

SYRIATEL PREDICTIVE ANALYSIS OF CUSTOMER CHURN

TELECOMMUNICATION COMPANY

SYRIATEL



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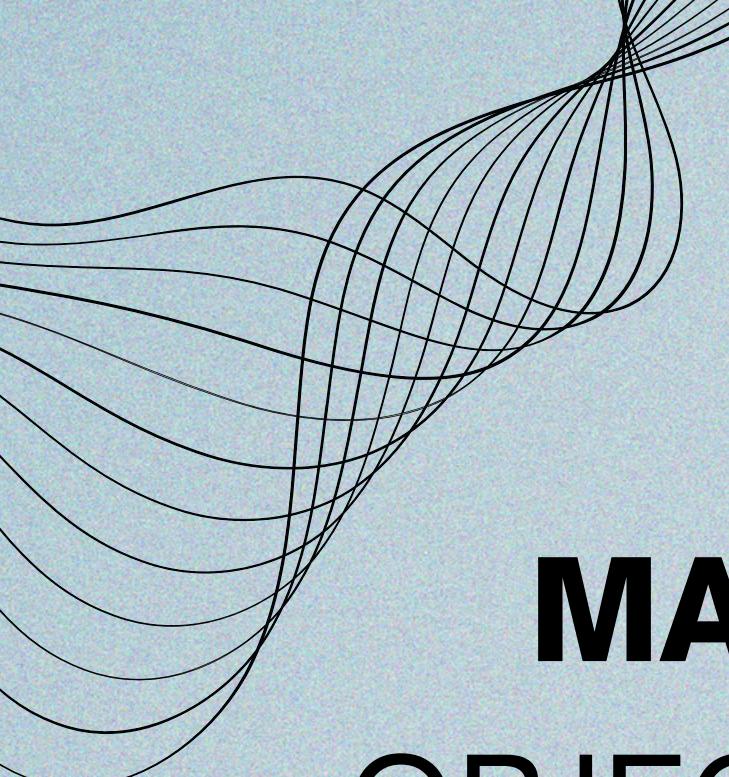
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INTRODUCTION



In a bid to grow revenue and maximise profits, SyriaTel, offering mobile and data services, recognizes that maintaining long-term customer relationships is more effective than constantly seeking new ones while losing existing customers.



MAIN OBJECTIVE



SPECIFIC OBJECTIVE

OBJECTIVES

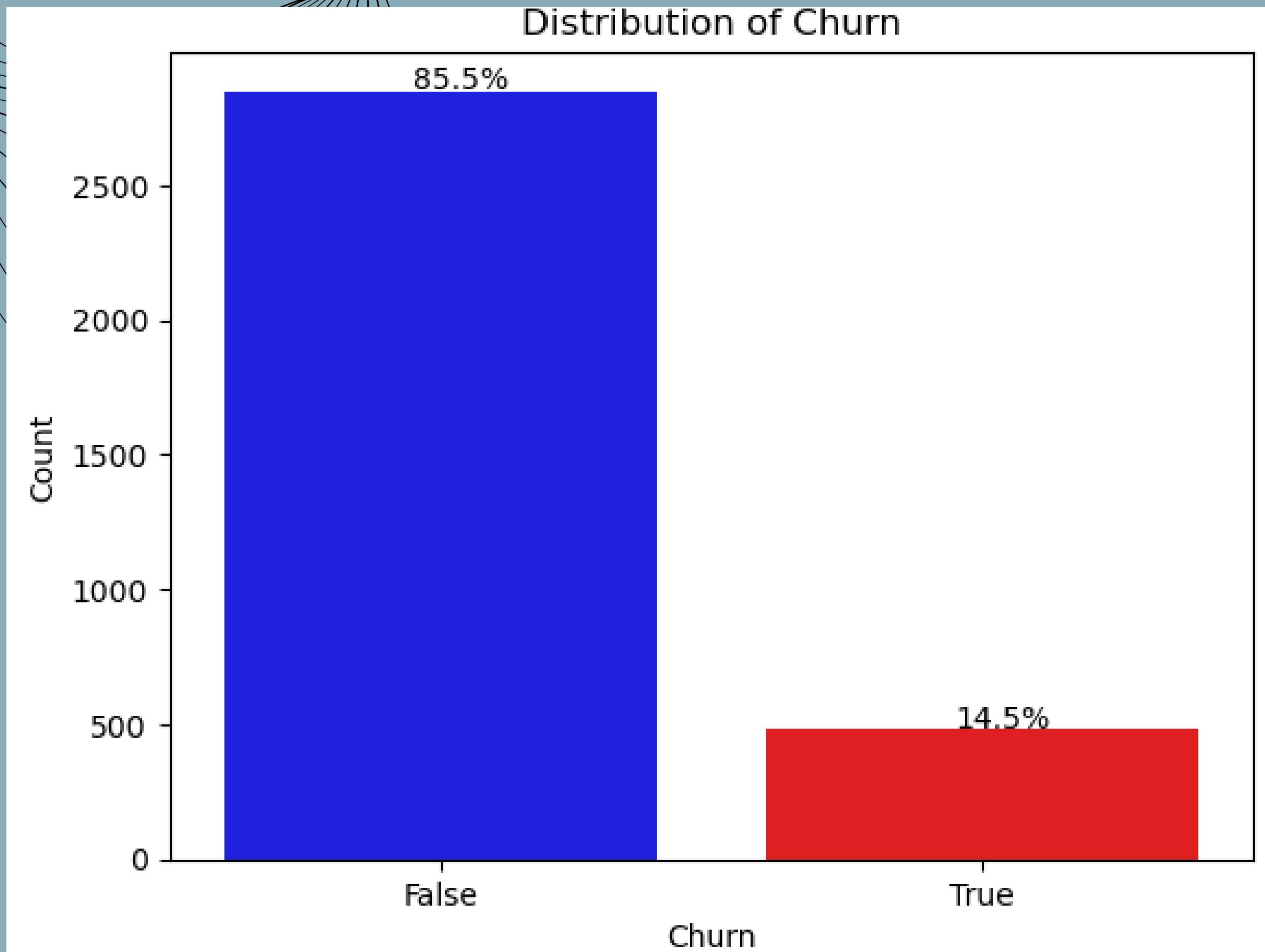
To build a predictive classifier that assists SyrialTel Telecommunication company in determining if there is a predictable pattern to customer churning

