

## **Modern Gun Violence Trends in the U.S.**

Ky Lamoureux: [u1128400@uemail.utah.edu](mailto:u1128400@uemail.utah.edu),  
Alexandra Hurst: [alexandra.hurst@utah.edu](mailto:alexandra.hurst@utah.edu)

## **Initial Proposal**

Our goal is to create a visualizer for gun violence that makes it easy for the user to filter through and explore all the incidents of gun violence over the past several years. Since it seems that gun violence is on the rise this kind of visualization can be helpful to dispel any misconceptions one may have on the modern state of gun violence and hopefully be informative.

## **Processing data**

We decided to use a data set pre-collected from the Gun Violence Archive. In order to get this data ready for the visualization we needed to preprocess it using python so it could be easily manipulated in the DOM. We found after working with the data that there were some problems for the year 2013 so we are omitting it from our visualization and will only be showing data from 2014 to 2018 inclusive. To contextualize and normalize this data across the country we will be showing numbers on a per capita basis using the census data for population.

## **Questions**

The user should be able to see trends in gun violence across the country and be able to compare between different states on multiple categories to see how they differ. Sorting by gun violence incident attributes across user selected states is probably the most important feature. This will allow the user to answer questions such as which state has the most gun violence deaths among the state's i've selected and other such questions.

