CGT270
Midterm Part II

Data Visualization Challenge

Student:

Trami Nguyen

Professor

Dr. Vetria Byrd

TA

Subia Ansari

Course:

CGT 27000 Data Visualization

Term:

Fall 2021

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.

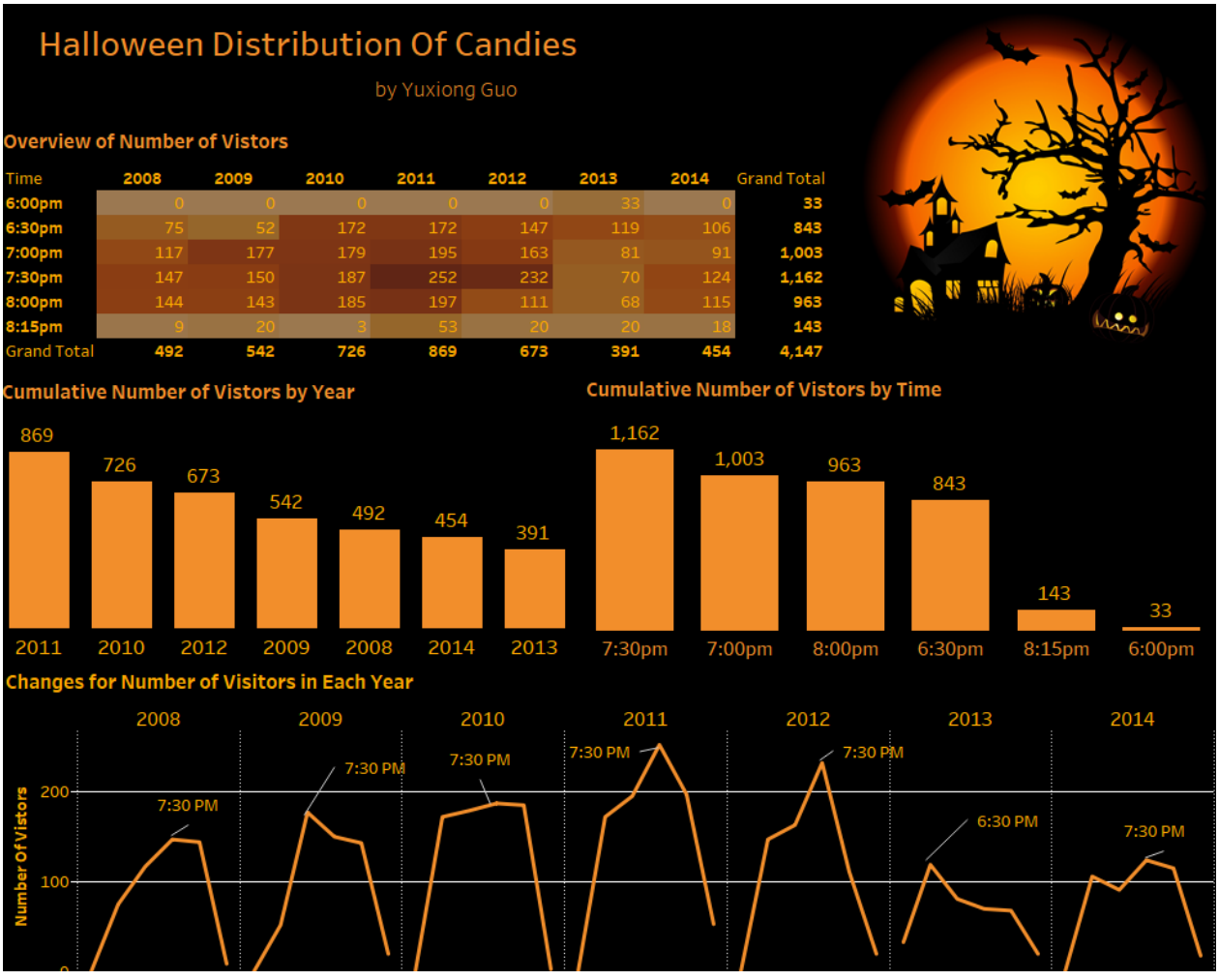
Location of home

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!



