Bank Customers Churn Classification

BY

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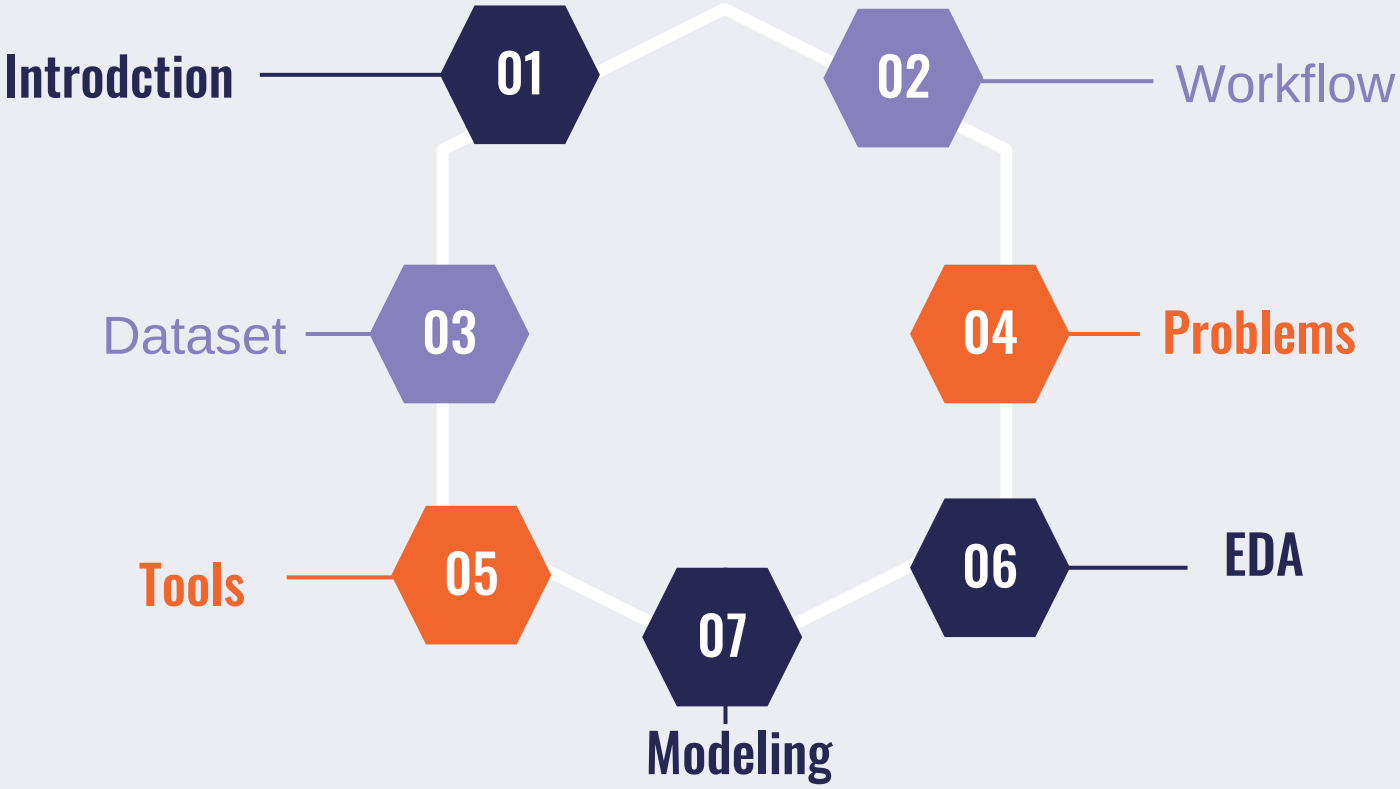
Contants

