**Process Book**

**Exploratory Data Analysis**

What visualizations did you use to initially look at your data? What insights did you gain? How did these insights inform your design?

**Design Evolution**

What were the different visualizations you considered? Justify the design decisions you made using the perceptual and design principles you learned in the course. Did you deviate from your proposal?

**Analysis**

What did you learn about the data by using your visualizations? How did you answer your questions? How well does your visualization work, and how could you further improve it?

**Overview and Motivation**

Provide an overview of the project goals and the motivation for it. Consider that this will be read by people who did not see your project proposal.

**Related Work**

Anything that inspired you, such as a paper, a web site, visualizations we discussed in class, etc.

We found some d3.js online examples really useful. For map plotting,

References:  
1. d3 map: http://bl.ocks.org/michellechandra/0b2ce4923dc9b5809922  
2. https://bl.ocks.org/mbostock/4090848  
3. https://gist.github.com/NPashaP/a74faf20b492ad377312

For tooltip http://bl.ocks.org/NPashaP/a74faf20b492ad377312

The assignment 2 that visualizes different time plots using music and assignment 4 inspires us

### Resources & References

### Scraped data by Sigmond Axel https://github.com/planetsig/ufo-reports

### Kaggle Dataset https://www.kaggle.com/NUFORC/ufo-sightings

### NUFORC http://www.nuforc.org/

### Some discussion of the dataset

### https://www.kaggle.com/tanyavas/ufo-analysis-x-files/notebook

### https://www.kaggle.com/abigaillarion/ufo-reports-in-united-states/notebook

### https://www.kaggle.com/NUFORC/ufo-sightings/discussion

Five Sheet Methodology http://fds.design/index

**Questions**

What questions are you trying to answer? How did these questions evolve over the course of the project? What new questions did you consider in the course of your analysis?

### In our proposal, we outlined these questions What areas of the state or country are most likely to have UFO sightings? Are there any trends in UFO sightings over time? Do they tend to be clustered or seasonal? Do clusters of UFO sightings correlate with landmarks, such as airports or government research centers? What are the most common UFO descriptions?

### Over time, we are more focused on the trend based on year and shape objects. We didn’t process text description although it’s a great source to visualize and analyze.

**Data**

Source: The data contains over 80, 000 reports of UFO sightings over the last century from 1910 to 2014. Since the reports date back to the early 20th century, some older data might be obscured. Data contains city, state, time, description, and duration of each sighting.

### The dataset is originated from The National UFO Reporting Center (NUFORC), a non-profit corporation located in Seattle, Washington, which corroborates and documents from individuals who have been witness to unusual, possibly UFO-related events. Then the data is further scraped, geo-located, and time standardized by Sigmond Axel on his Github.

### For data processing, we decided to work only on U.S data so we need to filter out non-US data. Moreover, Sigmon Axel has already filtered out data that has erroneous or blank time (8.0237%). He also standardized duration time in the unit second. We may further filter out description and geo-position based on our progress.

### In our python script, we …

**Scraping method:**

The main scraping was done by Sigmon Axel.

**Clean up:**

In the Python Script we have, we

**Implementation**

Describe the intent and functionality of the visualizations you implemented. Provide clear and well-referenced images showing the key design and interaction elements.

Limitation:

We aggregate the data to state level, but we can narrow it further down to city information

Filtering part could be done better.

Air force bases

More effective color channel

Area/population

More information in the tooltip

Interaction or linking between multiple views.

Learned that in the information seeking mantra,

“Overview first, zoom and filter, then details-on-demand”

- Ben Shneiderman