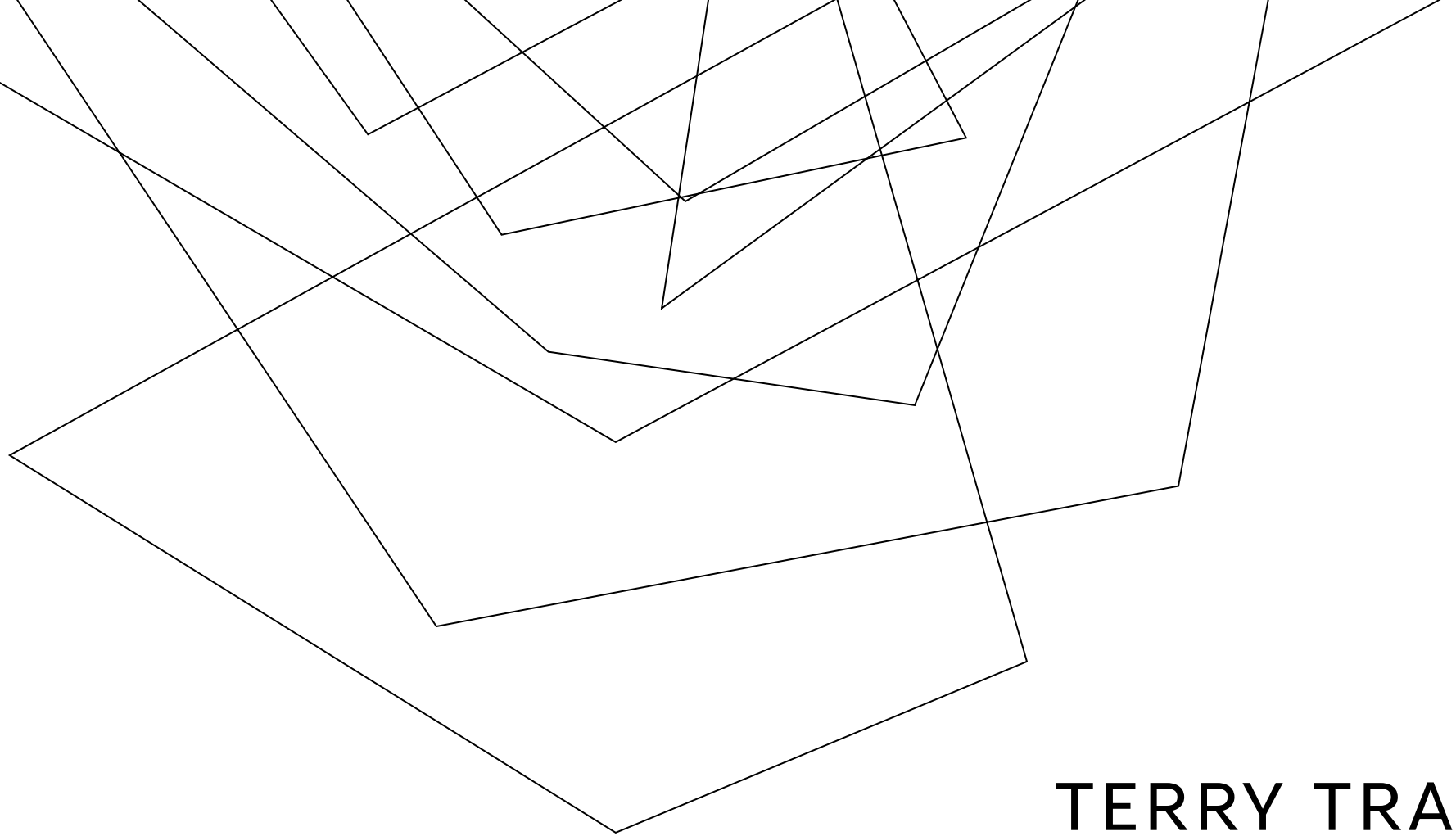


TERRY TRAFFIC STOPS

PROJECT OVERVIEW

A Terry Stop

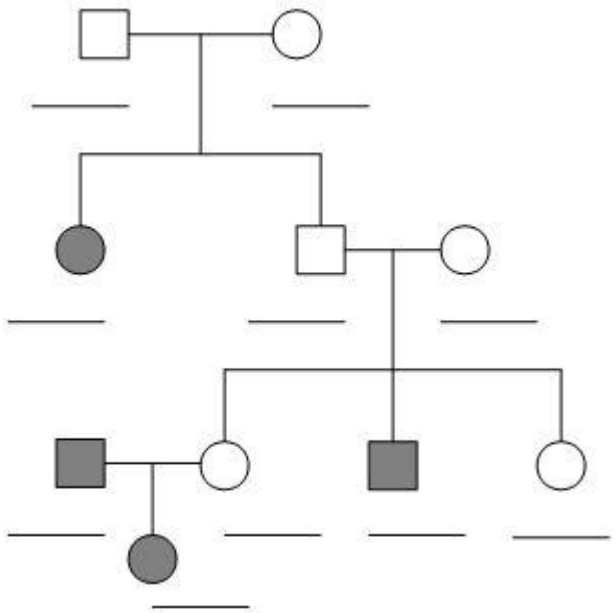
a temporary investigative detention of subjects under the speculation of "reasonable suspicion" .

