Terry Stops in Seattle, WA

Are There Racial Biases In Terry Stops In Seattle, WA?

Presentation available at https://docs.google.com/presentation/d/1I8HY

The problem

What is a Terry Stop?

A Terry Stop in the US allows the police to briefly detain a person based on reasonable suspicion of involvement in criminal activity.

Why is this important?

There is a difference between one police officer stopping one individual, which is a tactical definition, and systematic promotion of this tactic on either the departmental or municipal level, which can damage police–community trust and lead to charges of racial profiling.

Problem statement

The goal is to investigate the Terry Stops in Seattle by race of the subject and officer, and gain insight if the percentage of stops match the demographic of the city. Also, to help identify if certain officers have a higher prevalence of stops of a certain race.

Are there race disparities in Seattle’s Terry Stops?

Yes.

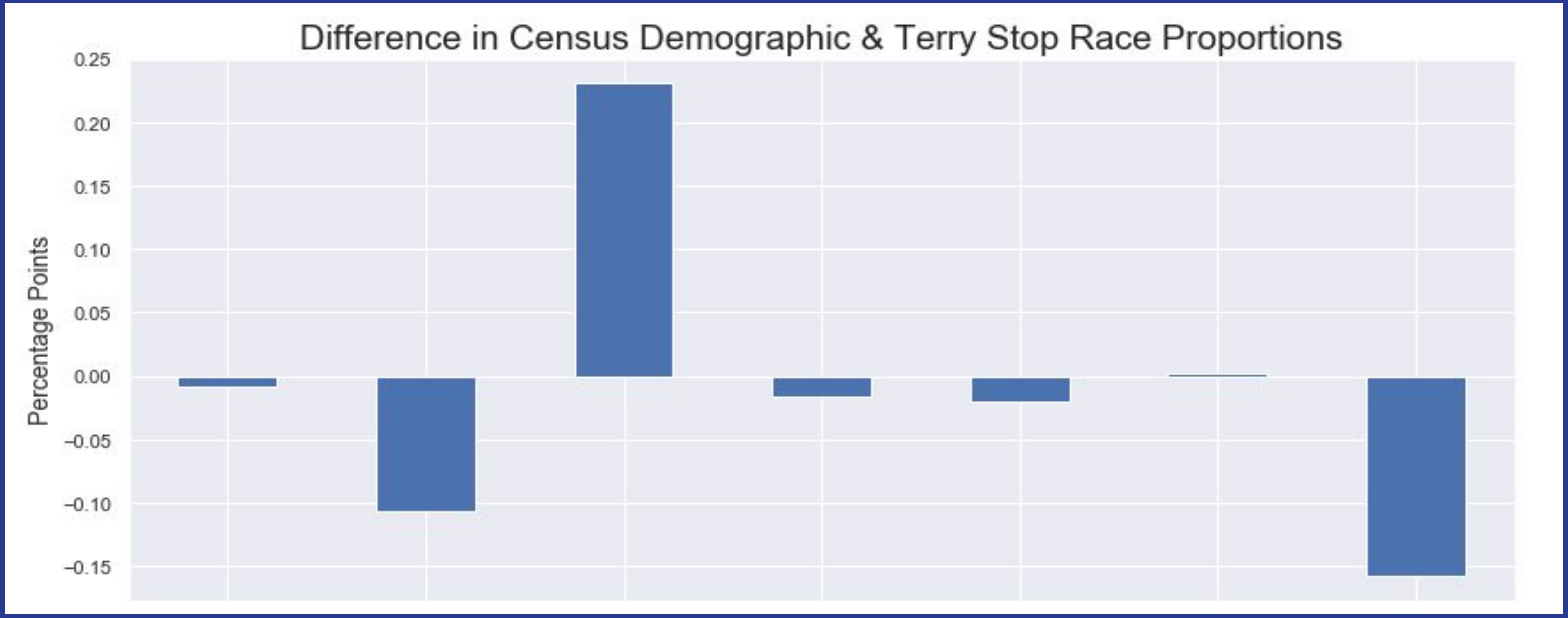
Key Findings

- Black subjects are stopped at higher proportion than black resident demographics
- Black subjects 17 years old or less are stopped more often than Non-Black subjects
- Native Alaskan subjects >35 years old are stopped at higher rates than Non-Native Alaskans
- White Subjects are arrested and/or frisked less often than Non-White Subjects

