# NYPD Arrest Discrimination Analysis

Section 1: Data Cleaning and Background Research

In our initial exploratory analysis of the data, we found that there were points outside the bounds of New York. The number of points was miniscule, so we threw them out in order to visualize the points cluster in the New York boroughs. The Law category code has the most null values with 15,000. However, this was not significant enough to take it out of a dataset with almost 5 million points. The arrests dated from January 1, 2006 to December 31, 2018 and we didn't remove any points due to date. We made the assumption that this was every arrest made in that time period by the New York Police Department and hence we could come to statistical conclusions based on the data.

New York is a densely populated city and has multitudes of people from different backgrounds. However, white people are a clear majority, especially in the boroughs of Manhattan and Staten Island. These graphics were taken from the New York Times and a population website visualizing census data. The former demonstrates where the different racial groups are clustered and is important to geographic analysis of arrests.
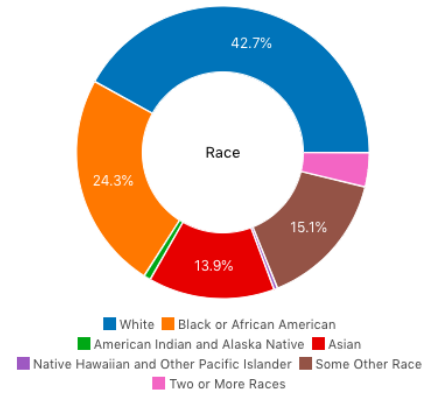

https://www.nytimes.com/interactive/2015/07/08/us/census-race-map.html
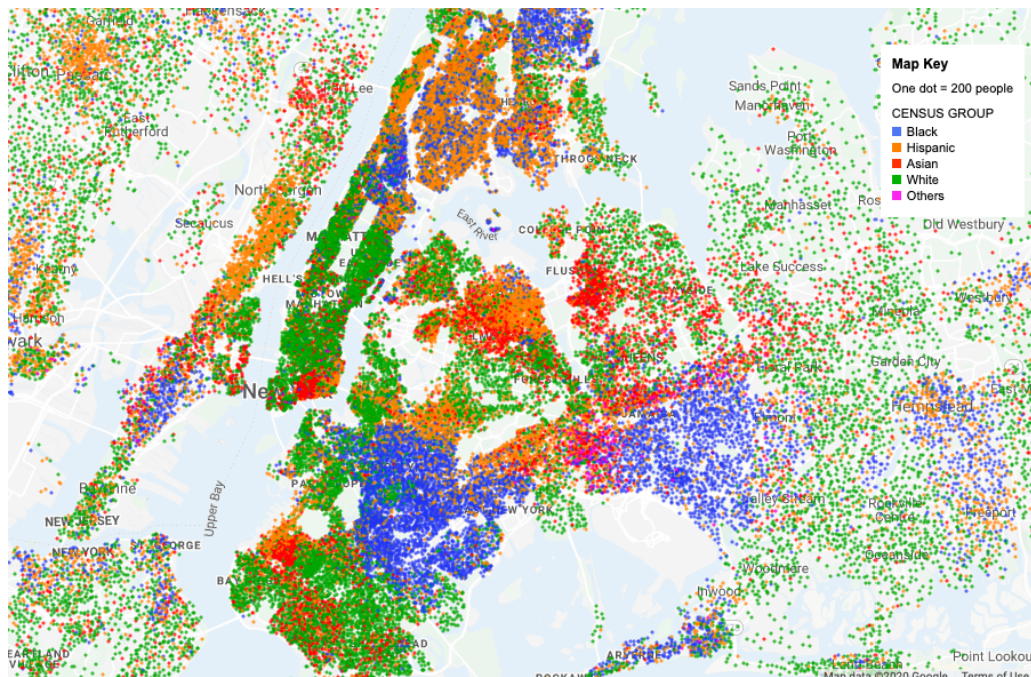
Population by Race ❓

| Total | Hispanic | Non-Hispanic |

Race	Population ▾	Percentage
White	3,603,057	42.67%
Black or African American	2,049,418	24.27%
Some Other Race	1,277,050	15.12%
Asian	1,177,700	13.95%
Two or More Races	296,074	3.51%
American Indian and Alaska Native	36,075	0.43%
Native Hawaiian and Other Pacific Islander	4,339	0.05%

Race

42.7% · 24.3% · 15.1% · 13.9%

■ White ■ Black or African American
■ American Indian and Alaska Native ■ Asian
■ Native Hawaiian and Other Pacific Islander ■ Some Other Race
■ Two or More Races

https://worldpopulationreview.com/us-cities/new-york-city-population/

Section 2: Data Visualization

Using Tableau we got a summary of our data. From first glance, it is clear something is amiss. Whether you look at it by race or by borough, minority groups have a large number of arrests. Moreover, arrests for the population majority, white people, make up a rather small proportion of the arrests.

