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6/20/19
CSC 4730
Project 1

1a) Visual units are marks that are used to visualize the data, things like: points, lines, areas, surfaces, and volumes

1b) Bertin describes visual variables as ways one can control the appearance of their data visualization using these categories: position, size, shape, value, color, orientation, and texture.

1c)

	Position	Size	Shape	Value	Color	Orientation	Texture
Definition	X, Y location	Length/Area	Unlimited number of different looks	Light to dark differences	Hue differences	Change in direction/alignment	Changes in the grain
Selective	Yes	Yes	No	Yes	Yes	Yes	Yes
Ordered	Yes	Yes	No	Yes	No	No	Sometimes
Quantitative	Yes	Yes	No	Yes	No	No	No
Associative	Yes	No	Yes	No	Yes	Sometimes	Yes

2a)

Figure 1:

Data Variables: Dates, Democratic and Republican Sides denoted by D+0.5 – 0 – R+0.5, Recount Zone

Figure 2:

Data Variables: Races, time periods, Republican/Democratic

Figure 3:

Data Variables: Electricity-making method, Date

Figure 4:

Data Variables: Location, Time/Date, Type of winds

Figure 5:

Data Variables: Gender, Subject and Economic Status (shown on NYTimes website)

Figure 6:

Data Variables: Type of Russian interference, Dates, size of interferences and aftermath

Figure 7:

Data Variables: Dates, Inured or Killed, Location, amount of people affected

2b)

Figure 1:

Visual Units: Lines – Shape, Color, Position
Area – Color, Texture, Size

Figure 2:

Visual Units: Lines – Shape, position, color
Dots – Locations, Colors
Area: Color, Size

Figure 3:

Visual Units: Areas – Shapes, colors, sizes

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Figure 4:

Visual Units: Lines – Shape, color, position
Dots – position, colors, size
Area – colors, size

Figure 5:

Visual Units: Dots – colors, positions, sizes, value
Lines – Position, size

Figure 6:

Visual Units: Lines – color, size, position
Area – color, position, size, value

Figure 7:

Visual Units: Dots – color, position, value, size(amount)

2c)

Figure #	***Data Variables***	***Position***	***Size***	***Shape***	***Value***	***Color***	***Texture***
Figure 1	Dates	✓		✓			
	Democrats/Republican	✓				✓	
	RecountZone	✓	✓				✓
Figure 2	Race	✓		✓			
	Year	✓		✓			
	Republican/Democrat	✓				✓	
Figure 3	Electricity Method		✓			✓	
	Date	✓		✓			
Figure 4	Location	✓		✓			
	Time/Date			✓			
	Wind Type					✓	
Figure 5	Gender	✓					
	Economic Status	✓					
	Subject					✓	
Figure 6	Interference Type			✓		✓	
	Dates	✓		✓			
	Aftermath	✓	✓		✓		
Figure 7	Location			✓			
	Injured/Killed				✓		
	Date	✓		✓			
	# of people affected		✓				

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2d) The mapping between data and visual variables were well done for all of them except the on in Figure 3, I found that one confusing and should be done in another way that is simpler to understand

2e) The visualizations are mostly well designed, the only thing I noticed in Figure 1 was that it needs to add more context to the numbers in the Data Variables to give it a sense of more value. In Figure 3 could have been made with a completely different design that is easier to read. As for Figure 6, The only thing that should be added is what the value in the boxes mean.

3) The color maps that have a rainbow of choices usually confuses whoever is looking at it, because it is hard to differentiate the colors into an order, there is no obvious or clear connection as to what the colors on a rainbow map mean. Even though it is a terrible choice to use, it is still very commonly used in the data visualization community. According to the papers mentioned in this project, they both come to the same conclusion that tells the following: the rainbow colored map is confusing because the perceptual distinction in the map is very low, and it actively misleads the viewer unlike a grayscale color map where the distinction is very obvious since the values and shades of gray are connected. Even though color is very important to visualize data, it is still a topic that is not understood very well. Most of the time when a visualization is created, the colors chosen are not going into account to be helpful for the reader, the colors are chosen based on what looks pleasing versus what would be helpful. A good replacement for the rainbow map is to use a map that changes the value (from light to dark) of a specific color; that way a clear connection is given.

4a)

i. In Tableau, Dimensions contain data that isn't numerical, things like names. Measures is the section that has numerical data, values that are malleable and could be used to show averages, sums, counts, etc.

ii. Discrete: data that is individualized and separated.
Continuous: data from one point to another, creating an unbroken chain.

iii. Discrete dimension: Used to add a header to the visualization, also used to connect more than one visualization through the dashboard when clicked on.
Discrete Measure: Makes Tableau use the measure the same way it would use a dimension.
Continuous measure: used as an axes to the visualization, treated as infinite.