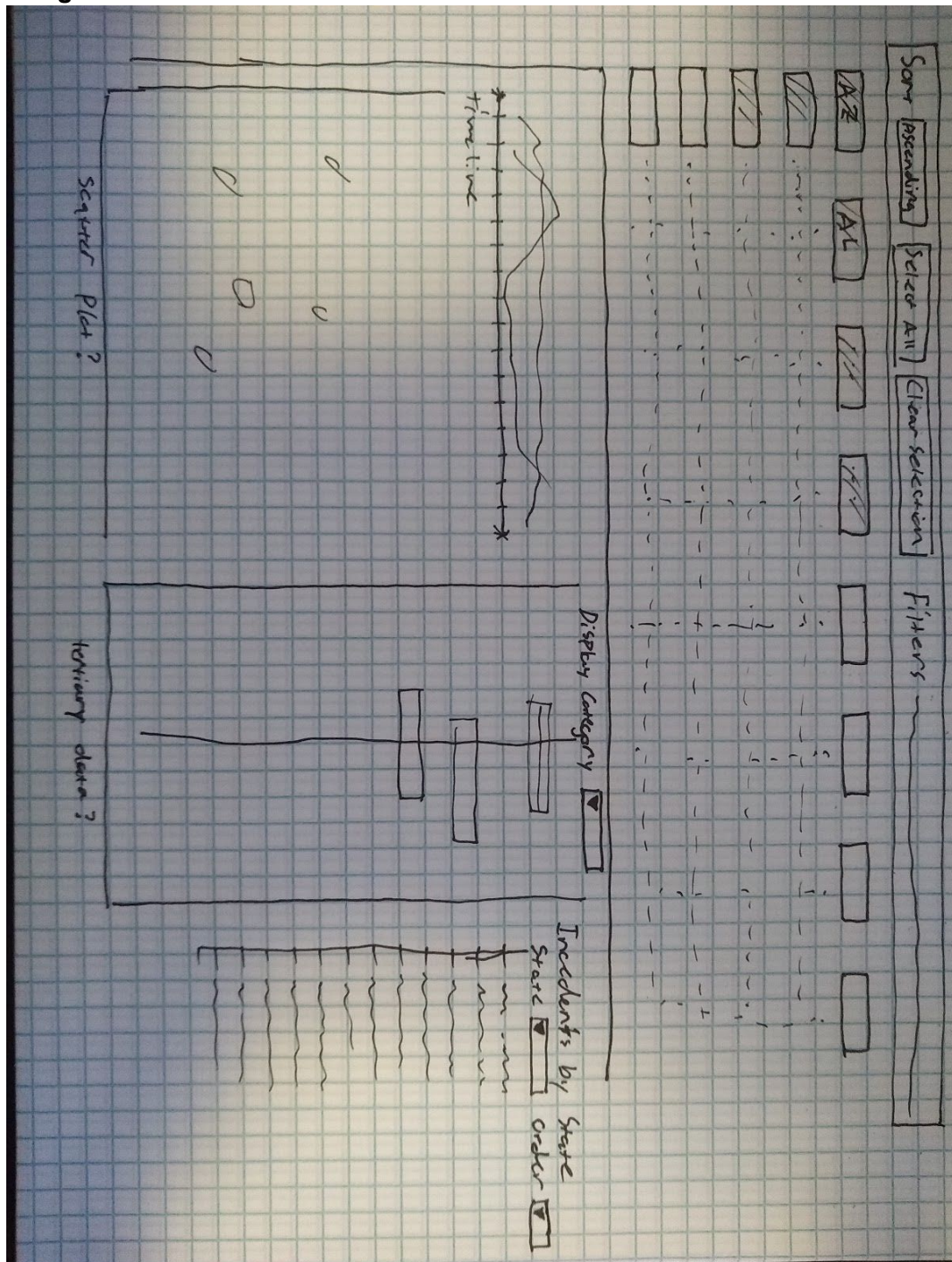
## **Exploratory Data Analysis**

The data shape and type was fairly straight forward based on the description of the data from our source. After reading through that we moved on to designing the visualization to allow the user to easily see how these attributes interact.

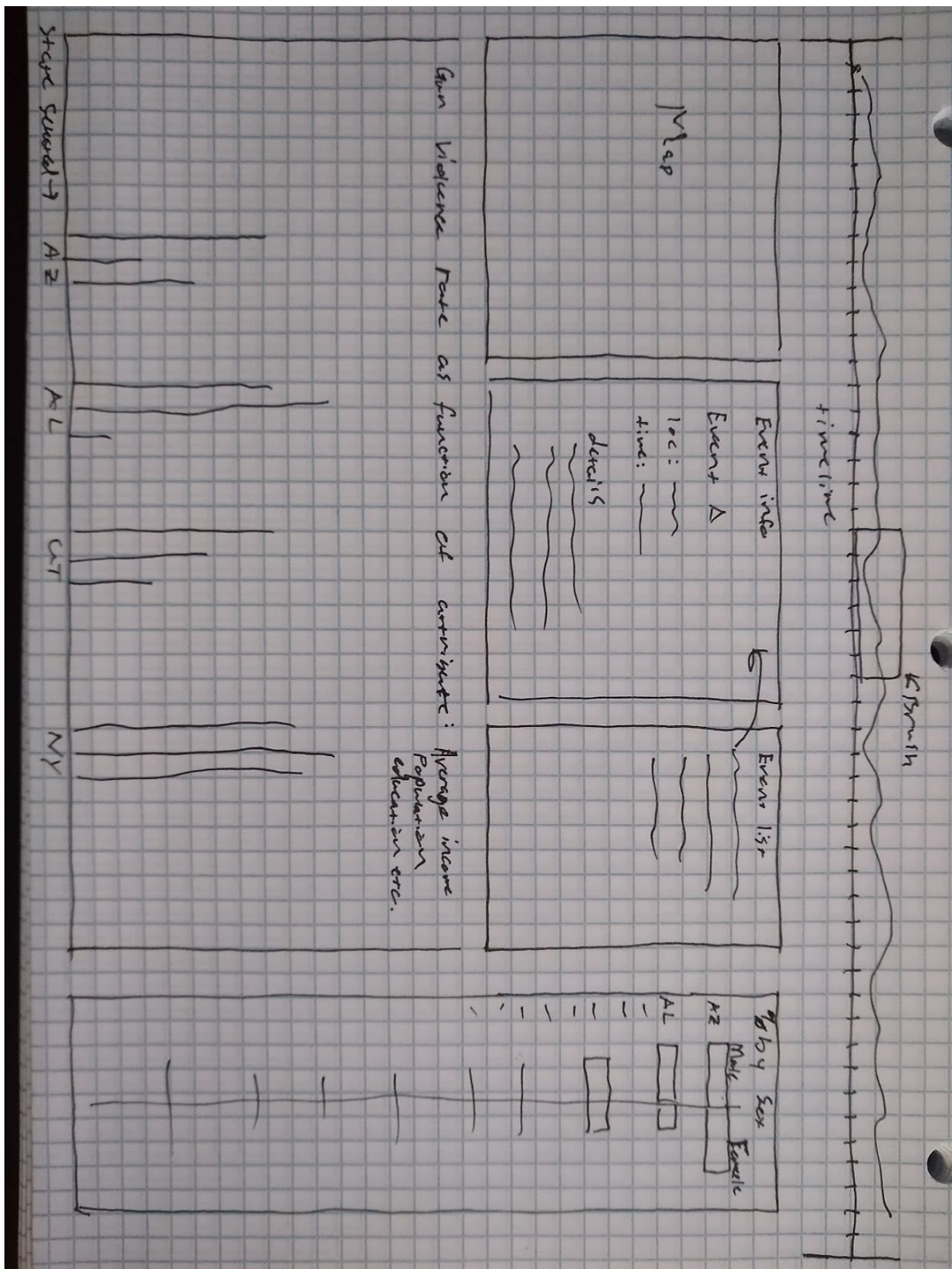
## Design

After looking at our data we moved through a quick iteration process to find a visualization that we thought would show the characteristics of the data and be easily navigable by the user.

