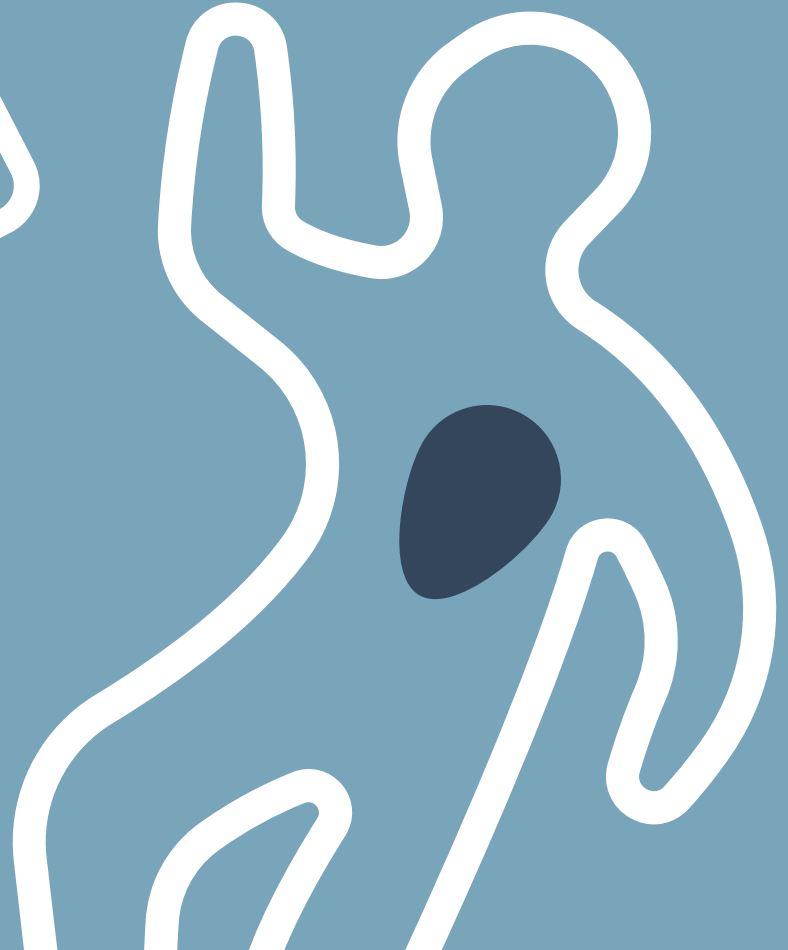


Predicting Murder Clearance

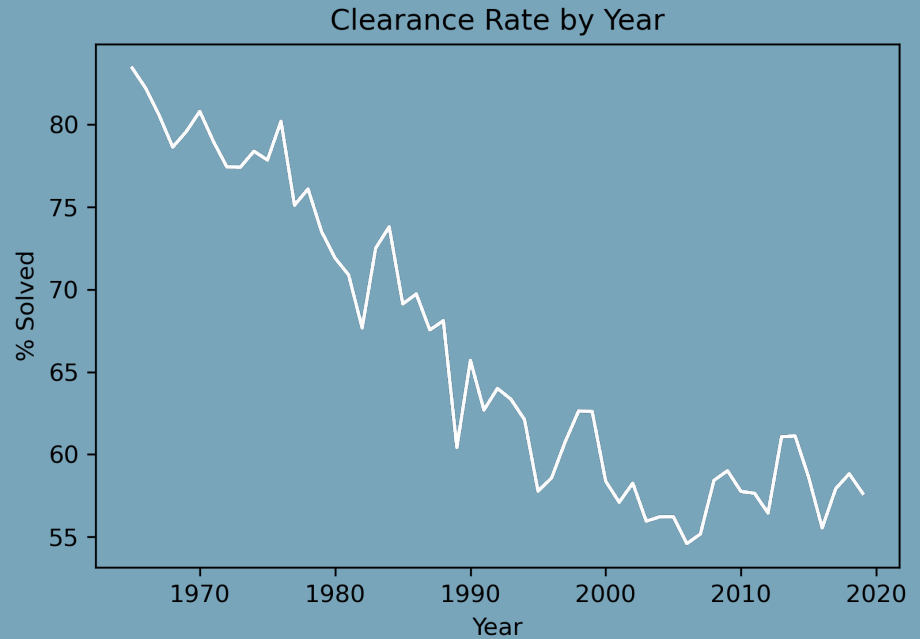
Julia Nguyen



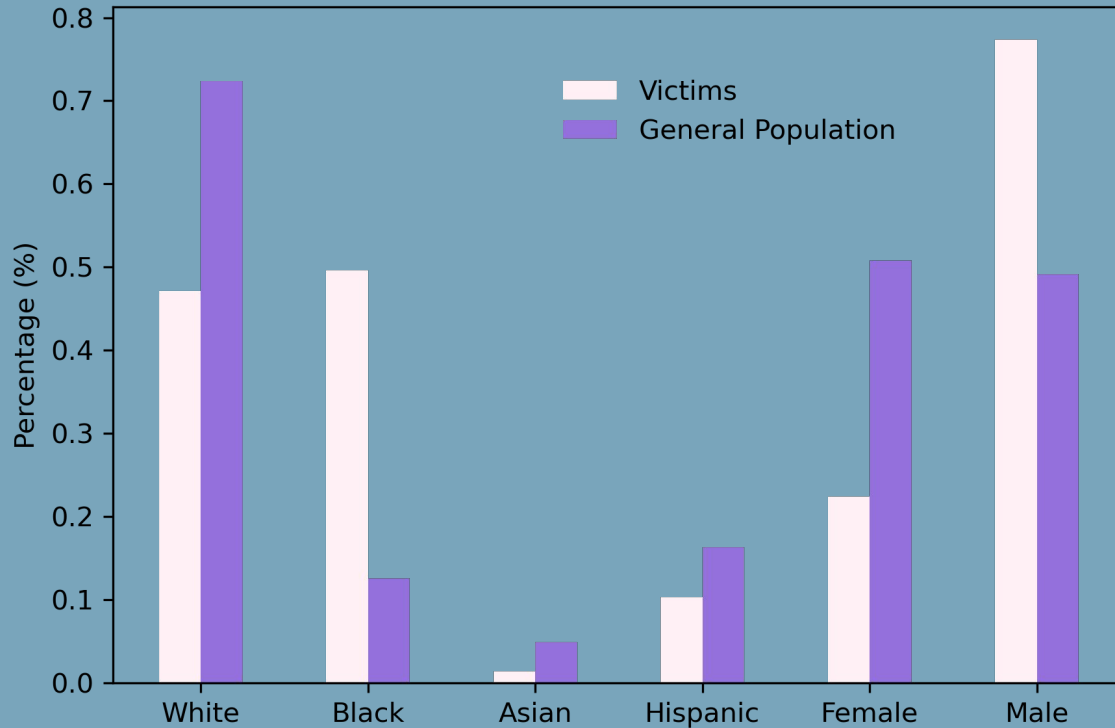
Murder Clearance Rates in America

Murder clearance rate has hovered around 60% for decades

- Some communities have even lower clearance rates
- More crime
- Community distrust

