Data Product Redesign – Gun Violence – 1st Version
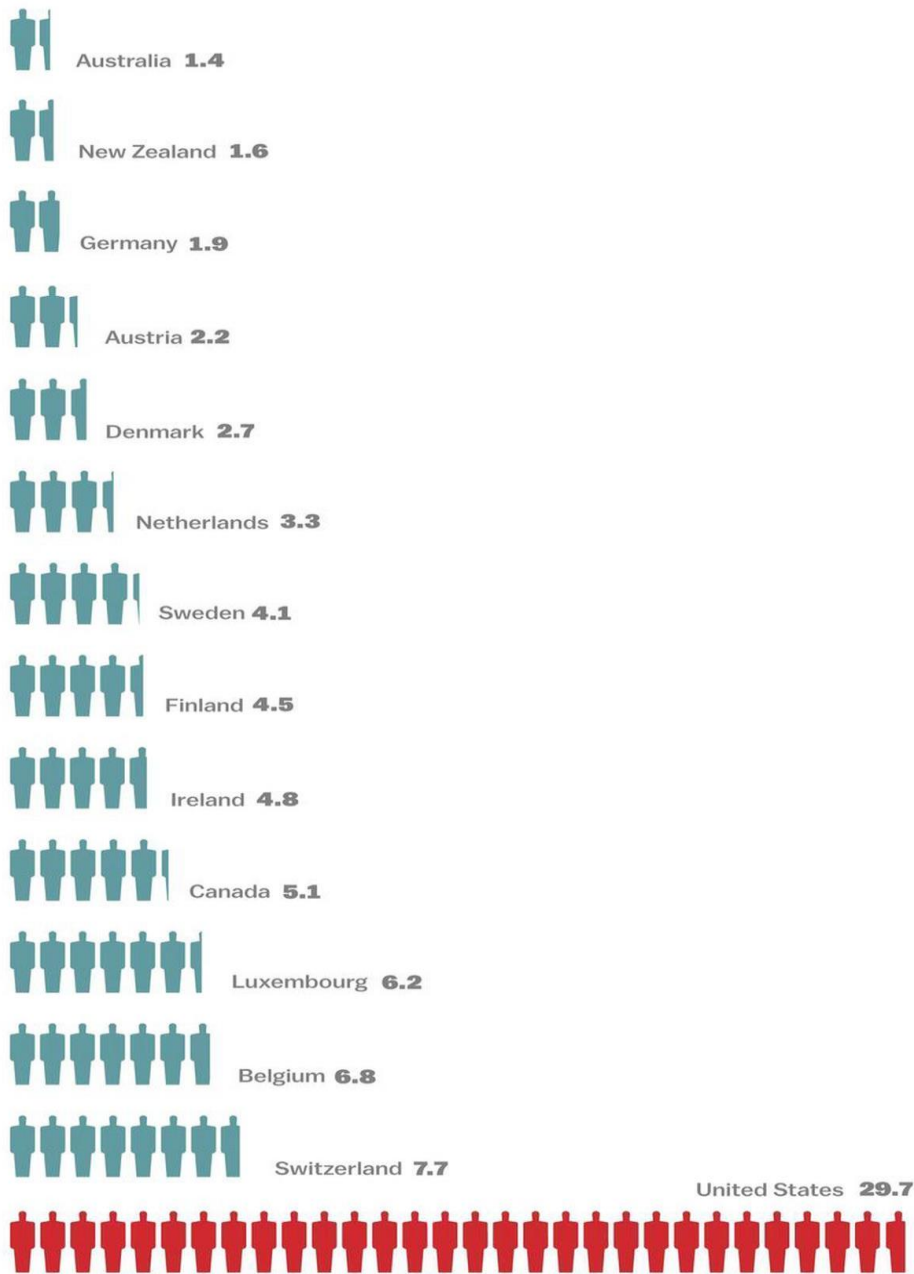
America has six times as many firearm homicides as Canada, and nearly 16 times as many as Germany

1st Chart – Homicide per country

The following chart shows a comparison between firearm homicide per 1 million people of Us with other countries. The argument stated here through the chart here is US has much more firearm homicide in comparison with other countries.

Homicides by firearm per 1 million people

In advanced countries according to the Human Development Index. Numbers are for 2012.

Australia **1.4**

New Zealand **1.6**

Germany **1.9**

Austria **2.2**

Denmark **2.7**

Netherlands **3.3**

Sweden **4.1**

Finland **4.5**

Ireland **4.8**

Canada **5.1**

Luxembourg **6.2**

Belgium **6.8**

Switzerland **7.7**

United States **29.7**

SOURCE: UNODC, Small Arms Survey, via The Guardian.

