



The Social Impact Forum

Hate Crimes in California

DSI 1213 Project 4, Group 1
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Hate Crimes Timeline

February 8, 1990

Hate Crimes
Statistics Act

September 21, 1993

Hate Crimes
Sentencing
Enhancement Act

October 28, 2009

The Local Law
Enforcement Hate
Crimes Prevention Act



Problem Statement

"How likely is it that a hate crime will face prosecution given the specific characteristics and the demographics of the county where it occurred?"

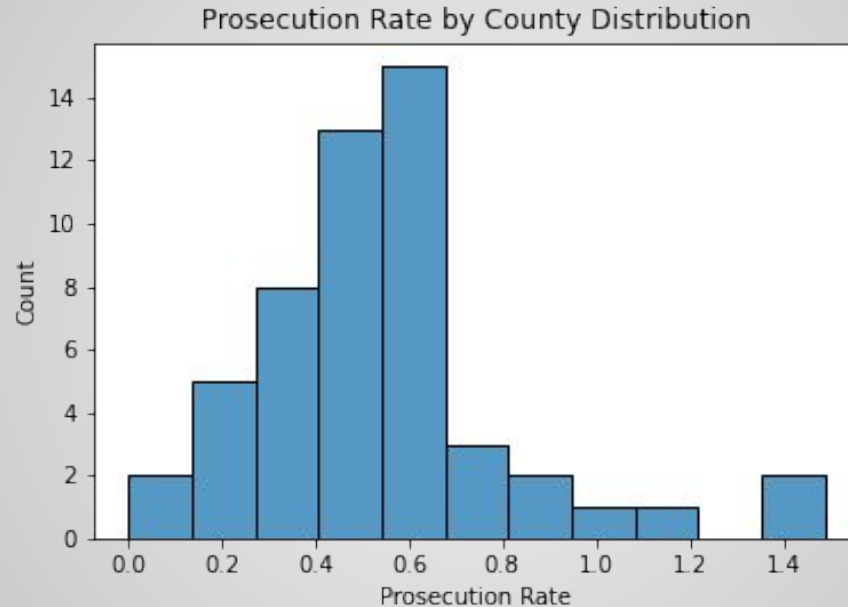


Data Exploration

OPENJUSTICE

“A transparency initiative led by the California Department of Justice that publishes criminal justice data so we can understand how we are doing, hold ourselves accountable, and improve public policy to make California safer.”

Hate Crime Prosecution Rates in California



Prosecution Rates by County in California, 2004 - 2020

Top 5:

1. Kern
2. Glenn
3. Inyo
4. Calaveras
5. Contra Costa

Bottom 5:

