CGT270
Midterm Part II

Data Visualization Challenge

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Course:

Course title

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Contents

Halloween Visualization

This in-class assignment is to create data visualizations using data collected about trick-or-treaters in Cincinnati, OH. **You should create two (2) visualizations**, this can be a collection of charts or a dashboard, whatever is necessary to the story or analysis that is shown in your visualizations. Make sure you **READ and FOLLOW ALL Instructions**. The goal is to demonstrate your understanding of the data visualization process.

Data Description

The data is available in two formats

- Halloween data for Excel 2020 is a crosstab table which is ideal for creating visualizations in Excel. Numbers in the data file for Excel are **cumulative**.

- Halloween data for Tableau 2020" is unpivoted which is ideal for creating visualizations in Tableau. Numbers in the data file for Tableau are **not cumulative**.

- The data has been collected since 2008.

- The numbers in the table are cumulative totals of the number of trick-or-treaters who visited one house each year.

- The numbers are measured at 30-minute intervals, except for the last 15-minute interval.

- The trick-or-treat count was recorded in 30-minute intervals except for the last 15-minute interval.

- The night of trick-or-treating has always been on October 31st each year (some neighborhoods change the night of trick-or-treating).

- Official trick or treat hours are from 6 PM to 8 PM, but there are often "stragglers" past 8 PM that are not turned away. These stragglers are counted in the 8PM – 8:15 PM time slot. There has never been a trick-or-treater past 8:15 PM.

- The type of candy did not vary year-by-year. It is always a general mix of candy purchased in bulk variety bags.

Location of home

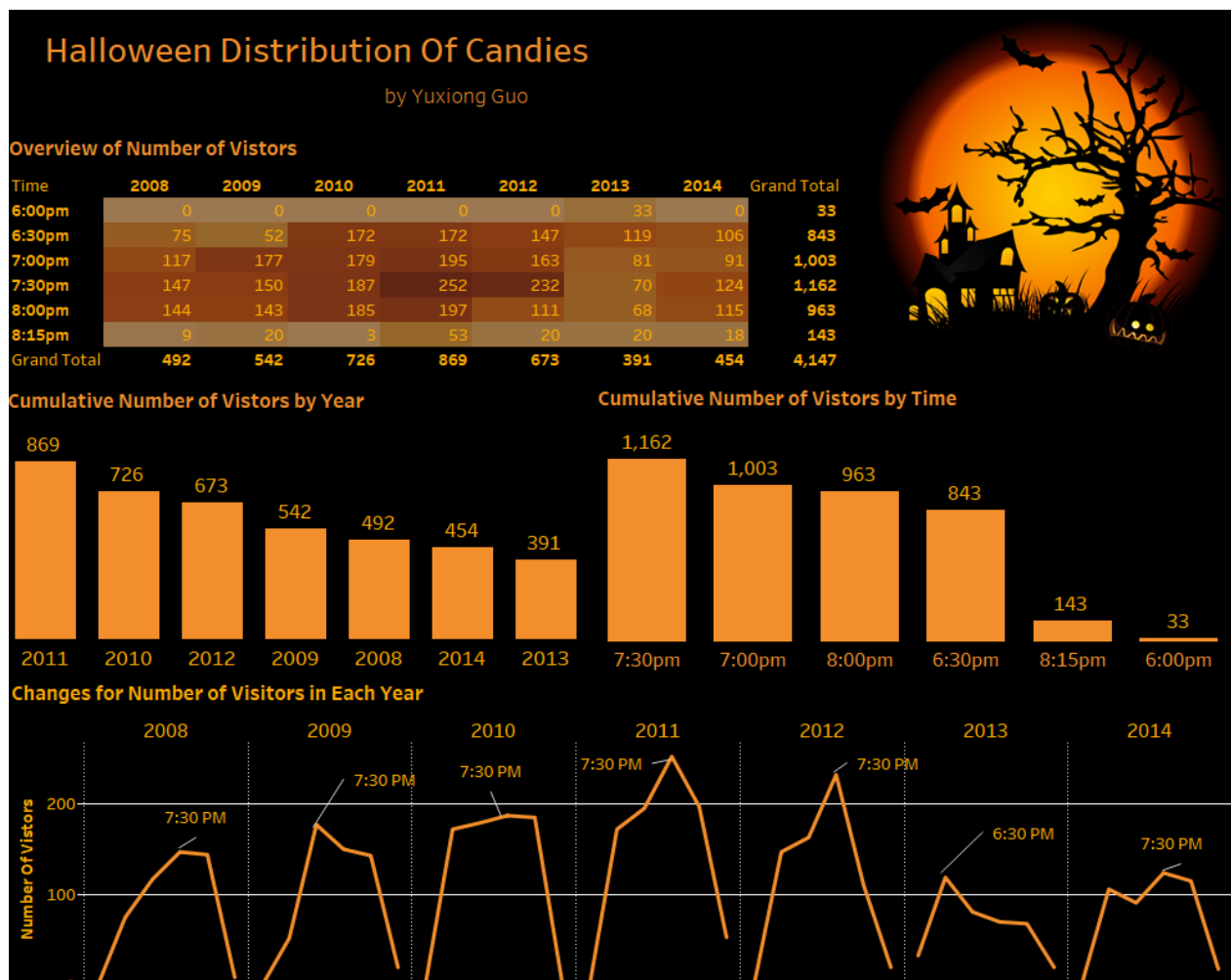Neighborhood: East Walnut Hills/Evanston
City, State: Cincinnati, Ohio
Zip code: 45207

