



SyriaTel Customers Report

June 15, 2022

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Business Problem

- Customers retention rate
- Find rate structure and service if they are competitive in the market
- Keep customers increase rate growth



Data

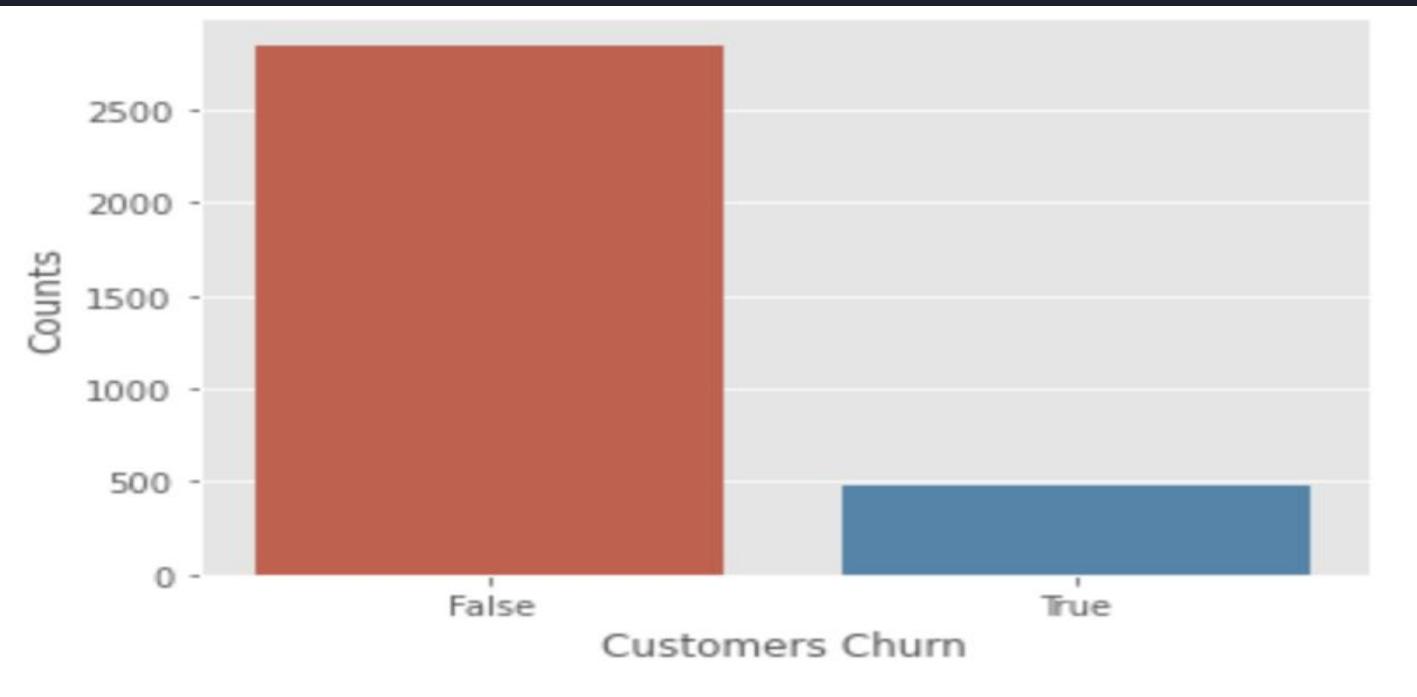
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- 01 SyriaTel provided a dataset containing 3333 customers
 - 02 21 features including account length, state, charges, minutes, plans and churn
 - 03 Churn rate is 14% in this dataset



Methods

- Check if any missing values and convert boolean columns data into binary data
- Use Logistics Regression as baseline model
- Use different types of models to evaluate
- Choose the best model and tune the parameters
- Use final model to identify customers churn
- Looked through the importance features in the final model

