

Interactive Data Visualization
IxD 6 | Fall 2015

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Team | Data Hound



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There's always so much more **behind the story**: the motive, the victim, the shooter, etc. We asked ourselves, **what if you could see the factors behind gun deaths and find patterns in these numbers?**

Based on a data set on people who have been shot and killed by police (from 2013 - 2014) and other data surrounding police shootings, we created **a correlative toolbox that allows the user to compare datasets** by choosing from a huge array of data categories.



Week 1



Exploring the Data



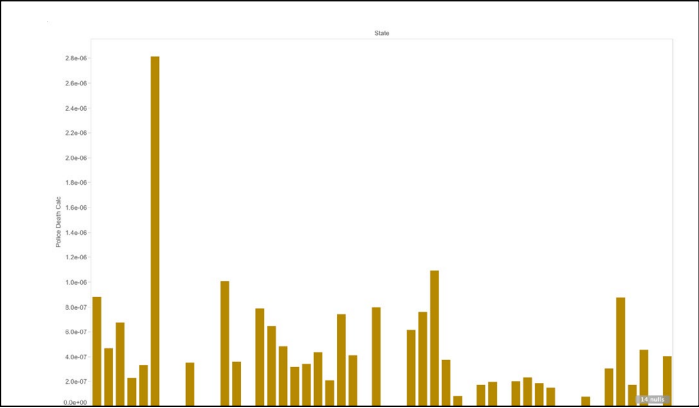
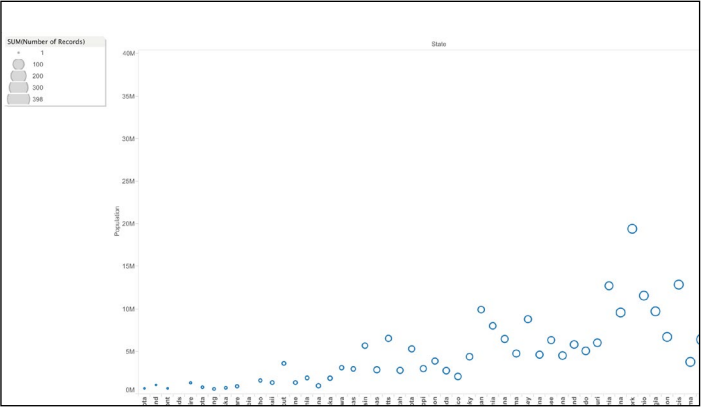
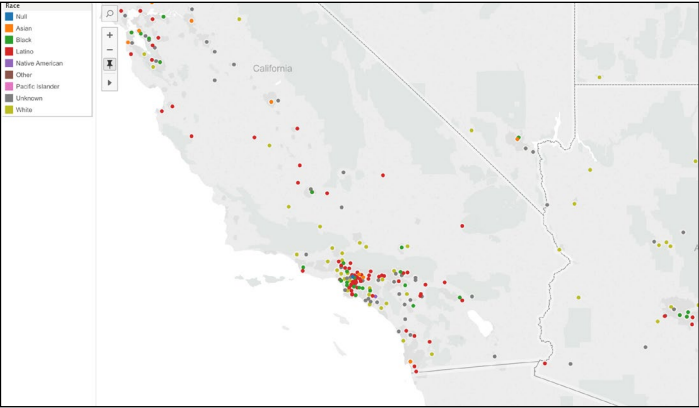
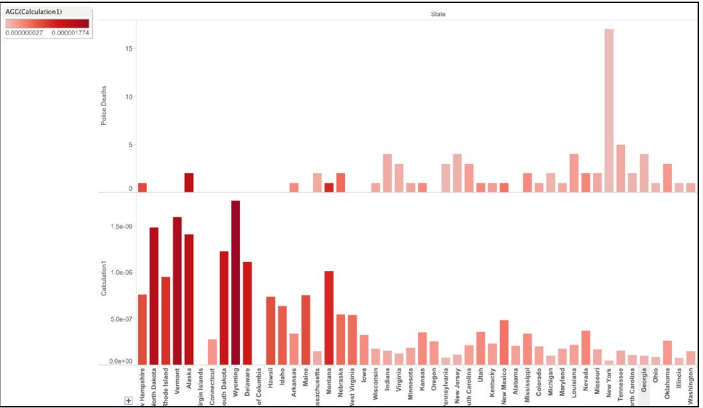
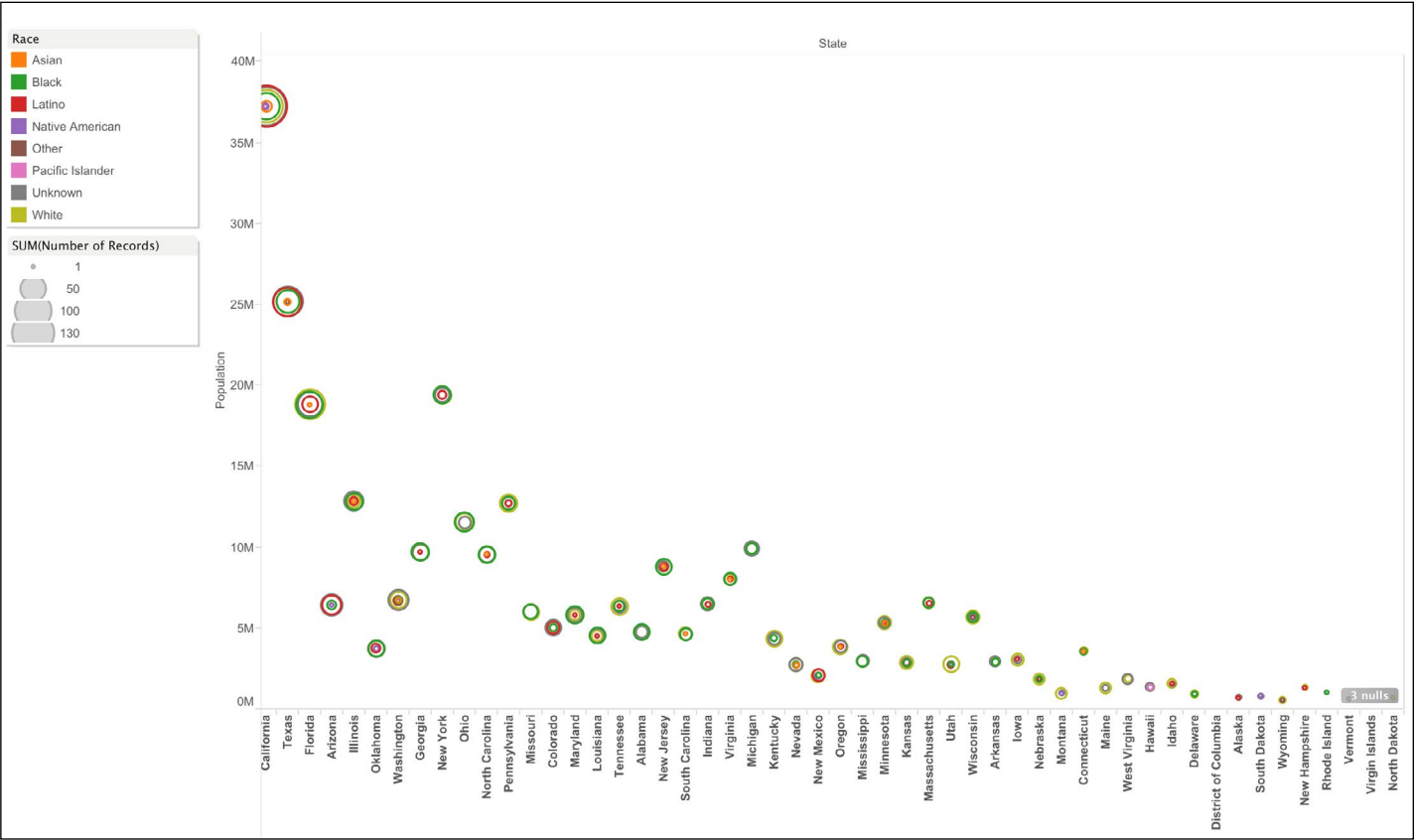
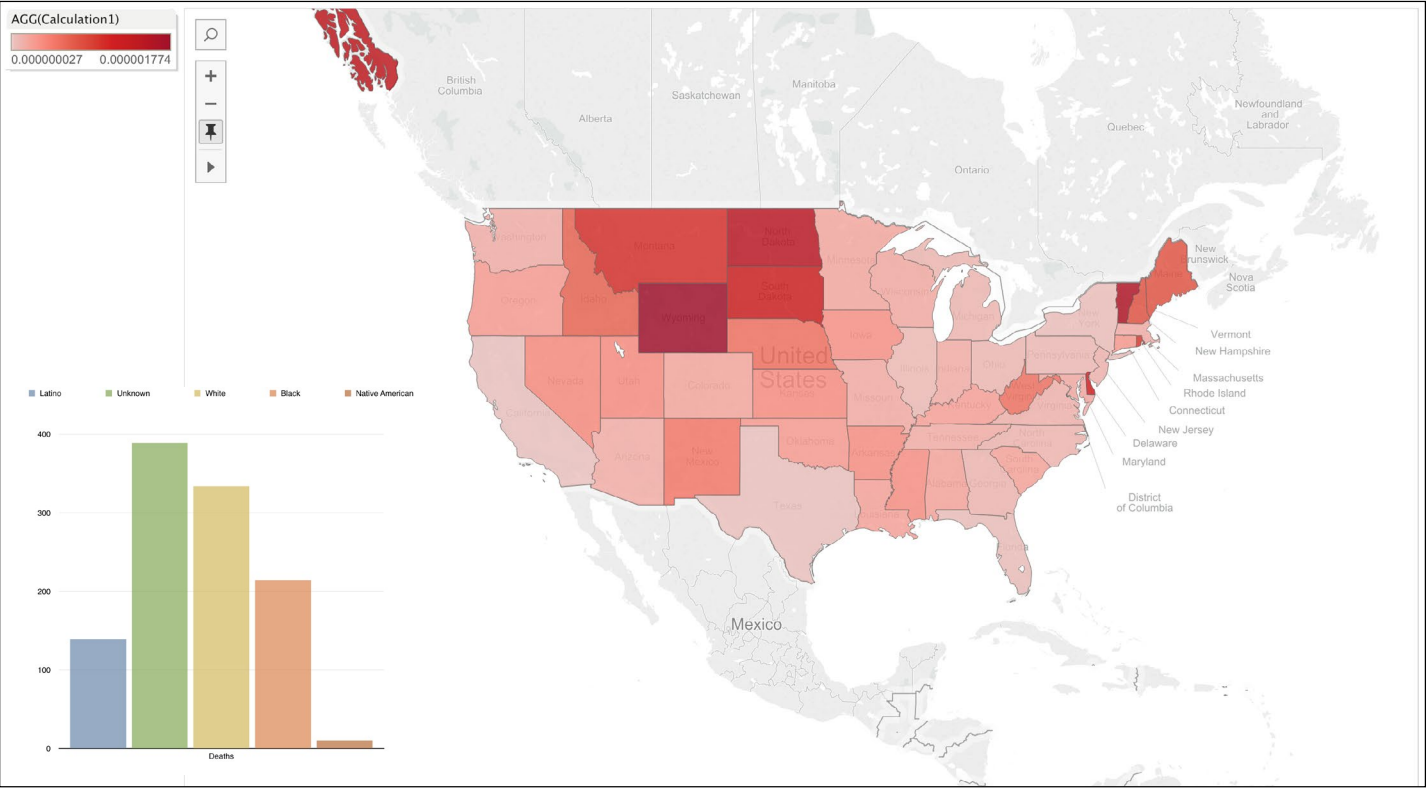
Fields

- name
- cause of death
- date of death
- state
- city
- gender
- age
- race
- month of death
- year of death
- was the deceased armed
- did the deceased have priors
- was the officer fired or suspended

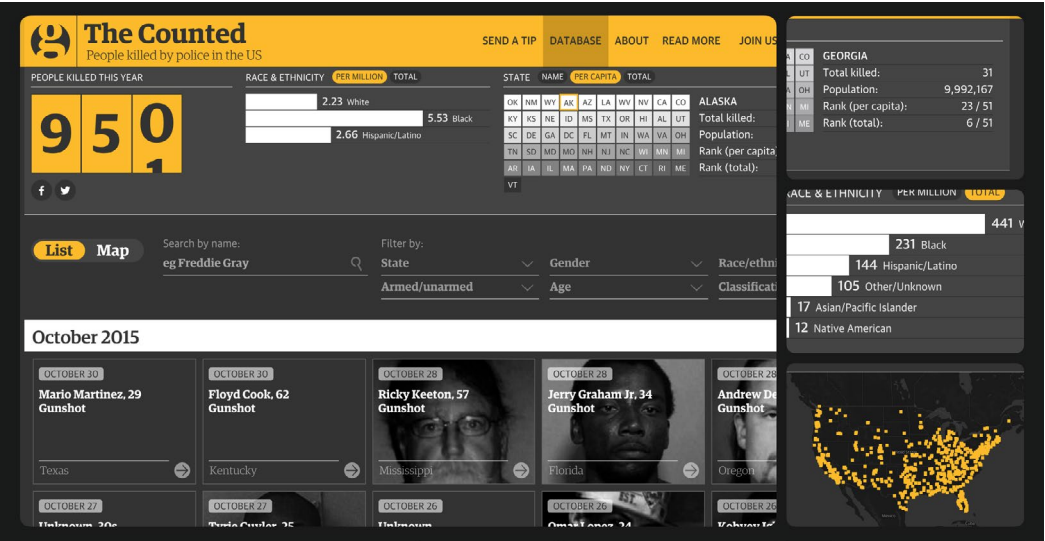


Plotting Data on Tableau

Using Tableau to look for relationships between different fields of the data and to explore any pattern and trend.

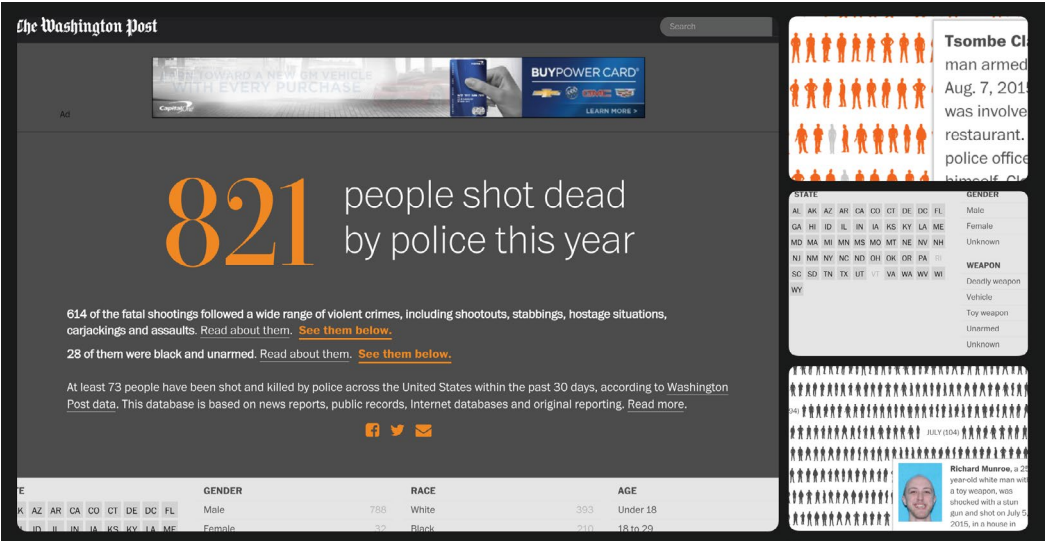


- Week 1
- Research
- Existing examples of how data has been mapped



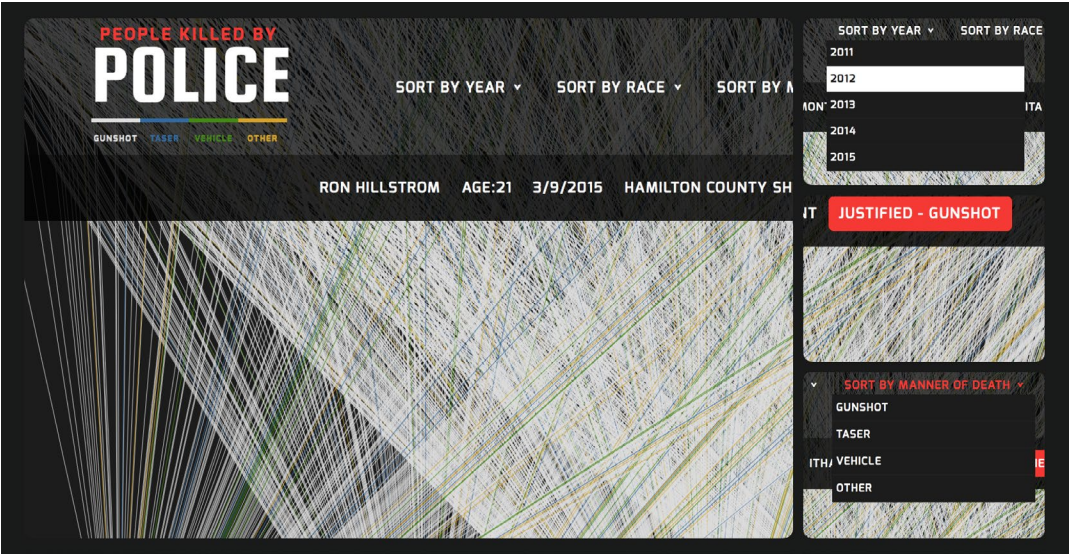
<http://www.theguardian.com/us-news/ng-interactive/2015/jun/01/the-counted-police-killings-us-database>

We really like the filtering system on “the guaridan”, and how the users can toggle between map view and the list of people’s information.



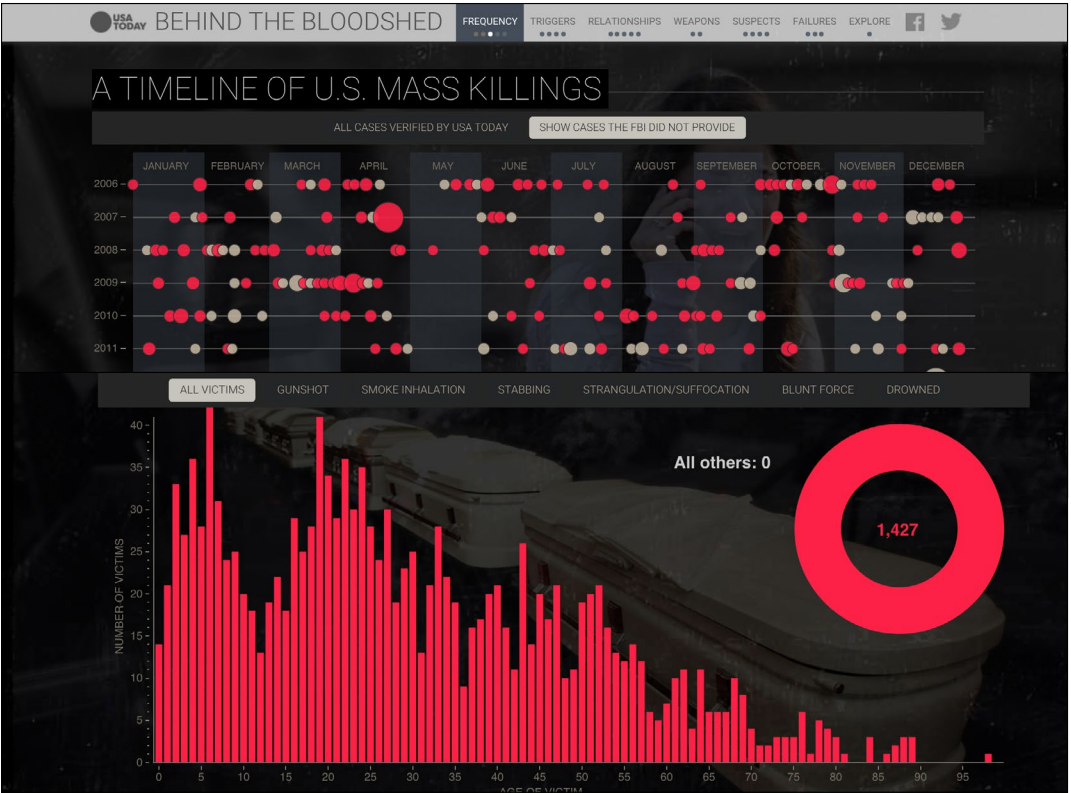
<https://www.washingtonpost.com/graphics/national/police-shootings/>

The thing we didn’t liked about this site was that the user has to scroll back and forth to view the whole image. However, it is really cool that the site uses illusttrtive figures to represent each person.



<http://1point21interactive.com/people-killed/>

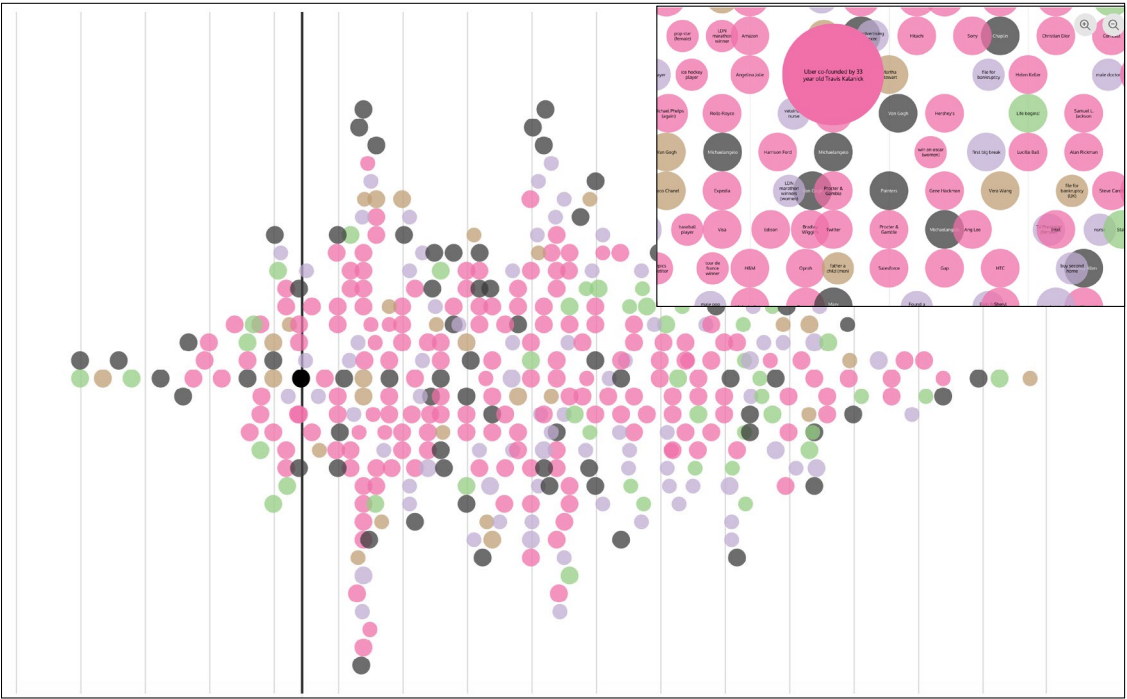
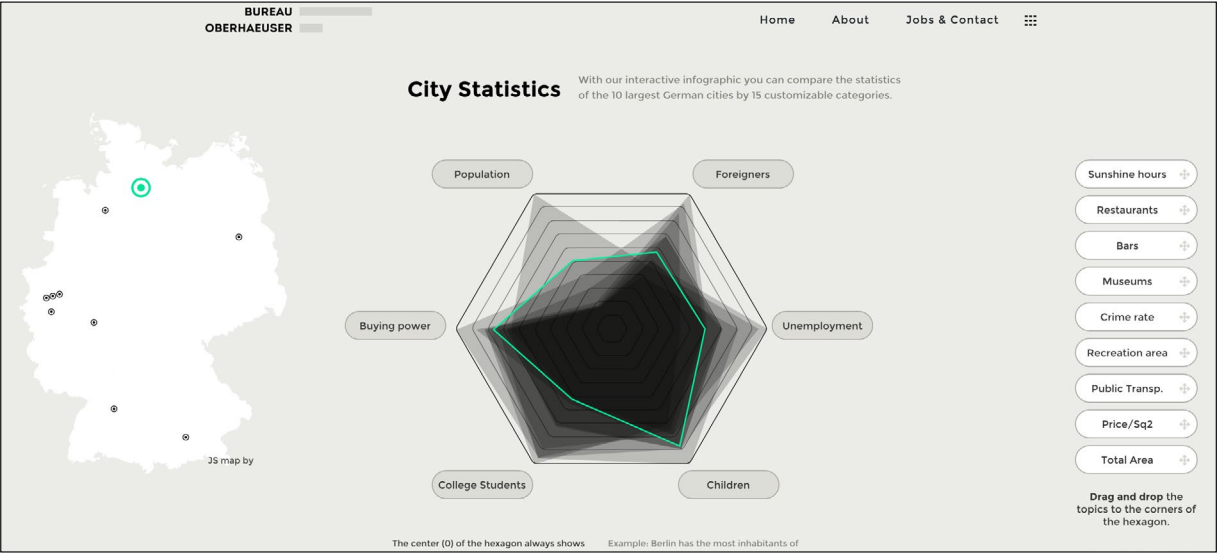
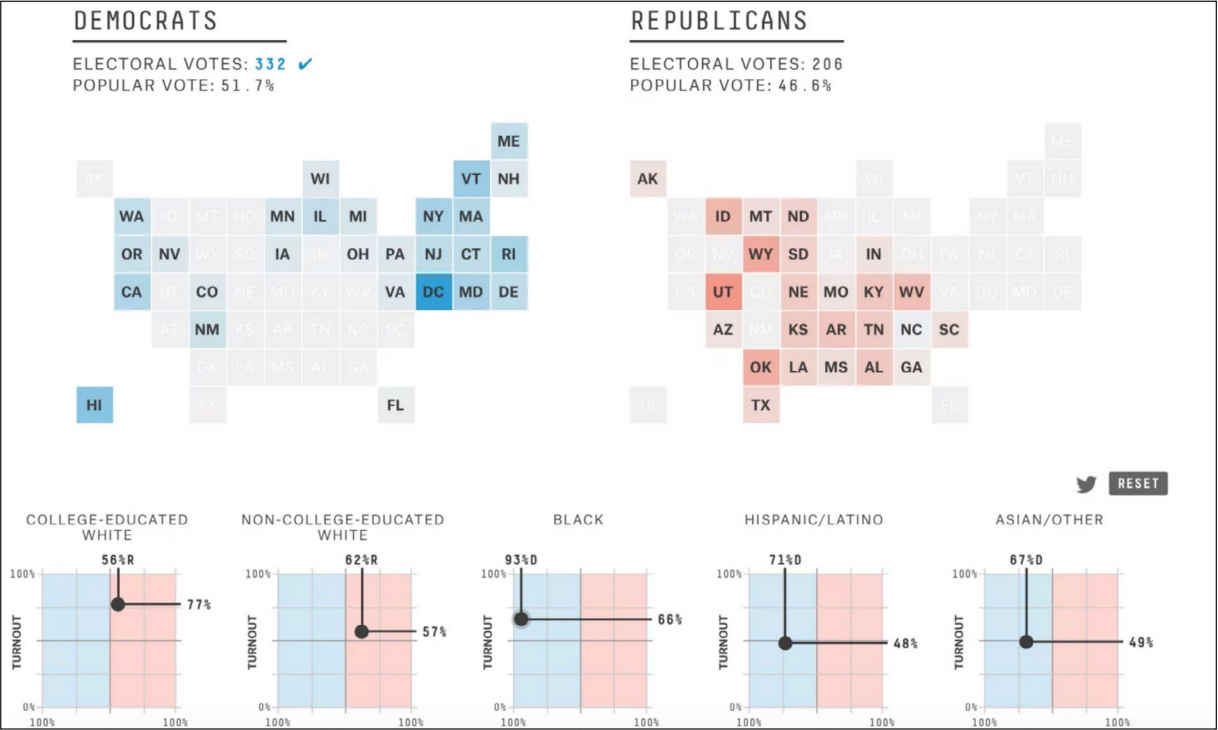
The lines looks really cool visually; however, it’s hard to tell the meaning behind them. The diraction of the lines is also random. On the other hand, we really liked the drop down sorting option and wanted to include in our screens.



