### Proposal: Visualization and Analysis of UFO Sightings in United States

### Basic info

### Project Title

### UFO Sighting Data Visualization and Analysis in United States

### ****Team Members****

### Xue Zou (github ID: xuezzou)

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### ****Link to Github****

### https://github.com/xuezzou/Vis-Project-fall-2018/

### Background and Motivation

### Whether aliens exist or not has been a lasting debate topic. People from all over the world claimed to spot UFO under various conditions. It is fun to explore UFO sightings since not many conclusions have been drawn regarding UFO sightseeing reports. We wish to discover some interesting facts from the data. Moreover, since this contains geospatial data (longitude and latitude), what we have learnt in class can also play a role in this project.

### Inspiration

### 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?

### Objectives

### We hope to find some interesting facts about UFO sighting. By visualizing where and when reports are filed, we hope to make a model for a trend or pattern for UFO sightseeing.

### We intend to learn how to effectively and expressively present geospatial data and draw conclusions from the visual presentation of data.

### Data

### 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.

### Data Processing

### We decide 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.

### Must-Have Features

### The main visualization would be a U.S. map that has states sequentially colored based on the location and aggregated count of the report. When user click on a state, three additional plots would appear on the right side of the map. The first one is a line plot based on the time and the counts in that states. The second one displays shape and counts in a bar chart, whereas the third one explores the relationship between duration.

### Optional Features

### First, instead of using color to display the counts of the reports within each state, we could display individual points of each report on the map based on its latitude and longitude with map information of s. Secondly, we may consider more interaction such as adding zooming and brushing for the map. Thirdly, we could allow multiple state selection and then update the data accordingly. For example, when the user shift + click California and Texas on the map. Both of their data would appear in the time plot with two lines, shape plot and duration plot with stacked bar charts. Furthermore, besides U.S., we may also include data from Canada, Germany and Great Britain.

### Project Schedule

### Nov 5 – 7 Proposal

### Nov 7 Proposal Submission

### Nov 8 – 11 Data Cleanup

### Nov 12 – 20 Prototype Coding

### Nov 14 In-class Update 1

### Nov 21 Prototype Submission

### Nov 22 – 30 Complete Coding

### Nov 28 In-class Update 2

### Dec 1 – 6 Fix Bugs & Improve the Prototype based on Update 2 Feedbacks

### Dec 7 Presentation & Final Presentation

### Division of Work

### Zou Final Proposal, Five Sheet Design, Updates and Notes, Coding

### Liu Proposal Draft, Data Cleanup, Map Coding

### Visualization Design

### (See below)

### 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.php/2015/06/25/sheet-2-3-4-initial-designs/