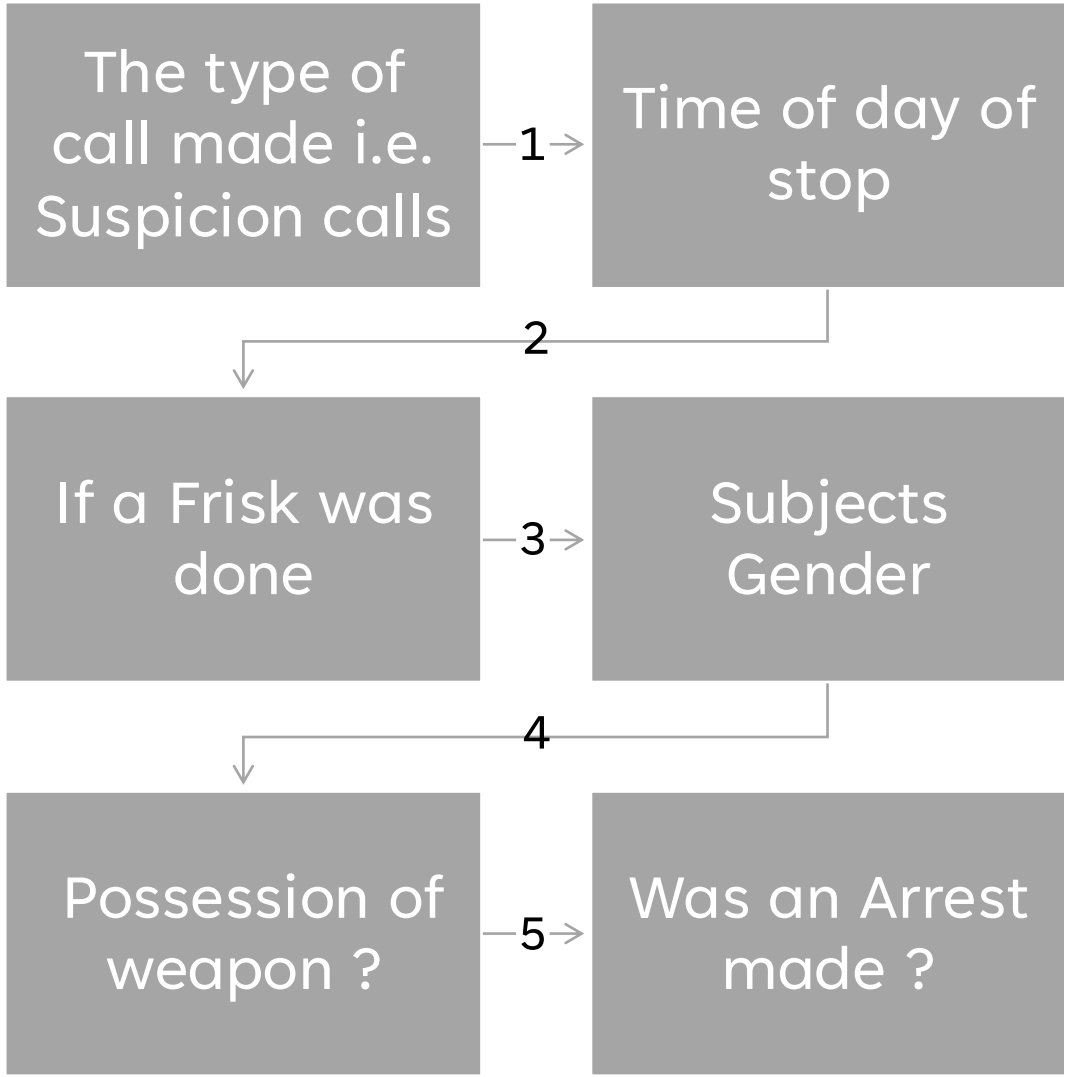
A notion born and adapted in the 1970s from the Terry VS Ohio state case in the supreme court based on a Police Officer violation of the victim Fourth Amendment by Frisking Terry and associates from an observational suspicion .