Black Subjects & Terry Stops

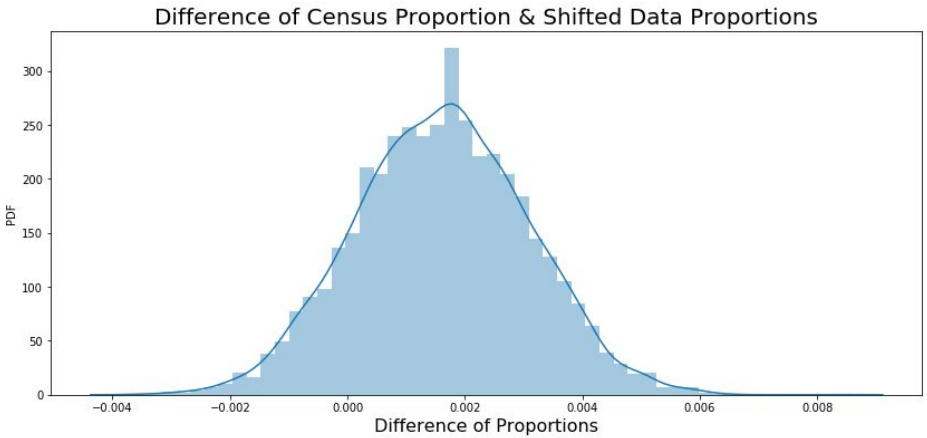
Between 2015 - 2019 Black subjects accounted for 31% of total Terry Stops

When compared to the 2010 census population data, all groups with the exception of races labeled ‘Other’ and Black are stopped at a lesser percentage point than the population. Blacks are stopped 300 times more than what the 2010 census population stated.



Discover trends over time in appendix A

Black Subjects & Terry Stops



Statistical Findings

10,000 Bootstrap replicates were created of a simulated 7.7% proportion from the census data with a test statistic of a difference in proportion of 7.7%.

The difference between the census data & observed data would be between -.0012 and .0044 with 95% confidence, if the two proportions were the same.

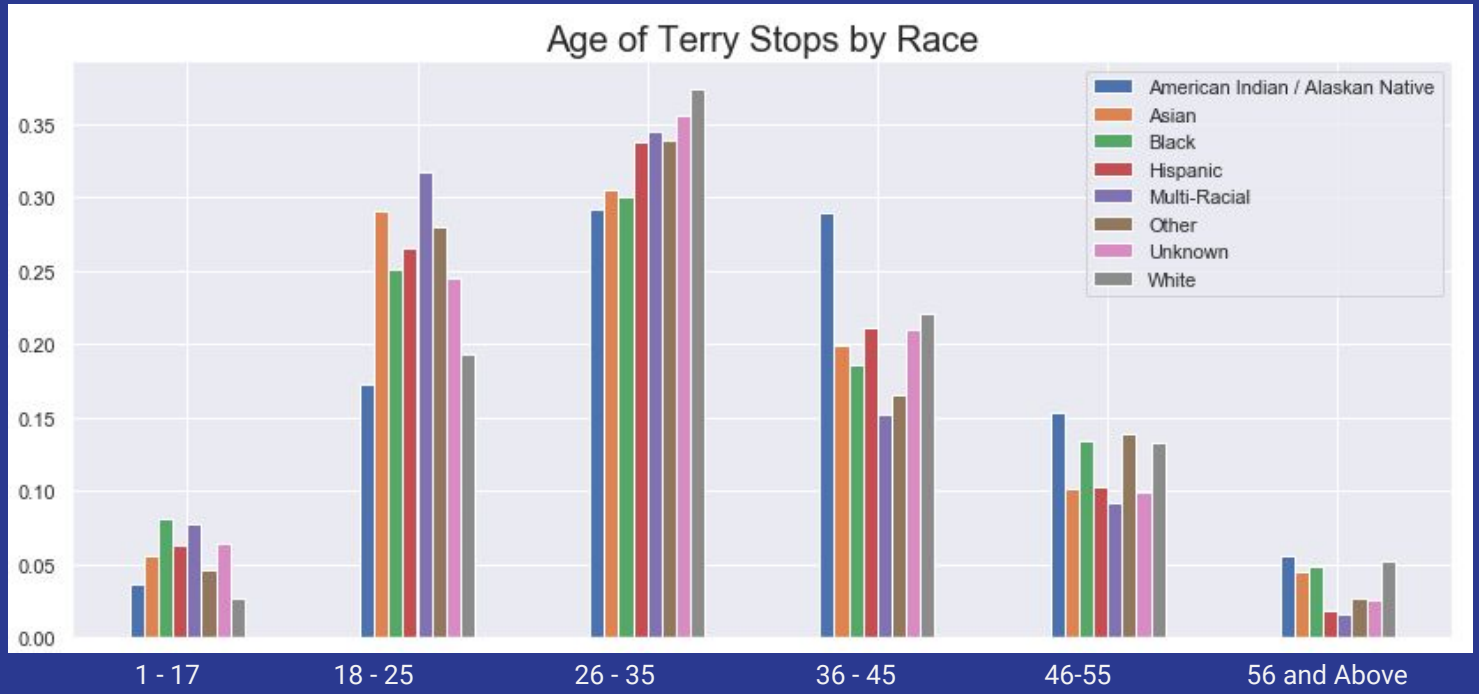
The observed difference of the proportion of Black Subjects stopped and the census black demographic data is .231

