

Checkpoint 2: Data Visualization

The Brave Ducks

Introduction

Before we start our analysis, the questions that we are investigating are:

1. Using our definition of types of “income neighborhood”, what is the total number of officer allegations for all **low, middle, high income** neighbors?
2. What is the rate of increase for officer complaints for **low, middle, high** neighborhoods between 2002-2007 and 2007-2012 timeframes, 2007-2012 and 2012-2017 timeframes?
3. What is the percentage of misconduct allegations (illegal search, use of force, etc) out of all allegations for these **low, middle, high** neighborhoods?
4. Among the officer allegations with complaints filed in the **low, middle, high** neighborhood, what percentage of the cases are dismissed?

Analysis

Q1: Using our definition of types of “income neighborhood”, what is the total number of officer allegations for all **low, middle, high income** neighbors?

Number of officer allegations vs neighborhood median income

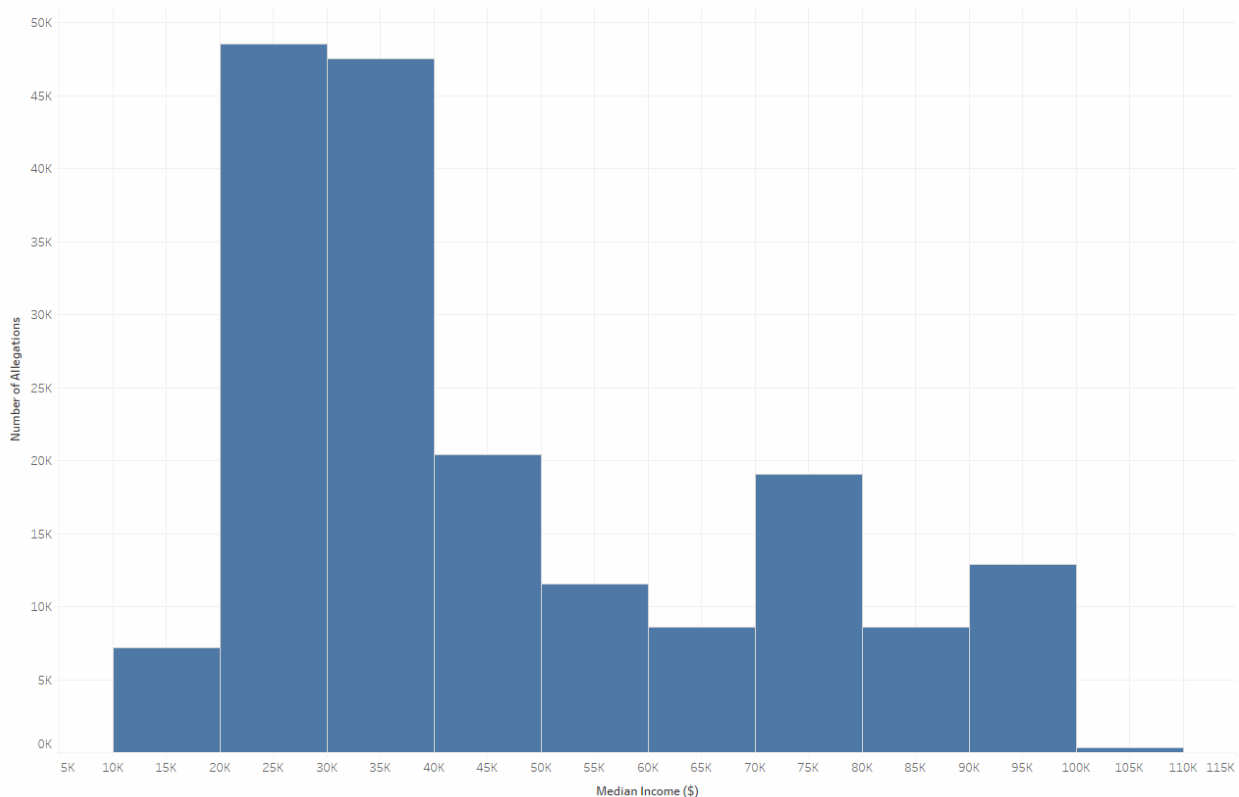


Figure 1: number of officer allegations for all income neighborhoods

The graph on the top is a histogram that shows the distribution of number of officer allegations per median income neighborhood. The vertical axis represents the number of allegations while

the horizontal axis represents the median income by \$5000 interval. We have found out that there is a huge spike in the number of allegations for low income neighborhoods while there are much lower numbers of cases in high income neighborhoods. Our next step is to investigate the rate of increase over the years to see if it has been improved or worsened over the years.