1. Plumas
2. Mariposa
3. Nevada
4. Humboldt
5. Placer



Prosecution Rate

1

0.8

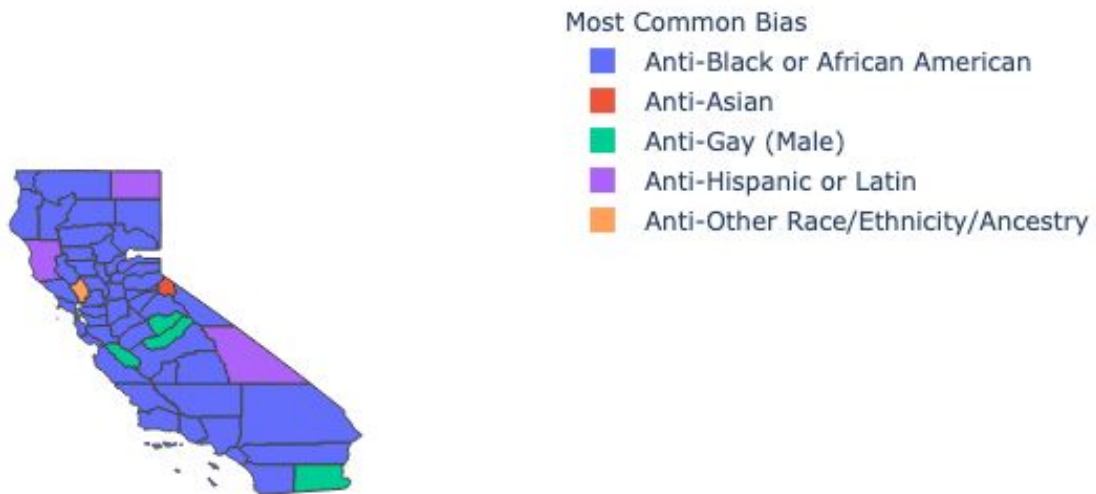
0.6

0.4

0.2

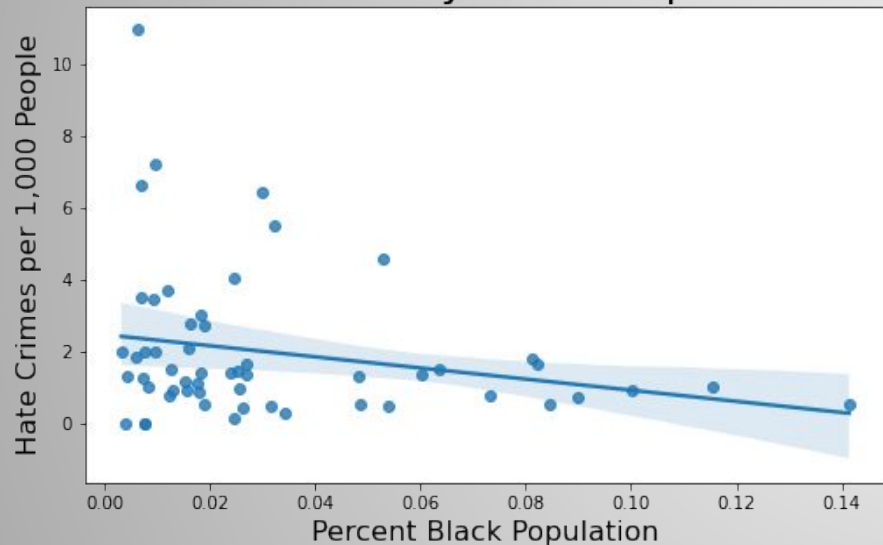
0

Most Common Hate Crime Bias by County in California, 2004 - 2020

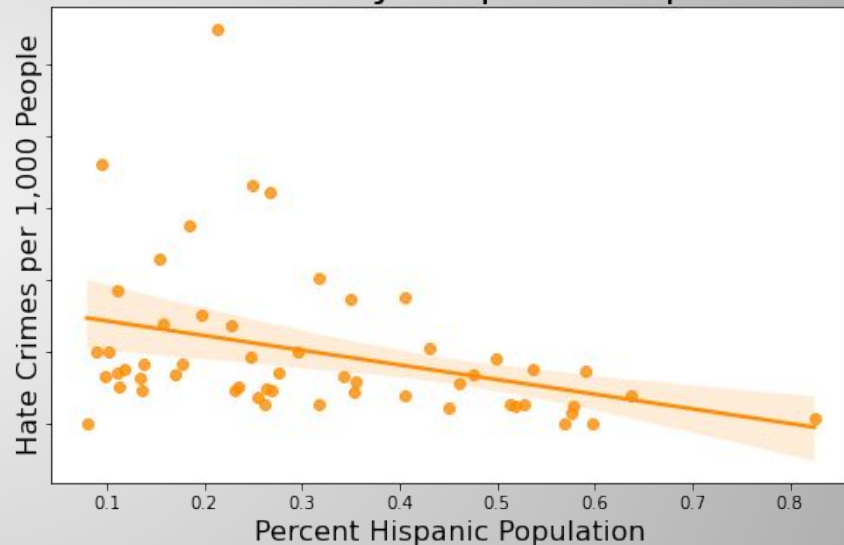


Hate Crimes By Population

