

# NEW HOMEWORK 2

## DSC 465 DATA VISUALIZATION

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Question 1:

Part a:

Graph for Food services by state

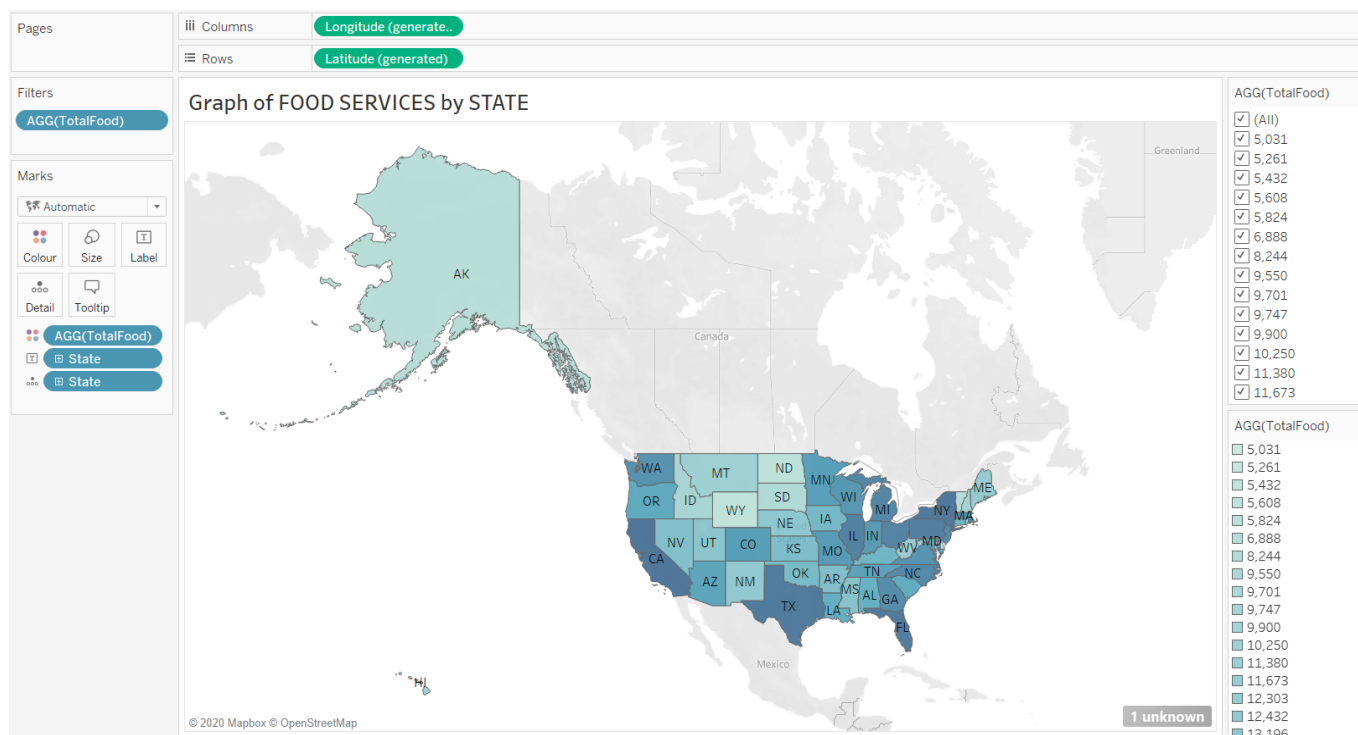


Figure 1.0

The above visualization is generated in the geographic visualization map design from tableau, here we have aggregated or summed the food services from 1997, 2002 and 2007, and generated a separate column/field, with the help of calculated field. The aggregated TotalFood field is plotted by keeping the dimensions discrete.