Q2: What is the rate of increase for officer complaints for **low, middle, high** neighborhoods between 2002-2007 and 2007-2012 timeframes, 2007-2012 and 2012-2017 timeframes?

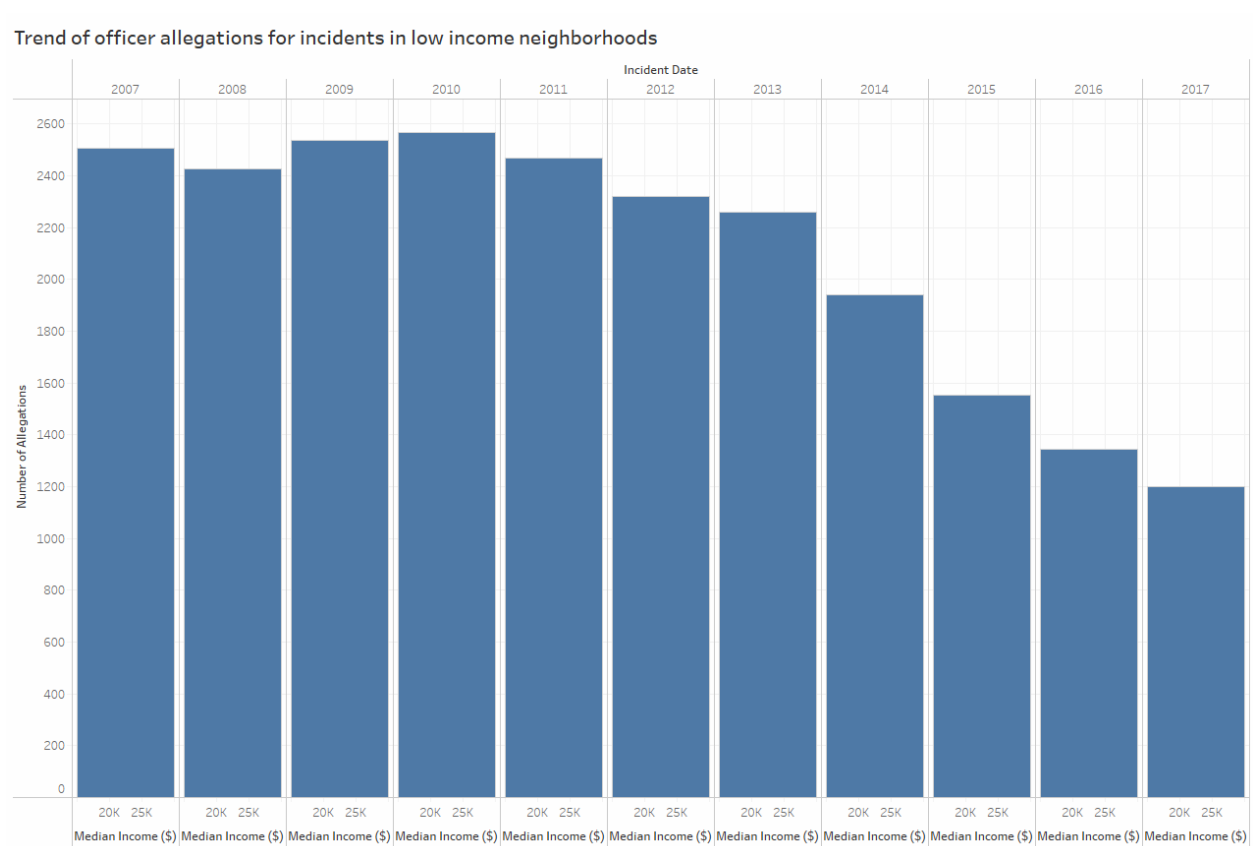


Figure 2: rate of increase of officer complaints for low income neighborhoods

The graph on the top represents the number of officer allegations for low income neighborhoods per year. We see a clear downward trend since 2007.