Vox

The actual data has information related to all the countries and for redesigning I extracted the data for specific countries. The most interesting part of original product is the use of human figures to show numerical values exaggerate the gravity of the situation. The chart shown above is a deceptive picture of the data since there are data which has Homicide per Firearm per 1mn greater than US. However, those countries are not shown in the visualization. Also, to create a more dramatic effort the Homicide per firearm per 100,000 people information was multiplied by 10 to compare the number per a million people.
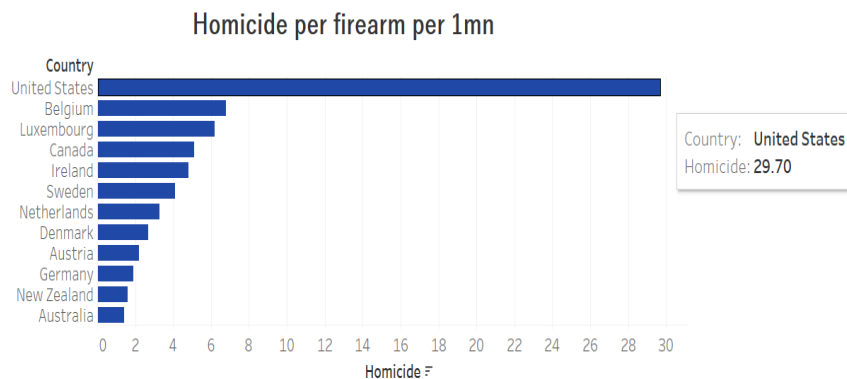
The development process of redesigning this data product consists of cleaning the data, data wrangling and then extracting the necessary accurate data for the data product. Following is the link which can be referred for data wrangling.

Link: https://github.com/amritasharma05/Redesign-Data-Product/blob/master/redesign1_Homicide.ipynb

For redesigning the data, I wrangled the data to get the information of only those countries which are used in the original product. I used simple bar chart and sorted the homicide per firearm per 1 million people in ascending order. I think this is an improved version of the original product because the viewer views the information in a more concise and clear format.

The argument depicted by the redesigned data product is straightforward because the comparison of US and Canada and US and Germany can be made mathematically since the viewers are not distracted. In the future I wish to present the above data in different ways such as using maps and geo-location to demonstrate the data product in an exaggerated way.

2nd Chart – Mass Shooting
On average, there is around one mass shooting for each day in America

336 days, 355 mass shootings

Number of mass shootings (4+ victims, including shooter) by day of year, 2015

0	1	2	3+

January
Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	1	0
2	0	1	1	1	1	1
4	1	1	1	0	0	0
0	1	1	0	0	1	2
0	1	0	1	1	0	0

February
Sun	Mon	Tue	Wed	Thu	Fri	Sat
2	0	0	1	1	1	1
1	1	0	0	0	0	0
1	0	1	0	0	0	0
1	0	0	1	0	1	3

March
Sun	Mon	Tue	Wed	Thu	Fri	Sat
2	1	1	1	0	0	0
0	1	1	1	0	1	1
2	1	1	2	1	4	2
1	1	1	0	1	0	1
1	1	0				

April
Sun	Mon	Tue	Wed	Thu	Fri	Sat
			0	1	1	0
2	0	1	0	0	0	0
0	0	0	0	2	0	5
1	0	1	0	0	0	2
0	2	0	0	0		

May
Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	0
4	2	0	0	1	0	0
3	0	2	1	0	0	3
1	2	1	1	0	0	1
4	1	1	0	3	1	2
4						

June
Sun	Mon	Tue	Wed	Thu	Fri	Sat
	0	0	1	4	2	2
1	0	1	2	2	1	5
2	1	1	1	0	1	2
2	1	2	1	1	1	3
3	1	0				

July
Sun	Mon	Tue	Wed	Thu	Fri	Sat
			2	0	1	4
4	0	1	0	0	0	0
3	1	1	5	2	4	2
2	1	1	1	1	0	1
2	0	3	0	0	1	

August
Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
5	1	0	1	0	1	1
2	1	0	0	0	0	3
4	0	0	1	1	4	2
0	0	1	4	1	1	3
2	0					

September
Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	0	0	0	4
1	0	2	3	0	0	1	4
3	0	1	0	2	0	1
2	2	0	3	1	1	1
2	3	1	0			

October
Sun	Mon	Tue	Wed	Thu	Fri	Sat
				2	1	0
0	0	1	0	0	1	2
0	1	0	0	0	0	2
1	1	0	0	0	1	1
4	1	1	1	0	0	1