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	Date	Average, maximum, minimum
Count	Integer	Average, maximum, minimum
Day of week	String	String length
Time	String	String length

Represent

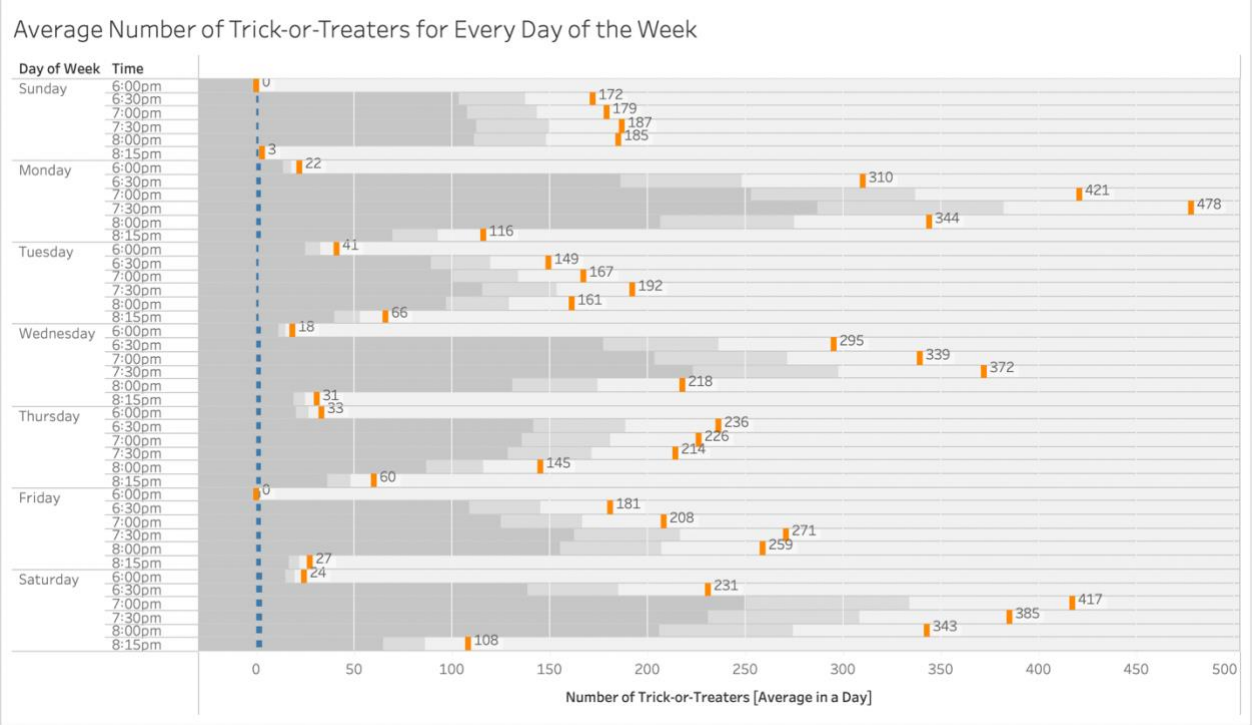


Figure 1. The graph shows the average number of trick-or-treaters on Halloween (2008-2020) on a specific day of the week, Sunday-Saturday, from 6:00pm to 8:15pm.

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.