Hate Crimes by Black Population

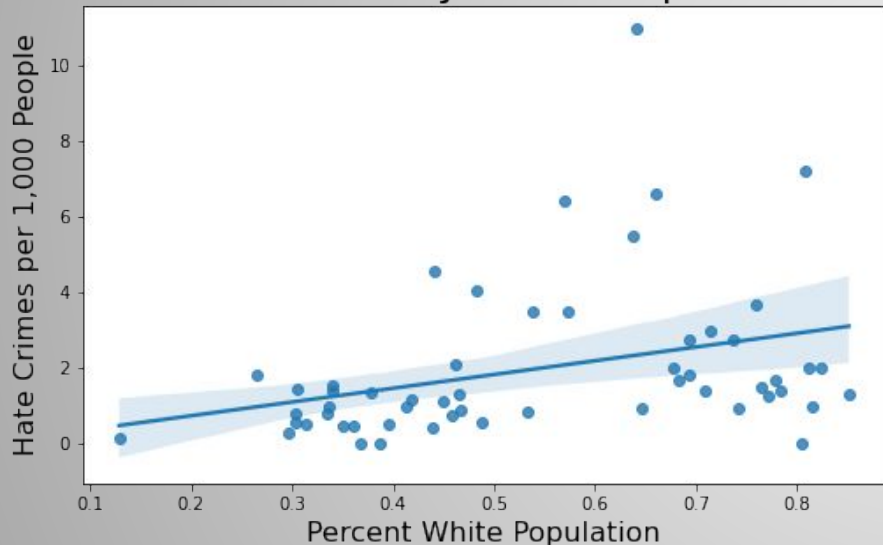


Hate Crimes by Hispanic Population

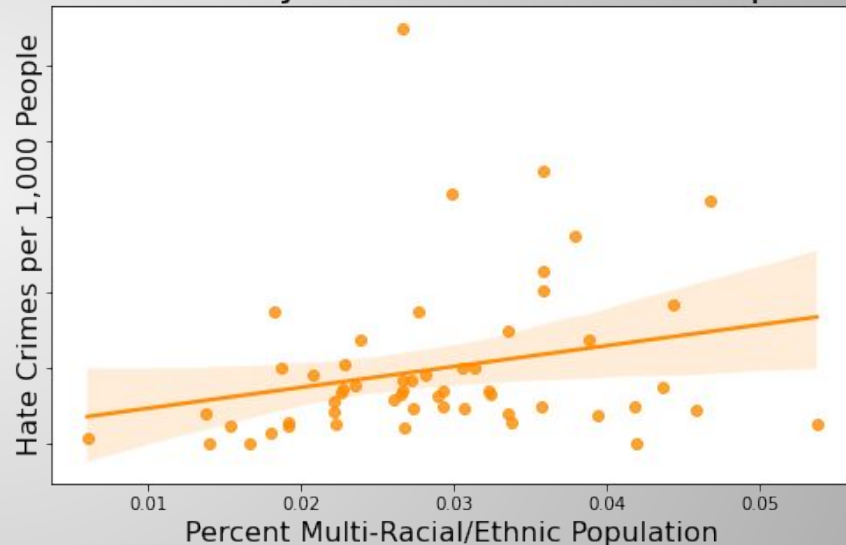


Hate Crimes By Population

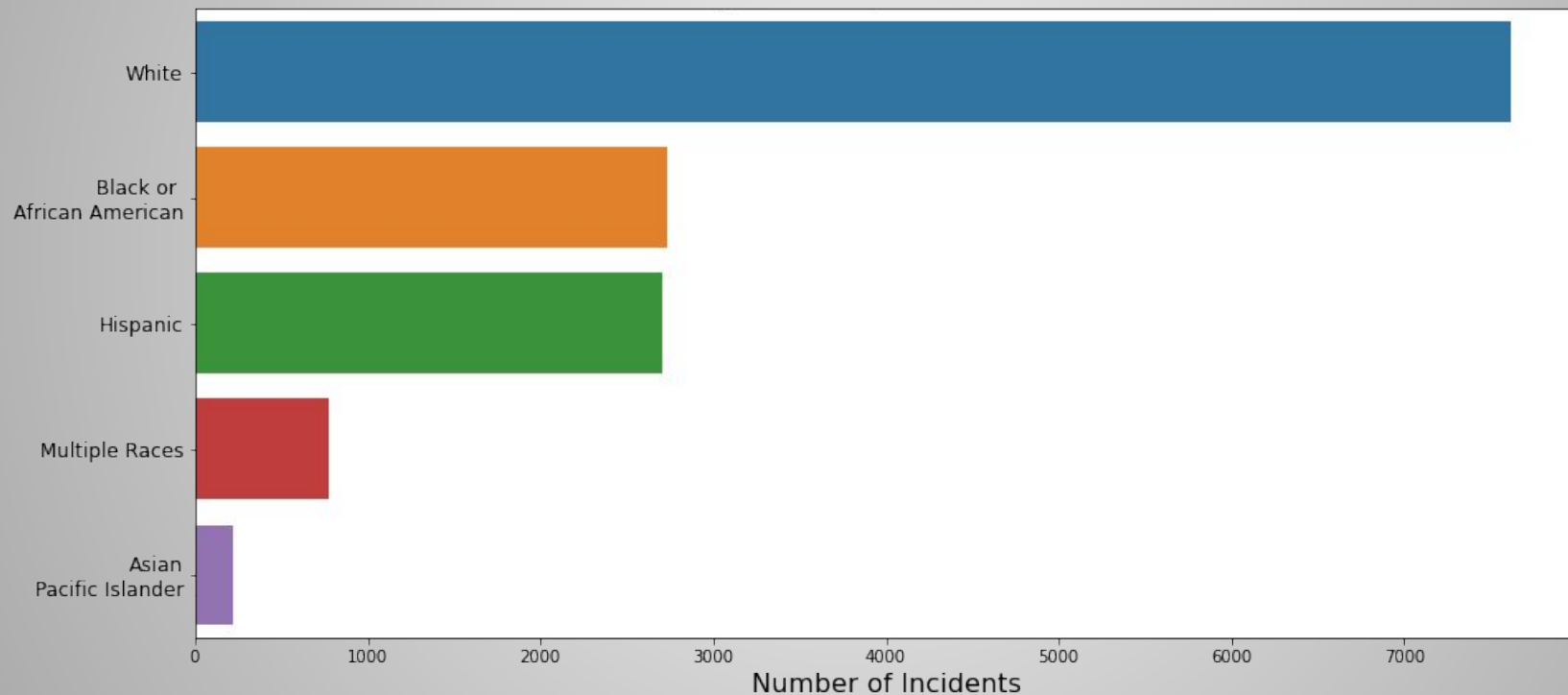
Hate Crimes by White Population



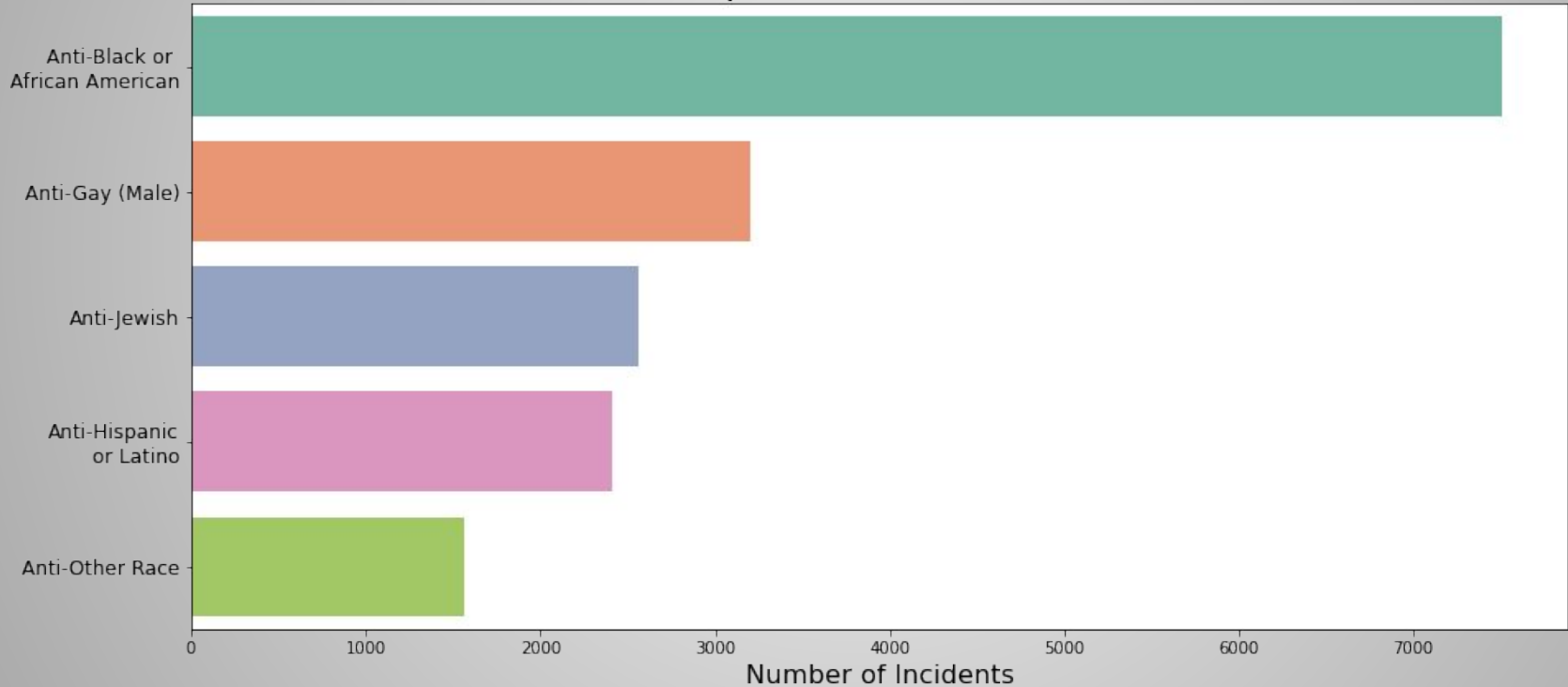
Hate Crimes by Multi-Racial/Ethnic Population



