

# CGT270

# Midterm Part II

## Data Visualization Challenge

Student:

Cristina Pascua

Professor

Dr. Vetria Byrd

TA

Subia Ansari

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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

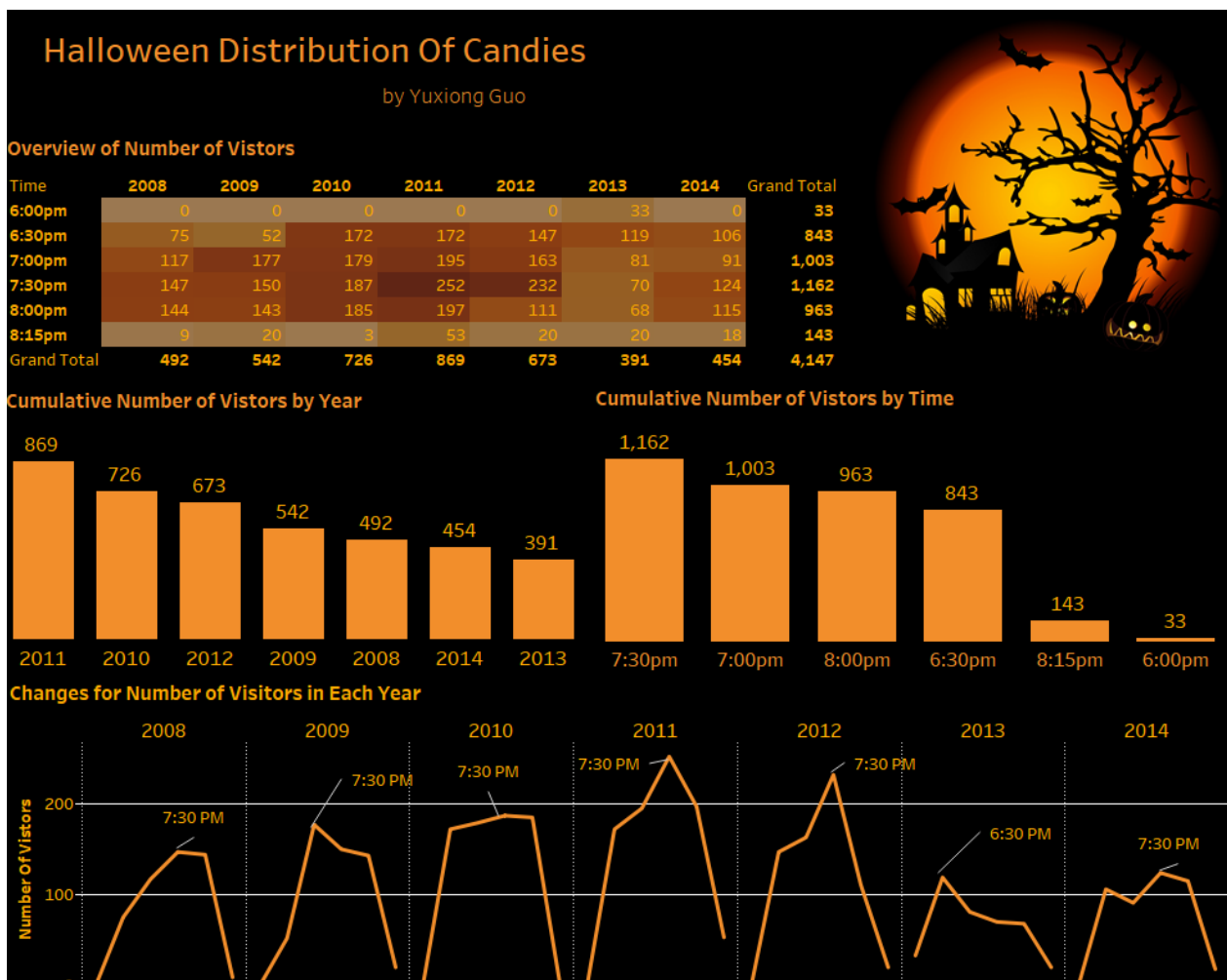
City, State: Cincinnati, Ohio

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)
Year	Integer	
Time	String	Median
Count	Integer	Maximum, Minimum, Average, Range
Day of the Week	String	Mode, frequency

# Represent

## Number Trick-or-Treaters Out

Time	Day of Week						
	Sunday	Monday	Tuesday	Wednes..	Thursday	Friday	Saturday
6:00pm	0	22	41	18	33	0	24
6:30pm	172	310	149	295	236	181	231
7:00pm	179	421	167	339	226	208	417
7:30pm	187	478	192	372	214	271	385
8:00pm	185	344	161	218	145	259	343
8:15pm	3	116	66	31	60	27	108

Figure 1. This graph shows the number of trick-or-treaters out at different times on different days of the week.



