GUN VIOLENCE IN THE USA

ABHISHEK CHANDRAN
abhishek.chandran@utah.edu
uID: u125771

VENKATESH SHARMA
venkatesh.sharma@utah.edu
uID : u1061421

PROJECT REPOSITORY:
https://github.com/abhishekchandran/us_mass_shooting_analysis

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BACKGROUND AND MOTIVATION

Gun violence in the United States results in tens of thousands of deaths and injuries annually. The US has by far the highest number of privately owned guns in the world. It's one of the few countries in which the right to bear arms is constitutionally protected. The primary reason to choosing this project is motivated by mass shooting events that have been taking place regularly for instance an shooting event that took place on the night of October 1, 2017, where a gunman opened fire on a crowd of concertgoers at the Route 91 Harvest music festival on the Las Vegas Strip in Nevada, leaving 58 people dead and 546 injured.

PROJECT OBJECTIVES

The main objective behind the project is to analyze how the proportion of mass shootings in the US has changed across past few decades. This is intended by developing an interactive visualization where the analyst will have the ability to get "detail on demand" stemming from overall view. This project will answer questions like which year wise number of deaths due to firearms? Safest and worst hit states in US and show the relationship between the number of deaths due to gun in a state and how strict are gun laws in that particular state i.e. we are trying to answer if gun laws and no of deaths are related to each other.

We look forward to this project as a learning opportunity where we can grow our skill sets academically and professionally by showcasing the visual design skills with the use of JavaScript and its D3.js library. We would learn about the implementation of best visual encoding techniques. This project will also serve as a platform to use the efficient Data-visualizations and can then be applied to diverse set of Data where one need to make comparison of any event over the years and spread across different geography. Also, this project experience will help us understand better about what type of visualization to choose to convey the insights out of any data set clearly and appropriately.

DATA SOURCE

We are collecting mass shooting data from kaggle's datasets and state respective gun law details from statefirearmlaws.org.

