



Visualizing Global Terrorist Attacks -Process Book

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Overview 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.

Questions:

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 and hope to answer the following questions:

- 1.Track the genesis of different terrorist groups over the period of time
2. How the mode of attack has changed over the course
3. Frequency and intensity of attacks
- 4.The shift in target locations

Data:

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

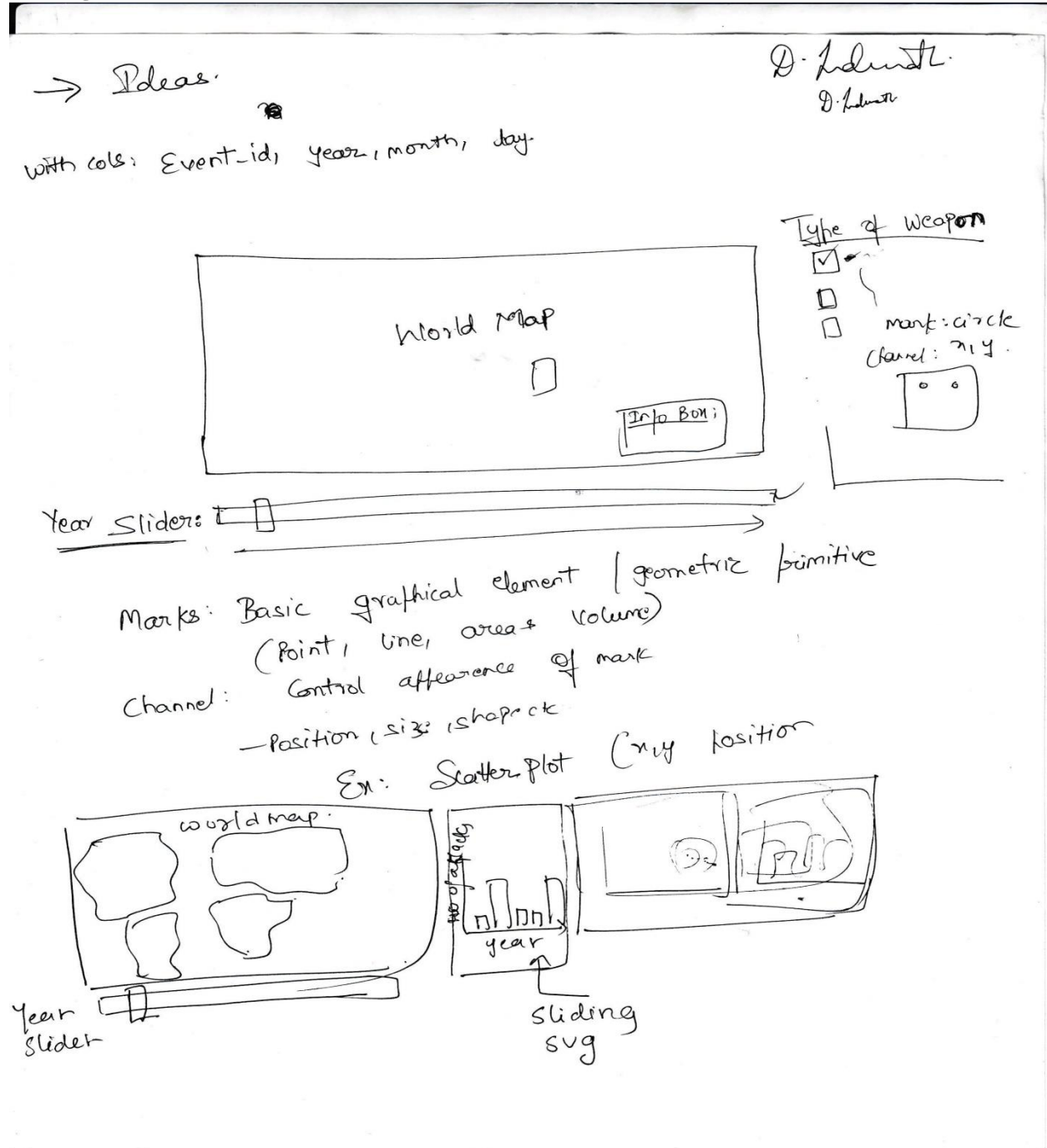
Exploratory Data Analysis:

We used python to analyze the missing values and accordingly subseted the data.

