Q1: For each Chicago police district, how many officers per capita are deployed to it? (this means officers with a resignation date of NULL, example of per capita is "1 officer per 1000 people"), according to the most current year of the data. This will be calculated regardless of the officer's role.

For this question, I first thought about what the bounds of each police district were. Chicago can be broken up into 22 police districts across the city. Since I was trying to answer a question about officers per capita, that meant I would need to know the population size of each district and to calculate the number of officers per district. To actually do this in code, I had to look across different tables, since information about populations, district boundaries, and officers were not together. After joining multiple tables, I calculated the number of officers currently assigned to each district and divided that by the number of people residing in each district.

What this meant, using District 7 as an example, was that there were 157.58 officers per capita. However, this number was a bit difficult to interpret due to the fact that it was # people/ # officers. A smaller number per capita actually meant a larger number of officers in the district. So, I converted the equation to find the number of officers per 10,000 residents in a given district. For district 7, there were 63.46 officers per every 10,000 residents. District 7 has the highest number of officers per 10,000 residents. On a map, District 7 corresponds with the Englewood area of Chicago. In comparison, District 8 had the lowest number of officers per 10,000 residents at 15.88 officers per every 10,000 residents. This district is called Chicago Lawn and it contains Midway Airport in its bounds. Considering there is a wide range of the officers per capita by district, I wanted to further explore what patterns might exist in the community make-up that could impact the number of officers assigned to a district.

Q2: For the two districts with the most and least (max and min) officers per capita, what is their racial distribution?

This question extends the findings in the first question. Since, the officers per 10,000 resident rate is easier to interpret I used that to find the two districts with the most and least officers per capita. I used the first table to find the district with the largest number of officers per 10k residents. The racial distribution of the 7th district is that 96.8% of its residents are Black, while the next largest race group is Hispanic at 1.64%. By contrast the racial distribution of the 8th district which had the lowest number of officers per 10k was 56.5% Hispanic, 21.1% Black, 0.9% other. It is interesting to think about the different racial distributions of these districts and to put them into context. Chicago has a history of redlining, and it is powerful that District 7 and 8 have such different rates in the number of officers per 10,000 residents since the districts are neighboring each other. District 7 is made up of the Englewood area and represents the neighborhood with the highest rate of officers per capita at 63.46 officers for every 10k residents in the Englewood area. This neighborhood is primarily (96.8%) made up of Black residents, which contrasts District 8 which is the Chicago Lawn area that only has 15.88 officers per capita and was majority Hispanic at ~56%. The contrast between these two might hint at a relationship between racial diversity of the neighborhood and the way police interact with that neighborhood.

I examined the average number of officers per 10k residents across the districts and it was about 33.5 officers per 10k civilians. The closest district to this average was district 20, which is the Lincoln neighborhood. This northside neighborhood is 54% white, 18% Hispanic, and 14% Asian/Pacific Islander. Of the 3 neighborhoods I examined, it has the largest percentage of white residents. It does not seem to be as clear cut as there being a larger number of officers per capita based on the racial distribution of a neighborhood. I am curious if neighborhoods close to airports (O'Hare and Midway) are outliers in the trend between officers per 10K and the racial distribution of residents. However, there may be more apparent patterns when we see these neighborhood racial distributions mapped, since Chicago has deep histories around redlining. I will examine the rest of the racial distributions within a choropleth visualization in the next assignment, since it will be able to show multiple distributions and compare easier than by hand.

District	Race	Population		District	Race	Population
7th	Asian	56		8th	Native American	247
7th	Native American	136		8th	Other	1561
7th	White	262		8th	Asian	2001
7th	Other	663		8th	White	51491
7th	Hispanic	1167		8th	Black	52219
7th	Black	68787		8th	Hispanic	139854

Q3: What districts have the most officer hours allocated to them per capita?