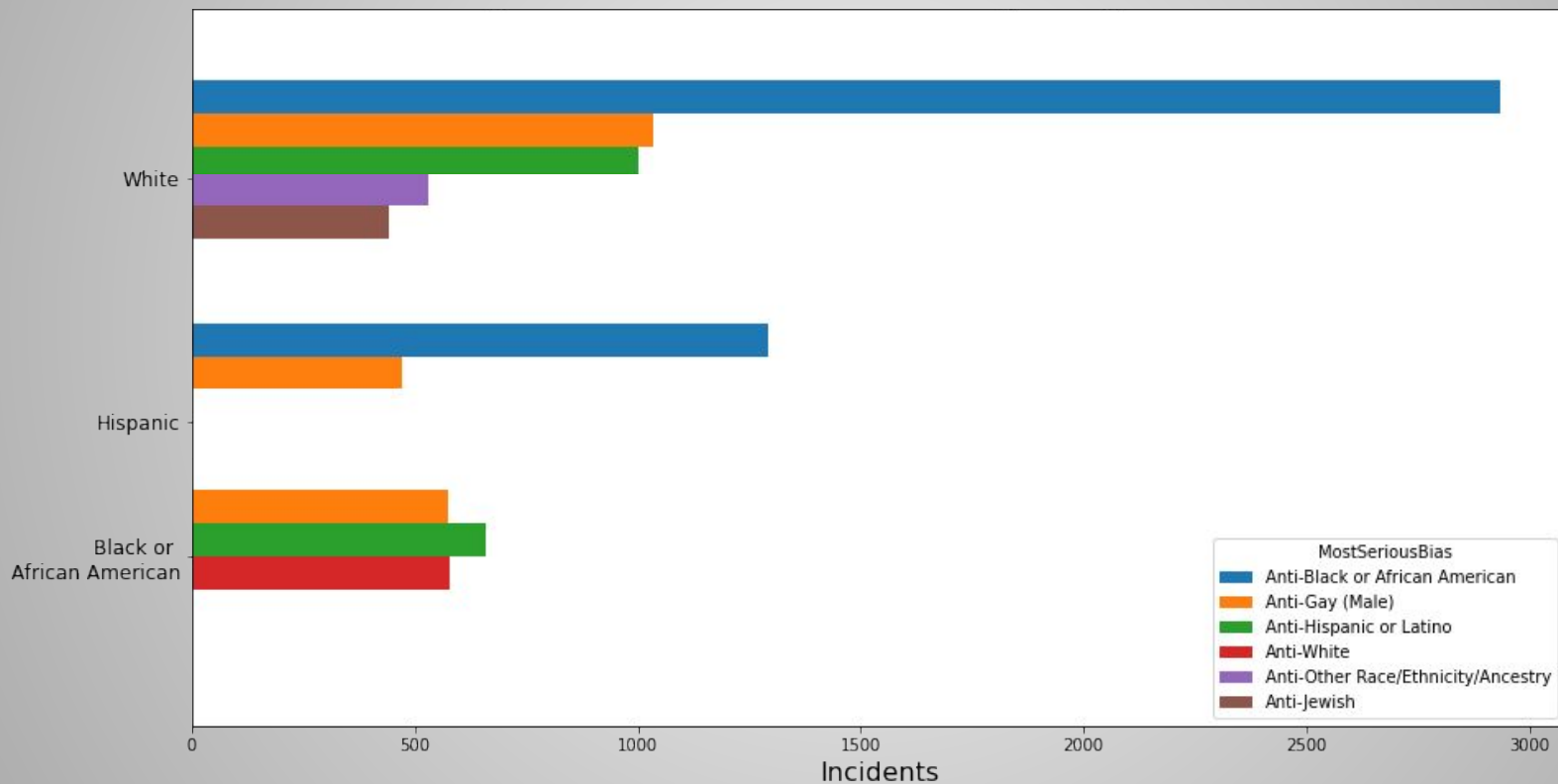
Top 5 Suspect Races



Top 5 Bias Motivations



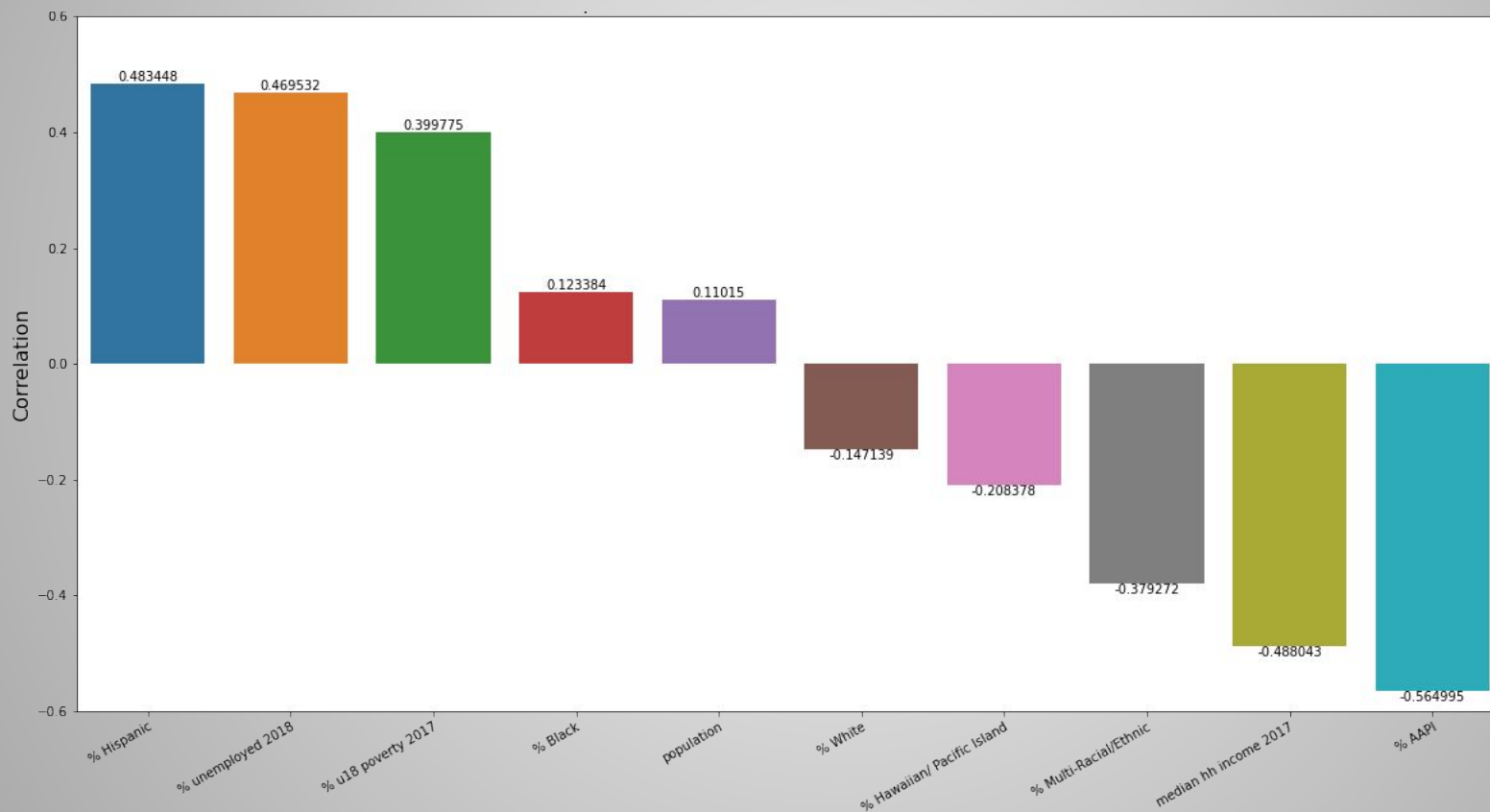
