Zachary Polsky 3/27/18
Assignment #5 – Storytelling Visualization

Since the article covers the trends of mass shootings in the United States from the early 1900s to the present day, I decided to use a U.S. map broken up by states in order to show the different shootings for each year since I felt this would would provide the easiest way to observe the trend, as well as provide an intuitive way of grouping shootings by state. Additionally, this helps users visualize trends not explicitly mentioned in the article, such as shootings by region (Northeast, Midwest, South, etc.), an easy way to compare the severity of shootings by comparing the radii of different events (a larger radius indicates a more sever shooting), and more. Severity of shootings can also be compared to the victim legend, which provides a baseline by showing the corresponding circle for different victim totals, which allows users to have a sense for the magnitude of victims from a shooting is without examining the exact total of each event. I also decided to give users the option to select different groupings of shootings; specifically, seeing all shootings at once with the "All Years" button as well as the different buttons that group shootings by decade or by selecting a state to view all shootings in that state for the given time period. Doing so helps demonstrate the trend the number of shootings in the U.S. has dramatically increased over time, and that the treatment gap discussed in the article has yet to be properly addressed given this growing trend. A tooltip for hovering over the circles representing a shooting was also added to help give users an idea of what the shooting was about without providing too much clutter on the screen at once (similar to observing headlines of articles without seeing the actual article yet). This has the added benefit of allowing users to easily identify which shooting they're hovering over in the scenario where many shootings are close together and can be difficult to distinguish.

Along with the map, I also implemented a pie chart that describes the mental health of shooters for a given year, comparing whether or not they had a diagnosed mental illness or not. This helps the user by giving them a snapshot of the mental health of shooters to better highlight the trend that a little over half of the shooters had been diagnosed, and some shootings might be avoided if they were able to seek treatment first. To help clarify this point, users may select a shooting by hovering over a circle and selecting it, which will display a description of the shooting under the pie chart, along with details about the shooter and the cause of the shooting. Giving users this level of examination allows them to see that many shooters were motivated by issues that may not necessarily classify as a mental illness but do suggest early indicators of violent behavior such as committing the shooting as a result of anger, frustrations at work, and domestic disputes. Finally, users can also group shootings by state by clicking on a state with a shooting, which will provide a total for the number of victims and similar statistics, along with a listing of each shooting for that year or group of years to make it easier to examine a single state. I feel that combining the pie chart with these different levels of examination helps allow users understand the author's point that while many shooters were diagnosed with mental health issues, those that weren't were still showing early indicators of violent behavior, and thus encouraging people to seek help through treatment may help reduce the number of mass shootings by solving this issue on both fronts.

I decided to place the visualization just after the point where the article describes the treatment gap in the U.S. since at this point, the author had finished describing the basic statistics found within the U.S. (which the visualization focuses on) and the visualization helps makes some of these statistics and trends more visible. For example, the article cites a study where "at least 59%" of shooters were identified as either having a mental illness or showed signs of

mental illness, both of which can be seen more clearly using the visualization. The 59% can be seen if a user selects “All Years” and notices that comparing the “Yes” and “No” for mental illness in the pie chart, the “Yes” is slightly over the halfway point and helps to illustrate this 59%. Similarly, users can explore the map and select different shootings to see that scenarios where a shooter may not necessarily have been diagnosed with issues, the cause of the shooting and the summary often indicate that they were at the very least showing signs of mental health problems, which helps to support the author’s point in the article. The placement of the visualization is also after paragraphs mentioning the lack of care sought out by shooters (which is again highlighted by the lack of diagnosed shooters) and that 99% of mass shootings have been committed by males, which is highlighted in the map by having the color of the circles corresponding to either male or female shooters. A user glancing at the map will notice the lack of pink circles and will be able to quickly gather without diving too deeply into the visualization that most shootings have been committed by males, which shows how the visualization helps to complement the article by communicating the points of the author in an effective manner. Finally, I was also sure to include the visualization before the author switched topics in the article since the visualization does not directly support the later points made; specifically, the author begins to give their opinion on the issue as it relates to gun laws and uses fewer facts to make their point. Because of this, the visualization would not help support these issues since the dataset does not cover the relationship between shootings and gun laws, and as a result, placing the visualization before this change in topic ensures that it maximize its benefit to the rest of the article since it is more closely aligned with the earlier points.

Feature Overview

- U.S. map shows all mass shootings for a given time period, where each circle has the following traits:

    - Location corresponds to location of shootings
    - Radius corresponds to severity of shooting, measured in number of total victims
    - Color corresponds to gender of a shooter
- Year buttons allow users to select a time period for which shootings to observe
    - Shootings may also be grouped by decade or all can be displayed using the "All Years" button
- Pie charts displays the mental health summary of all shooters for a given time period
- Hovering over a shooting (circle) will provide the title of the shooting
- Clicking on a state with a shooting will a summary of victims of shootings in that state along with a list of all shootings in that state
- Clicking on a shooting (circle) will provide more in depth details on the shooting along with a summary of the shooters demographics and cause of the shooting

Sources

- Online visualization: https://zpolsky.github.io/storytelling-viz/
- Article: http://www.latimes.com/opinion/op-ed/la-oe-duwe-rocque-mass-shootings-mental-illness-20180223-story.html
- Dataset: https://www.kaggle.com/zusmani/us-mass-shootings-last-50-years/data
    - Note: some data was manipulated on a case-by-case basis whenever issues were found
- US Map: adapted from http://bl.ocks.org/michellechandra/0b2ce4923dc9b5809922
    - US Map JSON: https://www.packtpub.com/mapt/book/web_development/9781785280085/12/ch12lvl1sec57/creating-a-map-of-the-united-states
- Pie Chart: adapted from https://bl.ocks.org/mbostock/3887193