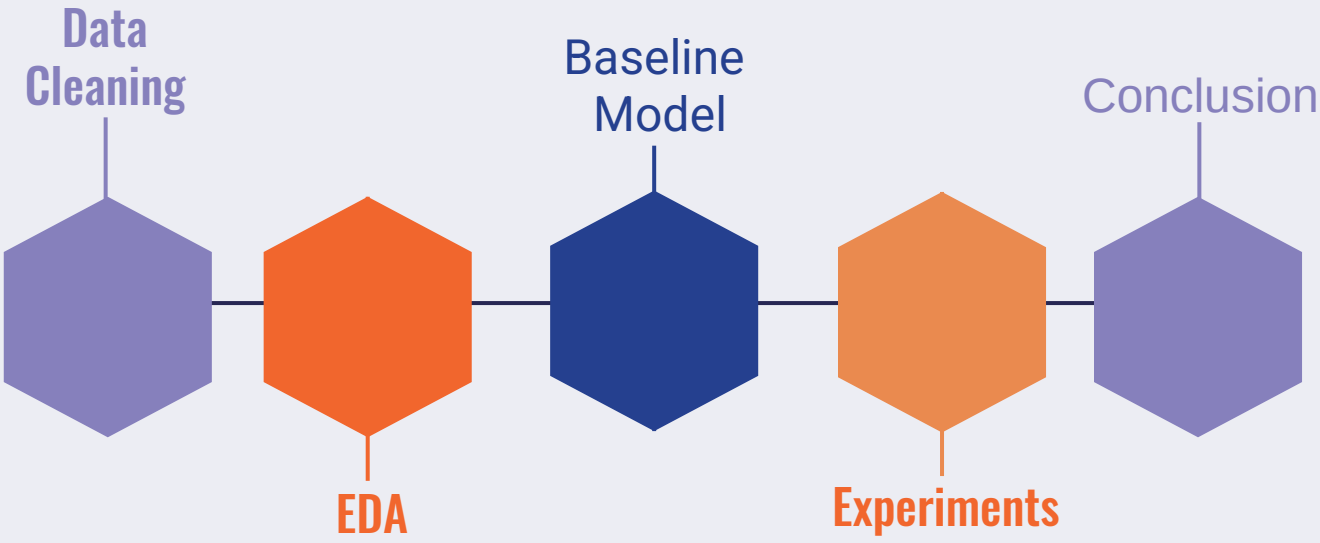

Introdction
01
02
Workflow
Dataset
03
04
Problems
Tools
05
06
EDA
07
Modeling

01 Introdction

Clients are the basis for continuing work and increasing profit for any organization, so care must be taken to dealing with their problems earlier before they may leave that organization.

02

Workflow



03

