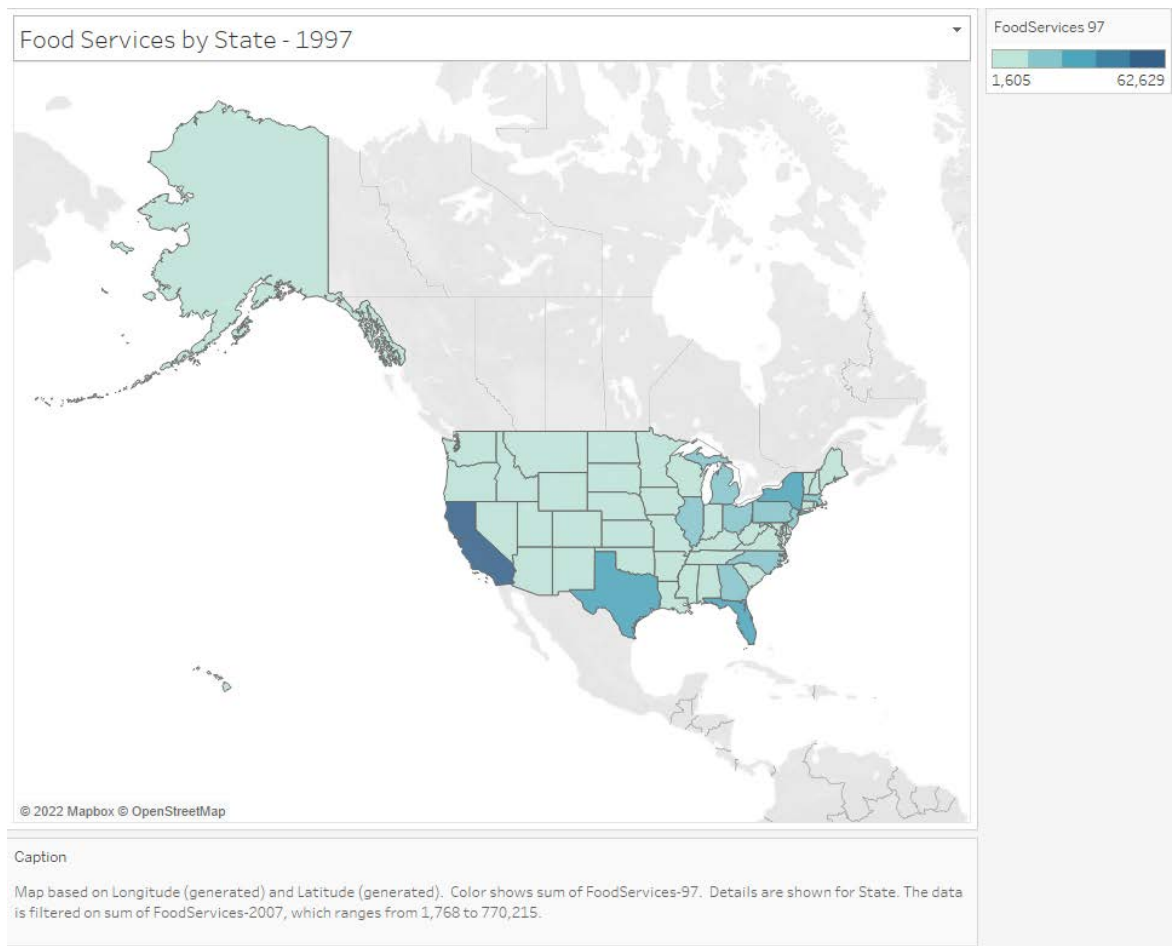