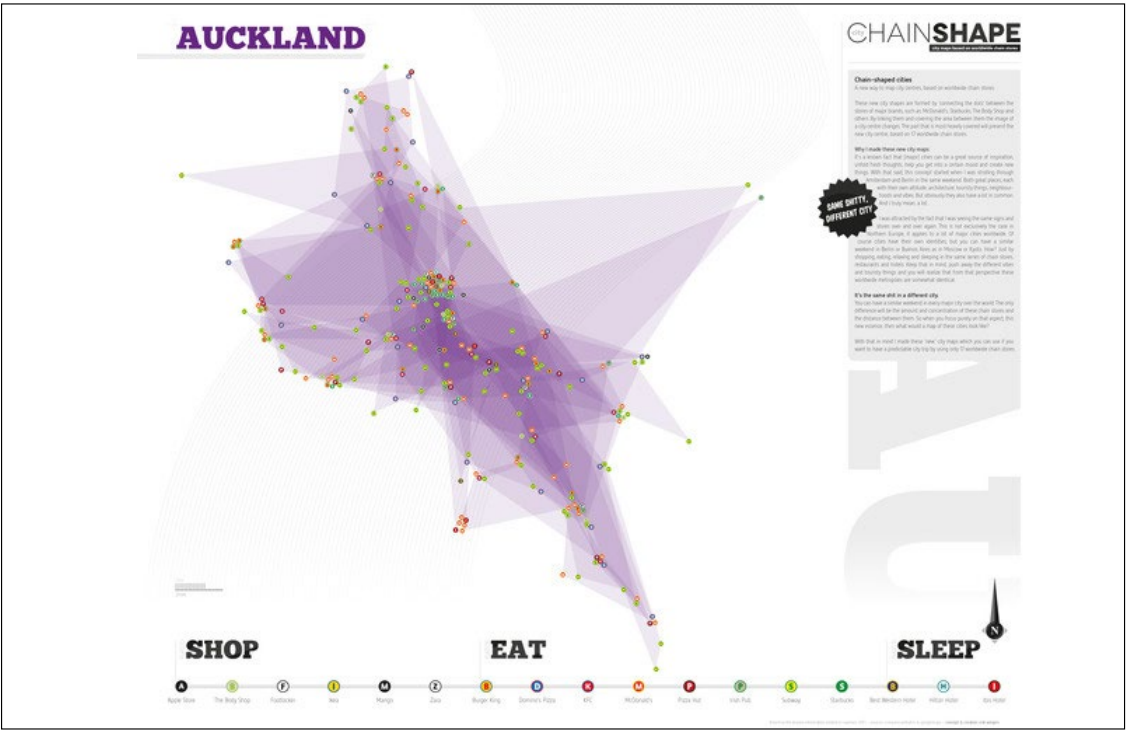
<http://www.gannett-cdn.com/GDContent/mass-killings/index.html#weapons>

We really liked the way the site representing data with interactive graphs. This inspired us to use bar graphs later in our own design.

- Week 1
- Research
- Other Visual Inspirations



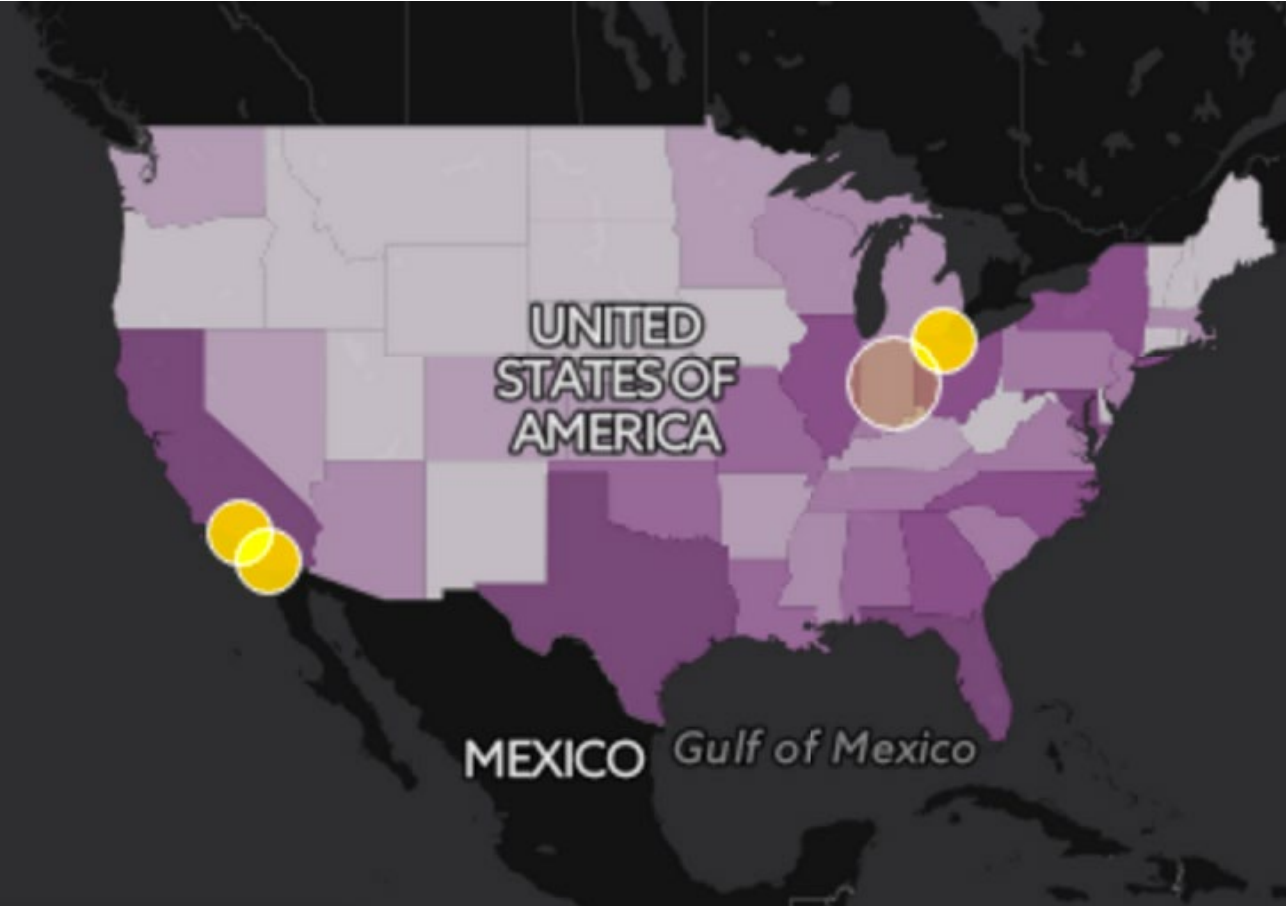
Cool animation on plotting dots to represent each single person.



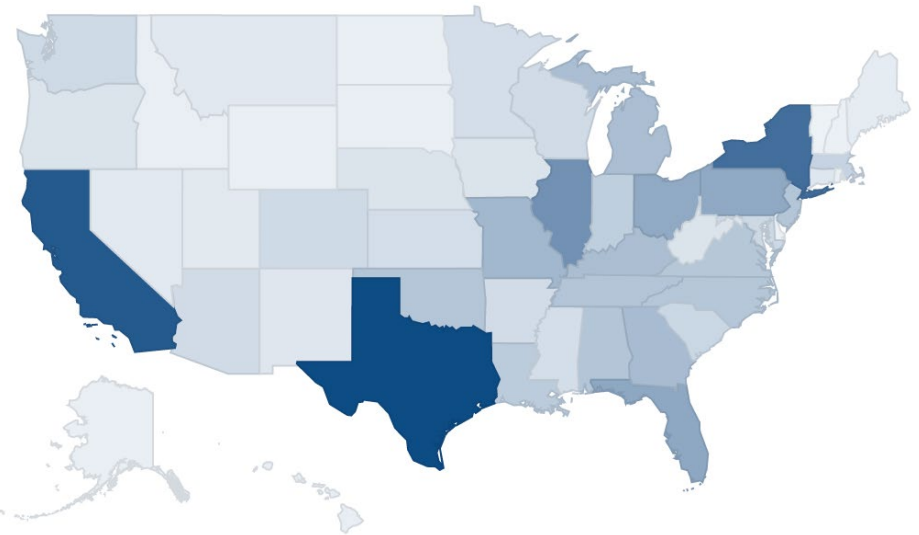
Cool visual using transparencies and layering representing data.

- Week 1
- Research
- Other Dataset

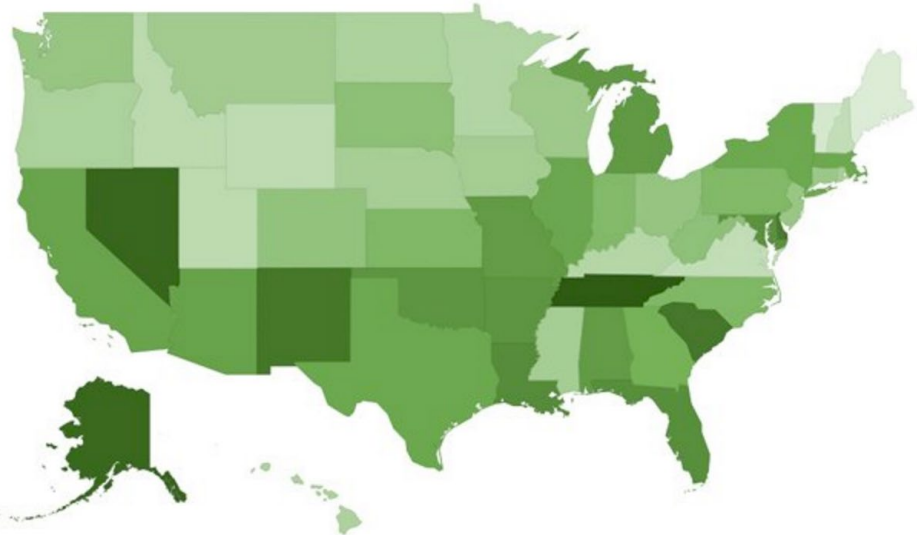
We researched on other related topics to see the relationships between police shootings and other possible factors.



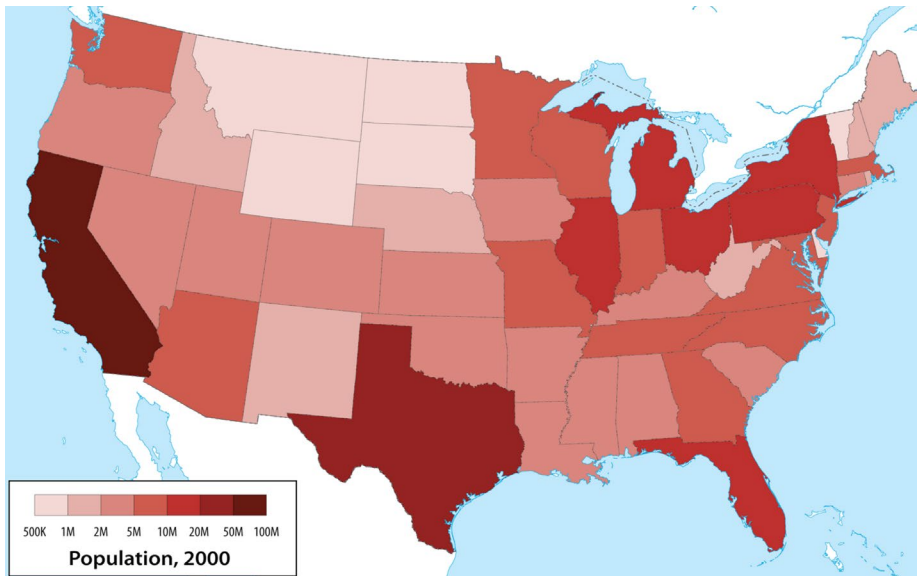
Deaths by Police shootings



Police Deaths



Violent Crimes



State Population

■ Week 1

■ Setting Directions

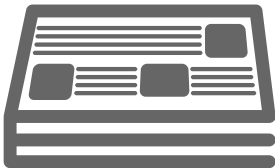
■ Potential Audiences

■ Problem Space

Uncovering the narrative behind deaths by police shooting.

■ Goal

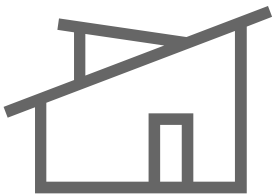
Looking for correlations.



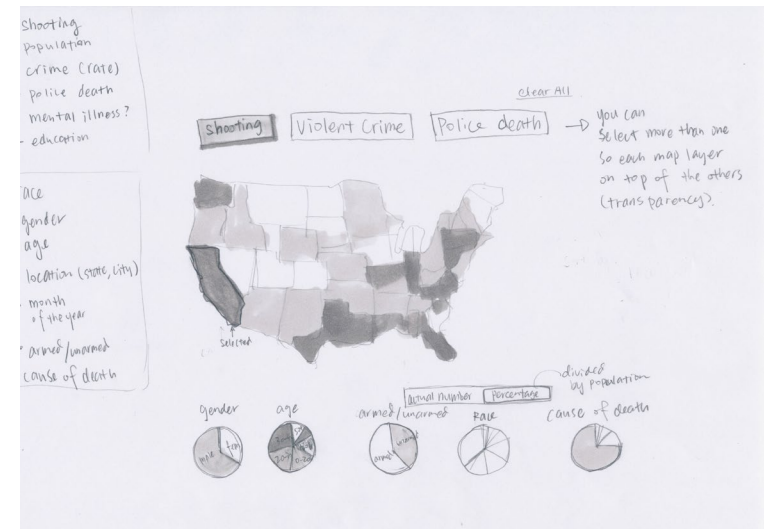
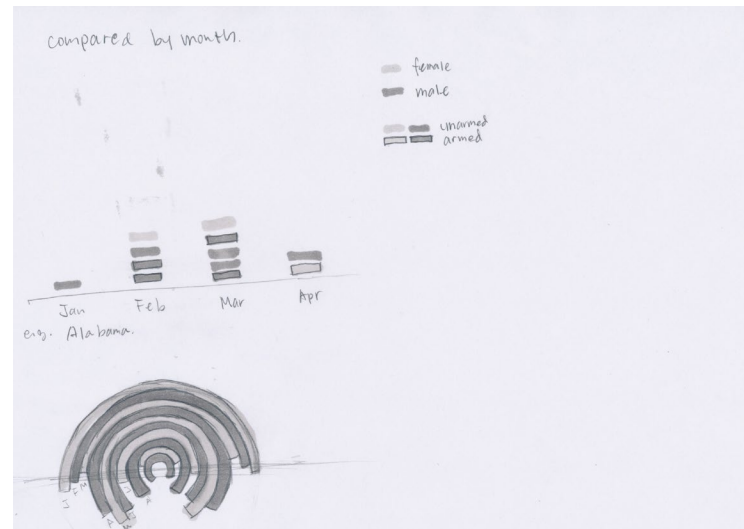
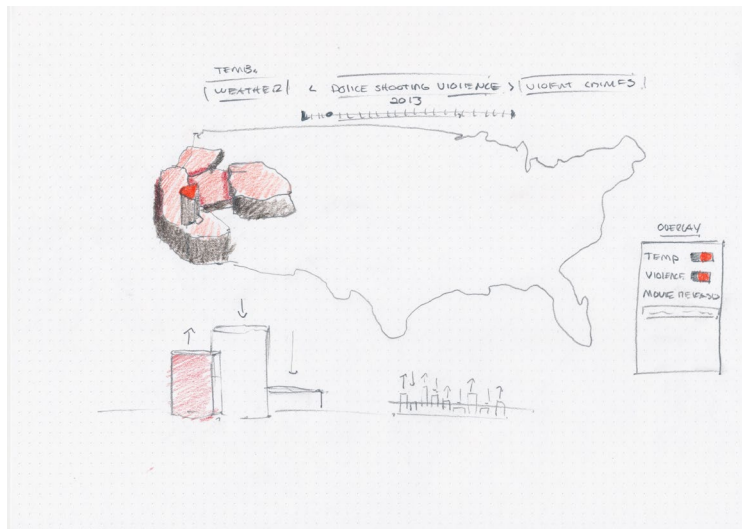
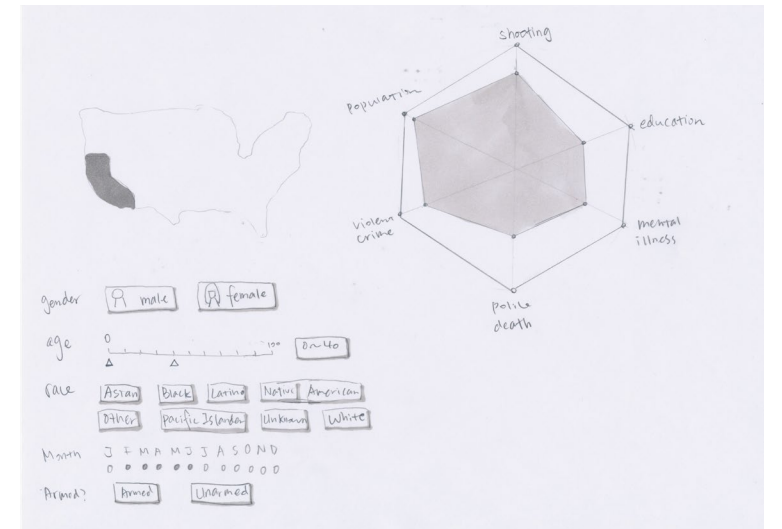
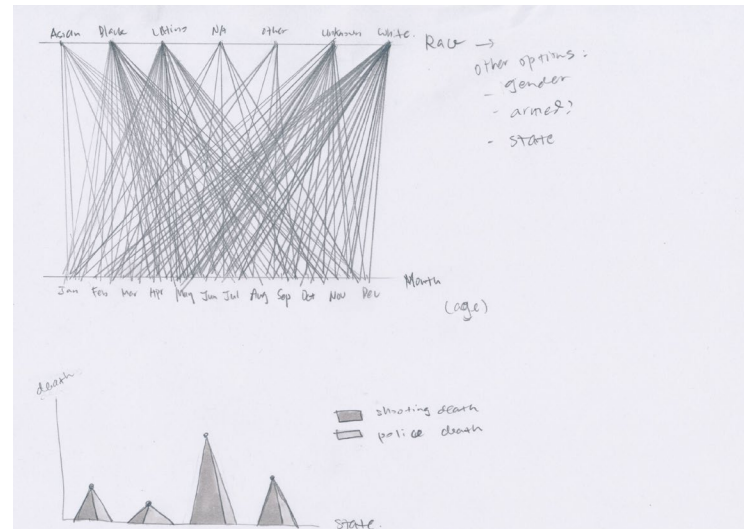
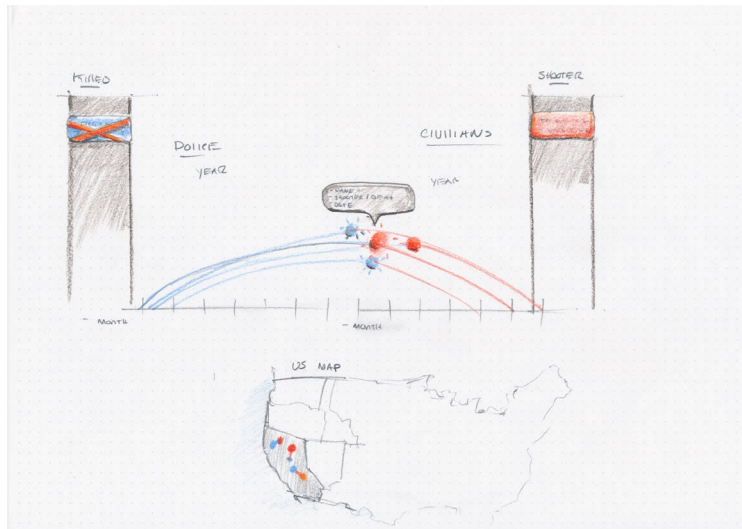
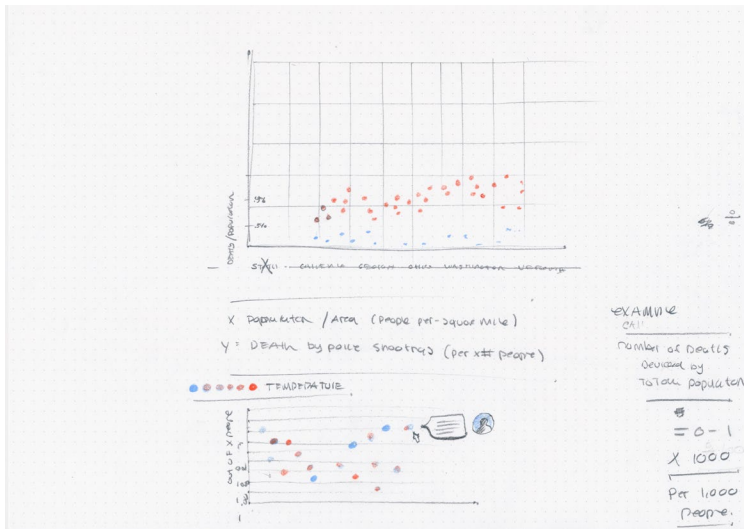
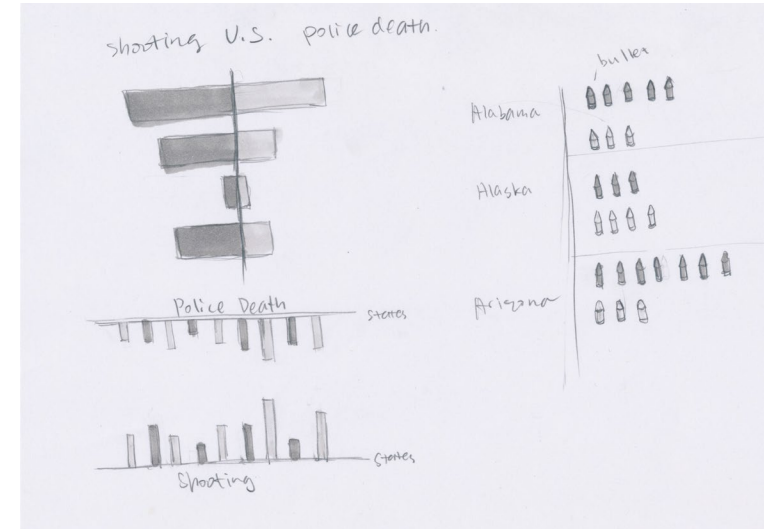
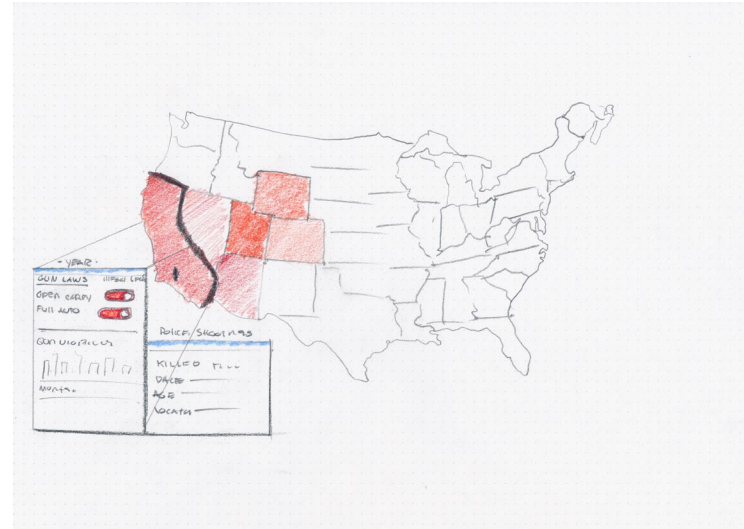
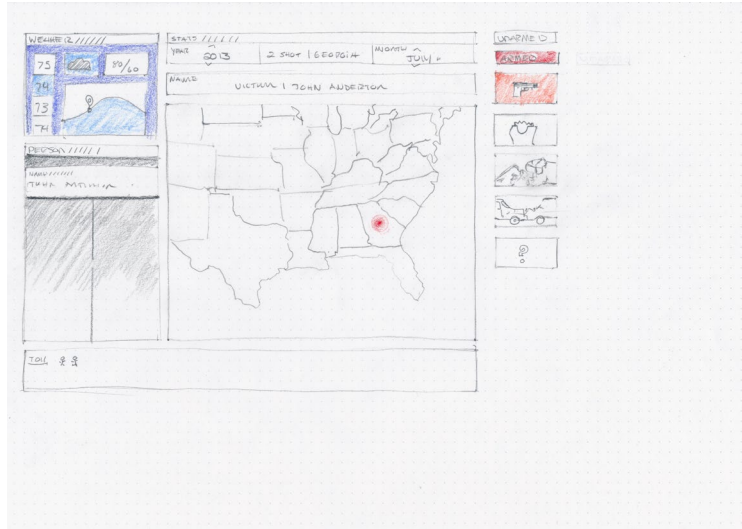
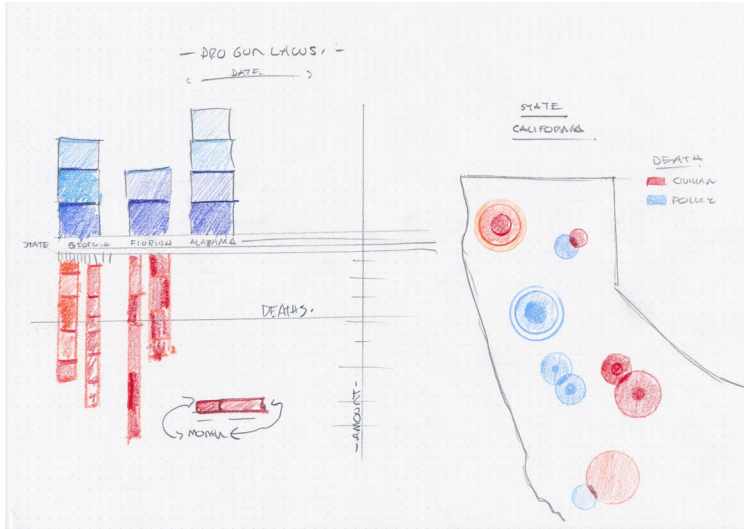
Journalism