Age & Terry Stops

Black & Multi Racial subjects had the highest percentage of the juvenile population stopped at 8% & 7.7% respectively

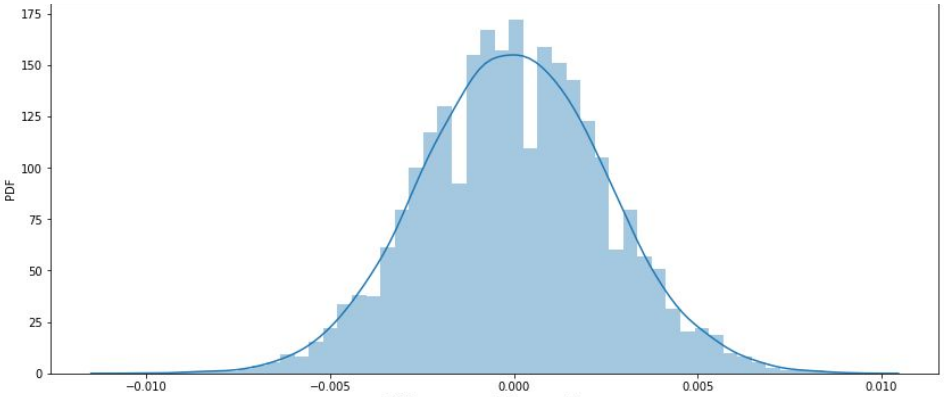
White Subjects had the least juvenile stops at 2.7%

Native Alaskans aged >35 have the highest proportion of stops



Age & Terry Stops

Difference In Proportions assuming Black Subjects & Non-Black Subjects 17 Years Old and Less are equal



Statistical Findings

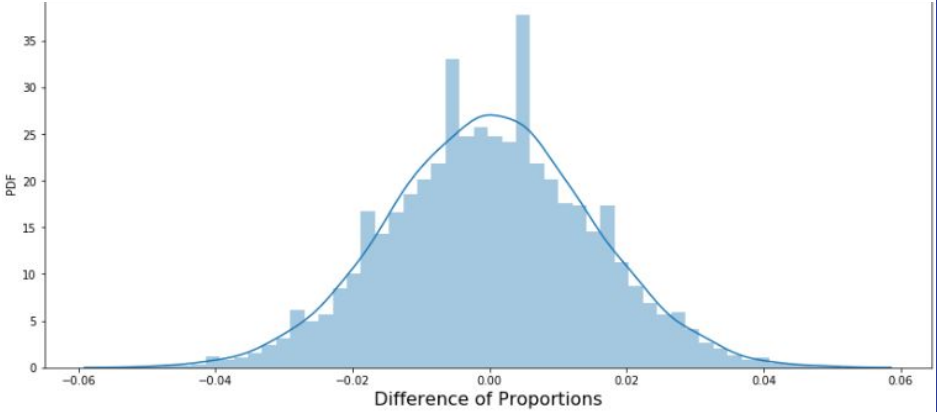
10,000 Bootstrap permutation replicates were created for Black & Non-Black subjects 17 years and less, the test statistic being the difference of these two proportions

We would expect the difference between the proportions of Black subjects & Non-Black subjects 17 years old and less to be between -.0049 and .0051 with 95% confidence, if the two proportions were the same.

The observed difference of the proportion of Black Subjects & Non-Black Subjects 17 years old and less is .0456

Age & Terry Stops

Difference In Proportions assuming Native Alaskan subjects & Non-Native Alaskan subjects 36 Years Old and Older Are Equal



Statistical Findings

10,000 Bootstrap permutation replicates were created for Native Alaskan subjects & Non-Native Alaskan subjects 36 years and older, the test statistic being the difference of these two proportions

We would expect the difference between the proportions of Native Alaskan subjects & Non-Native Alaskan subjects 36 years old and older to be between -.0291 and .0295 with 95% confidence, if the two proportions were the same.