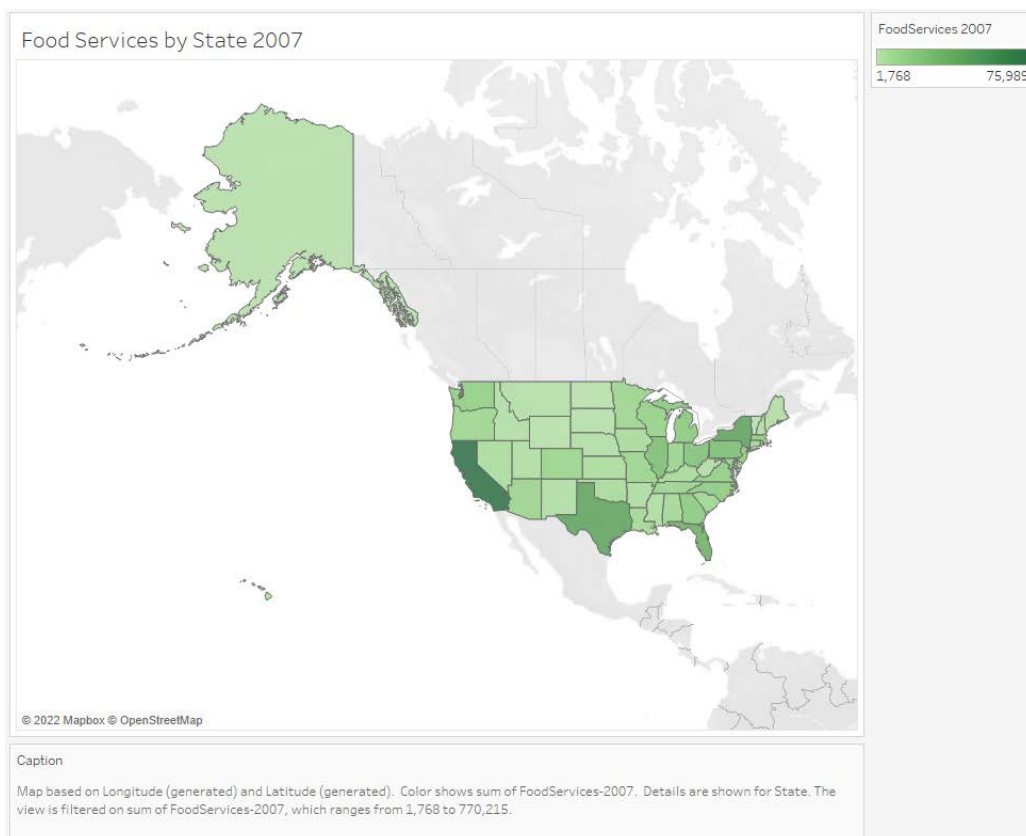
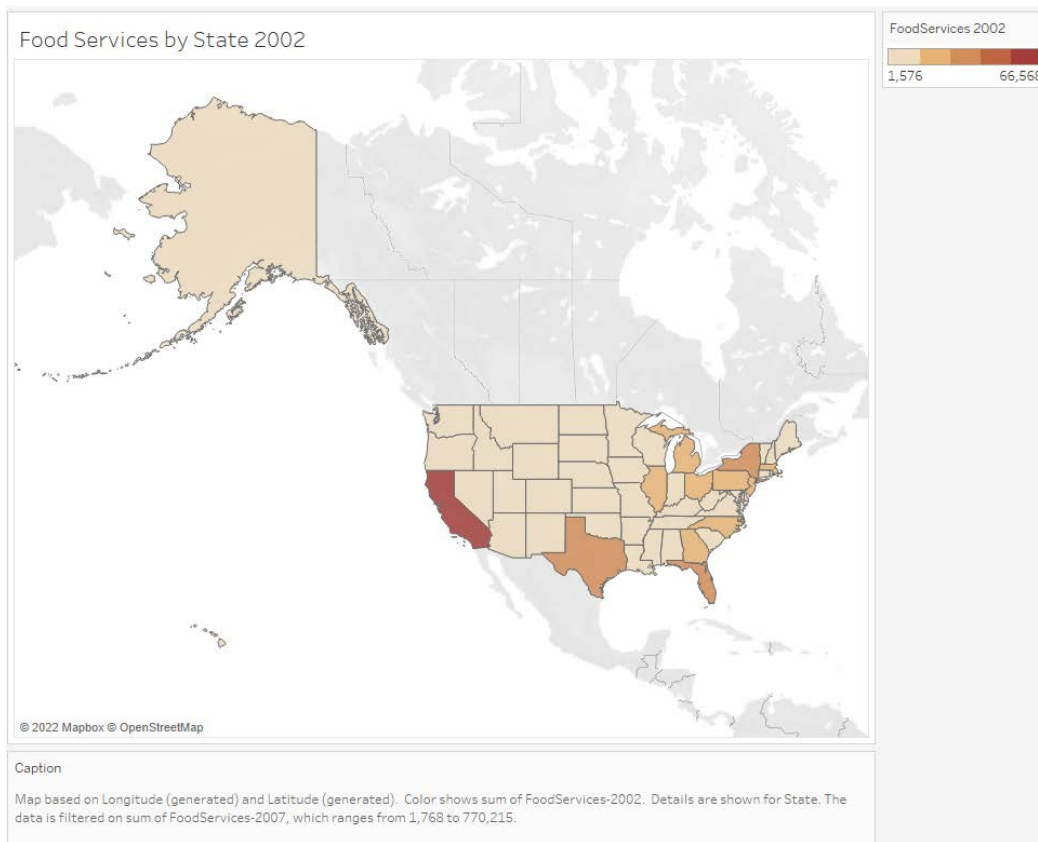