Sheet 1 (2)
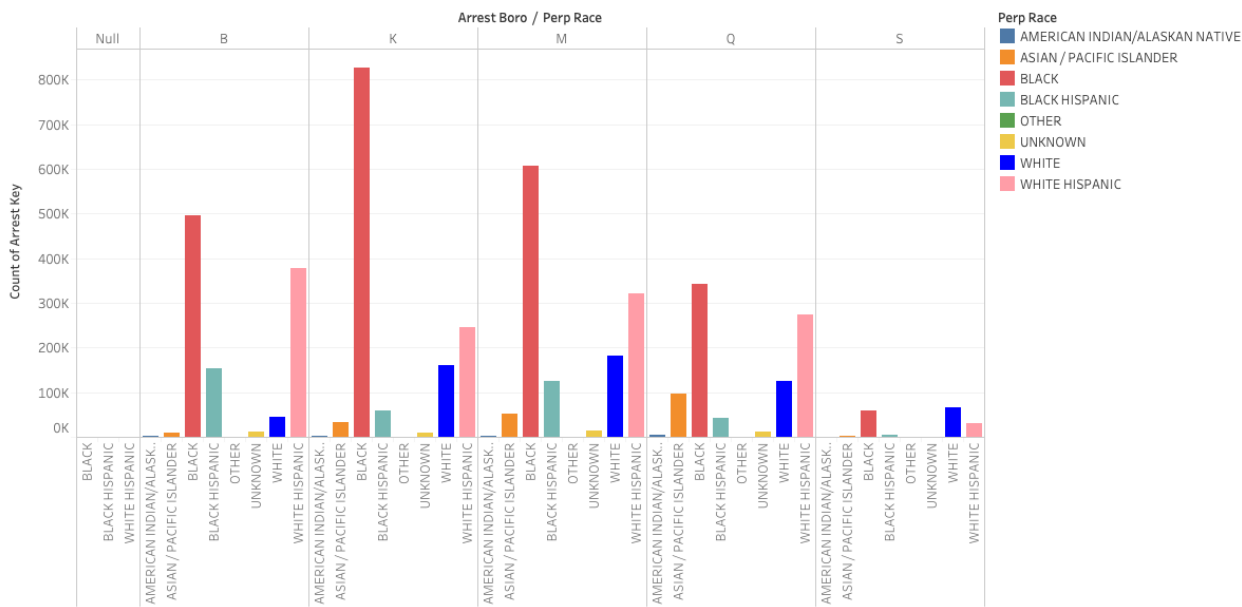
Count of Arrest Key for each Perp Race broken down by Arrest Boro. Color shows details about Perp Race.

Sheet 1
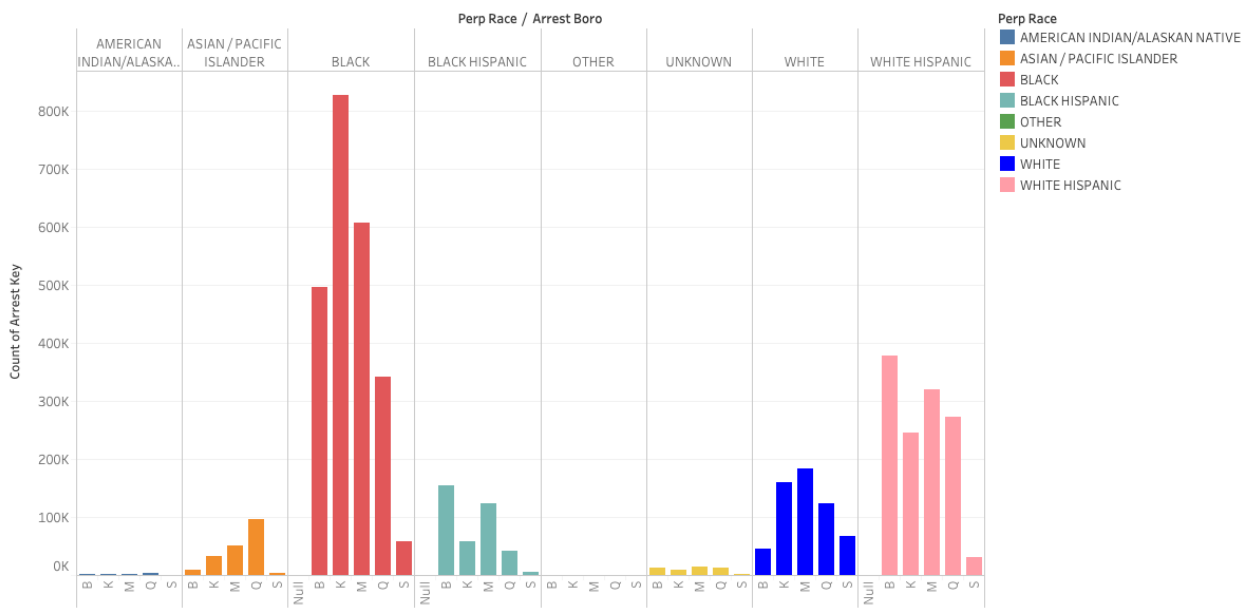
Count of Arrest Key for each Arrest Boro broken down by Perp Race. Color shows details about Perp Race.

Next, we map arrests so we can see geographic trends. Arrests for drug use does have some correlation to location. However, it is clear that there are a large amount of black arrests for drugs in Manhattan even though less than a quarter of Manhattan's population is black and more than half of its population is white. It is difficult to tell the exact values using these dots, so we will explore the arrest counts next.