The observed difference of the proportion of Native Alaskan subjects & Non-Native Alaskan subjects 36 years old and older is .1164

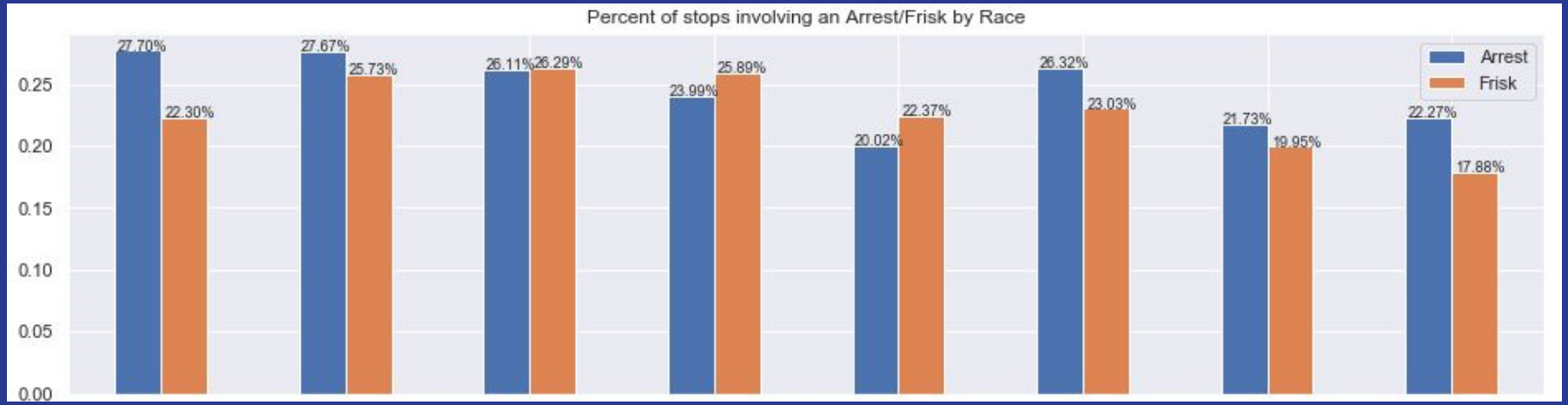
Arrest and Frisks by Race & Terry Stops

Black, Hispanic, & Multi-Racial subjects have a higher percentage of frisks vs. arrests.

Black & Hispanic subjects have the most proportions of frisks at 26.29% & 25.89% respectively

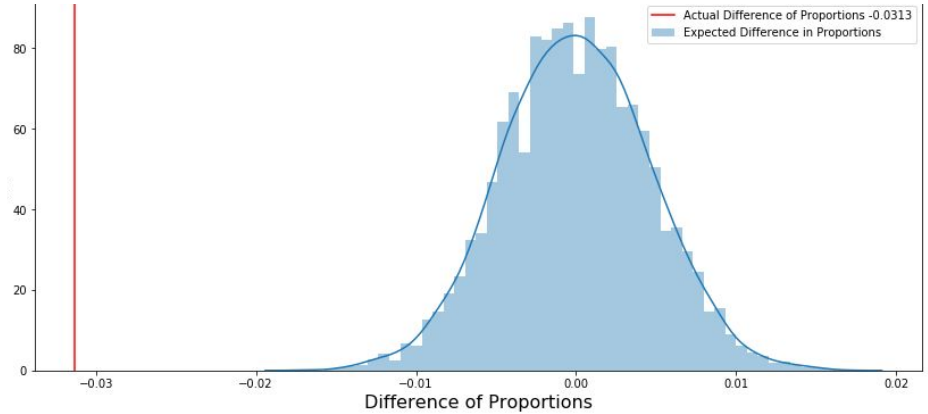
White Subjects had the least frisks at 17.88% of stops

Multi-Racial subjects had the least arrests at 20.02% of stops.



Arrests & Terry Stops

Difference Of Proportions of White Subjects & Non-White Subjects Arrested



Statistical Findings

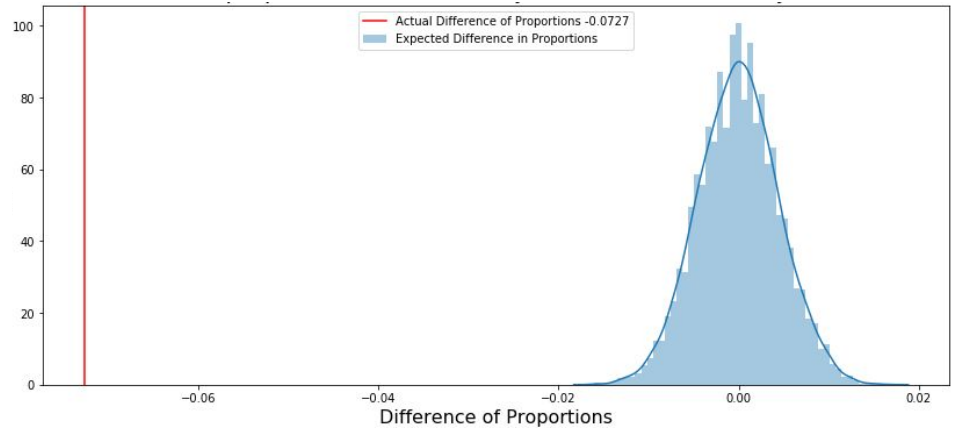
10,000 Bootstrap permutation replicates were created for White subjects & Non-White subjects that were arrested, the test statistic being the difference of these two proportions

We would expect the difference between the proportions of White subjects & Non-White subjects that were arrested to be between -.009 and .009 with 95% confidence, if the two proportions were the same.