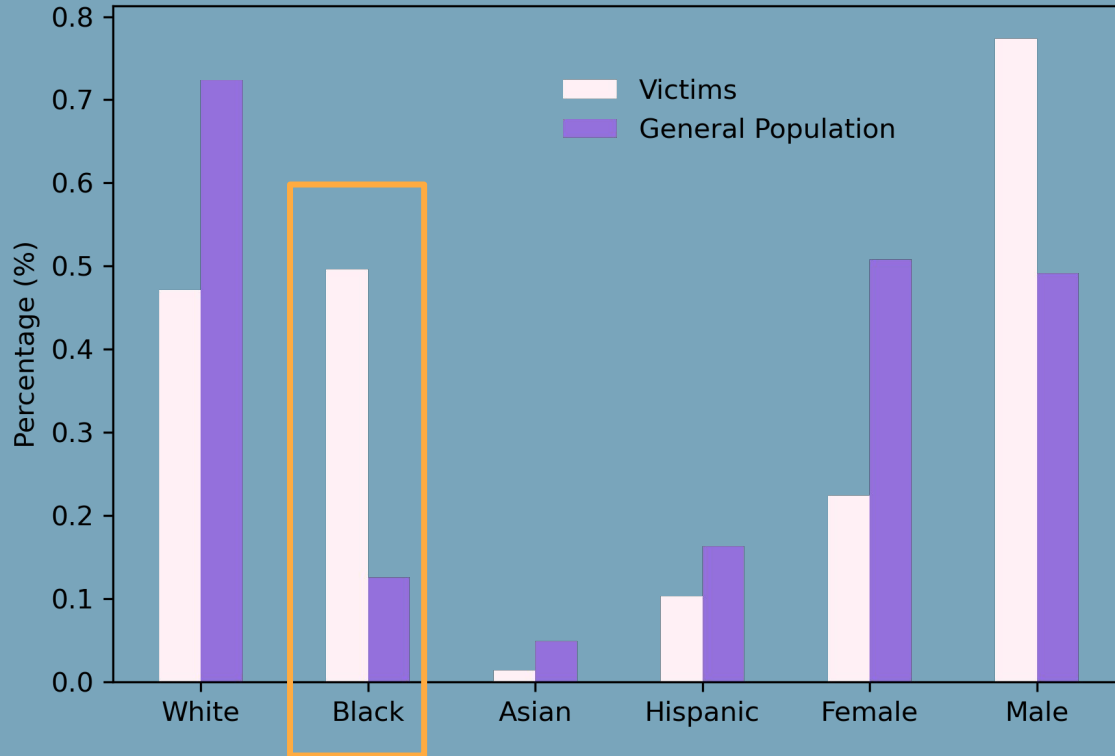


Demographics of Victims



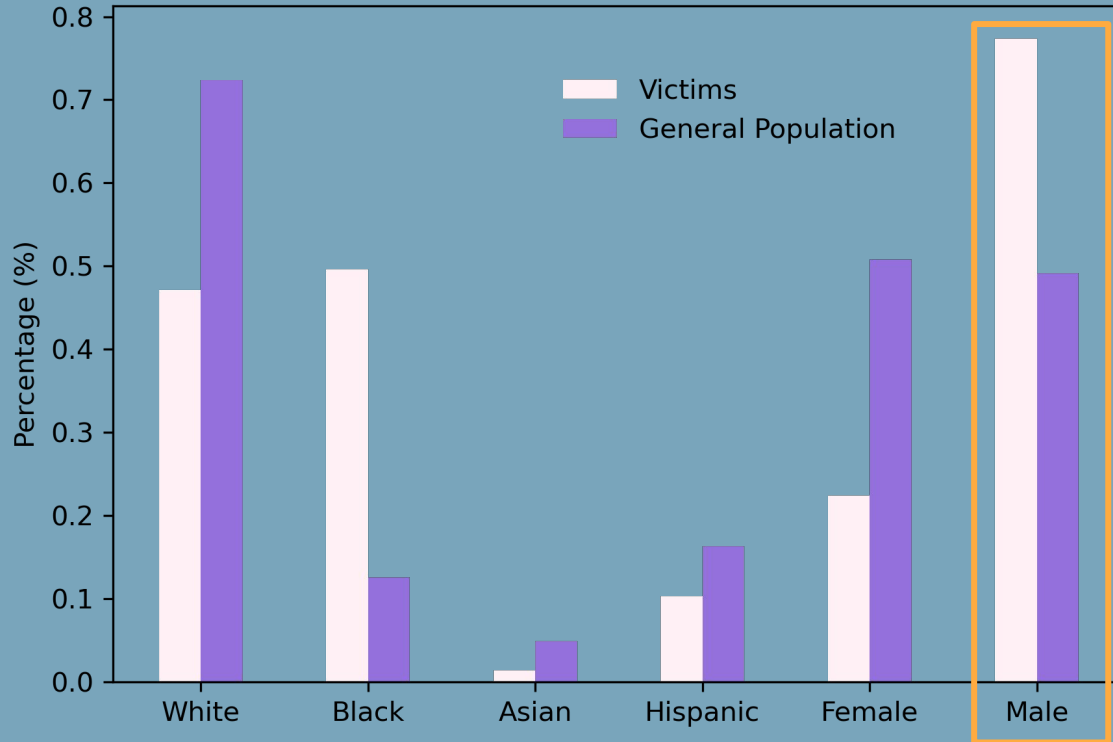
Male and black victims
are overrepresented