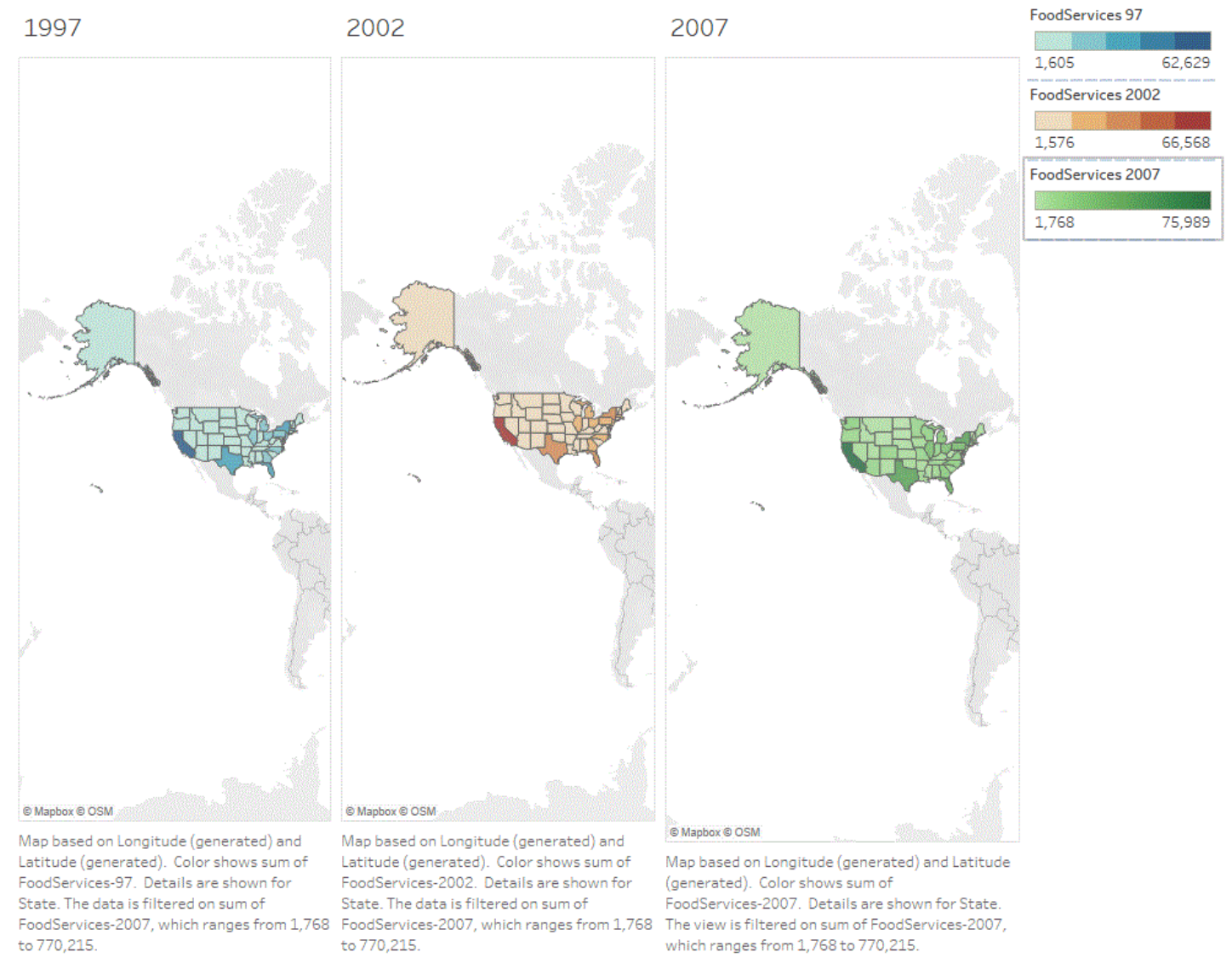