Government

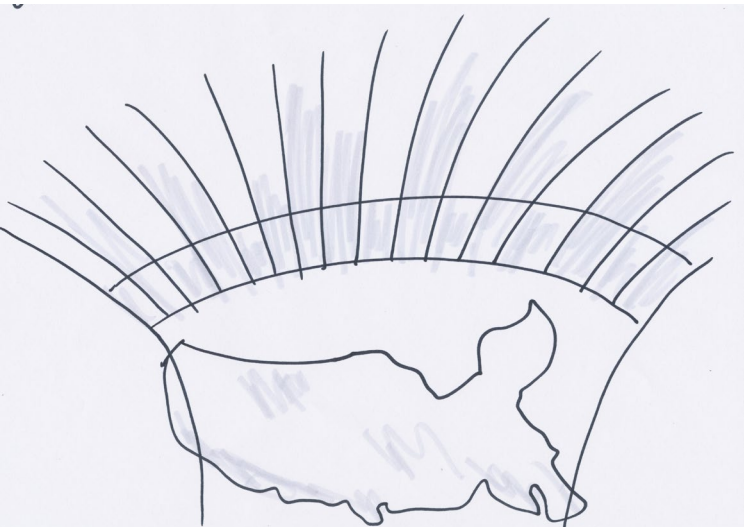
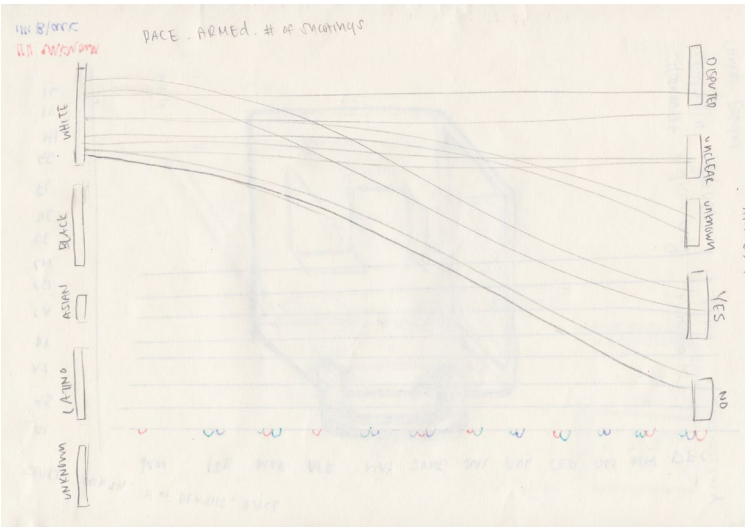
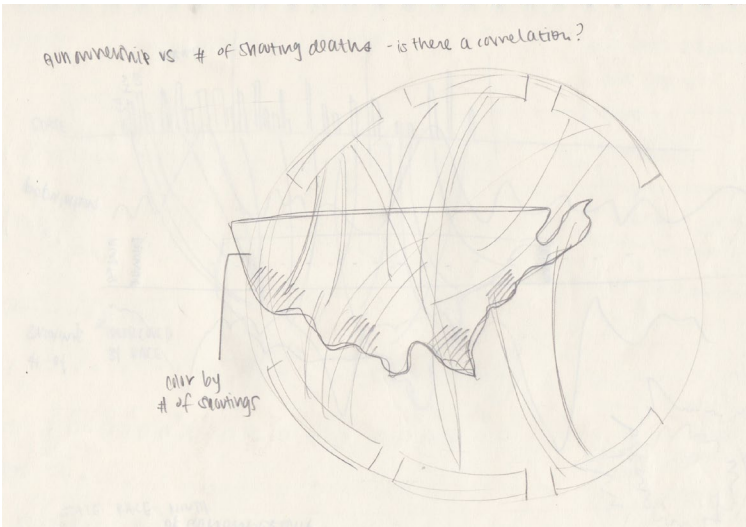
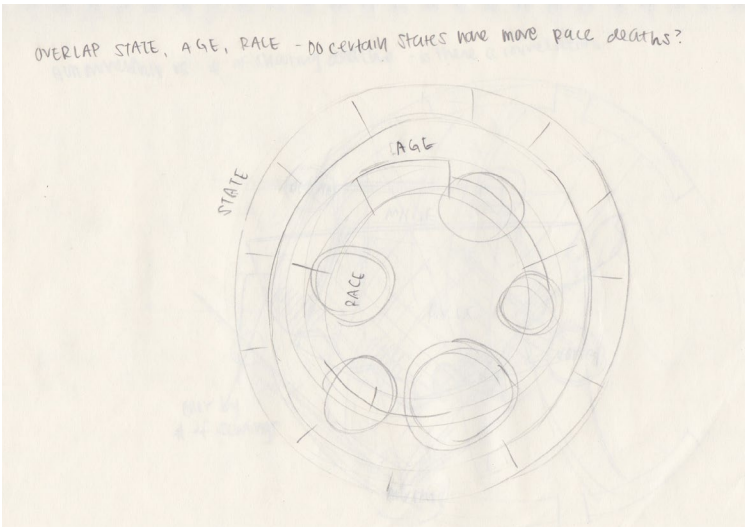
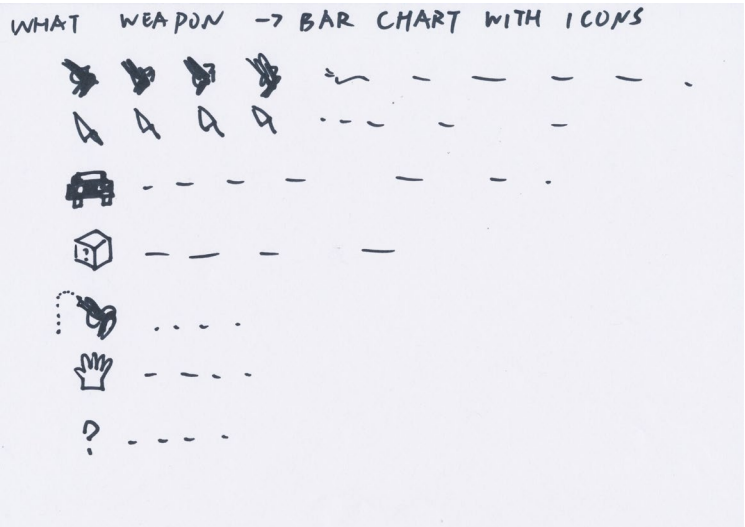
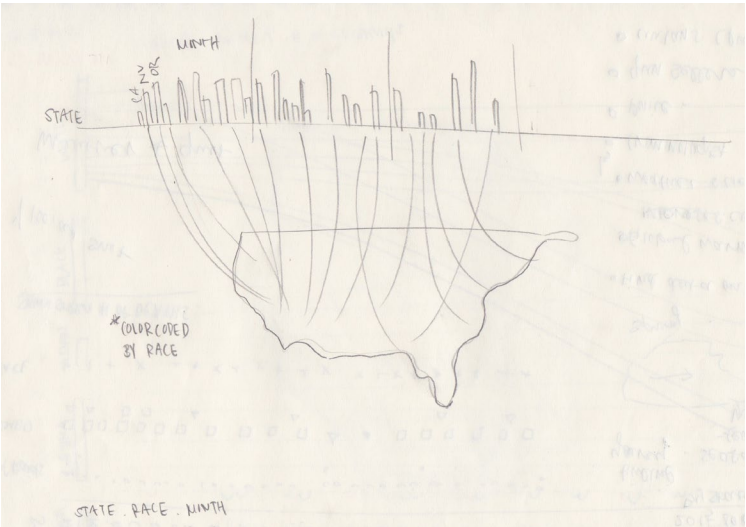
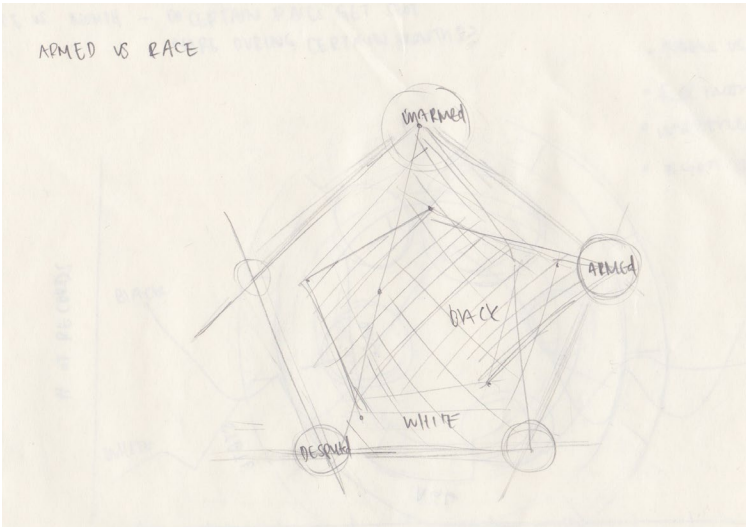
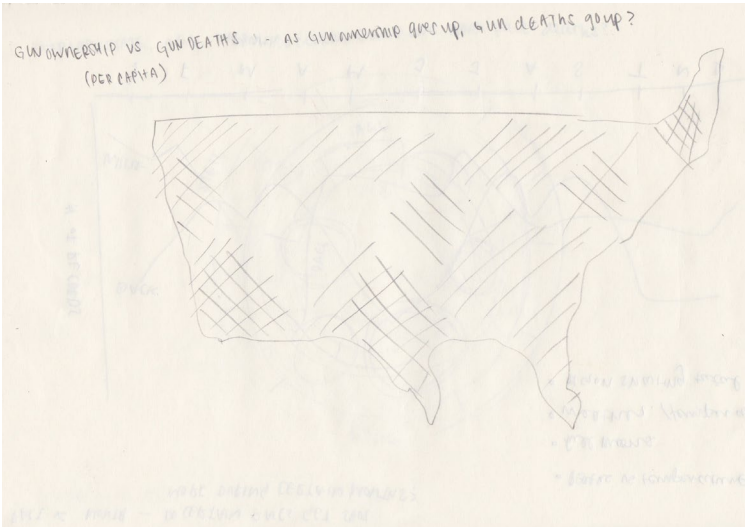
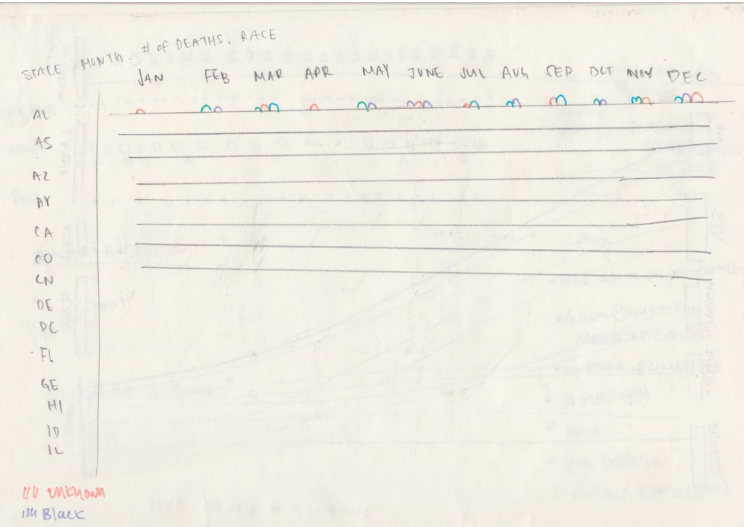
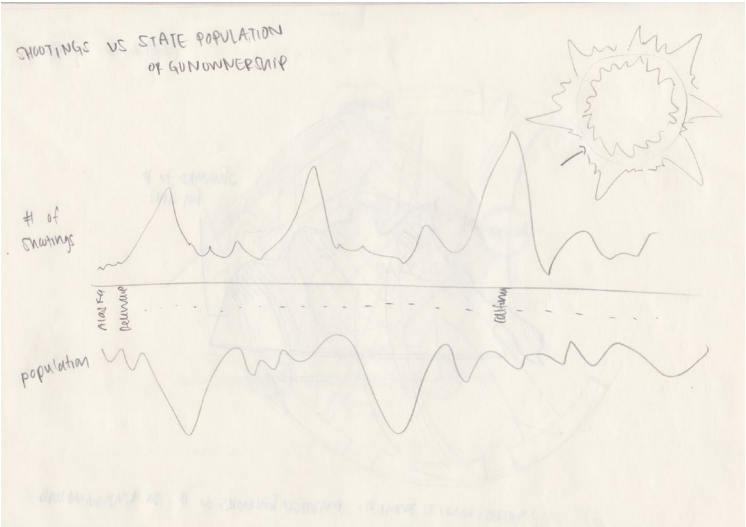
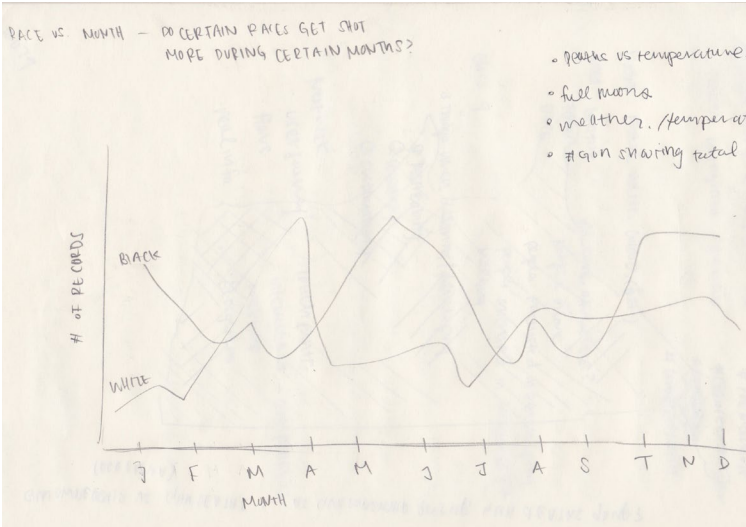
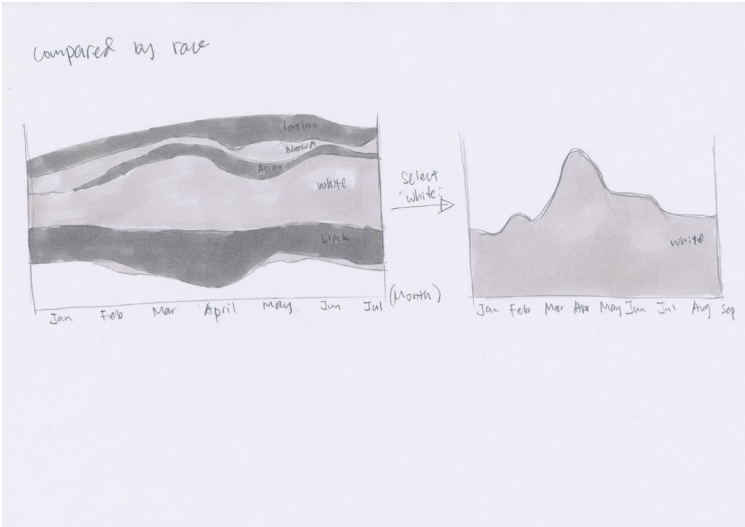


Future Residents



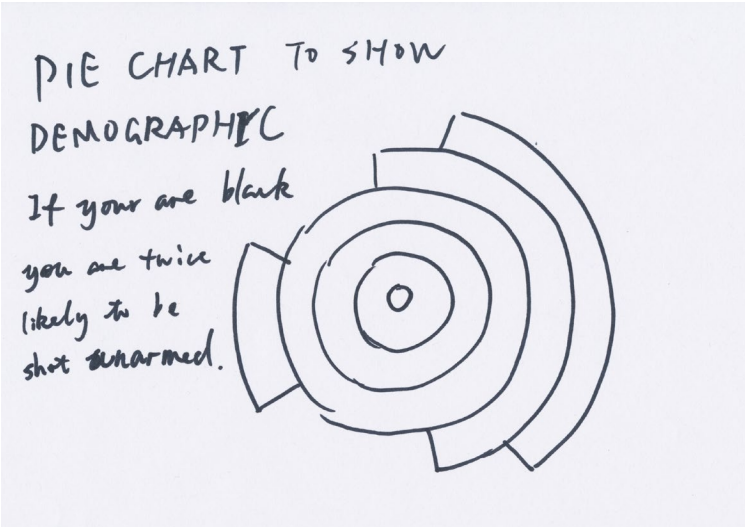
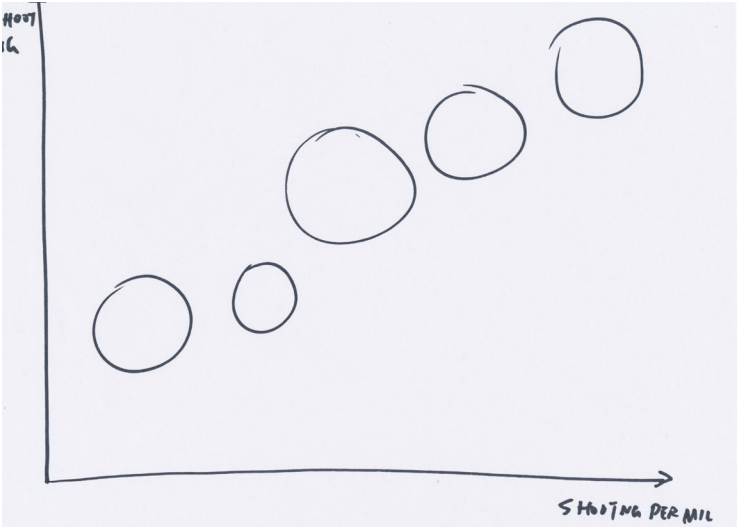
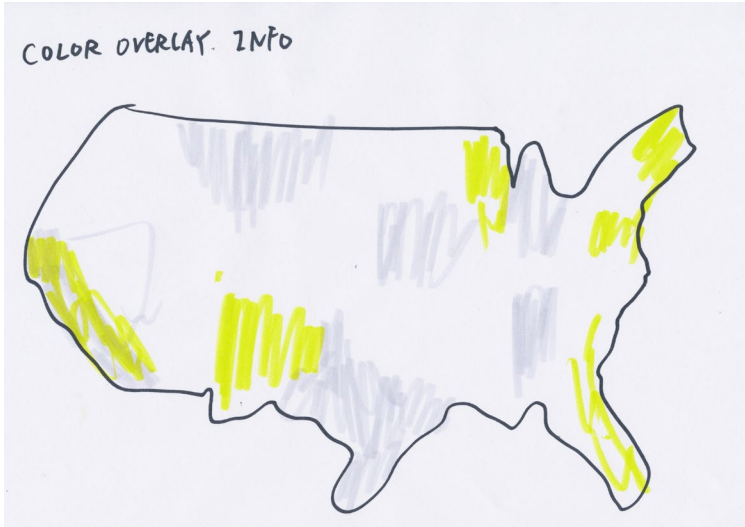
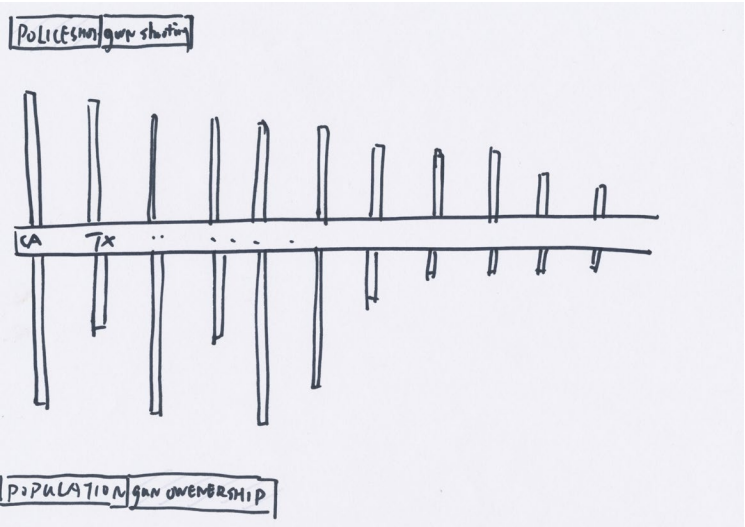
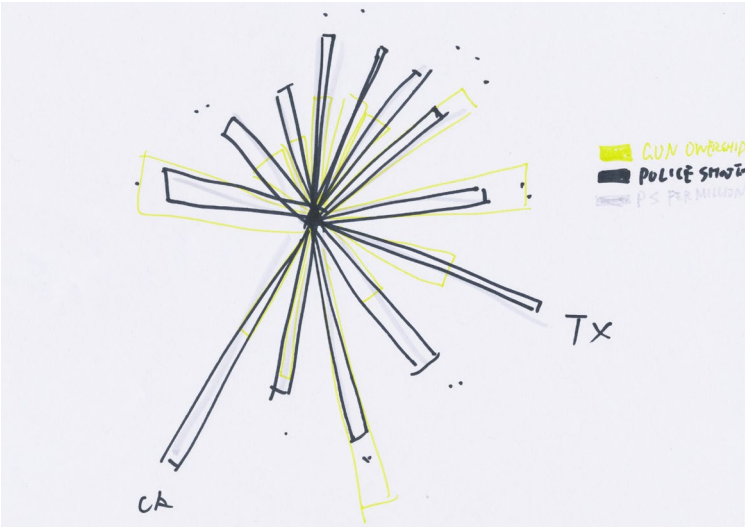
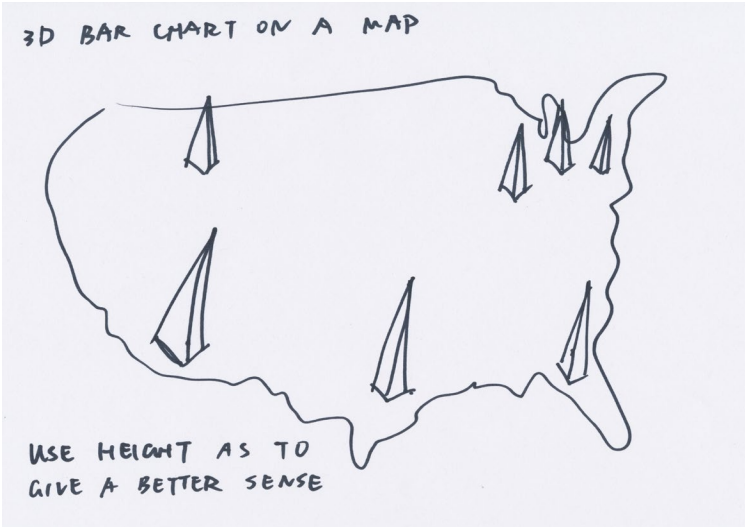
Week 1