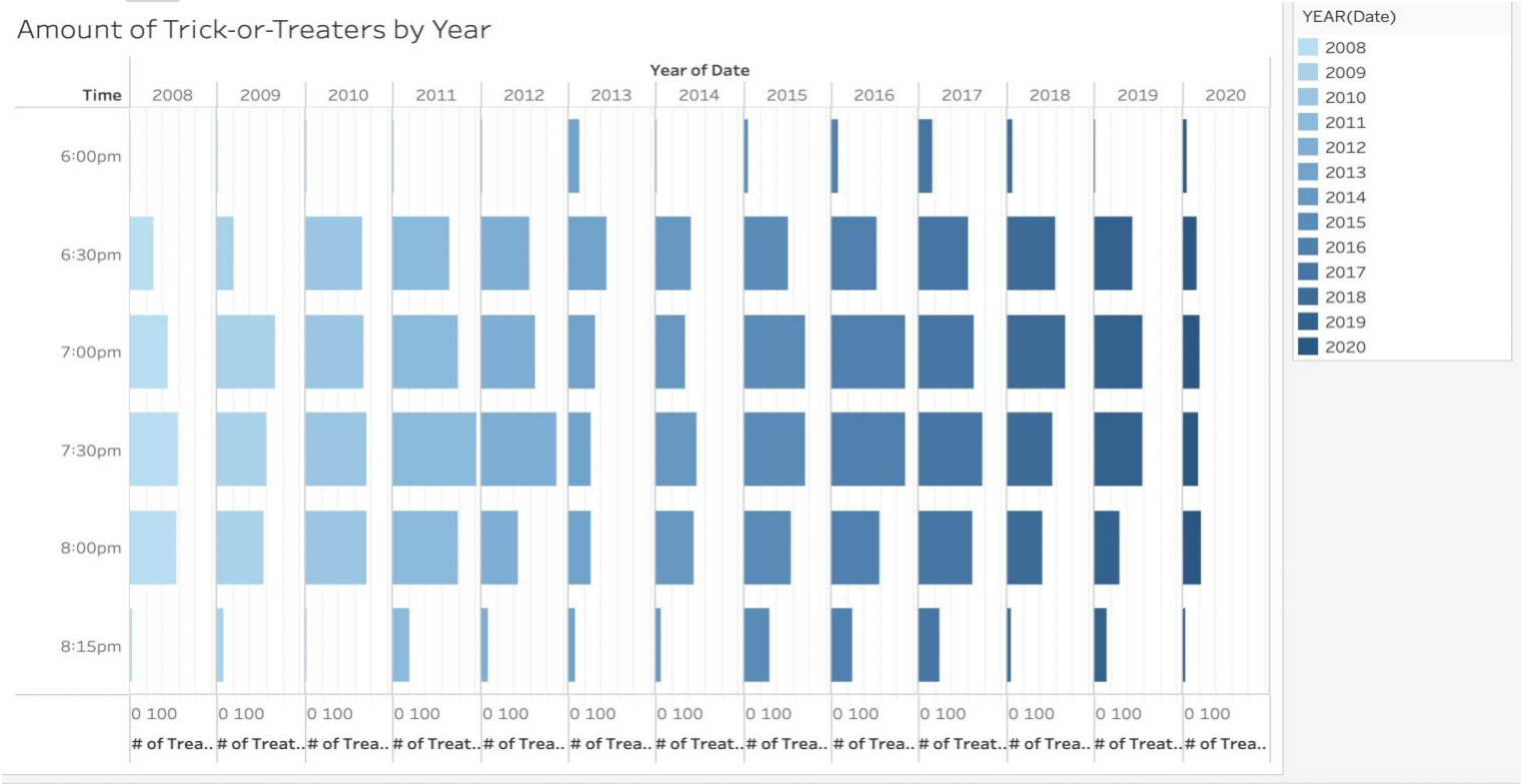


Figure 2. This graph shows the total number of trick-or-treaters by year on Halloween. The lighter the color signifies it is an earlier year, starting with 2008 and ending with 2020. The time is also given from 6:00pm to 8:15pm, which is the time range of which they went to trick-or-treat.