November
Sun	Mon	Tue	Wed	Thu	Fri	Sat
0	1	2	1	0	3	1
2	1	0	0	0	2	1
2	2	1	1	0	1	1
5	3	1	0	1	2	0
1	0					

December
Sun	Mon	Tue	Wed	Thu	Fri	Sat
		0	2	--	--	--
6	7	8	9	10	11	12
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The most interesting information about the original data that there is no actual information about mass shooting given in the original data. The mass shooting information is calculated from the sum of number of people killed and injured. There is no actual information directly related to per day mass shooting. This gave me an example that lot of data visualization products are deceptive depictions to support your arguments.

Avg Mass Shooting Per Day(2015)
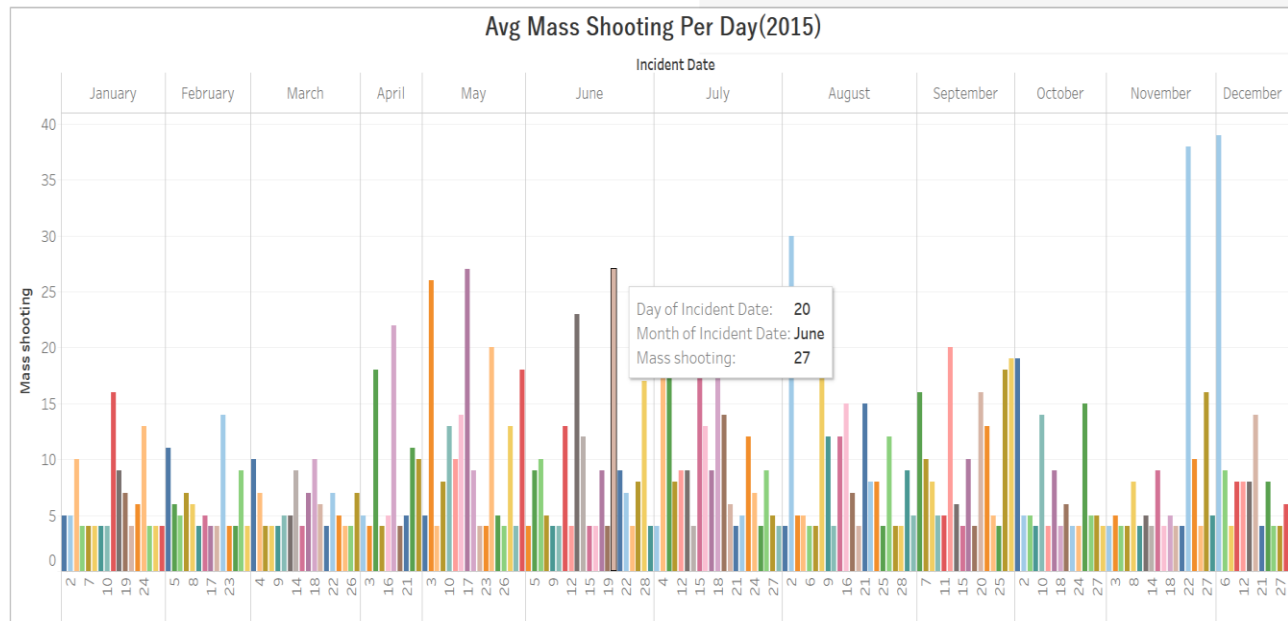
For redesigning the data product, I focused on bridging the gap between the argument and supporting chart. I think the argument stated and the qualifier doesn't fit together. Hence the purposed was to bridge the same.

Following is the link which can be referred for data wrangling.

Link: https://github.com/amritasharma05/Redesign-Data-Product/blob/master/redesign2_MassShooting.ipynb

I wrangled the data to find the information related to per day incidents. The data given here is only for year 2015 hence only mass shooting per day can be shown. I have attempted to show a time trend of the mass shooting for the year 2015.

As mentioned earlier the mass shooting is a calculated field and since the above argument stated here is that every day on an average there is at least 1 mass shooting. However, the original data product has a lot of 0's mentioned in the calendar format which is deviating from the argument.

By using only those days in which mass shooting has occurred I have used a scale on column which deceptively gives an impression that there is mass shooting almost every day. The above deceptive data product states the message clearly to persuade the user and qualifies the argument strongly.