[1] https://www.kaggle.com/carlosparadis/stanford-msa/data

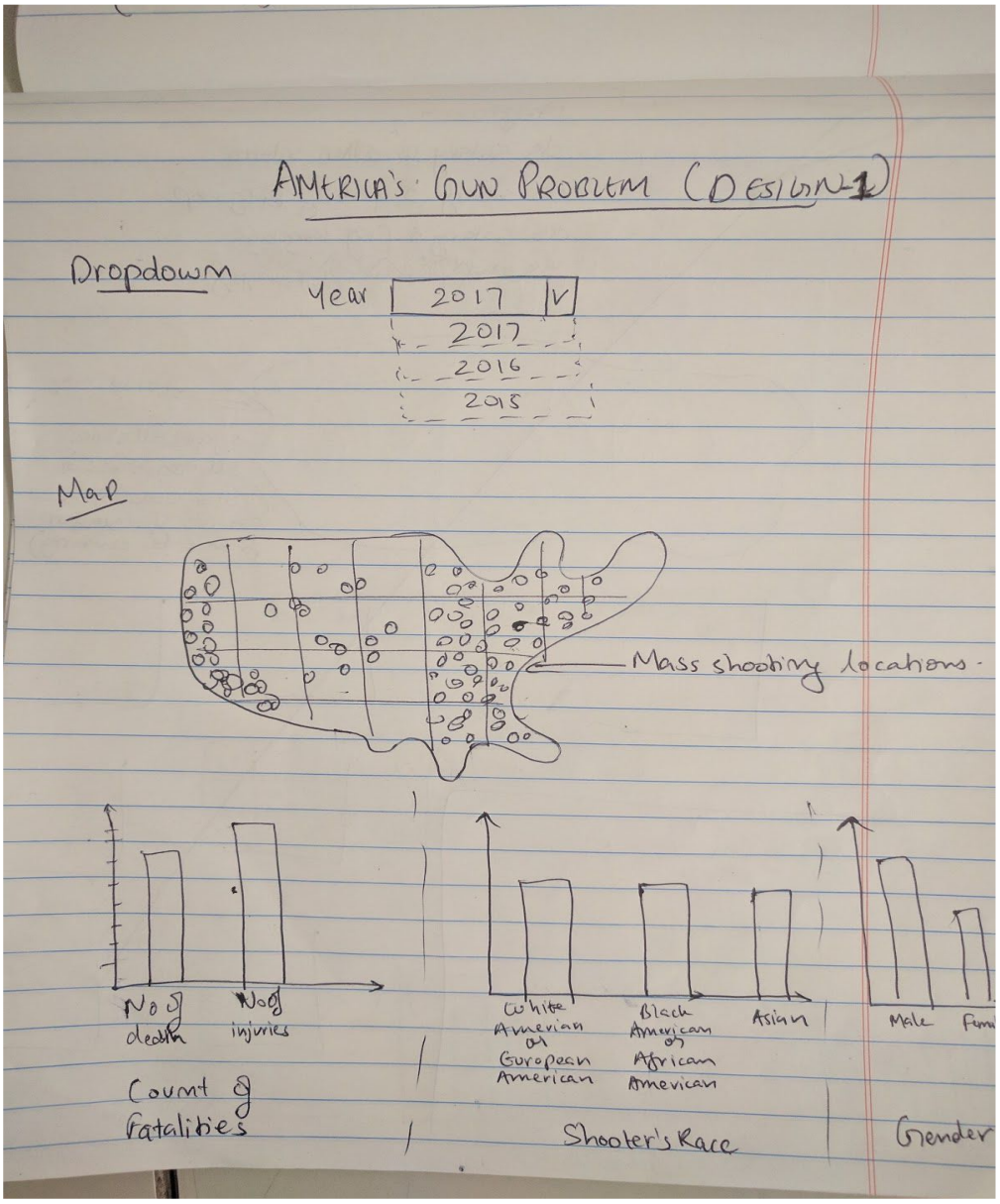
[2] https://www.statefirearmlaws.org/table.html

DATA PROCESSING

The dataset we got from kaggle and statefirearnlaws website have all the attributes we would need to implement necessary visualisations, and as of now we don't see any need of data processing.