Source: https://towardsdatascience.com/my-top-10-most-fascinating-data-visualizations-from-2020-22a91b23e981

Filter

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

Figure 1 and 2

Date	Count	Day of Week	Time
10/31/2020	8	Saturday	8:15pm
10/31/2020	56	Saturday	8:00pm
10/31/2020	48	Saturday	7:30pm
10/31/2020	52	Saturday	7:00pm
10/31/2020	44	Saturday	6:30pm
10/31/2020	11	Saturday	6:00pm
10/31/2019	40	Thursday	8:15pm
10/31/2019	77	Thursday	8:00pm
10/31/2019	144	Thursday	7:30pm
10/31/2019	145	Thursday	7:00pm
10/31/2019	117	Thursday	6:30pm
10/31/2019	0	Thursday	6:00pm
10/31/2018	11	Wednesday	8:15pm
10/31/2018	107	Wednesday	8:00pm
10/31/2018	140	Wednesday	7:30pm
10/31/2018	176	Wednesday	7:00pm
10/31/2018	148	Wednesday	6:30pm
10/31/2018	18	Wednesday	6:00pm
10/31/2017	66	Tuesday	8:15pm
10/31/2017	161	Tuesday	8:00pm
10/31/2017	192	Tuesday	7:30pm
10/31/2017	167	Tuesday	7:00pm
10/31/2017	149	Tuesday	6:30pm
10/31/2017	41	Tuesday	6:00pm
10/31/2016	63	Monday	8:15pm
10/31/2016	147	Monday	8:00pm
10/31/2016	226	Monday	7:30pm

10/31/2016	226	Monday	7:00pm
10/31/2016	138	Monday	6:30pm
10/31/2016	22	Monday	6:00pm
10/31/2015	80	Saturday	8:15pm
10/31/2015	144	Saturday	8:00pm
10/31/2015	187	Saturday	7:30pm
10/31/2015	188	Saturday	7:00pm
10/31/2015	135	Saturday	6:30pm
10/31/2015	13	Saturday	6:00pm
10/31/2014	0	Friday	6:00pm
10/31/2014	106	Friday	6:30pm
10/31/2014	91	Friday	7:00pm
10/31/2014	124	Friday	7:30pm
10/31/2014	115	Friday	8:00pm
10/31/2014	18	Friday	8:15pm
10/31/2013	20	Thursday	8:15pm
10/31/2013	68	Thursday	8:00pm
10/31/2013	70	Thursday	7:30pm
10/31/2013	81	Thursday	7:00pm
10/31/2013	119	Thursday	6:30pm
10/31/2013	33	Thursday	6:00pm
10/31/2012	20	Wednesday	8:15pm
10/31/2012	111	Wednesday	8:00pm
10/31/2012	232	Wednesday	7:30pm
10/31/2012	163	Wednesday	7:00pm
10/31/2012	147	Wednesday	6:30pm
10/31/2012	0	Wednesday	6:00pm
10/31/2011	53	Monday	8:15pm
10/31/2011	197	Monday	8:00pm
10/31/2011	252	Monday	7:30pm
10/31/2011	195	Monday	7:00pm
10/31/2011	172	Monday	6:30pm
10/31/2011	0	Monday	6:00pm
10/31/2010	3	Sunday	8:15pm
10/31/2010	185	Sunday	8:00pm

10/31/2010	187	Sunday	7:30pm
10/31/2010	179	Sunday	7:00pm
10/31/2010	172	Sunday	6:30pm
10/31/2010	0	Sunday	6:00pm
10/31/2009	20	Saturday	8:15pm
10/31/2009	143	Saturday	8:00pm
10/31/2009	150	Saturday	7:30pm
10/31/2009	177	Saturday	7:00pm
10/31/2009	52	Saturday	6:30pm
10/31/2009	0	Saturday	6:00pm
10/31/2008	9	Friday	8:15pm
10/31/2008	144	Friday	8:00pm
10/31/2008	147	Friday	7:30pm
10/31/2008	117	Friday	7:00pm
10/31/2008	75	Friday	6:30pm
10/31/2008	0	Friday	6:00pm

