

CGT270

Midterm Part II

Data Visualization Challenge

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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 tick 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

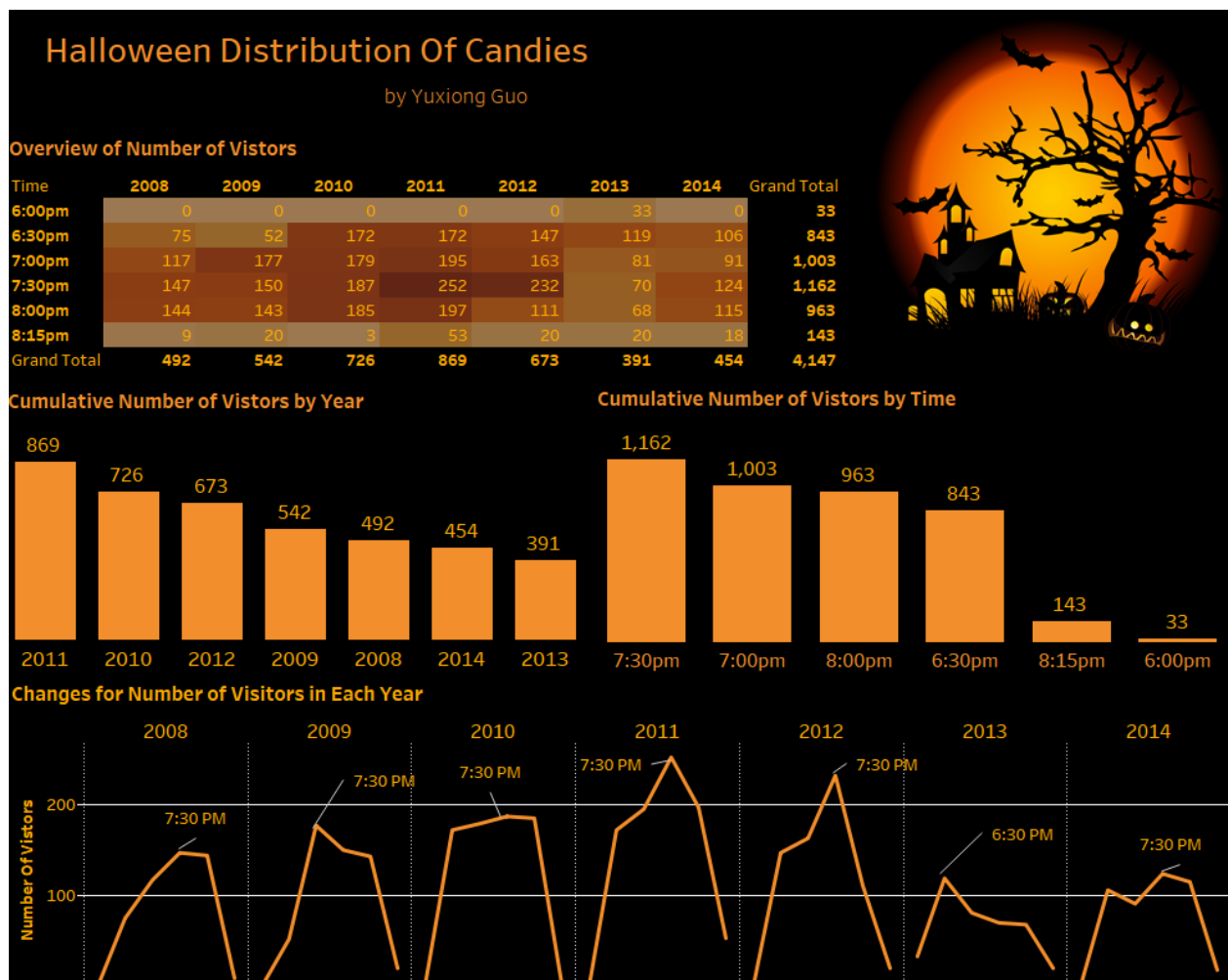
City, State: Cincinnati, Ohio

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	Min, Max
Date and Time	Date and Time	Min, Max
Time	String	Min, Max
Count	Integer	Min, Max, Average
Day of Week	String	