To approach this question, there were several stages. The first was thinking about the number of hours worked using the data_officerassignmentattendance table. I filtered based on whether officers were present for duty to see how many officer hours are allocated to the populations in each district. With the number of hours worked across all officer timecards, I could calculate the total number of hours worked per year, since the data goes for over a decade of timecards. I then averaged the number of hours worked per year by each district. With the average number of hours worked per year in each district I scaled it by the size of the population. In this case, I divided the average number of hours per year per district by the population size of the district. This gave me the average number of hours of police time per each resident. In this way, the average number of hours worked per year is standardized across each district. Although the number of officers in each district is not evenly distributed, I am standardizing the average number of hours worked per year for each district by the population size. This is done to get a sense of how many hours of policing each community member may experience. From the feedback I received, I also decided to add the rate for the average total number of hours worked by officers per year by the officer per capita rate to get a sense of how many officer hours each individual is doing. This showed similar trends, but did not get at my

larger theme of understanding the personal impact of police officers on community members as the first calculation did.

The results showed that the largest was district 11 at an average of 9.9 hours of officer hours allocated to each individual in the district per year. By comparison, district 16 had the smaller average number of hours at 1.94 hours of officer time allocated to each individual per year. This range of time that officers could spend with residents is interesting to consider. If the officers are spending more time per person in the community on average (per year), then how are they interacting with individuals at that time. This leads to questions about how officers interact with the community.

Q4: What is the per capita complaint rate for the top 5 districts with the highest officer deployment rate?

The final question builds on part 3 by trying to see how interactions in the districts are perceived by the residents. By looking at the complaint rates, I can see how this time officers are spending might be impacting residents. I found the number of complaints for each district and standardized that by the size of the population. I calculated the rate of complaints given the number of people in the district which is the number of people in the district divided by the number of complaints. This ranged from 4.6 to 36.4 which is to say there could be 1 complaint per every 4.6 people in the district versus 1 complaint for 36.4 people. This means districts with 1 complaint per 4.6 individuals have higher rates of complaints per capita. In the case of the top 5 districts with the highest average number of officer hours worked per district, their per capita complaint rates were between 4.6 to 8.7, which is to say a range of 1 complaint from 4.6 to 8.7 residents.

When looking at question 3 and 4 in combination there is an interesting story to be told, since I was curious if there was a relationship between office hours worked and the rate of complaints. There did seem to be an inverse relationship where the number of people per allegation increases, then the average number of office hours worked decreases. To say this plainly, when there were more average officer hours per district member, then the per capita rate of complaints increased.

Think about the broader picture, how this fits into the theme of your project, what you learned, and any future lines of inquiry it reveals.

To summarize, there are potentially interesting patterns in how officers are showing up across the districts in Chicago. It is helpful to look at one district across each of these questions to get a better sense of the experiences of the community members. In this case, I will use District 7 as an example, since it represents the interesting neighborhood of Englewood on the southside of Chicago. The racial distribution of the neighborhood is primarily Black with 96.8% of residents belonging to that group. Notably, there are 157.58 officers per capita (given a population size of 71,071 residents), which translates to 63.46 officers per every 10,000 residents. In terms of timing, there was an average of 684,037.75 officer hours worked per year in this district. Putting this large number into perspective, there was about 9.6 hours of time spent per district resident per year. A more detailed look into officers' interactions in community

led me to see that there was a complaint rate of 6.4, which is a rate of 1 out of 6.4 district residents.

In relation to my theme of the impact of police presence on community members, I was able to center my questions around that story. Dimensions of police presence I addressed here include: 1. "How many officers are there in relation to the number of district residents?", 2. "How many hours are officers working in their districts?", 3. "How are they interacting with the community when they are present by looking at complaint rates?". By exploring these dimensions, I have a better understanding of how police are showing up and interacting with Chicago district members. Overall, I learned about the different layers to this issue and how to explore that within SQL code.There are interesting patterns I want to pull out at the scale of across district comparisons, which I will use visualizations to compare. A prime example of this next direction is with the relationship between the officers per capita rate and the racial distribution of district members. I want to plot this relationship in a map in the next assignment and possibly compare between per capita rate and officer hours per capita.

There still remain questions about what differentiates these districts, such as median income of the population, how the rates of use of force by officers might be distributed across the districts, and what the role of location (north vs south side) might play. I hope to address these questions in the visualizations to come in the next assignment.