Sketches



Week 1

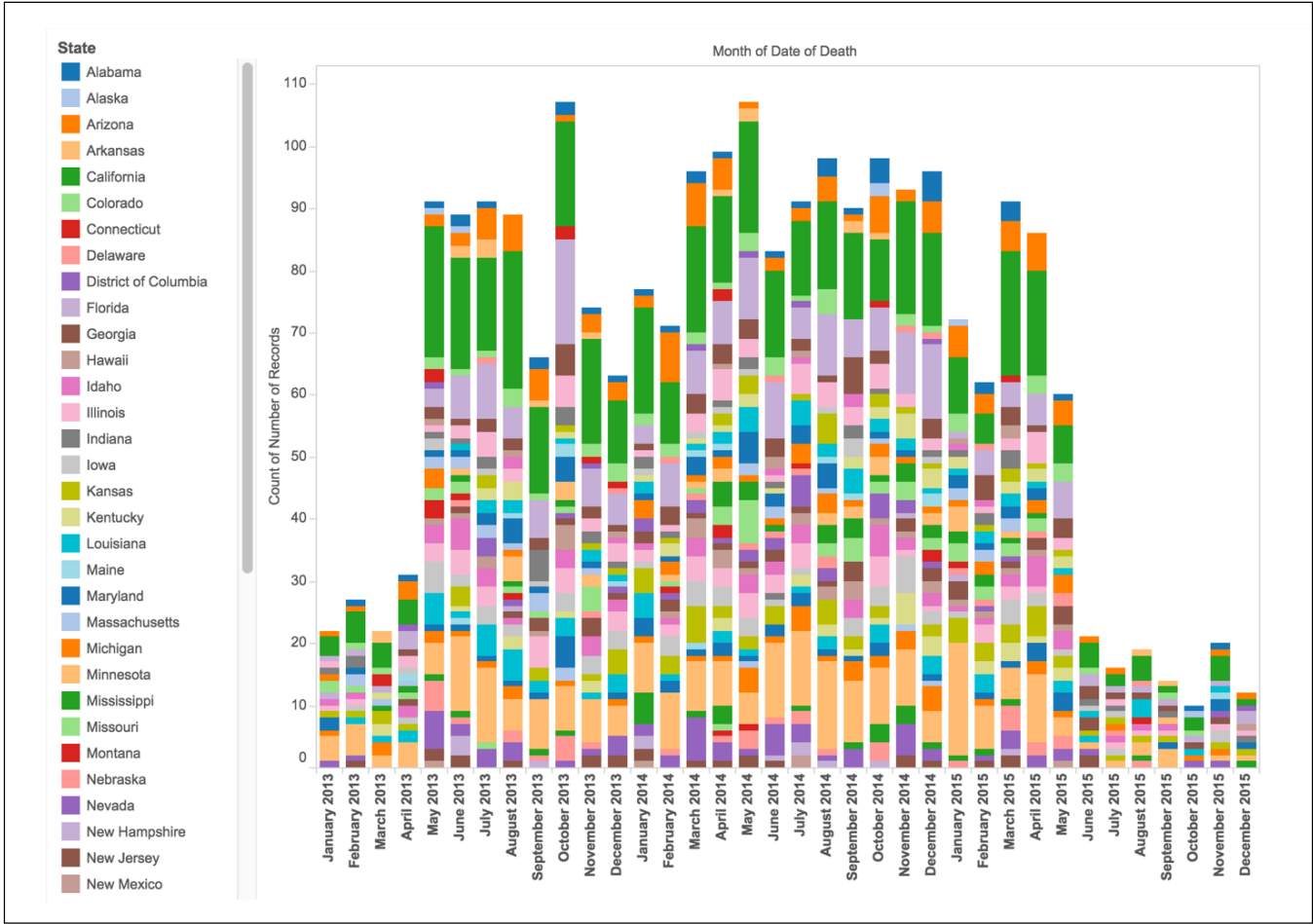
Sketches



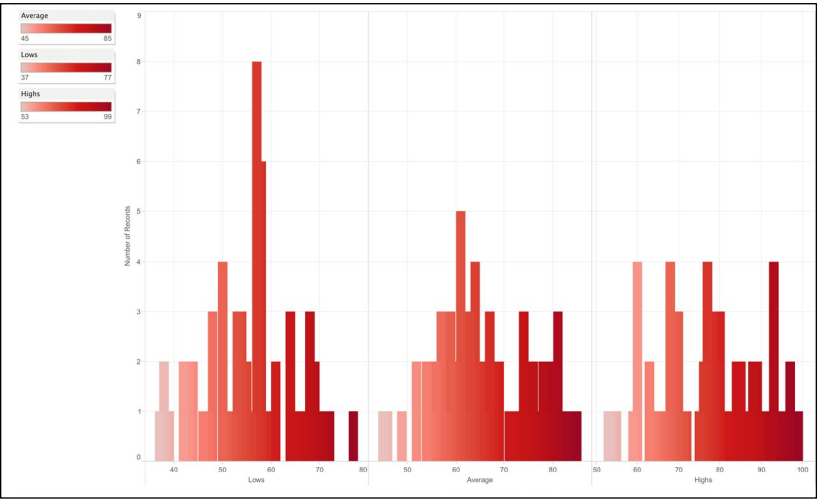
Week 2

Analyzing Data

From the graph, we noticed that during some months, police shootings happen more frequently than the other months. We start thinking about there might be a relationship between deaths by police shooting and temperature/climate.



Months	Deaths
February	63
January	79
September	81
December	88
October	91
June	95
July	96
November	96
April	97
March	101
May	105
August	107
	1099



Revised Direction

Goal

To show how climate and other correlative factors affect the number of civilian deaths by police shootings

Target Audience

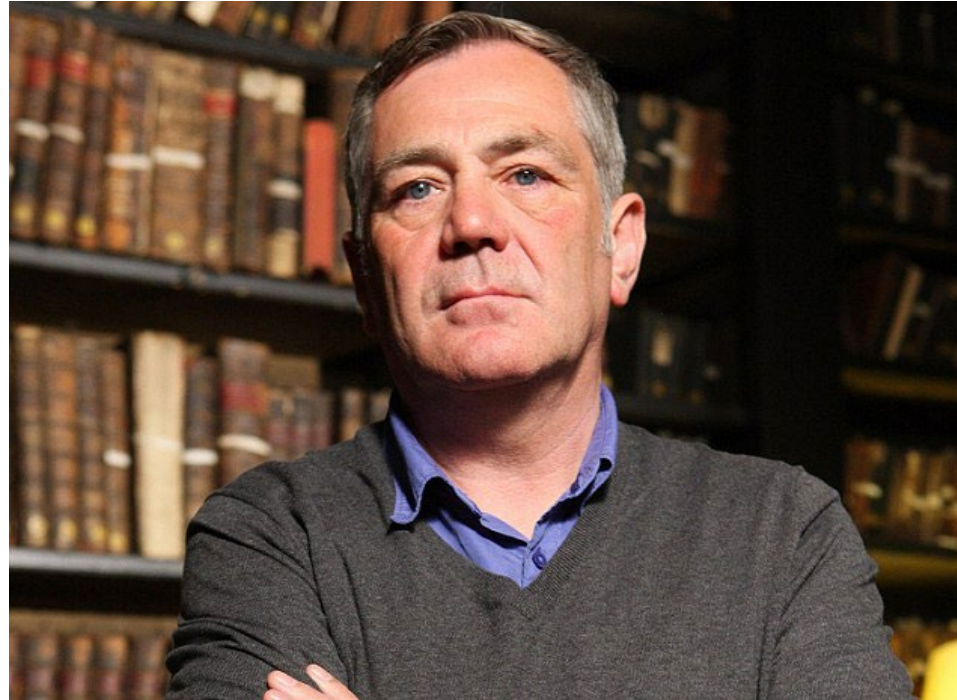
People who want to decrease shootings and death
People who want to predict when gun activity will arise
People who want to find a correlation between gun violence and climate
People selling guns who should be more aware of sell periods

Possible Personas

- Weather Scientist
- Criminologist
- Global Warming Activist
- NRA
- Police
- Gun Seller
- Civilian

■ Week 2

■ Persona



Simon

Age: 47

Education: PHD

City: New York City, NY

Job: Criminologist

“I want to uncover the details that lead police to kill.”

Key Characteristics

- Always questions the information given to him
- Looks for connections and correlations between data

Motivations

- Analyze data to determine why crimes are committed
- Study the social impact of crimes

Goals

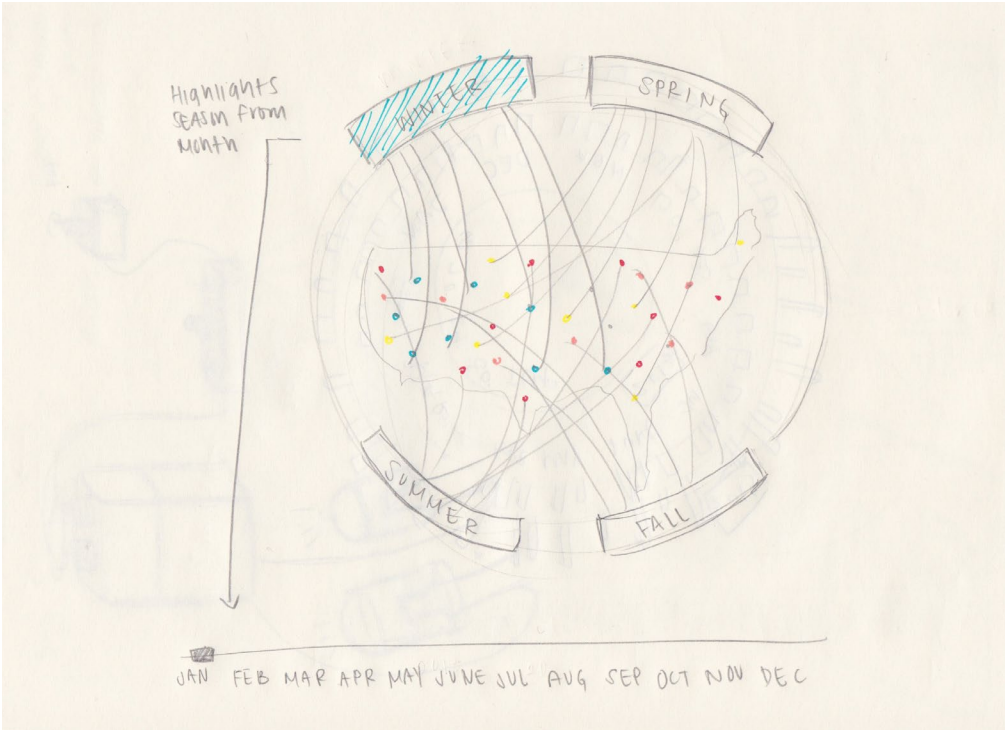
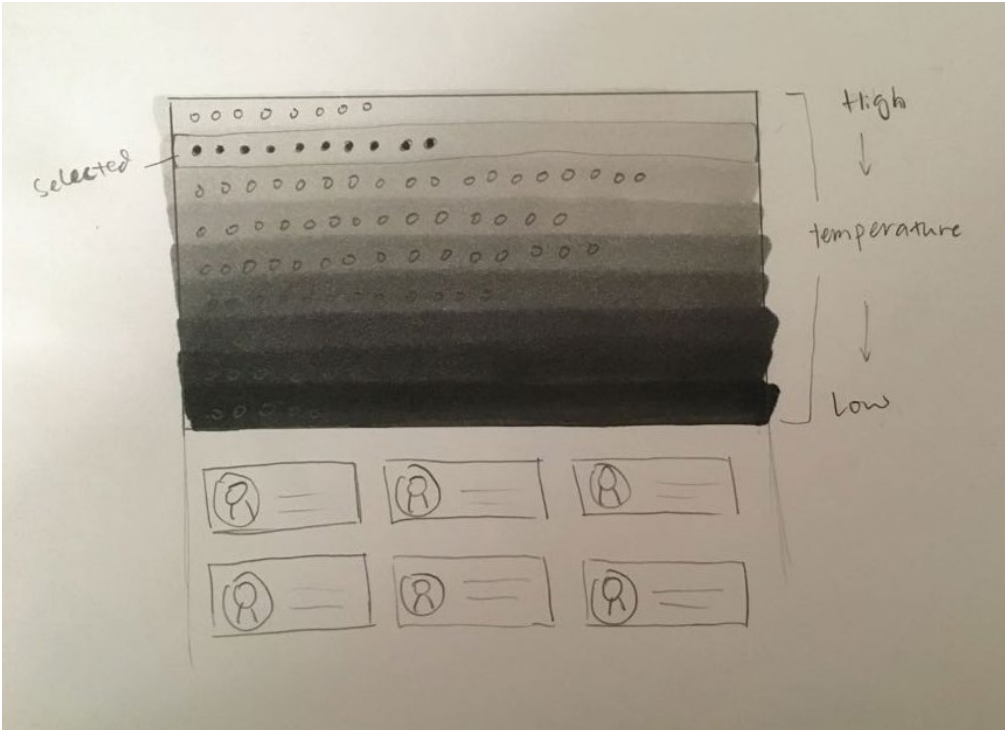
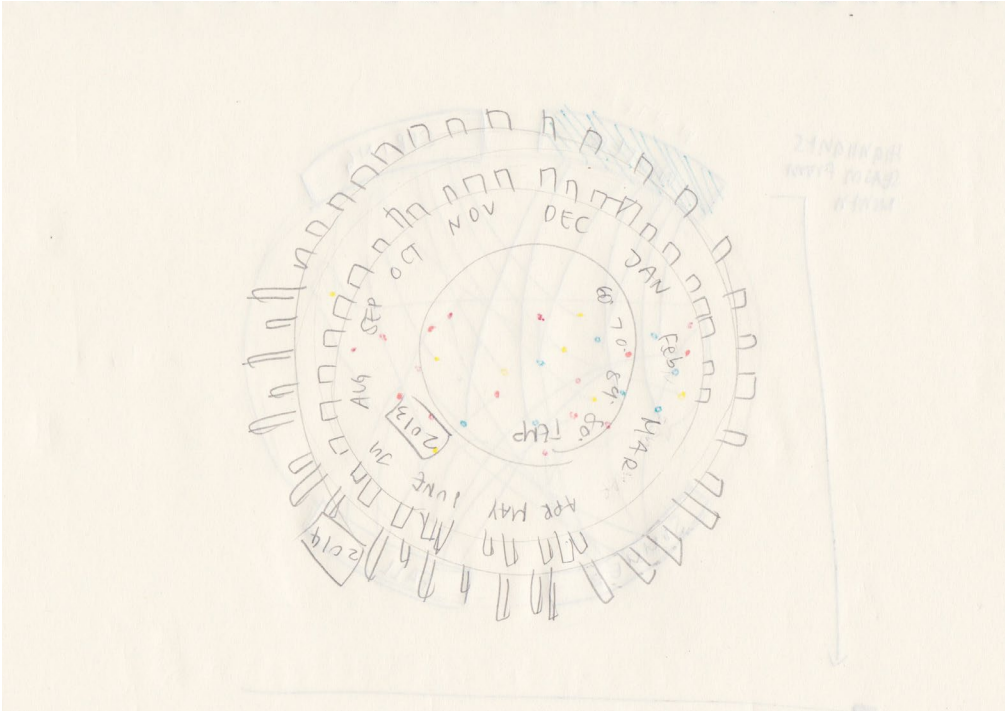
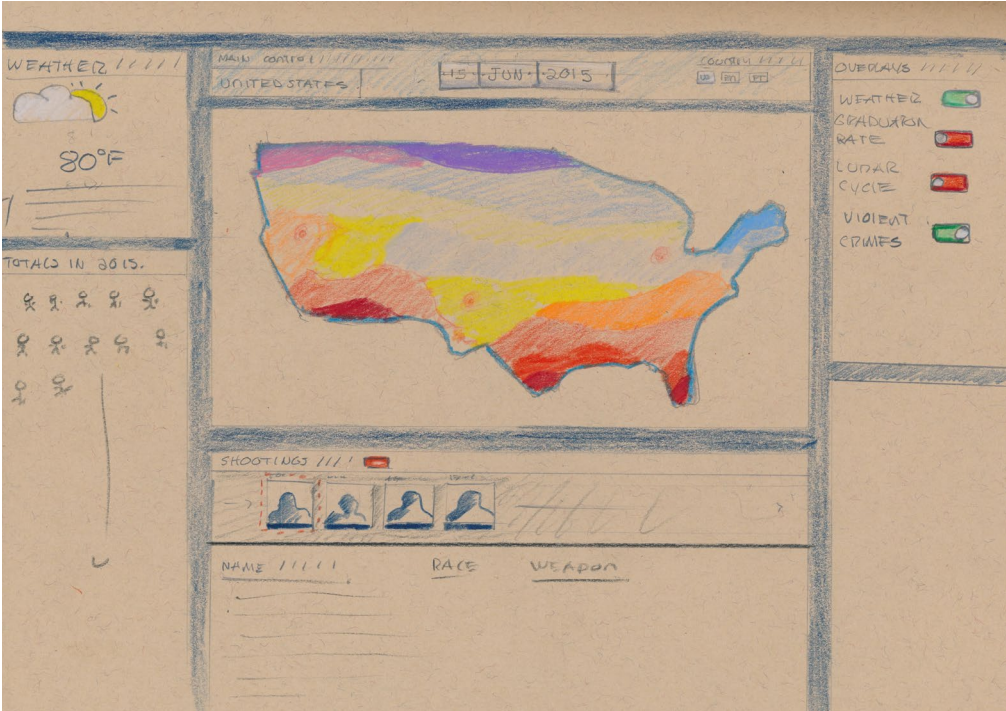
- Lower the number of police shootings
- Enforce gun law legislation
- Give people information to come to their own conclusions

Frustrations/Pain Points

- Skewed representation of police shootings in the media
- Not finding data that represents the truth behind police shootings

Week 2

Sketches





Week 3

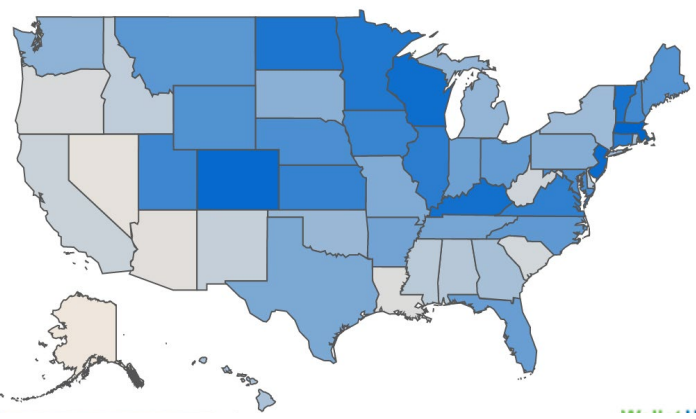


Research

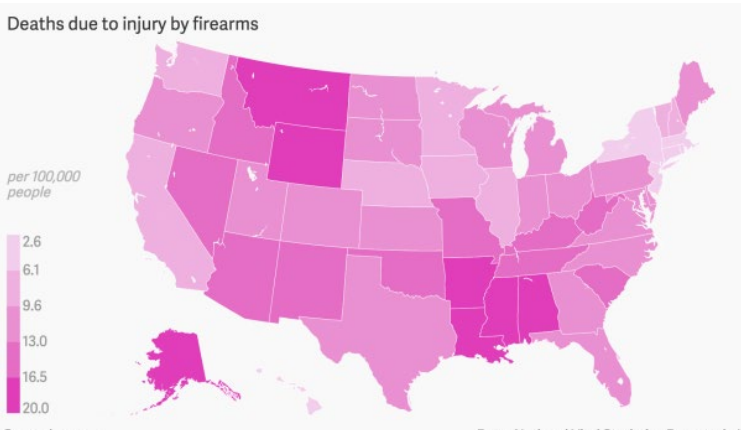


Other Dataset

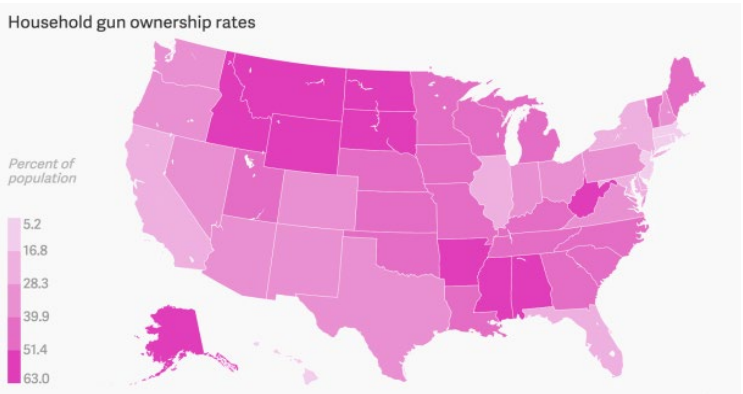
We did further research on other correlative factors of police shootings (e.g. high school grad rate, firearm deaths, gun ownership and gun law for each state, etc.). We realized climate might not be the only possible factor. Then we decided to create a tool for users to explore the correlations between datasets.



