



Terry STOP Prediction Project



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Business Understanding

What is a Terry Stop?

It's a legal investigative 'stop and frisk' that a police officer is allowed to make if they have reasonable suspicion about a suspect.

Why make a Terry Stop?

A successful stop leads to the rightful arrest of a suspect, helping an officer clear and prevent crimes.



Business Understanding

What is reasonable suspicion?

Based on prevailing factors such as the environment, time of day and subject particulars, an officer can use their reasoning to decide to stop a subject.



What does this project have to do with it?

The project uses machine learning algorithms to predict whether an arrest should be made based on the prevailing factors.



Seattle Open Data

Welcome to the City's Open Data Portal. Here you can find, analyze, and download data published by City departments. All data on this portal is free to use and share.

🔍 Terry Stops



SPD- Terry Stops by Perceived race of Subject

Terry Stops

Data Understanding

The data was obtained from Seattle Open Data portal.



It represents records of police reported stops under Terry v. Ohio, 392 U.S. 1 (1968).

Each row represents a unique stop.



Selected Columns



Subject Age Group



Subject Perceived Race



Subject Perceived Gender



Reported Date



Reported Time



Weapon Type



Officer Gender



Officer Race



Officer YOB



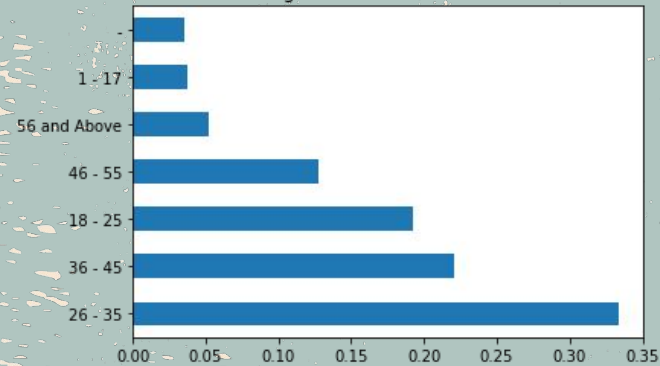
Arrest Flag

***This our target variable**

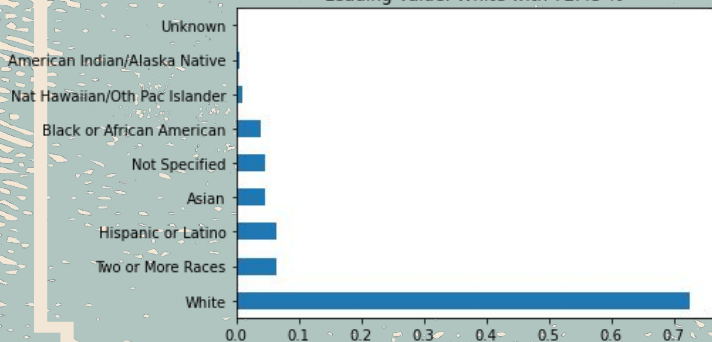
Exploratory Data Analysis



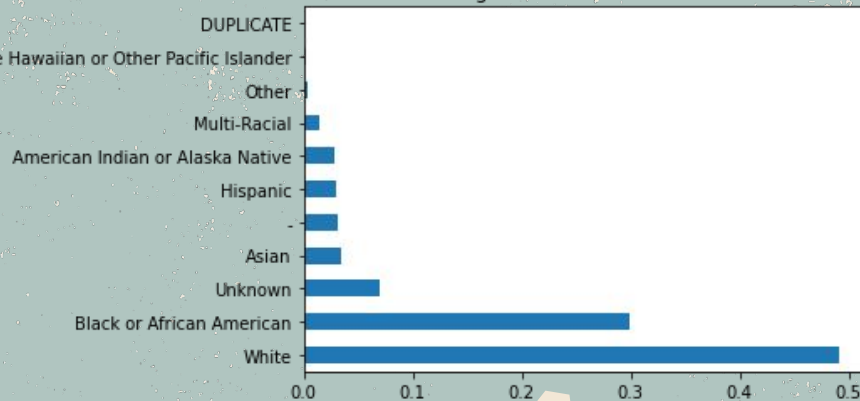
Subject Age Group
Leading Value: 26 - 35 with 33.38 %



Officer Race
Leading Value: White with 72.45 %



Subject Perceived Race
Leading Value: White with 49.06 %



Officer Gender
Leading Value: M with 88.6 %





Quick Insights



Most Terry stops (90%) ended up with **no arrests. This may suggest class imbalance**

