



# Terry Stops Project



# Goal

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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

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

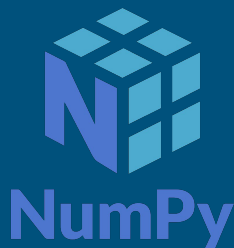
# Data

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

# Methods

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# Terry Stop Outcomes

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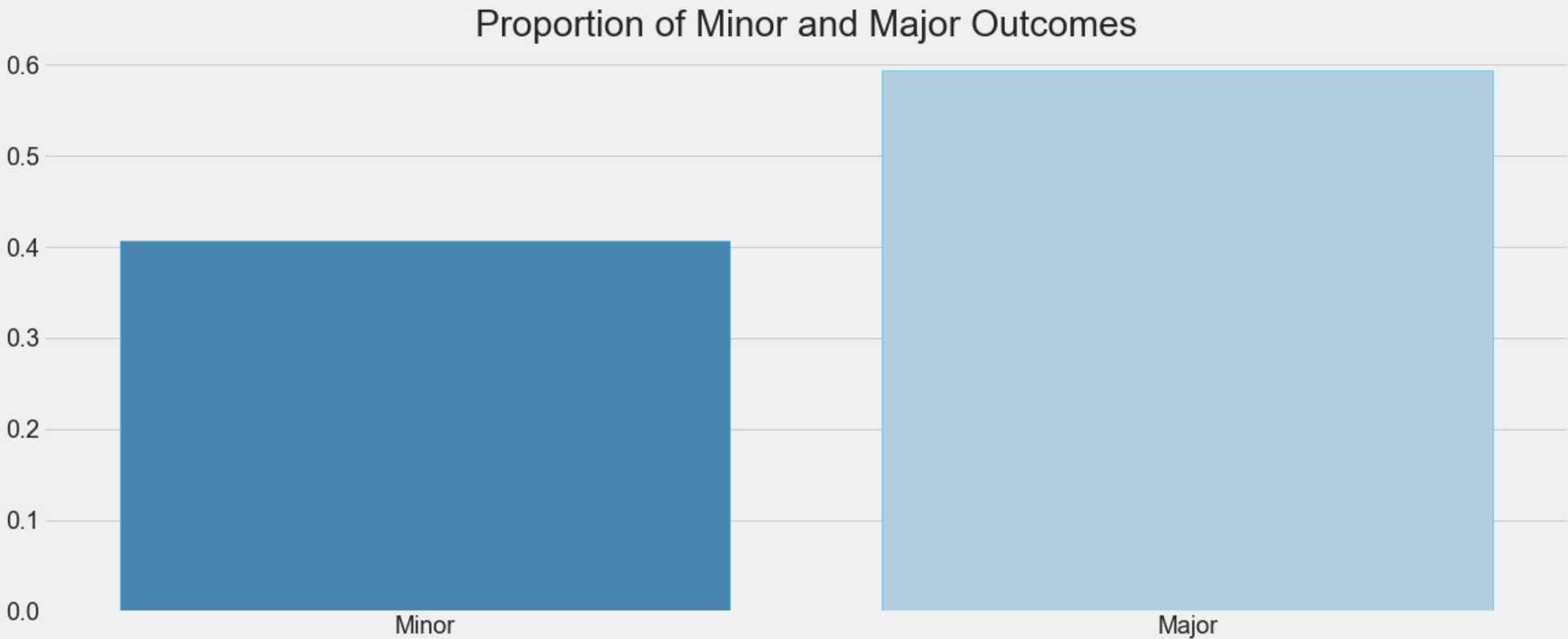
## **Minor:**

