ESSEC BUSINESS SCHOOL
BUSINESS INTELLIGENCE
SUBMITTED TO PROFESSOR NICOLAS PRAT
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1.1) For each of the worksheets: Criticize the worksheet or dashboard as regards data visualization principles and guidelines: to what extent does the worksheet or dashboard comply with the data visualization principles and guidelines seen in class?

Ans) Overall, we submitted the results in Assignment 2 as they were factually correct and correct data analysis was performed. When it comes to data visualization principles, they were lacking on some aspects as shown below:

One general criticism is that titles for all worksheets and dashboards were missing , the they have been added such that when filters or sheet names are changed, the will be updated.

1 - We observed that only one hierarchy was not properly ordered. It has been updated.

Q2.1 to Q2.4 scored full marks in Assignment 2, hence only visual improvements mentioned below.

Chart 2.1 - The color scheme was already color blind friendly but an extra column showing FIPS code was being shown. It was irrelevant as the County name is already shown.

Chart 2.2 - “Mean PM2.5 Concentration” is being shown vertically and is repeated, which does not add analytical value.

Chart 2.3 - They were already fixed earlier hence comply with guidelines shown in class.

Chart 2.4 - Map and Label visuals already fixed earlier hence comply with guidelines shown in class.

Chart 2.5 - On the below half of the dashboard a text table was shown to illustrate deaths and cases. For some States it jumbled up hence it was improved.

1.2) For each of the worksheets: Explain what could be changed to better adhere to the data visualization principles and guidelines.

Ans)
Chart 2.1 - Removing unnecessary data. Here we have the County data and County name. But the code isn't needed. Even after taking the code out, would still make sense to the chart.
Title Added: "Michigan Confirmed Cases and Deaths County Wise (Top 3)"

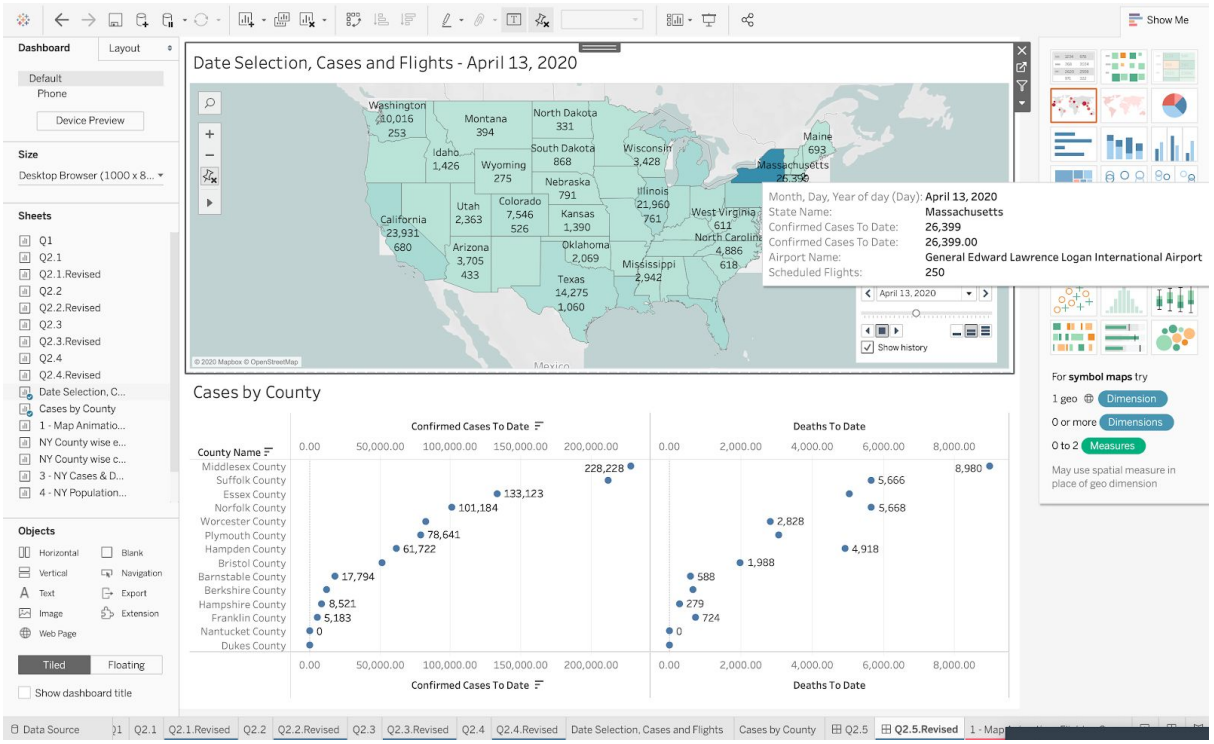
Chart 2.2 - The titles can be changed to create more impact on what the graphs and charts would describe. The names of the axis on the chart are long and don't fit the chart. So one of the changes we can do is to add the names of axes in the title box to look more elegant and aesthetic. All the graphs can be cluttered into a single graph but it decreases readability as the graphs are more dense.
Title Added: "Florida and New York - Date and Site Wise Mean PM2.5 Concentration"