Being a corner house on the neighborhood border likely increases the number of trick-or-treaters.

Example

Here' an example of how previous Halloween data have been visualized. Be creative!

Halloween Distribution Of Candies
by Yuxiong Guo

Overview of Number of Vistors

Time	2008	2009	2010	2011	2012	2013	2014	Grand Total
6:00pm	0	0	0	0	0	33	0	33
6:30pm	75	52	172	172	147	119	106	843
7:00pm	117	177	179	195	163	81	91	1,003
7:30pm	147	150	187	252	232	70	124	1,162
8:00pm	144	143	185	197	111	68	115	963
8:15pm	9	20	3	53	20	20	18	143
Grand Total	492	542	726	869	673	391	454	4,147

Cumulative Number of Vistors by Year

869	2011
726	2010
673	2012
542	2009
492	2008
454	2014
391	2013

Cumulative Number of Vistors by Time

1,162	7:30pm
1,003	7:00pm
963	8:00pm
843	6:30pm
143	8:15pm
33	6:00pm

Changes for Number of Visitors in Each Year

2008   2009   2010   2011   2012   2013   2014

7:30 PM   7:30 PM   7:30 PM   7:30 PM   7:30 PM   6:30 PM   7:30 PM

Number Of Vistors

200

100

0

The Assignment

There are multiple parts to this assignment. Make sure you read the entire assignment before starting.

Determine a story or goal to support the two (2) visualizations you will create using the Halloween data provided. Your two visualization MUST be different chart types. **This means DO NOT create two bar charts or two-line charts or two of the same chart types!** Challenge yourself. This is your time to show what you know.

Examples (these are examples):

- Homeowner dashboard summarizing Halloween
- Forecast future trick-or-treaters or estimate future candy needed
- Explore variation of the number of trick-or-treaters year by year
- **Be creative and think of other things you could do**

Data Visualization Process

Show your understanding of the data visualization process.

Acquire

The Data

Year	6pm	6:30pm	7pm	7:30pm	8pm	Total (8:15pm)
2020	11	55	107	155	211	219
2019	0	117	262	406	483	523
2018	18	191	342	497	589	600
2017	41	190	357	549	710	776
2016	22	160	386	612	759	822
2015	13	148	336	523	667	747
2014	0	106	197	321	436	454
2013	33	152	233	303	371	391
2012	0	147	310	542	653	673
2011	0	172	367	619	816	869
2010	0	172	351	538	723	726
2009	0	52	229	379	522	542
2008	0	75	192	339	483	492

Excel and Tableau versions of the data are provided in Brightspace. **Choose one (1) to work with**.

- HalloweenExcel

- HalloweenTableau

Parse & Mine

Use this page to provide a parsing of the data. For quantitative fields list some basic statistical procedures that can be performed in the space below. To be clear, you are to list the procedure (you are not required to actually do any calculations here).