Number of Trick-or-Treaters Out at Prime Time (7:30pm)

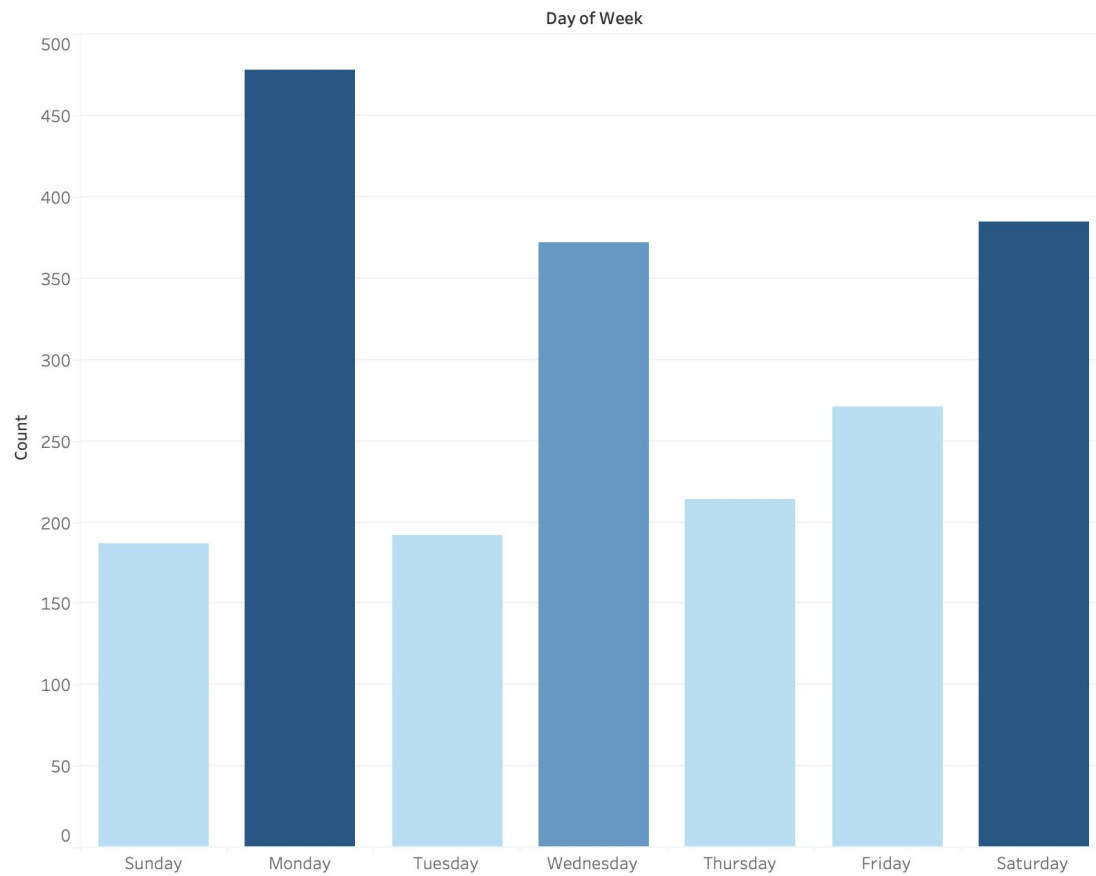


Figure 2. This graph shows the total number of trick-or-treaters out at the prime time for trick-or-treating.