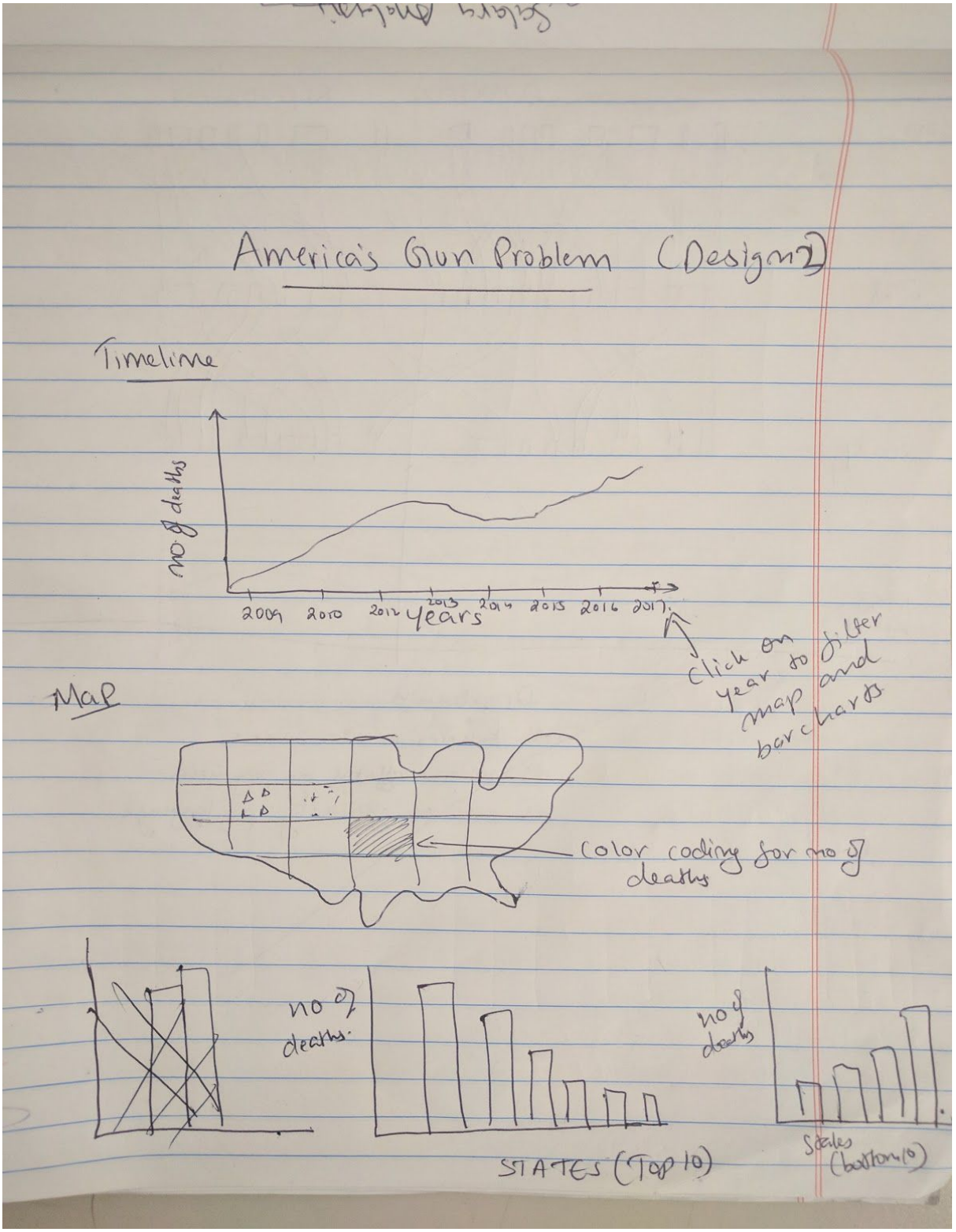
VISUALISATION DESIGN

DESIGN-1



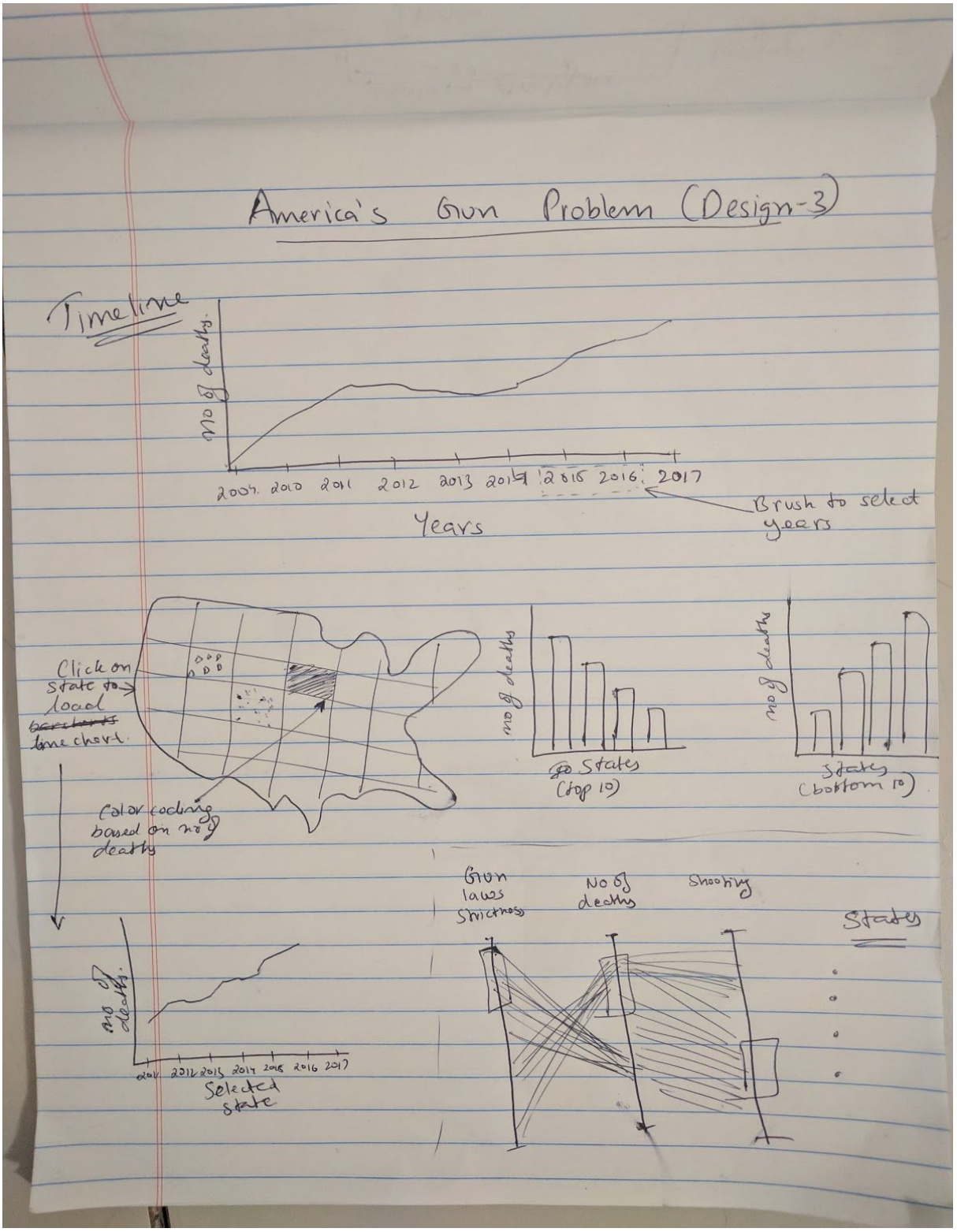
In this design we thought of providing the user a filter option through drop-down, so that he can select the year for which he wants to view different charts. It has a map which shows the density of shooting that have taken place in each location and is represented by circles. Based on year selected through drop-down, three bar charts will be rendered which will show count of fatalities, shooter's race and gender.