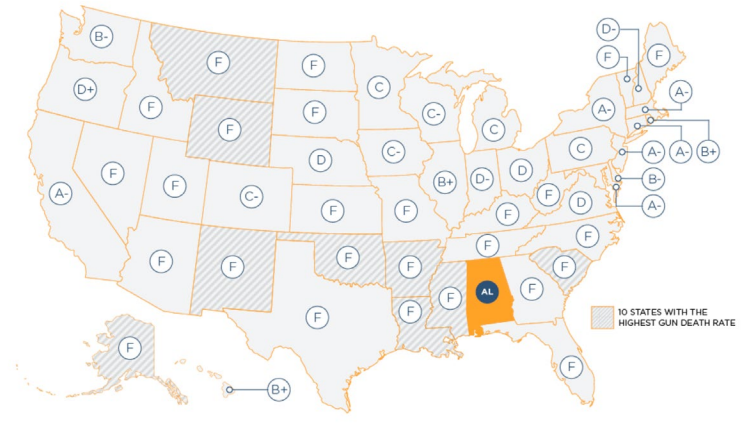
School-System Quality Ranking



Deaths due to injury by firearms



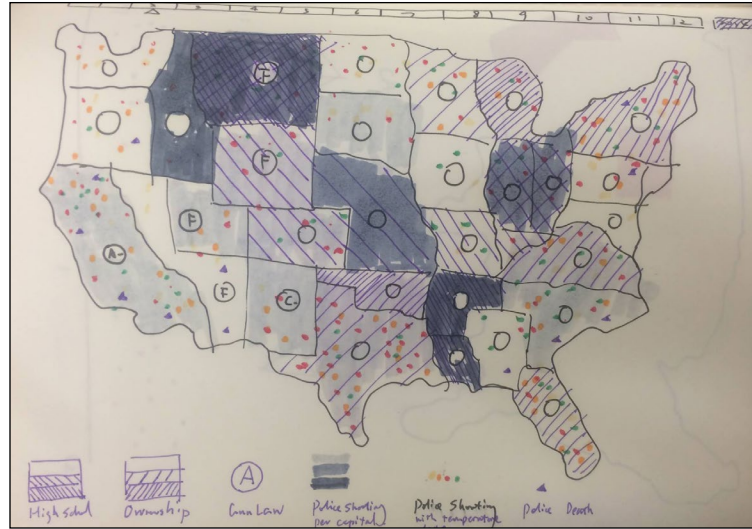
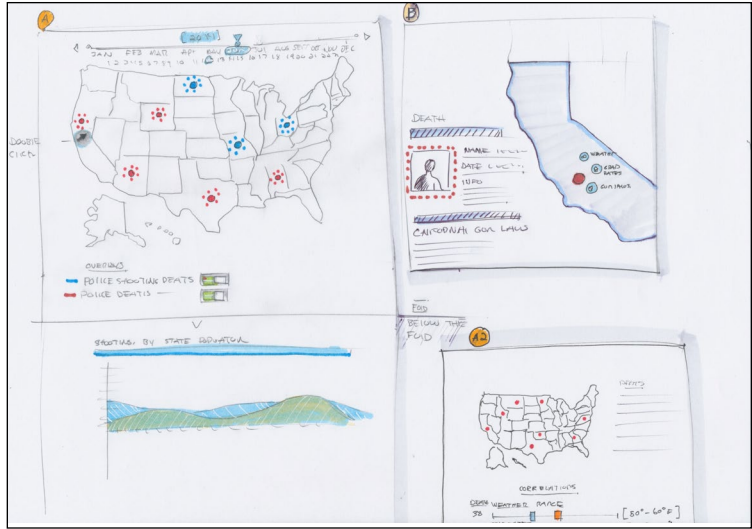
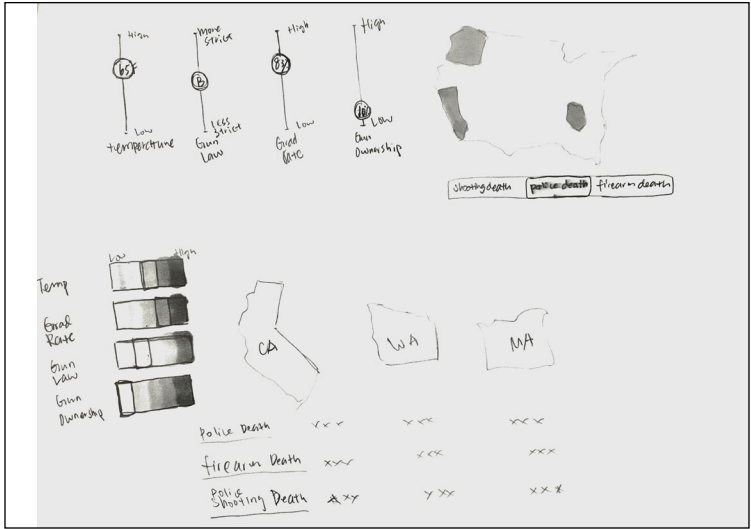
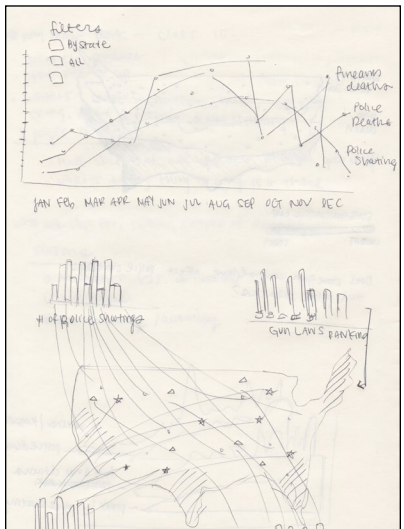
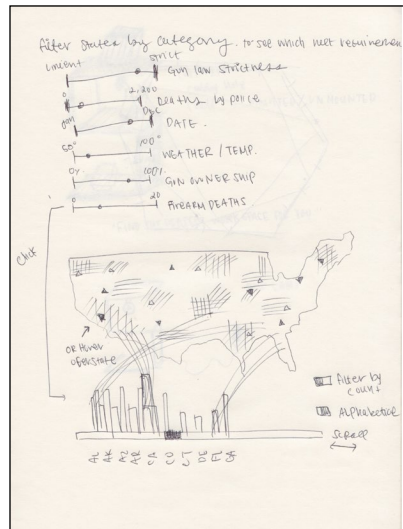
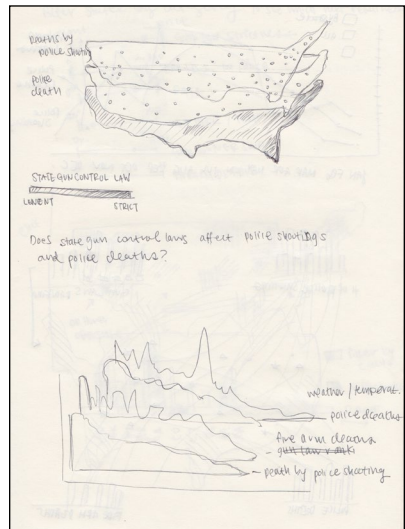
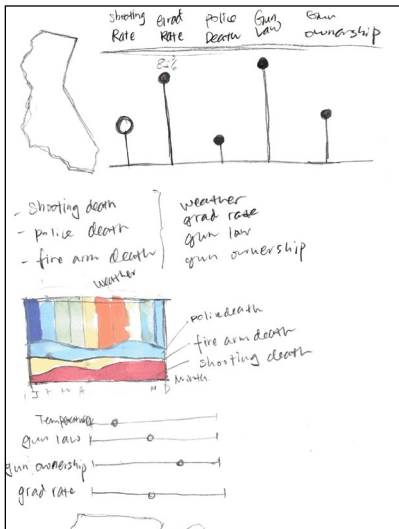
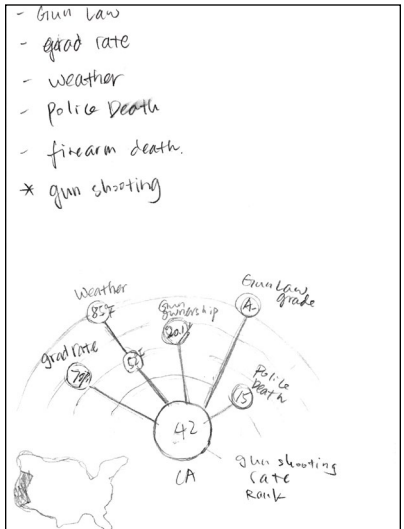
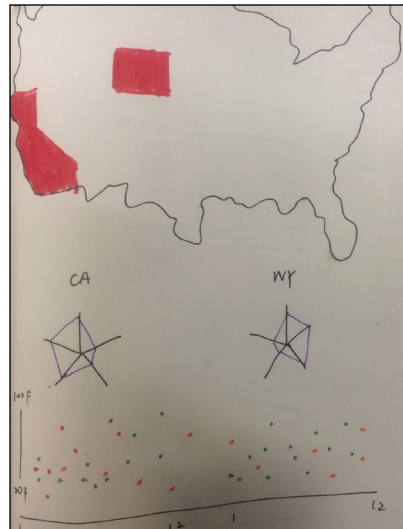
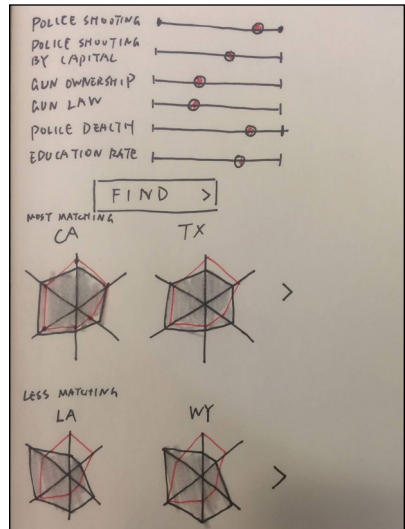
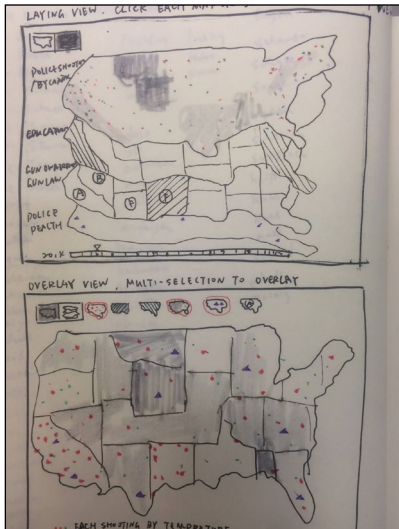
Household gun ownership rates



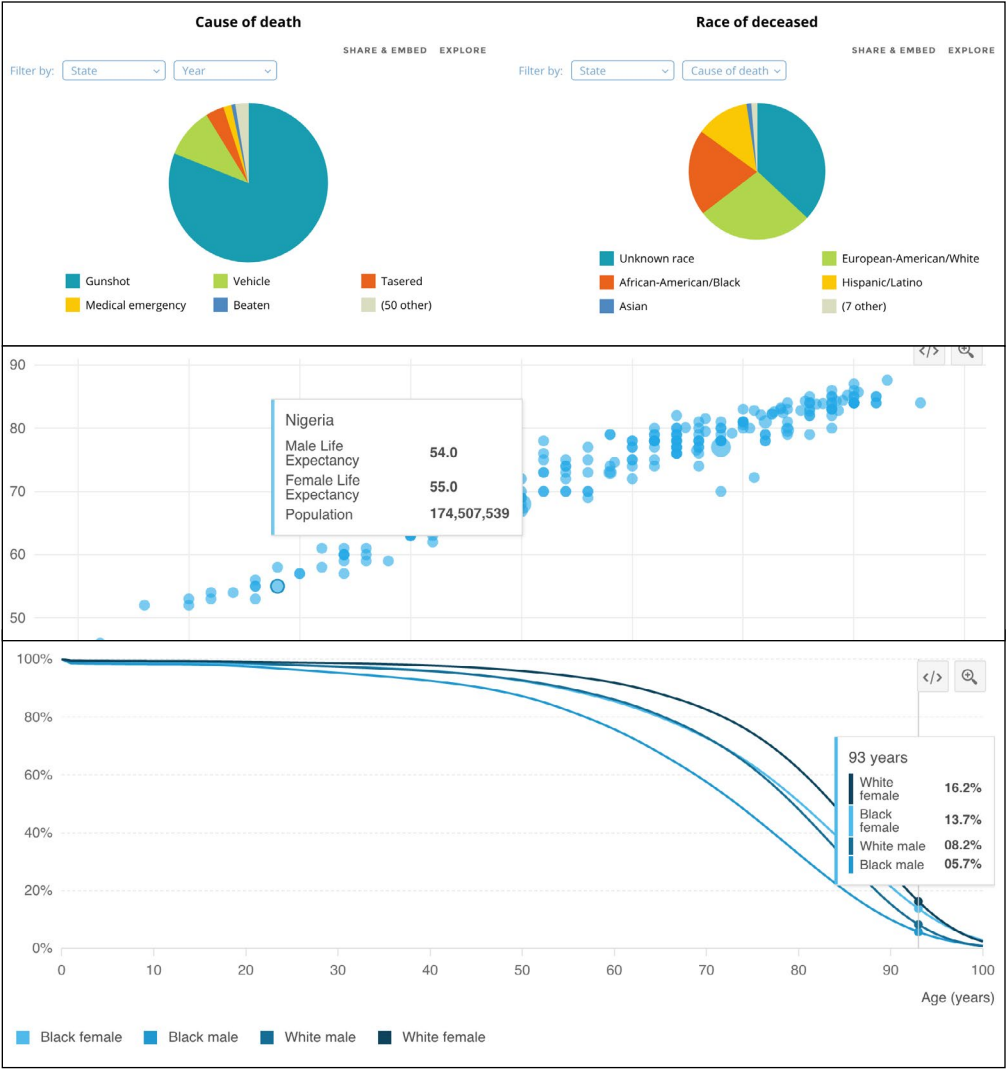
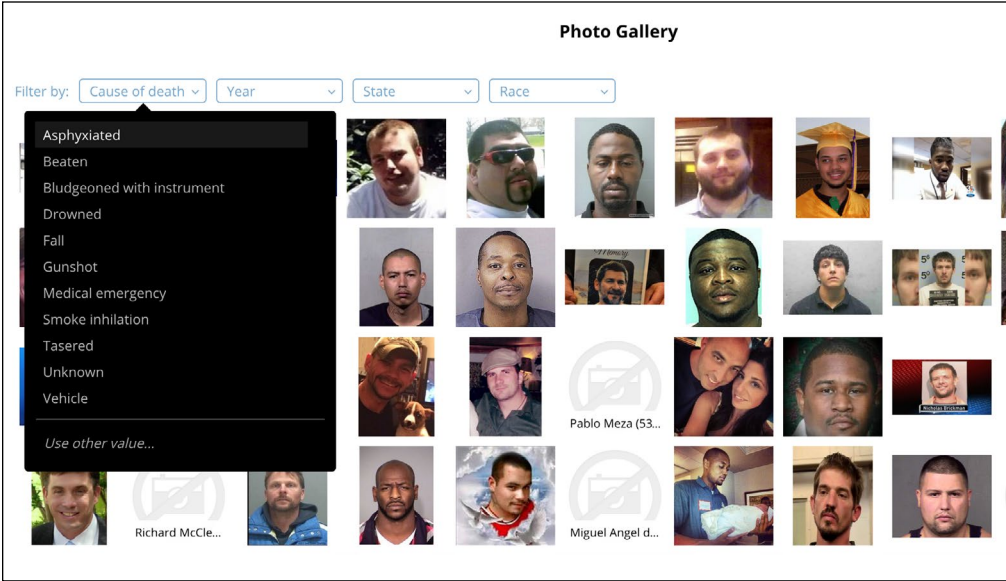
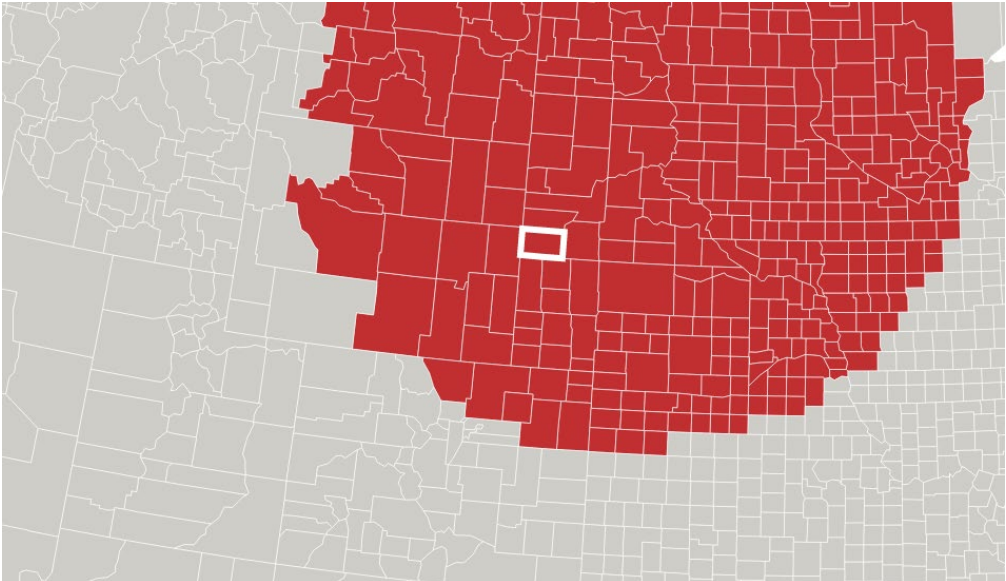
Gun law grades

Week 3

Sketches



- Week 3
- Research
- Other Inspirations



■ **Week 4**

■ **Revised Directions**

■ **Goal**

To create a tool to find patterns in civilian deaths by police shootings

■ **Datasets**

The What

Deaths by Police Shootings
Police Deaths by State
Firearm Deaths by State

The Why

High School Graduation Rates Per City
Gun Law Ranking Per State
Gun Ownership in Households Per State
Temperature on Day of Shooting per City

■ **Persona**



Simon

Age: 27
Education: Grad Student, Political Science
City: New York City, NY

“I want to understand the factors that contribute to deaths by police shootings.”

Key Characteristics

- Likes to see both sides of the story
- Looks for relationships between data
-

Motivations

- Wants to build a narrative himself to tell a complete story
- Wants to be bipartisan

Goals

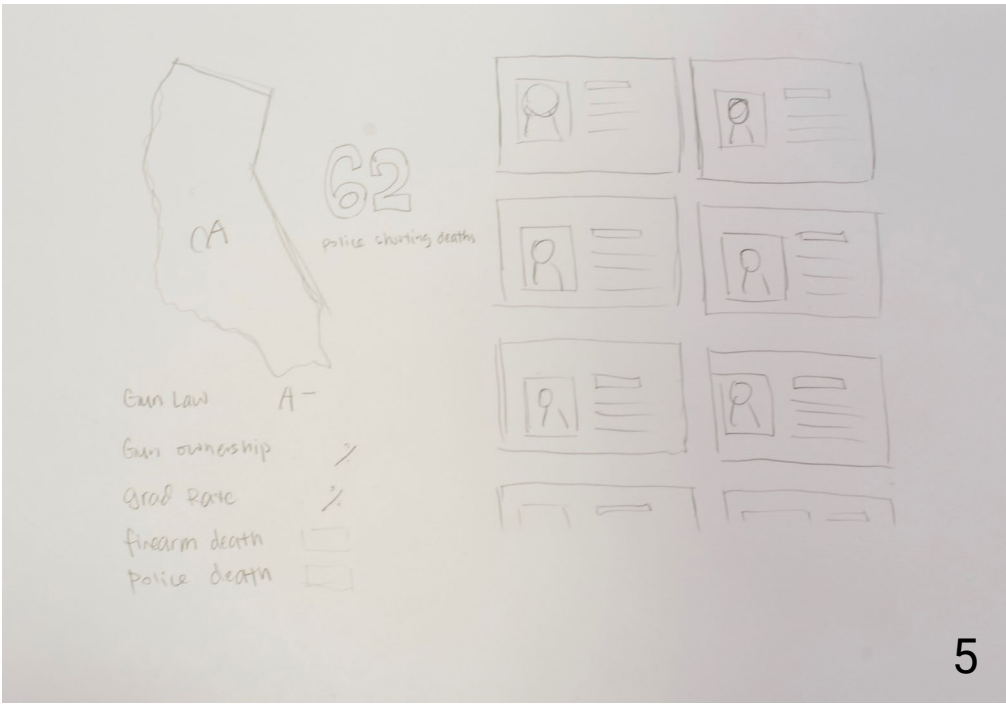
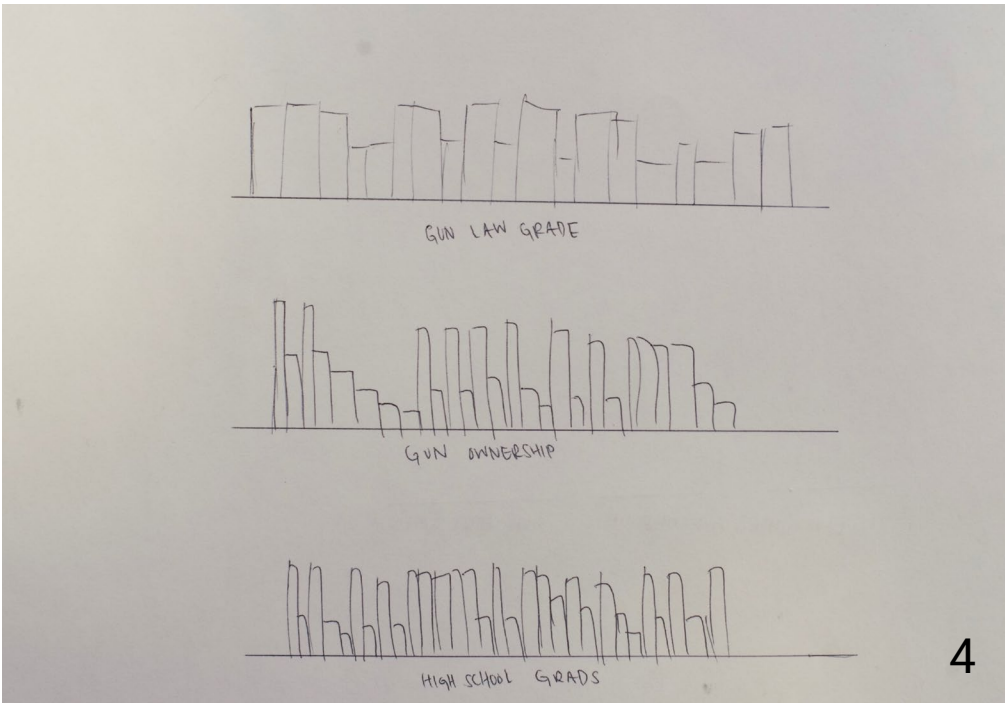
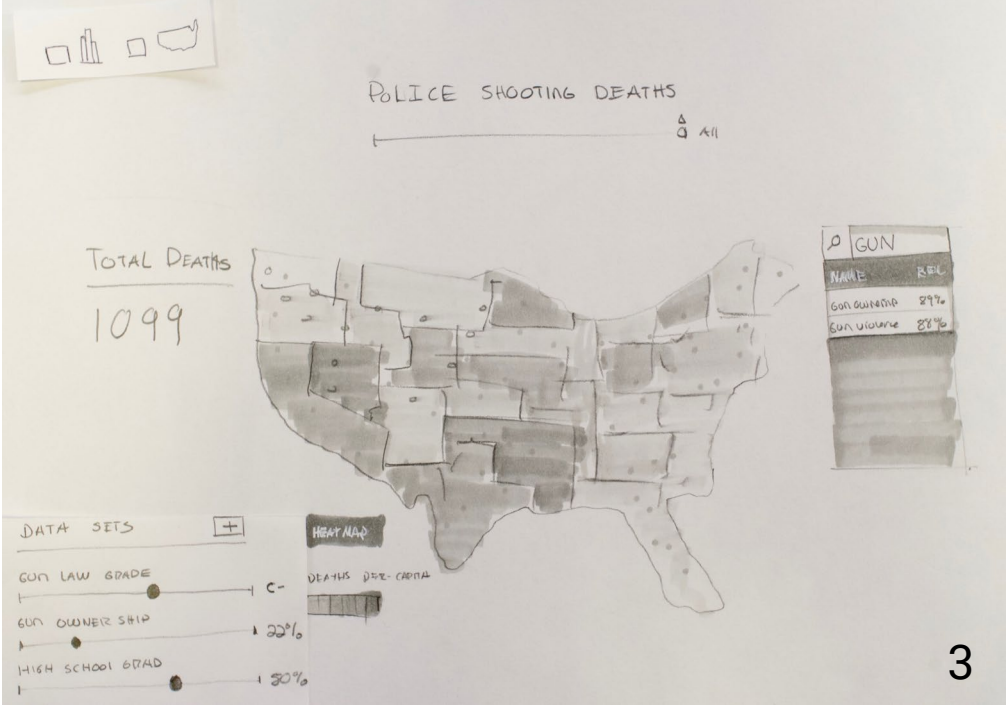
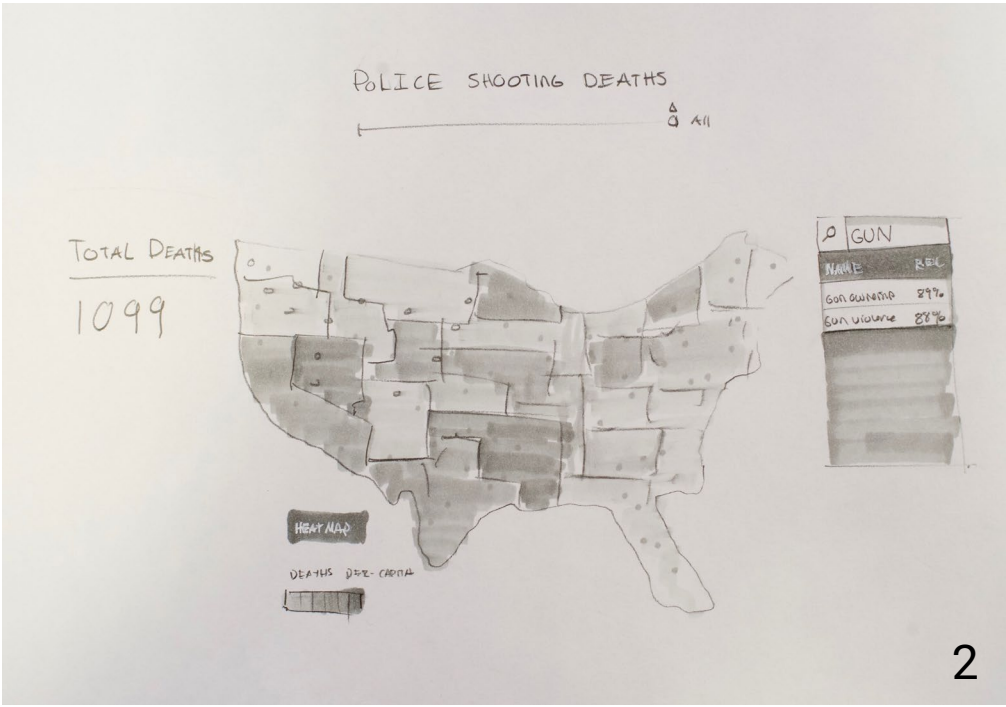
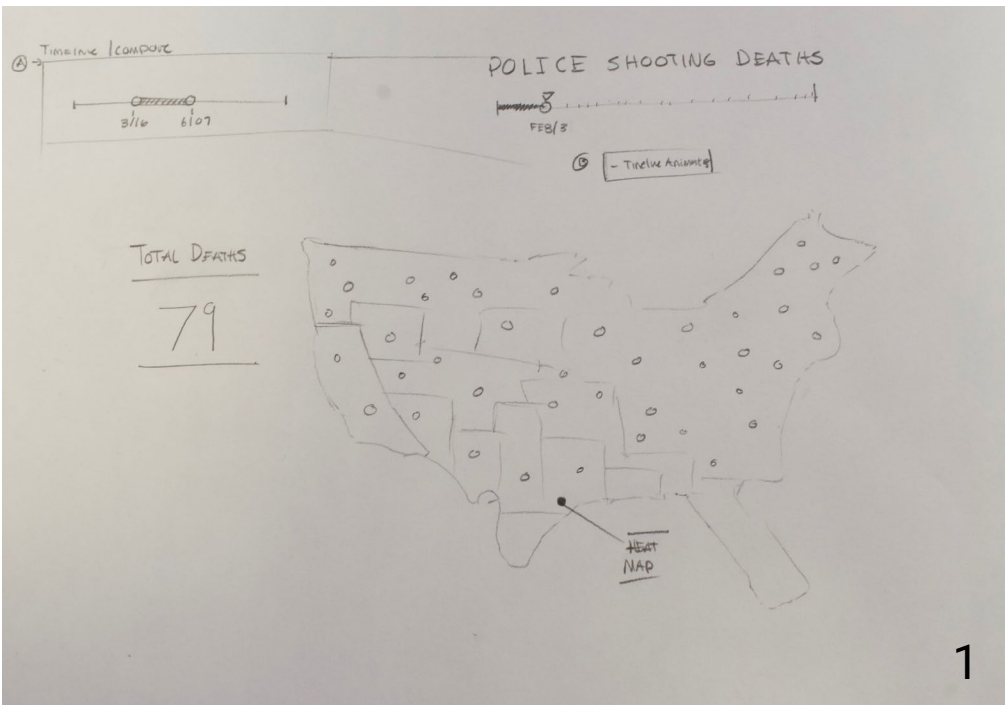
- Needs accurate and dependable information
- Needs a clear way to understand the data

