

# **BANK TRANSACTION FRAUD**

- Timothy Tsung

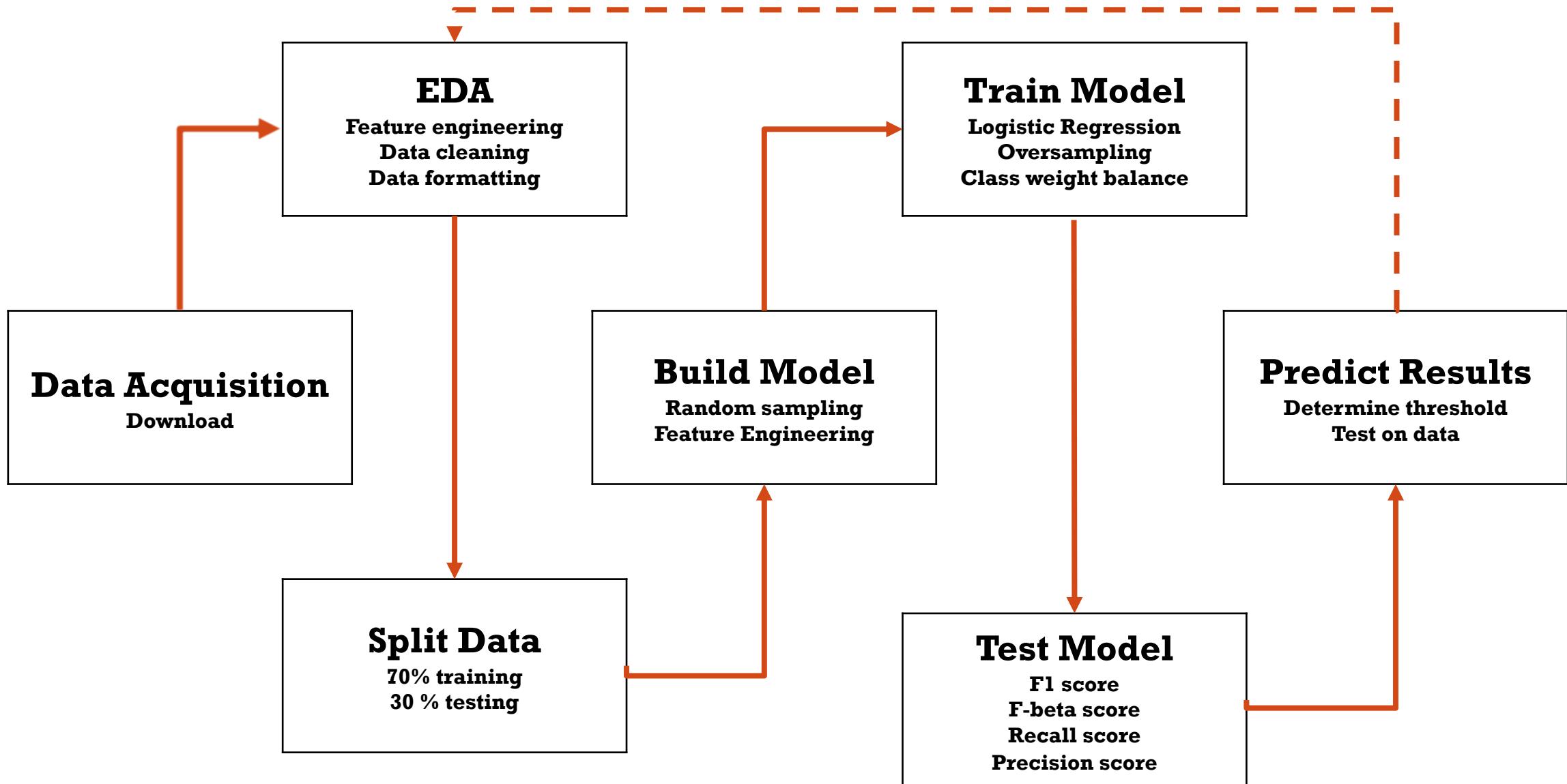


## GOAL

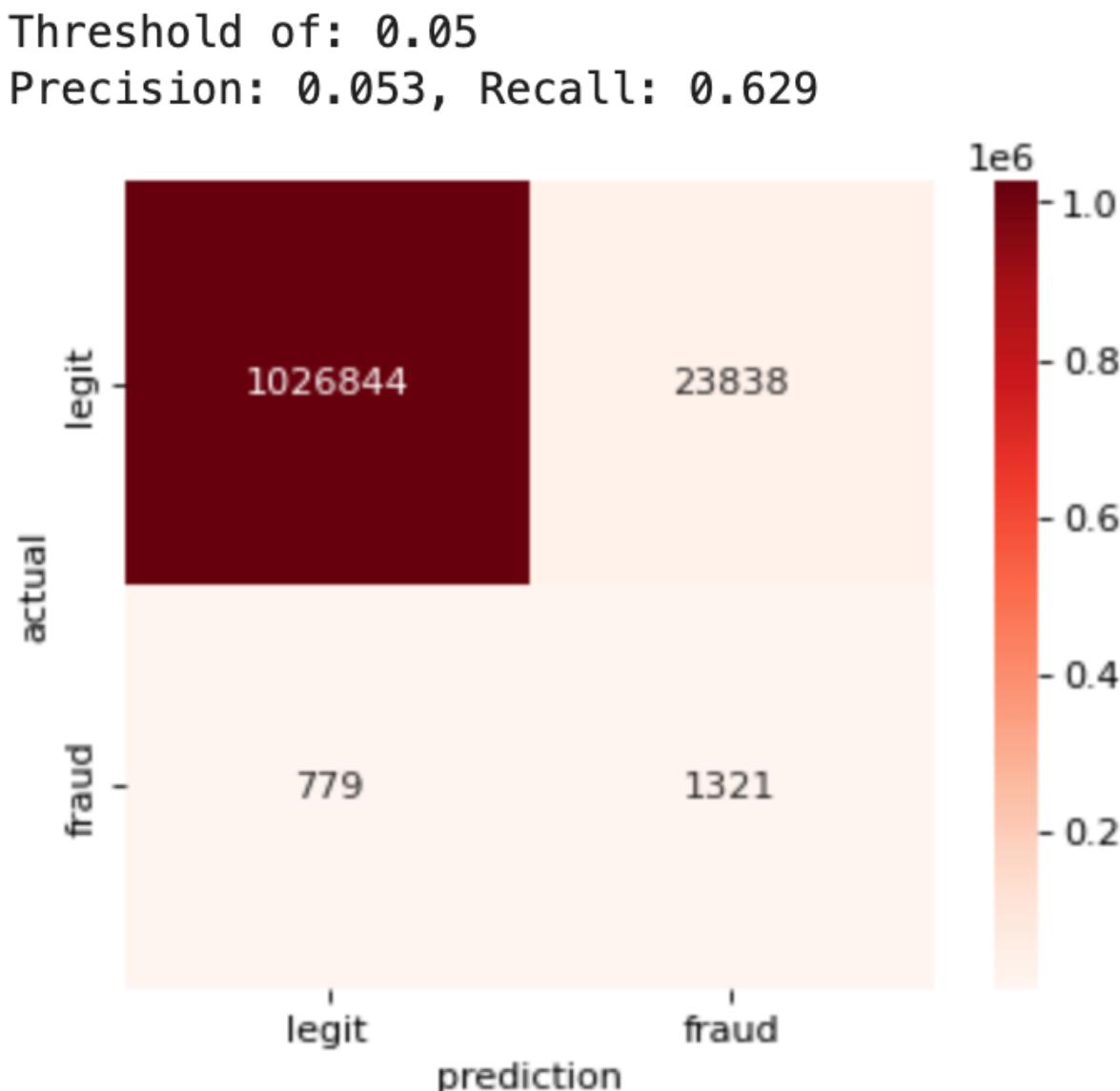
- ABC bank is looking to beef up their security to accurately flag fraudulent transaction attempts
  - Increase customer satisfaction
  - Decrease fraudulent charges
  - Boost business