Coming to the interpretation, blue colour tone is used in the visualization, which fades from light to dark. The darker regions represent higher food service availability/growth over the years. We can see that eastern counties like New York(NY), Pennsylvania, North Carolina(NC), Ohio and Michigan(MI), are a few states having higher food services in the eastern region. Also, Florida(FL), Georgia(GA), Texas(TX), California(CA) and Washington(WA) are having significantly higher number of food services, i.e. the southern, western regions to which they belong. On the contrary, the states in the mid-western and central region experience less or moderate number of food services over the years. Which includes Alaska(AK) and the small island which is shown at the bottom left in south direction

Part b:

Graph for Food Services by County:

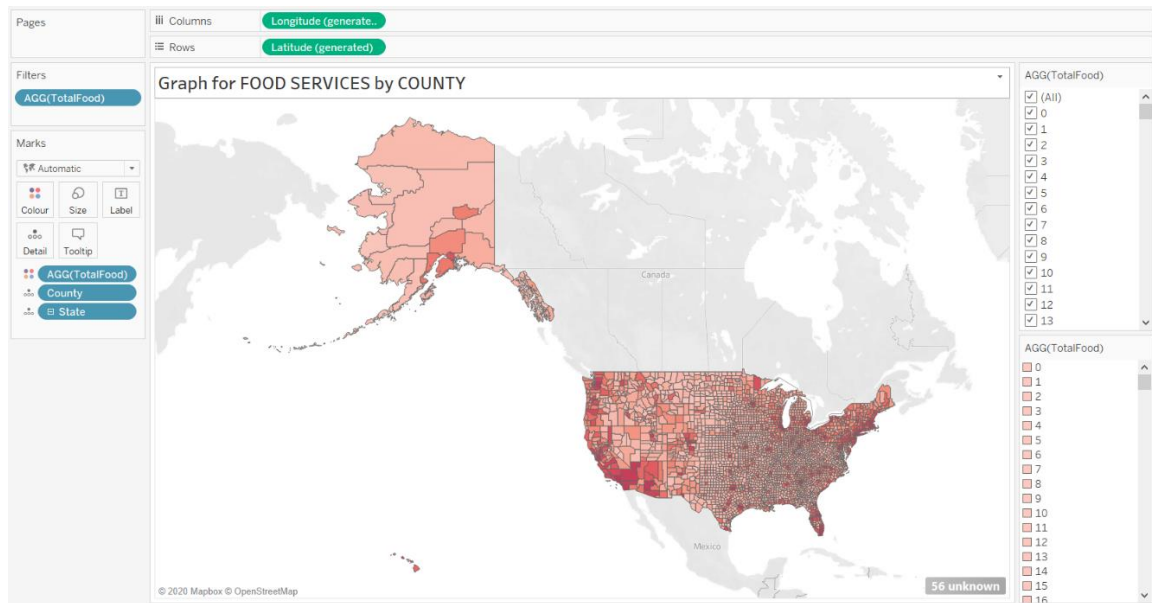


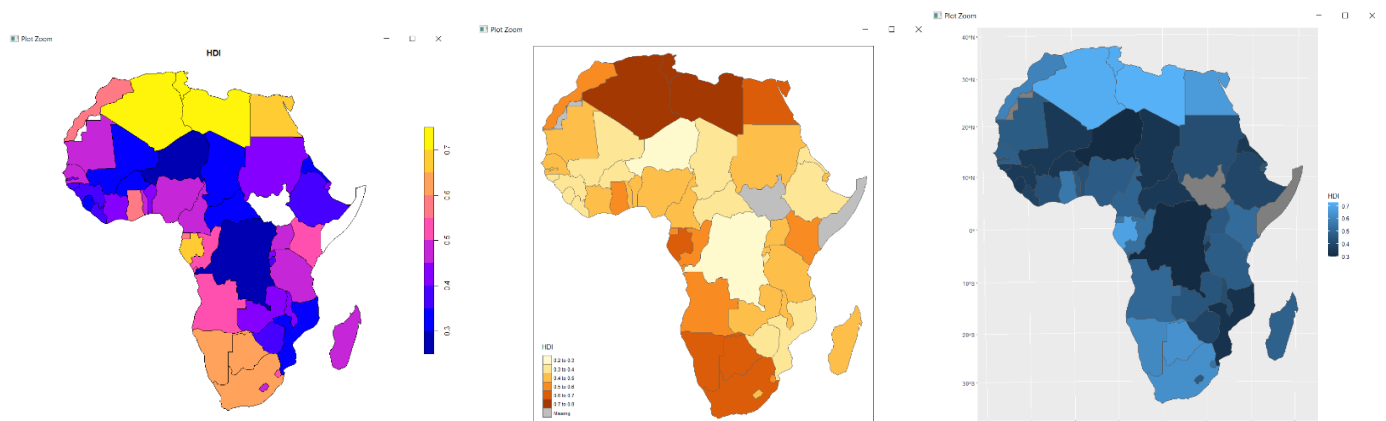
Figure 1.2

In this graph the same type of representation is used as that of food services by state graph. The only difference is, here we have plotted food services by county. Also, the data of TotalFood is discrete, but with a red colour fade pattern.