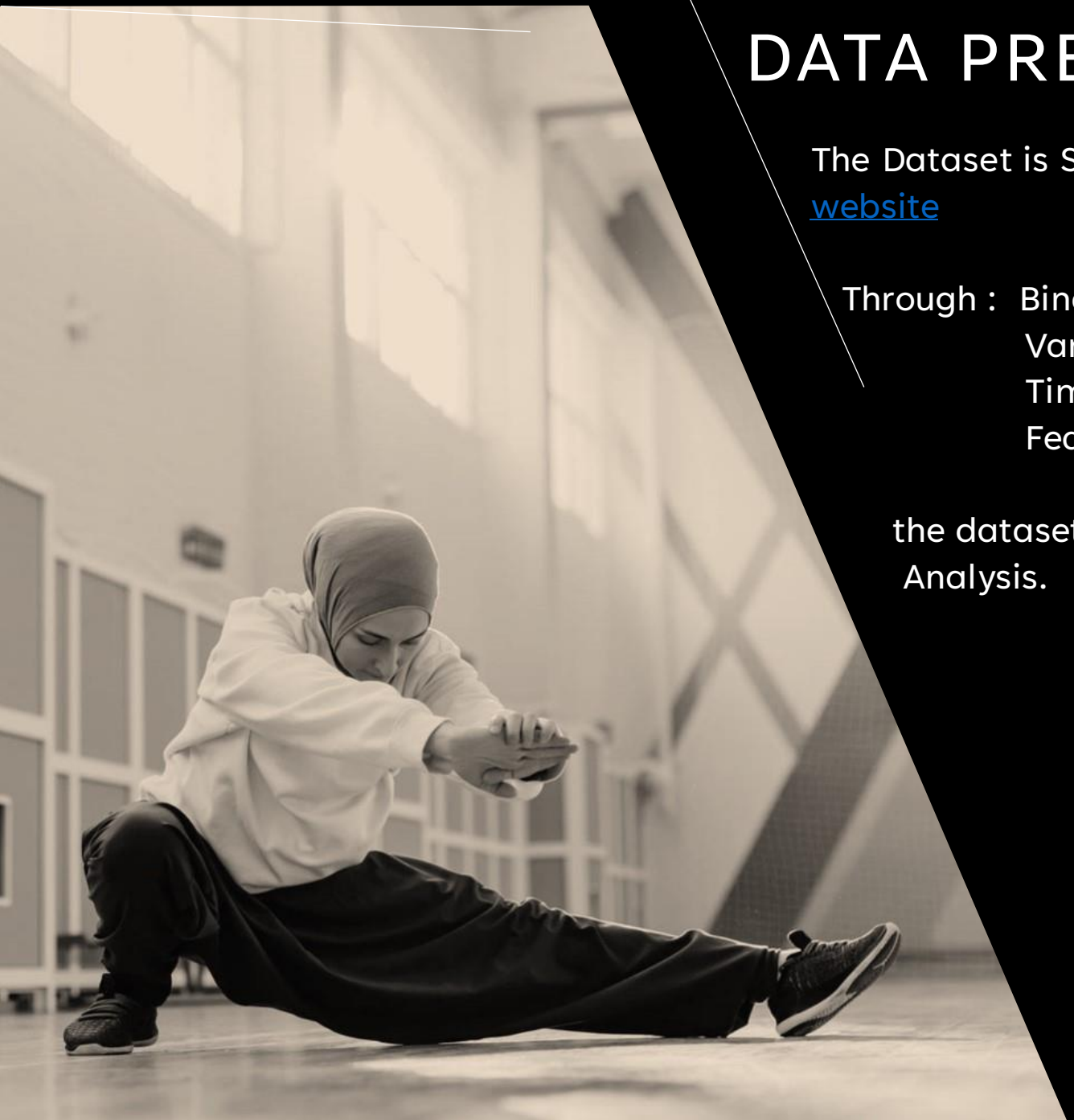
The Terry Stops Analysis aims in justification of an Officer’s "Reasonable suspicion Stop and detention" .