Top 10 Bias Motivations by Suspect Race



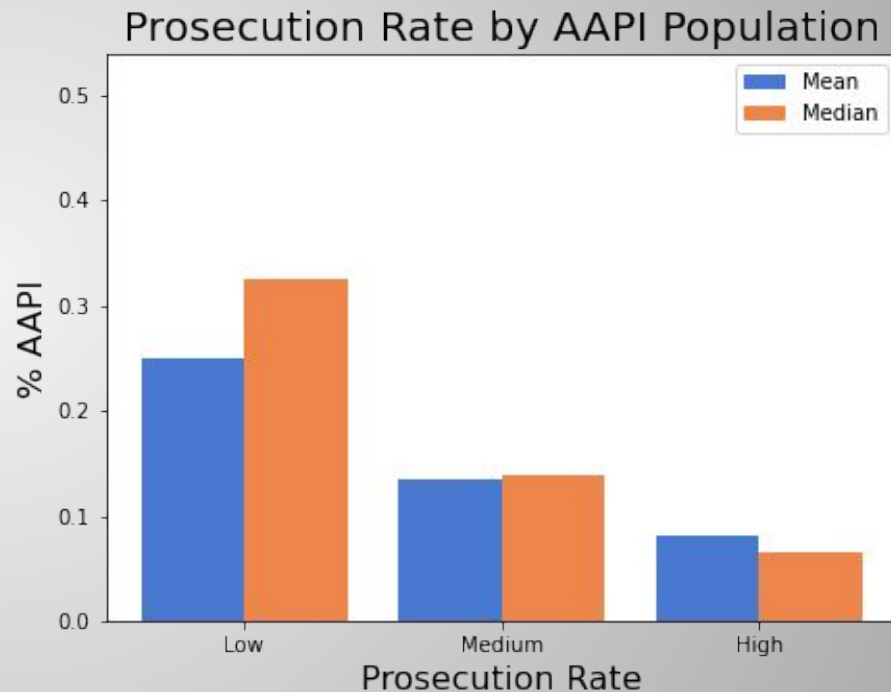
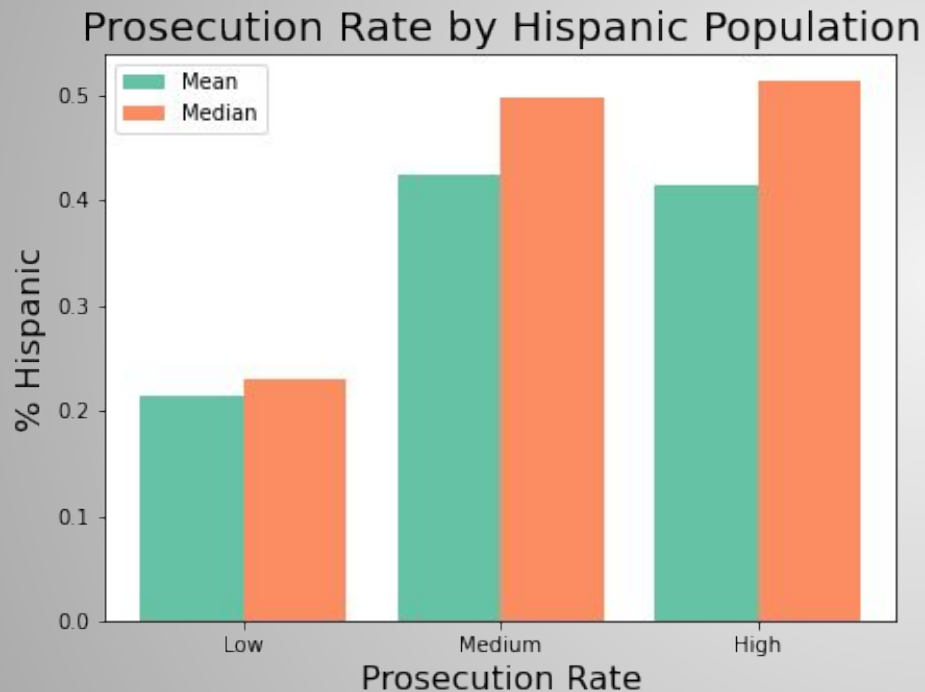