Based on the visualization, we can interpret that the counties that lie on the south-western region, i.e. around California have a higher food service ratio as compared to the counties mid-central of mid-western region including Alaska. However, there are a few contributing to higher food services around the central-eastern region. On the basis of this, we can state that based on the county the food services across United States are moderate.

Part c:

A cartogram is a map in which help us plotting geospatial objects by plotting geometry of regions in order to convey the information. There are different methods to plot cartogram, few of them are tile or hexbin mapping or distorted. Hexbin mapping is just like plotting hexagons on the map, because the regions are represented as hexagons or perfect or imperfect shape. We can use many libraries like cartogram, maptools, spData, tmap, etc. which aid to map geospatial data. Belpw are a few examples generated in r code.



The above figures represent human development index of African region with the help of cartogram in different colour shades.

## Question 2:

Part a:

Graph for all the accidents that occurred:

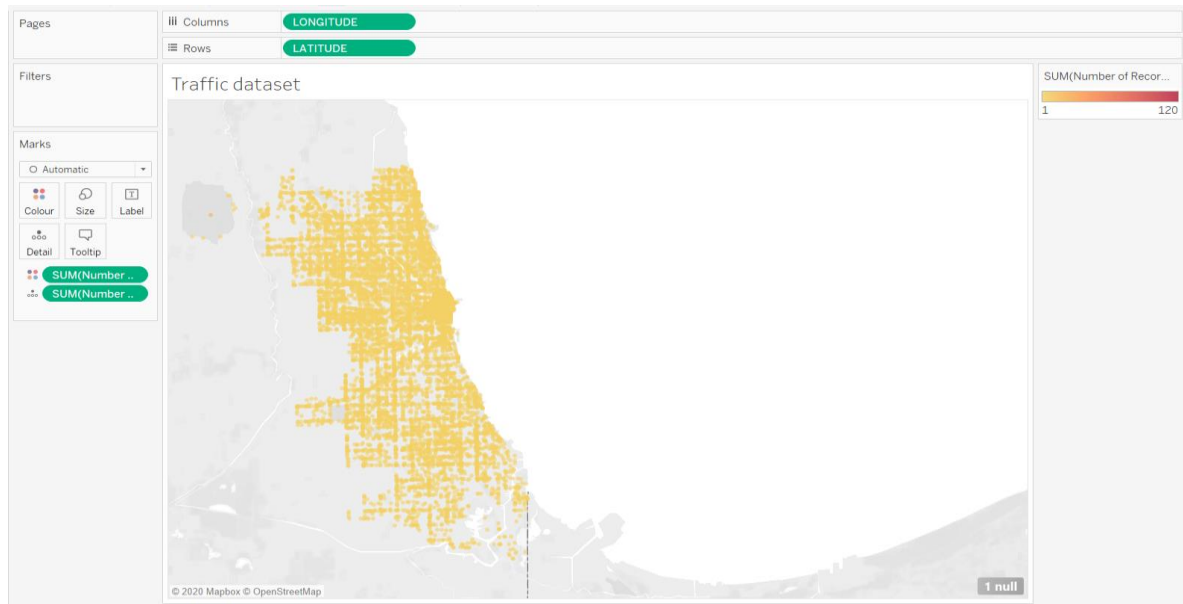


Figure 2.0

In the above figure that is derived from the dataset of Chicago car accidents, where the number of records for accidents is shown by golden red colour range, which falls in between 1-120. This graph shows the location where the accidents occur. The colour shows how many accidents get registered.