Critique

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

https://stephanieevergreen.com/rate-your-visualization/

Figure 1 Rating

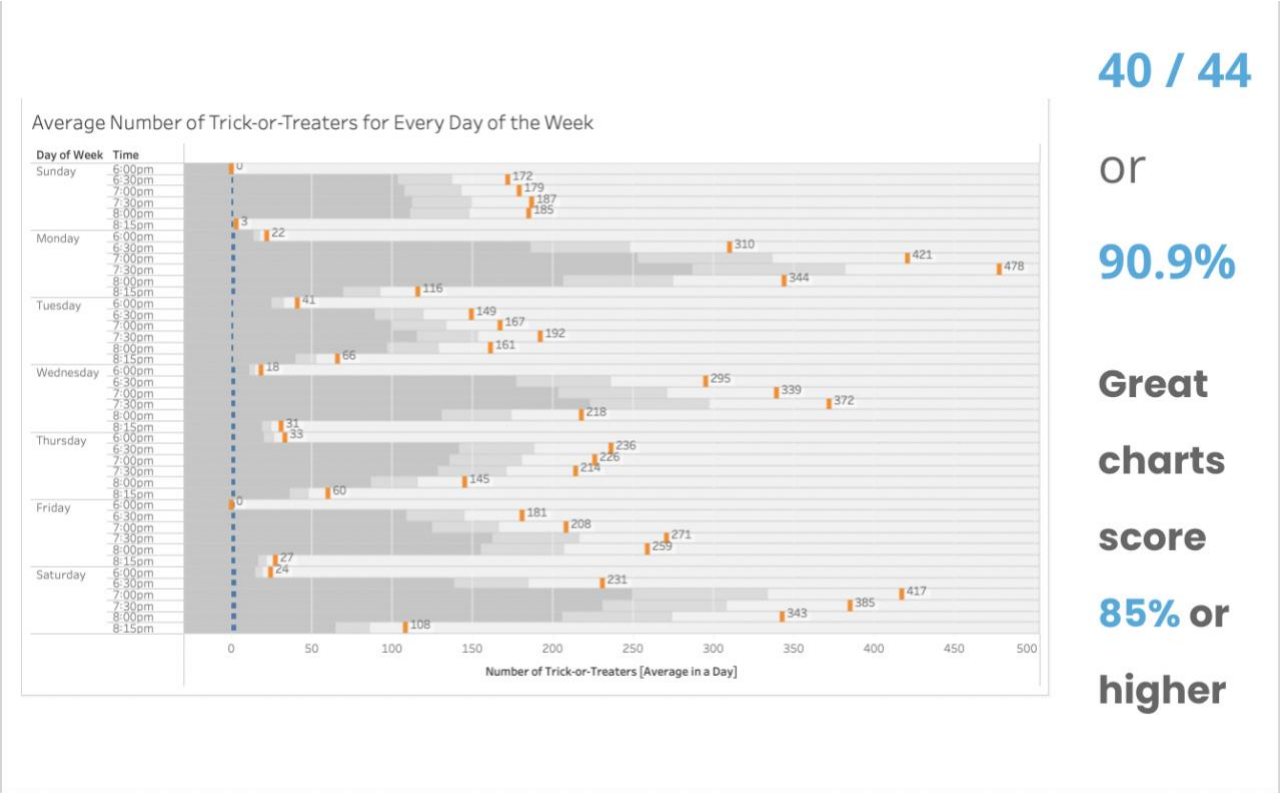


Figure 2 Rating

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.

