Checkpoint #3: Findings

Visualize police units on the map along with their officer-officer complaint stats. Specifically, when a police unit is clicked on, a pie chart of complaint categories, and a histogram that highlights this unit's rate of officer-officer complaints (normalized by total shift hours) with all other units. And a line chart comparing how the normalized rates of officer complaints and civilian complaints (within the unit) compare over time.

This visualization shows several aspects for each police unit, focusing on the officer-filed allegations. Specifically, for each units, its distribution of categories of officer-filed and civilian-filed complaints, normalized officer-filed complaints ranking, and normalized officer-filed and civilian-filed complaints over time.

For the distribution of the categories of officer-filed complaints, we see that the majority of complaints from officers are categorized as Operation/Personnel Violations. This is expected as this is the most general category and also the easiest to spot for other officers. For example, an absence without permission is classified as Operation/Personnel Violations, and such violation can only be spotted by other fellow officers rather than civilians.

On the other hand, for the civilian-filed complaints, Operation/Personnel Violations shared its top place with Use of Force, and the category distributions showed that use of force complaints make up a higher proportion of civilian complaints than officer-filed complaints. This is again what we expected because civilians are the subject of force, not the officer, so they should be more likely to report use-of-force misconduct than an officer. This overall tells us that the officer complaints are more focused on the operation and less focused on the physical misconduct.

The bar graph shows that some units have much higher rates of officer-filed complaints than others - where the highest rate is almost three times the lowest rate. Comparing with the graph of civilian complaint rates, the trend is mostly the same, where units with high rates of one also have high rates of the other. For example, unit 7 appears at the top of both graphs, while unit 12 appears near the bottom of both, possibly indicating a low overall rate of misconduct. This finding contradicts our hypothesis that high rates of officer-complaints correspond to lower rates of civilian complaints, since high rates of one appear to correspond to high rates of the other.

In our line charts, we compare the numbers of officer- and civilian-filed complaints over time. For most of these graphs, the general trend is that both types of complaints decrease together over time. However, some units like district 14 seem to show an opposite correlation, where some spikes in officer-complaints align with dips in civilian complaints. In this case, visualizing each unit separately is not enough to draw definitive conclusions, so future analysis should involve more aggregate metrics.

Visualize the relationships between various attributes of an officer (age, rank, awards, # civilian complaints, years of service, etc.) and the likelihood of them receiving a complaint from another officer. Show a histogram where the y-axis is the number of officer complaints received, and let the user change the x-axis by clicking on different attributes of an officer to plot.

This visualization shows the distribution of specific demographics and how many complaints they received from another officer. In our implementation, we allowed the user to choose between the following variables to determine the x-axis: age, gender, years of service, race, number of civilian allegations, and award count. The y-axis always remains at the aggregation of officer complaints. We also normalized our x-variables by how many people were in that category. For example, while males make up a majority of the police force it would be unfair to solely aggregate their officer-filed complaints and compare them to the lower pool of females. To remedy this, in this instance, we divide the aggregation of males by the number of males. From there, we can see that the number of officer-filed complaints per gender is actually close to equal.

Based on our visualization, officers in their 50s and those who have been in the police force for 20-30 years (with a couple of outliers in the 60s) hold the highest share of officer-filed complaints. In addition, officers with 3 awards have the highest average number of complaints.

What we can infer from this data analysis is that older males who have been in the police force for a longer time and maybe accrued a few awards, receive the most allegations from their peers. Generalizing this demographic, we could make the claim that the higher-up police officers tend to receive more complaints, potentially from subordinates who believe they may be abusing their power. What's interesting to notice is that people who are on both ends of the temporal spectrum have a relatively low average amount of complaints. We believe this is because younger officers are new and thus don't have a colleague who wants to file a complaint against them. And on the other side of the spectrum, older officers also don't have many complaints which may indicate an objectively "good" officer explaining how they've been able to stay in the police for longer.