# PROJECT WORKFLOW



# 1ST ATTEMPT PREDICTIONS W/ LOGISTIC REGRESSION



- Extremely low threshold
- Extremely low precision score
- Decent recall score
- High false negatives
- Ok false positives
- Aim to improve performance

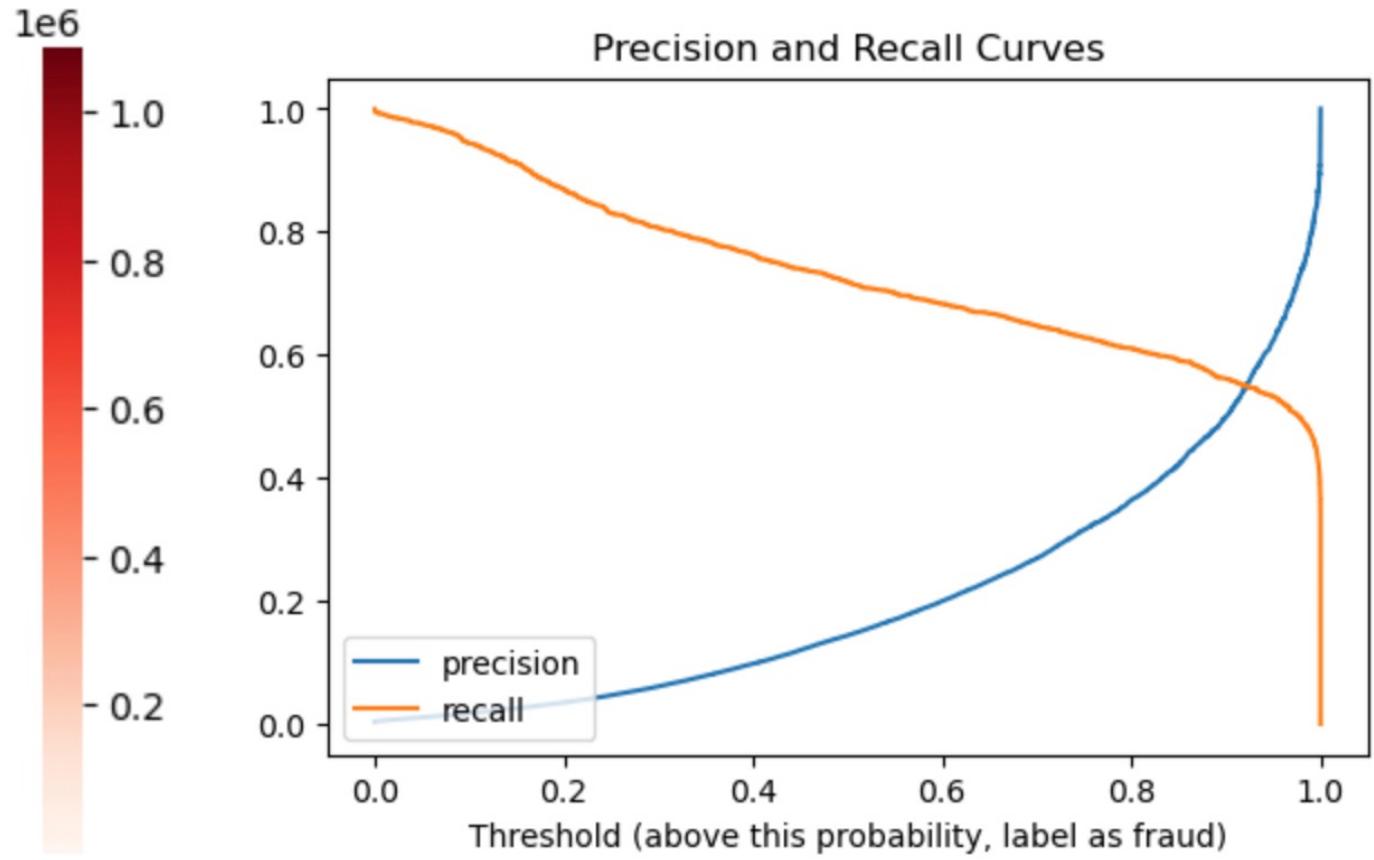
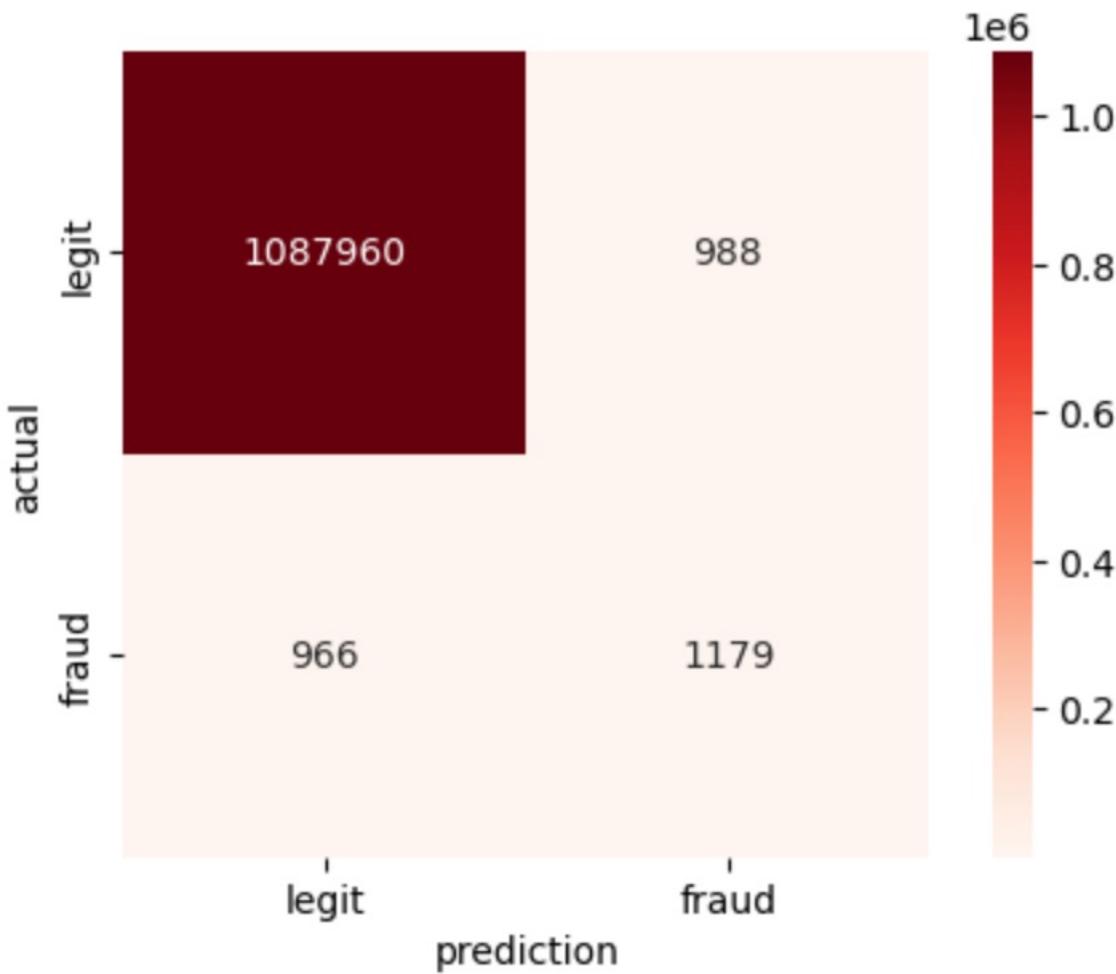
# RESULTS