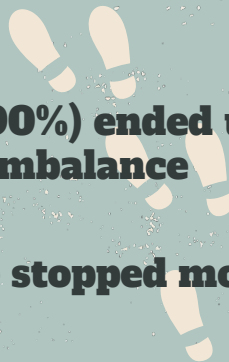
****Male subjects** were stopped most, at 79%**

People with 'White**' as their perceived race were stopped most, at 49%**

Officers with 'White**' as race on record made the most stops, at 49%**

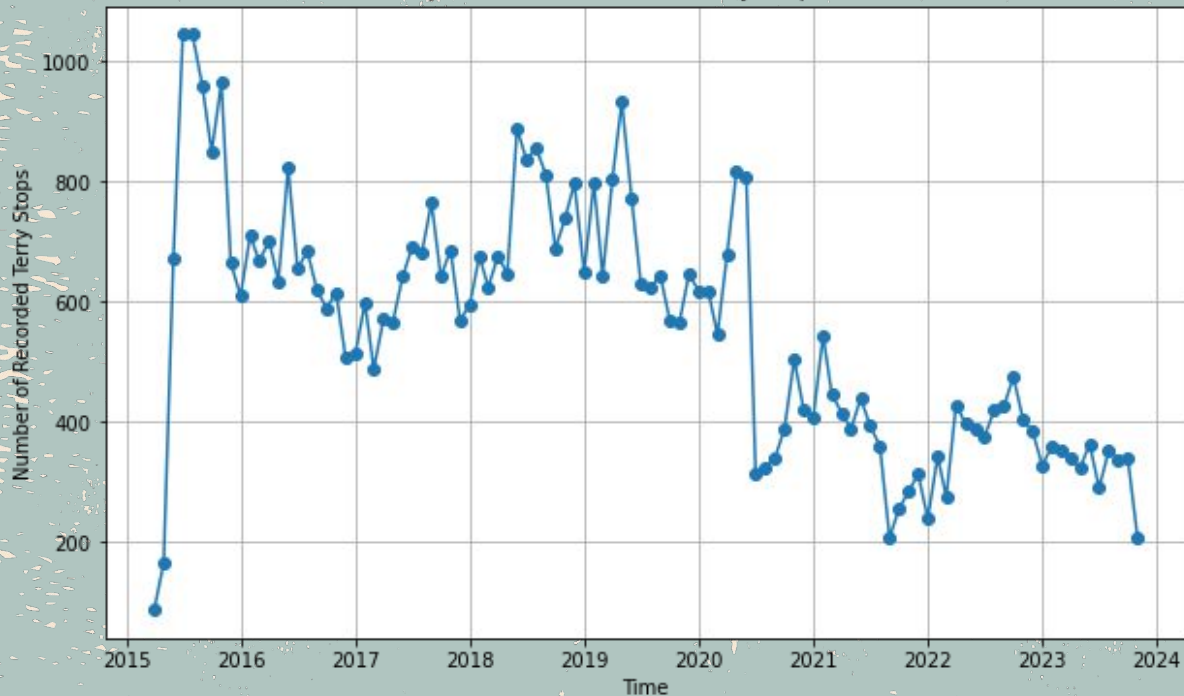
The most common subject age group was 26-35 years (33%)