Trend of officer allegations for incidents in middle income neighborhoods

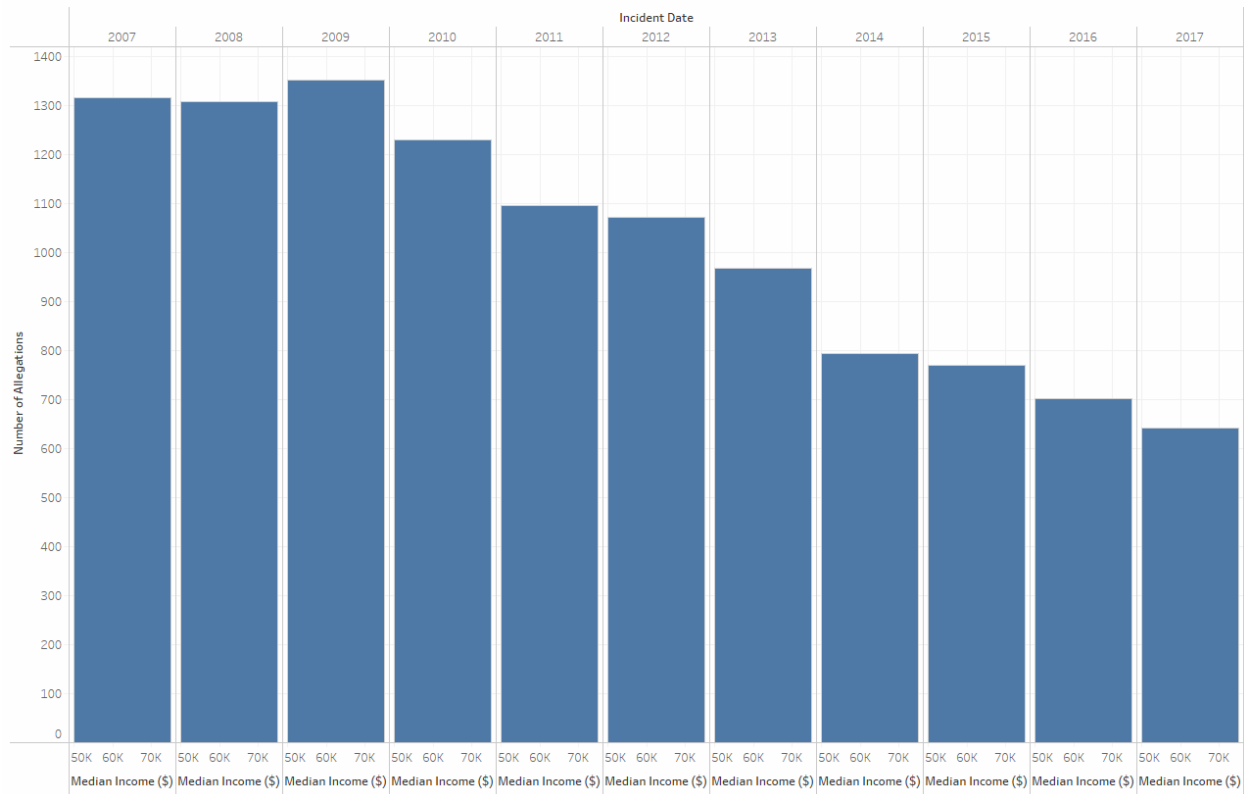


Figure 3: rate of increase of officer complaints for middle income neighborhoods

The graph on the top represents the number of officer allegations for middle income neighborhoods per year. We see a clear downward trend since 2007 as well.