Use the Tab key to add more rows to the table below.

Variable	Data type	Statistical Method (where applicable)
Date	Integer	Mode
Time	Alphanumeric	Average, Mode, Min, Max, Median
Count	Integer	Average, Mode, Min, Max, Median
Day of Week	String	Mode
Date and Time	Alphanumeric	Mode
Date Year	Integer	Average, Mode, Median
Date Month	String	Mode
Day of Month	Integer	Mode

Represent

Figure 1. <Cumulative Number of Visitors by Time in 2019 and 2020> Source: https://infogram.com/blog/do-this-not-that-data-visualization-before-and-after-examples/
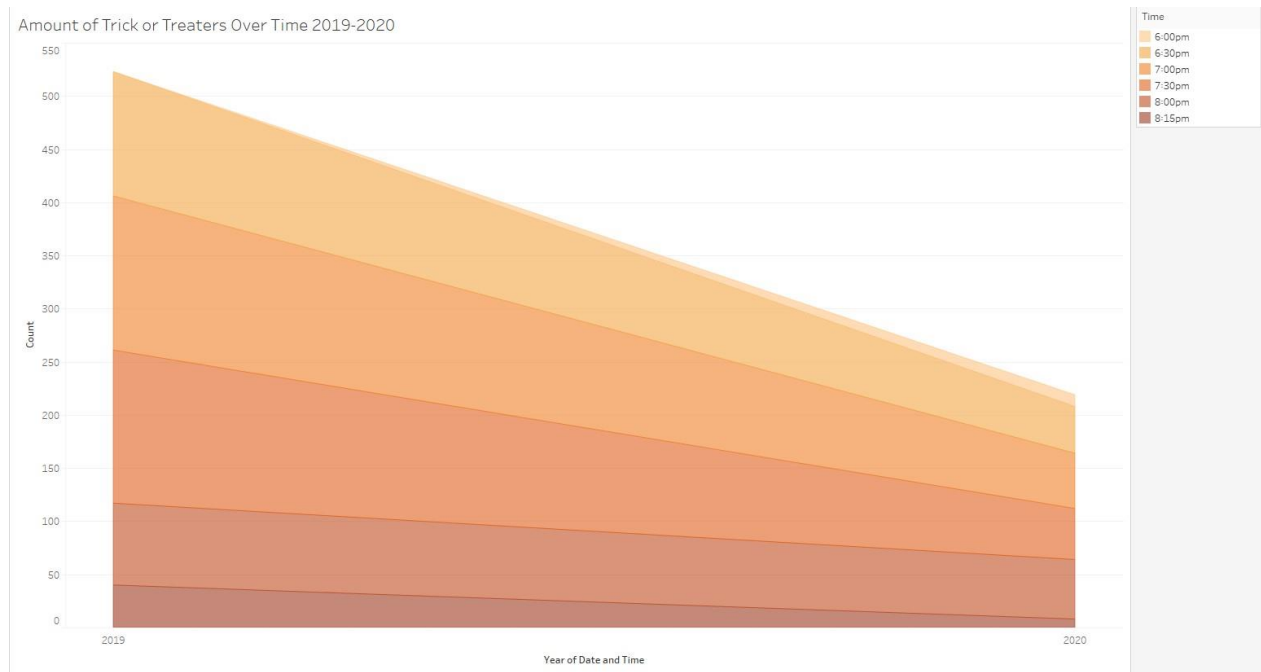
Figure 2. <Proportionally Represented Difference in Trick or Treaters Pre-Covid and Post-Covid (2019-2020)> Source: https://infogram.com/blog/do-this-not-that-data-visualization-before-and-after-examples/
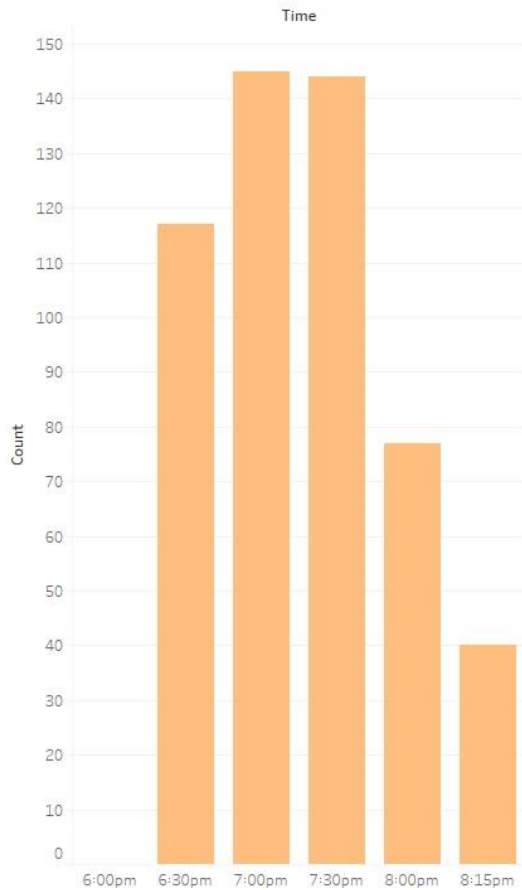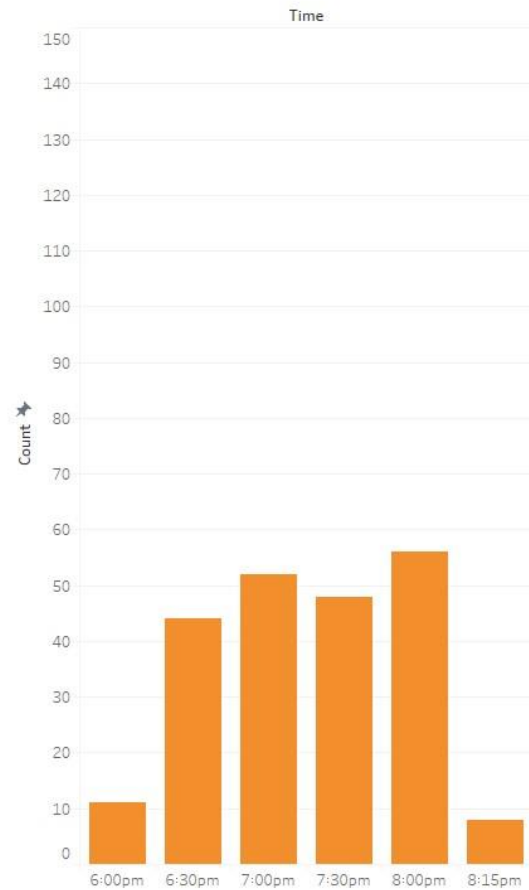
Helpful Tip: Utilize the space that you have. Do NOT create a tiny visualization that is unreadable. Remember, the purpose of visualization is insight, but all insight is lost if it cannot be seen.

