Terry Stops Project

Goal

Create and train a model to predict the outcome of police stops for use by legal assistance organizations, law firms, and district attorneys.

Business Understanding

Organizations that need to allocate resources based on interactions with the judicial system and can benefit from a model that predicts such interactions.

Data

- Seattle Terry Stops Data Set
- Data Provided by the City of Seattle
- 47,213 rows of 2015-2021 Data

Methods


python™


imbalanced
learn


pandas


scikit
learn


NumPy


dmlc
XGBoost

Terry Stop Outcomes

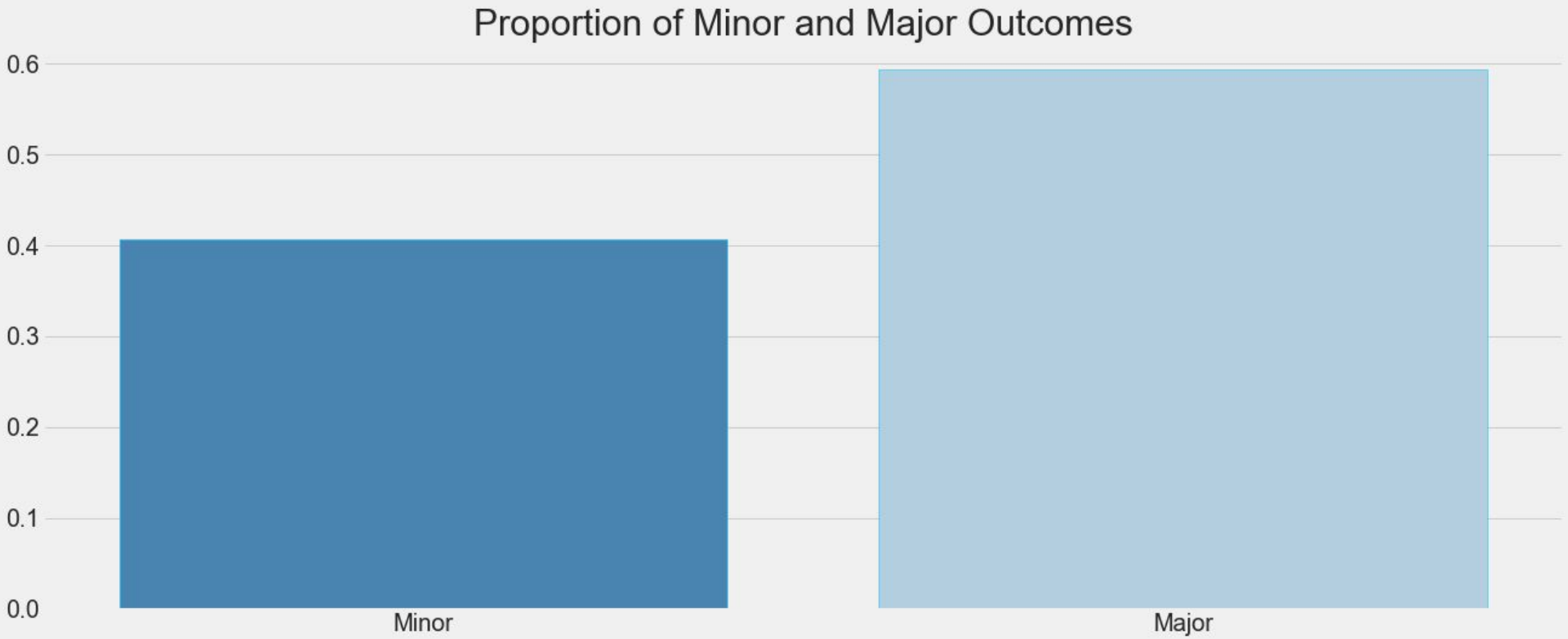
Minor:

- Field Contact, Citation/Infraction

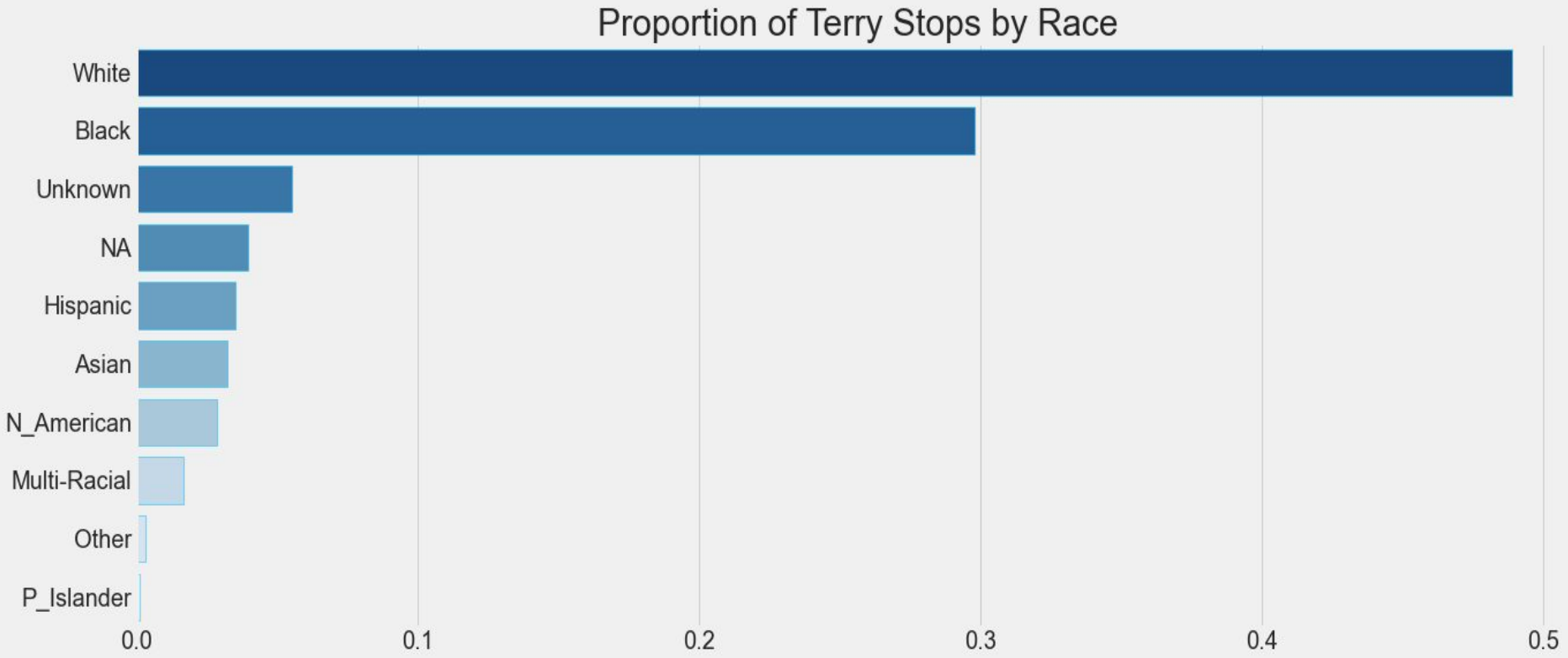
Major:

- Arrest, Offense Report, Referral for Prosecution

59% of Stops End in a Major Outcome



Stops by Race

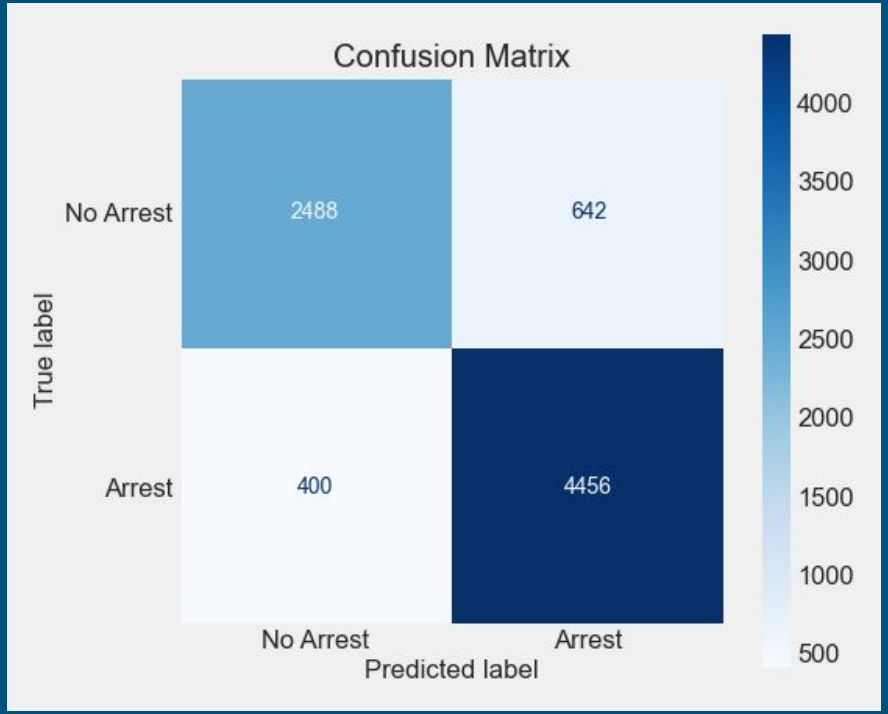


Disproportionate Stops & Outcomes

African Americans:

- 7.3% of population
- 29.9% of stops
- 32.1% of major outcomes.