Design Evolution:

Project Proposal Designs:

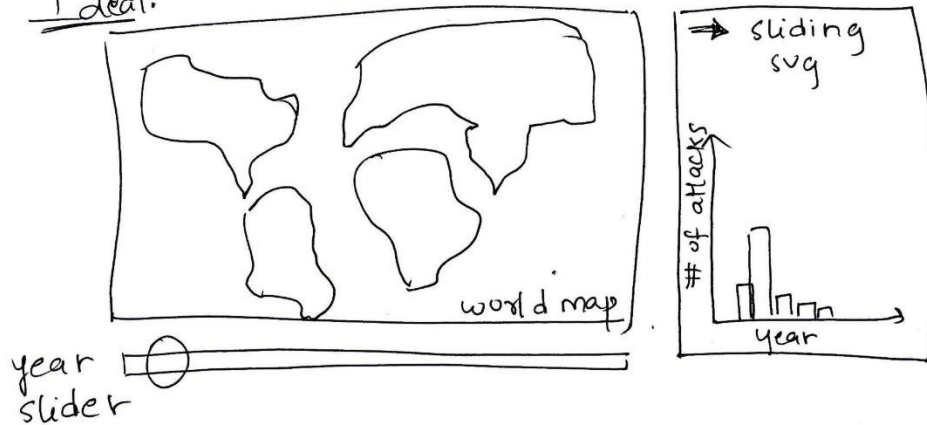
Design 1:



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: Δ for intensity < 100
 \square for intensity > 200

Channels:

length (# of attacks in that year)

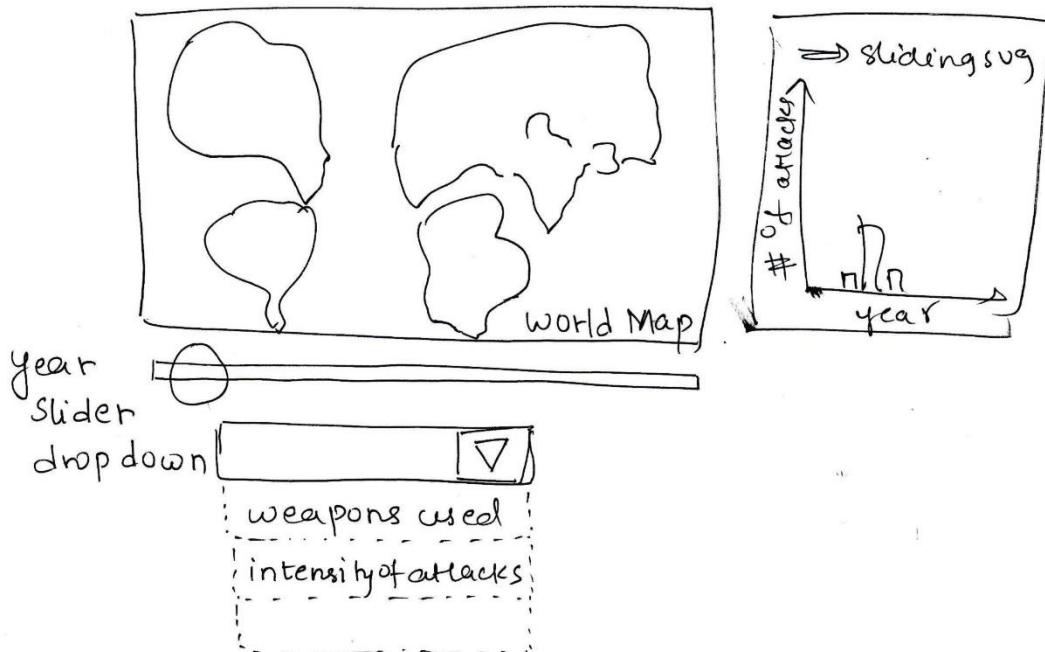
longitude / latitude (for maps position)

colour (when particular country is selected)

Design 3

Sheet 2: Brain Storm.

Idea 2:



Marks:

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

World map (plotting attacks).