Part b:

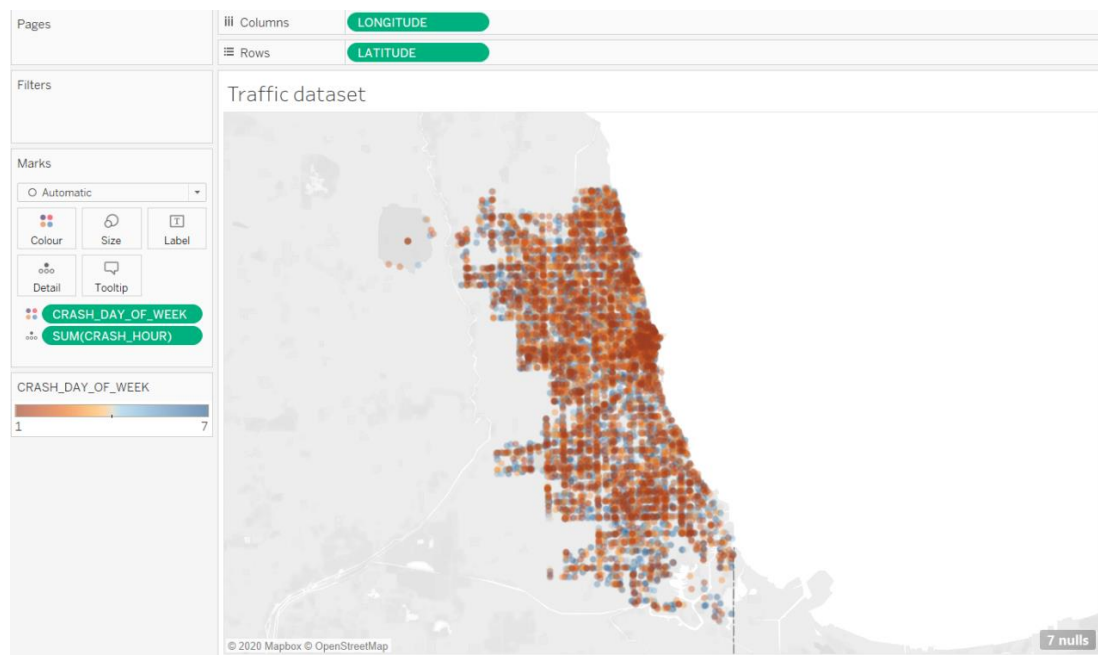


Figure 2.1

The above figure shows the number of car crashes in a day based on a particular time. So the colour in the graph is for the day of the week where the car crashes are common at a particular hour in the day. On the basis of the colour pattern, it can be understood that, light blue and dark blue regions have cases around 7 which is most common part in the city to likely have accidents, and 1 denotes these are the least likely areas where the accidents can occur. The data points opacity is reduced so that an appropriate measure or visualization can be obtained.

### Question 3:

Part a:

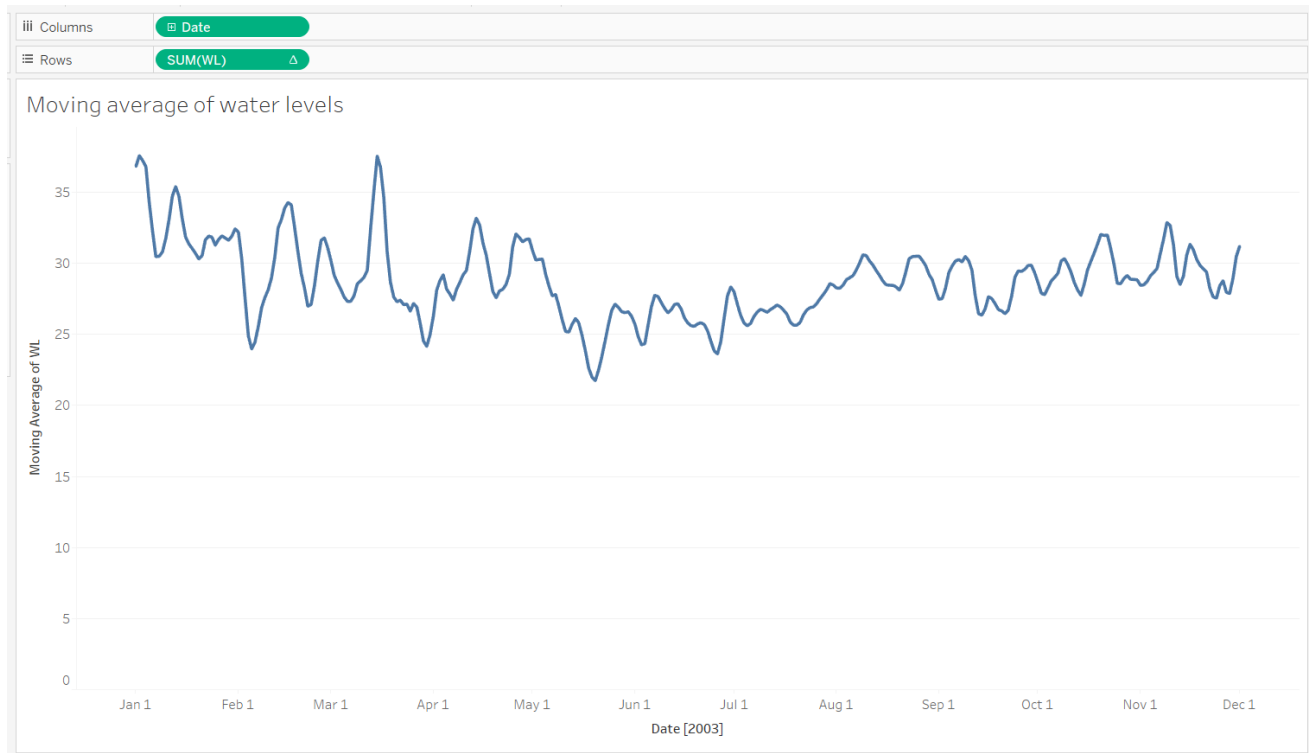


Figure 3.0

The above figure shows moving average value of water level on y axis and dates on x axis. This highlights the average water levels during each month from the start, through the year 2003

### Question 4

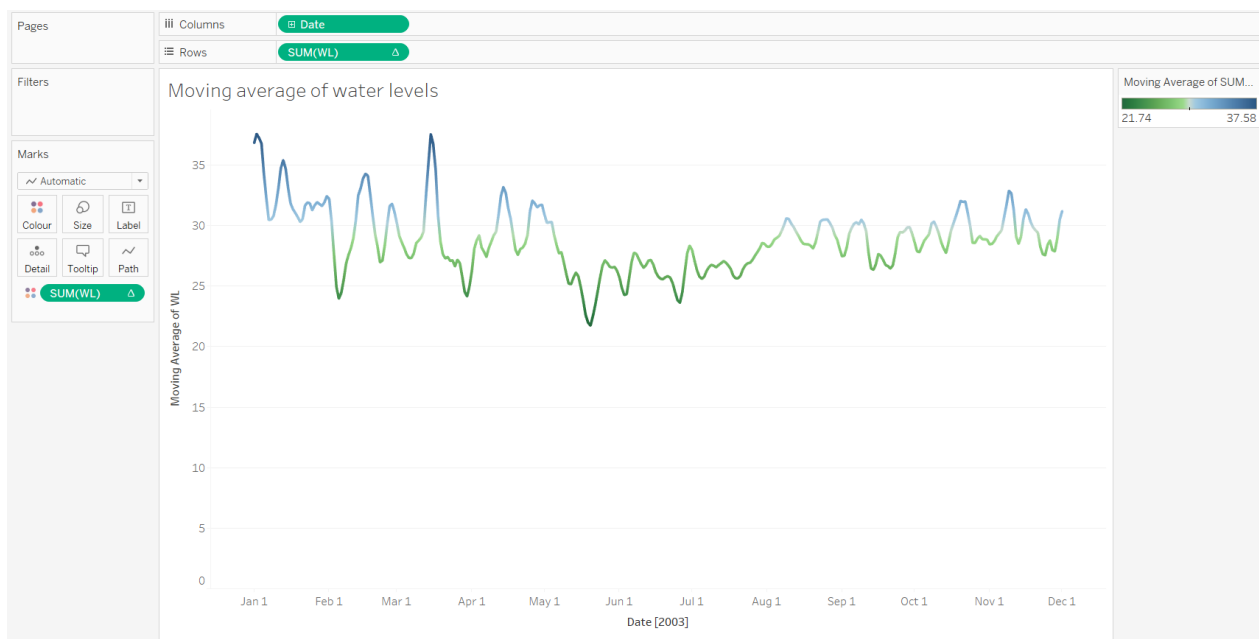


Figure 4.0

In the graph there is a custom colour that shows the representations in blue, white and green. The blue colour denotes the very high-end points and green denotes very low-end points, while white denotes moderate point for the average water flow.