Frustrations/Pain Points

- Skewed representation of shootings in the media
- Has a hard time comparing states and their gun laws, gun violence, etc.

Week 4

Low Fidelity Story Board



1. Animation counting numbers of deaths by police shooting. Each dot represents a person and the dots appear in chronological order.
2. A heat map comes in after the animation. The heat map shows deaths by police shooting per capita by state. User can compare the ratio in per capita and the actual number of deaths with the heat map and the dots.
3. Users can add other correlative data sets to compare with police shootings. The heat maps for different data sets will layer on top of each other. Users can use sliders to select a range on specific categories/data sets.
4. Users are able to toggle between map view and bar graph view. Bar graphs help to see correlations easier.
5. Click on each individual state, more detailed information of the state will appears, including the stats and each individual person's story.

Week 5

Analyzing Data

State	population_2014	frearm_death_2013	police_deaths_2014	gun_law_grade	gun_law_grade % total_death_per_state	police_shooting_deaths	gun_ownersuip_%	average_per_1000000 police	average_per_500000	graduation_rates_2012_2013
New Mexico	2.086 million people	15.5	1	0	0	323	0.499	9.1	3.715	0.703
Nevada	2.839 million people	13.8	2	0	0	392	0.375	8.5	2.430	0.707
Oklahoma	3.878 million people	16.5	3	0	0	640	0.312	7.7	2.127	0.848
Arizona	6.731 million people	14.1	3	0	0	949	0.323	6.7	1.047	0.849
Mississippi	2.994 million people	17.8	2	0	0	533	0.428	6.7	2.973	0.755
Utah	2.943 million people	12.6	1	0	0	371	0.319	6.1	2.141	0.830
Montana	1.024 million people	16.7	1	0	0	171	0.523	5.9	8.154	0.844
Kansas	2.904 million people	11.4	1	0	0	331	0.322	5.5	1.963	0.857
Louisiana	4.65 million people	19.3	4	0	0	897	0.445	5.2	2.075	0.735
Wyoming	584153 people	16.7	0	0	0	98	0.538	5.1	14.294	0.770
Washington	7.062 million people	8.7	1	2.67	0.6675	614	0.277	4.8	0.616	0.764
Florida	19.89 million people	11.9	6	0	0	2367	0.325	4.7	0.299	0.756
Maine	1.33 million people	10.9	0	0	0	145	0.226	4.5	4.098	0.864
California	38.8 million people	7.7	15	4.00	1.00	2988	0.201	4.5	0.198	0.769
Kentucky	4.413 million people	13.7	1	0	0	605	0.424	4.3	1.552	0.861
Delaware	935614 people	10.3	0	3.00	0.75	96	0.520	4.3	5.504	0.718
Alabama	4.849 million people	17.6	0	0	0	853	0.489	4.1	1.815	0.718
Missouri	6.064 million people	14.4	2	0	0	873	0.271	4.1	1.187	0.857
Oregon	3.97 million people	11	0	1.3	0.325	437	0.266	4.0	1.385	0.687
Texas	26.96 million people	10.6	11	0	0	2858	0.357	4.0	0.197	0.880
Colorado	5.356 million people	11.5	1	2.00	0.50	616	0.343	3.9	1.074	0.855
Tennessee	6.549 million people	15.4	5	0	0	1009	0.394	3.8	1.176	0.863
West Virginia	1.85 million people	14.3	0	0	0	265	0.542	3.8	3.865	0.814
South Carolina	4.832 million people	15.2	3	0	0	734	0.444	3.7	1.573	0.776
Maryland	5.976 million people	9.7	1	3.67	0.9175	580	0.207	3.7	0.812	0.850
South Dakota	853175 people	10	0	0	0	85	0.350	3.5	5.860	0.827
Nebraska	1.882 million people	9	2	1	0.25	169	0.198	3.2	2.391	0.885
Georgia	10.1 million people	12.6	4	0	0	2	0.316	3.0	0.624	0.717
North Carolina	9.944 million people	12.1	2	0	0	1203	0.287	2.9	0.608	0.825
Iowa	3.107 million people	8	0	1.67	0.4175	249	0.338	2.9	1.287	0.897
Hawaii	1.42 million people	2.6	0	3.33	0.8325	37	0.451	2.8	0.915	0.824
Alaska	736732 people	19.8	2	0	0	146	0.617	2.7	13.438	0.751
Illinois	12.88 million people	8.6	1	3.33	0.8325	1108	0.262	2.6	0.334	0.832
Ohio	11.59 million people	11	1	1	0.25	1275	0.196	2.6	0.475	0.822
Idaho	1.634 million people	14.1	0	0	0	230	0.569	2.4	4.315	0.773
Minnesota	5.457 million people	7.6	1	2.00	0.50	415	0.367	2.4	0.696	0.798
Michigan	9.91 million people	12	2	2.00	0.50	1189	0.288	2.1	0.605	0.770
Arkansas	2.966 million people	16.8	1	0	0	498	0.579	2.0	2.832	0.804
New Jersey	8.938 million people	5.7	4	3.67	0.9175	509	0.113	2.0	0.319	0.875
Wisconsin	5.758 million people	9.7	1	1.67	0.4175	559	0.347	1.7	0.842	0.880
Indiana	6.597 million people	13	4	0.67	0.1675	858	0.338	1.7	0.985	0.870
Vermont	626562 people	9.2	0	0	0	58	0.288	1.6	7.342	0.866
Virginia	8.326 million people	10.2	3	1	0.25	849	0.293	1.4	0.613	0.845
North Dakota	739482 people	11.8	0	0	0	87	0.479	1.4	7.979	0.875
Pennsylvania	12.79 million people	11.2	3	2.00	0.50	1432	0.271	1.3	0.438	0.855
New York	19.75 million people	4.2	17	3.67	0.9175	830	0.103	1.3	0.106	0.768
Rhode Island	1.055 million people	5.3	0	3.33	0.8325	56	0.580	0.9	2.512	0.797
Massachusetts	6.745 million people	3.1	2	3.67	0.9175	209	0.226	0.9	0.230	0.850
Connecticut	3.597 million people	4.4	0	4.00	1.00	158	0.166	0.8	0.612	0.804
New Hampshire	1.327 million people	6.4	1	0.67	0.1675	85	0.144	0.8	2.411	0.873

Data sets:
Death by police shooting (main)
gun laws - ranking by state
gun ownership (2013)
Police deaths (2014)
Firearm deaths
high school graduation rates

The datasets above are the ones we decided to work with. And we think it would help us better understand the data sets if we calculate the actual correlation between police shooting and other data sets.

Correlations:

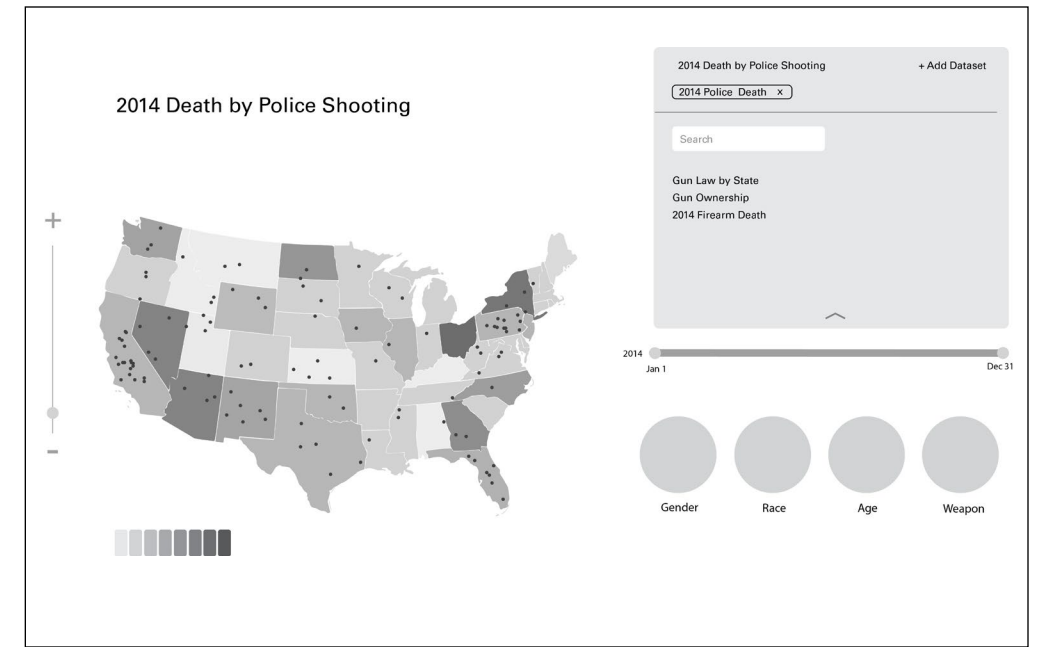
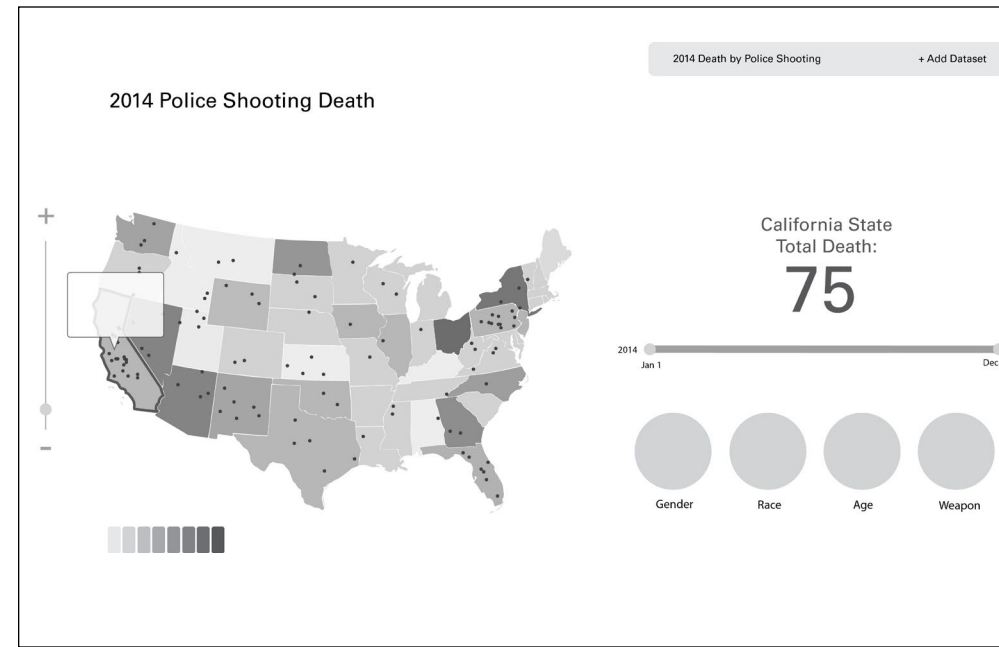
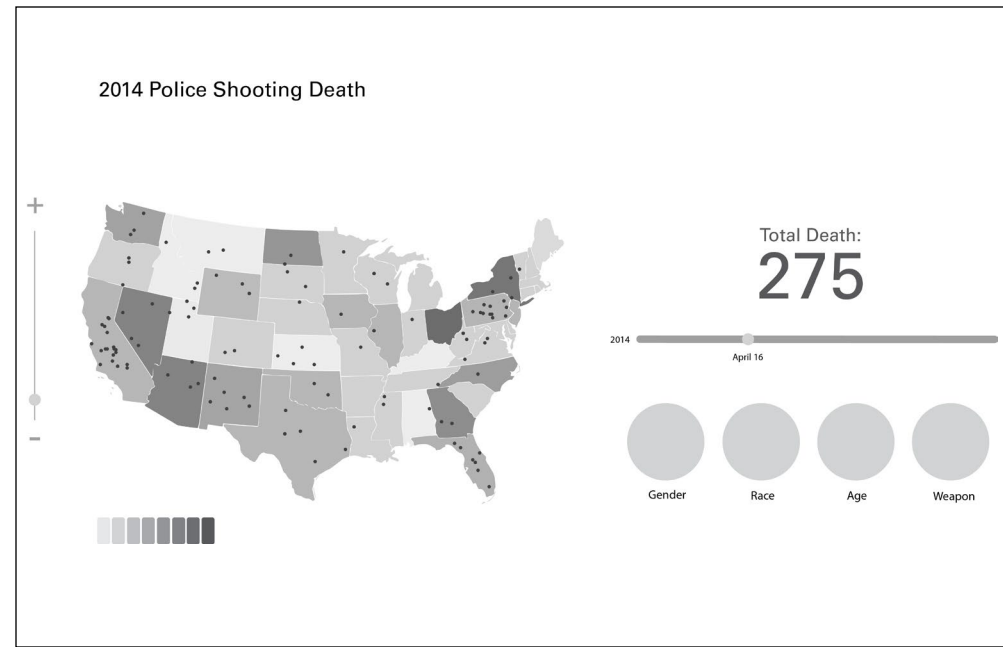
- death by police shooting
gun law grade 11%
gun ownership -24%
police deaths 71% (there are as many people being shot by police as there are police being shot by people)
firearm deaths 12% (there is an insignificant correlation; the amount of people being shot does not relate to the amount being shot by police)
high school grad rates -11%
- gun law grade
gun ownership -42% (as gun laws get better, gun ownership goes down)
police deaths 21%
firearm deaths -77% (as gun laws get better, firearm deaths go down)
high school grad rates 3%
- gun ownership
police deaths 24%
firearm deaths 58% (as gun ownership goes up, firearm deaths go up)
high school grad rates -32%
- Police deaths
firearm deaths -14%
high school grad rates -6%
- firearm deaths
high school grad rates



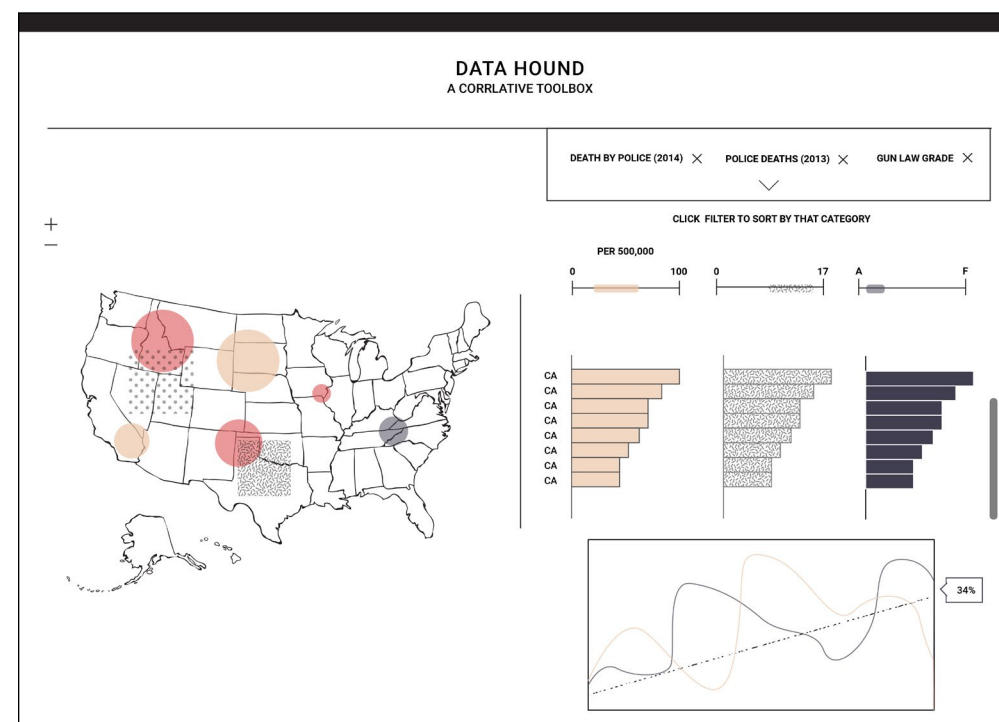
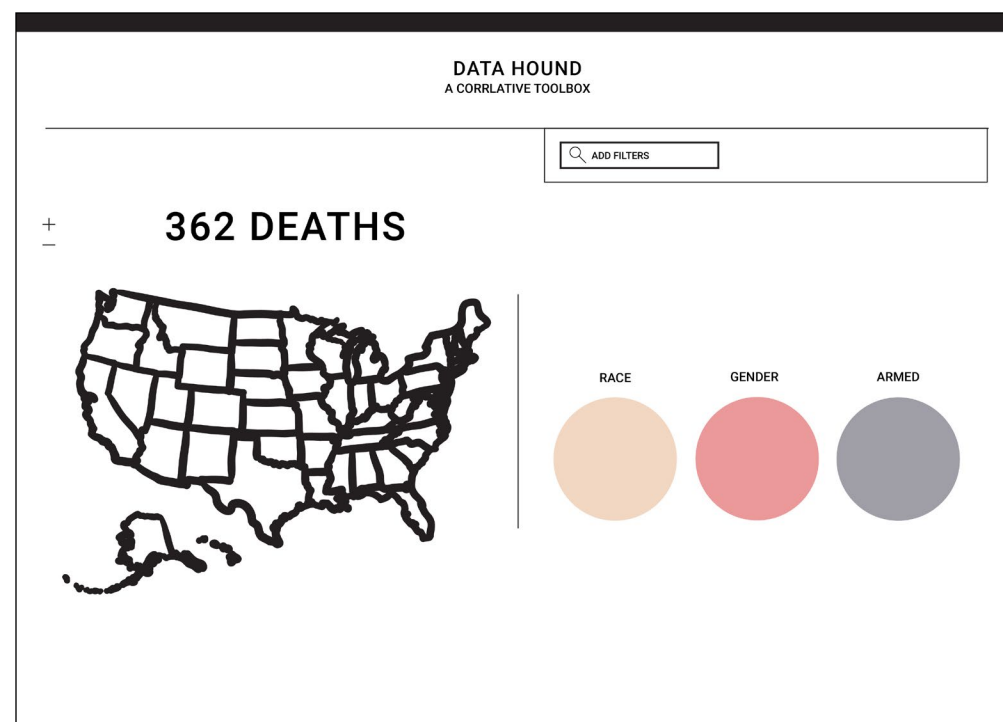
Week 5