Use this page format for visualization that require a landscape layout. Remove this text and replace the figure with your own visualization.
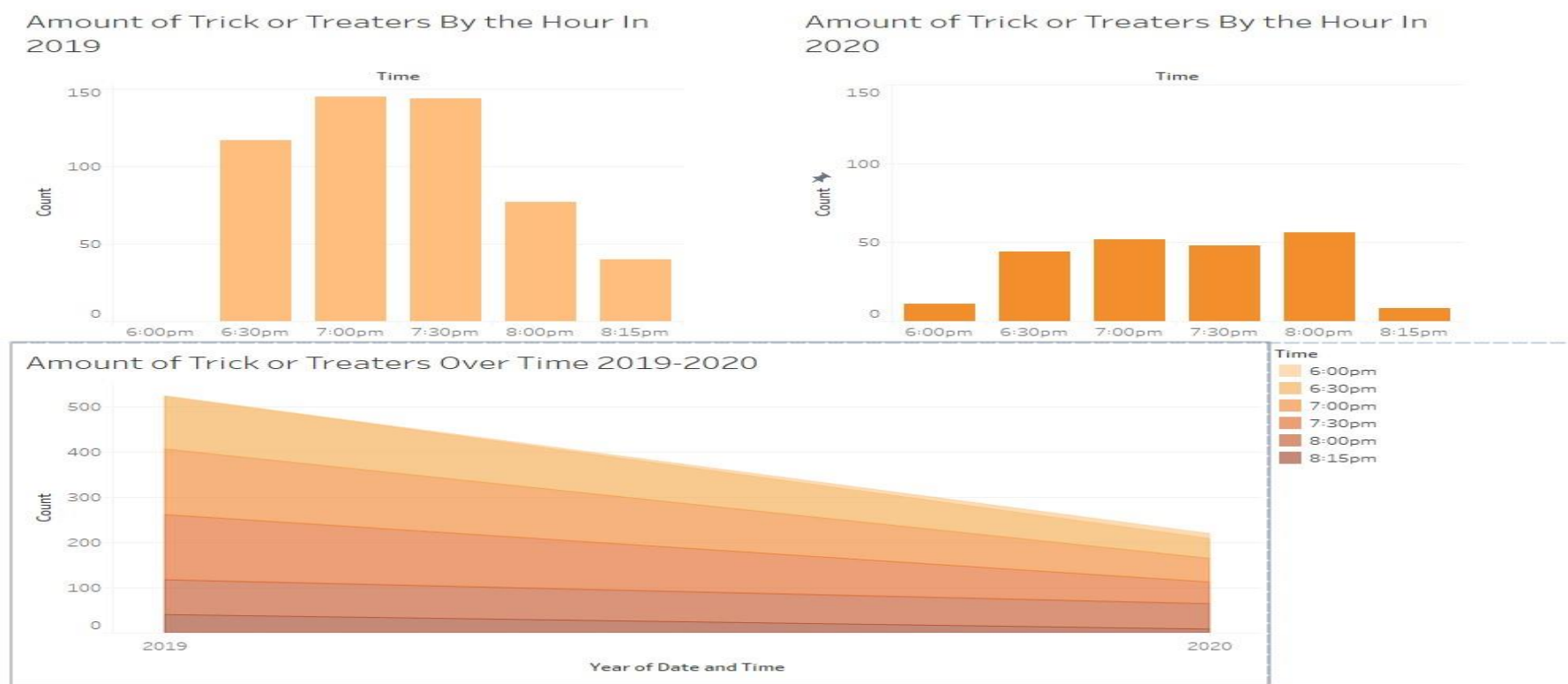
Filter

