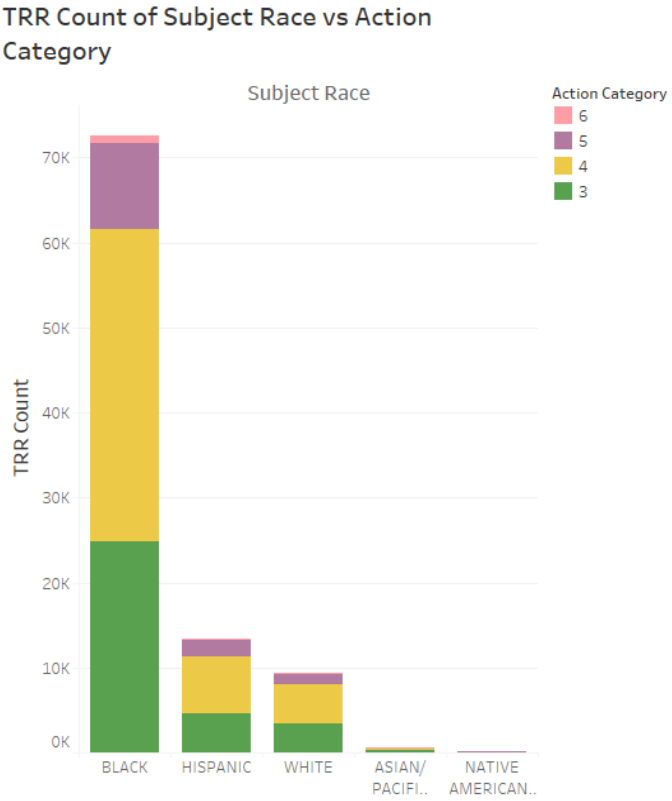
Quick Turkeys - Lucas Yuan, Jiren Li, Renzhi Hao
CS 396 Data Seminar
Checkpoint 2: Data Exploration

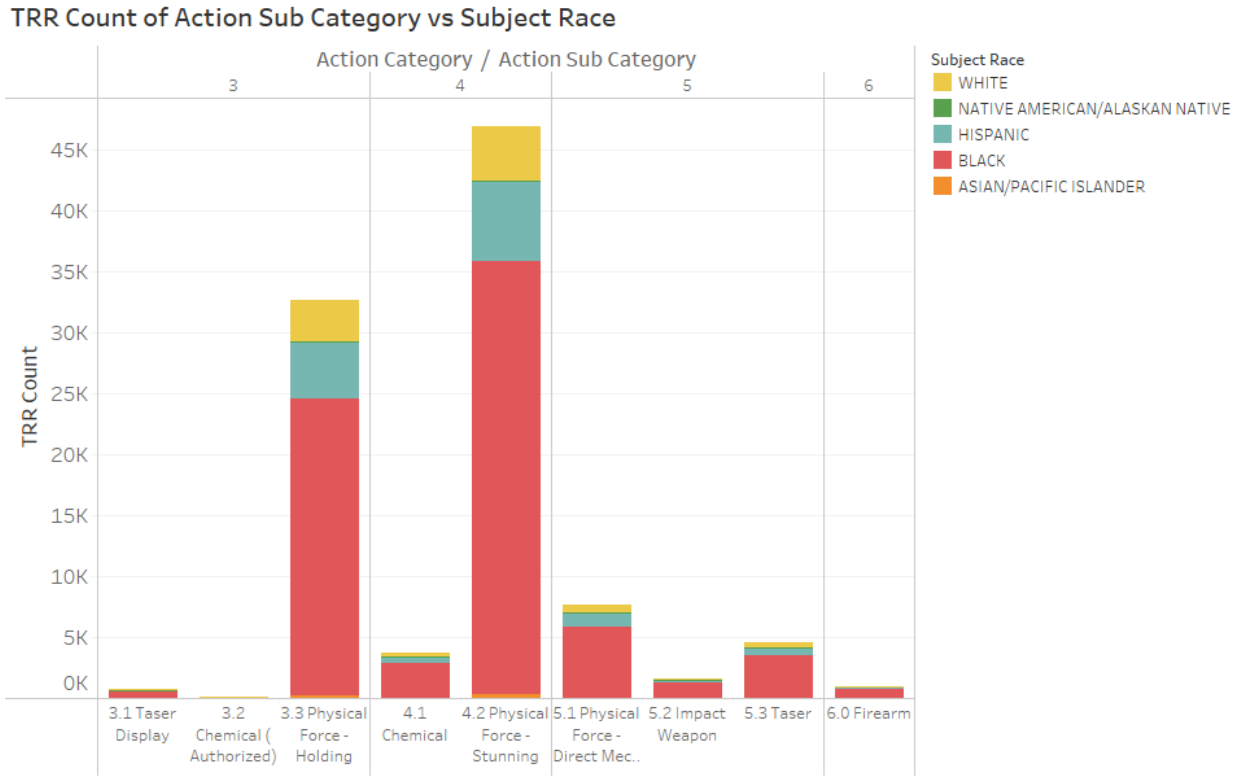
For our project, we are investigating how neighborhood demographics play a part in what types of force police officers use, and in order to accomplish this we were looking at the Tactical Response Report (TRR) data. For example, is an officer more likely to use a weapon against people of different races? We were also looking into what types of officers commit TRRs the most. Furthermore, we also wanted to look into how TRRs and excessive force allegations tracked with one another. We want to look into this in order to look further into how police officers use violence, and what situations and locations they are more or less likely to use violence in.

