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CS 416: Data Visualization

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Narrative Visualization Essay

Since the earliest of times, the United States has always been a country with limitless freedoms. In some cases, these freedoms are seen as a positive, such as the freedom to express free speech. In other cases, these freedoms are seen as negative, such as with the right to bear arms. Even though the freedoms themselves are not bad, it is the effects of these freedoms that can bring about more harm than good. To illustrate this idea, I created a narrative visualization to illustrate gun violence in the United States from the 1980s to the 2020s.

The message I am trying to communicate is that since the 1980s, gun violence has been on a continual incline up until 2017, at which the number of total victims for the year was over 700 across the United States. According to many studies and articles, violence continued to increase year over year due to poor gun regulation and people's freedom to bear arms. I will describe below different aspects of my visualization that aid in a user's understanding.

My narrative visualization follows the structure of an "Interactive Slideshow". The slideshow aspect of the visualization can be seen through the different pages that can be accessed via different buttons. The interactive portion of the visualization comes from the fact that the

user can drill-down and learn more details through a tooltip that can be accessed by hovering over the charts presented on every page.

In terms of visual structure, the overall theme of colors, buttons, and annotations is consistent across all slides of the visualization. This ensures that the user can focus on understanding the data while navigating different scenes without stressing over the trivial details of the visualization itself. Once things become familiar to the user, the charts and annotations will be the focus point for the user. Additionally, the consistency of the theme across the visualization helps the user transition to other scenes with ease because elements are kept the same across the visualization, thus it will not confuse the user.

My visualization contains 4 different scenes: “About”, “Fatalities”, “Injuries”, and “Total Victims”, in this order. The reason for this ordering is so that the user starts with the “About” slide and learns about the overview of the visualization. From the “About” slide, the user can choose to jump to any slide they choose, but the recommended order is the one that is placed on the screen by default. All scenes in the visualization follow the same template for visual consistency. Each scene is separated from one another through differentiated slides that can be accessed by clicking on different buttons. Additionally, each scene contains a line chart and other text that will help the user see a trend over time.

The annotations in this narrative visualization follow the same visual structure to help with consistency. The annotations used show points of emphasis on the line charts. Specifically for this visualization, the annotations show that across all 3 categories of fatalities, injuries, and

total victims, there was a growing trend that resulted in the worst year in 2017. Additionally, the annotations in this visualization do not change within a single scene but appear different from the other scenes in the visualization. The annotations do not require any mouseover events to be seen.

The parameters in this narrative visualization are the buttons located at the top middle of the screen. The parameters of the visualization correspond to the different scenes: “About”, “Fatalities”, “Injuries”, and “Total Victims”. By selecting a different button, the user will be taken to different state and thus different scene in the overall visualization.

The triggers in this narrative visualization connect any actions or changes made to the parameters to affect the overall state of the visualization. Specifically, they are the buttons presented above that take you to a different slide when clicked. For the user to know what options are available to them, the buttons at the top middle of the screen stay consistent across all scenes.

I had a great time learning about data visualization through this class and I thank the instructors and TAs for giving me the opportunity to create this visualization. I hope to expand on the knowledge gained through this class by creating personal projects that interest me and help those around me.