Trend of officer allegations for incidents in high income neighborhoods

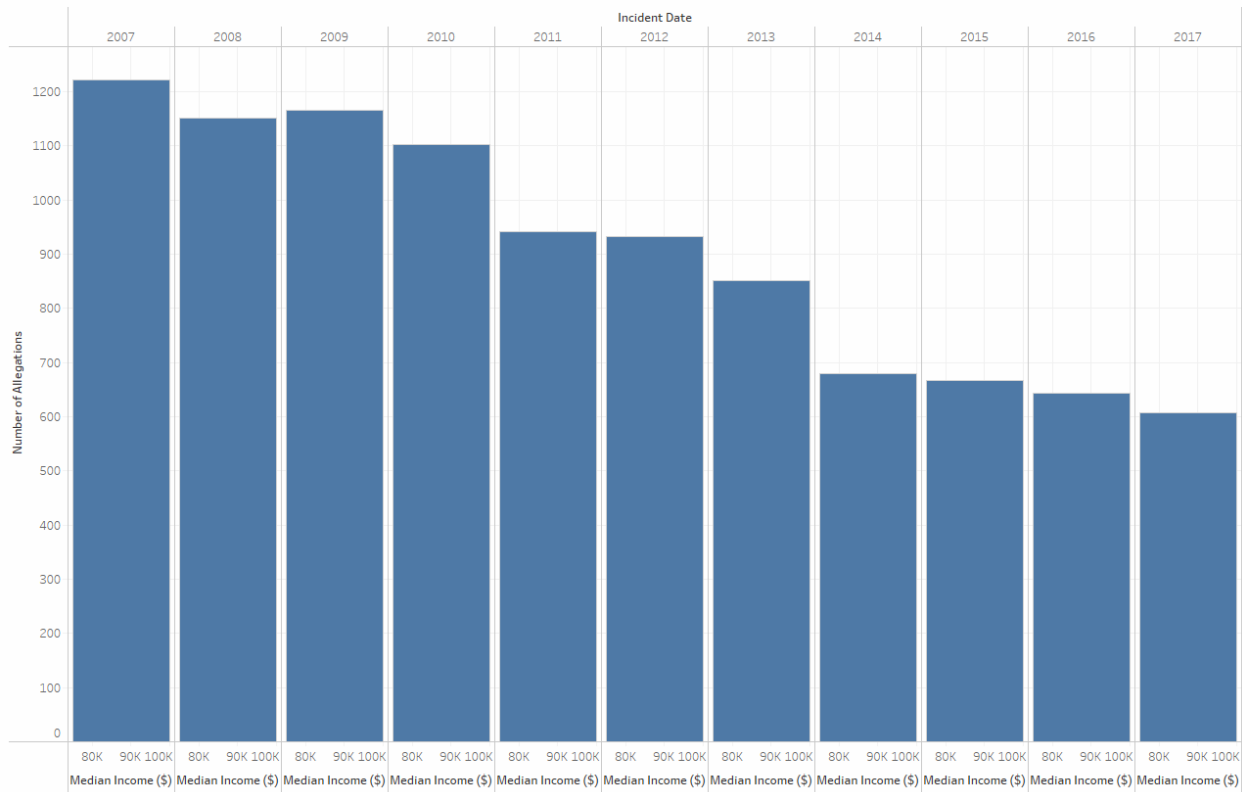


Figure 4: rate of increase of officer complaints for high income neighborhoods

The graph on the top represents the number of officer allegations for high income neighborhoods per year. We see a clear downward trend since 2007 as well.

Overall, we have seen a clear downtrend indicating that the number of officer allegations are dropping throughout the years.

Q3: What is the percentage of misconduct allegations (illegal search, use of force, etc) out of all allegations for these **low, middle, high** neighborhoods?

What is the proportion of allegations (illegal search, use of force) out of all allegations for low income neighborhoods?