DESIGN-2



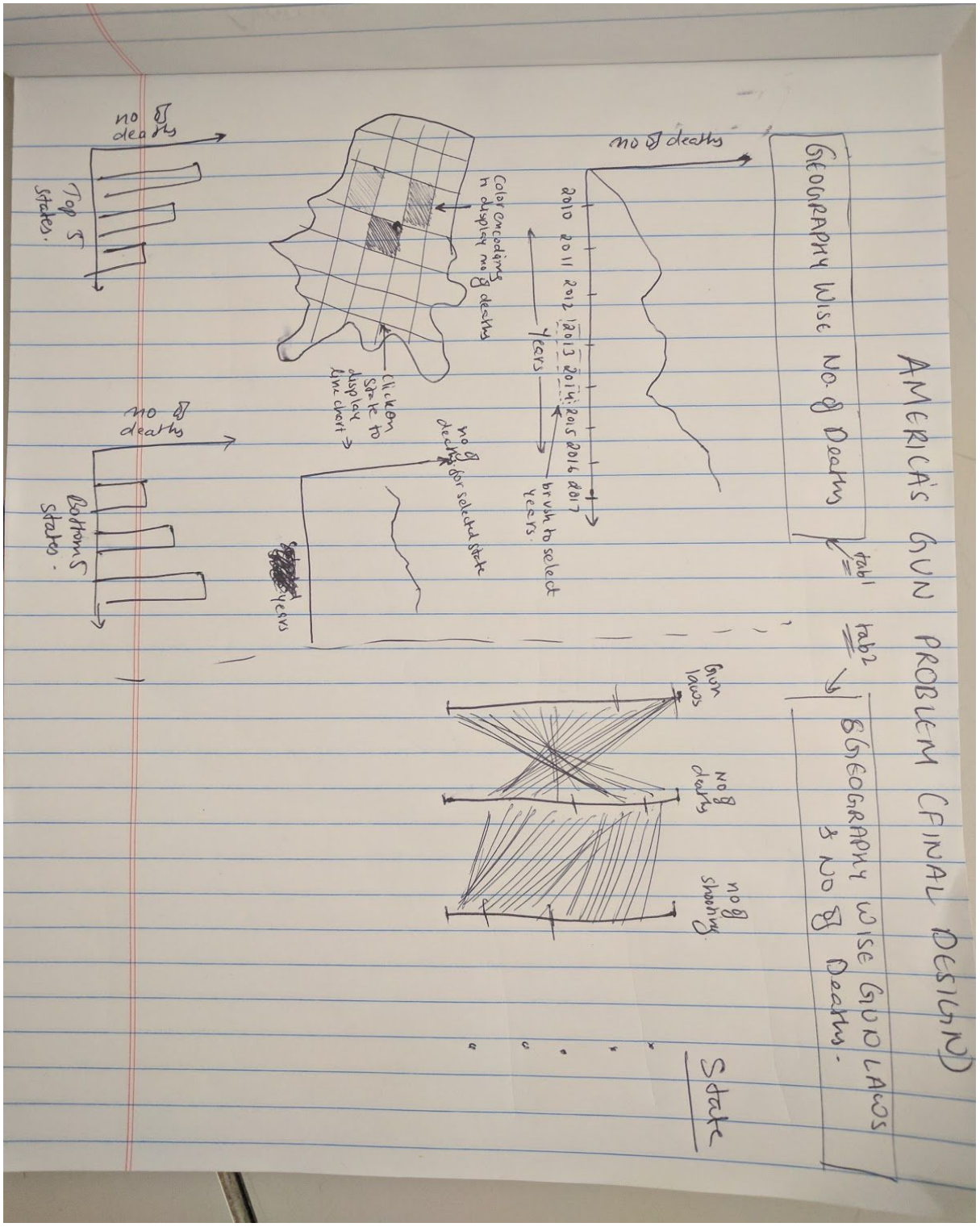
In our second design, we decided to get rid of the filter through drop-down and show a timeline story showing overall picture over the years, and filtering can be done by clicking on the labels on x-axis i.e. years. We changed the map from previous design to a map that shows color coded states based on number of deaths. We also replaced the attributes of the bar graphs with top ten states and bottom ten states w.r.t number of deaths.

DESIGN-3



I our third design we have replaced clickable years on timeline with brush selection i.e. now user can select visualisation for multiple years. Clicking on states in map displays a line chart that shows trend in that state over the years. We have added one more chart, parallel chart, which has three columns each depicting gun law strictness, no of deaths and no of shooting, it can used to depict relationship between law strictness in each state and no of deaths.

DESIGN-4



This is our final design where we have segregated parallel chart and all other chart into two different tabs, as it gives a more clean view without much cluttering.This is the best taken from all the above designs.

MUST HAVE FEATURES:

1) Timeline showing no of deaths over the years, with brush selection for subsequent graphs.
2) Map with states color coded based on intensity of deaths.
3) Line chart showing death trend in selected state over the years.
4) Bar chart with top five and bottom five states w.r.t no of death.
5) Parallel chart showing relationships between state gun laws and no of deaths due to gun and no of shootings.

OPTIONAL FEATURES

1) On map show intensity of deaths with more precise latitudes and longitudes i.e. w.r.t to cities
2) Show country stats in a table that can be sorted on multiple parameters

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PROJECT SCHEDULE

Date	Group Member	
	Abhishek	**Venkatesh**
3rd Nov	Timline Graph	US Map
9th Nov	Bar charts	Line chart
17th Nov	Parallel Chart	Brush on all graphs
23th Nov	Highlight citites on map	Show data in table
29th Nov	Create Website	Complete Process Book