Customers Churn Rate



Baseline Model- Results on test set

Accuracy score

0.68

Recall score

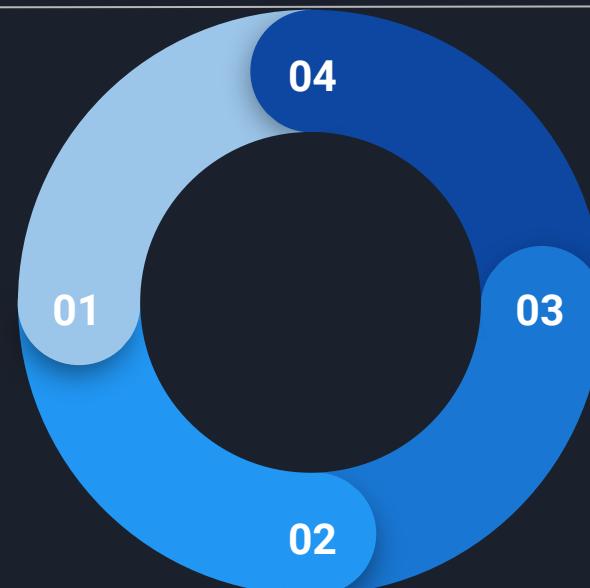
0.73

Precision score

0.26

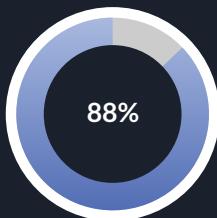
F1 score

0.38

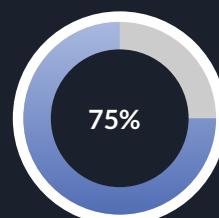


Other Models

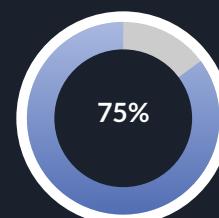
- Use SMOTE to improve class imbalance problem
- Recall score for each model