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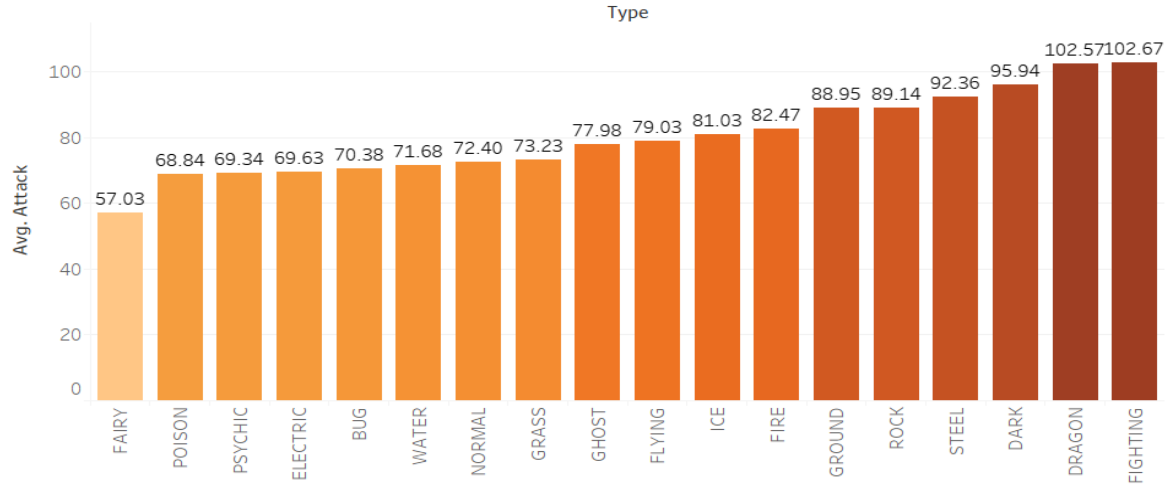
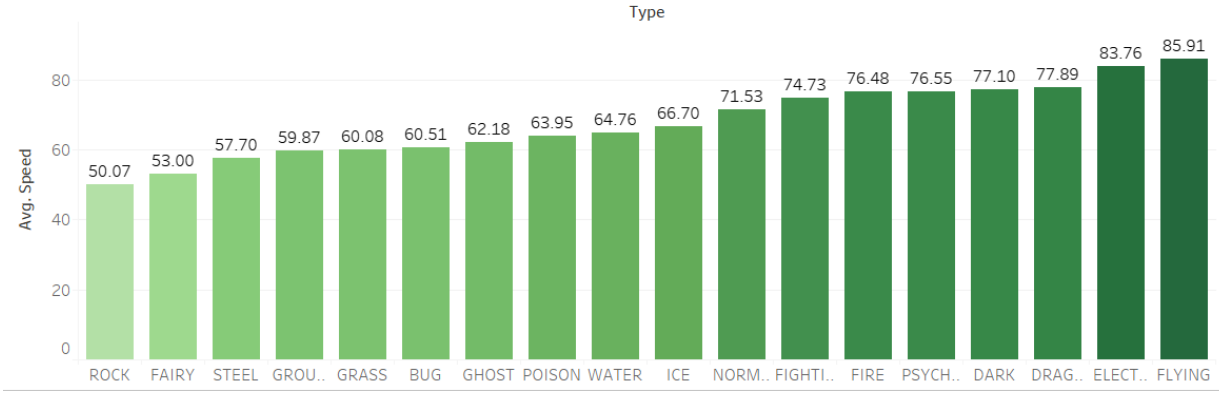
4b) I used the Pokémon Data source from Tableau to compare the different Pokémon stats with their types.

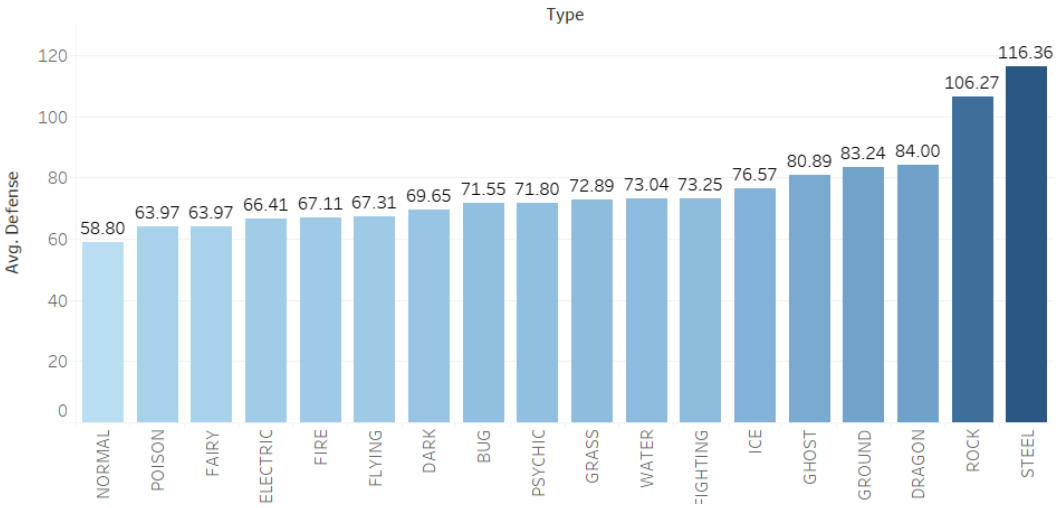
Avg.Attack per Type



Avg.Speed per Type



Avg.Defense per Type



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4c) Dashboard