F1 Accuracy Score: 0.90



Recall & Precision

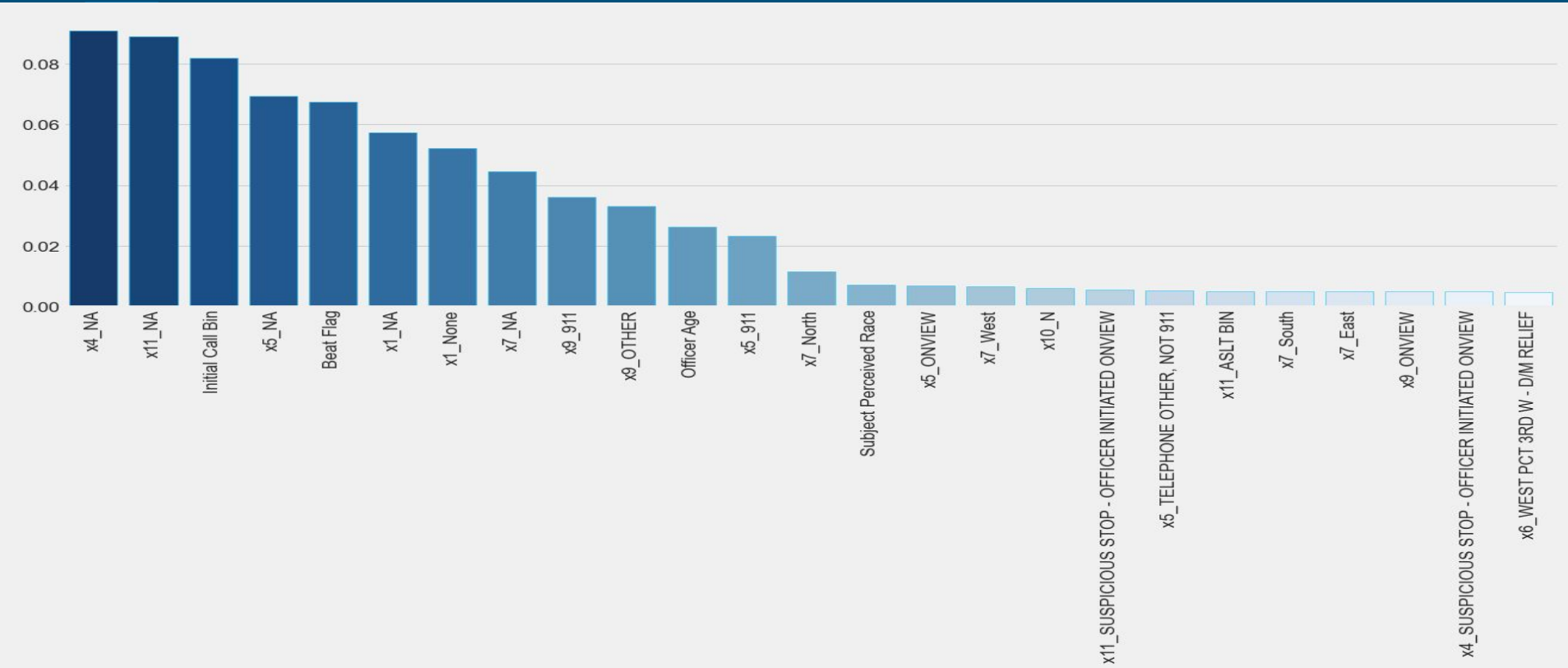
Recall:

- 92% of major outcomes were correctly classified as major outcomes.