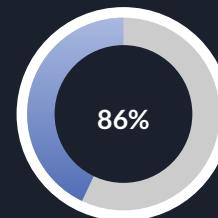
Logistic
Accuracy
66%



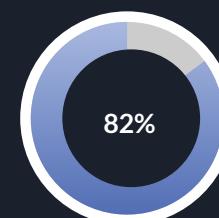
KNN
Accuracy
80%



Decision
Tree
Accuracy
89%

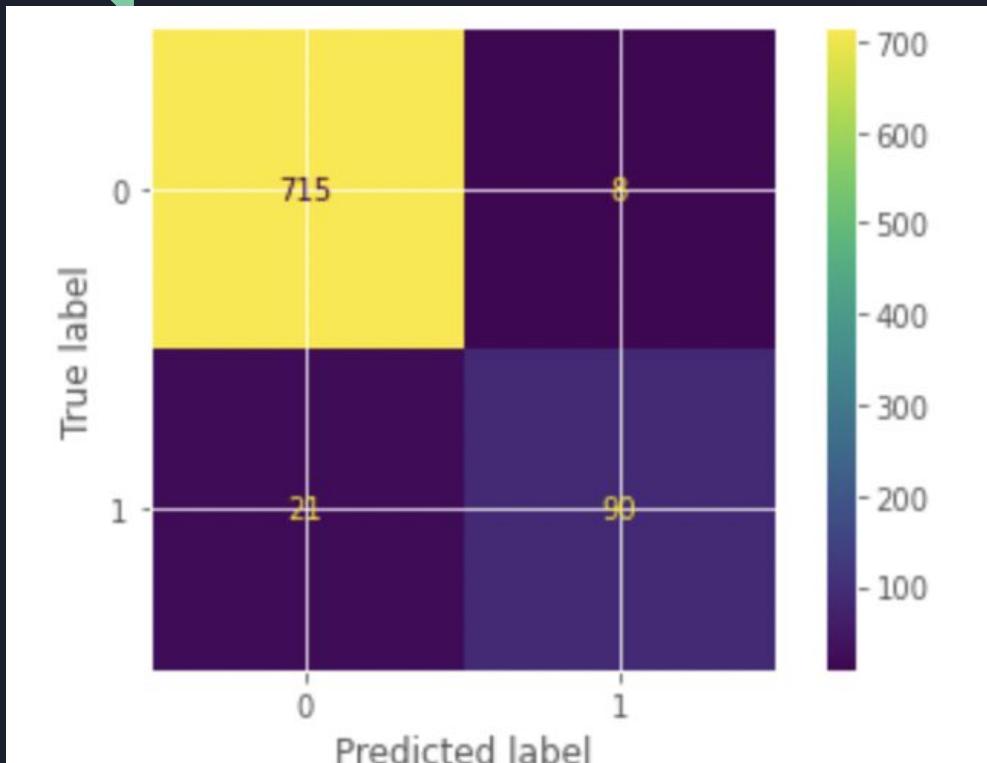


Random
Forest
Accuracy
96%

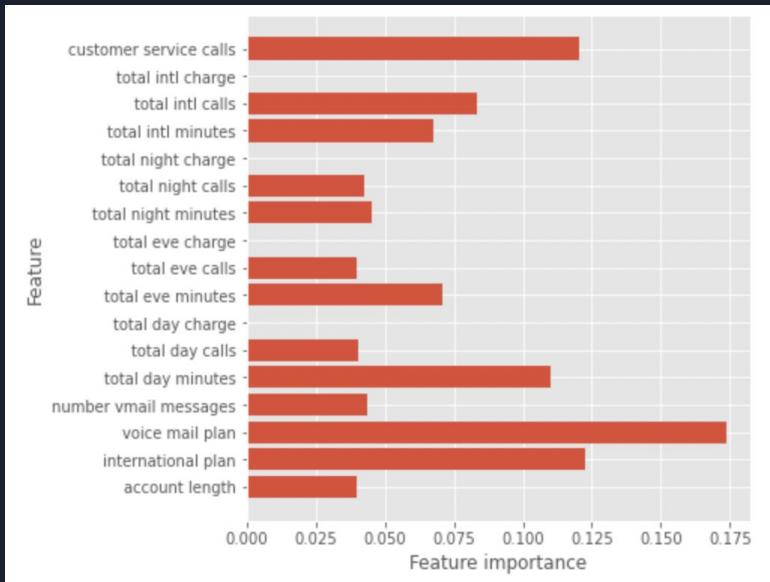


XGBoost
Accuracy
95%

Final Model -XGBoost



Important Features



First 3 highest weight in Feature Importances

Customer service calls

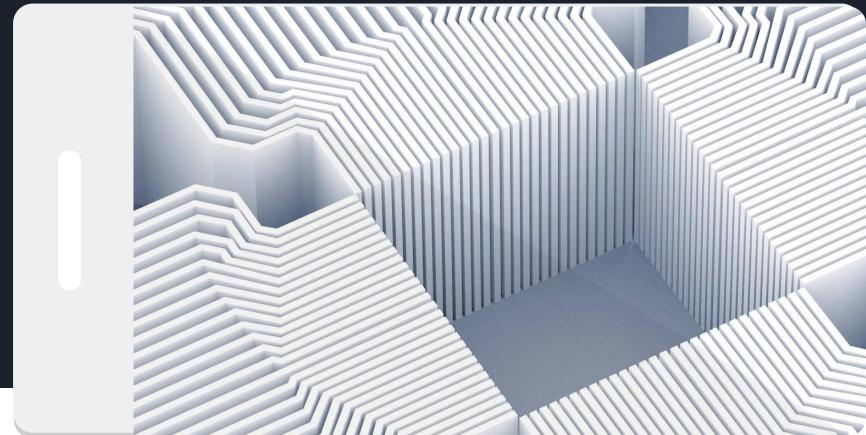
Voice mail plan

International plan



Conclusions

- Find the main reasons for calling
- Improve voicemail plan and international plan services
- Review the plan rates if they are competitive





Thank you!

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