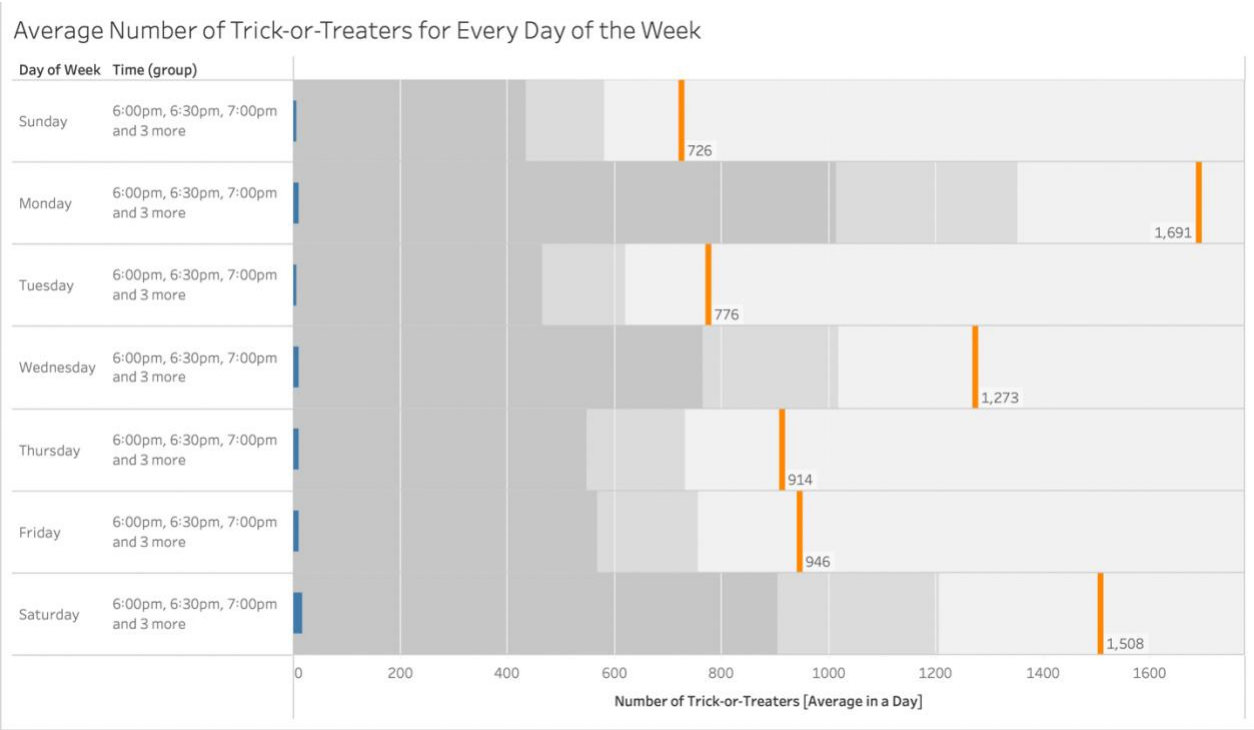


Figure 1 Refined. The graph shows the average number of trick-or-treaters on Halloween for every day of the week from 2008-2020. Trick-or-treaters come only during 6:00pm to 8:15pm, so those are combined because the time is irrelevant.

Source: https://infogram.com/blog/do-this-not-that-data-visualization-before-and-after-examples/