Points of black arrests for drugs

Points of white arrests for drugs
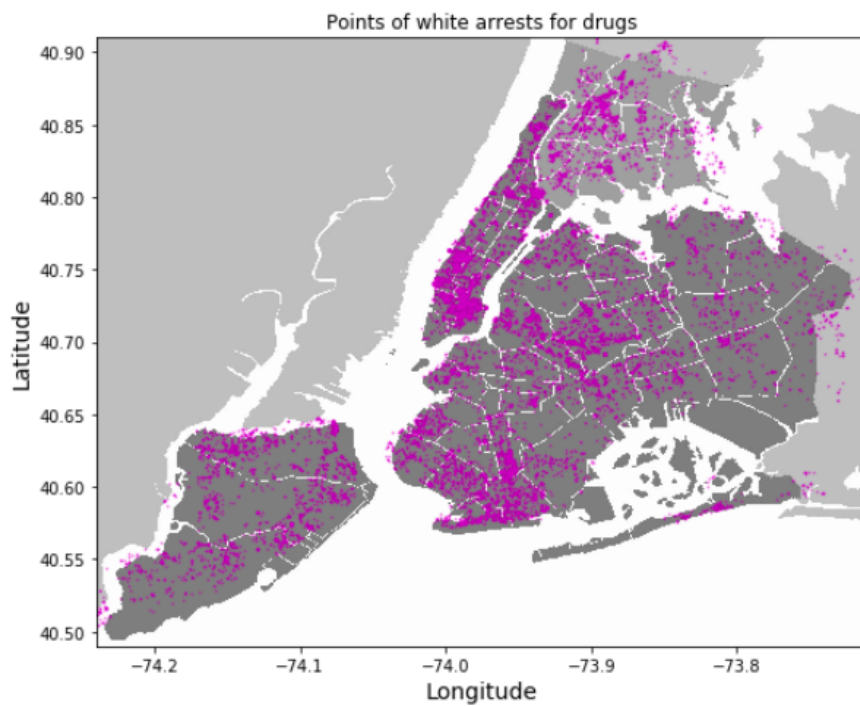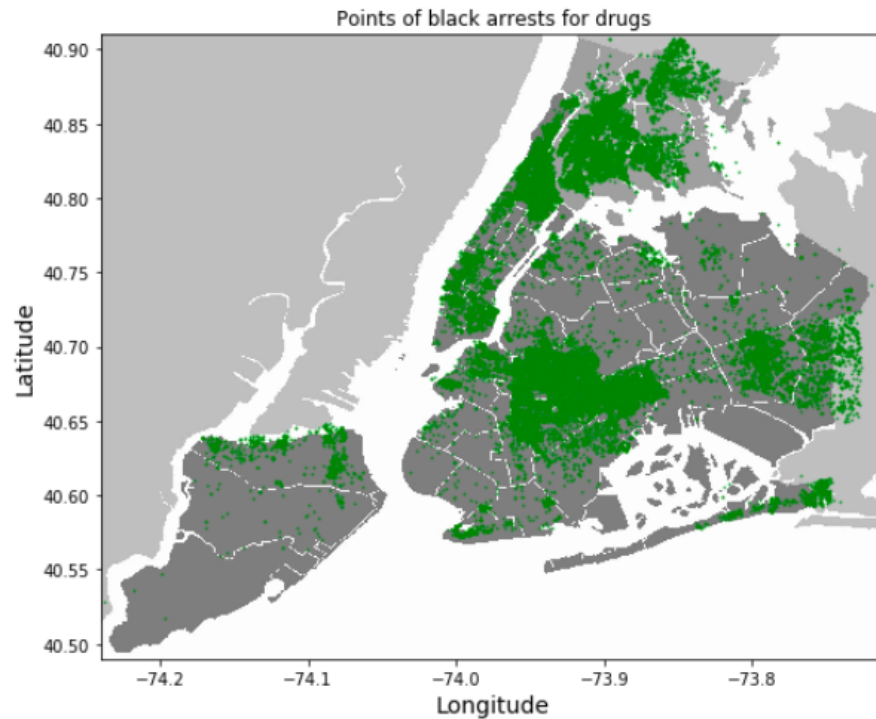
To further test our hypothesis, we map arrests for stolen property. There are a large amount more arrests in the heavily white populated southern Manhattan. This points to some sort of discrimination against the black population, especially if the number of arrests is vastly inproportional to the number of black people.