Problem 1.)

- a. Graph food services by state with an appropriate geographic visualization...





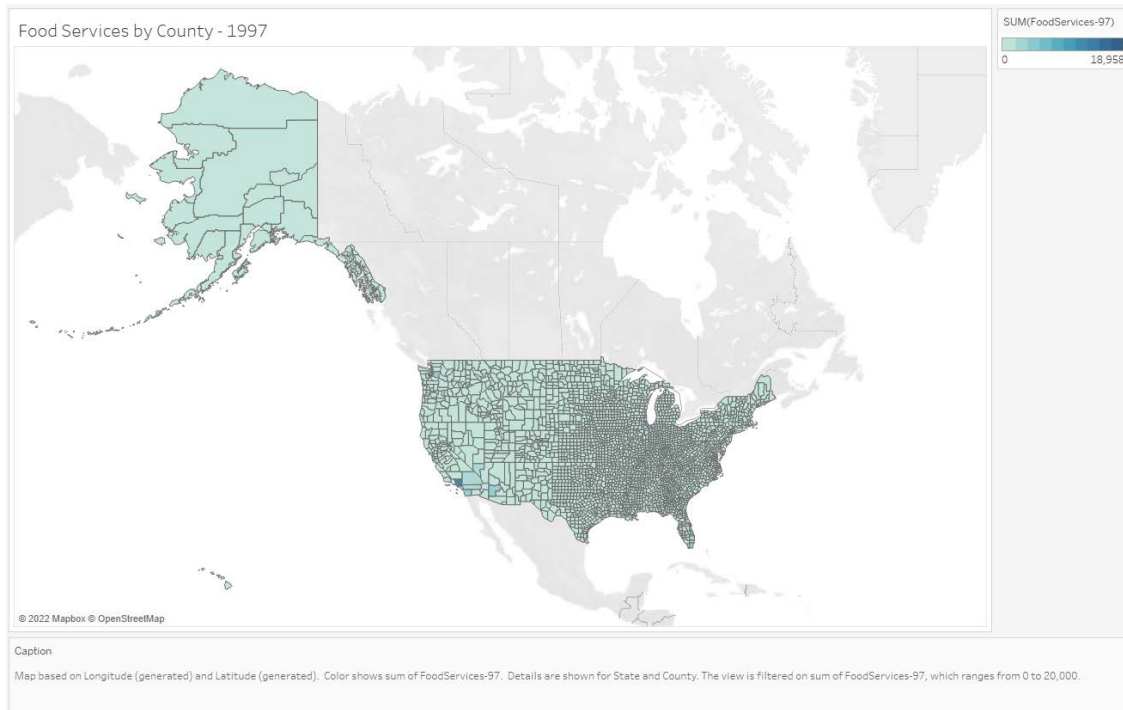
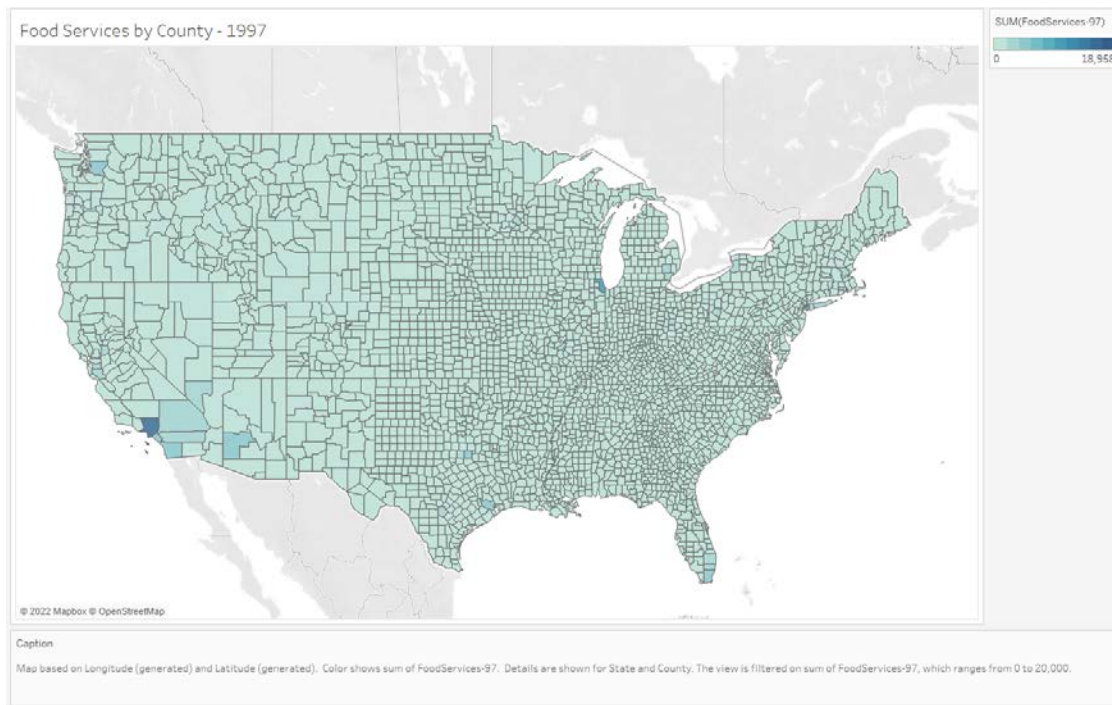


The above graphs demonstrate the Food Service by State for 3 different years; 1997, 2002, and 2007. The final graph is composed of each graph and legend to allow for a side-by-side comparison. The legend allows the user to see that the darker the state the more food services. In contrast, lighter colored states receive fewer food services. Using some “domain knowledge”, the graphs allow us to see that the states with denser populations are recipients of more food services. The graphs show that four states fall into that category. They are California, Texas, Florida and New York.