The observed difference of the proportion of White subjects & Non-White subjects was -.032

Frisks & Terry Stops

Difference Of Proportions of White Subjects & Non-White Subjects Frisked



Statistical Findings

10,000 Bootstrap permutation replicates were created for White subjects & Non-White subjects that were frisked, the test statistic being the difference of these two proportions

We would expect the difference between the proportions of White subjects & Non-White subjects that were frisked to be between -.009 and .009 with 95% confidence, if the two proportions were the same.

The observed difference of the proportion of White subjects & Non-White subjects was -.073

Arrest and Frisks by Race & Terry Stops

Black, Hispanic, & Multi-Racial subjects have a higher percentage of frisks vs. arrests.

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White Subjects had the least frisks at 17.88% of stops

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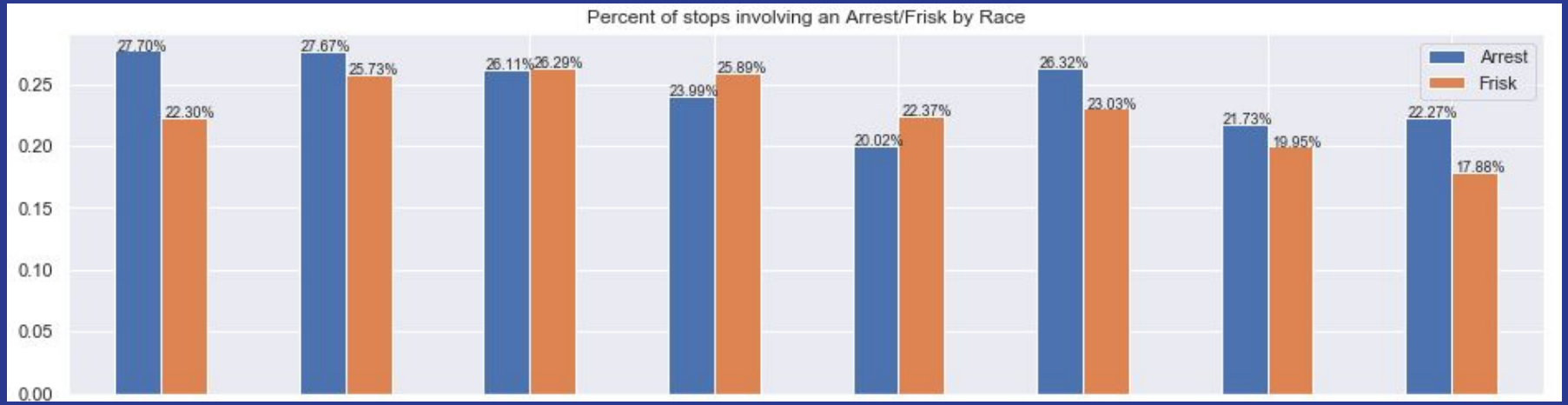


Model Performances

- *Can the race of a subject be predicted based on officer demographics, subject and location?*
- *Can the race of a subject be predicted based on individual officers & location?*
- *Can a Frisk be predicted after a stop from subject demographics?*

Performance metric: Log Loss

- .36 vs 1.79 for uninformative balanced model
- Model is not accurate in predicting the race of the subject.
- **Top feature**: Location

Performance metric: Log Loss

- .38 vs 1.79 for uninformative balanced model
- Double the accuracy of officer race
- Inaccurate in predicting the race of the subject