Represent

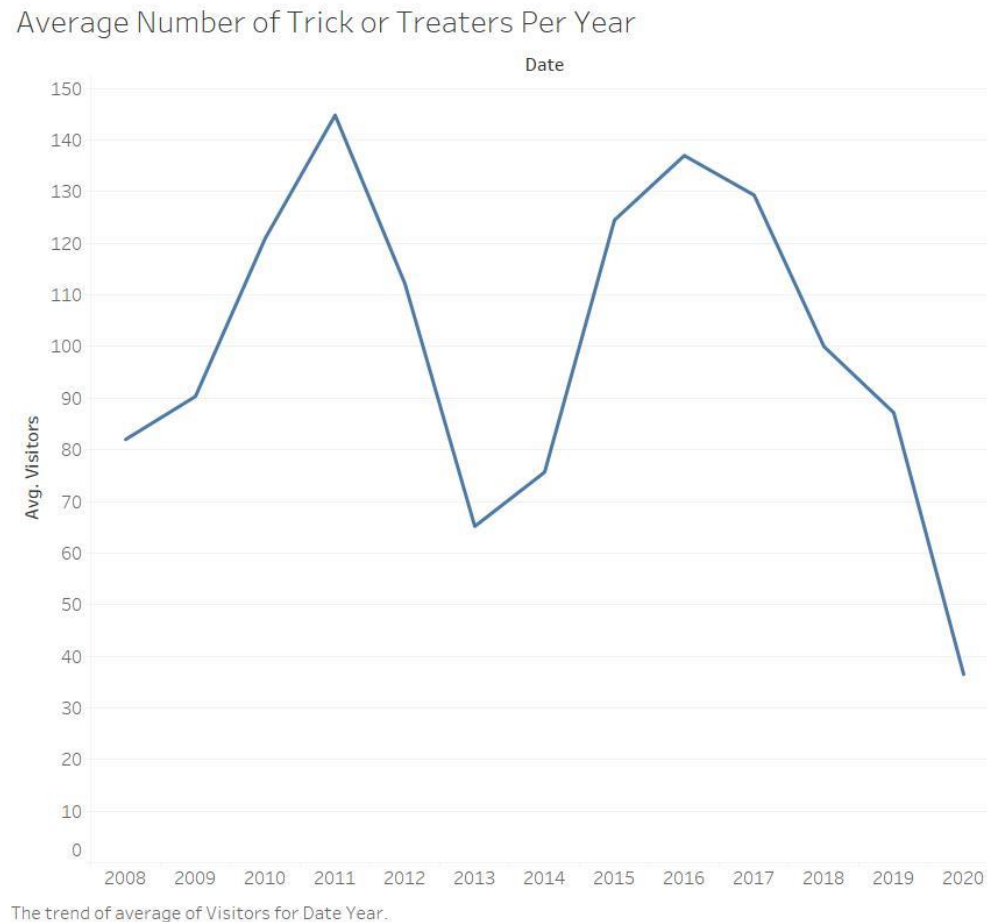
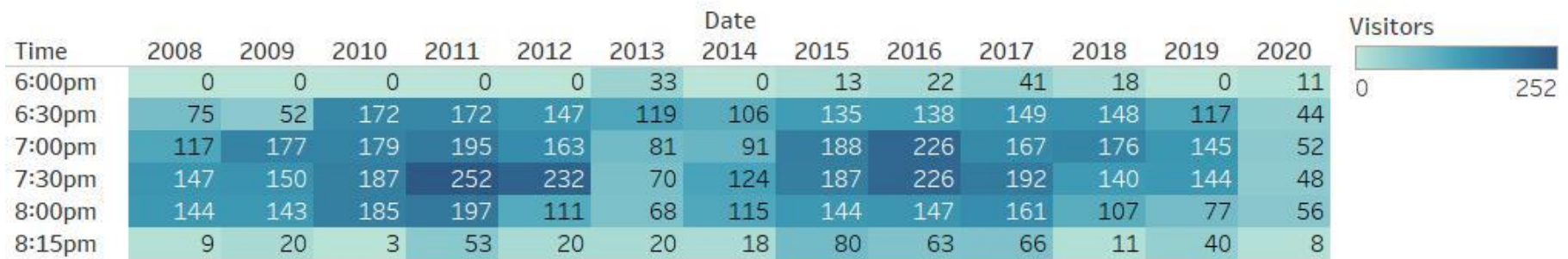


Figure 1. For each year of Halloween, the average number of visitors per time interval was graphed according to year.

