Assignment 1
Data Visualization
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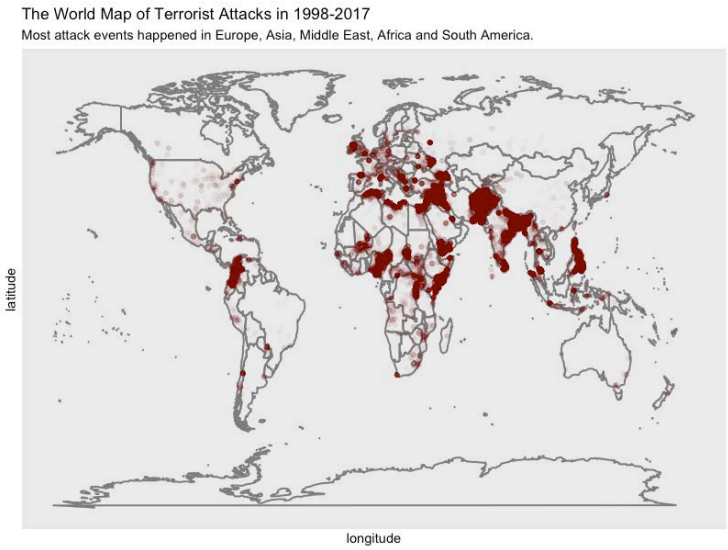
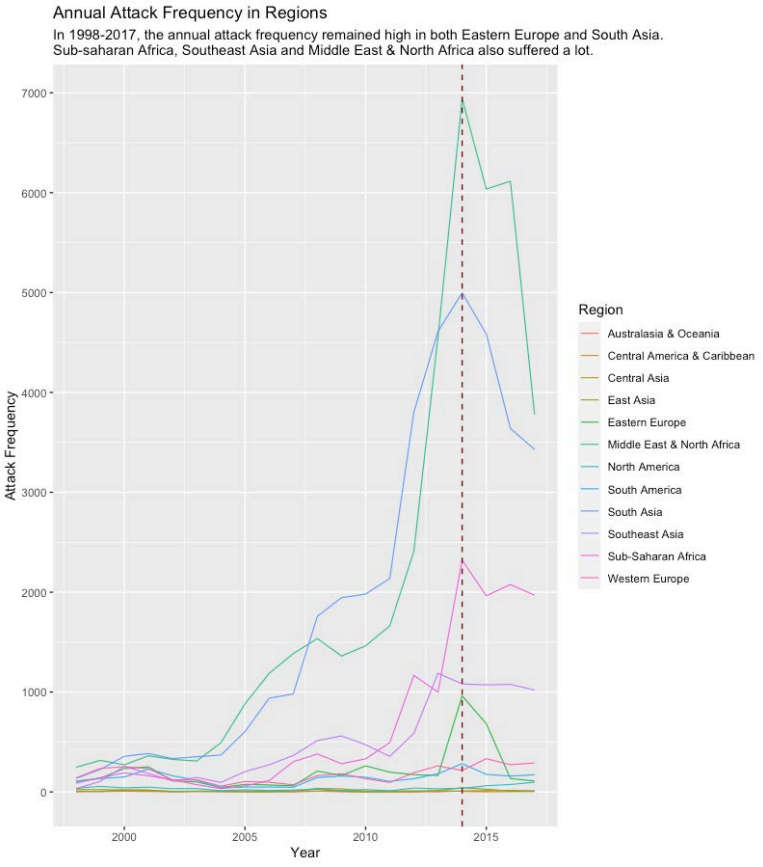
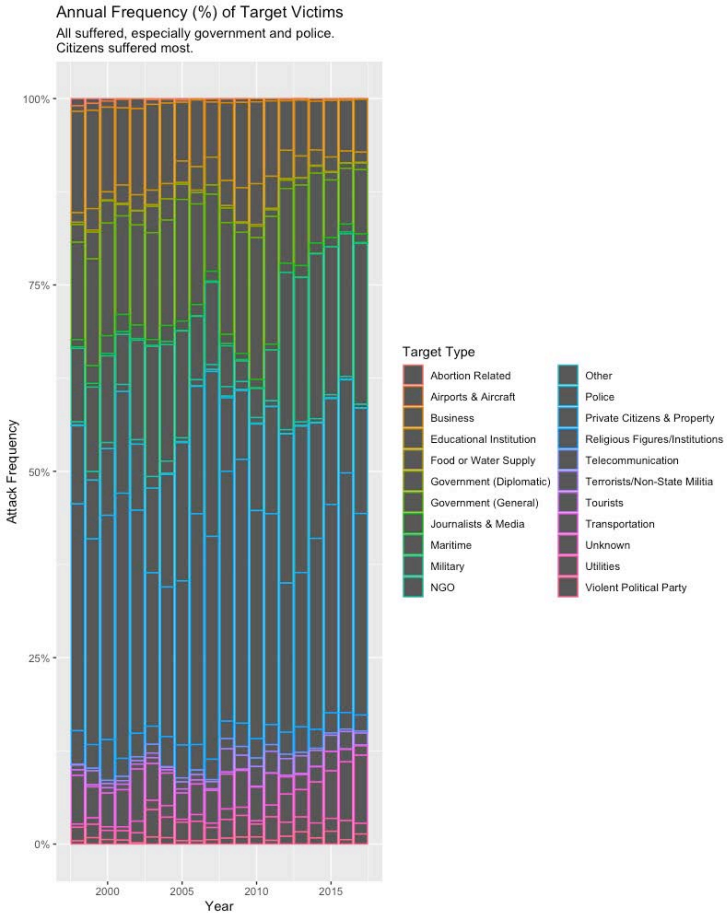
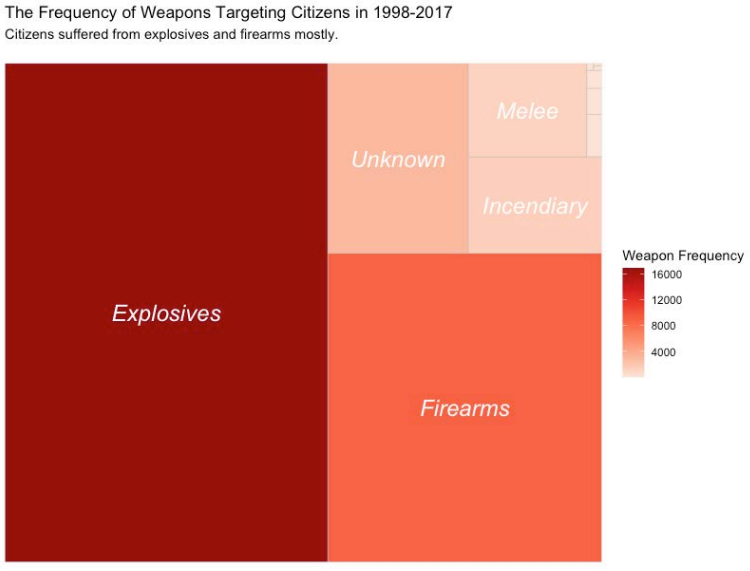
Visualization: an image of your data visualization that is in a high enough resolution that it can be read in the PDF.