**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.

# Filter

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

Figure 1

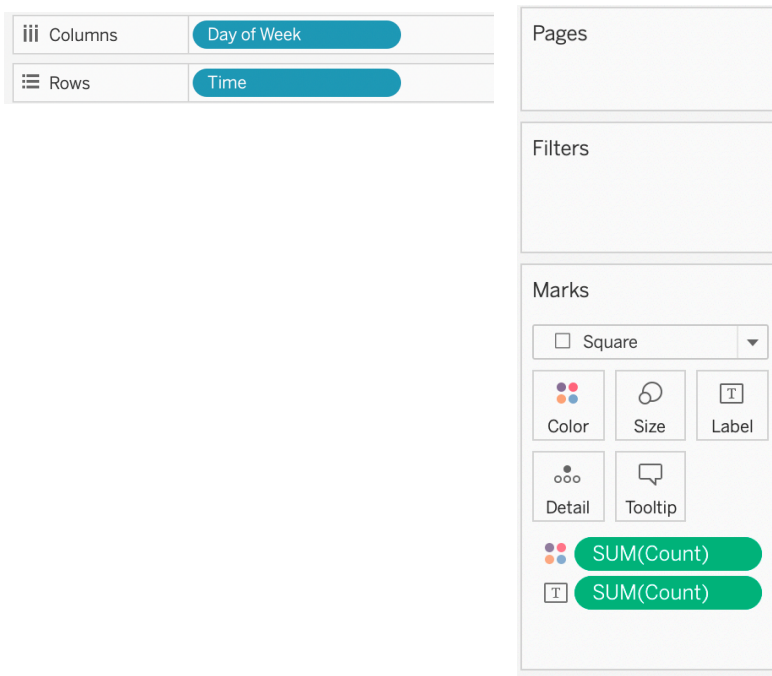
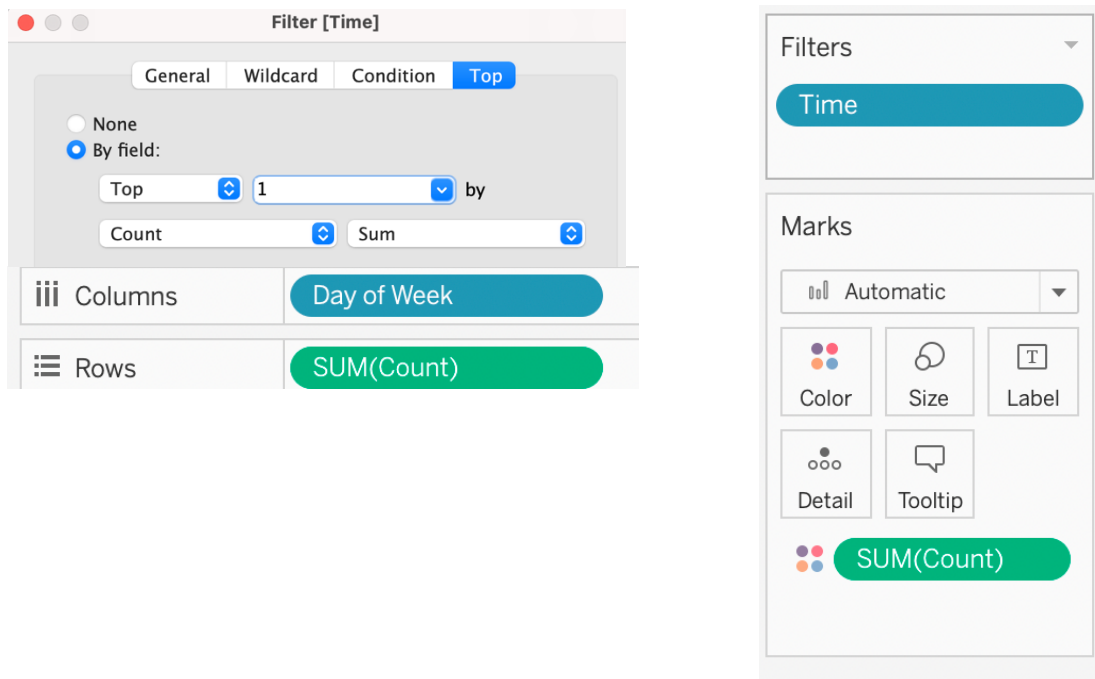