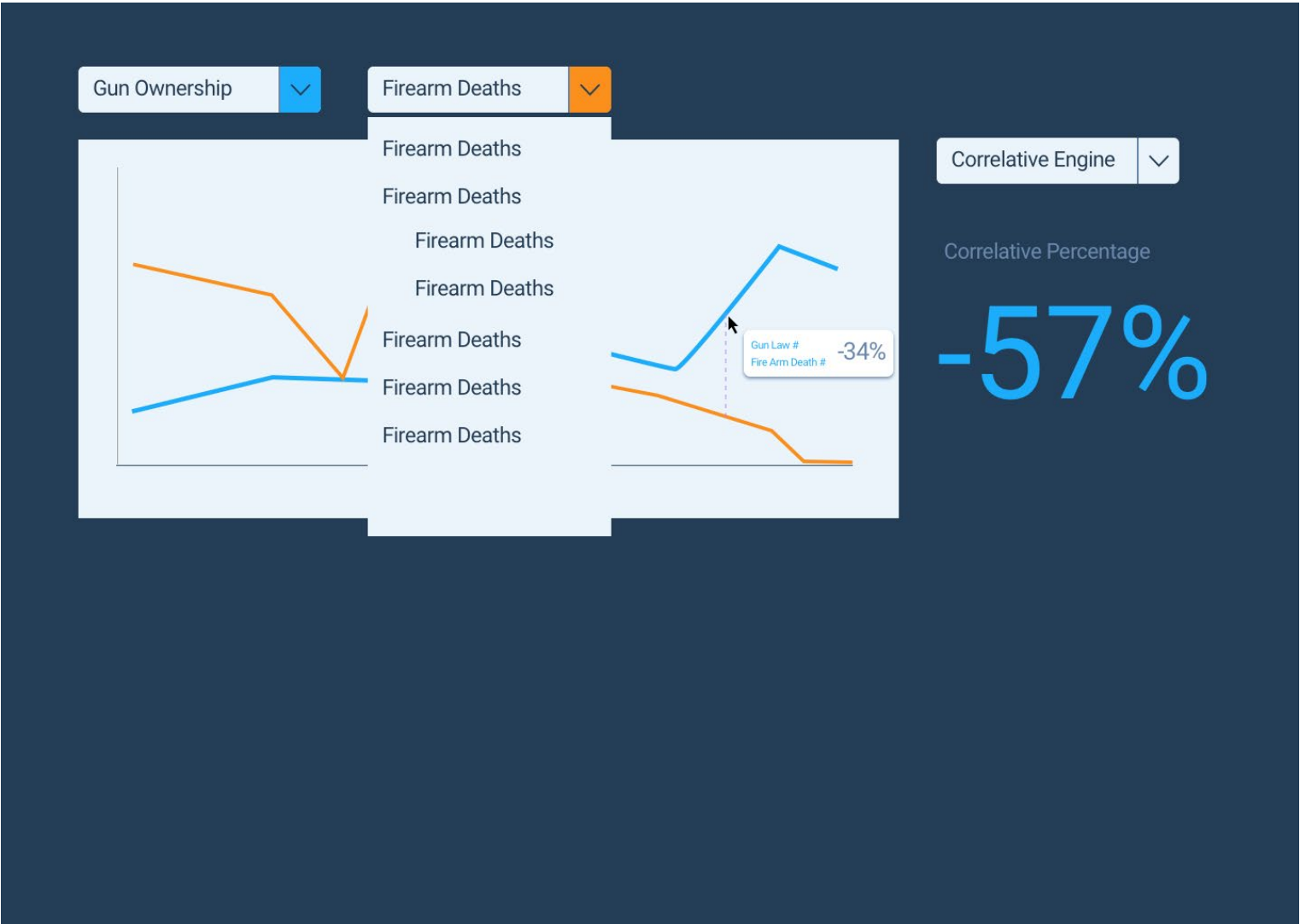
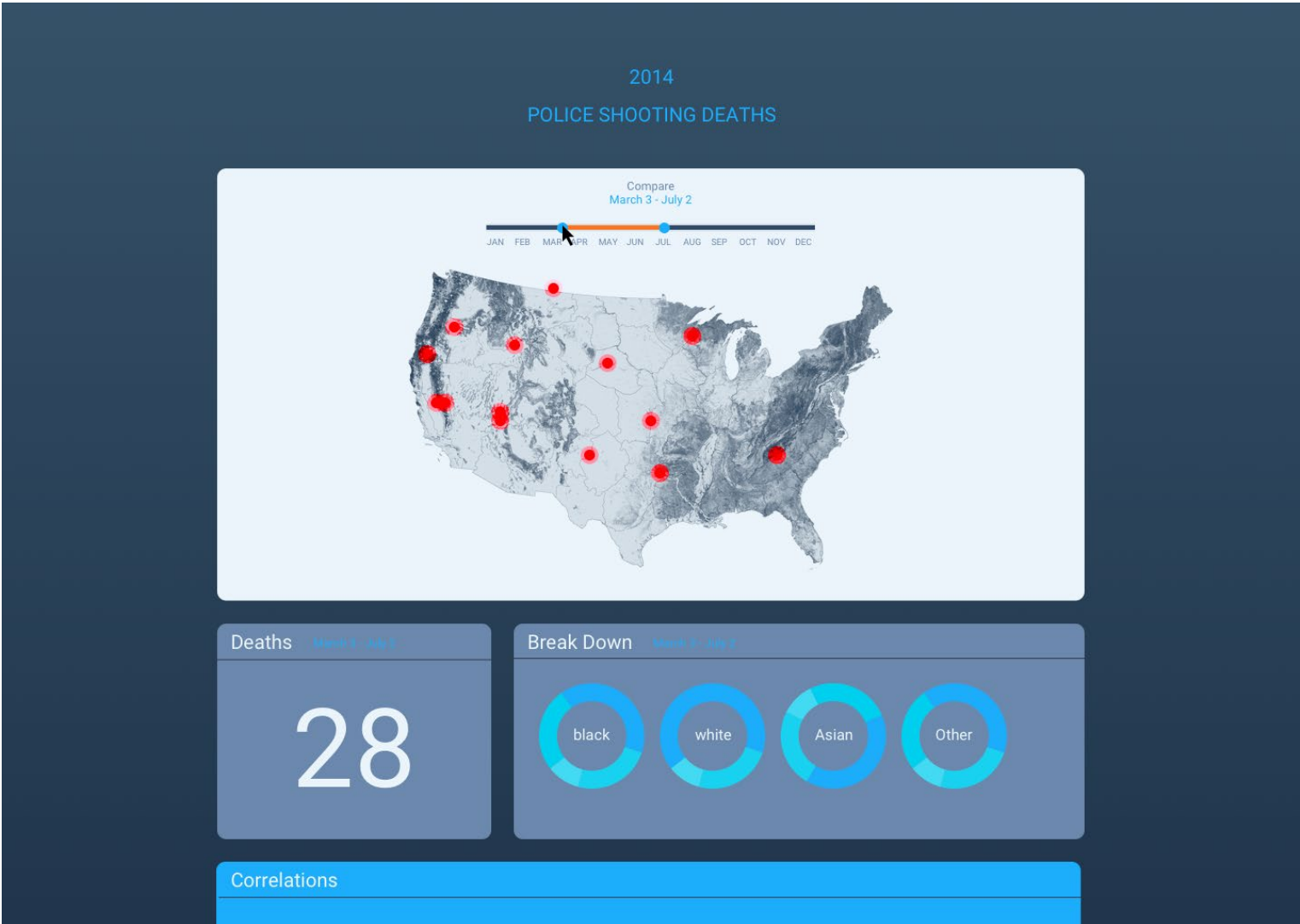
Medium Fidelity Wireframes 1



Medium Fidelity Wireframes 2

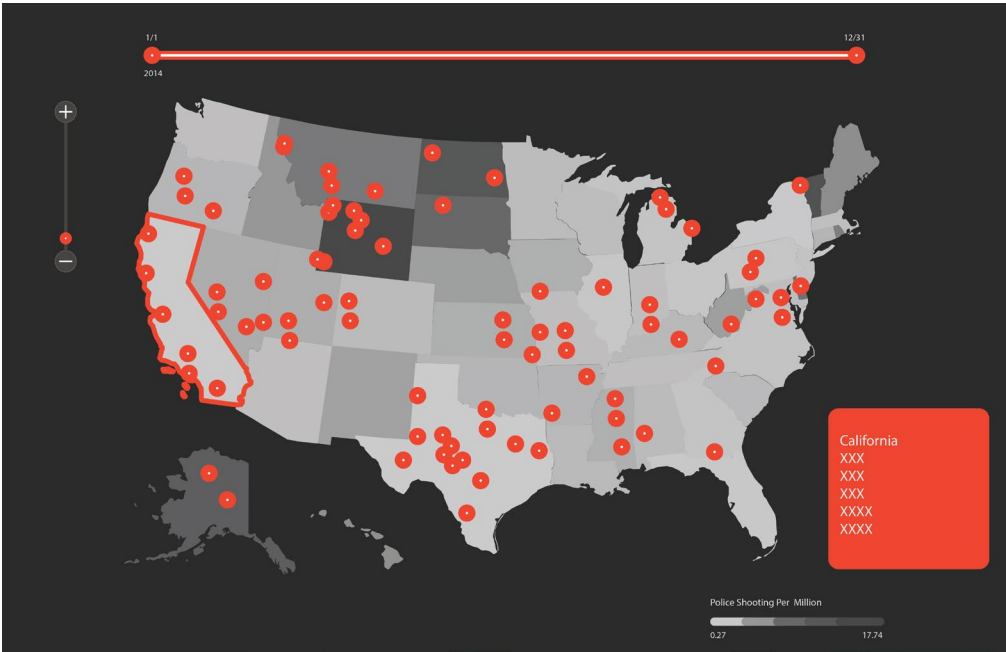
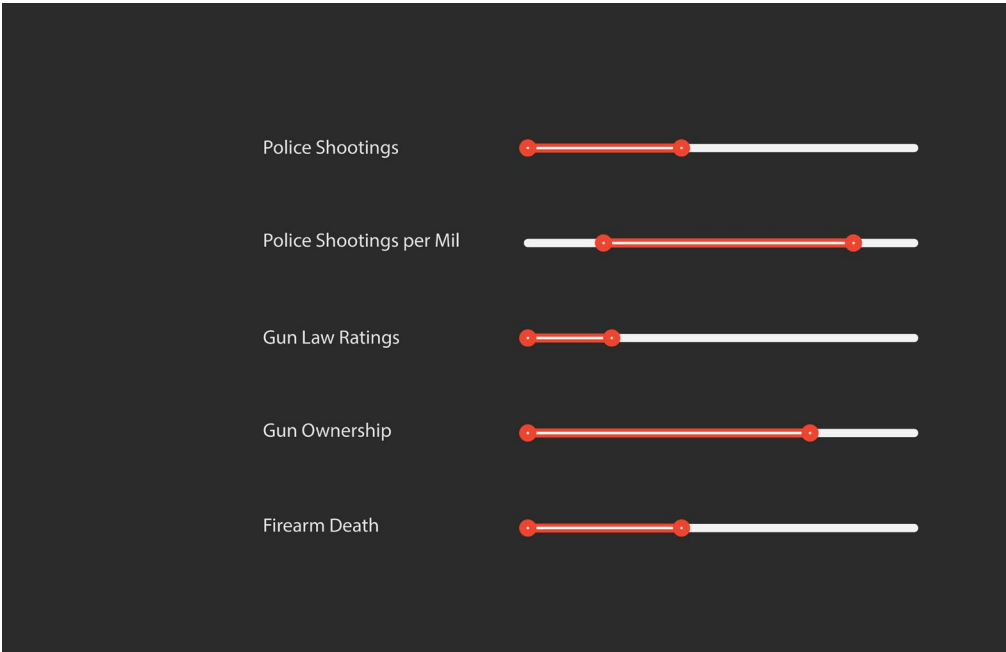
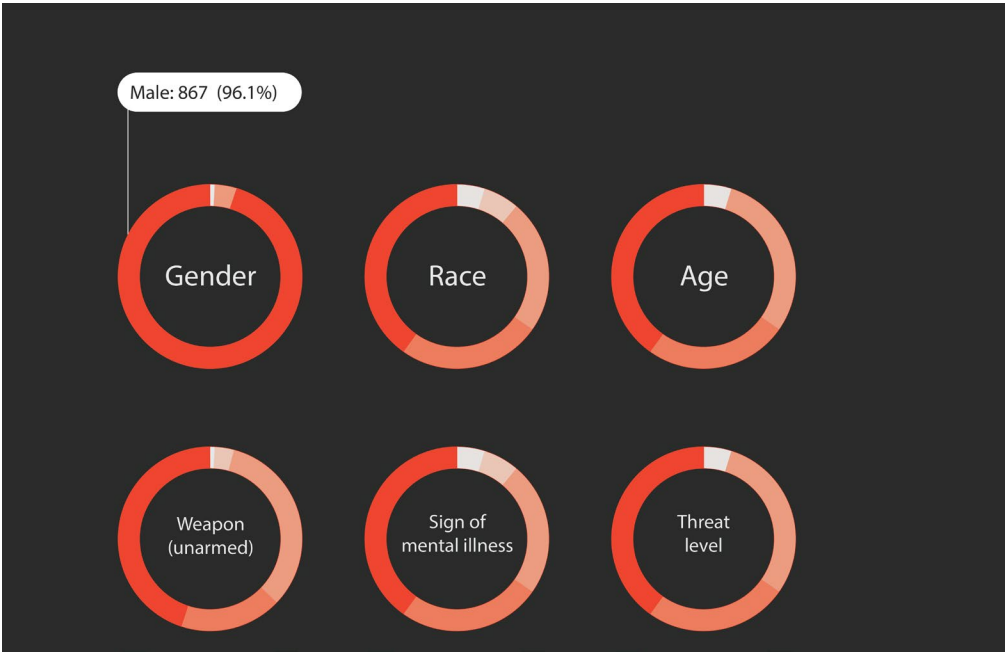
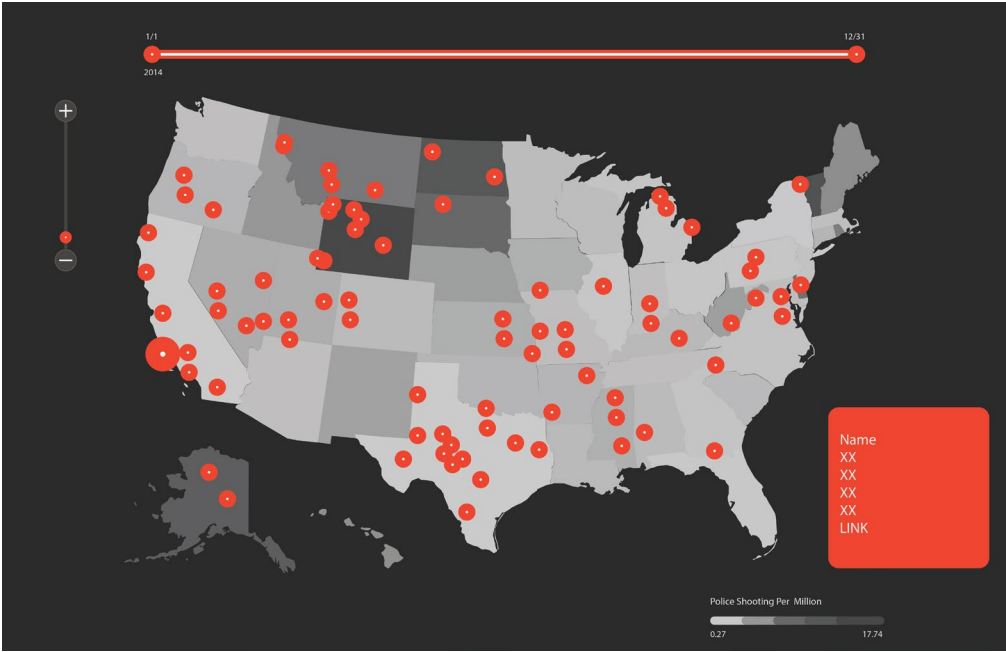
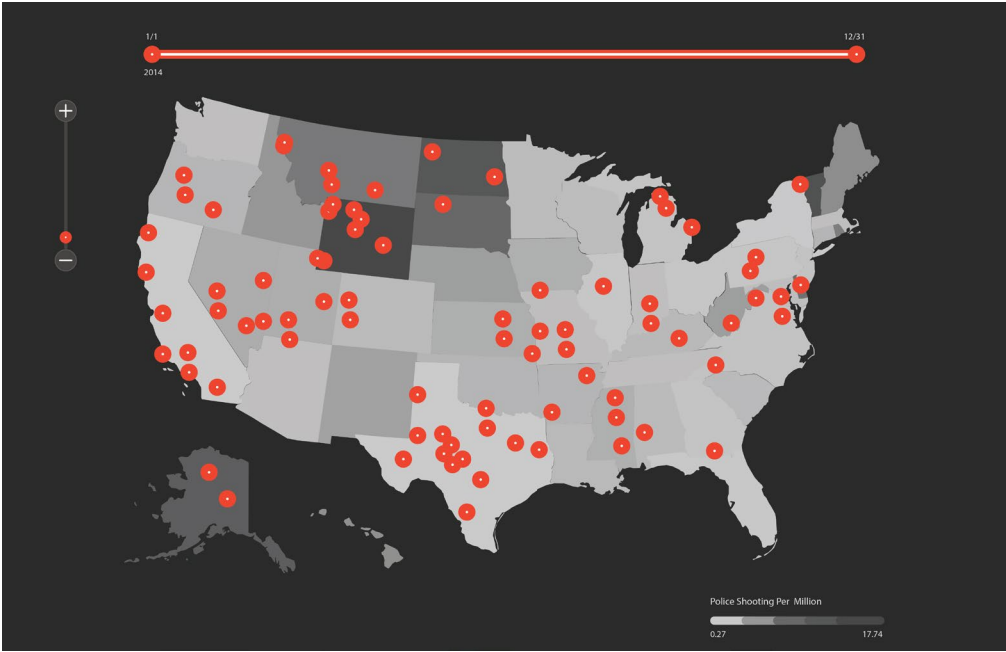
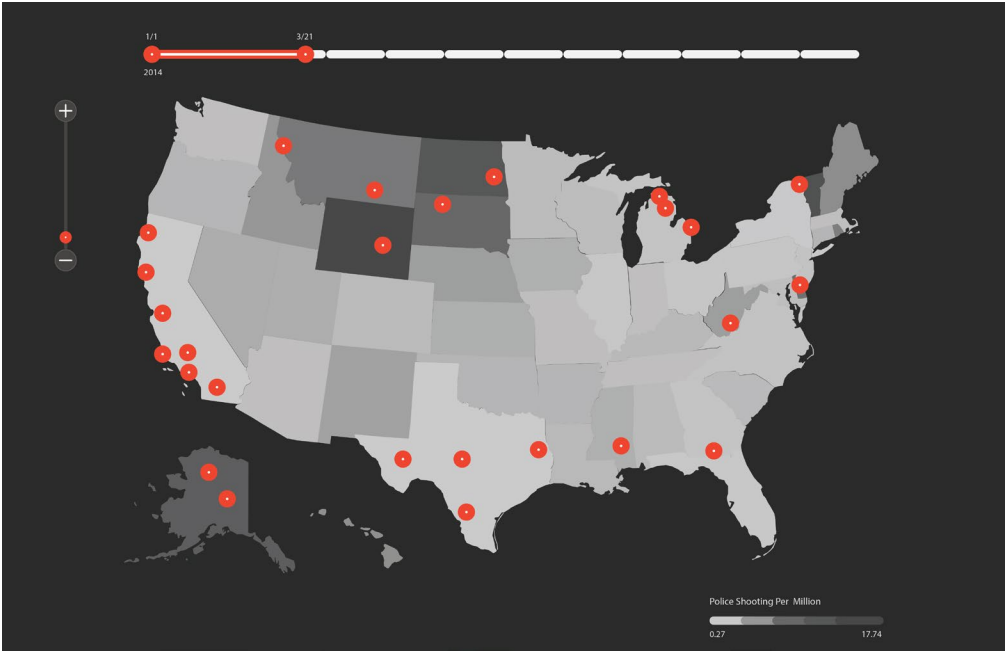


- Week 5
- Revised Wireframes



Week 6

High Fidelity Wireframes



■ Week 6

■ Goal

To create a correlative toolbox that allows the user to compare datasets by choosing from a huge array of data categories.

■ Final Persona



Simon

Age: 27
Education: Grad Student, Political Science
City: New York City, NY

“I want to understand the factors that contribute to deaths by police shootings.”

Key Characteristics

- Likes to have figures to back up his arguments
- Likes to see both sides of the story
- Looks for relationships between data

Motivations

- Wants to build a narrative himself to tell a complete story
- Wants to be bipartisan