In this page show the data you used to create your visualizations.

Figure 1

For the first 2 bar graphs I utilized the filter option to pick out the two years of interest for my theme which were 2019 and 2020. I then used the time value for when the trick or treaters came by to display a bar chart of how many people came by at each time for both years. Count was used for the values of how many people came at each time. I filtered the Date and Time data value so that it could be filtered by everything.

Figure 2

For the second visualization I used pretty much the same data values, but tried to display the flow of time and significant drops more clearly, I used a filter again to only pick out the data for 2019 and 2020. I then used the values for Count and Date and Time to

create the flow of time that happened between those two years in terms of people going out to participate in the holiday.

Critique

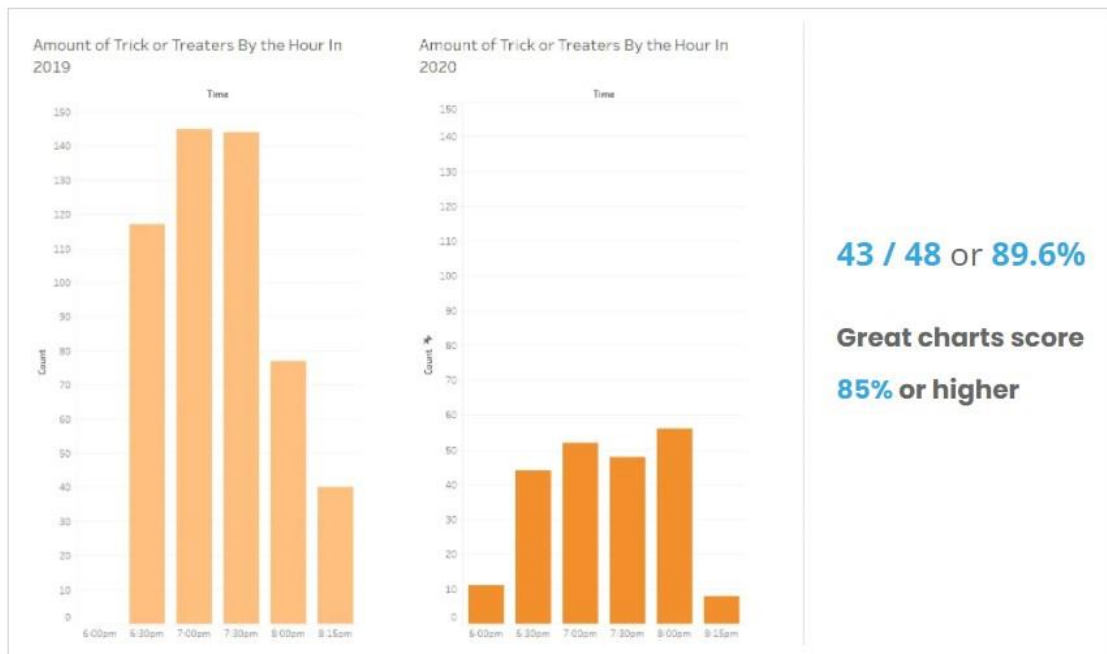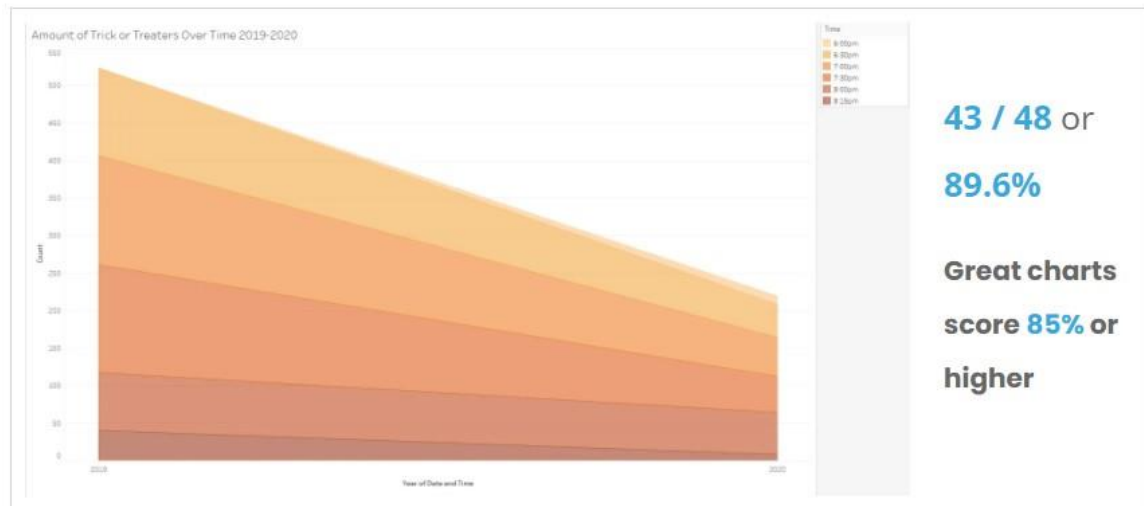Rate your visualizations (Figure 1 and Figure 2) using the link below