Points of black arrests for stolen property

Points of white arrests for stolen property
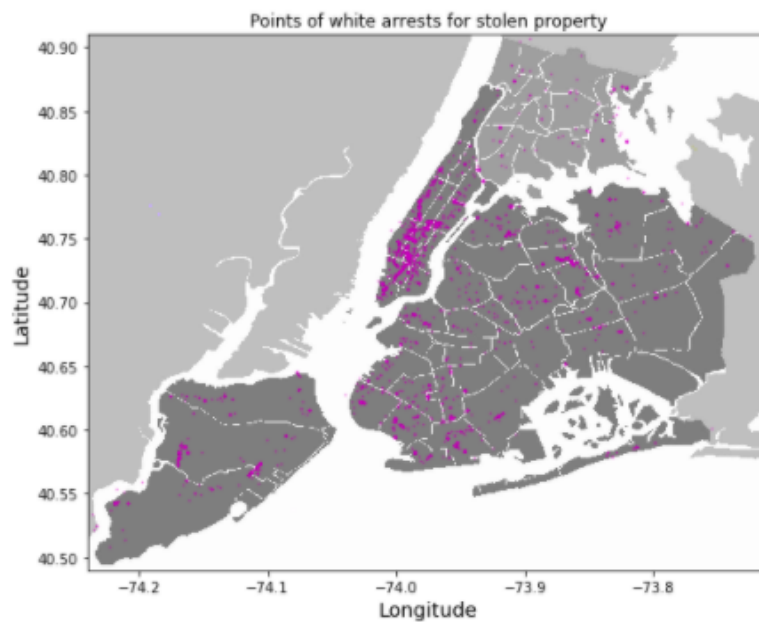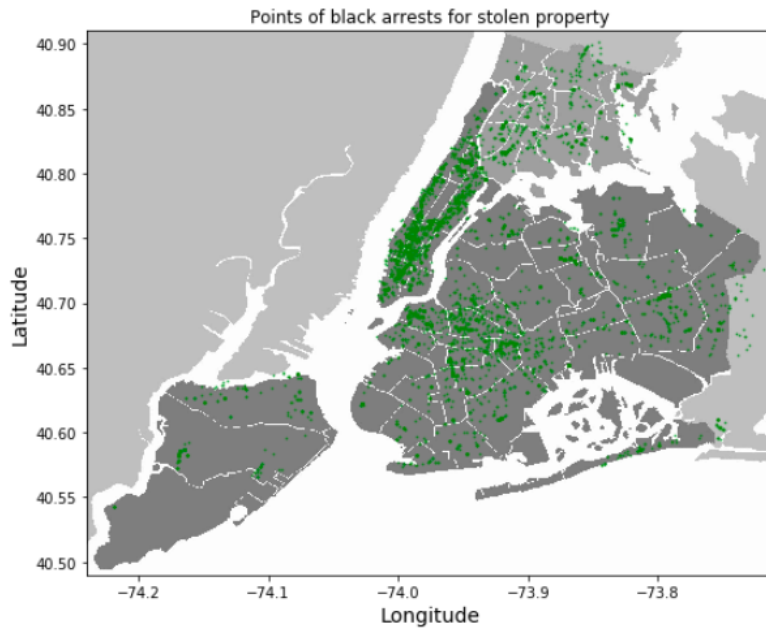
Furthermore, we create a heatmap to see where occurrences are the most frequent for one year for both white arrests and black arrests. The first heatmap represents black arrests in 2014 and the second represents white arrests in 2014. Manhattan and Queens clearly show more activity for black arrests. Even the most frequented area for white arrests does not have the same amount of black arrests as the most frequented area for black arrests.
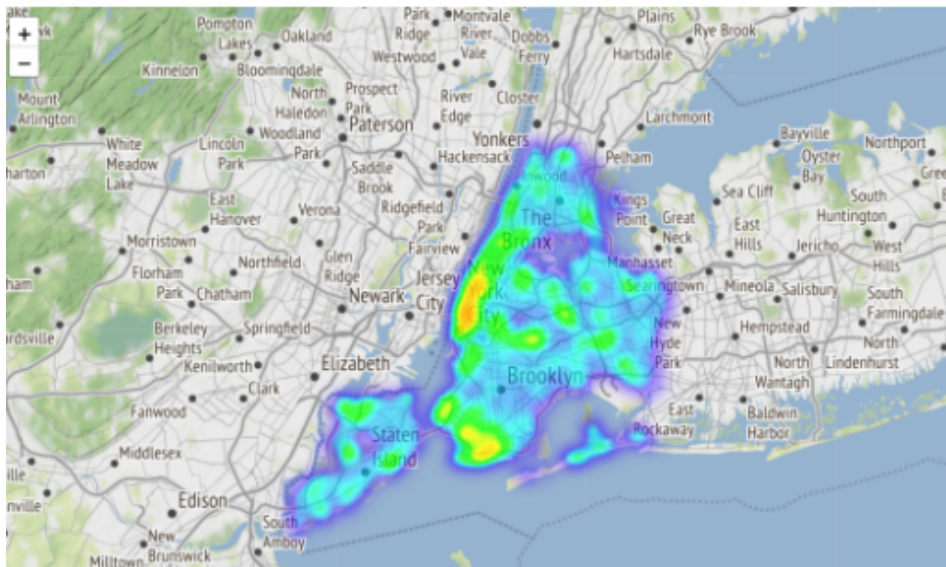
To explore the disparity between arrests, we checked if there were descriptions that black people were getting arrested for that white people were not. There were a few, but none had a relevant number of arrests. We concluded that the difference in arrests was due to focusing on black people for the most frequent crime types.

