CUSTOMER BANK CHURN

BY: ASTEWAY KEBEDE

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CLIENT & NEED

Banking Institution

Increase Customer Retention

Model

Using a Classification model

Banks

Can understand their customers better &
Increase Customer Retention

PROCESS & TOOLS

Exploratory Data Analysis

Feature Engineering

Modeling

THE DATA

Age

Gender

Tenure

Status

Balance

Salary

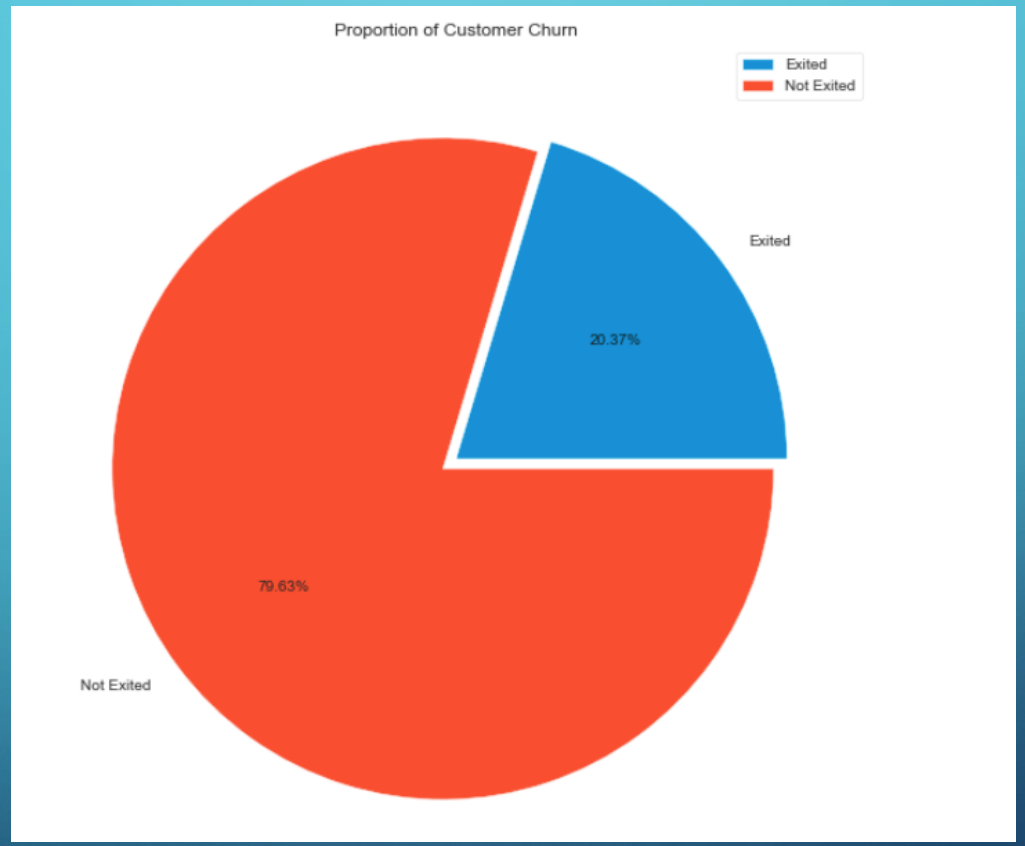
Country

Card Count

Churn == 1

Non-Churn == 0

TARGET IMBALANCE



MEASURING METRIC

F2-measure

Put more attention on minimizing false negatives than minimizing false positives

MACHINE LEARNING ALGORITHMS

- XGB
- AdaBoost
- RandomForest
- ExtraTrees
- Bagging
- DecisionTree
- LogisticRegressionCV
- KNeighbors
- SVC
- Bernoulli
- Gaussian

BASELINE MODEL RESULTS

	F_Beta 2 Score
MLA Name	BaseLine
XGB	51.724138
DecisionTree	51.504771
GradientBoosting	50.88141
RandomForest	49.85219