Figure 1 Rating

Figure 2 Rating

Your Data Viz Checklist Scores

Amount of Trick or Treaters Over Time 2019-2020

43 / 48 or

89.6%

Great charts score 85% or higher

Refine

In this part of the visualization challenge, you should identify one or more characteristics of the visualizations you created (Figure 1 and Figure 2) and update the figures. Include an updated version of each Figure below. In the figure caption, state what changes were made.
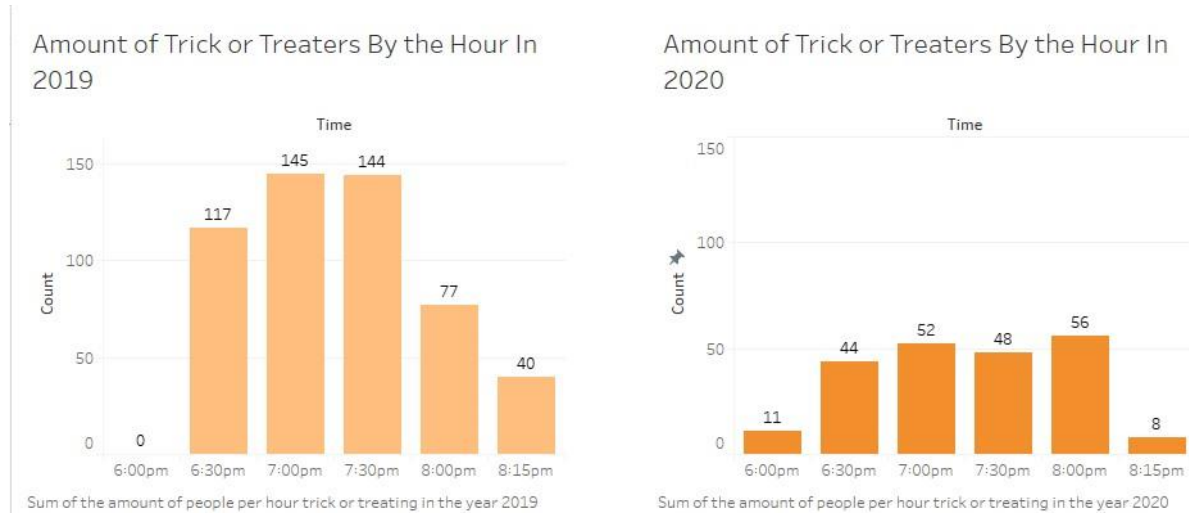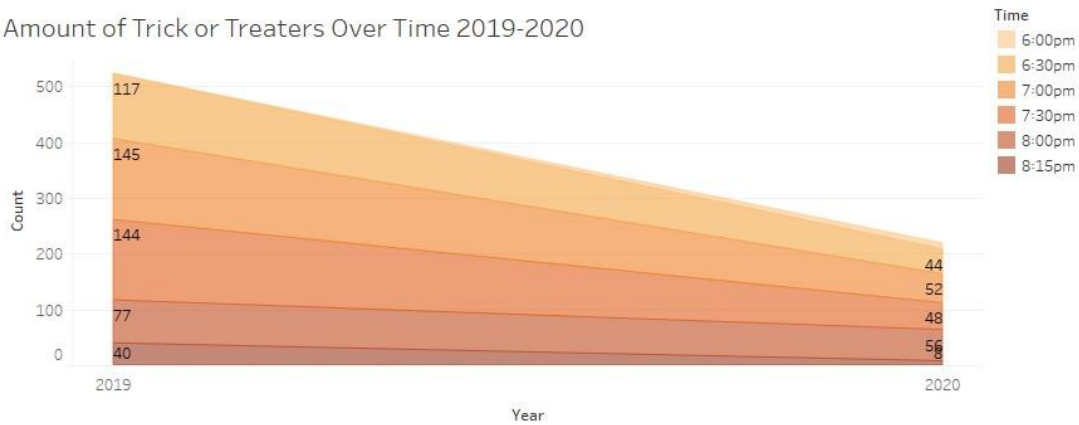

Figure 1 Refined. Added a caption that elevates the meaning of the visualization, added mark labels above the bars, couldn't get the label on the y axis (Count) to go horizontal. Source: https://infogram.com/blog/do-this-not-that-data-visualization-before-and-after-examples/

Amount of Trick or Treaters Over Time 2019-2020

Time
■ 6:00pm
■ 6:30pm
■ 7:00pm
■ 7:30pm
■ 8:00pm
■ 8:15pm

2019: 117, 145, 144, 77, 40
2020: 44, 52, 48, 56, 8

Count / Year

Proportional representation over time of trick or treaters by the hour from 2019-2020 displaying the significant drop of people during the Covid-19 Pandemic.