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Number of arrests for black perpetrators with given police description
SPILLBACK: 15
TURN,IMPROPER: 3
PROSTITUTION 3, PROMOTING UNDE: 1
DISORDERLY CONDUCT: 3
RIGHT OF WAY,PEDESTRIAN: 1
MANUFATURE, TRANSPORT, DEFACE, ETC...: 1
UNLAWFUL POSS. WEAPON UPON SCHOOL GROUNDS: 38
LOITERING FOR PROSTITUTION OR: 1
SALE OF UNAUTHORIZED RECORDING: 1
STOLEN PROPERTY 2,1,POSSESSION: 1
FIREWORKS PREV CONV 5 YEARS: 2
WEAPONS,PROHIBITED USE IMITATION PISTOL: 2
PEDESTRIAN - WALK/DO NOT WALK: 1
UNLAWFUL DISCLOSURE OF AN INTIMATE IMAGE: 4
WEAPONS DISPOSITION OF: 1
UNCLASSIFIED: 4
ANARCHY,CRIMINAL: 3
PROSTITUTION 1, UNDER 11: 5
EXHIBITION,OFFENSIVE: 1
AGRICULTURE & MARKETS LAW,UNCL: 1
FORGERY,ETC.,UNCLASSIFIED-FELO: 4
PUBLIC HEALTH LAW,UNCLASSIFIED: 1
SUPP ACT TERRORISM 1: 1
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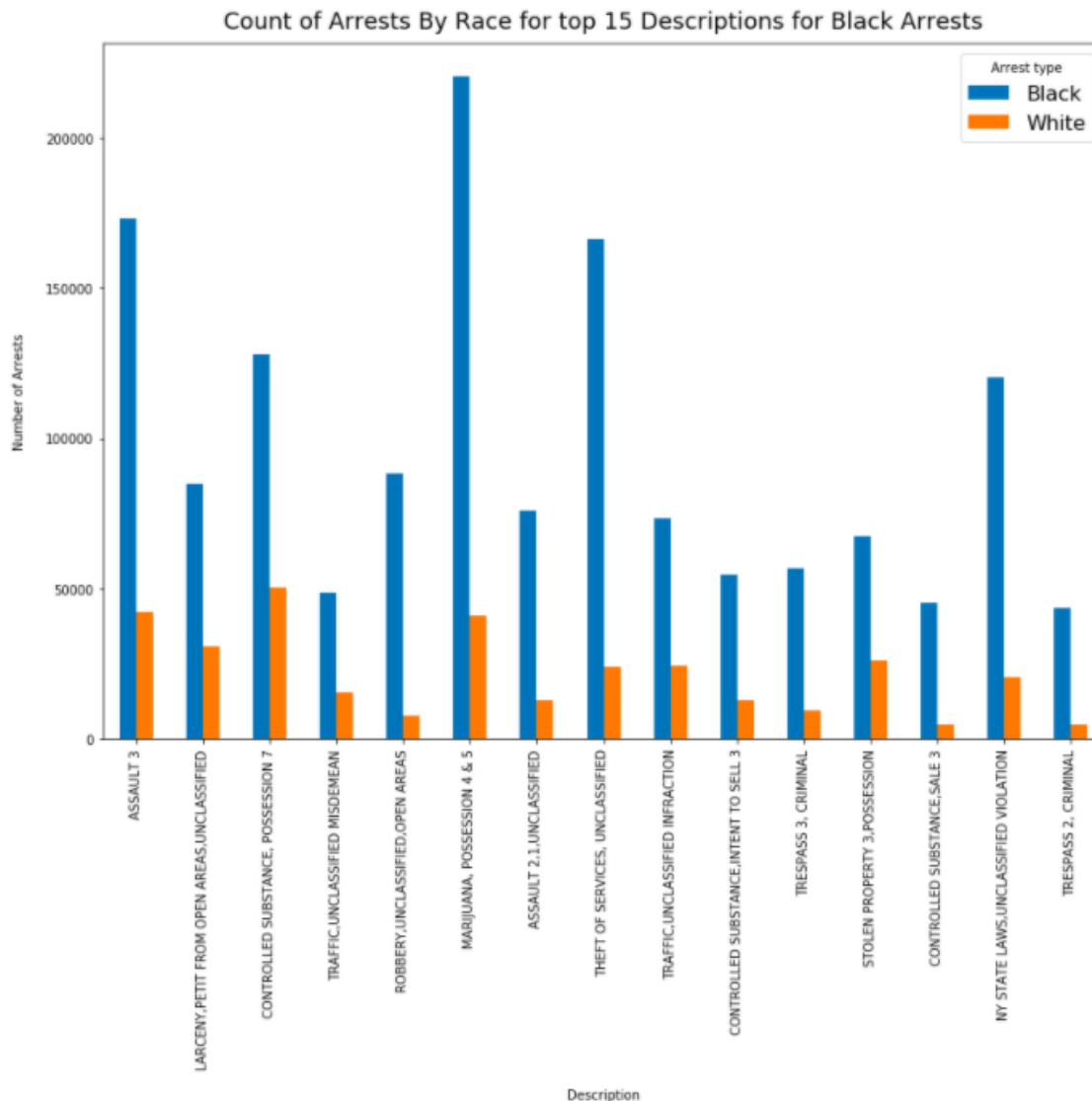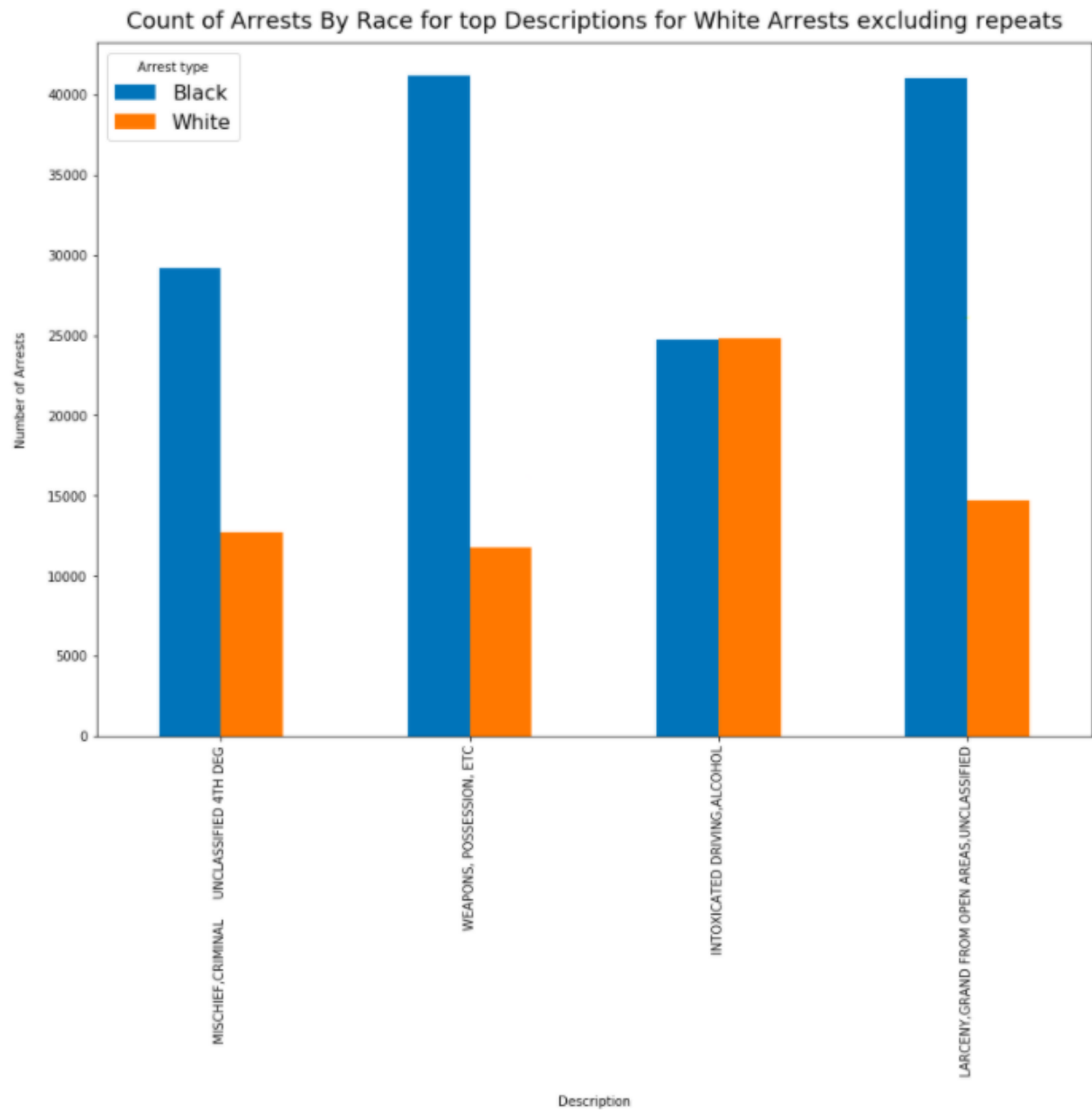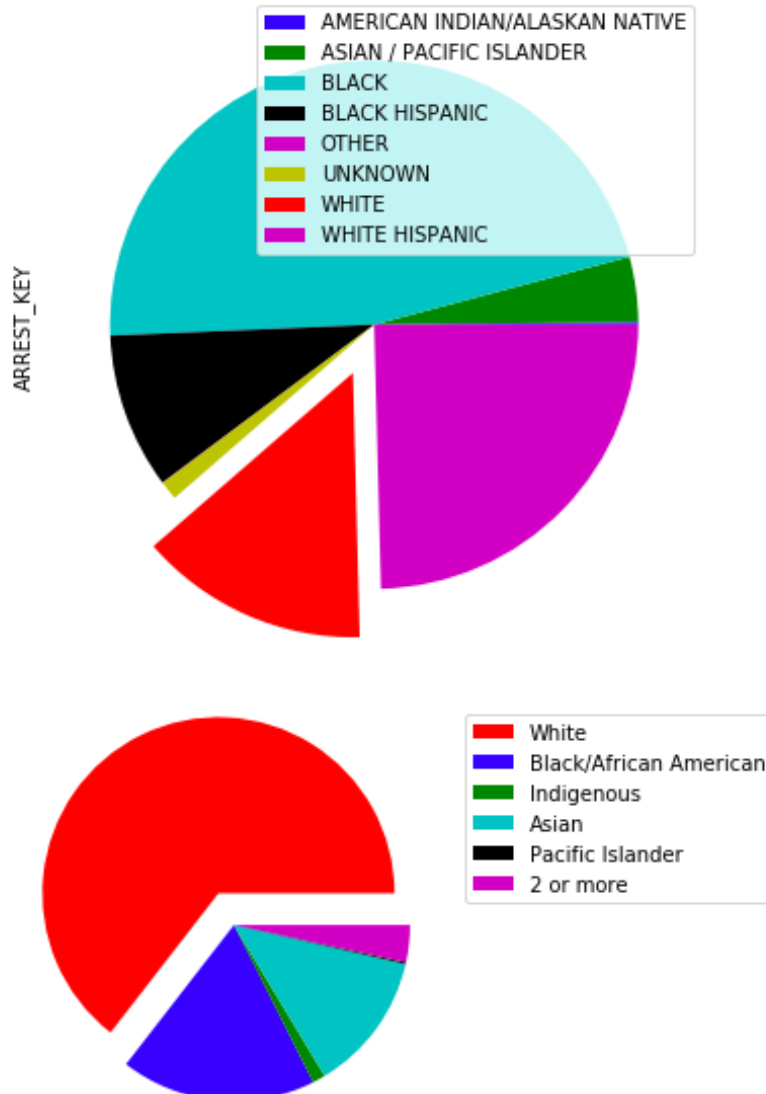
We show here the most frequent descriptions used for black arrests had triple or even quadruple the amount of arrests white people had. This shows that there should be genuine concern for targeting black people for arrests. The next graph which shows arrest counts for descriptions white people were most arrested for. Save for one, each arrest description in that graph shows that black arrests for those descriptions still tripled the amount of white arrests. An interesting finding was that intoxicated driving had almost the same number of arrests for both races. This, combined with the outside information that DUI arrests have to be tested shows that cops aren't willing to make arrests without probable cause for DUIs. However, the traffic infraction description had three times as many black arrests than white arrests. Since this type of arrest has no need for a record of probable cause, this is supporting evidence that the cops are making baseless arrests or targeting minorities without clear evidence.