Dataset

Bank Customers

10k rows

13 Features

Customer: 15634602
Surname: Hargrave
Credit Score: 619
Geography: France
Gender: Female
Age: 42
Tenure: 2
Balance: 0.00
NamOfProducts: 1
HasCrCard : 1
IsActiveMember : 1
Estimated Salary: 101348.88

Exited: 1

04 Problems

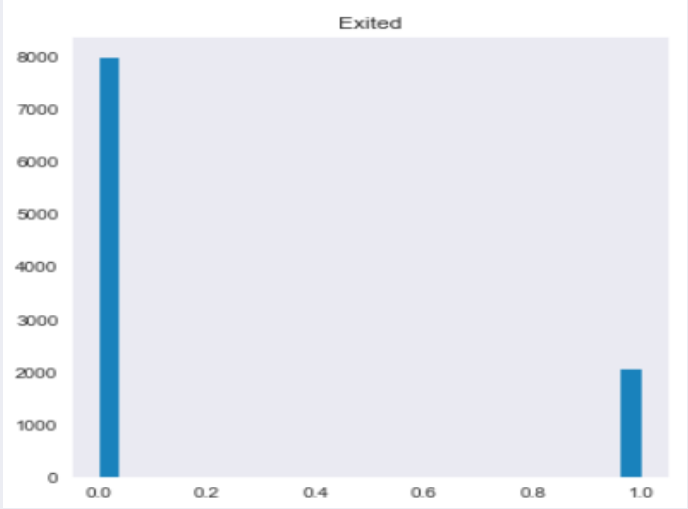
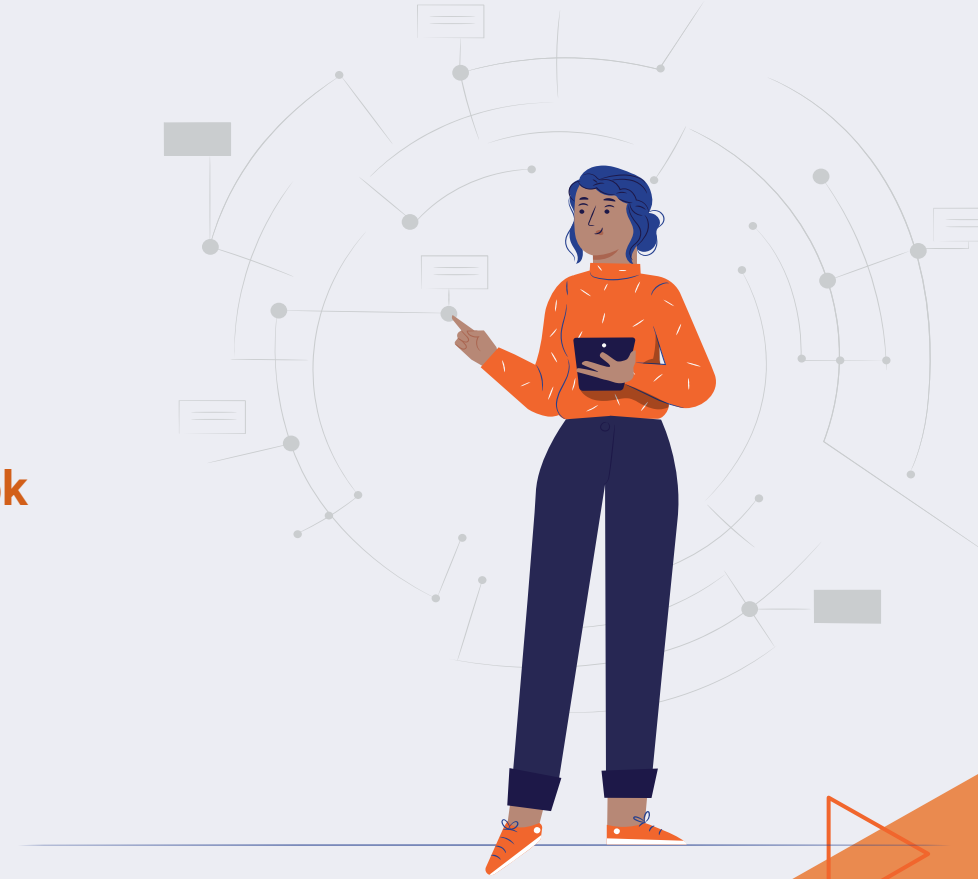