Demographics of Victims



Male and black victims
are overrepresented

Demographics of Victims

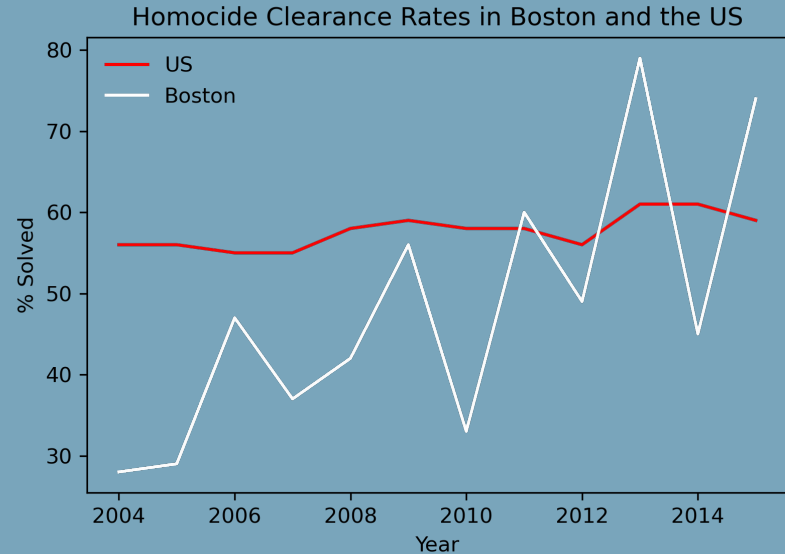


Male and black victims
are overrepresented

More Resources Increases Clearance Rates

2017 study by Braga:

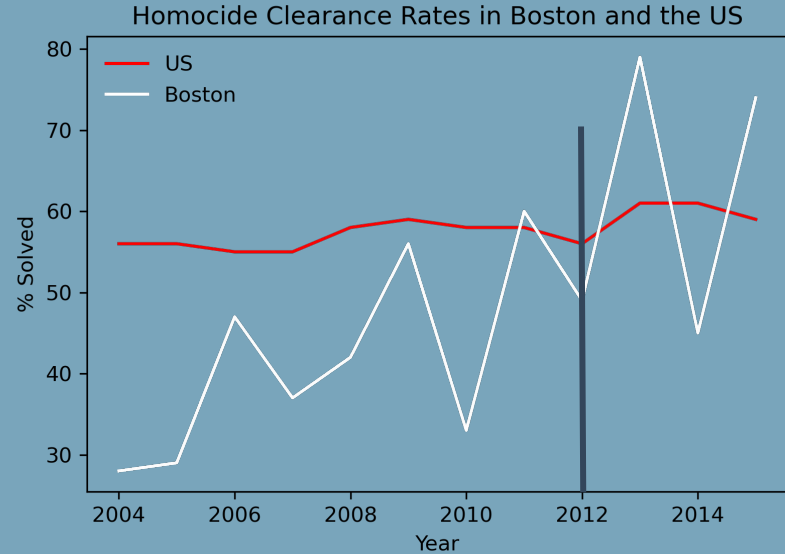
- Boston Police Department increased resources starting 2012
- **10% increase** in average clearance rate