The graphs were created with Tableau. The steps are as follows:

1. Create or Upload the Data Source
2. Review the Data Source
3. Click on the “State” table – Tableau creates the map for us.
4. Drag the “FoodServices” measures in the “Marks” panel and then drag them into the “Color” panel.
5. In the Legend drop-down, edit the title and adjust the colors.
6. On the map, edit the Title and from the main menu, select “Caption” to allow the caption to be generated.

b.) Graph food services by county with the same type of visualization.



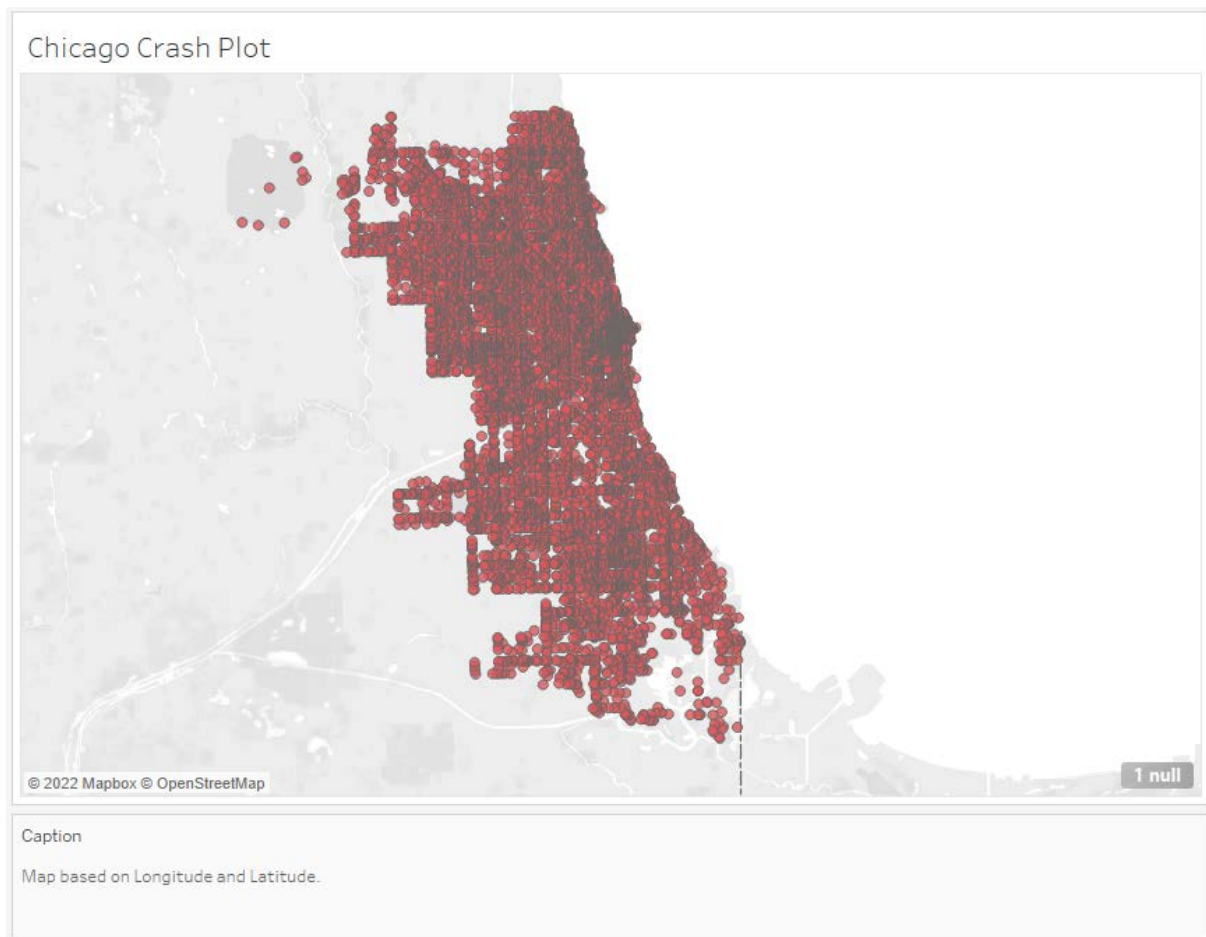
The above graphs were created for the “Food Services – 97” data. The issue that I encountered was that of trying to display every county for the U.S. For this case, two graphs were made. The first graph is that of the continental U.S. and a second that includes Alaska and Hawaii. A graph to include and compare each year, 1997, 2002, and 2007 was not created as the user wouldn’t be able to read the graphs

side-by-side due to the size of the graphs and how each county is outlined on the graph. Basically, the counties would have been too small. A second issue encountered was the actual outline of the counties. To display each county, the range had to be adjusted and several graphs were created.

This graph was created by expanding on the “State” label in the Marks panel and selecting “County”. The next step was to edit the range in the “FoodServices-97” label in the “Filter” panel.