FEATURE ENGINEERING

Credit Score

Dummy Variables

Interaction Terms

FEATURE ENGINEERING RESULTS

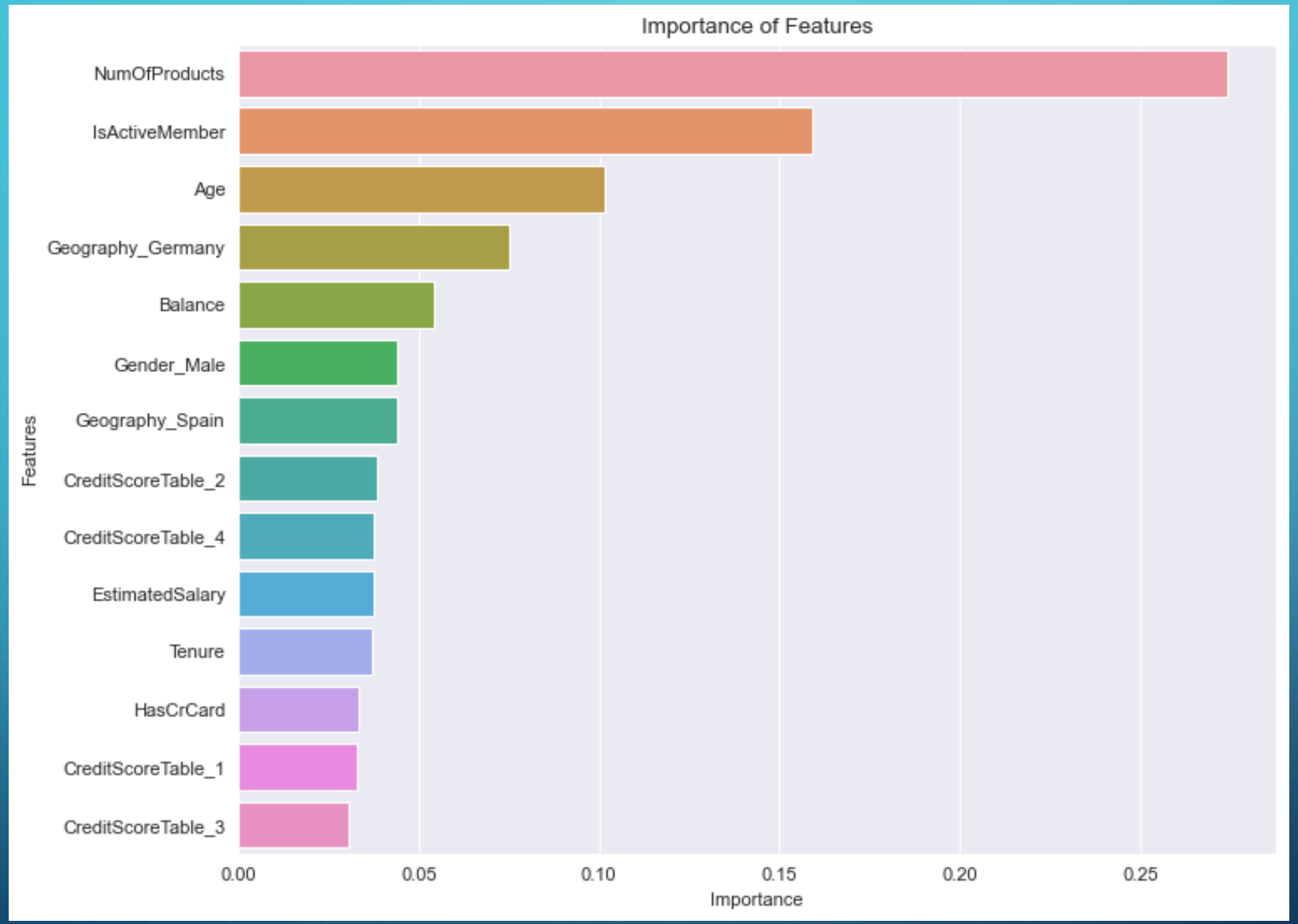
	F_Beta 2 Score	
MLA Name	BaseLine	**Feature Engineering**
XGB	51.724138	51.308901
DecisionTree	51.504771	49.34688
GradientBoosting	50.88141	52.953699
RandomForest	49.85219	49.009106

FINAL MODEL RESULTS

	F_Beta 2 Score		
MLA Name	BaseLine	Modeling	Final
XGB	51.724138	51.308901	52.091555
DecisionTree	51.504771	49.34688	49.85373
GradientBoosting	50.88141	52.953699	49.758584
RandomForest	49.85219	49.009106	49.016967

XGM PARAMETERS

N_Estimators	Max_Depth	Learning_Rate
200	3	.1


Importance of Features
NumOfProducts
IsActiveMember
Age
Geography_Germany
Balance
Gender_Male
Geography_Spain
CreditScoreTable_2
CreditScoreTable_4
EstimatedSalary
Tenure
HasCrCard
CreditScoreTable_1
CreditScoreTable_3
Features
0.00
0.05
0.10
0.15
0.20
0.25
Importance

FEATURE WORK

- Additional data
- More Model Tuning with additional data