1.We created two stack bar graphs for subject race vs action extent of police members. The first one is the subject race vs action category.

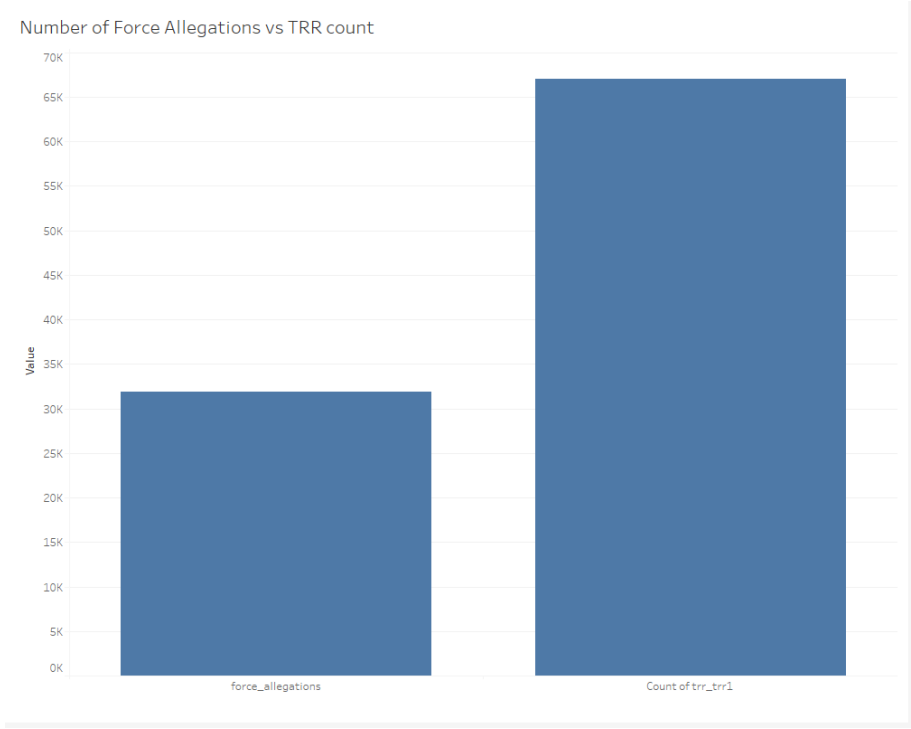


It shows that the black race is the most commonly the subject of a TRR in general which reaches over 70K, and also is the predominantly most commonly the subject of a TRR in all 4 action categories that involve forces (the 0 and 1 don't involve forces and 2 is not classified descriptions).