Chart shows the Imbalanced data

05

Tools

- Python, Jupyter notebook
- NumPy, Pandas
- Matplotlib, Seaborn
- Sklearn

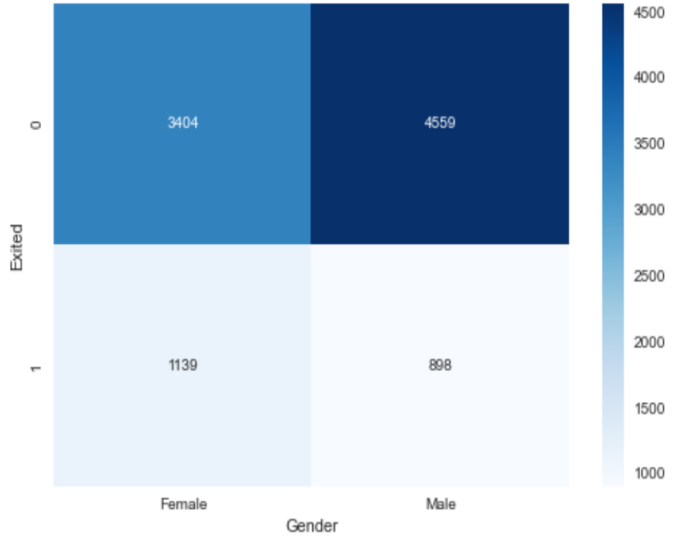


06

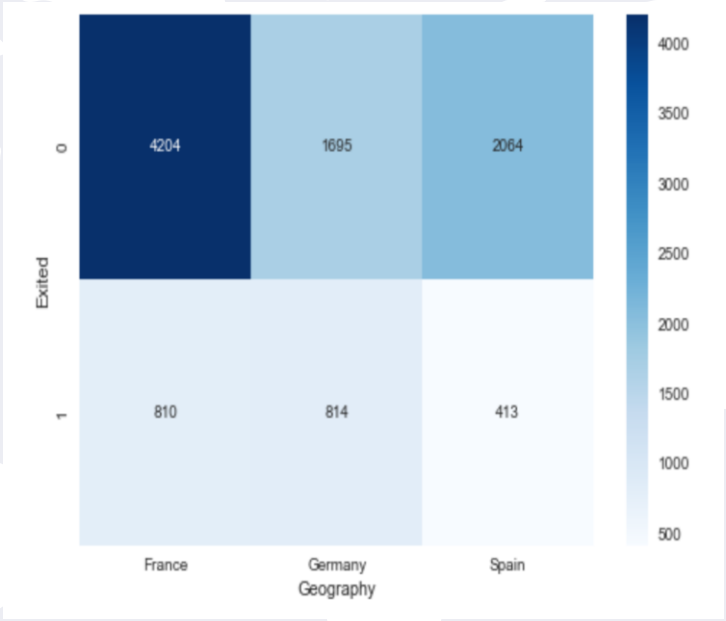
EDA

Number of females and males who will close their account

As shown that females are more than males in closing the accounts



Number of the clients in selected countries

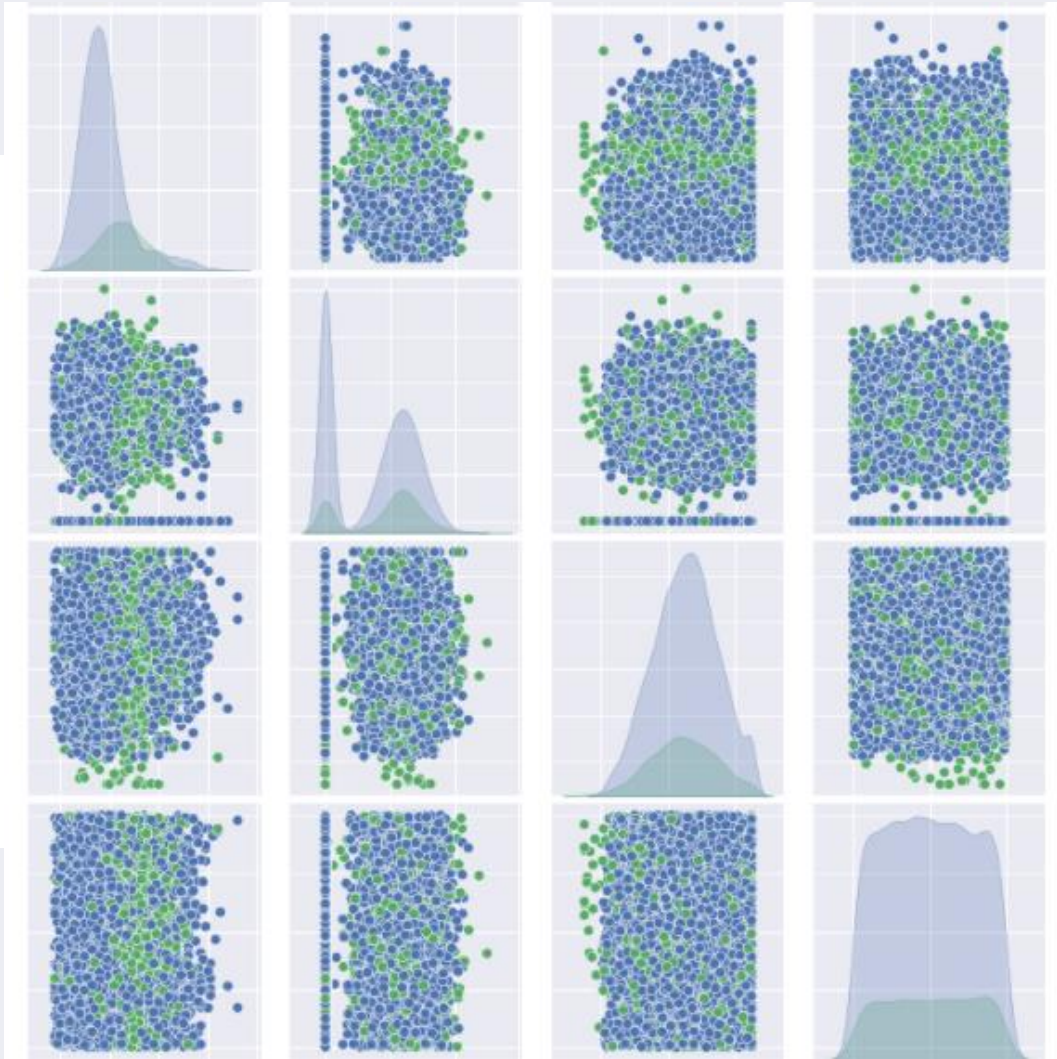


As shown clients that are located in Germany are the most churned.