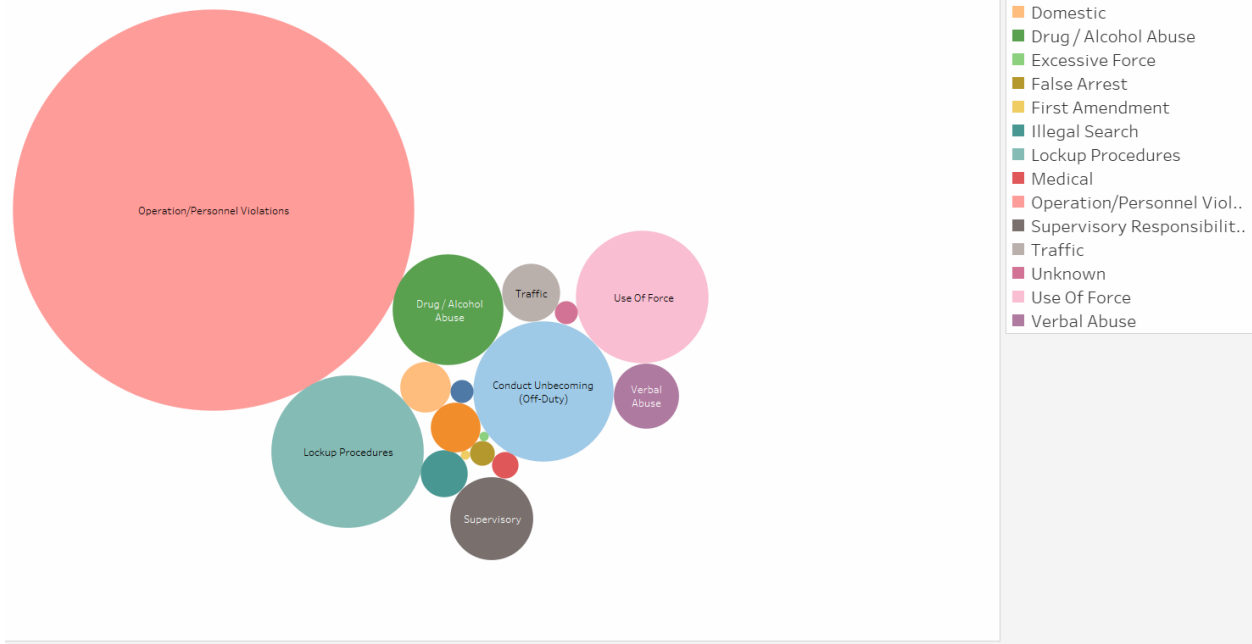


Figure 5: number of cases for each allegation category in low income neighborhoods

As we can see from the packed bubble chart, the major categories of misconduct allegation are operation/personnel violations, lockup procedures, conduct unbecoming, and use of force in low income neighborhoods.

What is the proportion of allegations (illegal search, use of force) out of all allegations for middle income neighborhoods?