Count of Arrests By Race for top 15 Descriptions for Black Arrests

Count of Arrests By Race for top Descriptions for White Arrests excluding repeats
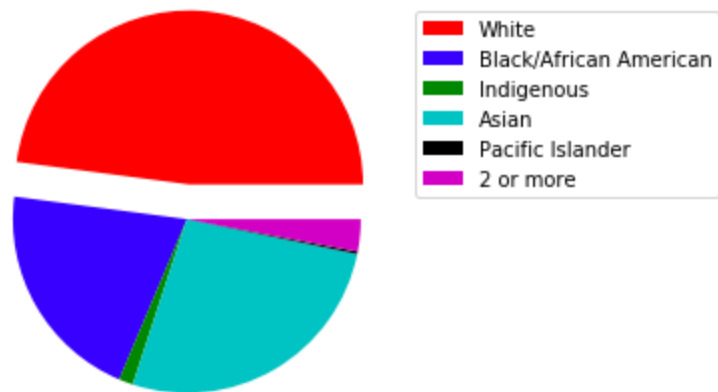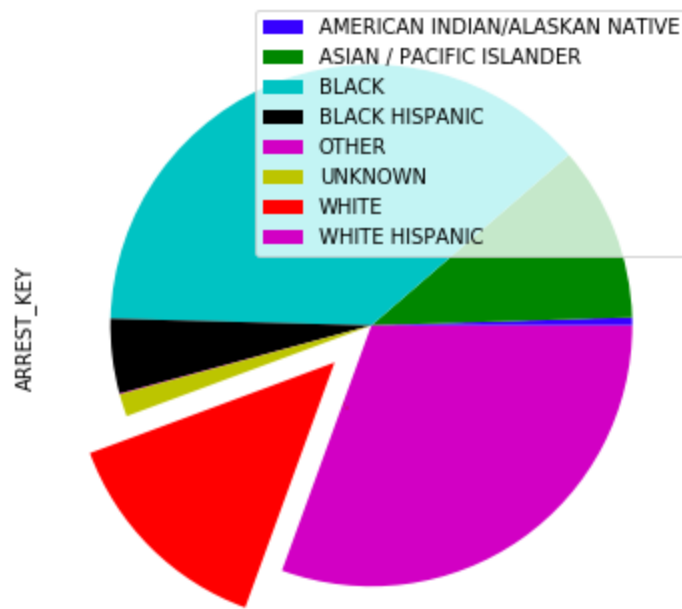
Finally, we created pie charts of the portion of arrests in each borough and portion of population in each borough to drive home the statistical improbability of the amount of arrests for minority groups. For each borough, white people are the (sometimes overwhelming) majority. However, the arrests for minority groups are wildly disproportionate.

Staten Island:

ARREST_KEY

Legend:
- AMERICAN INDIAN/ALASKAN NATIVE
- ASIAN / PACIFIC ISLANDER
- BLACK
- BLACK HISPANIC
- OTHER
- UNKNOWN
- WHITE
- WHITE HISPANIC

Legend:
- White
- Black/African American
- Indigenous
- Asian
- Pacific Islander
- 2 or more

Queens

ARREST_KEY

Legend:
- AMERICAN INDIAN/ALASKAN NATIVE
- ASIAN / PACIFIC ISLANDER
- BLACK
- BLACK HISPANIC
- OTHER
- UNKNOWN
- WHITE
- WHITE HISPANIC

Legend:
- White
- Black/African American
- Indigenous
- Asian
- Pacific Islander
- 2 or more

Manhattan

ARREST_KEY

- AMERICAN INDIAN/ALASKAN NATIVE
- ASIAN / PACIFIC ISLANDER
- BLACK
- BLACK HISPANIC
- OTHER
- UNKNOWN
- WHITE
- WHITE HISPANIC

Population

- White
- Black/African American
- Indigenous
- Asian
- Pacific Islander
- 2 or more

Brooklyn

ARREST_KEY

Legend:
- AMERICAN INDIAN/ALASKAN NATIVE
- ASIAN / PACIFIC ISLANDER
- BLACK
- BLACK HISPANIC
- OTHER
- UNKNOWN
- WHITE
- WHITE HISPANIC

