Sean Lai
CS 416
Narrative Visualization Essay

Visualization link: https://seanlai12.github.io/

Messaging
My visualization's main message is by portrayed by detailing all the occurrence of mass shooting that happened in United States using a data from 1966 to 2017, plotting data of different shooting's fatalities and injuries throughout the years, and analyzing whether the effect of stricter gun laws in United States has any significant effect to counter gun related violences. Different scenes portray different comparisons where I also compare gender and the most common motives of mass shooters.

Narrative Structure
My visualization follows the interactive slideshow structure, where there are total of three scenes and every scenes has at least some sort of interactivity that a user can do to analyze the data deeper, which includes filtering between looking at fatalities, injuries or total data, or viewing the bar graph values by using mouseover events. With annotations, title and labels describing some of the visualization combined with the interactivity, it allows the users to drill down and explore the data.

Visual Structure
To explain the visual structures of each scene, the first scene explores the number of victims in each mass shooting, versus the year the shooting happened in a time based line chart. The line charts also have small dots to represent each occurrence of the mass shooting, allowing the users to see which decade had the most mass shootings. Because I also added annotations throughout this chart with significant federal US laws creating stricter gun ownership, users can get a glimpse of whether these stricter laws have any significant effects on the number of mass shootings in the United States and quickly allow them to focus on the important message of the scene. The line chart also has a transitional animation effect that allows viewers to catch up with the chart updating and is easier to see. The user is able to use the top left drop down menu to select to view the chart showing fatalities, injuries, or both combined. Also, to help the viewer transition to a new scene, the top left side also has clickable buttons that would transition scenes between Victims Data, Gender Data, and Cause Data, where each transitions to respective three scenes.

The second scene, Gender Data, is a bar graph displaying the gender of the perpetrator versus the total number of victims through the years of 1966-2017. The domain is separated into male, female, both, and unknown. Again, the user is able to use the top left drop down menu to switch between fatalities, injuries, or both. The bar chart is set to show animation where the bar grows from the bottom which allows users to easily see the chart being updated and transitioned. Another interactivity users can enjoy is the mouseover effect which when a user mouse over any of the bars, it will also display the actual value of the bar near the mouse, and disappear

when mouse is moved away from the bar. With all these interactive views, users can definitely see the message behind this scene and explore the important parts of the data. The transition to another scene is always the same, using the buttons on the top left.

The third scene, Cause Data, is another bar graph similar to the second scene. This scene shows a variety of different motives recorded for each mass shooting event's perpetrators. Again, the user is able to experience interactive mouseover events where they can view the actual value of each graph, and the graphs are again color scaled so it is easier for viewers to see its separate bars distinguished clearly. This scene allows the users to view what are the most common motives that would cause mass shooting. And again, the viewer is able to switch between any scenes using the buttons on the top left.

Scenes

Each scene is reset and updated when transitioned, and the chart is populated with different parts of the datasets. I purposefully did not want the slideshow to be ordered, and wanted the user to view any of the scenes in any order, which does not impact how the message is portrayed by my visualization, as each scene shows a different part of the data to view. Since there is no order of the scenes, users can view any of the scenes in any order, with the first scene being the default scene.

Annotations

The annotations exist in every scene but mostly in the first scene. The annotations in the first scene portrays significant federal gun laws that became in effect over the decades, and some of the important events that happened in which year, which is the template for the annotation for this scene. Since all of the annotations here are for years after the event happened, it is very consistent in this scene, and also very important for viewers to see the main message of the scene by reading and analyzing the chart with the annotations. In the second and third scene, the annotations are short, just a reminder of what to look for in each scene. Since the bars are colorful and interactive with mouseover events, the viewers should drill down deeper in the data themselves.