Aggrieved and Indignant subjects of the stops get to understand the reason behind their suspicion .

PROBLEM STATEMENT







DATA PREPARATION

The Dataset is Sourced from the official Seattle government state website

Through : Binary Encoding
Variable row grouping
Time extraction
Features selection

the dataset was cleaned and subjected to Exploratory Data Analysis.

Target variable - Arrest Flag
features = Suspicion Calls
Time Block
Frisk Flag
Subject Perceived Gender
Weapon Type

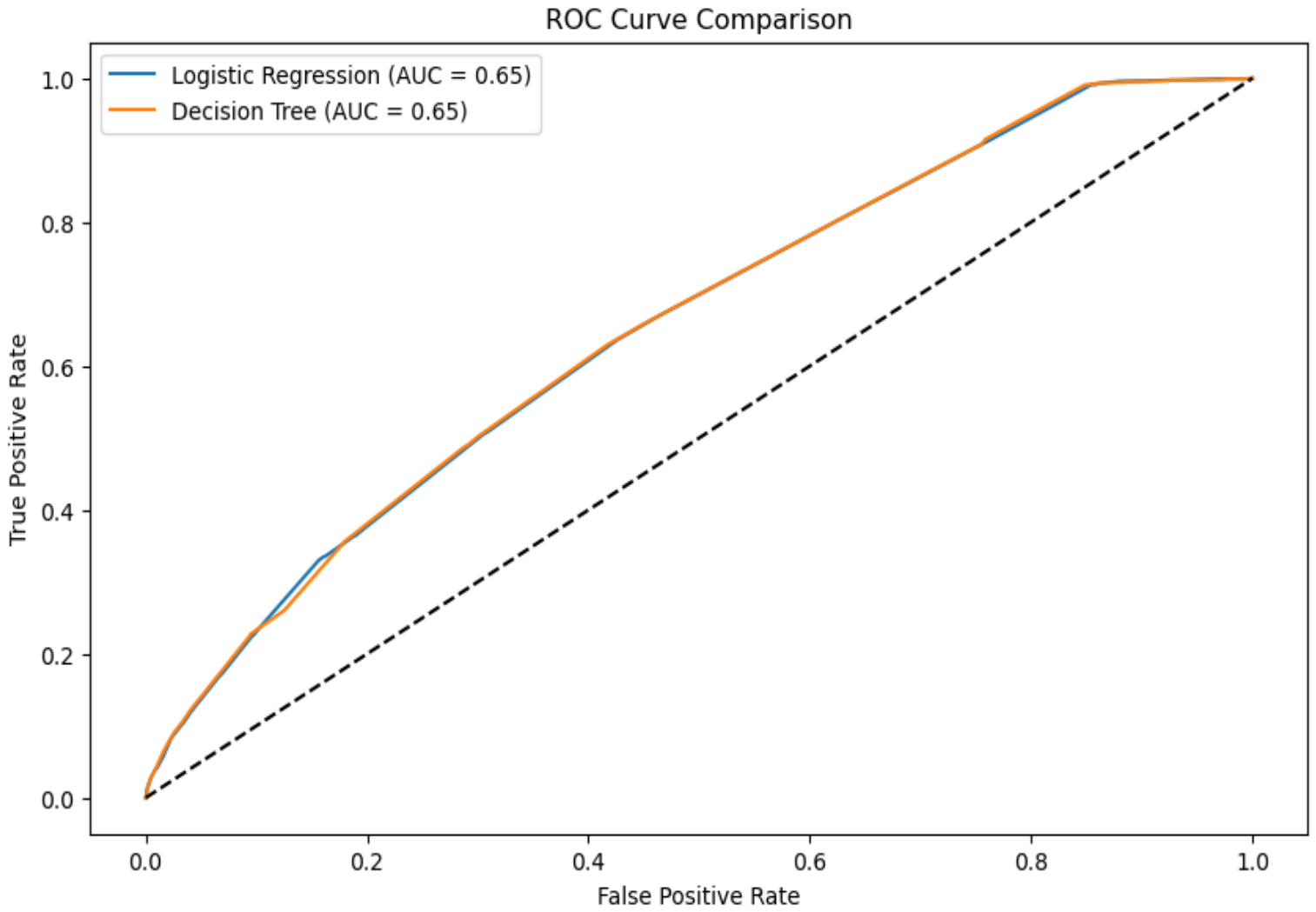
EDA FINDINGS

Likelihood of weapon possession

- The following is a likelihood of a Stop subject in possession of a weapon :
- - Male - 7%
- - Female - 3%
- - White - 7%
- - Black or African American - 6%
- - Asian - 6%
- - Hispanic - 6%
- - American Indian or Alaska Native - 5%
- - Native Hawaiian or Other Pacific Islander - 4%