06

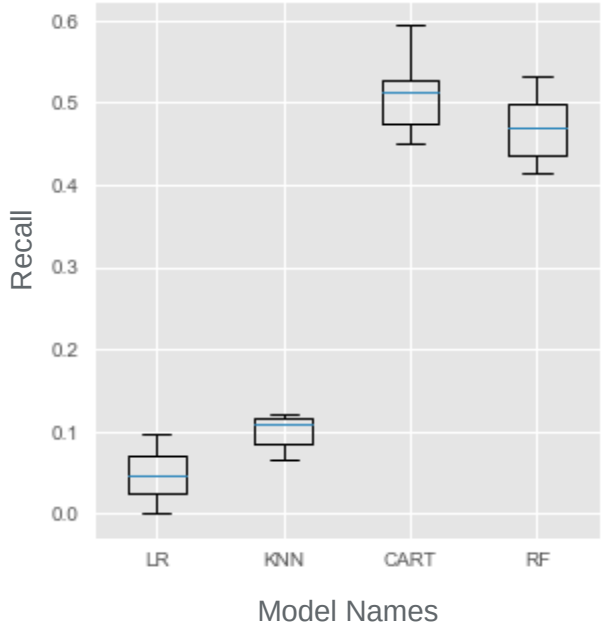
Modeling

Pair Plot

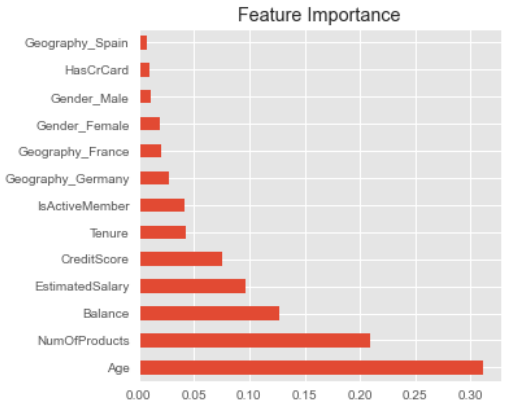


Baseline

model	Recall	precision
LR	0.048	0.313
KNN	0.101	0.295
CART	0.5097	0.486
RF	0.463	0.769



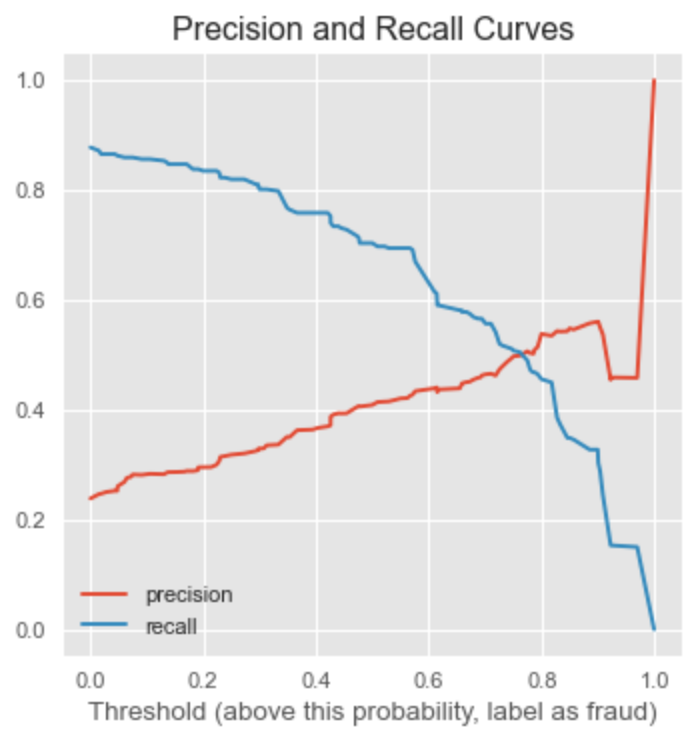
Experiments



	Class wait	Random Oversampling	Tune + Random Oversampling	+ Feature importance	Tune after Feature importance +Random Oversampling	+ Smote	Stacking	XGBClassifier
Recall	0.480	0.511	0.434	0.364	0.474	0.703	0.355	0.290
precision	0.541	0.512	0.717	0.672	0.594	0.409	0.739	0.844

Best Model

	Tune after Feature importance + Random Oversampling	Testing
Recall	0.703	0.690
Precision	0.409	0.390



Conclusion

- **In this project we built a model that predict how likely a customer is going to churn.**
- **Our model can predict if the customer is going to churn by 70%**
- **Our model can predict if the customer is going to continue by 39%**

THANK YOU