Feature Correlations

Top 10 Prosecution Rate Correlations

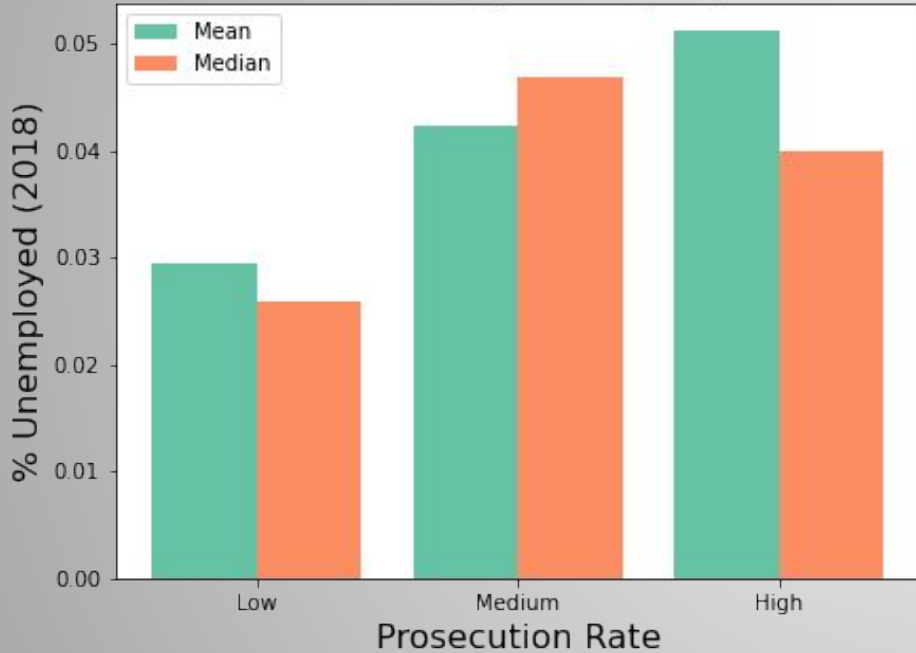


Top Positive and Negative Correlations

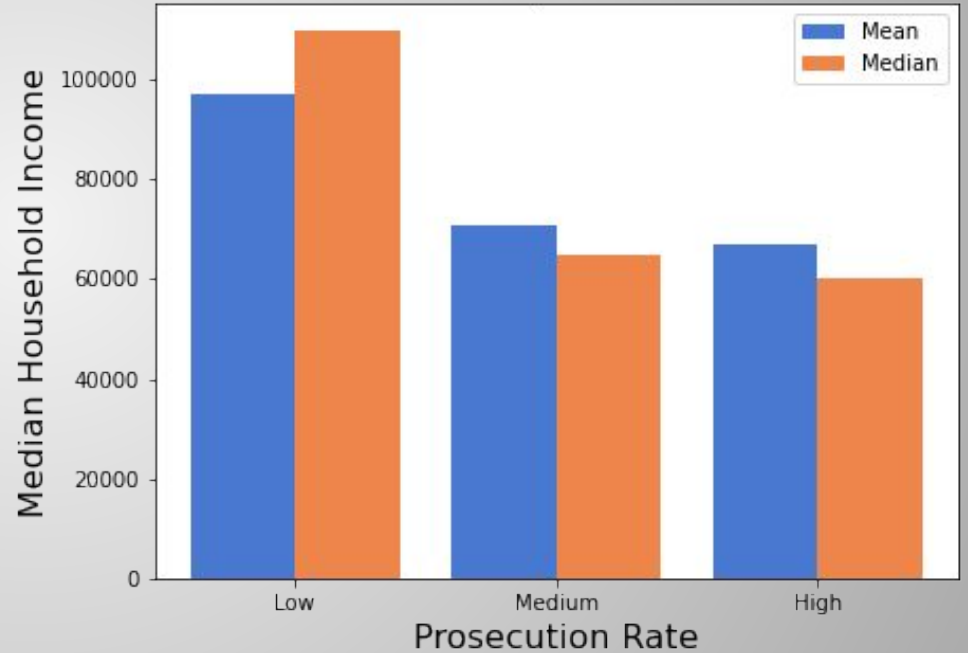


Top Positive and Negative Correlations (2)