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.

Number of Trick or Treaters



Sum of Visitors broken down by Date Year vs. Time. Color shows sum of Visitors. The marks are labeled by sum of Visitors.

Figure 2. This heat map shows the number of trick or treaters (visitors) that came to the house per time interval per year.

Filter

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

Figure 1

Date (Year)

Count (Visitors, average)

Figure 2

Date (Year)

Time

Count (Visitors, Sum)

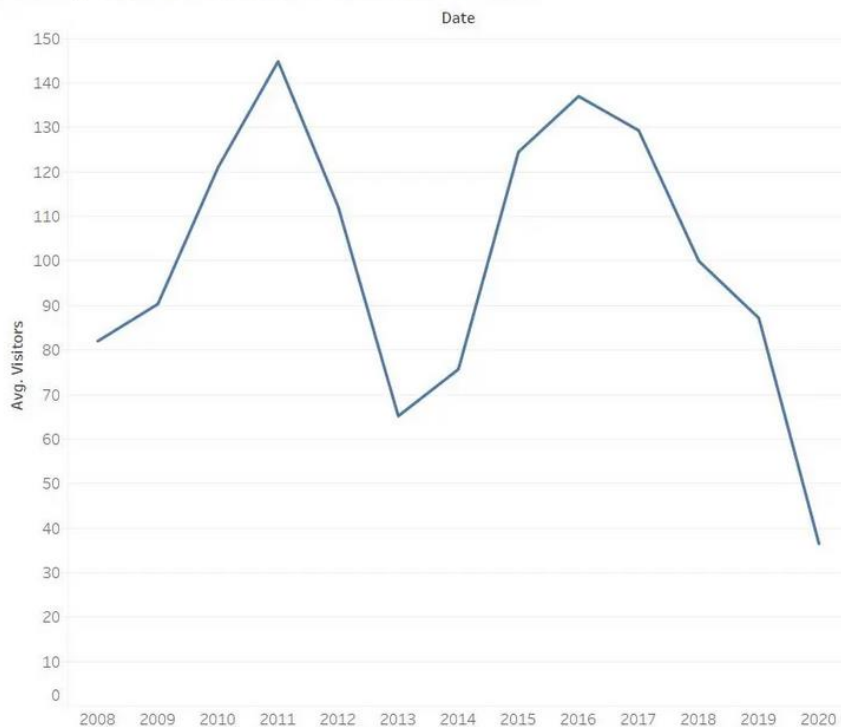
Critique

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

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

Figure 1 Rating

Average Number of Trick or Treaters Per Year



The trend of average of Visitors for Date Year.

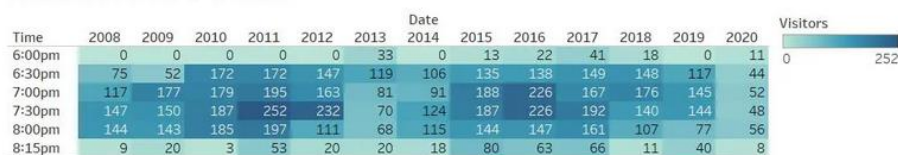
42 / 46 or 91.3%

Great charts score

85% or higher

Figure 2 Rating

Number of Trick or Treaters



Sum of Visitors broken down by Date Year vs. Time. Color shows sum of Visitors. The marks are labeled by sum of Visitors.

31 / 38 or 81.6%

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.