Problem 2.)

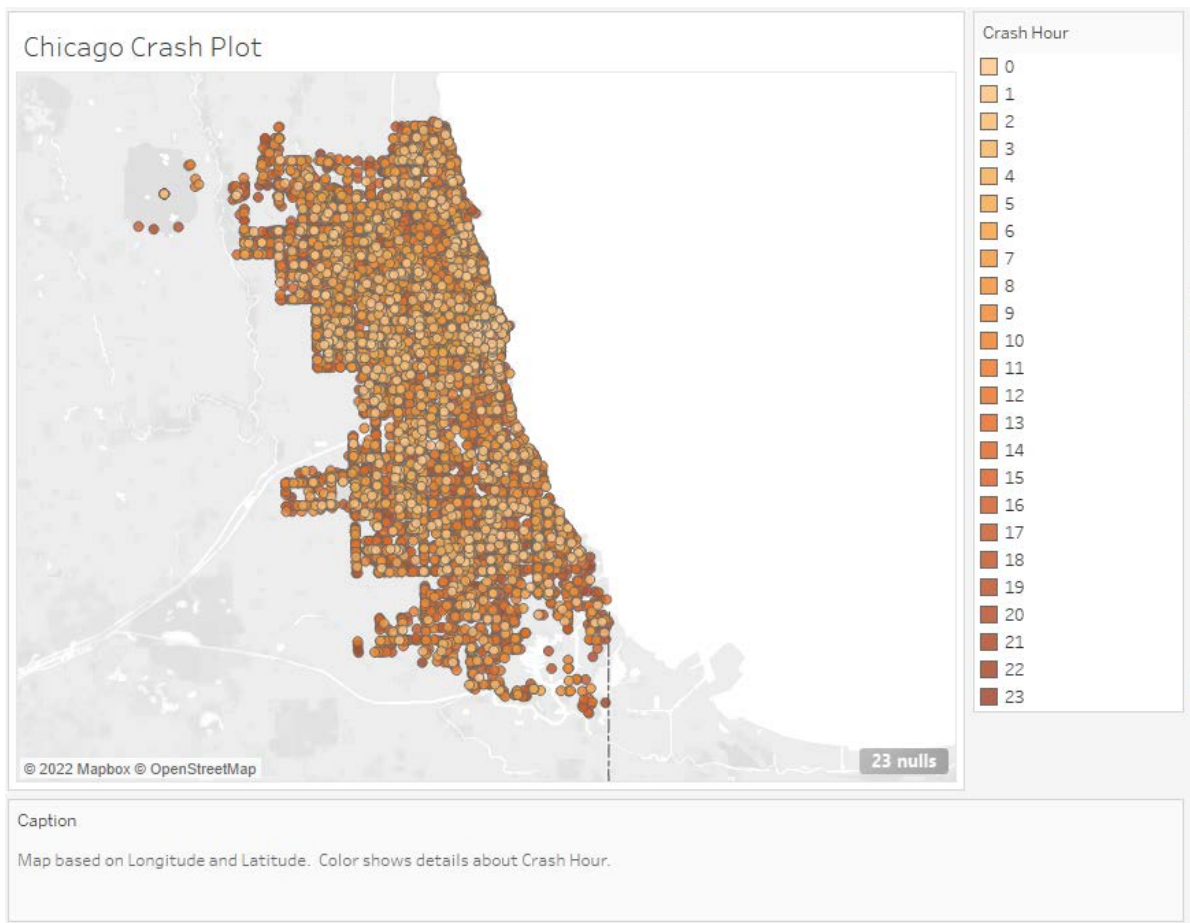
- a.) Create an appropriate type of geographic plot to show where all the accidents in this data occur.



This graph was created in Tableau. To do so, the first step was to load the file as a data source. The second step was to convert the “Latitude” and “Longitude” into Dimensions. Afterward, both were converted into their respective Geographical Roles as “Latitude” and “Longitude”. The next step was to drag-and-drop them into the columns/rows of the work sheet. The final step was to select a color that would display or provide some appearance of single locations instead of one “large smeared” color. A mouse-over on the worksheet displays the individual coordinates for each crash.



