
Bank Customer Churn Rates

JPMorgan Chase & Co.

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Business Context

Team Kestrel

Data Analyst Team

Tasked to understand customer behavior and characteristics that lead to higher customer churn rates.

Audience

JPMorgan Chase & Co.
Marketing, Sales, and C-Suite
representatives

Problem

How can we predict if a customer will leave the bank?

Goal

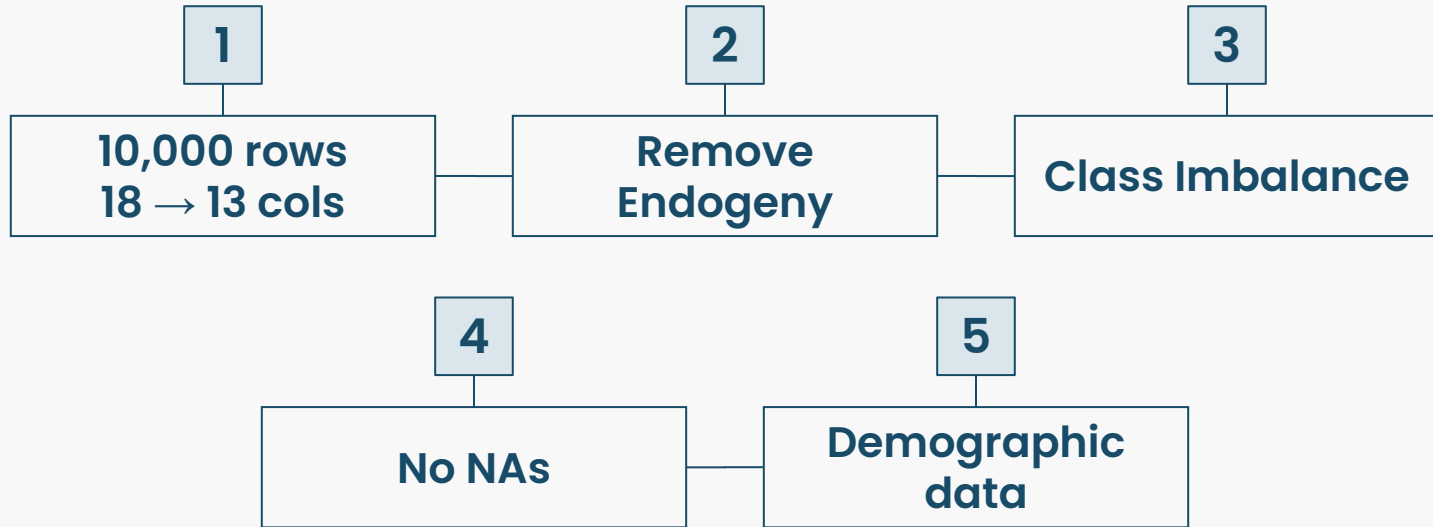
Find the most effective predictive model for churn rates, and the most important features that lead to customer exits

Importance

- Revenue Impact
- Cost of customer acquisition vs. retention
- Retaining customer loyalty
- Preserve market share