Geometric fig (to indicate intensity of attacks)

Channels:

length

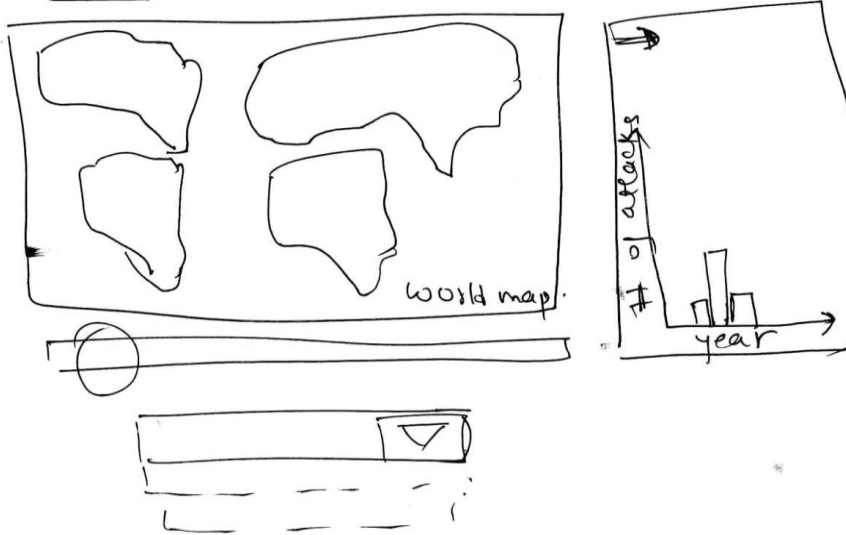
graticule.

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.

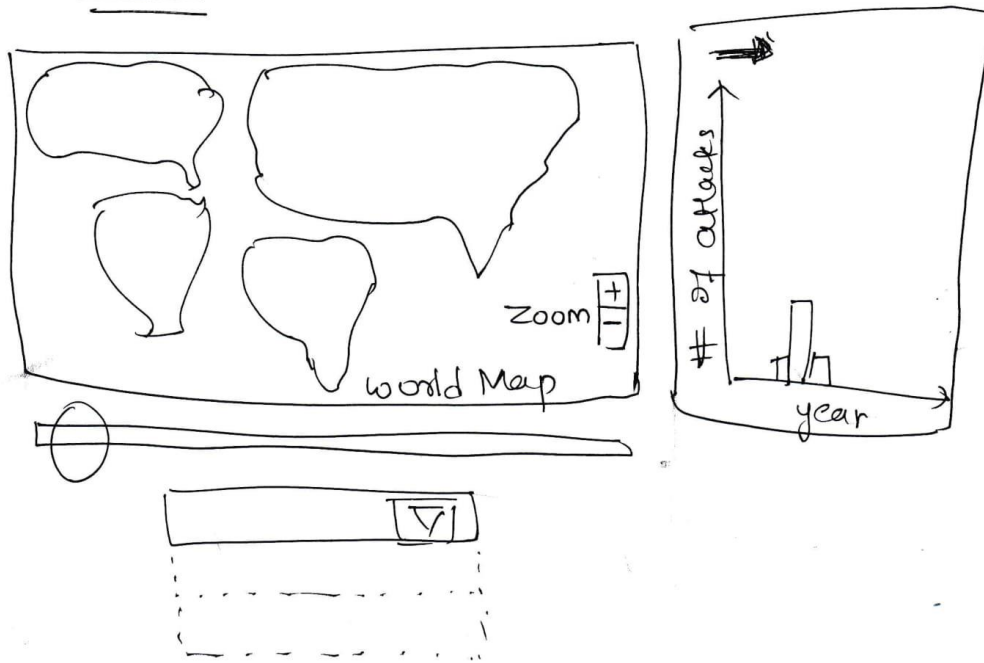
Marks: area, world map, geometric fig

Channels: length, graticule, colour.

Design 5:

Sheet 4.

Idea 4:



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

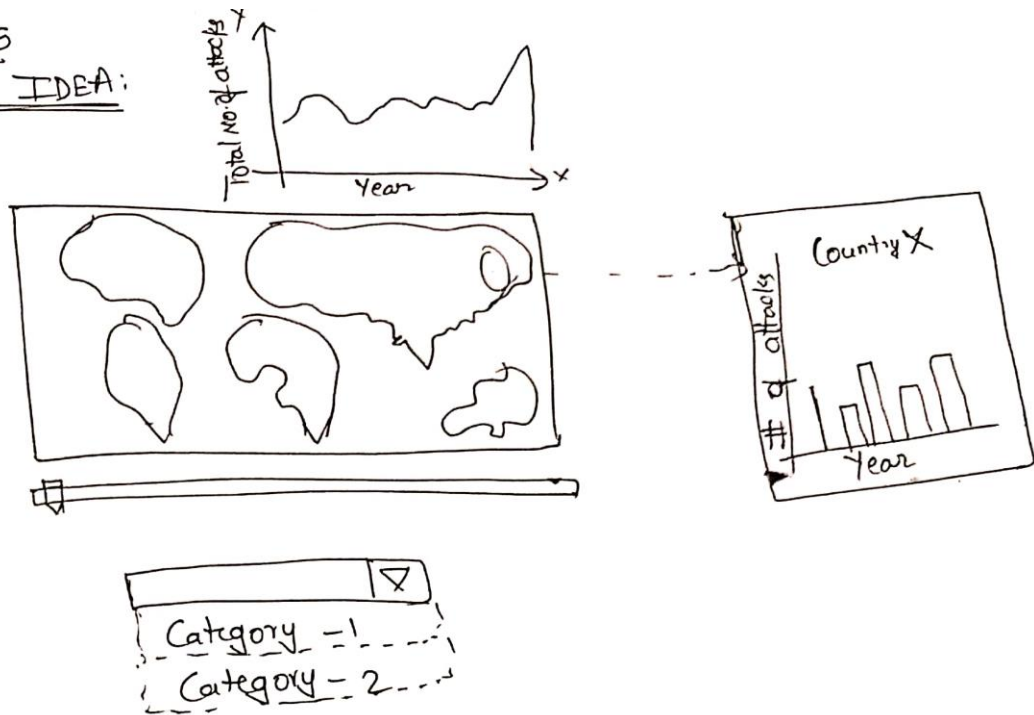
Marks: area, world map, geometric fig.

Channels: length, graticule, colour

Final Design:

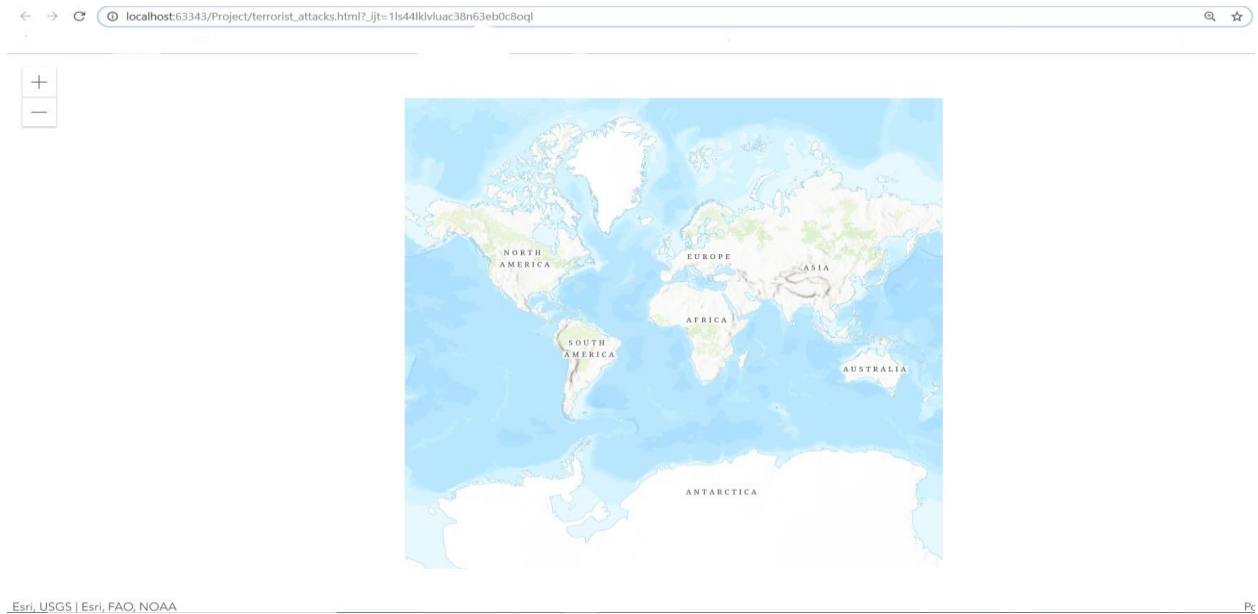
Sheet-5

Final IDEA:



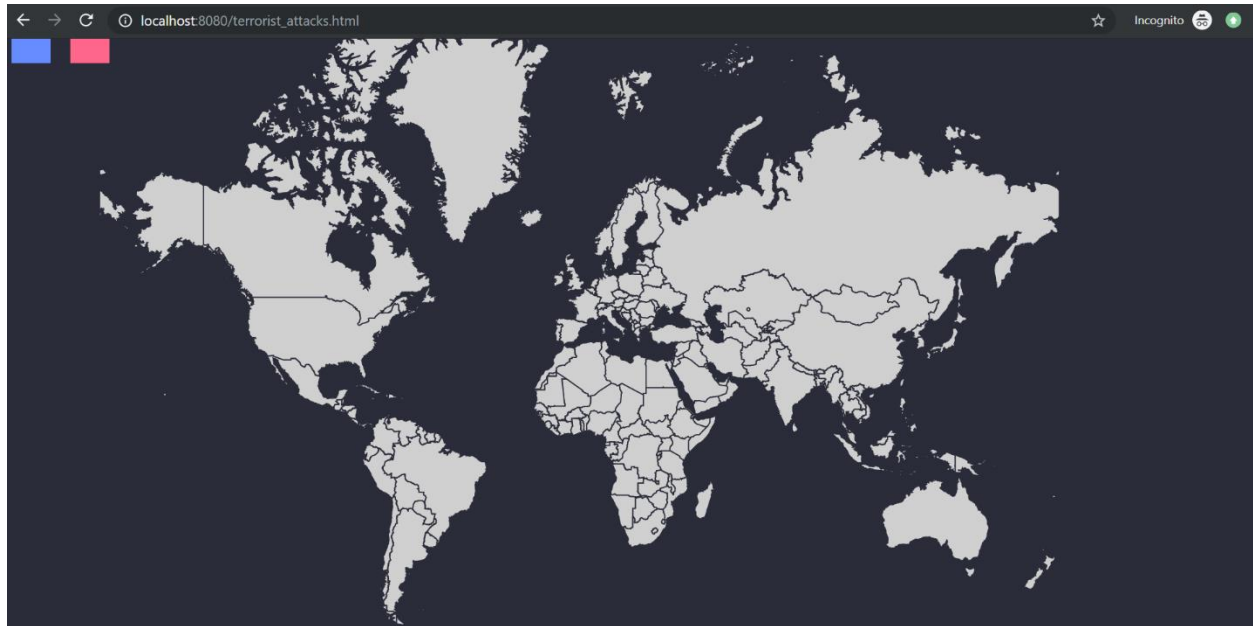
Additional Designs:

Initial State:



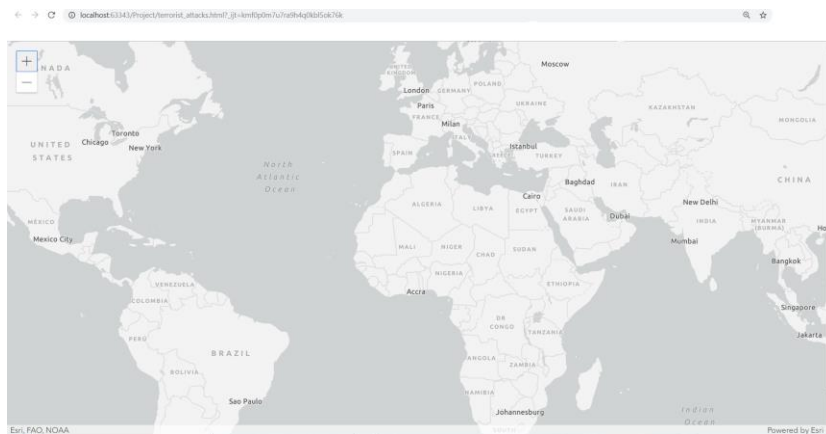
Design decision: Doesn't fit the context and connotation hence dropped it

Intermediate State:



Design decision: Geojson file is too heavy and takes time to load or to zoom in-out the map hence trying to implement the next stage using api

Next stage:



Implementation Evaluation:

Peer Review:

Project Objectives:

- ① infer information from the visualization
- ② answer Qs or have storyline
- ③

Visual Design:

- ① Useage of color encoding instead of shape for visualizing the intensity of attack
- ② Change the story or the chart being showed at when selected on a particular region
- ③ Include default option in the Checkdown, when selecting the category
- ④ Add year scale on the year slider

