Summary / Visualization Access:

This visualization intends to show the correlation (or lack thereof) between Poverty, Firearm Ownership, and Violence. Poverty was measured as a percentage of people living below the national poverty threshold. Firearm ownership was estimated from surveys conducted in each state. Violence was measured as the rate of homicide. This visualization shows the above from the year 1997 to 2016, focusing on viewing from a national perspective to observe general trends as factors change. Although this project is not meant to force or hint toward any particular conclusions, some interesting things were noticeable. It seems that homicide and firearm ownership aren't closely correlated. Poverty and homicide were found to be more closely correlated. Begin by exploring the national line charts to get a sense of overall trends. Then, interact with the color-coded maps by hovering over or selecting states to see how regional patterns differ over time.

The visualizations are available on the following website:
https://dw42csce.github.io/CSCE567Site/

Challenges Encountered and Addressed:

The biggest challenge I encountered was trying to collect poverty data from the US Census. Each year was contained in its own file, throughout the years 1997 to 2016, they changed the file type from: Excel, PDF, PNG, and a webview. This led to me having to create 3 separate python scripts to scrape the different data types. Beyond that, I encountered very few problems.

Design Decisions:

The first visualization, two line charts side by side, was intended to start the visualization with a very broad view of the things to come, showing the national averages of Homicide Rate and Poverty across the total years shown, 1997-2016. This was chosen as opposed to the maps shown later to not immediately overwhelm the reader with the minutia prior to getting a broad understanding. The next visualization is two colorcoded maps, using a blue to a red, representing Low Homicide Rate to High Homicide Rate, and Low Poverty to High Poverty. The same color was used for both scales to allow readers to generalize, as in “blue means low, red means high” on both graphs. This coloring is used in the next visualization (Homicide Rate vs Gun Ownership), for the same reason. Actual US maps were used instead of size maps, so users could easily understand the geographical variations, given a pre-existing understanding of the US and its regions. Color-Coded maps were used instead of heatmaps, as the heatmaps were not as easily understandable. If county data had been used instead of state data, this may have been a better idea. A stacked area chart was included to show homicides by Firearm or Nonfirearm. A stacked area chart was used rather than a bar chart or a double line chart, as it allowed the reader to easily understand the proportion of the types of homicide contributes to the total.

Discussion of Future Work:

With better data, there is a solid amount of improvement that could be implemented. First, a heatmap could be used to show the minute differences in homicide rates between cities and counties. If rural/urban data was collected, similar charts could be implemented showing the correlations from these factors. One interesting addition would be to include data about other types of “violent crime” such as assaults, robbery, sexual assault, etc. This would greatly aid in ensuring the accuracy of the effects of other factors on violence, as simply the presence of a firearm, even if unused, could affect the willingness of individuals to commit crimes. This could

manifest as criminals being emboldened by being armed, increasing crime, or criminals being cautious due to the increased threat of an armed victim, reducing crime.