Yearly Average Number of Trick or Treaters Per Interval of Time

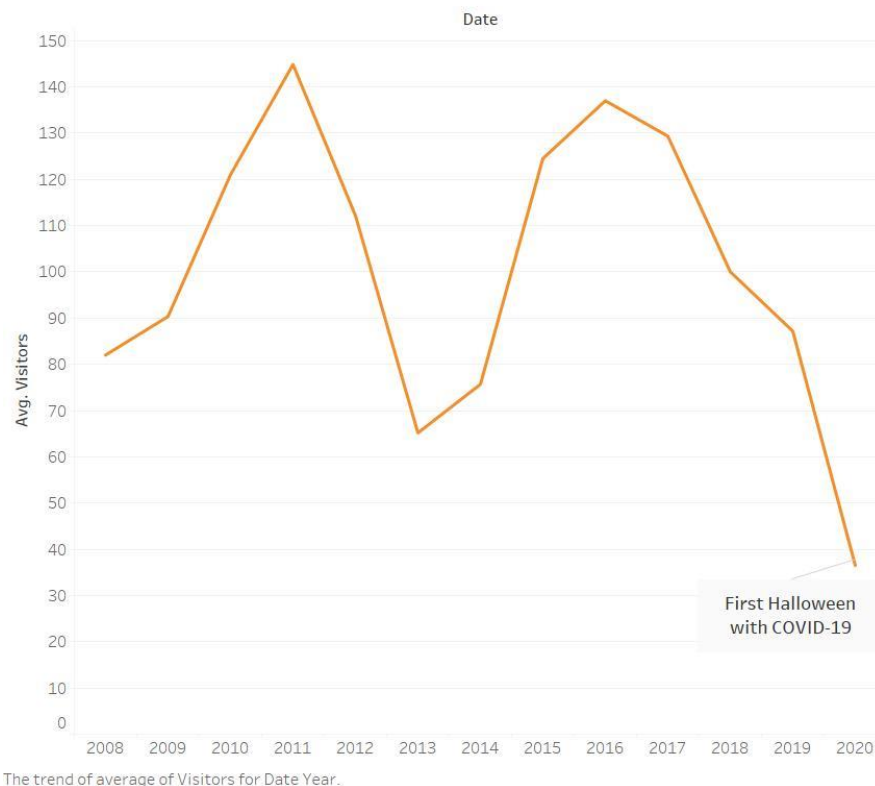


Figure 1. Updated title to be more specific, changed color to orange to match the theme, and added an annotation for 2020.

Number of Trick or Treaters Per Interval of Time

Time	Date												
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
6:00pm	0	0	0	0	0	33	0	13	22	41	18	0	11
6:30pm	75	52	172	172	147	119	106	135	138	149	148	117	44
7:00pm	117	177	179	195	163	81	91	188	226	167	176	145	52
7:30pm	147	150	187	252	232	70	124	187	226	192	140	144	48
8:00pm	144	143	185	197	111	68	115	144	147	161	107	77	56
8:15pm	9	20	3	53	20	20	18	80	63	66	11	40	8

Sum of Visitors broken down by Date Year vs. Time. Color shows sum of Visitors. The marks are labeled by sum of Visitors.

Visitors



Figure 2 Updated title, changed color to brown/dark orange to suit the autumn theme, moved the legend to the bottom

Use this page if your visualizations require a landscape layout. Remove this page if it is not needed.

Number of Trick or Treaters Per Interval of Time

Time	Date												
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
6:00pm	0	0	0	0	0	33	0	13	22	41	18	0	11
6:30pm	75	52	172	172	147	119	106	135	138	149	148	117	44
7:00pm	117	177	179	195	163	81	91	188	226	167	176	145	52
7:30pm	147	150	187	252	232	70	124	187	226	192	140	144	48
8:00pm	144	143	185	197	111	68	115	144	147	161	107	77	56
8:15pm	9	20	3	53	20	20	18	80	63	66	11	40	8

Sum of Visitors broken down by Date Year vs. Time. Color shows sum of Visitors. The marks are labeled by sum of Visitors.

Visitors



Figure 2. Updated title, changed color to brown/dark orange to fit the autumn theme, moved the legend to the bottom.

What's the story?

Every year on the thirty-first of October, children flock to the streets for candy. As displayed in Figure 2, in the initial hours of the night on any year, the consumers are few, as the rush has still yet to pass. The hours from 6:30 to 8:00 appear to be the busiest, with 7:00 and 7:30 especially being the busiest amongst them. Around 8:15 however, the traffic decreases dramatically, and the streets once again fall silent. This is probably because most parents would rather have their children stay indoors after dark.

Moving to Figure 2, it can be observed that the average amount of visitors per interval of time during a night seems to fall sharply in 2012 and 2013, perhaps due to inclement weather. If I recall, past years of Halloween have been rescheduled to the first of November because of that, and 2012 may have been one of those years. However, the most dramatic fall is 2020—where the average number drops lower than 40—something never achieved before since the beginning of the data. I assume that this has been largely since 2020 was the first year where COVID 19 affected much of public life.

Those who would be most interested in this data would maybe be planners of Halloween events or simple households giving out candy, as they could foresee the traffic that they would receive and plan accordingly.

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