Figure 2 Added a caption that elevates the meaning of the visualization, added mark labels above the bars, couldn't get the label on the y axis (Count) to go horizontal. Source: https://infogram.com/blog/do-this-not-that-data-visualization-before-and-after-examples/
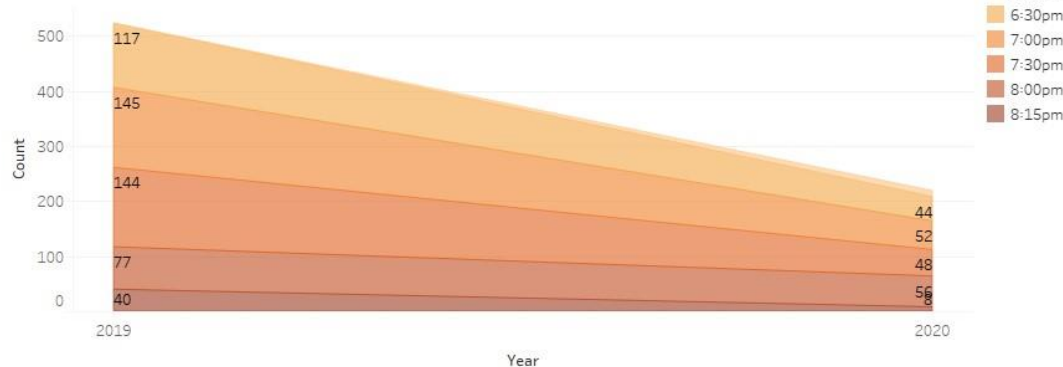
Amount of Trick or Treaters By the Hour In 2019

Time

145   144

117

77

40

0

6:00pm 6:30pm 7:00pm 7:30pm 8:00pm 8:15pm

Sum of the amount of people per hour trick or treating in the year 2019

Amount of Trick or Treaters By the Hour In 2020

Time

52   56
44   48

11

8

6:00pm 6:30pm 7:00pm 7:30pm 8:00pm 8:15pm

Sum of the amount of people per hour trick or treating in the year 2020

Amount of Trick or Treaters Over Time 2019-2020

Time
- 6:00pm
- 6:30pm
- 7:00pm
- 7:30pm
- 8:00pm
- 8:15pm

117

145

144

77

40

2019   2020

44
52
48
56

Year

Proportional representation over time of trick or treaters by the hour from 2019-2020 displaying the significant drop of people during the Covid-19 Pandemic.

For Reference the completed dashboard is provided above ^^^.

When going about this dataset I was trying to think a little bit outside of the box and not just go with one of the prompts provided to us, I decided to show just how significant the Covid-19 pandemic was on the way that we celebrate interactive holidays. The story being told by my data is that in 2019 life was great as can be seen by Fig 1 Refined in the top right. Wherever this data was taken there were lots of trick or treaters and people going around celebrating the holiday with their families and friend, then all of a sudden, the pandemic hit and for the next Halloween in 2020 when we were all in lockdown the drop of people in the area this data was taken can be displayed by Fig 2 Refined in the top right of the dashboard. Furthermore, when looking at Fig 3 Refined in the bottom middle the downwards trend for all of the times that trick or treaters would go out can be easily seen with the negative slope for all of the time

values, some were even divided by around 3. My audience for this would probably be more catered towards young adults and parents that planned on participating or had kids that were going to participate in the holiday. This is because they would be able to see that if they decided to skip going out for the year of the pandemic they weren't the only ones and they wouldn't feel left out. The first assumption that I made was that this data was taken in America where the pandemic hit really hard. This matters since in certain countries the pandemic was pretty softened at this point in time and the drop wouldn't have made much sense. Another assumption that I made is that the count only included people trick or treating and not the adults that were with them or people standing outside waiting for them. This is significant since if one time the person made a count of all the people they saw and one time it was just the kids that would sway the data and create a false story. Finally, the last assumption made was that the date and time went day then month then year then the time of day.

Checklist of what to submit:

- **Save this file as LastnameFirstInitial_CGT270Fall2021_MidtermPartII.pdf**

- **Only submit one (1) file. All of your work should be contained in this file.**

- **Failure to follow these instructions will result in your work NOT being graded.**

General Deductions (others made accordingly)

- **No name on the first page of the document: -5 pts**

- **Altered template: -10 pts**

- **No figures included: -15 pts for each missing figure**

- **No figure captions: -10 pts for each missing caption**

- **Zip file submitted: See Checklist of what to submit (-80 pts)**

- **Late submissions: Will NOT be graded (-80 pts)**

- **Provided a link to visualizations instead of providing screenshot of the visualization: this will be treated as no figure, no figure caption (-25 pts)**

- **Failure to follow data visualization best practices (data visualization checklist): deductions made appropriately.**

Keep in mind: one (1) second after the submission deadline is considered late.

Byrd Data Visualization Lab