Performance metric: Accuracy

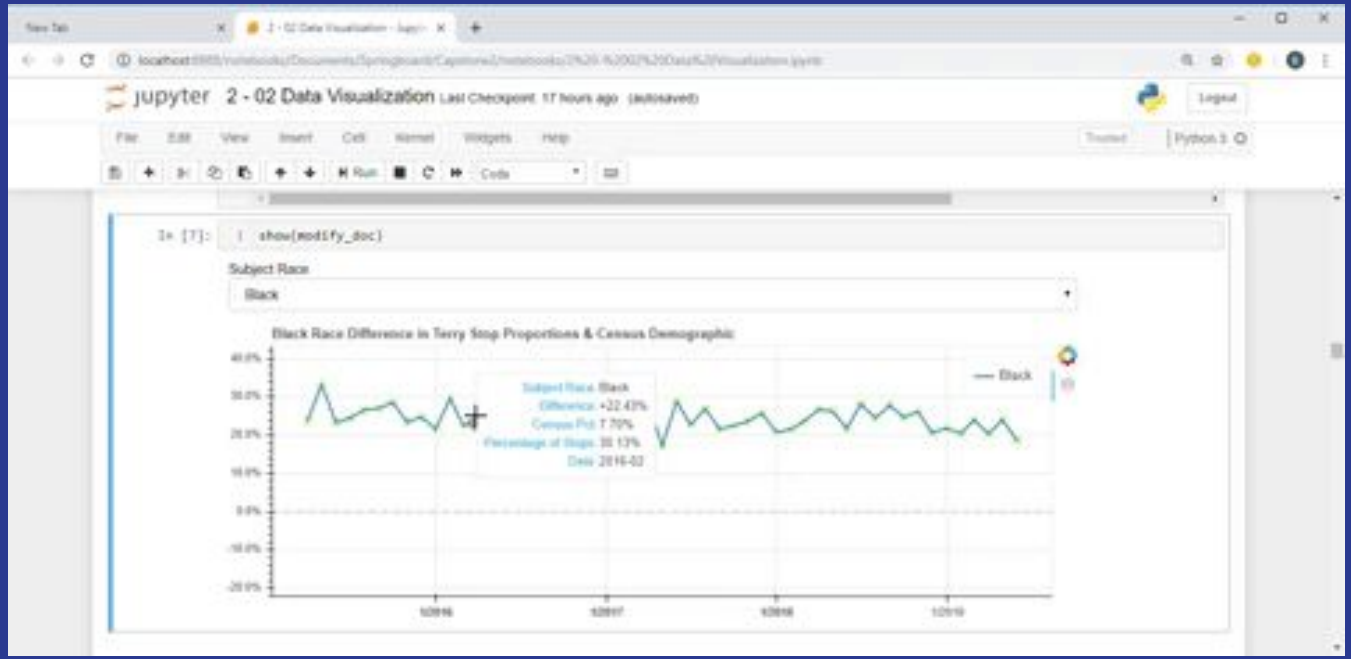
- .80 Accuracy Score, .78 weighted average
- Data was imbalanced, the positive class accuracy is .36
- Inaccurate in predicting the positive class (frisk)
- **Top features**: Officer ID & Subject Age

Conclusions

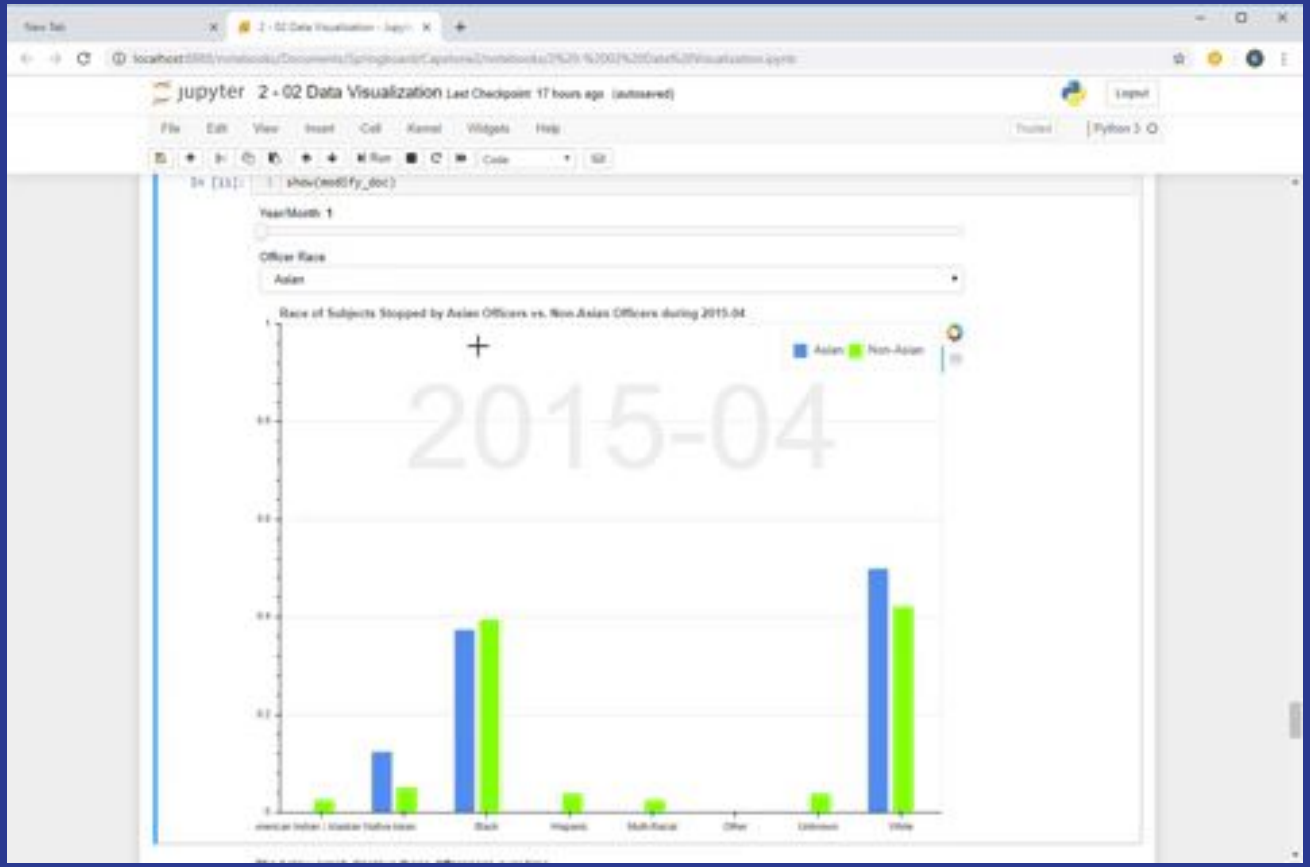
- Racial disparities observed in the data
- Predictions cannot be made by race of officers/subjects alone
- Stops & Frisks are made by officers' observations, further investigation may be needed to determine any possible bias.
    - Ie. Time of stops, capturing & analyzing observations made to initiate stop, observing call types during certain periods of time, clustering officers to identify hidden groups
- Terry Stop data can be used to monitor overall stop data as a dashboard (see appendix)
- This data can help officer safety
    - Can a prediction of a weapon present be made based on the call type?
    - Identify high performing officers to share 'experienced' observations