More Resources Increases Clearance Rates

2017 study by Braga:

- Boston Police Department increased resources starting 2012
- **10% increase** in average clearance rate



METHODOLOGY

Variables

Race, age, location,
and demographics

Model

Logistic Regression:
Predict clearance

Data

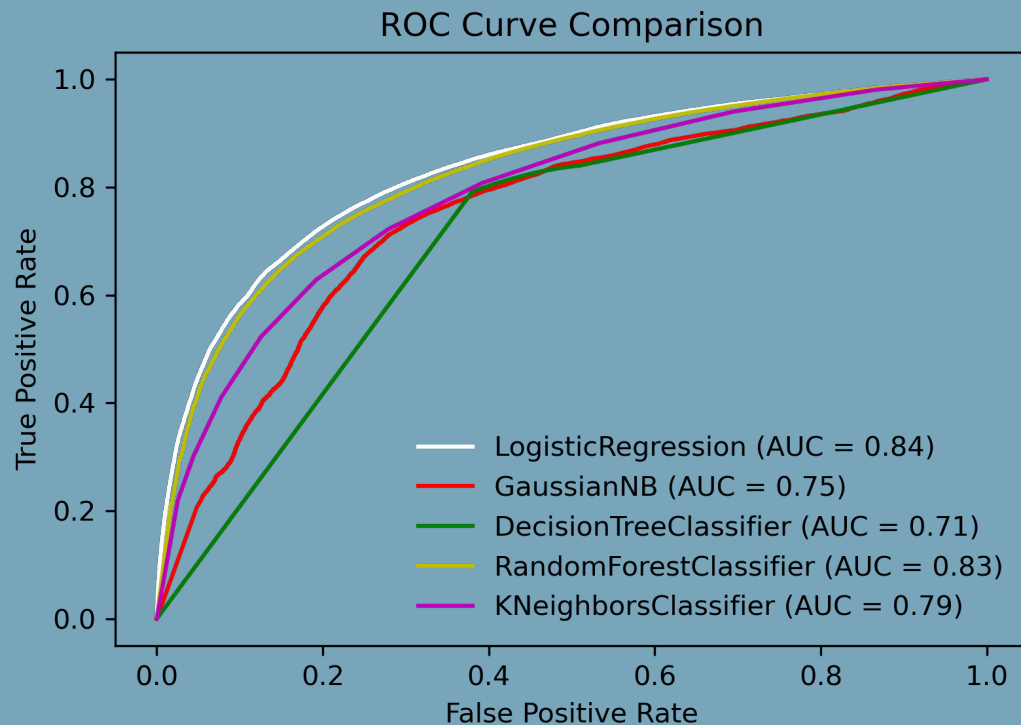
Data collected from
murderdata.org
(>700,000 cases) and
US census