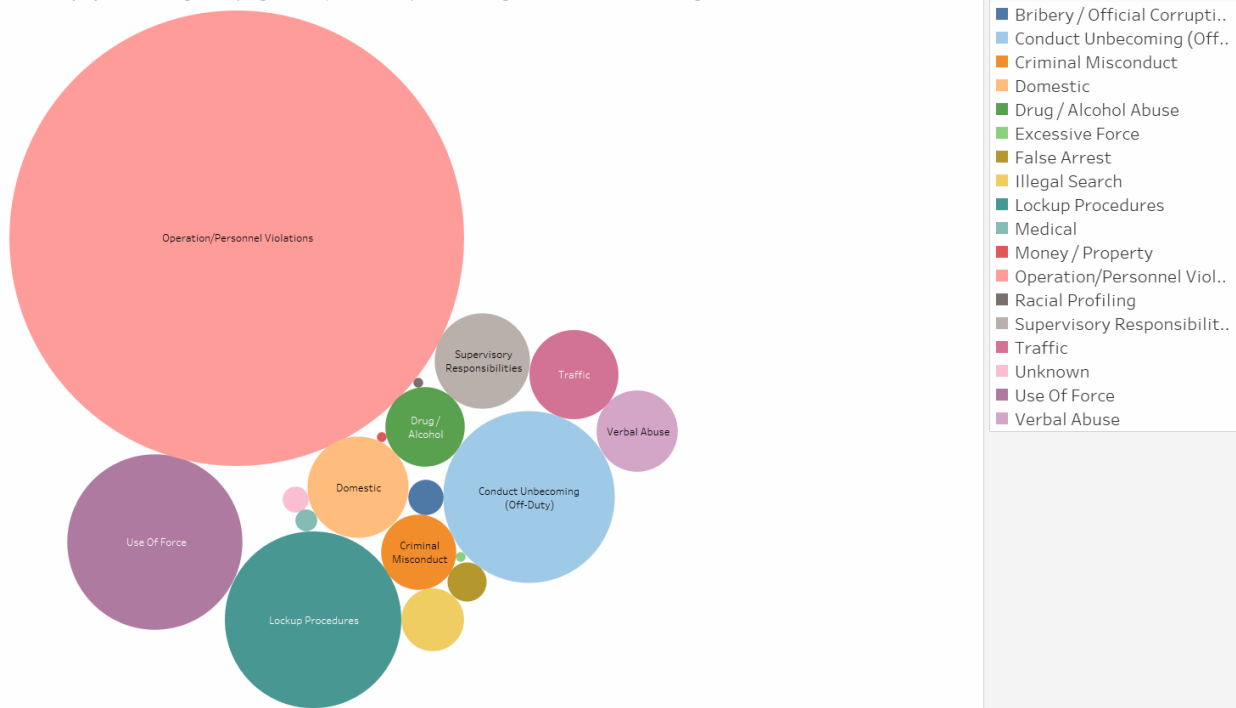


Figure 6: number of cases for each allegation category in middle income neighborhoods

As we can see from the packed bubble chart, the major categories of misconduct allegation are operation/personnel violations, lockup procedures, conduct unbecoming, and use of force in low middle neighborhoods as well. Additionally, other categories which were previous "eclipsed" in the low income neighborhood have increased.

What is the proportion of allegations (illegal search, use of force) out of all allegations for middle income neighborhoods?

