Visualizing Global Terrorist Attacks -Project Proposal

Team Info:

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GitHub repo:

https://github.com/Sreeja-coder/DataVizProject

https://github.com/Indu4598/DataVizProject

Background and Motivation:

With the technological advancement in the weapon sector the threat of terror attacks has been on rise ever since. We have read about a lot of attacks that have happened globally. Processed details of the attacks. But the database of the information available is vast and it would be difficult to assimilate all the information, and the attacks have happened over a period and if we want to compare the impact or any minute details we would have to plough through a lot of textual data.

This is where data visualization steps in. The human brain processes information very differently; for us using charts or graphs to visualize large amounts of complex data is easier than poring over spreadsheets or reports or newspaper articles. Thus, Data visualization is a quick, easy way to convey concepts in a universal manner – moreover you can experiment with different scenarios by making slight adjustments.

So with our project we give a global picture of the attacks that have happened over a period of time. Which makes it easy to compare them and also derive important details of the attacks. Since it is available online it can be shared and viewed and discussed in meetings conducted across the world. Also our project allows to filter the attacks based on few parameters such as weapons used or intensity of the attacks which could help the officials extrapolate the spike in sales of weapons in black market etc.

We therefore propose Visualization of Terrorist Attacks as a tool that will help officials and interested people to gain useful insights into global terrorist attacks.

Project Objectives:

The dataset available to us is an assimilated information about attacks from 1971 to 2018. It takes you through specific locations and the intensity of attacks and other details. The aim of our project is to visualize this heavy data in a more meaningful and useful manner.

In the process we want to learn to work with maps and add features like zoon in and out. We also want to learn new ways to map spatial-temporal data and learn about appropriate channels to represent data.

By the end of the project we are positive that we will have a good clarity on how to visualize data and the marks and channels appropriate for it.

Data:

http://eventdata.parusanalytics.com/data.dir/atrocities.html

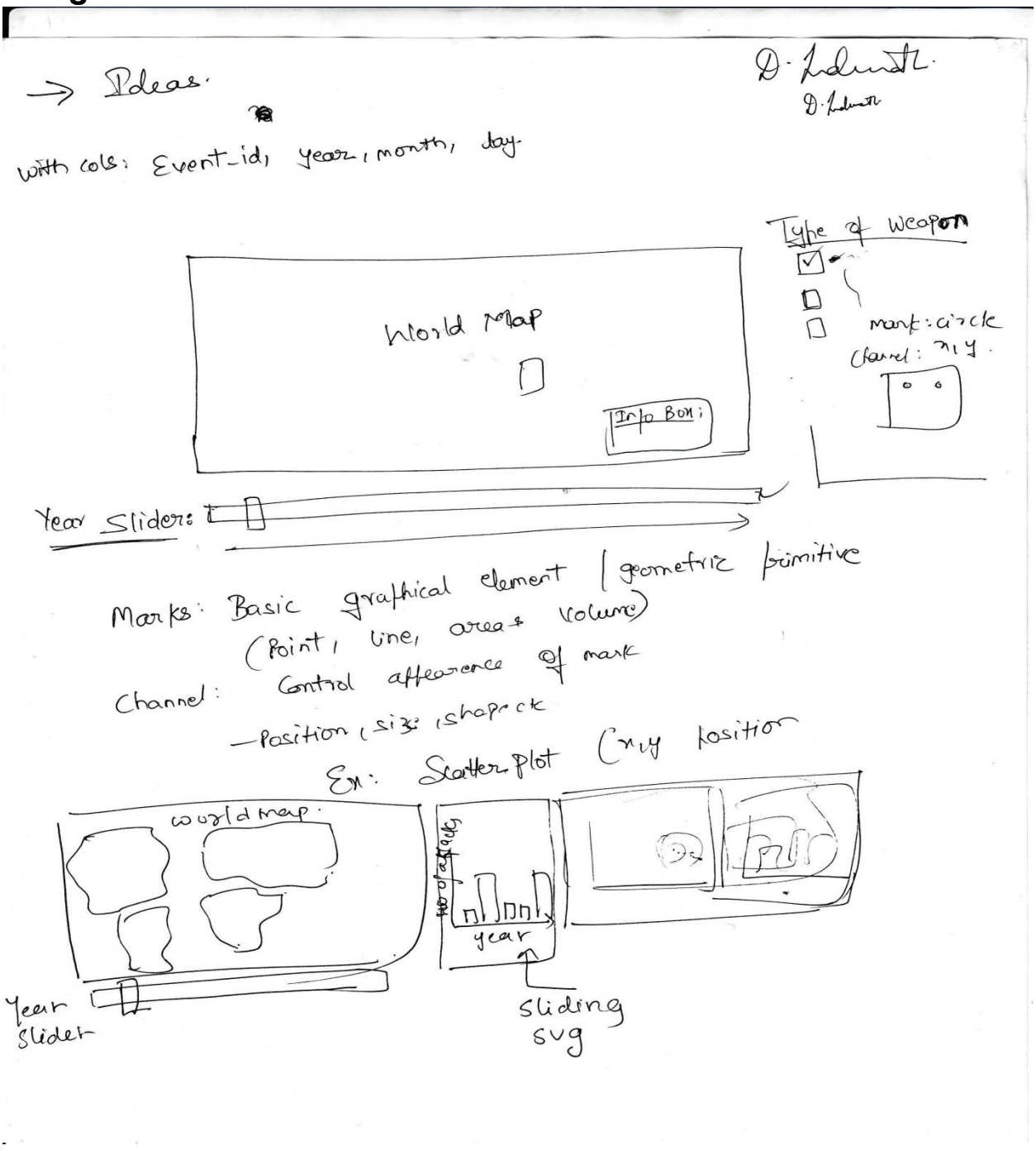
Data Processing:

We don't have to do much of data-cleaning. It is already in .csv format.

But the columns have empty rows which we have to take care of and we have to restructure the data to suit our project implementation

Visualization Design:

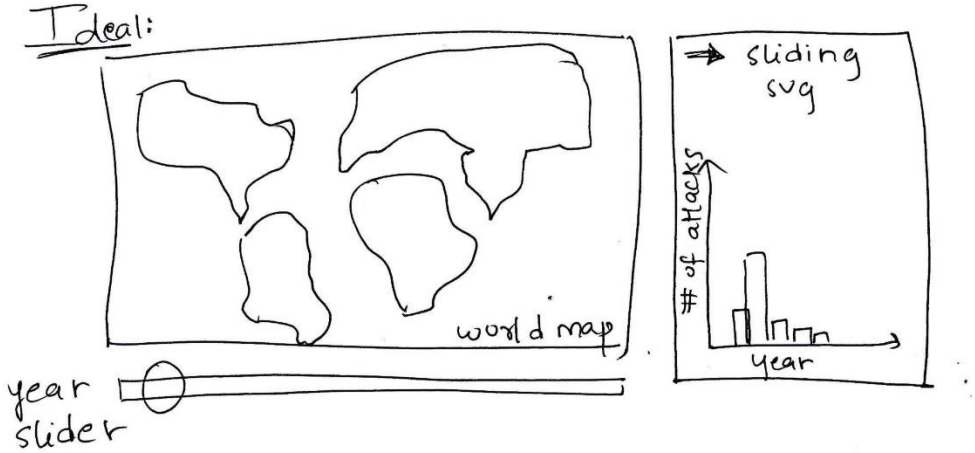
Design 1:



Design 2:

Sheet 1- Brain Storm.

Ideal:



Marks:

Area (for bar chart, when selected a particular country on the map)

World Map. (plotting attacks as per the year)

Geometric figure to indicate intensity of attacks

eg: △ for intensity < 100

□ for intensity > 200

Channels:

length (# of attacks in that year)

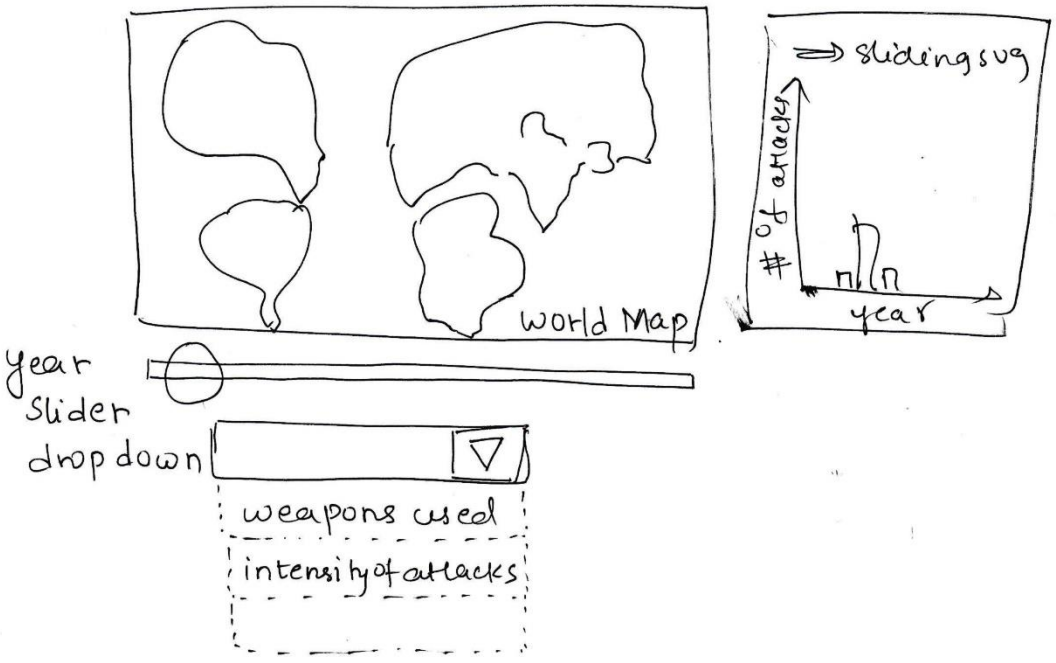
longitute / latitude (for maps position)