Insights

Factors that correlate
to the probability of
clearance



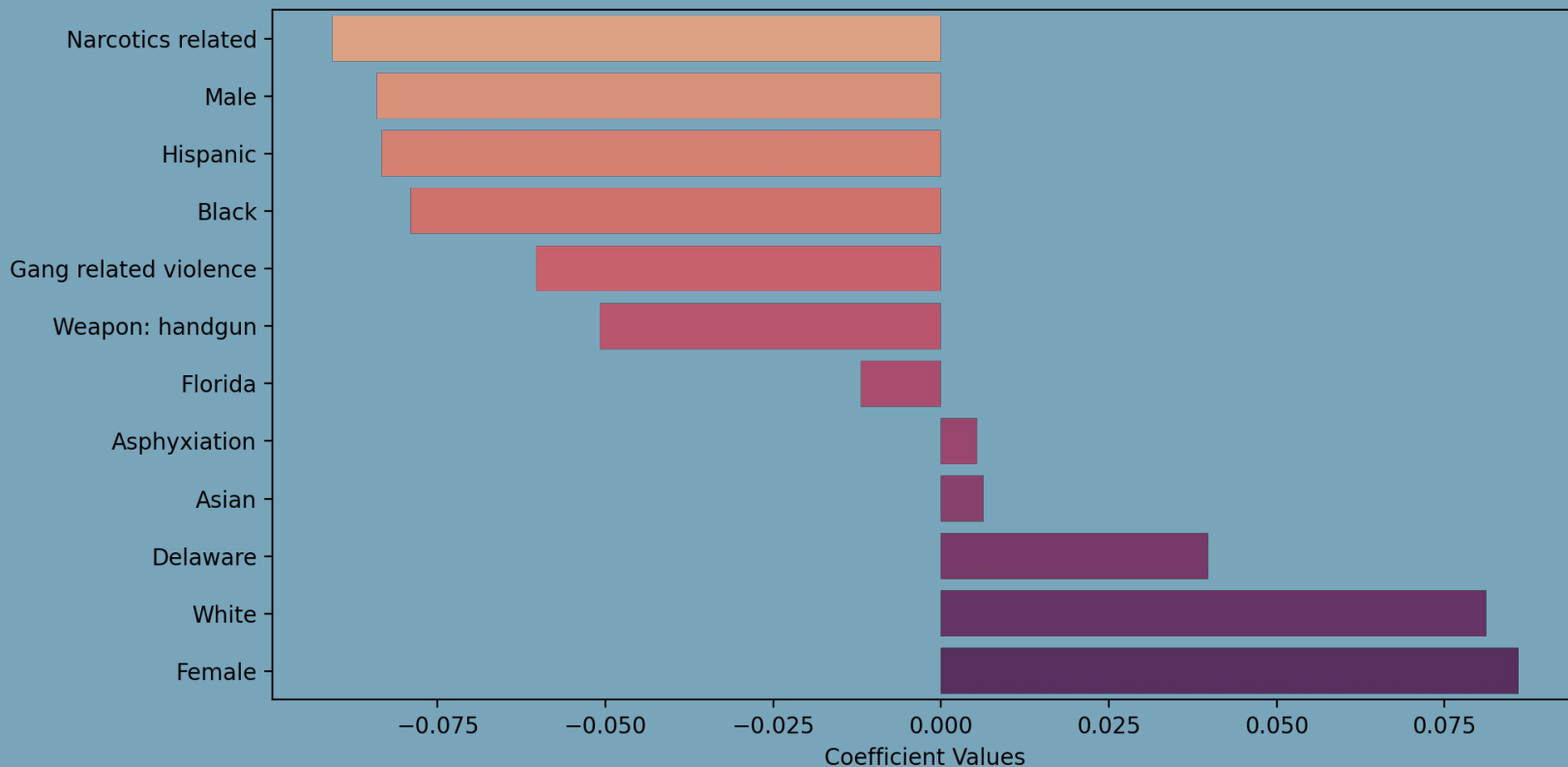
Selecting a Model



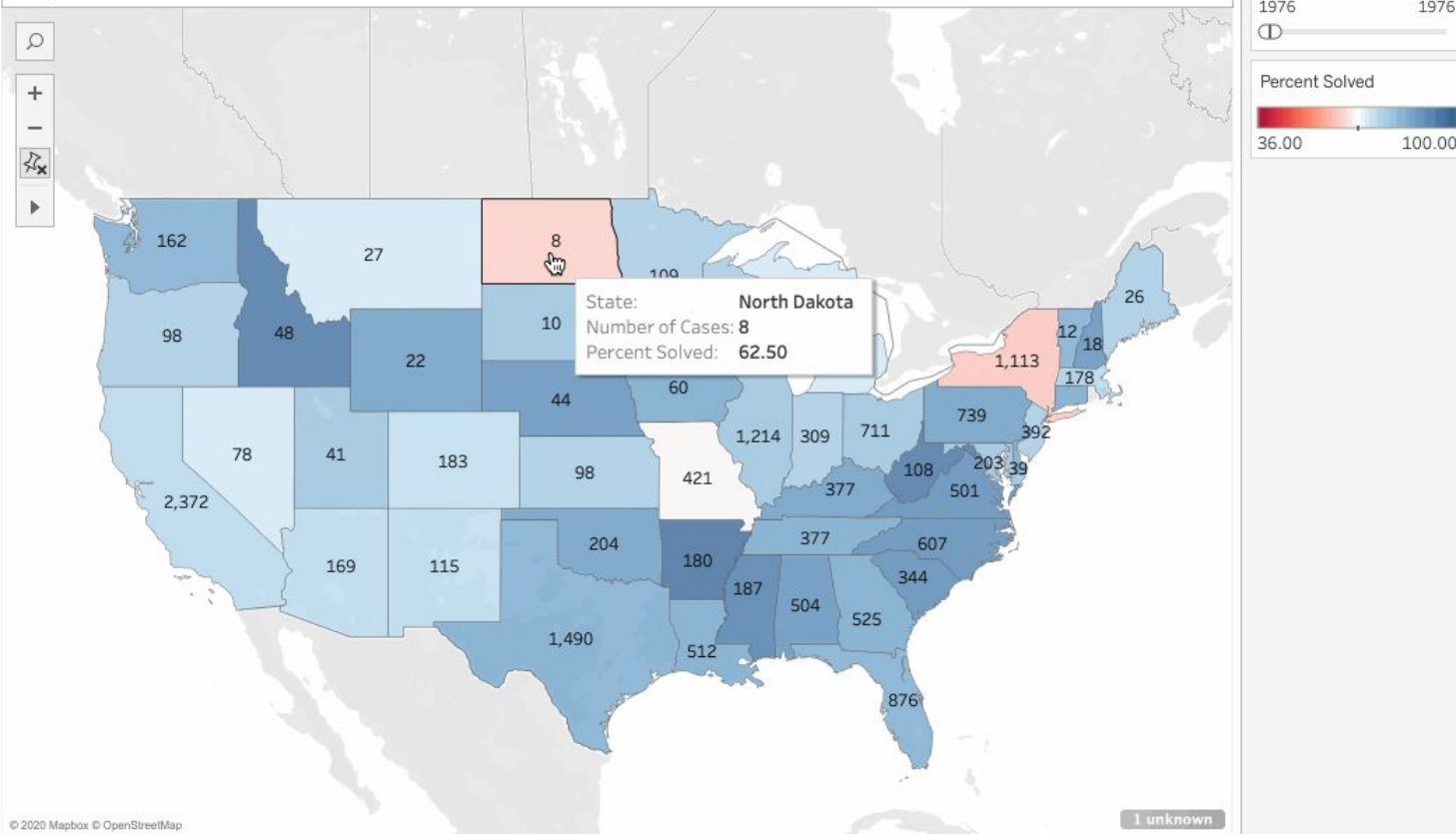
Logistic Regression Model

	Precision	Recall
Unsolved	0.55	0.79
Solved	0.90	0.74

Feature Relationship with Homicide Clearance



Map of Murder Clearance Rate Over Time



Future Work

Get more granular data: Demographics for MSA

Demographic data over time

Role of legislation and historical events on clearance rate

Questions?



References

- <http://www.murderdata.org>
- https://usa.ipums.org/usa-action/variables/met2013#description_section
- <https://www.vox.com/2018/9/24/17896034/murder-crime-clearance-fbi-report>
- https://www.hks.harvard.edu/sites/default/files/centers/rappaport/files/braga_homicideclearance%20v7.pdf