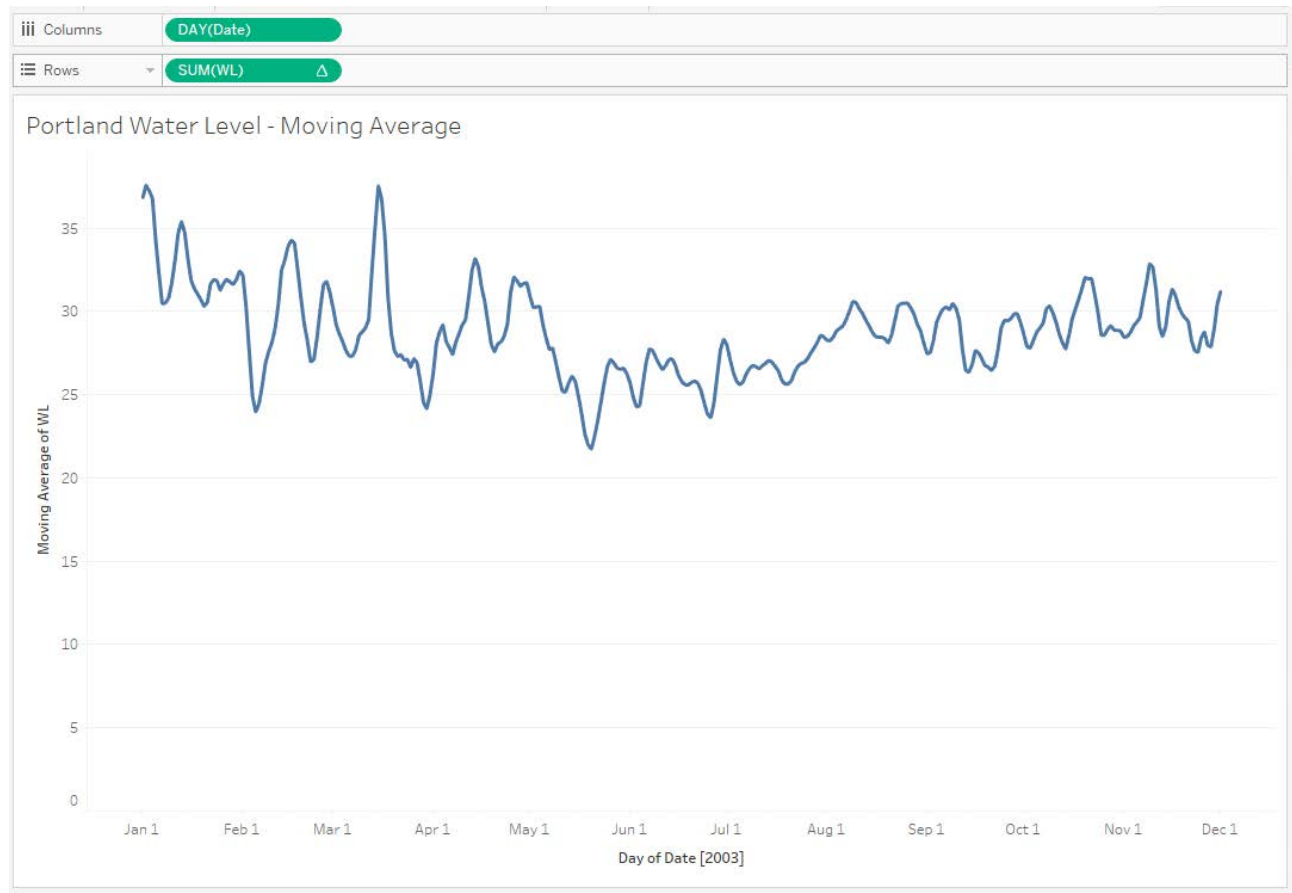
b.)



The above graph pertains to the number of crashes that occur in different parts of the city at different times of the day. This graph uses a color scheme of tan to rust for each of the 24-hours. A light tan color indicates 12:00am (midnight) and the colors get progressively darker until 11:00pm or 23:00hrs. The graph displays each accident in a different color and it appears that there are a larger amount of lighter tan glyphs, which indicate that a majority of the accidents occur between 12:00am and 6:00am or 7:00am. Initially, this graph was created using the default automatic default palette. The issue that I have with that is that there was a mixture between too many colors. If there was a smaller amount of data, then multiple colors could work. For a large amount of data, it may be easier to read and interpret with a gradient of one color. Also, the number scale is easier to use, however, it might be easier if I could have created several different time-ranges. For example, 12:00am – 4:00am, 4:00am-8:00am, etc.