To be specific, we created a stack bar graph for subject race vs action sub category. As shown from the graph below, the 4.2 physical force-stunning is the most commonly the extent of member action for all the races and reaches over 45K with the black race taking the most part of it.The second is 3.3 physical force-holding which reaches over 30K with the black race taking the most part.



2. We created a bar graph for TRRs vs excessive force allegations.



As we can see here, there are about half as many use of force allegations as there are TRRs. However, this data doesn't tell the whole story since some of these use of force allegations may not be legitimate complaints. On the other hand, people who have legitimately had force used against them may be unwilling to step forward due to a variety of societal factors. Based on this, we are unsure as to whether or not use of force allegations are more or less likely than the data would indicate.

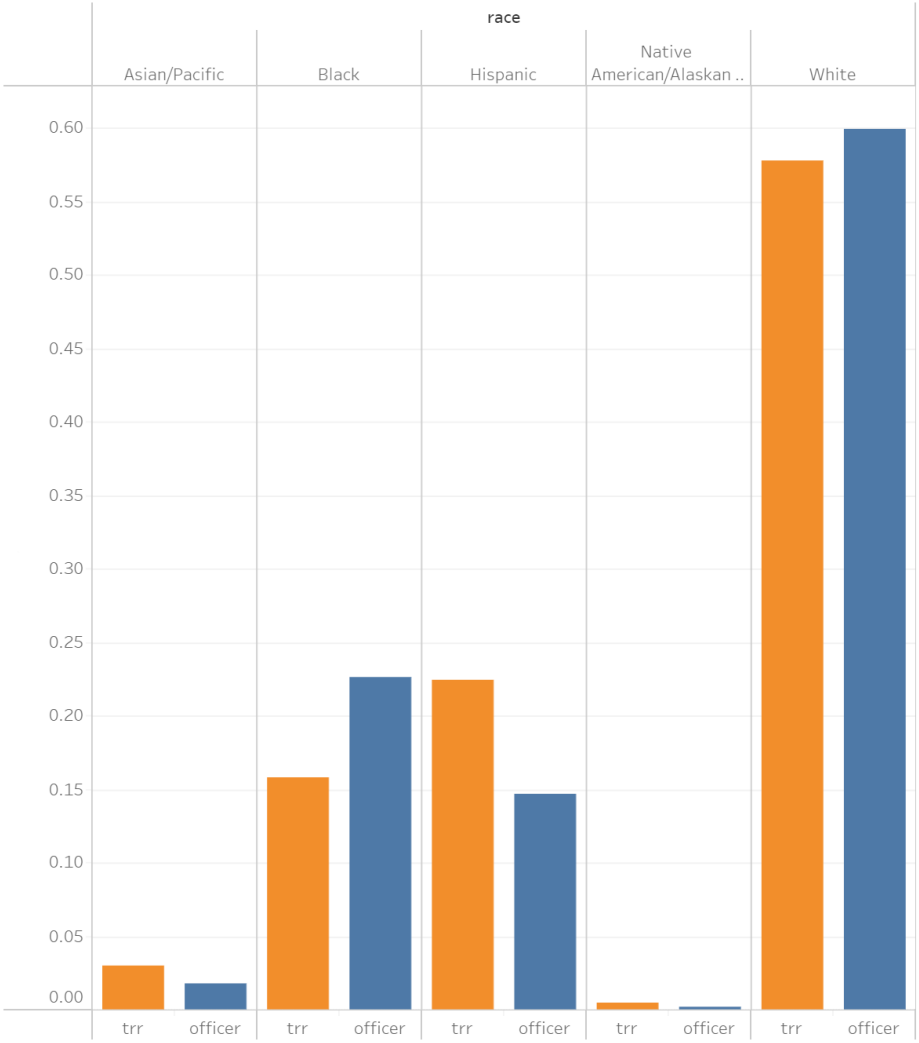
3. We created a Word cloud to show which types of locations are TRRs most likely to occur in?