Terry Stop vs Census Proportions

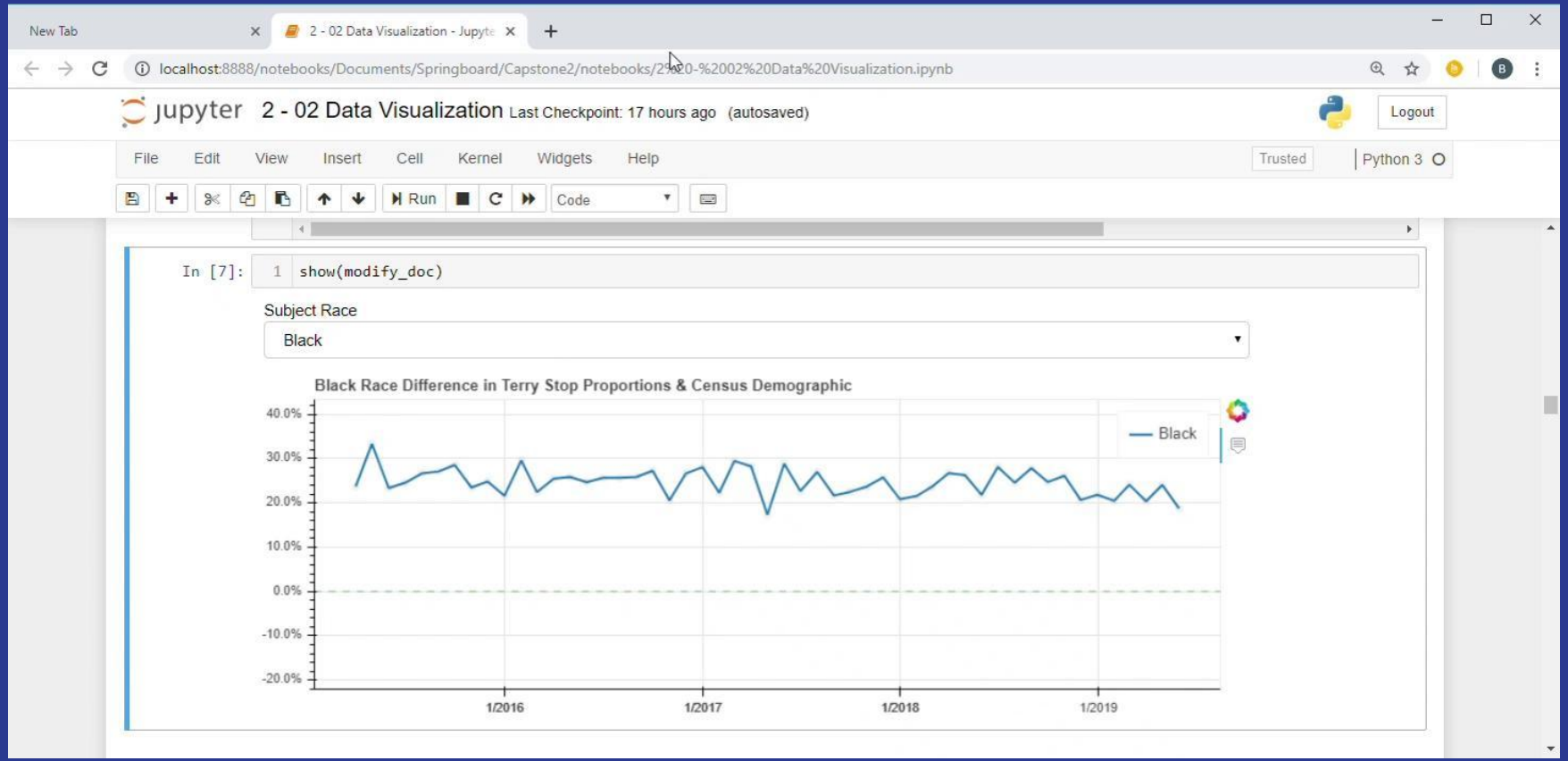
Appendix A



Proportions of stops by officer type Appendix B



Terry Stop vs Census Proportions Appendix A