Who Suffered from Terrorist Attacks, from 1998 to 2017









National Consortium for the Study of Terrorism and Responses to Terrorism (START), University of Maryland. (2019). The Global Terrorism Database (GTD) [Data file]. Retrieved from https://www.start.umd.edu/gtd.

A short write-up (2-4 paragraphs) explaining your visualization and your approach, justifying your design choices, and explaining the data used. Based on your exploratory data analysis, also propose some interest areas for further analysis and model building.

Plot 1: The World Map of Terrorist Attacks in 1998-2017

On the world map, *plot 1*, every point represents a data point of attack in blood color to provide a geographical view of terrorist attacks. Darker areas are where attacks happened more. In 1998-2017, most attacks happened in Europe, Asia, Middle East, Africa and South America. Besides, America is the only country where attacks happened across the country among top 4 largest countries by area (Russia, Canada, China, United States).

Plot 2: Annual Attack Frequency in Regions

Plot 1 indicates where attacks happened most, but lacks specific regions and time-series analysis. The line chart, *plot 2,* shows attack frequency in different regions annually. In general, the top 3 dangerous regions are Middle East & North Africa, South Asia and Sub-Saharan Africa, where the peak was in 2014. Particularly, the frequency of attacks increased sharply in Middle East & North Africa and South Asia from 2005 to 2014.

One comforting fact is that the frequency of attacks generally decreased from 2014 to 2017.

Plot 3: Annual Frequency (%) of Target Victims

Plot 2 shows where people suffered from attacks most, but the dataset even allows us to explore different target types. In the percent stacked bar chart, *plot 3*, I draw annual attack frequency of each target type to make comparisons. Bars with blue line are obviously the longest among colorful bars in each year, which represents how much Private Citizens & Property always suffered.

Other two target types suffered most are Military and Government (general).

Plot 4: The Frequency of Weapons Targeting Citizens in 1998-2017

Plot 4 helps find out what weapons target citizens most. The nightmare comes from Explosives and Firearms mostly.

Further Analysis

We can conduct more political researches based on the plots of geographical view, time-series analysis, group analysis and tree map. For example, increasing attack frequency near 2014 might relate to the chaos in specific regions.

Plot 4 has warned us of the explosives which usual security screening exactly prevents. Similarly, more data exploration of targets and weapons will help with preventative measures.

The upsetting fact reminded me of the risk and how victims, especially innocent citizens suffered from terrorist attacks. However, I also observed hope in the decreasing attack frequency in *plot 2*. Analysis about recovery and preventative measures will further light up the darkness of sorrow and horror.