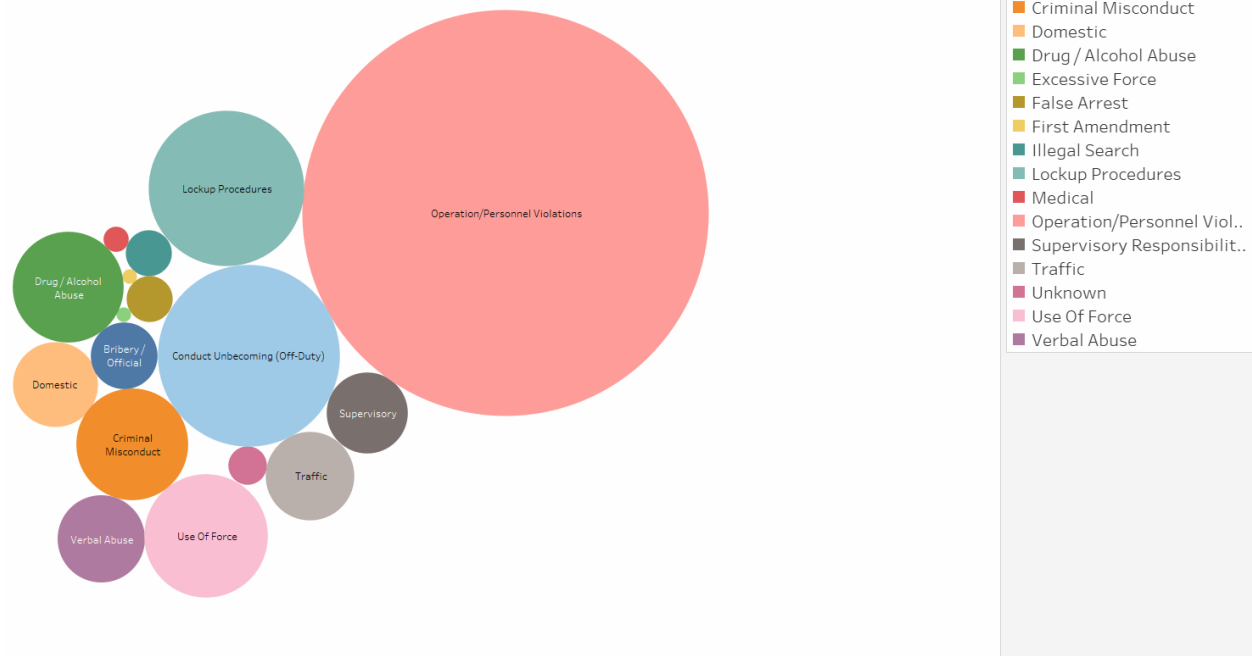


Figure 7: number of cases for each allegation category in high income neighborhoods

Similar to figure 5,6, we see the same trend as well for high income neighborhoods. And the gaps between the most significant category - operation/personnel violations and other allegations get narrowed.

Q4: Among the officer allegations with complaints filed in the **low, middle, high** neighborhood, what percentage of the cases are dismissed?

Among the officer allegations with complaints filed by low income people, what is the allegation outcome?



Figure 8: histogram of case resolutions for low income neighborhoods
As we can see from the top graph, for low income neighborhoods, we have seen most of the outcomes for the cases are "no action taken", followed by "Reprimand" and "Unknown".

Among the officer allegations with complaints filed by middle income people, what is the allegation outcome?

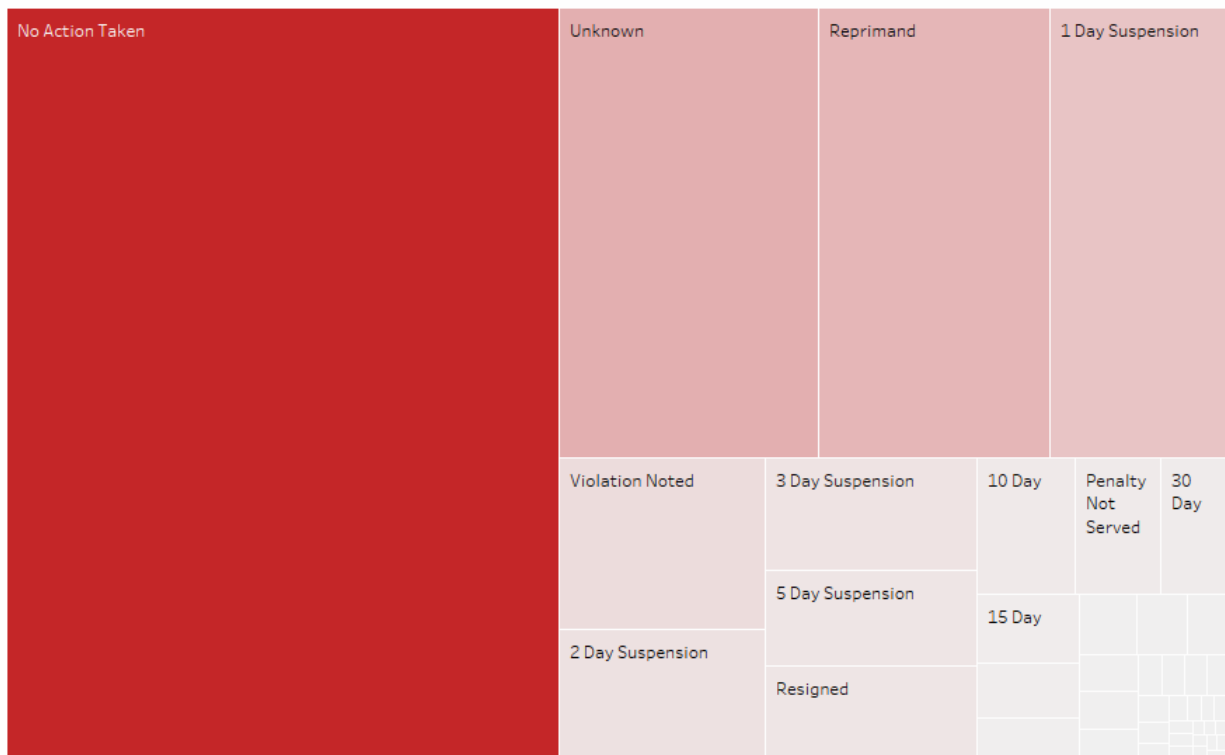


Figure 9: histogram of case resolutions for middle income neighborhoods
 Similar to figure 9, for middle income neighborhoods, we have seen most of the outcomes for the cases are "no action taken", followed by "Reprimand" and "Unknown".