As we can see, TRRs roughly track where common thought would dictate police activity is likely to happen so sidewalks and streets are the most common, followed by a variety of different residence areas and alleys. We did not believe there was too much out of the ordinary in this Word Cloud although it helps to understand where police officers are most likely to use force.

4. Create a pie chart for which demographics of officers are most likely to have TRRs.

We also created a bar chart to compare the proportions of TRRs raised by different classifications of officers and the proportion of their population in all police officers. If the proportion of TRRs is larger than the proportion of officers, it means these officers are more likely to have TRRs than others. We studied police officers in three classification methods in total, which are races, gender and ranks.
Races:

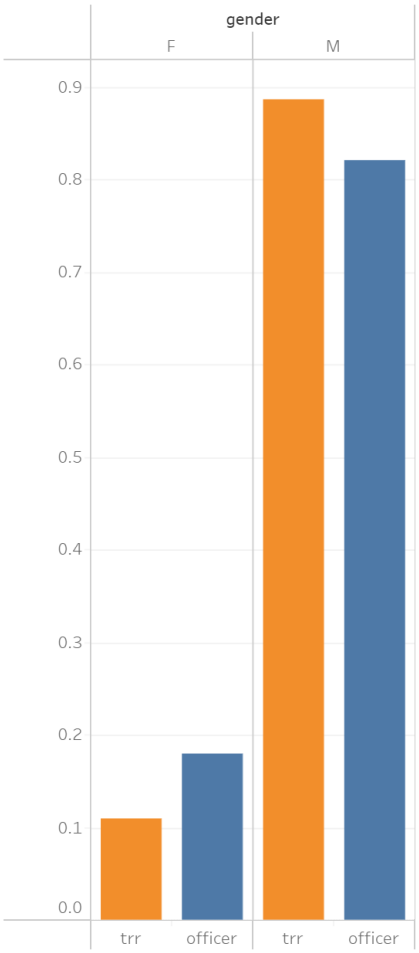
Comparision between **Percantage of TRRs and Population** of Police Officers classified by **Race**



From pie charts we know that white officers have the most TRRs, Hispanic officers Black officers and Asain/Pacific officers follow them. However, from the bar chart we know that although white officers raised most TRRs, the proportion is smaller than the proportion of their population, while Hispanic and Asain/Pacific officers raised more TRRs than they should have raised, and Black officers seem to be the least likely to use force.

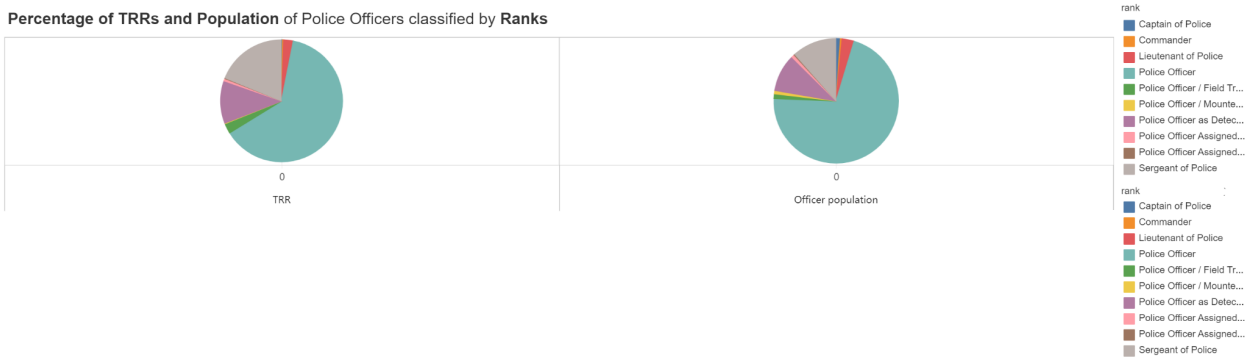
Gender:

Comparision between **Percantage of TRRs and Population** of Police Officers classified by **Gender**

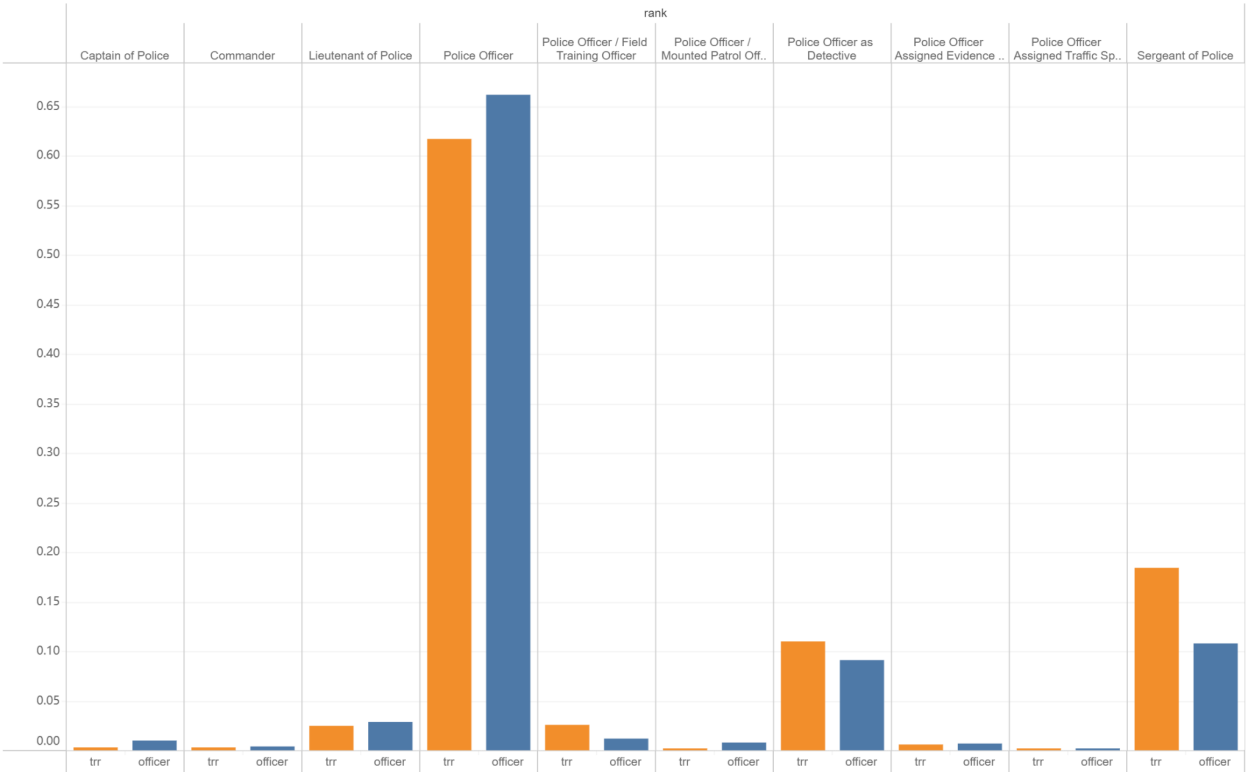


From the pie chart, we can see that male officers raised nearly 90% of TRRs, and it seems that male officers are actually more likely to use force according to the bar chart.

Ranks:



Comparision between **Percantage of TRRs and Population** of Police Officers classified by **Ranks**



The pie chart shows that ordinary police officers raised most TRRs, and then sergeants of police and police officers as detectives. However, the bar chart shows that ordinary officers are less likely to use force than other officers, while sergeants and detectives have higher levels of TRRs rates. For detectives, it may be understandable because they may work in severe conditions. However, for sergeants, maybe it means senior officers are more likely to use force. Although captains, lieutenants and commanders are less likely to have TRRs, it is probable that these police officers have fewer chances of field work than other officers.