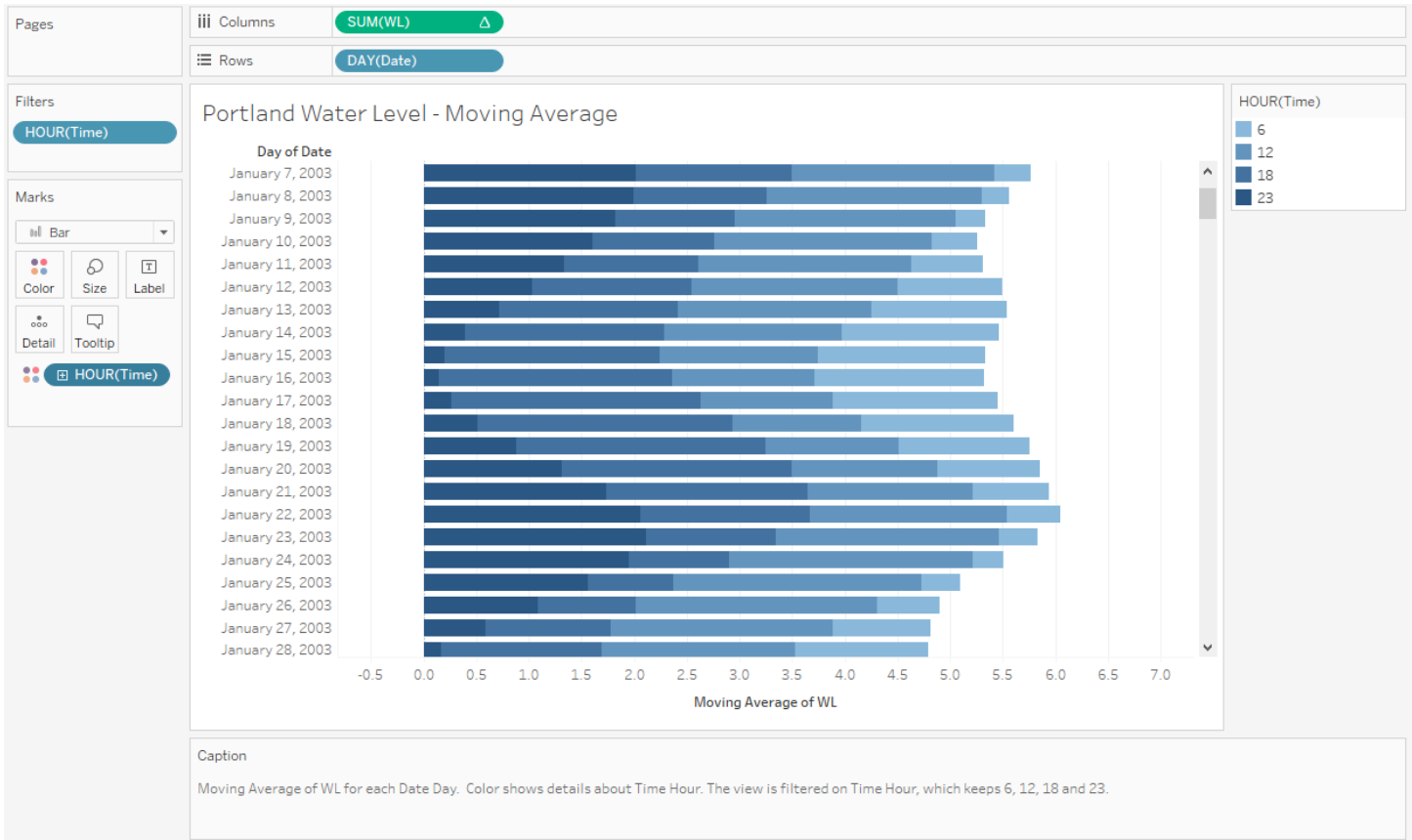
Problem 3.)

- a.) This data contains a year of date with water level (WL) measurements every hour as a function of Time...



This time-series line graph was created after loading the data source. The first step was to move the “Date” measure into the “columns” section as the data we’re reviewing will cover a range of days. The next step was to move the “Water Level” or “WL” measure into the rows. The final step was to click on the drop-down option of the “WL” and select “Quick Table Calculation”, then “Moving Average”.

b.) Graph the cycles that happen each day (because of tides)...



The above graph was created by converting the “original” graph into a horizontal bar chart. The time measure was used as a filter in 6 hour time increments. Gradients of blue were selected for the time increments to give a representation of an actual “tide”.

c.) Then write a single paragraph outlining the differences between the information that each graph communicates.

The major difference between the two graphs is how time is represented. In the first graph, the data spans an entire calendar year. This allows for monthly trends to be seen, such as spikes and dips regarding the tide. For example, the highest water level appears to be in March, where as the lowest water level appears to be in May. A further analysis can also determine the mathematical changes in the water levels for each month of the year. The second graph is much more detailed as it displays information for each day of the year. The bars are also filtered using a gradient color which can display the daily water level trends by the hour.



Problem 4.)



The first plot from problem 3 was recreated using Tableau built-in divergent colors. The colors are Blue, White and Orange. First, Blue and Orange are considered complimentary color. Secondly, in the graph, the Blue can indicate peaks in the trends. Conversely, the Orange can indicate the valleys of the trends. The White is used to indicate midpoints. Unfortunately, I was not able to change that mid-point color White.

I did experiment a bit further using the second graph. I experimented with the complementary colors of Blue and Brown. While I like the aesthetic of the graph, I'm having an issue with finding an explanation to use the divergent color scheme on that horizontal bar chart.

