I am interested in exploring the demographics between different types of relationships, both within the CPD, as well as between officers and citizens that file complaints. There is a maxim that says people are more afraid of things that are different from themselves. Do we see officers acting in ways that reflect this maxim? By investigating the demographics of those involved in different relationships, I seek to uncover potential clues as to how different people interact in different relationships. For example, do we see a higher rate of complaints as a result of interactions between officers and citizens of different ages, races, and gender? Additionally, are officers within departments that are made up of very similar demographics more or less likely to have complaints filed against them? Moreover, as officers are more exposed to people different them themselves, do we see a reduction in the rate of complaints filed, potentially indicating a level of comfort and/or understanding?

I plan to purse this by utilizing the demographic information we have available such as race, age, and ethnicity in order to group individuals together. If possible, it would be very interesting to try to cluster the information about both the officers and the citizens filing complaints in order to see if members of an interaction are clustered together, and if not, how far apart they are. I hypothesize that a higher number of complaints stem from interactions between people who are quite different. I am intrigued to see if demographic information within a police unit have any impact on the behavior of the officers within said unit.

Relational Analytics

* How many different races are represented in the police data and what is the distribution of races both among the officers and among those who filed complaints?
* What is the average age difference amongst interactions between police and those that filed complaints?
* How many of the complaints filed against officers occurred between an officer and a citizen of the opposite gender?
* How many of the complaints filed against officers occurred between an officer and a citizen of the different ethnic background?

Data Exploration

* Heat map of complaints filed against officers by officer demographic on one axis and complaint filee on the other. For example, which ethnicity combinations result in the most complaints? Which age differences (potentially grouped by decade) result in the most complaints?
* Histograms to compare the distribution of ethnicity and age within the CPD vs. those who submit complaints.
* Stacked bar chart to show the number of complaints filed against a certain officers broken down by demographic information such as age (bucketed) and ethnicity.

Interactive Visualization

* Density plots to compare the different densities of demographic information between CPD and those filing complaints. I expect to see very different density plots for the two groups if my hypothesis that differences between individuals leads to interactions results in in complaints. Interactivity allows for including multiple different demographic values to be selected within a filter.
* Streamgraph detailing the differences over time of complaints between officers and individuals of different ethnic groups. If exposure leads to familiarity (and therefore comfort), I expect to see a reduction in complaints amongst different ethnic groups over time.

Graph Analytics

* Is an officer working in a unit with a member of a specific ethnic group less likely to have an interaction with a citizen of that ethnic group that results in a complaint?
* Are officers that are co-accused on a complaint from the same are different demographic groups?

NLP Models

* Sentiment analysis on the available free-form text of a complaint then related to the demographics of the officers and citizen relation. Do we see a more negative sentiment between complaints against an officer of a demographic group different from the individual making the complaint?