- Field Contact, Citation/Infraction

## **Major:**

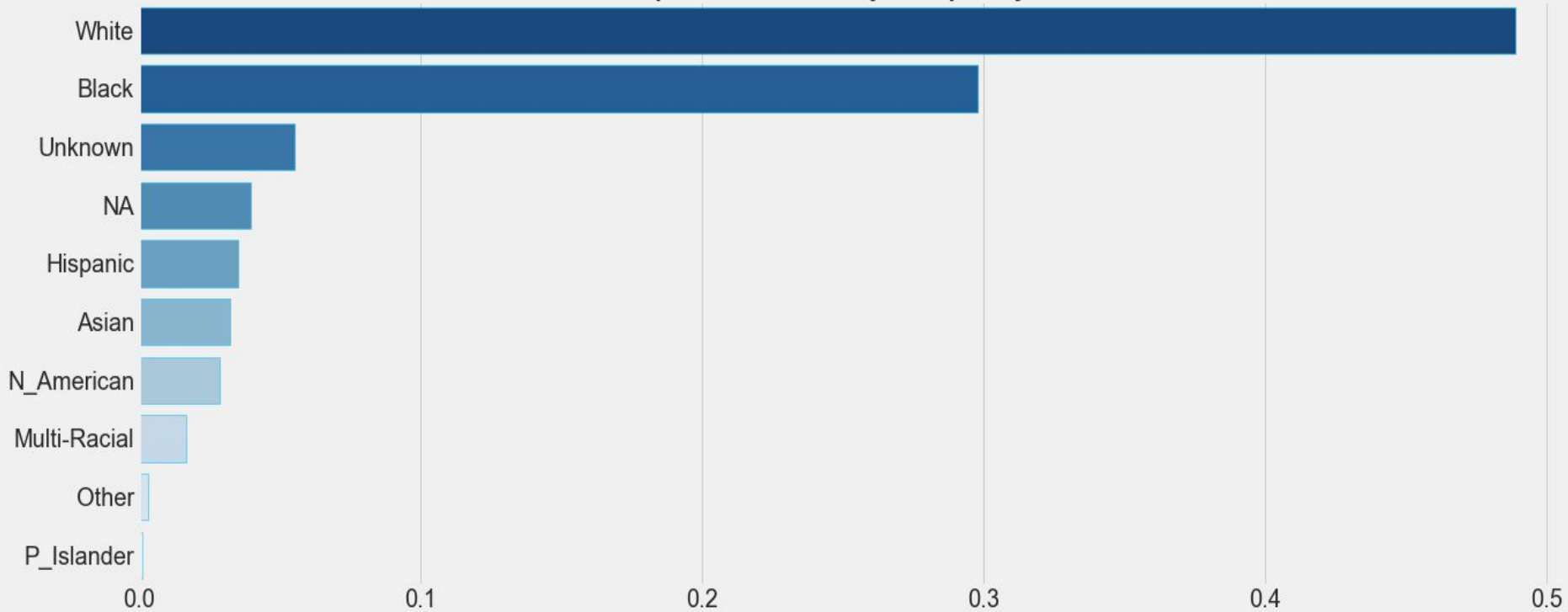
- Arrest, Offense Report, Referral for Prosecution

# 59% of Stops End in a Major Outcome



# Stops by Race

Proportion of Terry Stops by Race





# Disproportionate Stops & Outcomes

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## African Americans:

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

# F1 Score: 0.89 (Recall=.92, Precision=.87)

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# Recall & Precision

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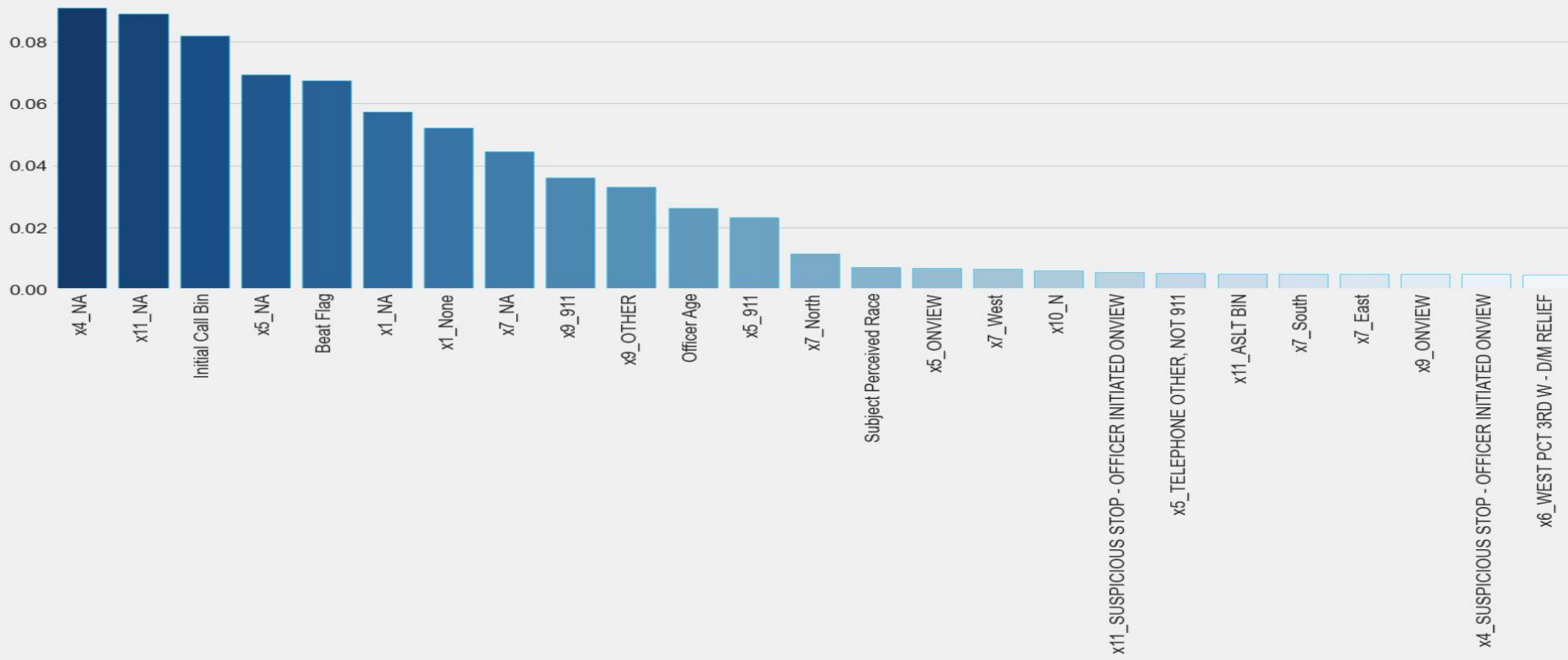
## **Recall:**