- Logistic regression:
  - F1 – 0.559 | Recall – 0.440
- Logistic regression oversampling:
  - F1 – 0.546 | Recall – 0.518
- Logistic regression class weight (balanced):
  - F1 – 0.055 | Recall – 0.903
- Logistic regression 50:1 class weight:
  - F1 – 0.240 | Recall – 0.718
  
- Logistic regression log-loss: 0.0090
- Over sampling log-loss: 0.0123
- Class weight balance log-loss: 0.0477

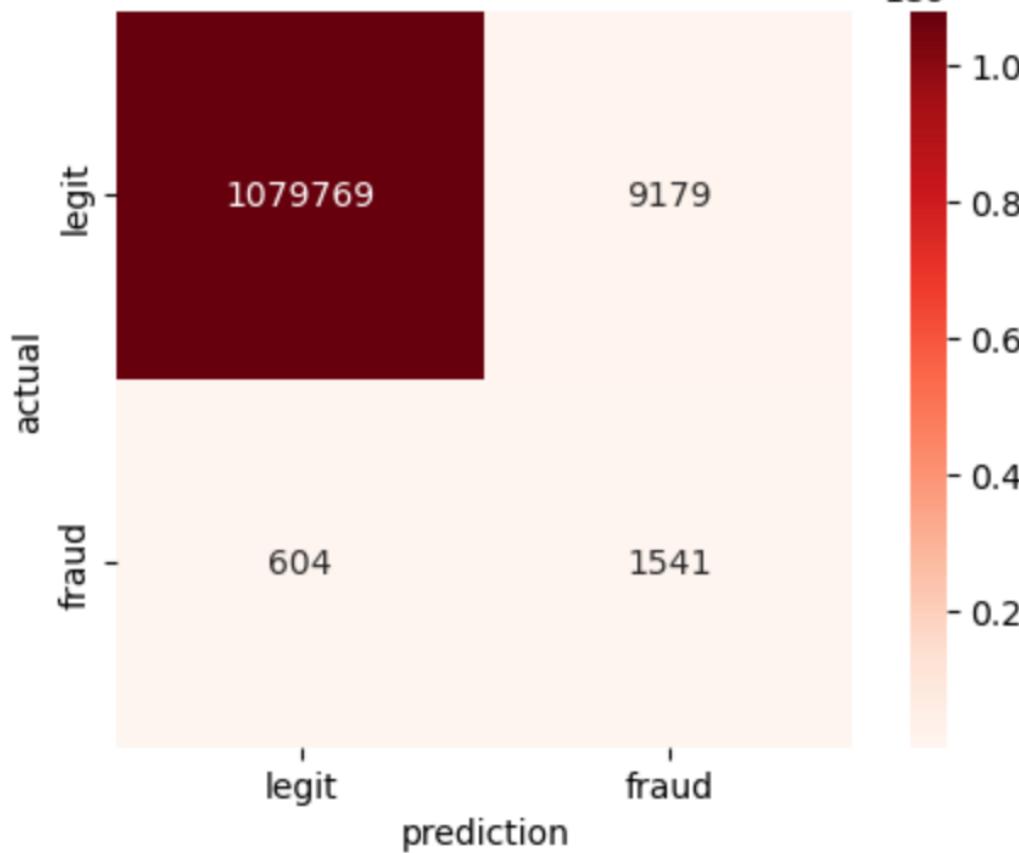


# PRECISION & RECALL CURVE TO DETERMINE THRESHOLD

Threshold of: 0.92  
Precision: 0.544, Recall: 0.550



Threshold of: 0.5  
Precision: 0.144, Recall: 0.718



## 2<sup>ND</sup> ATTEMPT PREDICTIONS WITH MODIFIED THRESHOLD

- Stronger recall score
- Weaker precision score
- Improved performance
- Improved precision
- Rather have more false positives than false negatives



**THANK YOU**