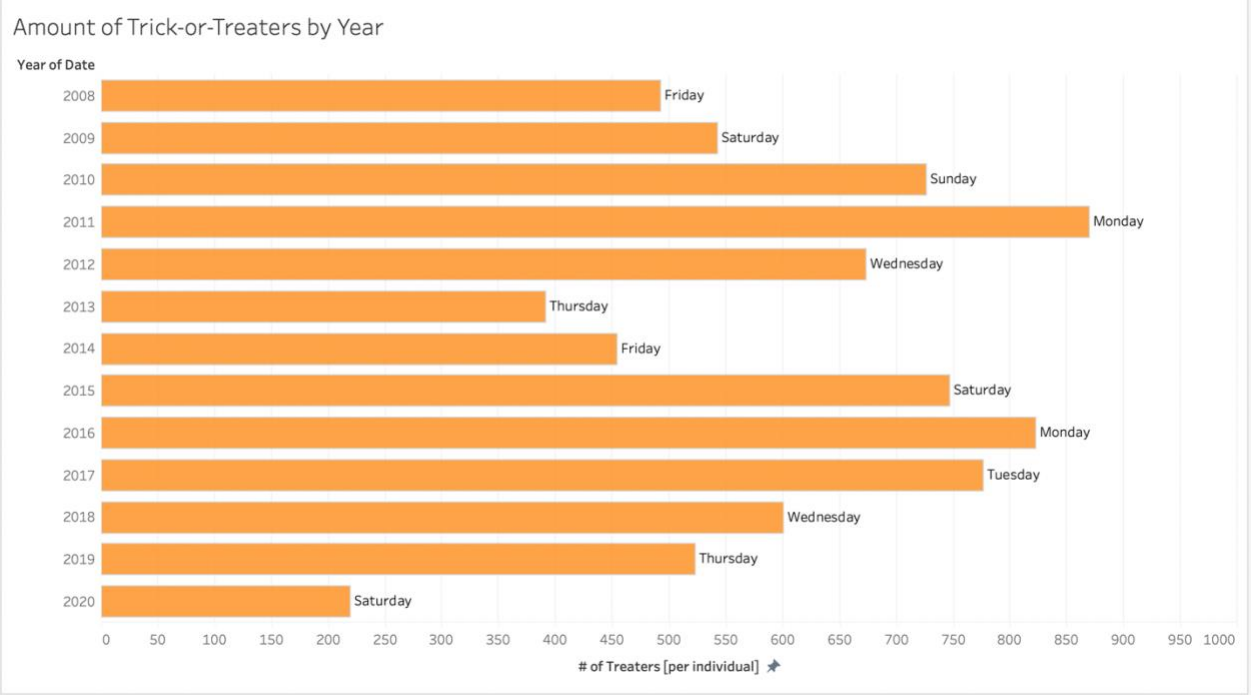


Figure 2 Refined. This graph shows the total number of trick-or-treaters on Halloween by year. Took out the time frame because it was unnecessary for the purpose of the graph. Switched the axes for the year to declutter. This also does not focus on the day of the week.

Source: https://infogram.com/blog/do-this-not-that-data-visualization-before-and-after-examples

What's the story?

Using complete sentences, answer the following questions:

1. What story did you tell using the data? *(Note: your story must be supported by your visualizations: Figure 1, Figure 1 Refined, Figure 2, Figure 2 Refined). (*500 words max, with complete sentences). Make sure you mention the figures (by name, for example, as seen Figure 1, Figure 1 Refined, etc.)

Samuel Miller wants to throw the most crazy, hectic, intense, and well-dressed Halloween costume competition in his local neighborhood for the children in his hometown. He wants to figure out the best situation for the best possible turn-out. The only problem is he has never gone out on Halloween before. He has no idea what will make this competition popular. His goal is to get as many people there as possible.

2. Who is your audience? (Use complete sentences)

The intended audience for these graphs is parents or those who would like particular data and insights from Halloween between 2008-2020. Parents could use this data to figure out which Halloween day is less stressful or vice-versa.

3. List 3 assumptions you made while implementing the data visualization process?

    a. The first assumption is that the data is accurate and recorded precisely. It can be difficult to get the exact number of people who went to trick-or-treat, so it is assumed that this data is 100% correct.

    b. The second assumption is that the trick-or-treaters are children.

    c. The last assumption is that the date and time columns are the exact same as the date WITH time column. This was filtered out in the process.

Points will be taken off for incomplete sentences.

Bonus points for REALLY GOOD stories!

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