Chart 2.3- No visual changes required
Title Added: "Confirmed Cases in relation to Population Density and Total Population"

Chart 2.4- No visual changes required
Title Added: "New Jersey Week and County Wise Evolution of Cases"

Chart 2.5 - We also observed that some of the data is not able to be shown on the chart. Some of the counties don't show the number of cases. But it is able to identify there are cases present in the county.
Title Added: "Drill down State Wise into number of cases, deaths and incoming flights"

Hence we change the text table to a graph and drag the Measures to the Titles pane, to shown visually appealing tables <Cases by County> as shown in the below dashboard.



1.3) Perform the changes suggested in 1.2 to the worksheet or dashboard. For this, do not perform the changes directly on the worksheet or dashboard, but make a copy of it, give the copy an explicit title (e.g., R2.3 (Q2.3 revised)), and perform the changes on the copy.

Ans) *Answered through Tableau workbook*

2.1) Tell your story of the situation of COVID-19 in the US. Let the data speak! Build nice and convincing data visualizations to share your findings. To do this, use a Tableau story, built upon sheets and dashboards. Apply the data visualization principles and guidelines seen in class. You may reuse some of the sheets and the dashboard from question 1, but you do not have too, and of course, you should add new sheets and dashboards.

Ans) *Answered through Tableau workbook*

2.2) Explain who your the decision maker is for this story, what you want to convince her / him about / what point you want to make and, more generally, what data visualization principles and guidelines you apply in this story. You may consider the US as a whole, focus on a specific state

Ans) The decision maker for this story presentation is the decision making body of the New York State Administration: Governer and County Mayors. The objective is to show an exponential increase in the number of cases and number of deaths, how they are related, and how New York is fast becoming an epicenter within the USA.

The objective is to assess the data an debate whether to allow free movement with extensive testing or impose a lockdown wit tracking mechanism and selective testing.

Chronology: Data Assessed for 18 weeks, most of the focus is post Feb 15th and particularly post April 1st 2020.

1 - The story opens up with a State wise map of USA, and shows New York (NY) as the most affected State. Hence as the situation there is most risky, we focus on action plan for NY and later plan to replicate the same actions country wide.

Upon hovering, the details of the State along with number of cases and incoming flights is shown.

2 - This dashboard drills down in the State of NY, County wise. It shows that NY County is the most affected with 167,478 cases.

The title of the story slide points to the fact that due to it being an urban center, the spread of the virus is more imminent.

The bar graph below also shows that Nassau, Suffolk and Westchester County must also be monitored closely to stop them from entering the rapid phase that NY County has faced.

3 - The line graph shows how cases moved from 1,500 to 7,000 in 3 days (17th to 20th March), Since then an exponential rise has bene seen.

Worrying is the fact that deaths and cases move at the same pace and towards the end of April the rise in the number of deaths outpace the rise in cases.

Hence a lockdown must be ensured to stop this spread as in NY widespread testing or herd immunity doesnt seem an option due to the curve of the number of deaths.

In the other counties extensive testing may yet be assessed. However, the spread of the virus shows thsat the other counties must also be locked down to limit interaction.

4 - This animation shows how Population Density and County Population play an adverse role. Hence, care must be taken for other urban centres in USA e;g - California.

5 - The daily pollution levels are decreasing as the number of cases increase. This is hown by the trend lines of the two Sites in NY State. Immunity will hence be reinforced, however, stricter action on pollution is needed, although it is not the leading cause of cases and deaths.

It will decrease by default in time of lockdown hence resources may be diverted elsewhere such as in hospitals.

6 - This graph shows the rise in cases in NY State along with tracked flights for the month of April. The number of flights decreased from 9,508 to 6,390 from 1st to 30th April, but as the cases rose from 83,948 to 304, 372 in a month, the flihts must be stopped.

Airports must be closed as an uncontrollable “pandamic” is inevitable within the whole of USA otherwise. This is because NY is coonected to whole world, not just USA and tracking mechanism is not possible.

Hence, all the above data analysis in consideration, a strict lockdown with only essential movement and suspension of flights is recommended until Slide 3 shows a decrease in the rise of cases and deaths - until the curve is flattened.