Figure 2

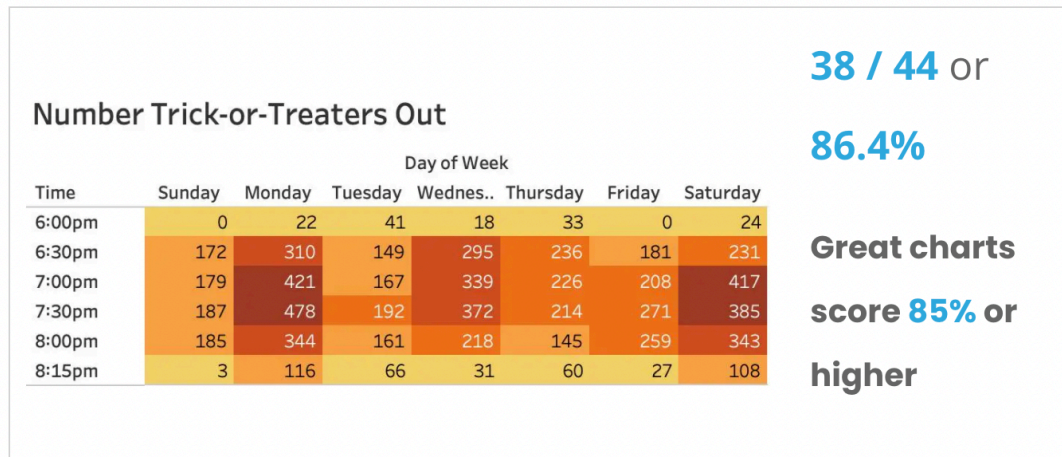


# Critique

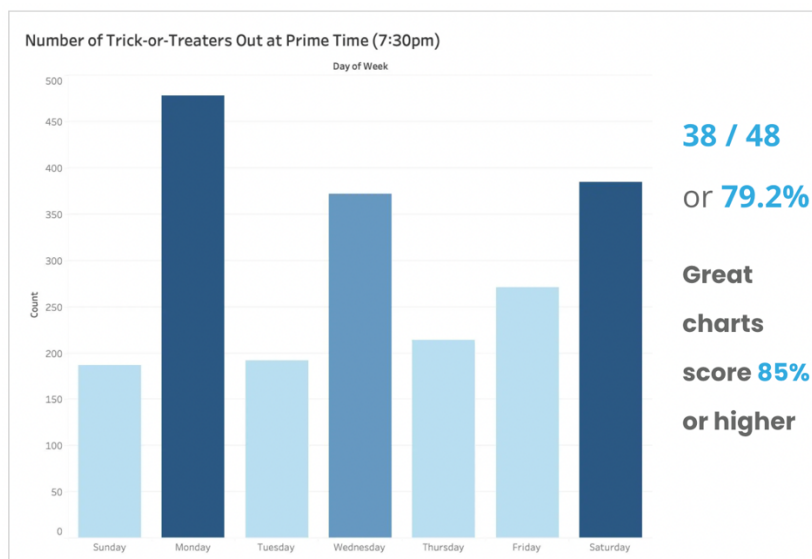
Rate your visualizations (Figure 1 and Figure 2) using the link below

<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.

Replace the picture with your visualization, remove this text before submission.

## Number Trick-or-Treaters Out

Time	Day of Week						
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
6:00pm	0	22	41	18	33	0	24
6:30pm	172	310	149	295	236	181	231
7:00pm	179	421	167	339	226	208	417
7:30pm	187	478	192	372	214	271	385
8:00pm	185	344	161	218	145	259	343
8:15pm	3	116	66	31	60	27	108

Figure 1 Refined. I updated the graph by making the columns wider so you can read each day of the week. I also made the “Day of the Week” axis label bigger to differentiate between text hierarchy.

Replace the picture with your visualization, remove this text before submission.

Average Number of Trick-or-Treaters Out at Prime Time (7:30pm)