Parameters

The parameter in the first and second scene revolves around the drop down menu and selecting to view the same chart but looking at fatalities, injuries or both, switching this parameter will cause the chart to store and display the respective value. Switching the parameter would update the data to match the selection, which also updates the state of the scene as the data used for the y-axis is completely updated. Since the chart reacts to the update in a way that title, labels, y axis domain changes based on the data. Also, the line or bar chart in both scenes would animate the transition of the parameter being changed, the viewer can easily see what data got updated. The third scene is more simple and does not get updated by the drop down menu, but still has transition animations, and viewers are easily able to move to another scene by clicking the transition buttons. This also means the third scene only has one state, unlike the other scenes.

Triggers
Using the parameters I mentioned above, selecting different drop down menu items will trigger the bar or line chart to update to a new set of data. But not only the values of line and bar changes, for example in the second scene, the y axis would adapt to the maximum value of the selected parameter's value. Also few other things change such as some of the axis labels, and title of scenes would change based on the selected item, which triggers the dynamic update of these titles or labels. There are also clues or affordance in the charts, either partly in the title, y-axis, or some of the annotations, giving users clue to what they can interact with each of the scenes.

The Grading Reference
A. What is the URL of your narrative visualization
[1 point] Does the URL connect to a functioning web page
Visualization link: https://seanlai12.github.io/

B. Upload a PDF file essay describing your narrative visualization as required by the assignment instructions.
[5 points] Does the essay state what messaging was intended by the narrative visualization
See the Messaging section
C. Narrative Structure
[2 points] Does the essay indicate which structure the narrative visualization was designed to follow (martini glass, interactive slide show or drop-down story)
See Narrative Structure section of the essay

[3 points] Does the narrative visualization follow that structure
My narrative visualization follows the interactive slideshow structure

D. Visual Structure
[2 points] Does the essay indicate what visual structure is used for each scene
My narrative visualization follows the interactive slideshow structure, indicated in the essay.

[1 point] Does the essay indicate how the visual structure ensures the viewer can understand the data
See visual structure section of essay

[1 point] Does the essay indicate how highlighting is used to get the viewer to focus on the important parts of the data in each scene
See annotations, and some of the transitional animation elements provided by the visualization

[1 point] Does the essay indicate how the visual structure helps the viewer transition to other scenes, to understand how the data connects to the data in other scenes
See Visual Structure and Scene section of the essay

E. Scenes and Visual Ordering
[2 points] Does the essay identify the scenes of the narrative visualization
See Visual Structure and Scene section of the essay

[1 point] Does the essay discuss ordering (e.g. the order of elements in a chart or the ordering of scenes)
See Scene section of the essay

[2 point] Do the charts used as scenes effectively present the data
Each data shown is summarized by the title of the scene, which also updates based on parameter

F. Annotations
[2 points] Does the essay discuss annotations
See Annotation section of the essay

[1 point] Does the essay discuss a template for the annotations
See Annotation section of the essay

[2 points] Are the annotations in the narrative visualization effective and consistent
See Annotation section of the essay for explanation of how I displayed annotations

G. Parameters and States
[1 point] Does the essay identify the parameters of the narrative visualization
See Parameters section

[1 point] Does the essay identify the states of the narrative visualization
See Parameters section

[1 point] Does the essay indicate how are the parameters are used to define the state and each scene
See Parameters section

[1 point] Does the narrative visualization use parameters to control its state
Use the top left drop down menu to update parameters and control its state

[1 point] Does the narrative visualization use parameters to control each scene
Use the top left drop down menu to update parameters and control its scene

H. Triggers
[2 points] Does the essay indicate the triggers that connect user actions to changes of state in the narrative visualization
Parameters also trigger change in state, explained in the Parameters section

[1 point] Does the essay indicate what affordances are provided to the user to communicate to them what options are available to them in the narrative visualization
Charts contain affordance to give clues to user include help texts on title, Y-axis, and at end of some annotations, see Trigger sections of the essay

[1 point] Does the narrative visualization implement and respond to user events properly
Yes the visualization responds to parameter and scene transitions.

[1 point] Does the narrative visualization make any effort at all to communicate what options are available to the user
The annotations, Y-axis or title has some hints on the options for users