colour (when particular country is selected)

Design 3

Sheet 2: Brain Storm.

Idea 2:



Marks:

Area (for barchart, when selected a particular country map)

World map (plotting attacks).

Geometric sig (to indicate intensity of attacks)

Channels:

length

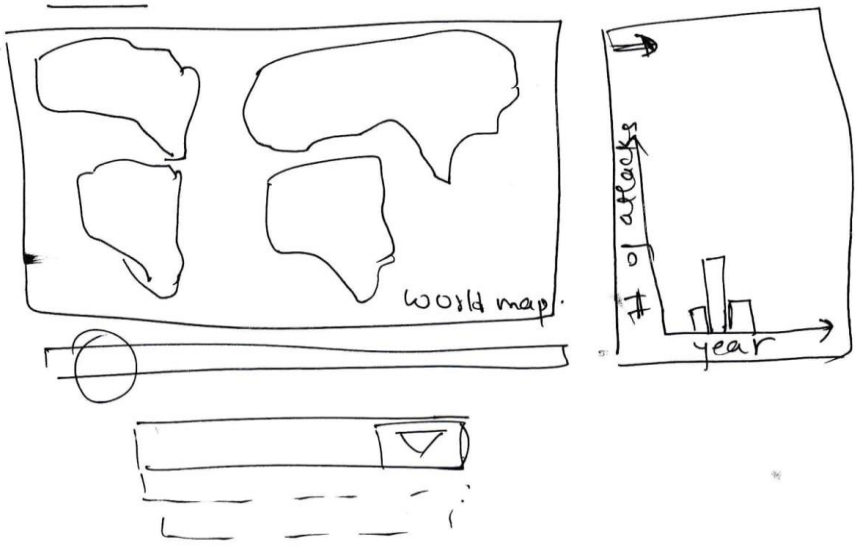
graticule.

Colour

Design 4

Sheet 3:

Idea 3:



We can use heat maps to plot the intensity of attacks globally for a year

We can also select drop down menu and change the representation of heat maps.

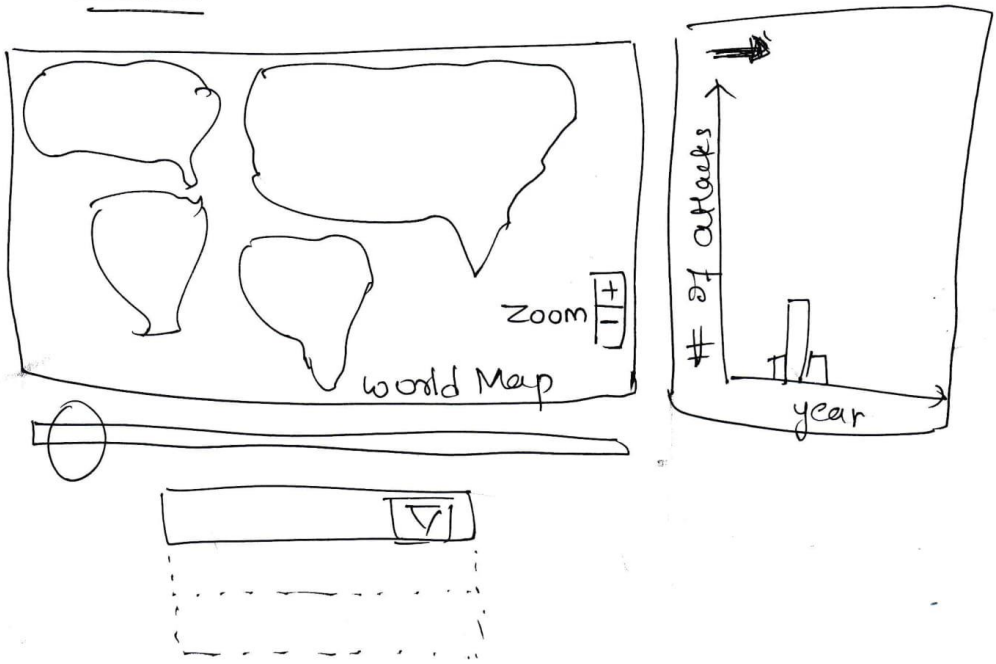
Marks: area, world map, geometric fig

Channels: length, graticule, colour.