Data Cleaning



13 Selected Features

Exited

Age

Credit Score

Tenure

Balance

Gender

Geography

Card Type

Num Products

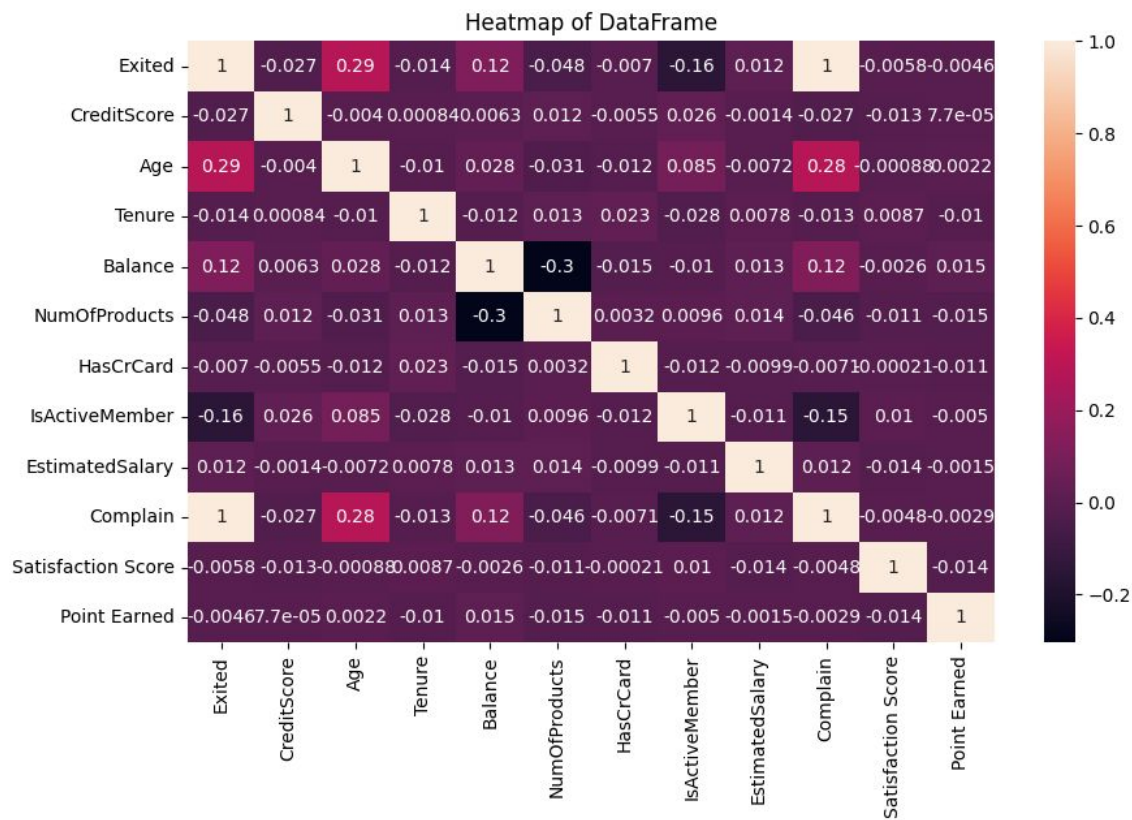
Has Credit Card

Is Active Member

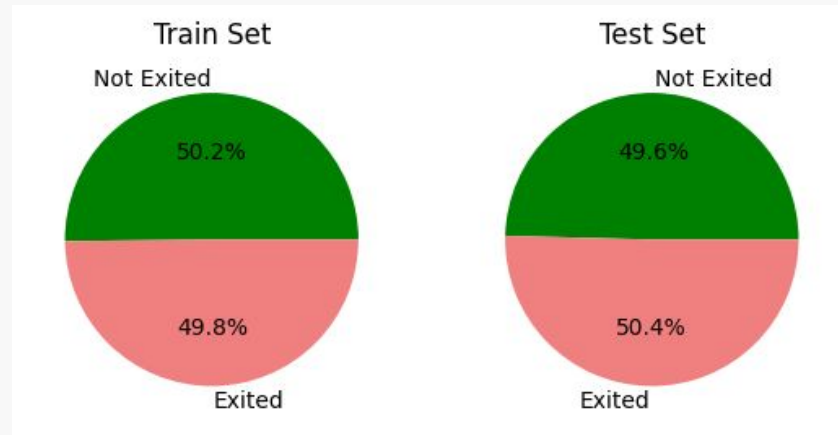
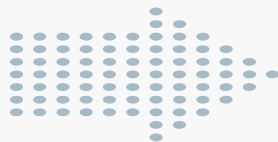
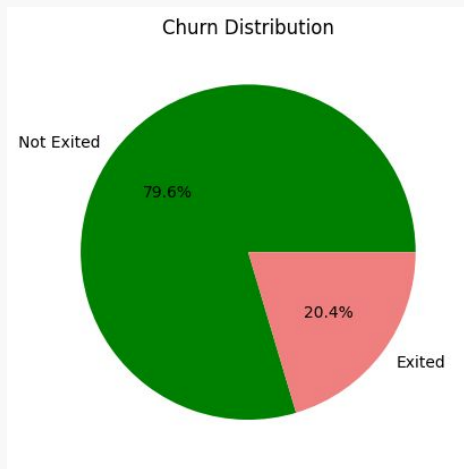
Estimated Salary