### Design 1

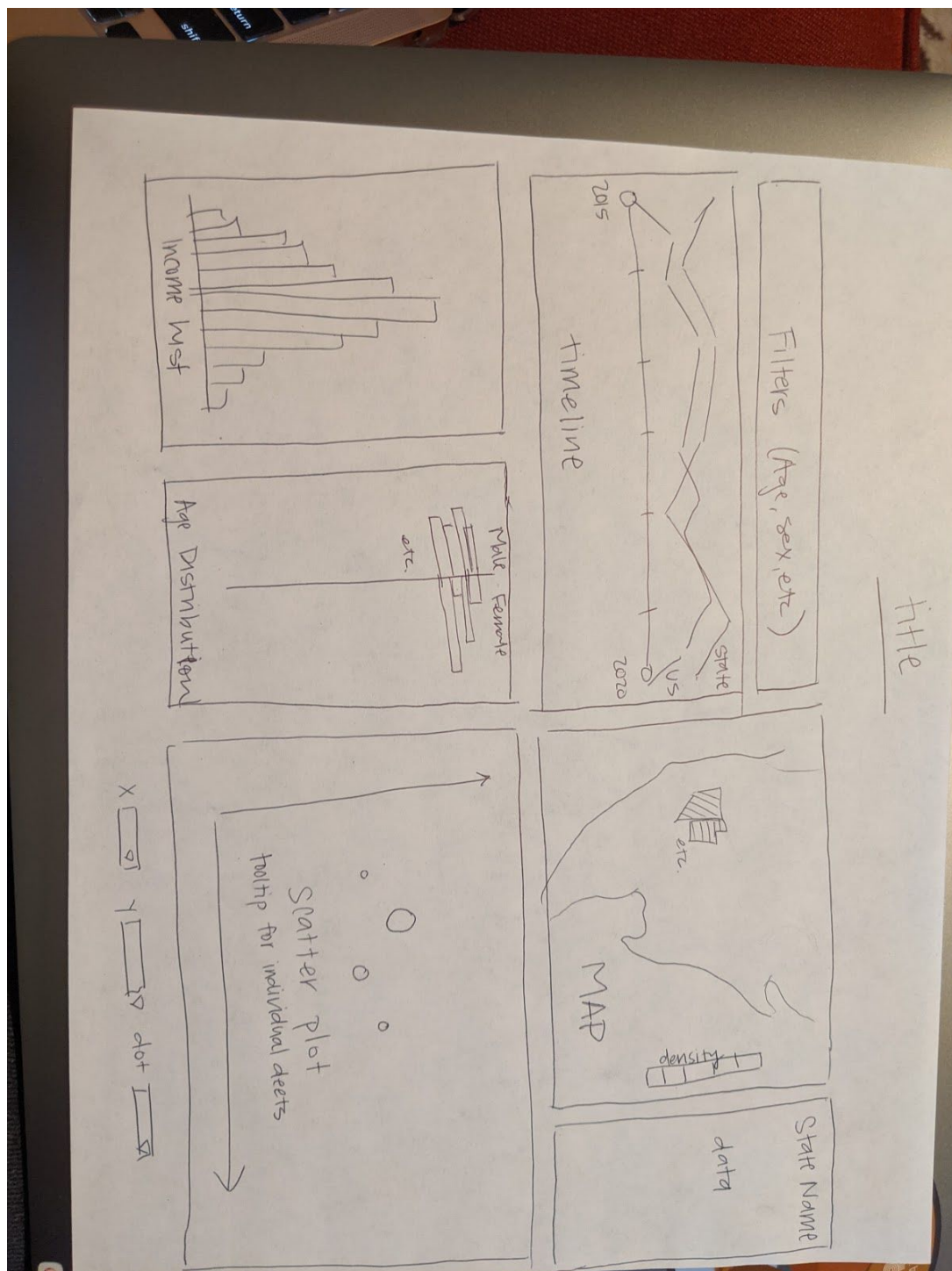


Design 2

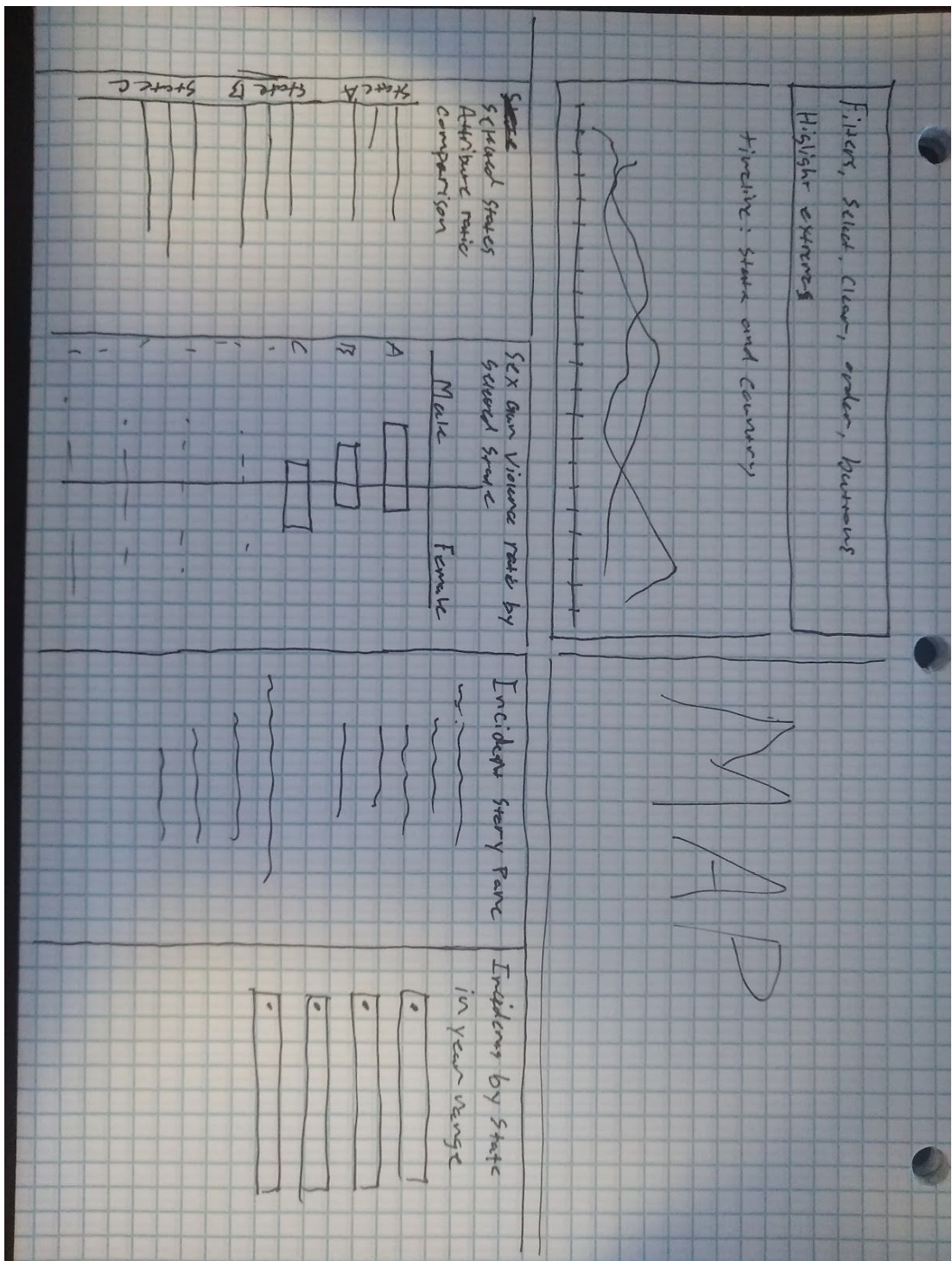




### Design 3



Final Design



## **Implementation**

We decided to go with a map for selecting and interacting with states because it should reduce clutter as compared to using a list of state labels. The final design incorporates multiple parallel views of which interaction is synchronized to try and make the data as transparent as possible. The male/female view pane is set out because it's the only type of data that has a constant dual attribute and the associated ratio is of relevance otherwise all other attributes can be condensed in an easy to read bar chart which is sortable in ascending or descending order by any of the available attributes. This way it is easy to quickly answer any question the user has about the data.

Our data includes incident information including url links to reports so we felt it was useful to show this to the user in an easily browsable way, which is the rationale behind the incidents selector and info box. The available information here should be updated based on the filters the user selects to avoid information overload.

In the selector box the user will have the ability to change their filtering scheme for all attributes, clear selections, and change order of filtering with the exception of incidents in a specific time frame, which is controlled in the timeline view.

In short this visualization's goal is to create a very quick and intuitive way for a user to filter across multiple attribute dimensions to find specific answers on our chosen topic.