A Visualization Tool for Gun Violence Data

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Abstract: Guns were the cause of 12,942 deaths in America in 2015. Most Americans underestimate the number of gun-related incidents in their country. We built a website that allows users to look at specific incidents or graphs of gun violence, helping them grasp the breadth of America’s gun addiction.

Our solution uses data from news articles because the US government has no comprehensive record of gun violence incidents. These articles include details that are not covered in most analyses of gun violence. Our interactive website allows users to create and manipulate their own graphs enabling them to unlock insights that were previously unreachable.

Dataset: The dataset we are using was collected by Professor Chris Callison-Burch and his team of researchers at the University of Pennsylvania.

Step #1: The team scraped articles from Google search results associated with gun violence.

Step #2: Specific details about the incident (i.e. how many victims, type of weapon, etc.) were tagged by Mechanical Turk workers in the gun-violence-related articles.

Step #3: Our team wrote a standardization script to normalize values in the Mechanical Turk output.

Analysis: Our team was surprised by (1) the inflexibility of current gun violence visualization tools and (2) the lack of a U.S. Government database for domestic gun crime.

Current Visualization Tools: Visualizations for gun violence data are not that uncommon. The New York Times, the Guardian, and FiveThirtyEight have all published articles that use visualizations of gun violence data to make an argument. Our solution takes that a step further, allowing users to make their own arguments depending on what insights they find.

Lack of Government Database: One of the reasons tagged articles are the source of our data is that the U.S. Government no longer funds the C.D.C to maintain gun violence statistics. Not knowing this number prevents the U.S. from effectively tracking the state of domestic gun violence.

Premade Graphs: Each graph type comes with three premade examples displaying insights our team found particularly interesting.

Graphs and Filters: Our project allows users to view, filter, and create graphs and visualizations. We support three graphs (bar, line, and pie) and two visualizations (map and calendar). We also allow users to view a list of all the incidents of gun violence we have in our database and read the originating articles.

Filters: Filters allow users to hone in on a particular subcategory of our dataset. For example, shooter ages for black males.

Custom Graphs: Our custom graph option allows users to choose what part of our dataset they want to visualize. You can graph the age distribution of white shooters that use handguns.