Population

Legend:
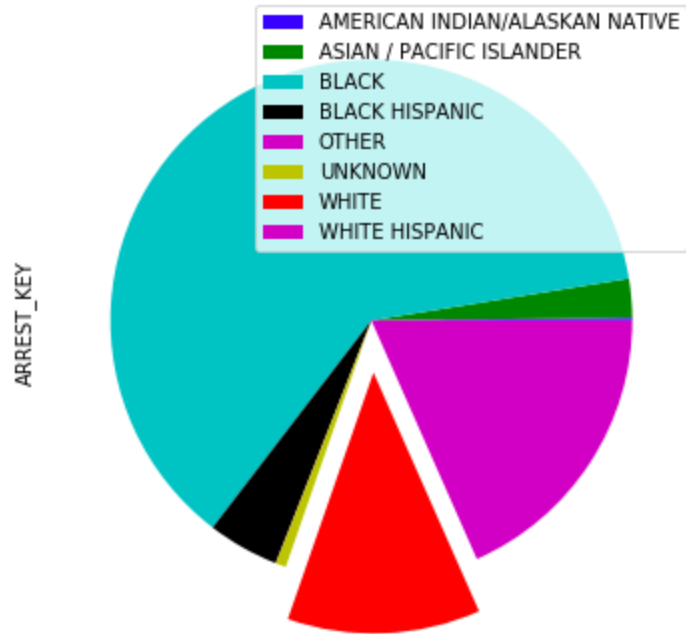- White
- Black/African American
- Indigenous
- Asian
- Pacific Islander
- 2 or more
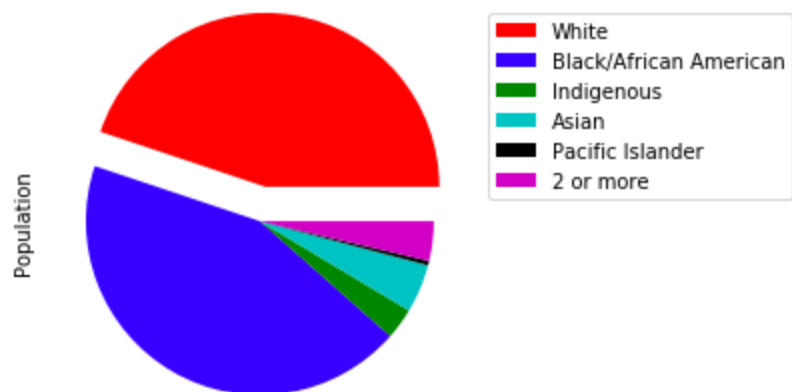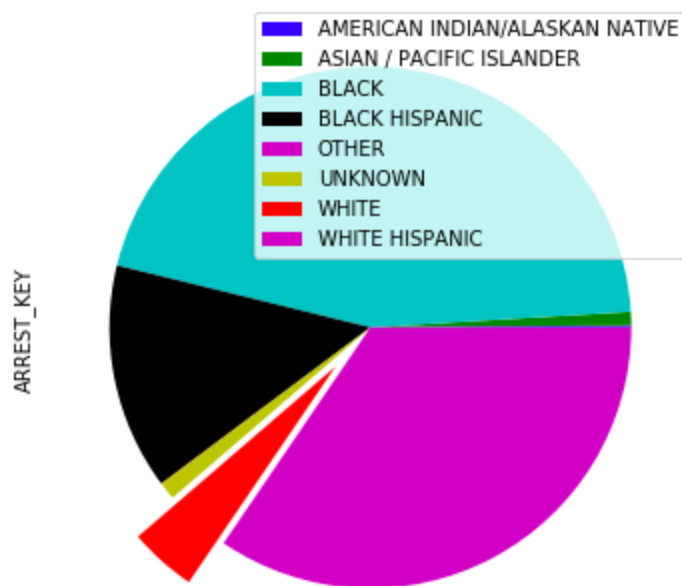
Bronx

Section 3: Conclusion

       Using heatmaps, geographical plotting, pie charts, and bar graphs we showed that there is an unusually high proportion of black arrests. There is a high likelihood of bias due to the lack of black population to supply the amount of black arrests. To support our conclusion, we show that over 2 out of 100 black people were arrested for the top 15 descriptions black people were arrested for. There were almost 20 arrests in 13 years per 100 black people living in New York in 2018. For numbers like this to occur, some bias or targetting occurs for minorities and/or the New York education system is greatly failing its job and continues to be a school-to-prison pipeline. With the sheer number of arrests it has to be a mix of reasons, but as we saw in DUI arrests compared to other arrests that there is some bias going on with police arrests. Still, it is the minorities that go to the disadvantaged schools and it is up to the governor (and the mayor) to fix inequality for the minority.

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Between 2006 and 2018:
There were 0.08 arrests per black person for ASSAULT 3
There were 0.04 arrests per black person for LARCENY,PETIT FROM OPEN AREAS,UNCLASSIFIED
There were 0.06 arrests per black person for CONTROLLED SUBSTANCE, POSSESSION 7
There were 0.02 arrests per black person for TRAFFIC,UNCLASSIFIED MISDEMEAN
There were 0.04 arrests per black person for ROBBERY,UNCLASSIFIED,OPEN AREAS
There were 0.11 arrests per black person for MARIJUANA, POSSESSION 4 & 5
There were 0.04 arrests per black person for ASSAULT 2,1,UNCLASSIFIED
There were 0.08 arrests per black person for THEFT OF SERVICES, UNCLASSIFIED
There were 0.04 arrests per black person for TRAFFIC,UNCLASSIFIED INFRACTION
There were 0.03 arrests per black person for CONTROLLED SUBSTANCE,INTENT TO SELL 3
There were 0.03 arrests per black person for TRESPASS 3, CRIMINAL
There were 0.03 arrests per black person for STOLEN PROPERTY 3,POSSESSION
There were 0.02 arrests per black person for CONTROLLED SUBSTANCE,SALE 3
There were 0.06 arrests per black person for NY STATE LAWS,UNCLASSIFIED VIOLATION
There were 0.02 arrests per black person for TRESPASS 2, CRIMINAL
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