Points Earned

Heatmap



Class Balancing

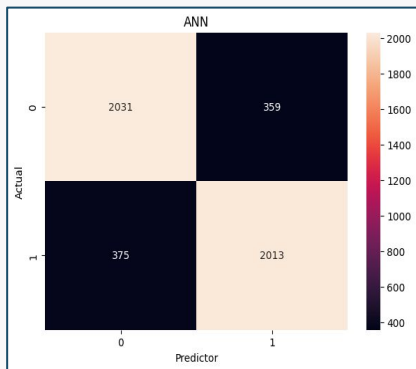


Modeling

ANN

FI: 0.85

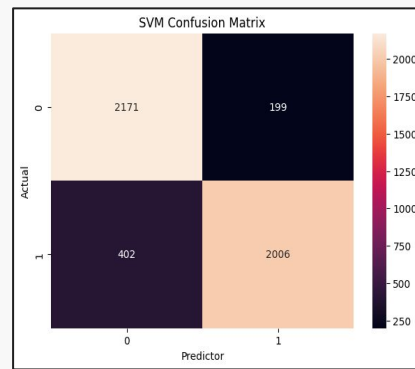
AUC: 92%



SVM

FI: 0.88

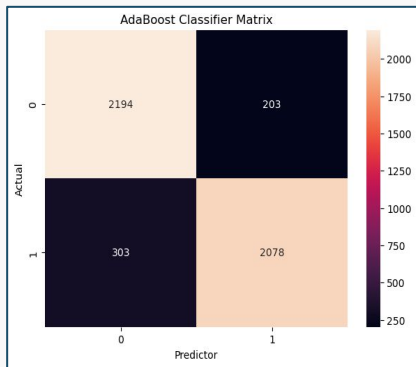
AUC: 94.2%



AdaBoost

FI: 0.89

AUC: 95.6%

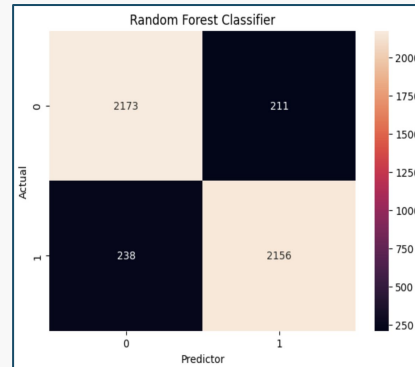


RF

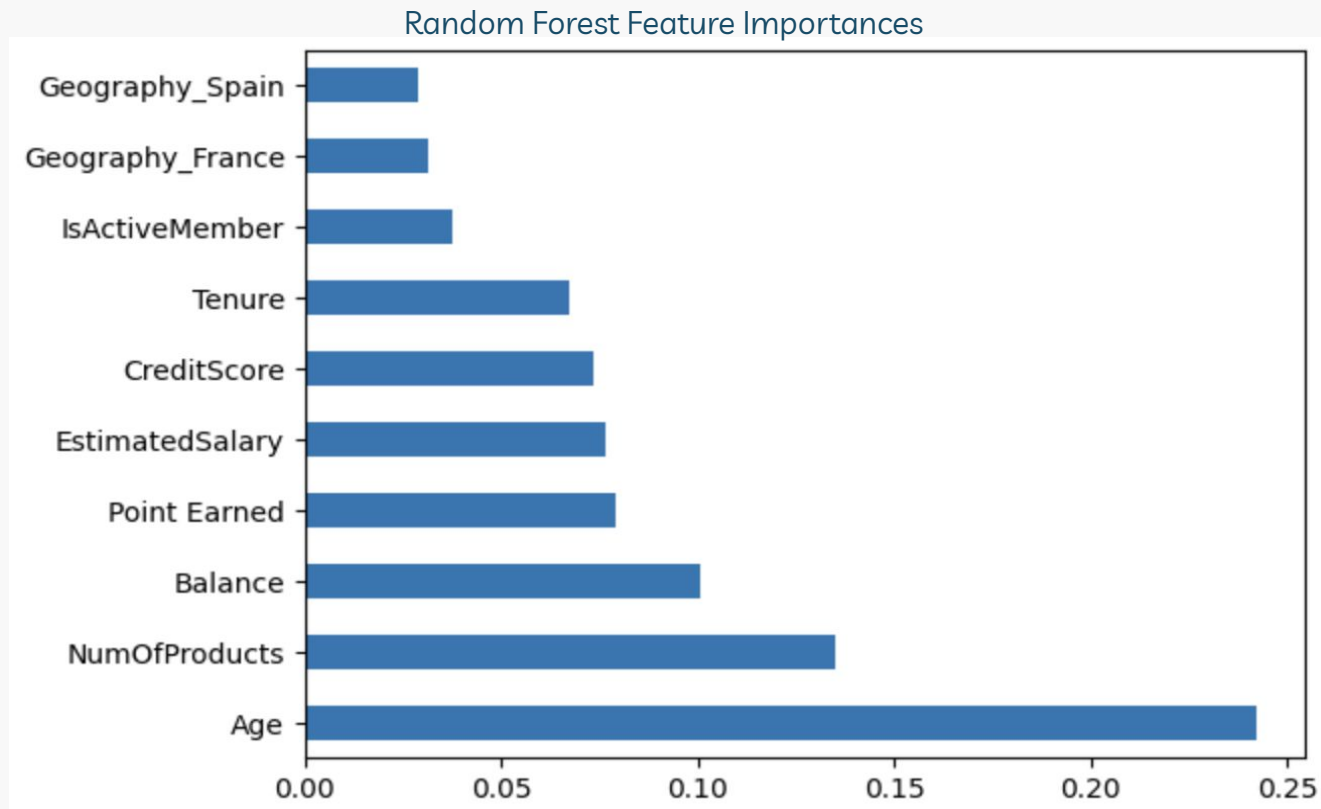
FI: 0.91

AUC: 96.6%

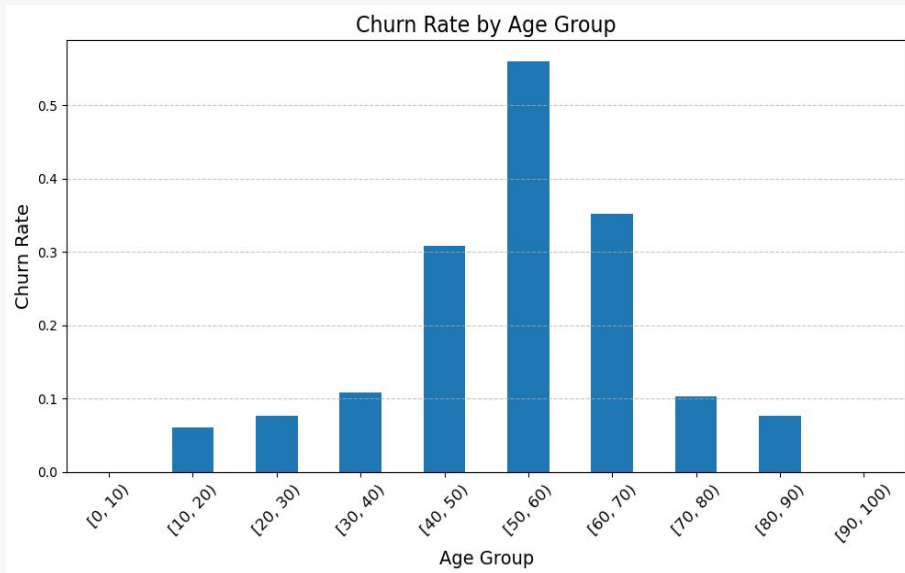
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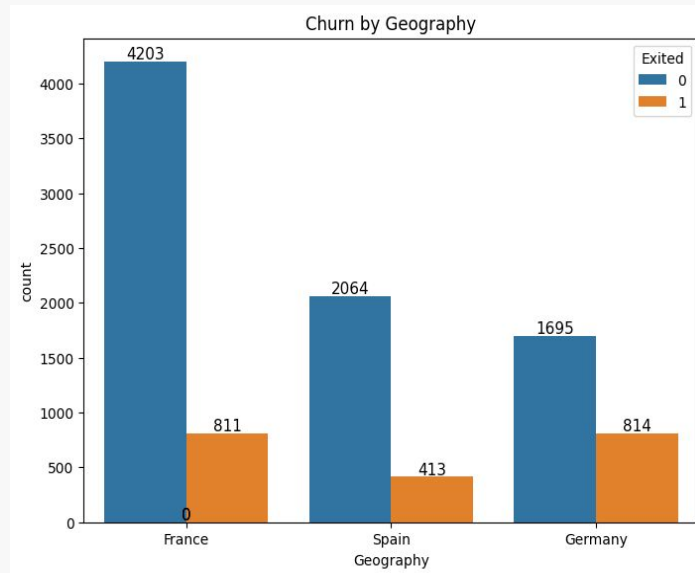
Feature Importances



Churn Rates by Attribute



Most Important Feature



Least Important Feature



Front end Showcase



Insights and Recommendations

01

Predictive Ability

We are able to predict if a customer will exit.

02

Informed Promotions

Offer promotions to these at-risk customers to retain their membership.

03


Improved Marketing

Target demographics that are more likely to leave our institution.

04

Advantaged Customers

Potential to detect customers abusing our promotions. Further inquiry needed.





Thank You

Questions?





Dataset Source

<https://www.kaggle.com/datasets/radheshyamkollipara/bank-customer-churn/discussion>