Among the officer allegations with complaints filed by high income people, what is the allegation outcome?

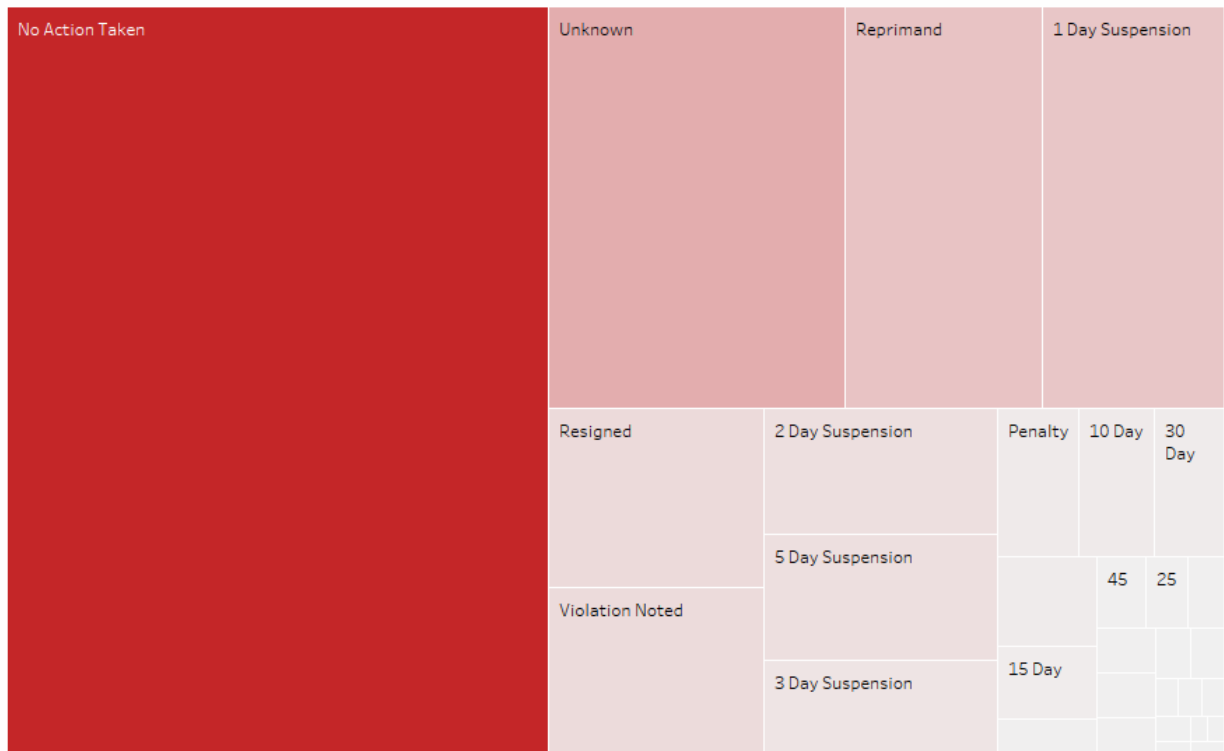


Figure 10: histogram of case resolutions for high income neighborhoods
 Similar to both figure 9 and 10, for high income neighborhoods, we have seen most of the outcomes for the cases are "no action taken", followed by "Reprimand" and "Unknown".

Experience with Tableau

- Query result is very slow.
- Tableau never saves the password.
- Poor documentation.
- Need to manually do the data cleaning - filter off the null value during visualization