In the future I also wish to use location information given in this dataset to add another dimension to the data product.
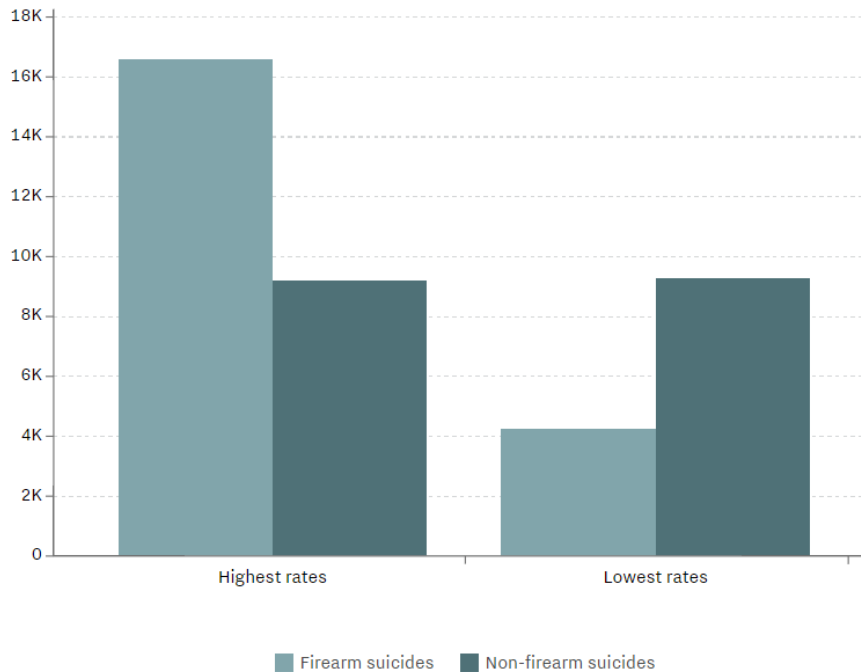
3ʳᵈ Chart – Gun Ownership
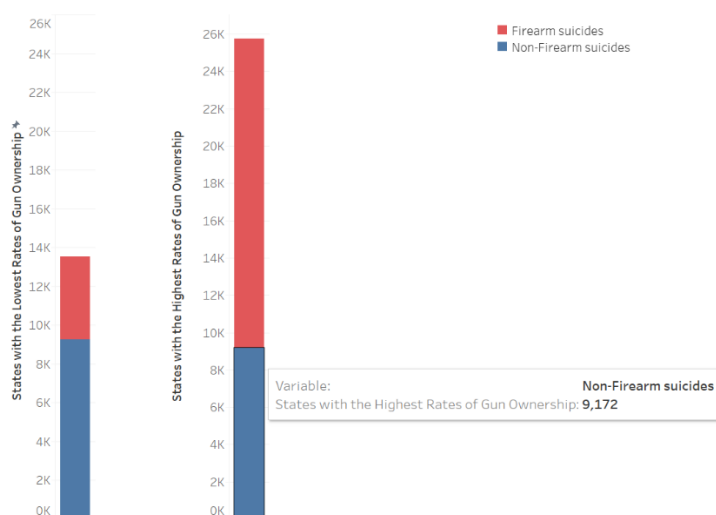## The states with the most guns report the most suicides

More guns, more suicides

Reported suicides between 2001 and 2005 in states with the highest and lowest rates of gun ownership

Legend: Firearm suicides | Non-firearm suicides

The most interesting part of the original data is the sheer size of the data. It is so few and everything is so compact that when I looked closely I found that there are only 4 data points shown in this chart. Yet 4 data points tells the whole story. I learnt that it doesn't matter how many data points you have what matters is what is your argument and how can you support/qualify the argument.

Legend: Firearm suicides | Non-Firearm suicides

Variable: Non-Firearm suicides
States with the Highest Rates of Gun Ownership: 9,172

For redesigning the above data product, I cleaned and wrangled the data. Following is the link which can be referred for data wrangling.

Link: https://github.com/amritasharma05/Redesign-Data-Product/blob/master/redesign3_GunOwnership.ipynb

My approach for this redesigning this data product was to show a clear correlation between Gun Ownership and Firearm Suicides. And since the number of data points were so few that was a real challenge. I used two different colors to show a clear distinction between non-firearm and firearm suicides.

I used a deception technique to create an exaggerated effect that clearly shows that States with lowest Rate of Gun Ownership has less total suicides as compared to States with Highest Rates of Gun Ownership. By changing the scale same for both there is actually a clear comparison between the two. Hence this makes the redesigned data product a deceptive and improved version as it clearly able to correlate that higher gun ownership means higher firearm suicides.

Since this dataset is very limited and I wish to use the related state information with this dataset to add another dimension to the data product.