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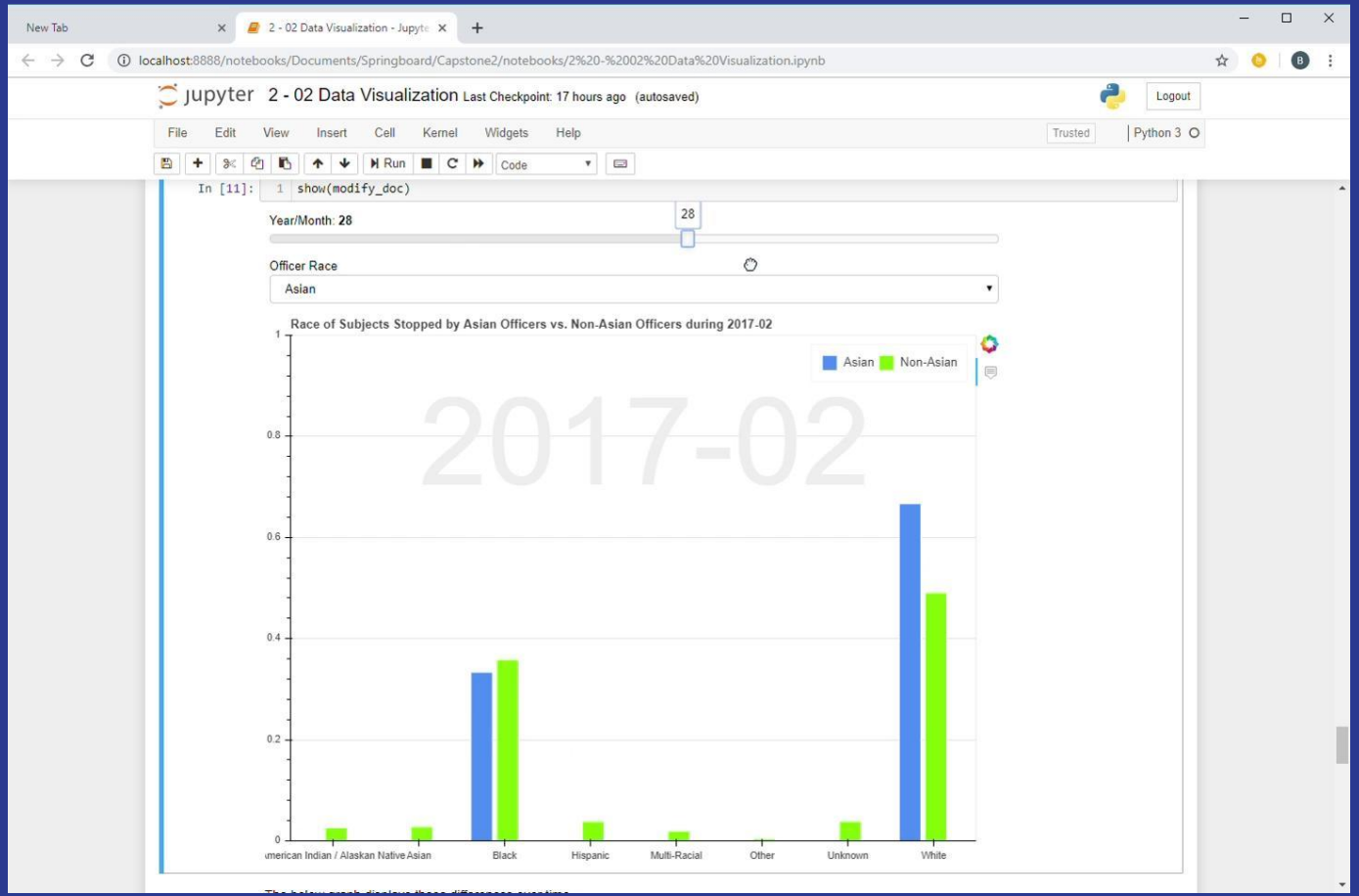

Diff in stop proportions by officer

Appendix B