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

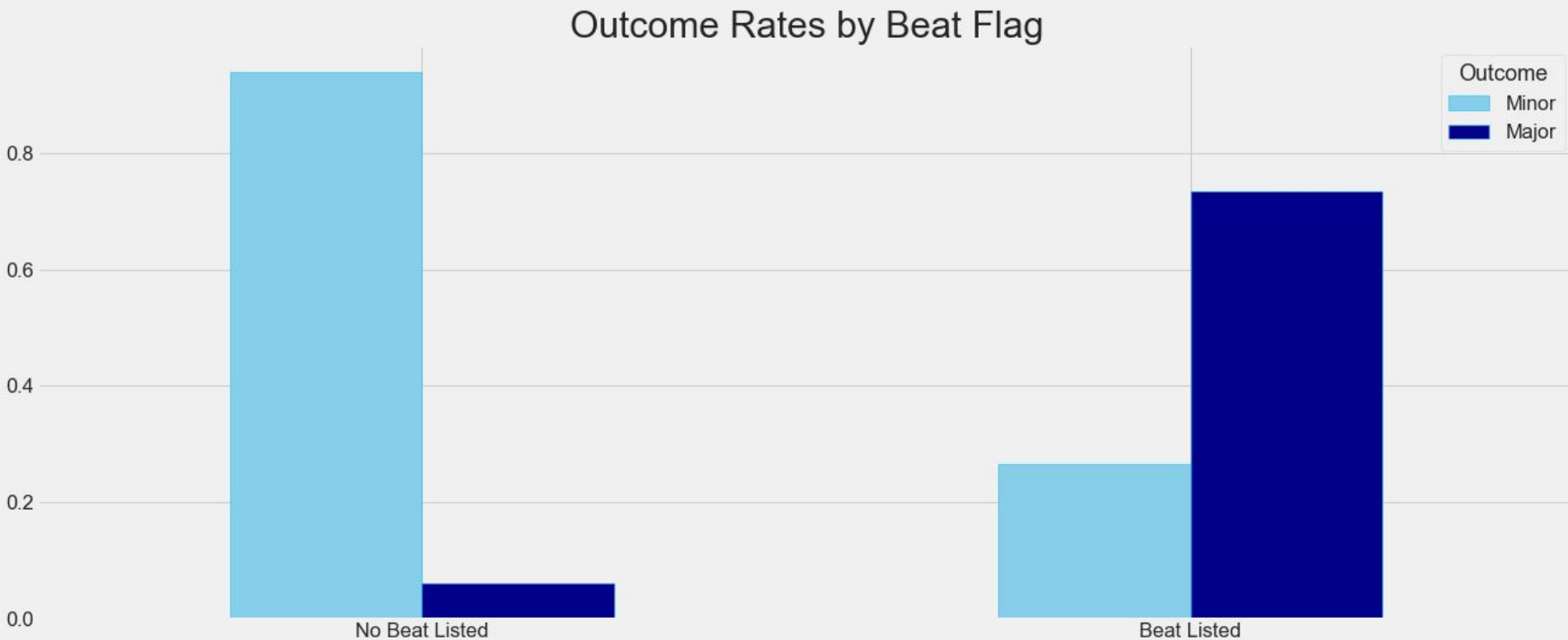
## **Precision:**

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

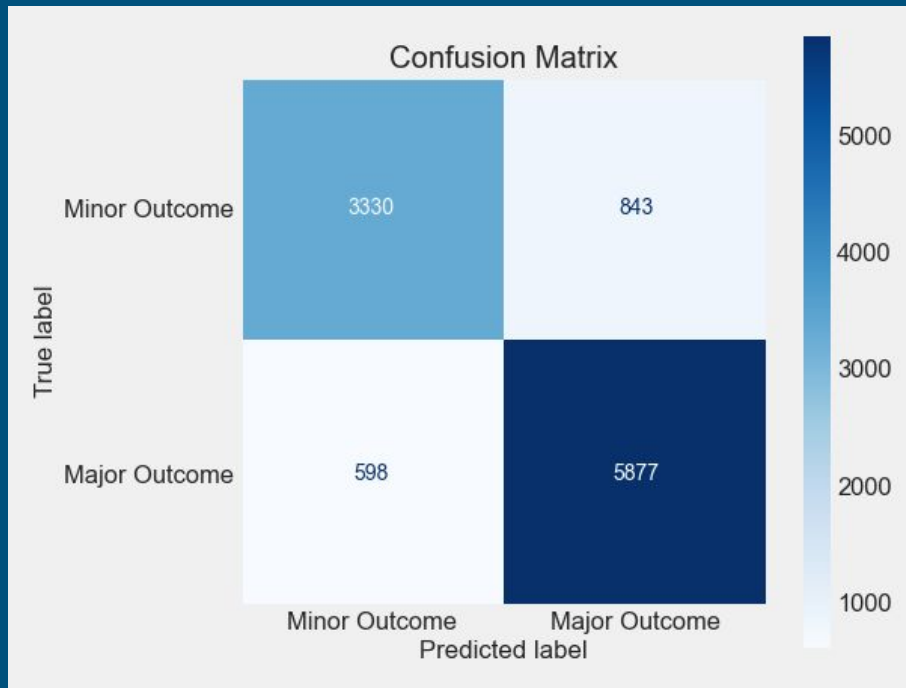
# NA Features Are a Major Driver of the Model



# Minor Outcomes Much More Likely In No Beat Stops



# F1 Accuracy: 0.89 (Recall=.91, Precision=.87)



# Next Steps

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Next steps for the project include:

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

# Thank You!

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