Design 5:

Sheet 4.

Idea 4:

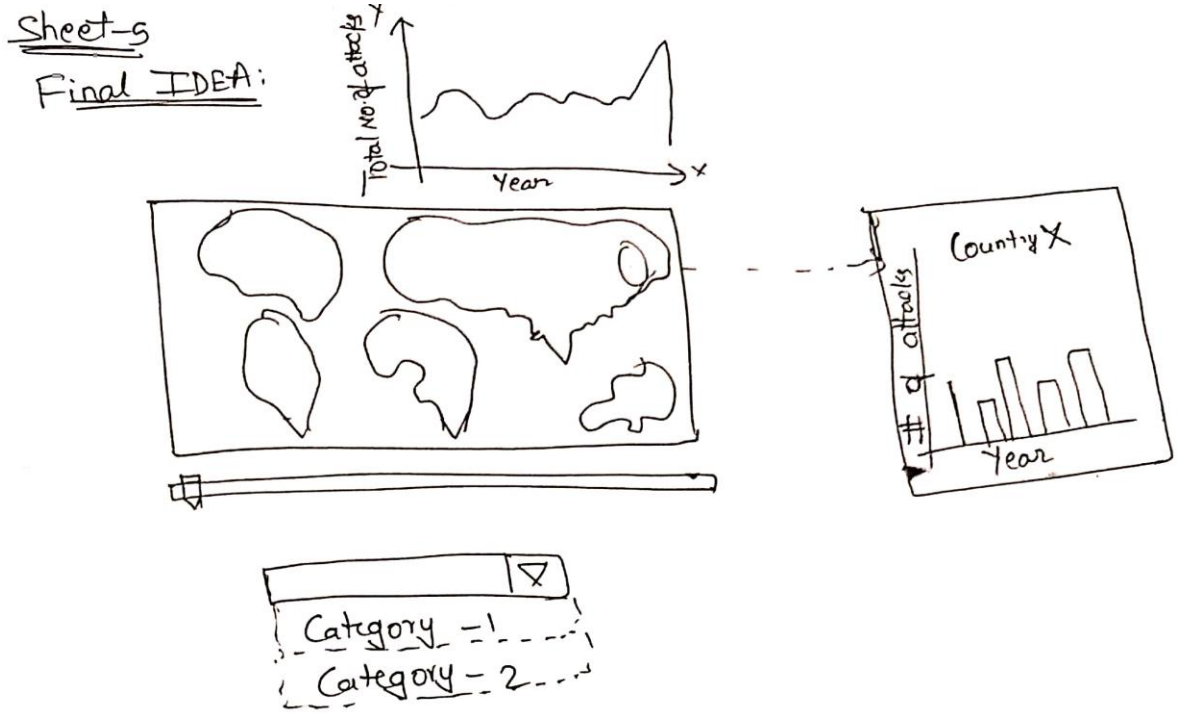


- use heat maps to plot the ~~insith~~ intensity of attacks.
- we can use zoom feature to drill down to the target location

Marks: area, world map, geometric fig.

Channels: length, graticule, colour

Final Design:



Must-Have Features

1. Maps
2. Year-Slider
3. Charts
4. Zoom-in-out

Optional Features

1. Brushes
2. Heat maps
3. Iso-charts based on the weapons used
4. Visual encoding of the weapon on the map

Project Schedule:

- Week-1

    1. Meeting Professor Alexander Lex and the TAs to fine tune our ideas.
    2. Data-Processing as the data primarily using python to format the unstructured data.
    3. Develop world map with basic features like zoom in and zoom-out

- Week-2
    1. Developing line chart that shows the aggregate attacks. i.e. time series linked with the map.
    2. Adding dynamic division based upon the selection of region of a map
- Week-3:
    1. Add aggregated statistics in the dynamically created division.
    2. Dynamically changing the map based on the selection on parameters like weapon type, intensity of attack and type of attack.
- Week-4:
    1. Fine tuning the project
    2. Testing if all the functionalities are working.
- Week-5
    1. Final Project Deadline.