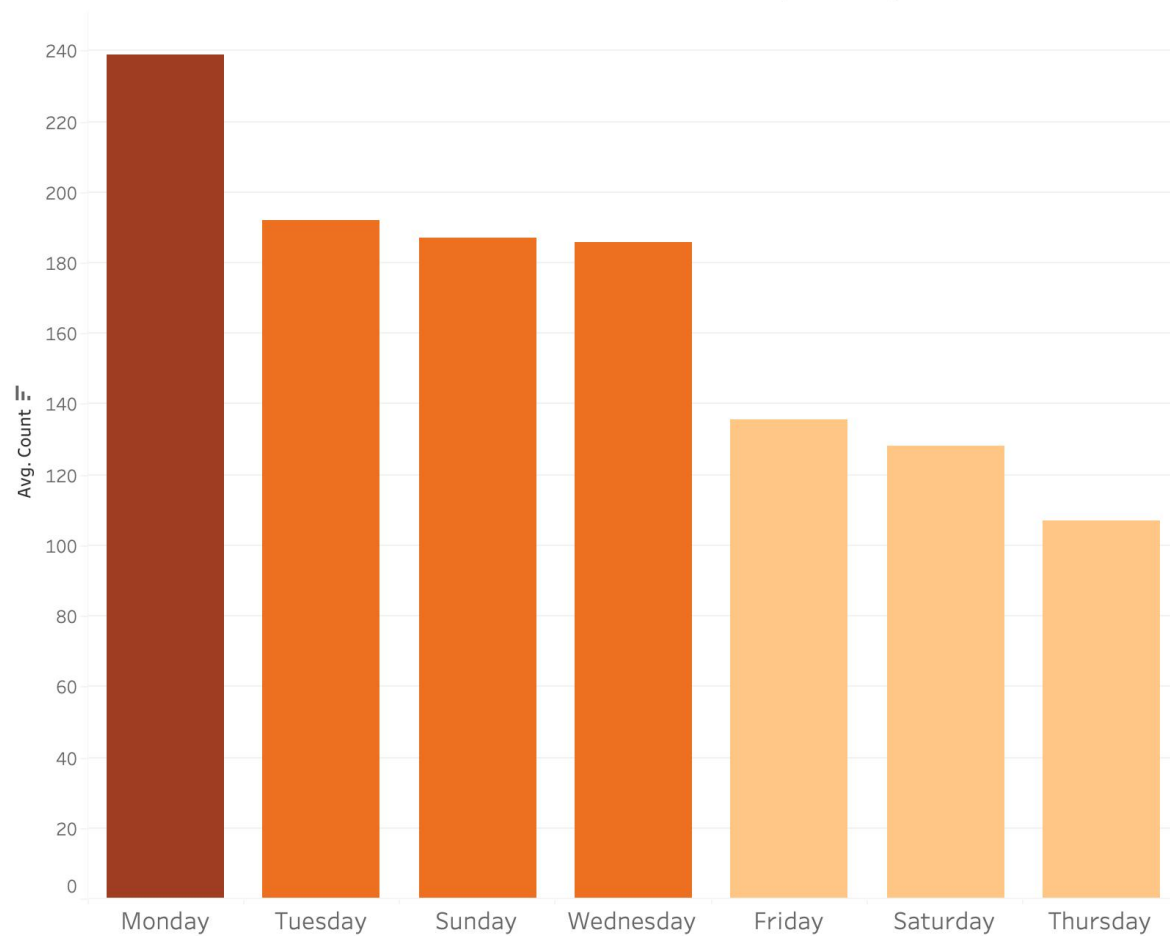


Figure 2 Refined. I ordered the “Days of the Week” by greatest to least to show the message better. I took away the x-axis label as it did not seem necessary. And changed the Count sum to average.

# What's the story?

**Replace the text on this page with your story.** The story should be no more than one-page. **If you go over the page limit, your story will NOT be read (-5 pts).** Single space Calibri Light (Body) font, font size 13. This is a very simple data set. There are only a few years of data broken down into 4 half-hour time blocks with cumulative totals.

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.)
  - a. The story being told is what time and day are trick-or-treaters out most often. Figure 1 Refined shows all the data for each time trick-or-treaters are out depending on what day Halloween falls on. East Walnut Hills/Evanston residents can use this to know when to be expecting the most and the least trick-or-treaters. From the darker shaded cells, they can easily tell that they should be expecting a lot of visitors around 7-7:30pm, especially if Halloween lands on a Monday or Saturday. Figure 2 Refined can help residents know the average of how many kids are usually out during that time.
2. Who is your audience? (Use complete sentences)
  - a. My audience is residents in the neighborhood. They can use these visualizations to know what time they should be home to give out candy and should be expecting a lot of visitors.
3. List 3 assumptions you made while implementing the data visualization process?
  - a. <assumption 1: complete sentences, 150 words max>
  - b. <assumption 1: complete sentences, 150 words max >
  - c. <assumption 1: complete sentences, 150 words max >

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