More than 85% of subjects had **no weapons**

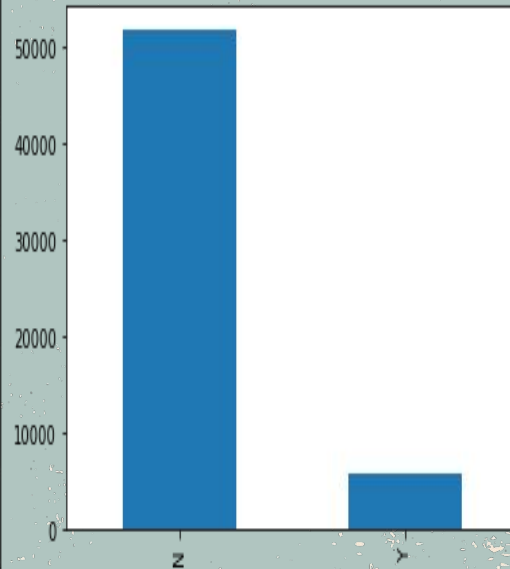


Monthly Terry Stops Trend, 2015 to Date

Monthly Number of Recorded Terry Stops over time

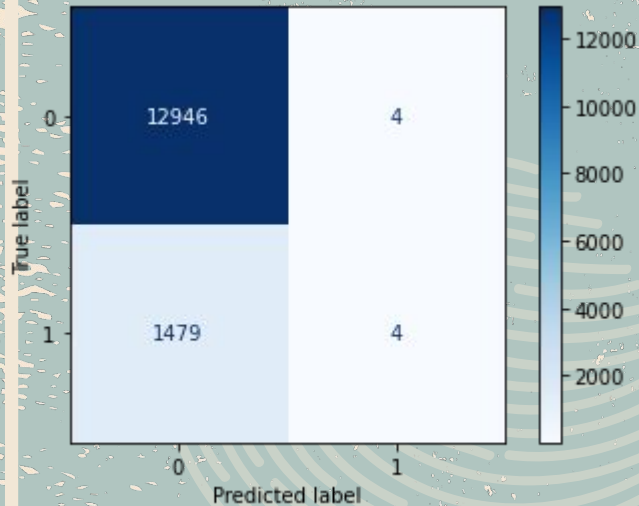


Distribution of Arrests vs Non-arrests



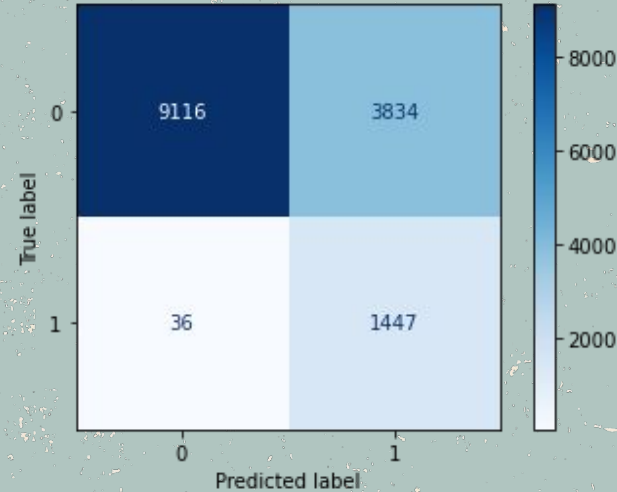
Modelling Results

Model I



**Baseline Logistic
Regression model**

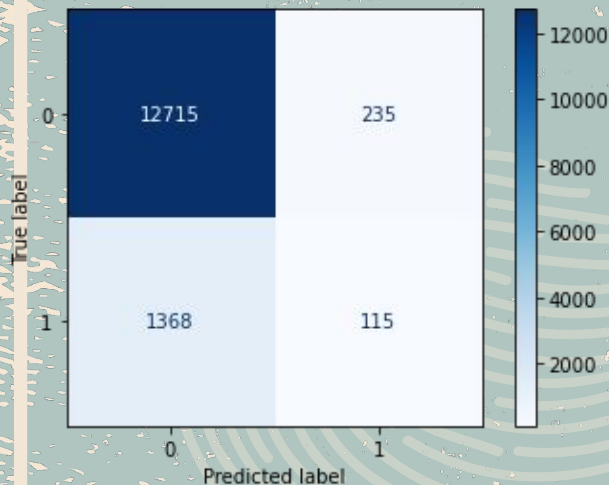
Model II



**Weighted Logistic
Regression**

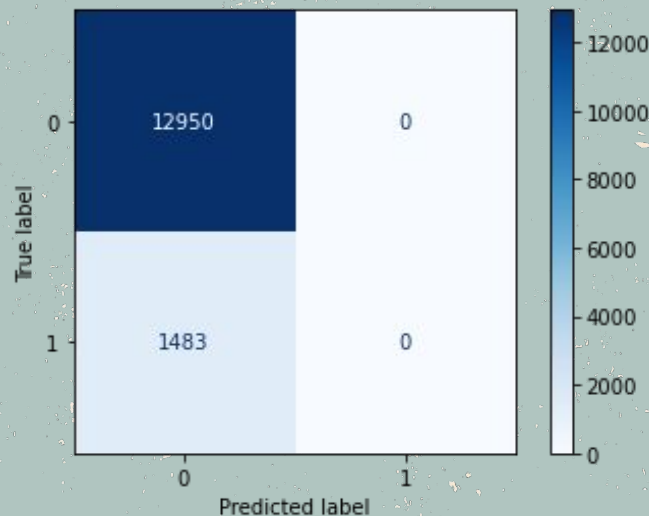
Modelling Results

Model III



Baseline Decision Tree

Model IV



GridsearchCV with Decision Trees



Evaluation

Model 3, logistic regression with inverted class weights emerged the best for use in our case.

While it had a 27% precision, it also had 98% recall which means we would be arresting almost everyone that needs to be. However, quite a number of innocent people would be inconvenienced which leads us to the recommendations





Conclusion & Recommendations



Predictions using the chosen model would help police officers reduce crime by stopping and arresting suspects.

Recommendation

The dataset could benefit from more information such as an area's crime index as well as more information about the suspects



Thanks!

Do you have any questions?

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