MODEL PERFORMANCE

Metric	Log Regress	Decision Tree
Accuracy	58%	59%
Precision	16.38%	16.54%
Recall	64%	63%
F1 Score	26%	26%
ROC-AUC Score	65%	65%

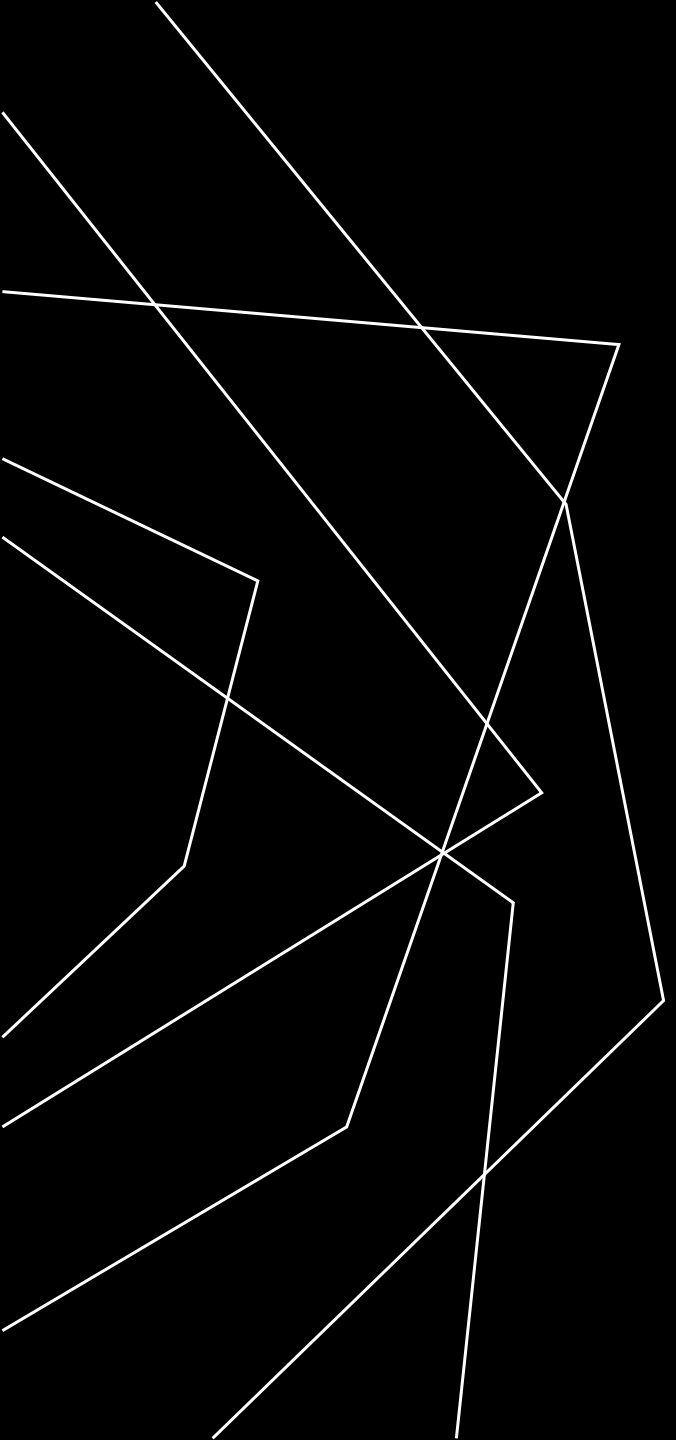


INTERPRETATION

The Accuracy Paradox; Initial models achieved ~88% accuracy but failed to identify a single arrest due to severe class imbalance. This was corrected using class balancing techniques (SMOTE / Class Weights).

The Performance Ceiling; Both Logistic Regression and Decision Tree models capped at an ROC-AUC score 0.65, indicating that the initial feature set does not contain enough complex information to push past a moderate predictive threshold. This is despite inclusion of relevant features to predictions in the model.

Conclusion; The nature of the dataset (data collected fully relied on human integrity , subjective to flaws) the Models performance metrics ratings indicate performance and satisfaction of the metrics of success.



THANK YOU

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