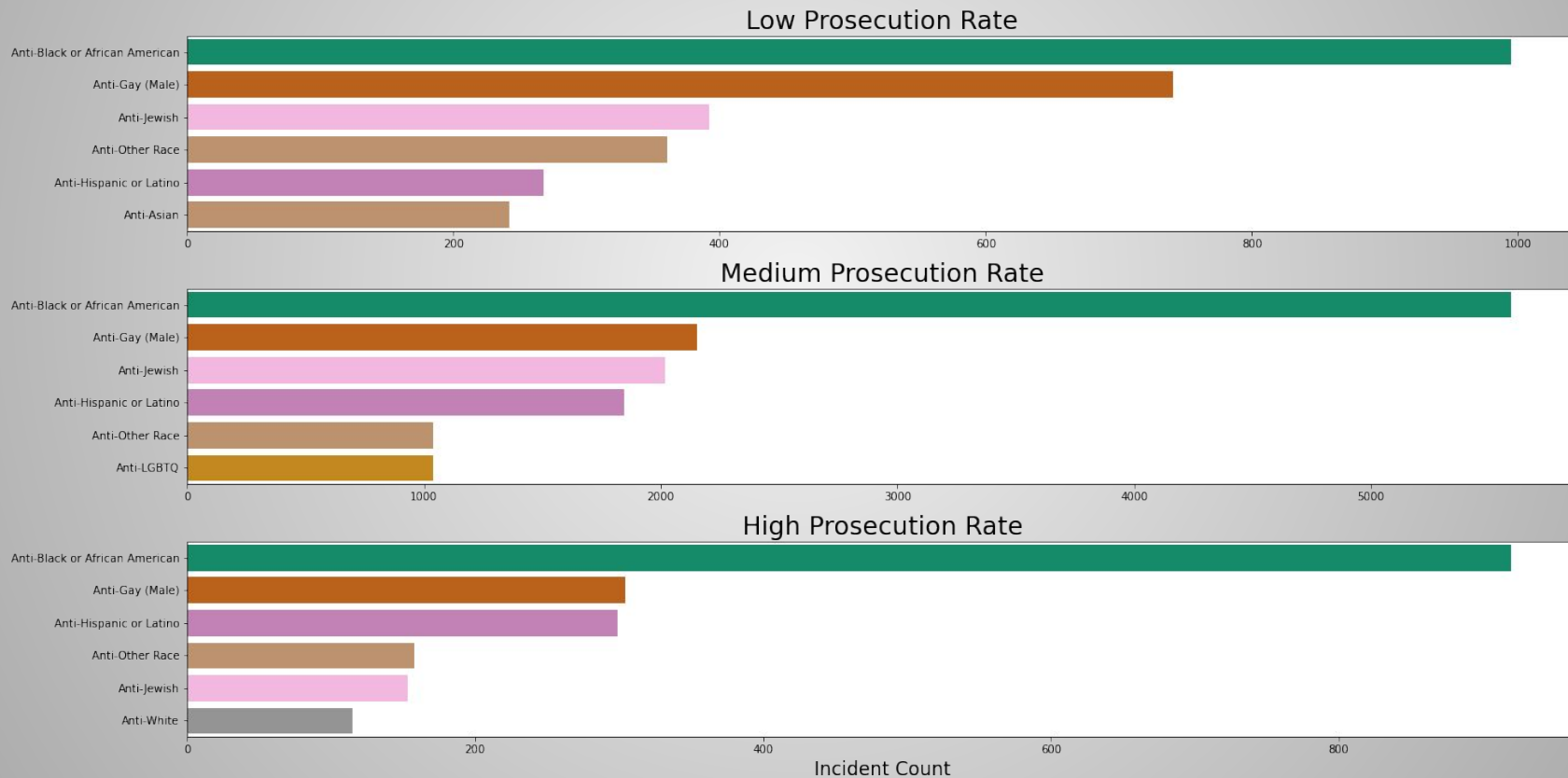
Prosecution Rate by Unemployment Rate



Prosecution Rate by House Hold Income



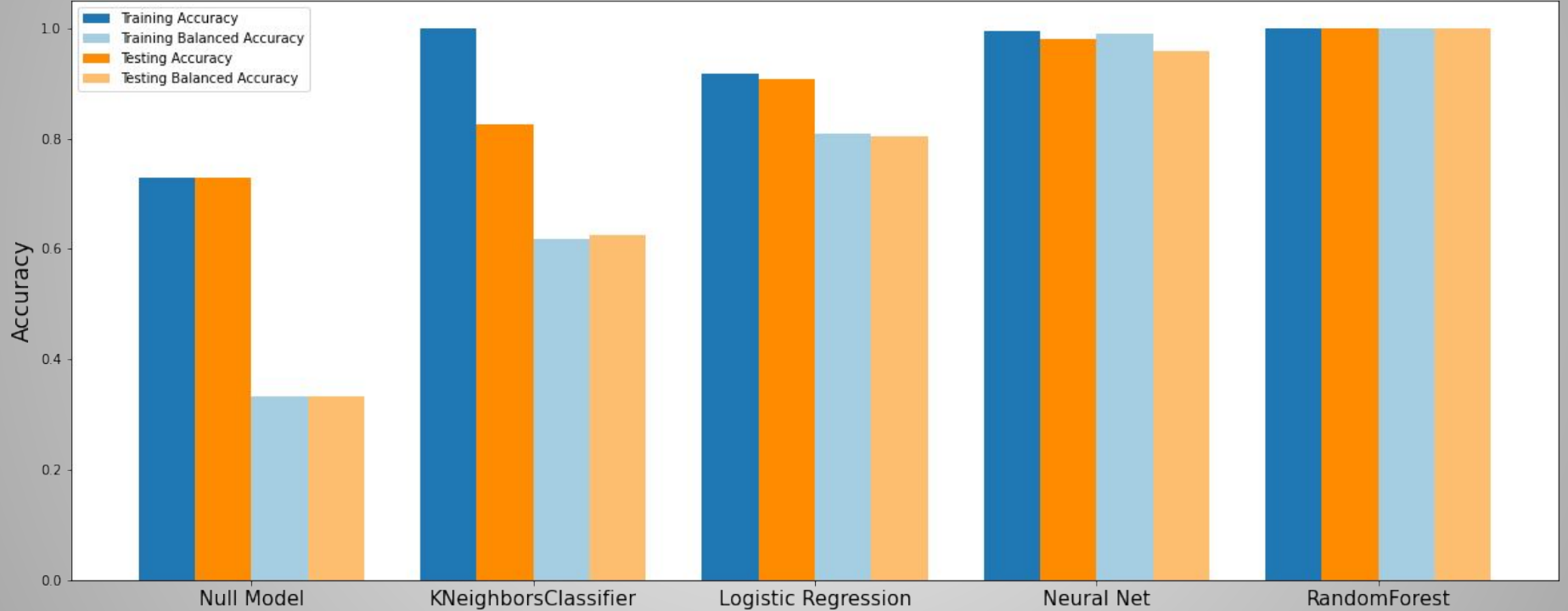
Bias Motivation Counts by Label





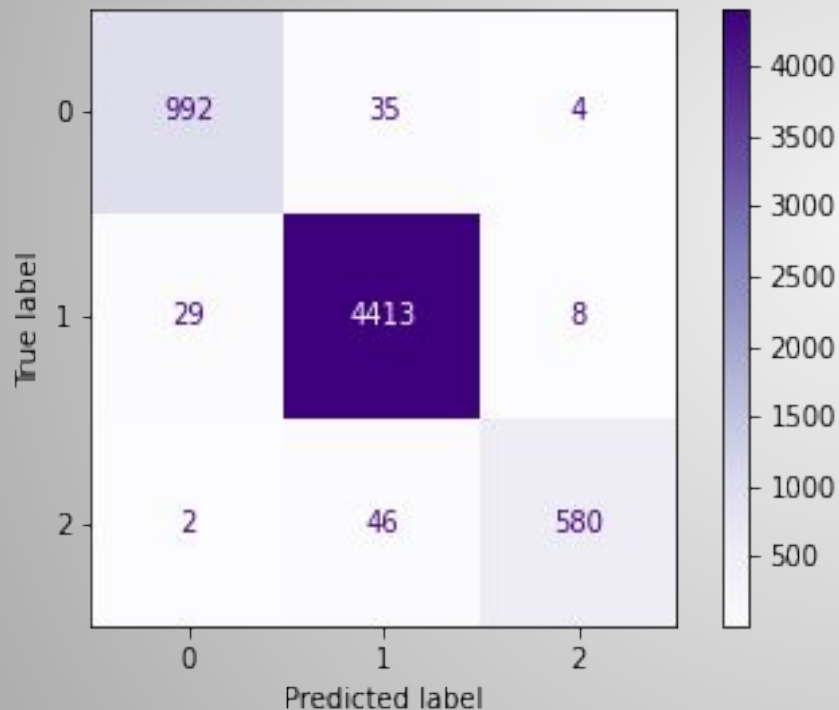
Models

Model Scores

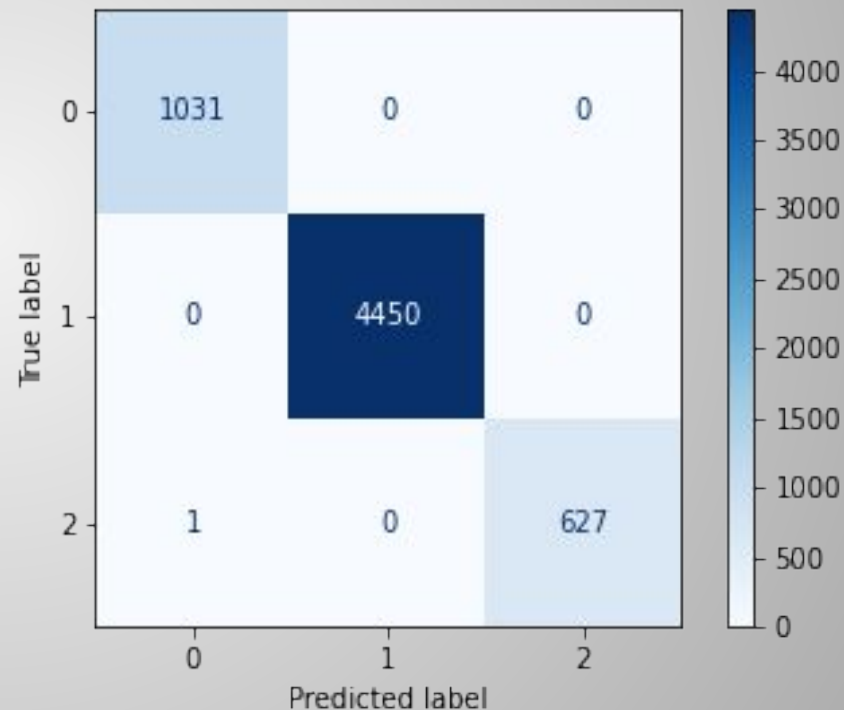


Top Two Models

Neural Net Confusion Matrix



Random Forest Confusion Matrix



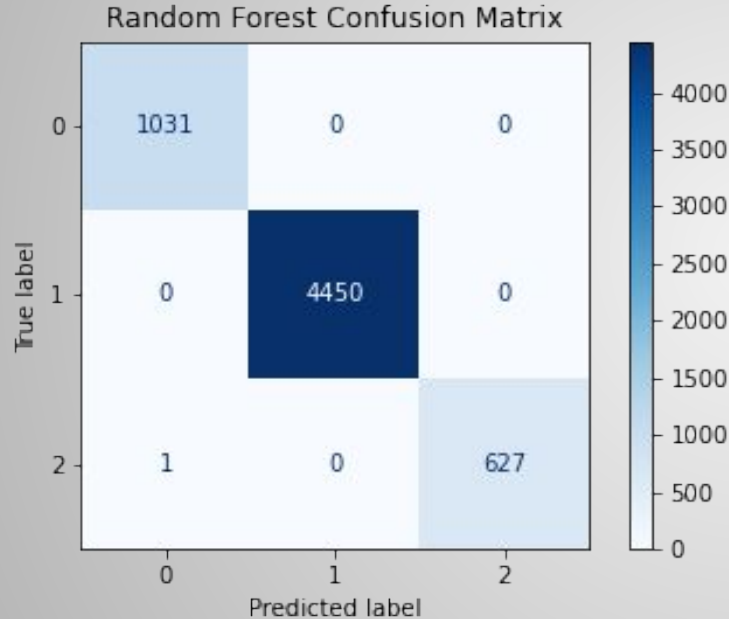
Top Two Models

| Score Metrics | Neural Net | Random Forest |
|----------------------------|------------|---------------|
| Training Accuracy | 99.57% | 100% |
| Training Balanced Accuracy | 98.95% | 99.98% |
| Testing Accuracy | 97.97% | 100% |
| Testing Balanced Accuracy | 95.91% | 100% |



Best Model

Random Forest Model



Feature Importances:

- Population: 13.07%
- Percentage AAPI: 11.40%
- Median Household Income 2017: 10.29%
- Percentage Hispanic: 9.43%
- Percentage Asian: 9.16%
- Percentage Youth Poverty 2017: 8.84%

Conclusions

Location

Where you live (city or county) is a crucial feature in prosecuting your case.

Technology

Adapting our model will be the foundational design for all hate crimes reported.

Requesting more data from the district attorney's office with prosecution status of each case

The Future

Victims are more likely to report crimes if they know they will be prosecuted and pressuring prosecutors to have higher hate crime conviction rates.

Thank You

Questions?
Comments
Concerns



*For additional information, sources, data, or notebooks please reach out to Khalil, Courtney, or Andres.

Data Labels

Prosecution Data

**Created Target for each
County.**

Hate Crimes Data

**Added Target to each
Case by County.**

Demographics Data

**Added Demographics of
each County.**