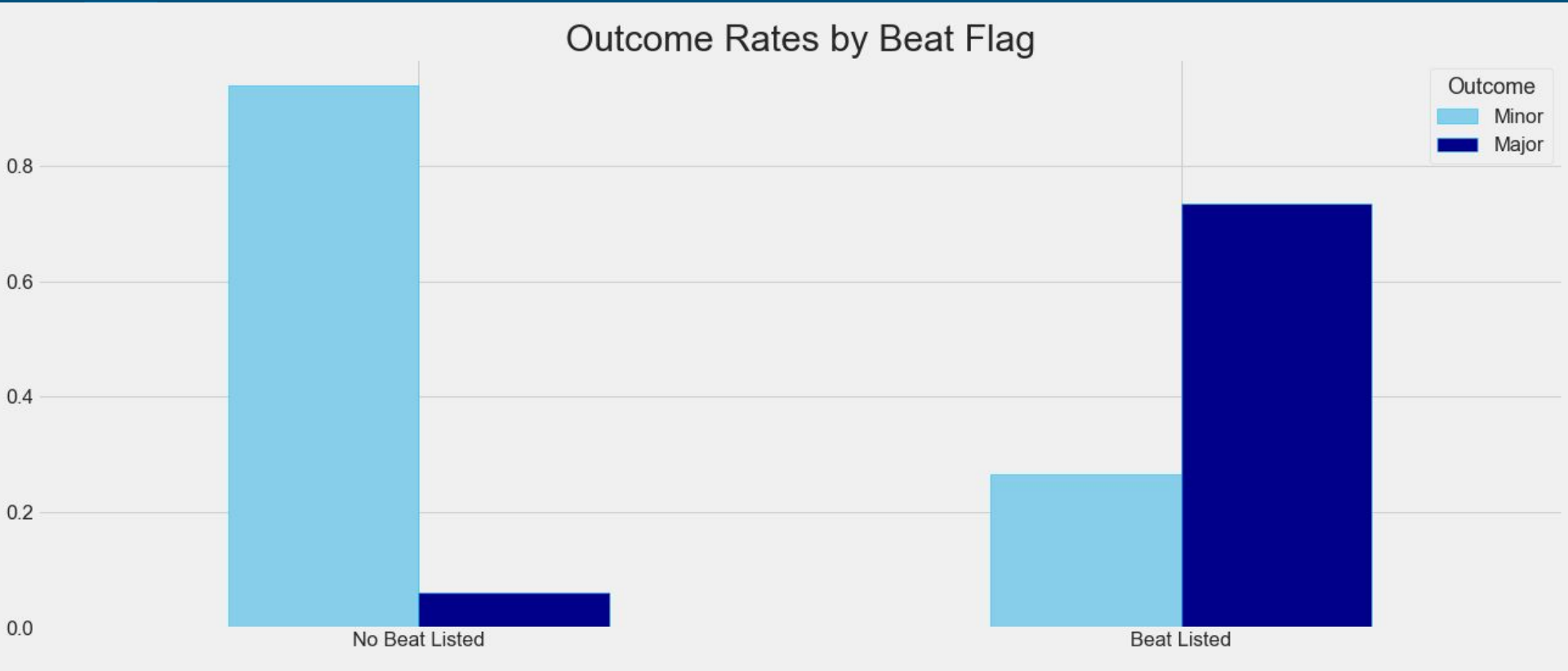
Precision:

- 87% of stops classified as major outcomes ended in major outcomes.

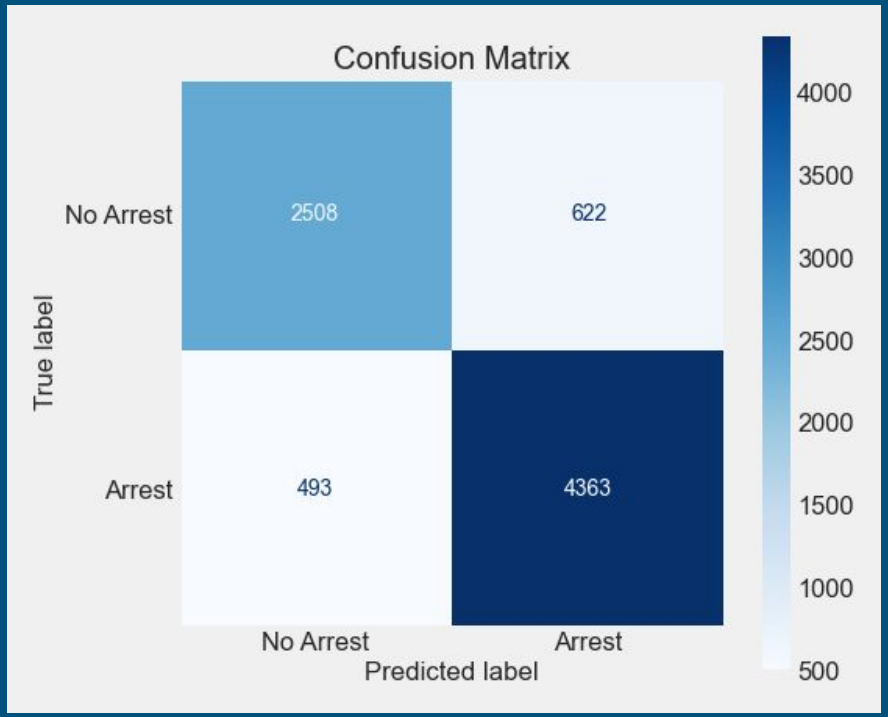
NA Features Are a Major Driver of the Model



Minor Outcomes Much More Likely In No Beat Stops



F1 Accuracy: 0.89 (Recall=.90, Precision=.88)



Next Steps

Next steps for the project include:

- Implementing a feature selection algorithm.
- Tuning an XGBoost classifier.
- Further investigating the alternative model's adherence to the underlying assumptions of logistic regression.

Thank You!

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