Goals

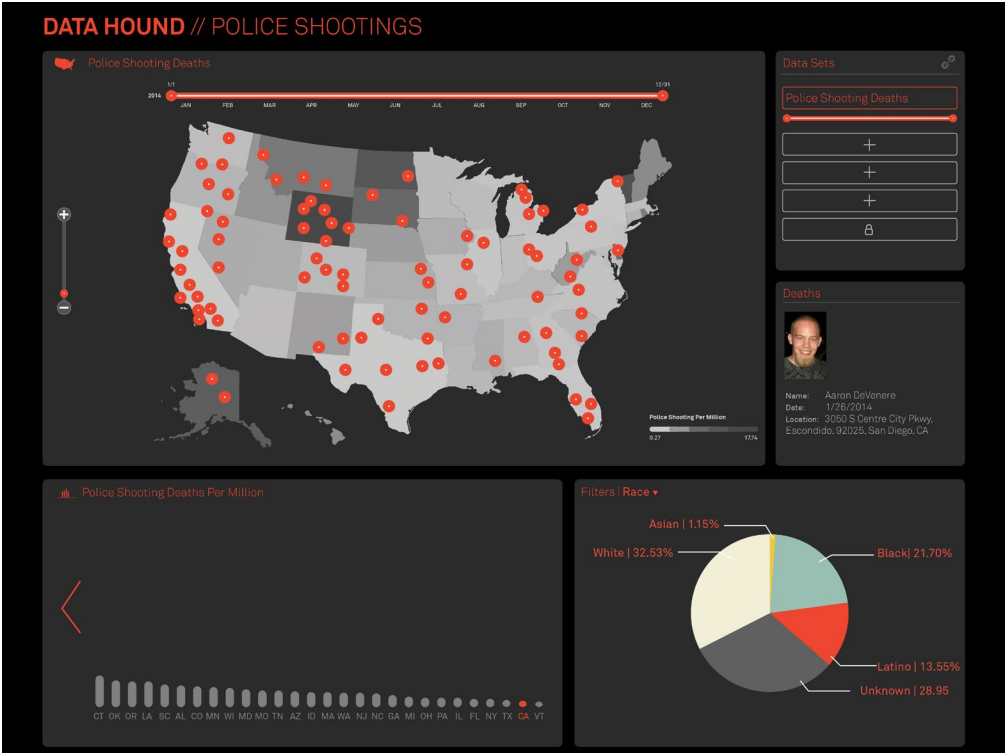
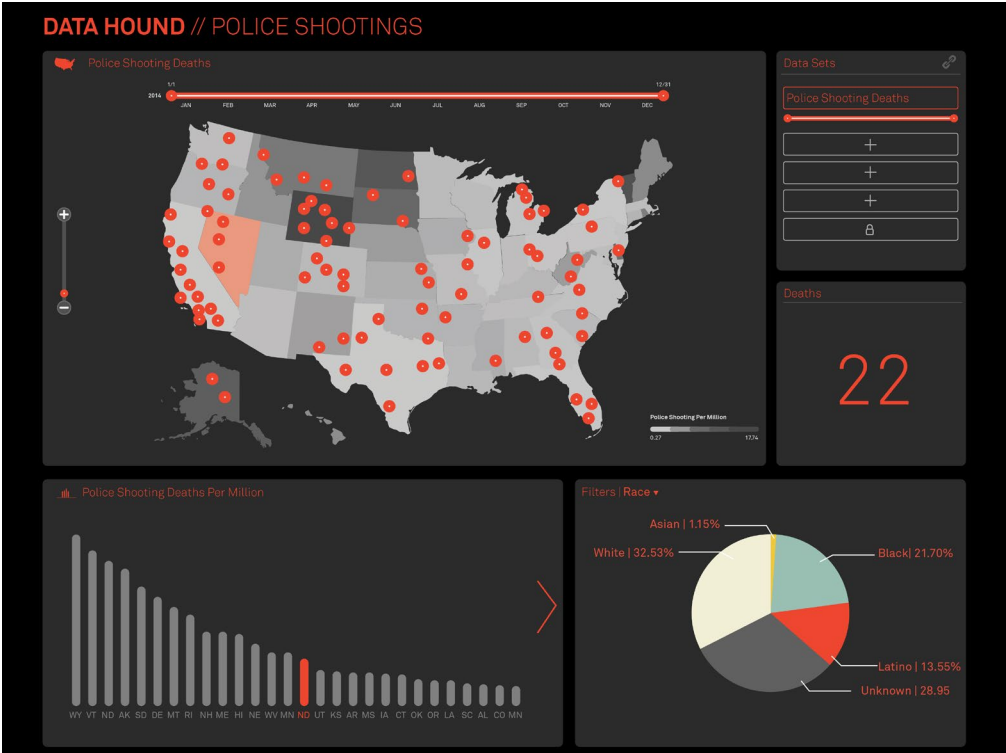
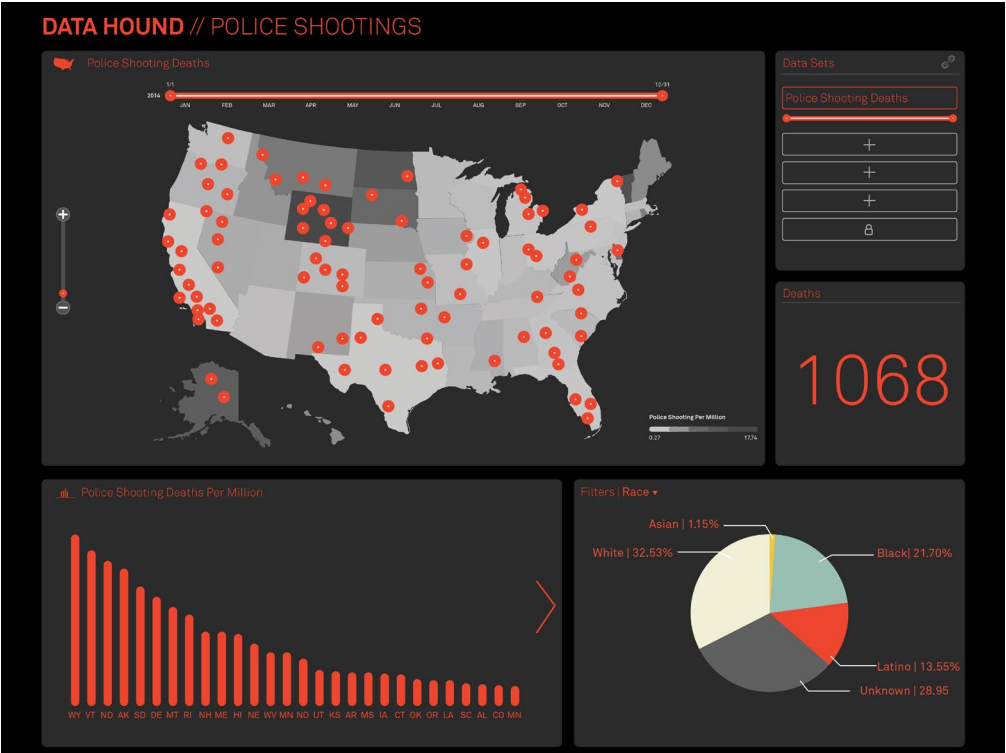
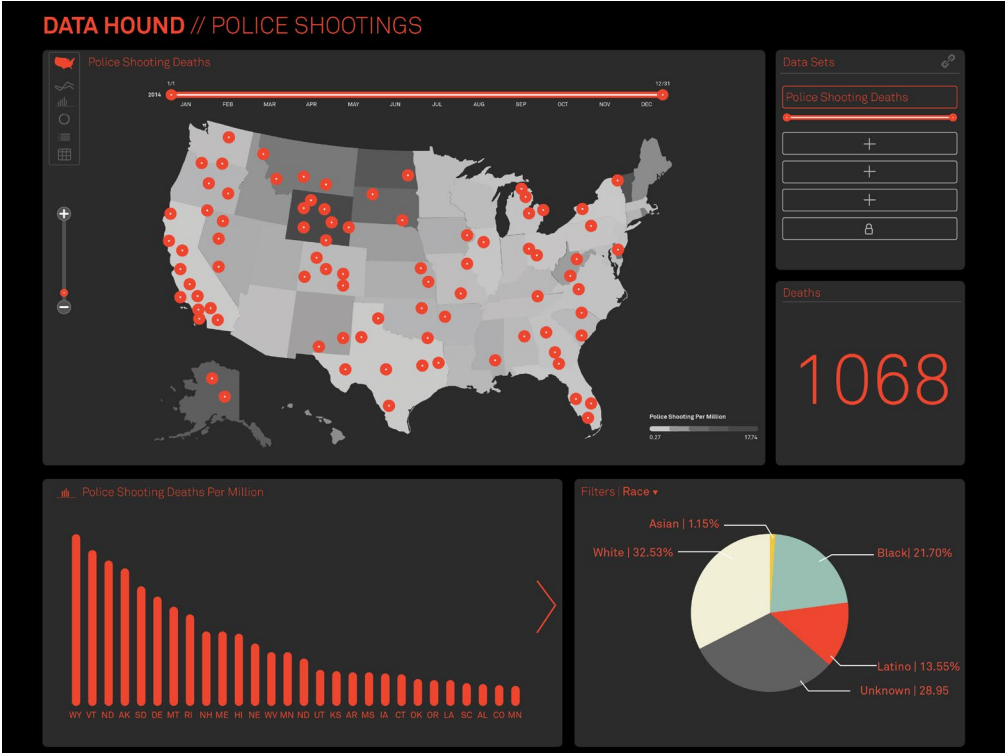
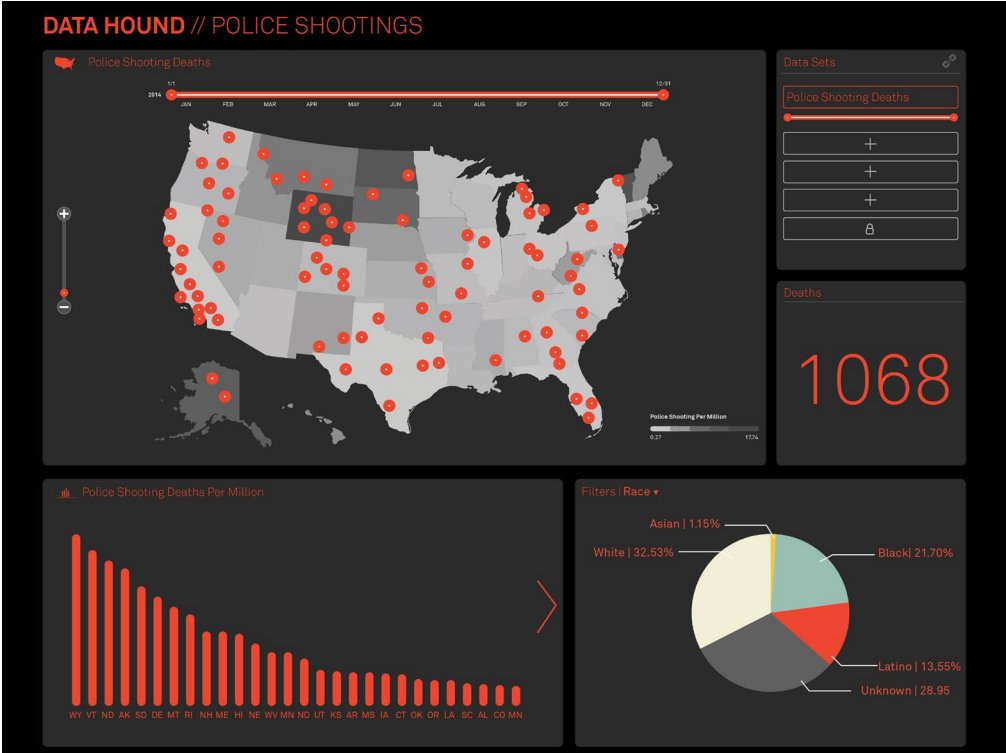
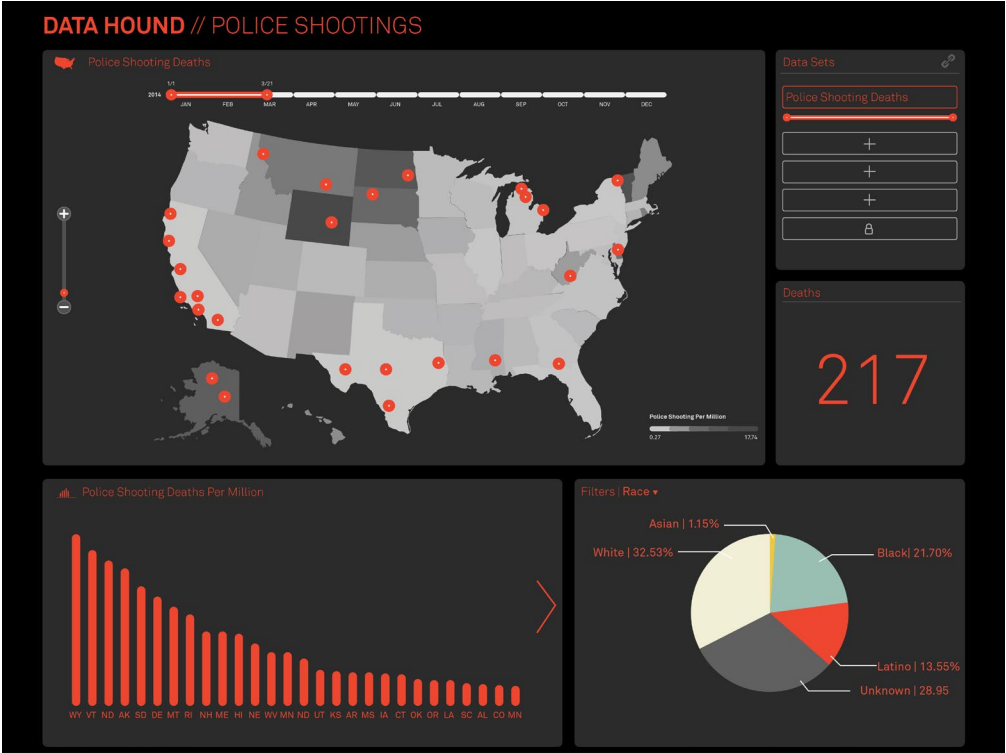
- Compare different sets of data surrounding shootings to develop his thesis
- Needs accurate and dependable information
- Needs a clear way to understand the data

Frustrations/Pain Points

- Has a hard time comparing states and their gun laws, gun violence, etc., to see how they are similar and different
- Skewed representation of shootings in the media

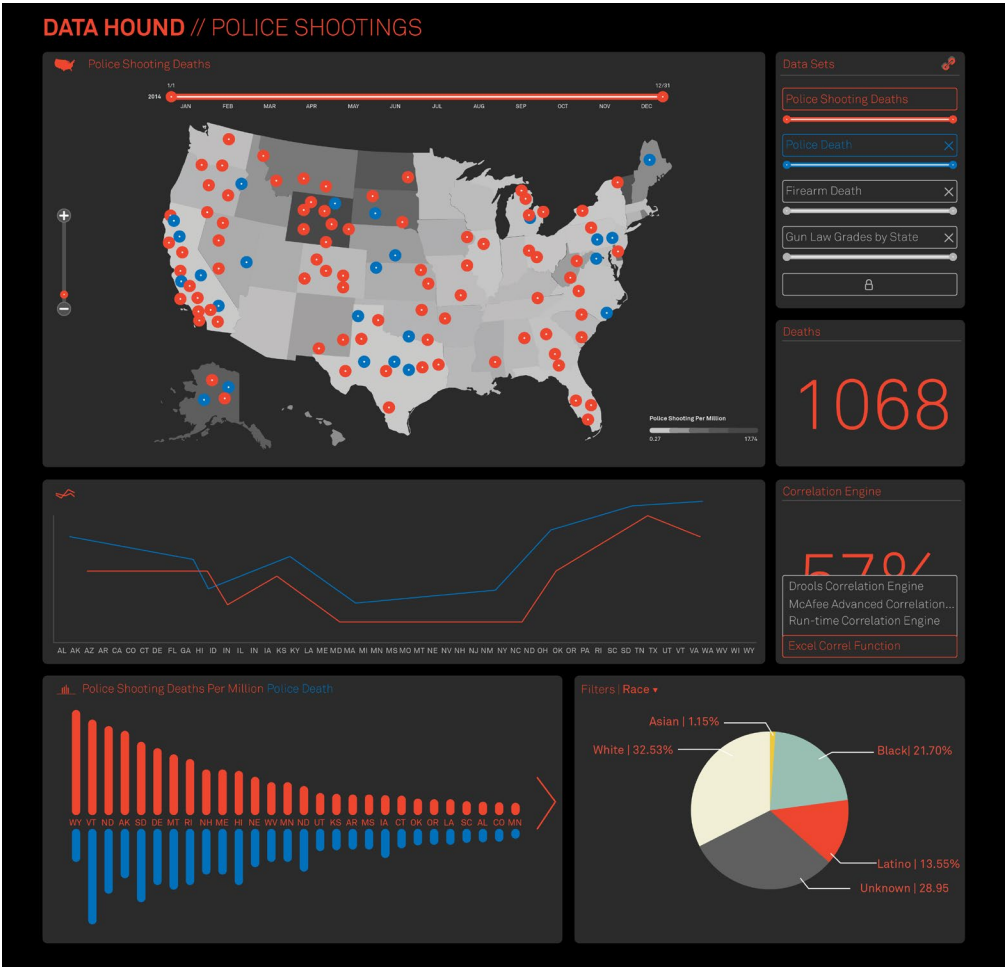
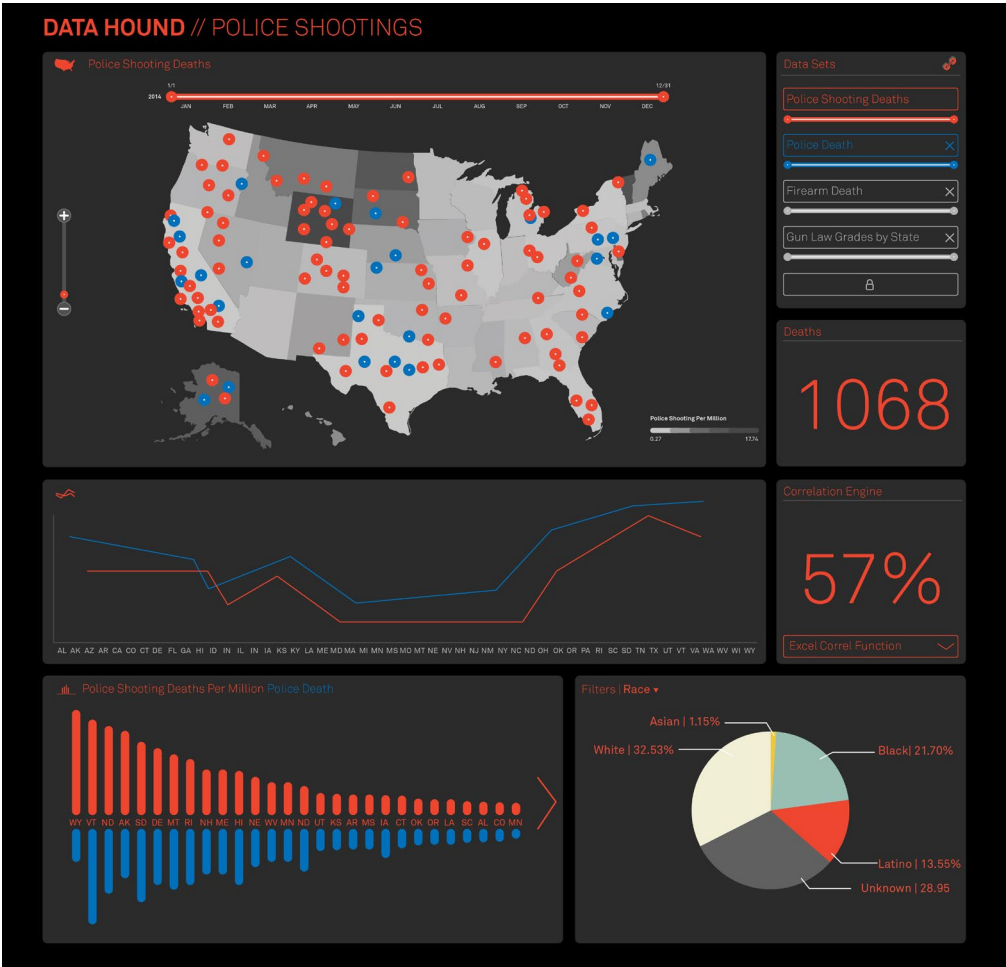
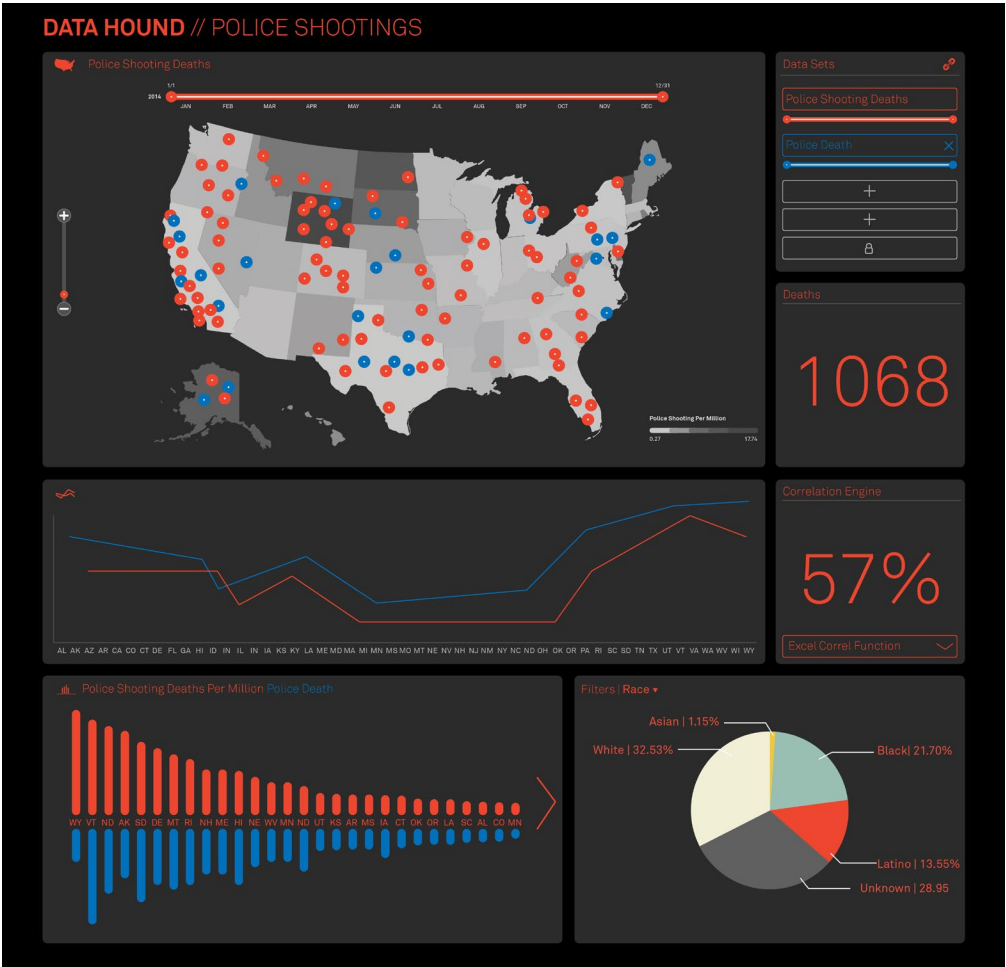
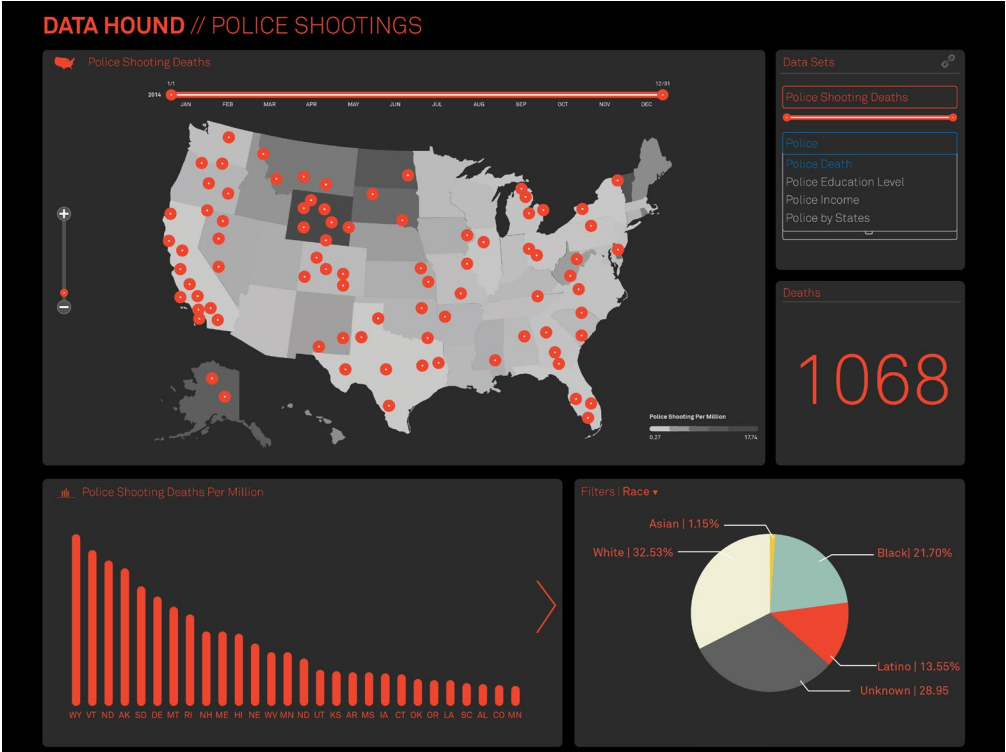
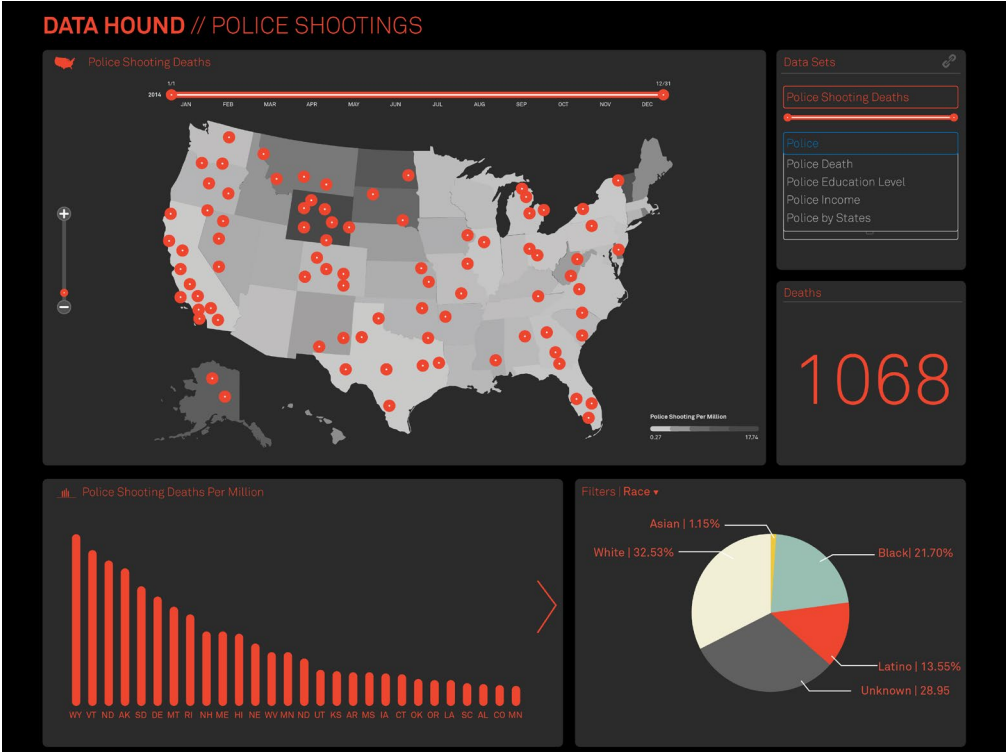
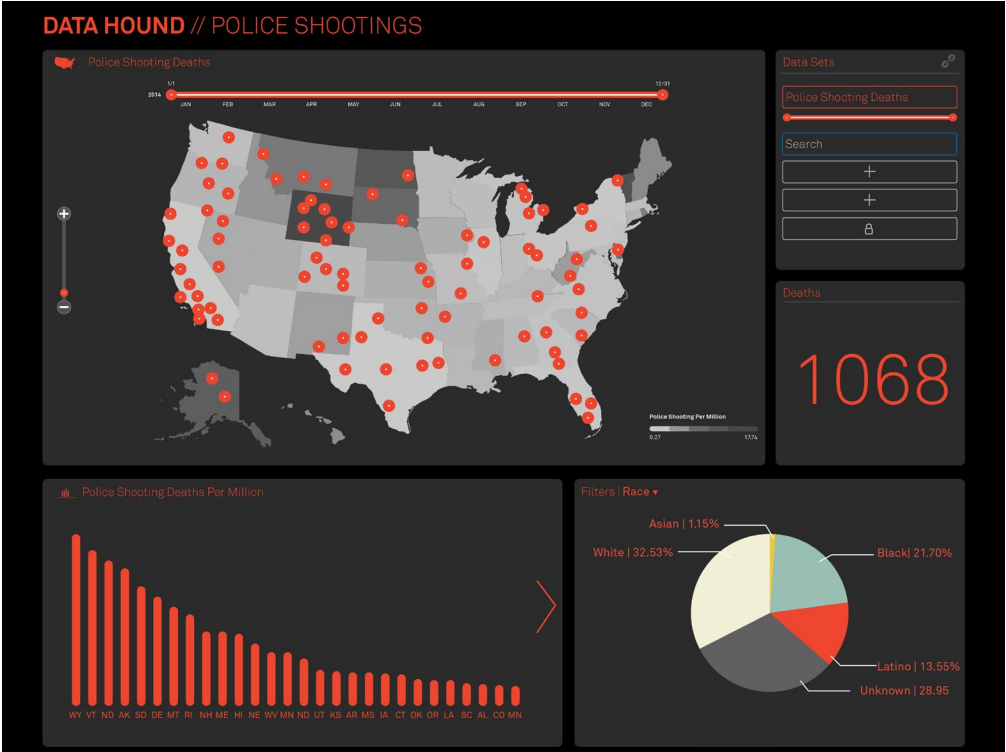
Week 6

Final Screens



Week 6

Final Screens



Week 6

Final Screens