- Identify churning key factor
- Evaluate Classifier performance
- Provide actionable recommendations

EXPLORATORY DATA ANALYSIS

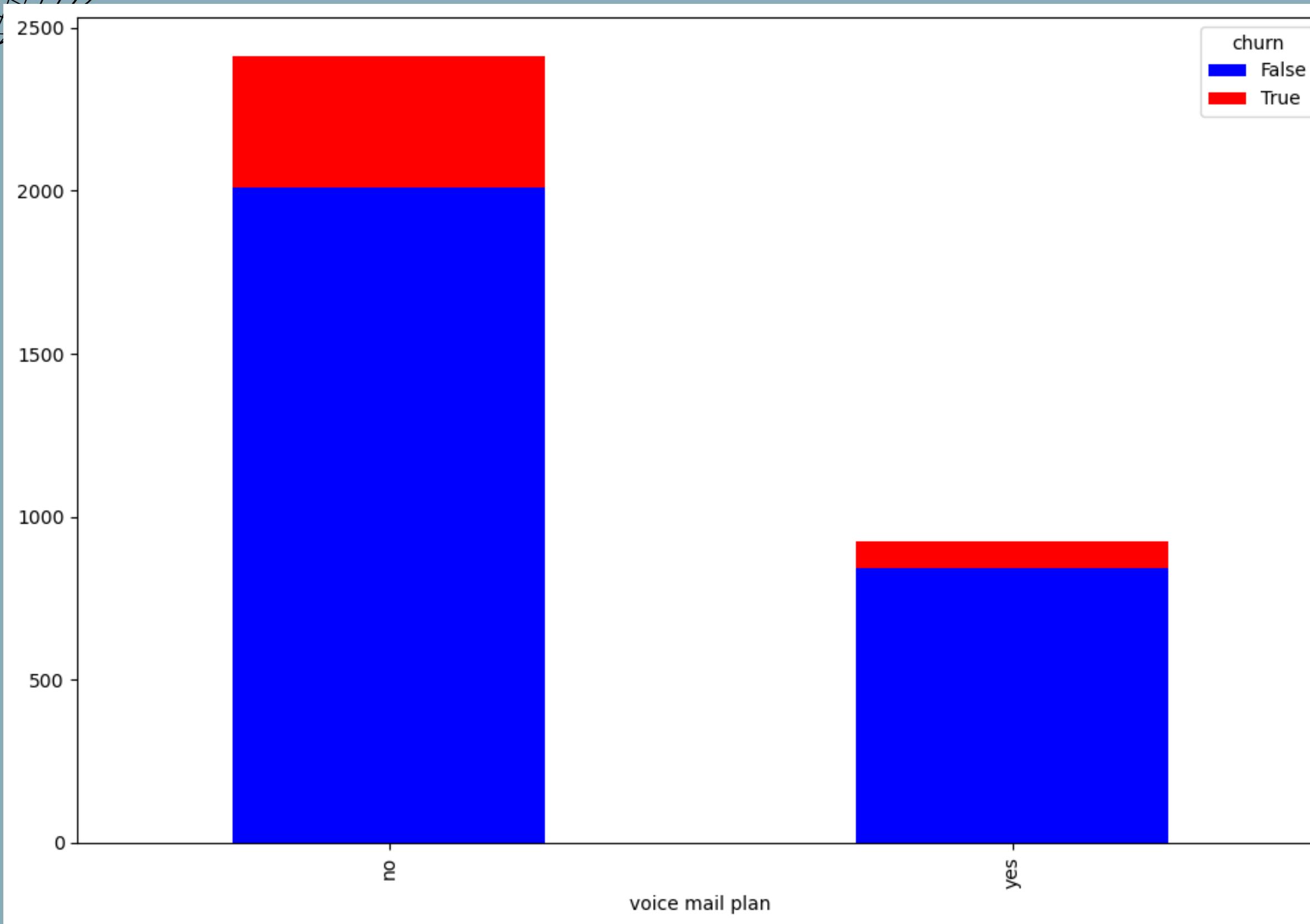


Churn distribution



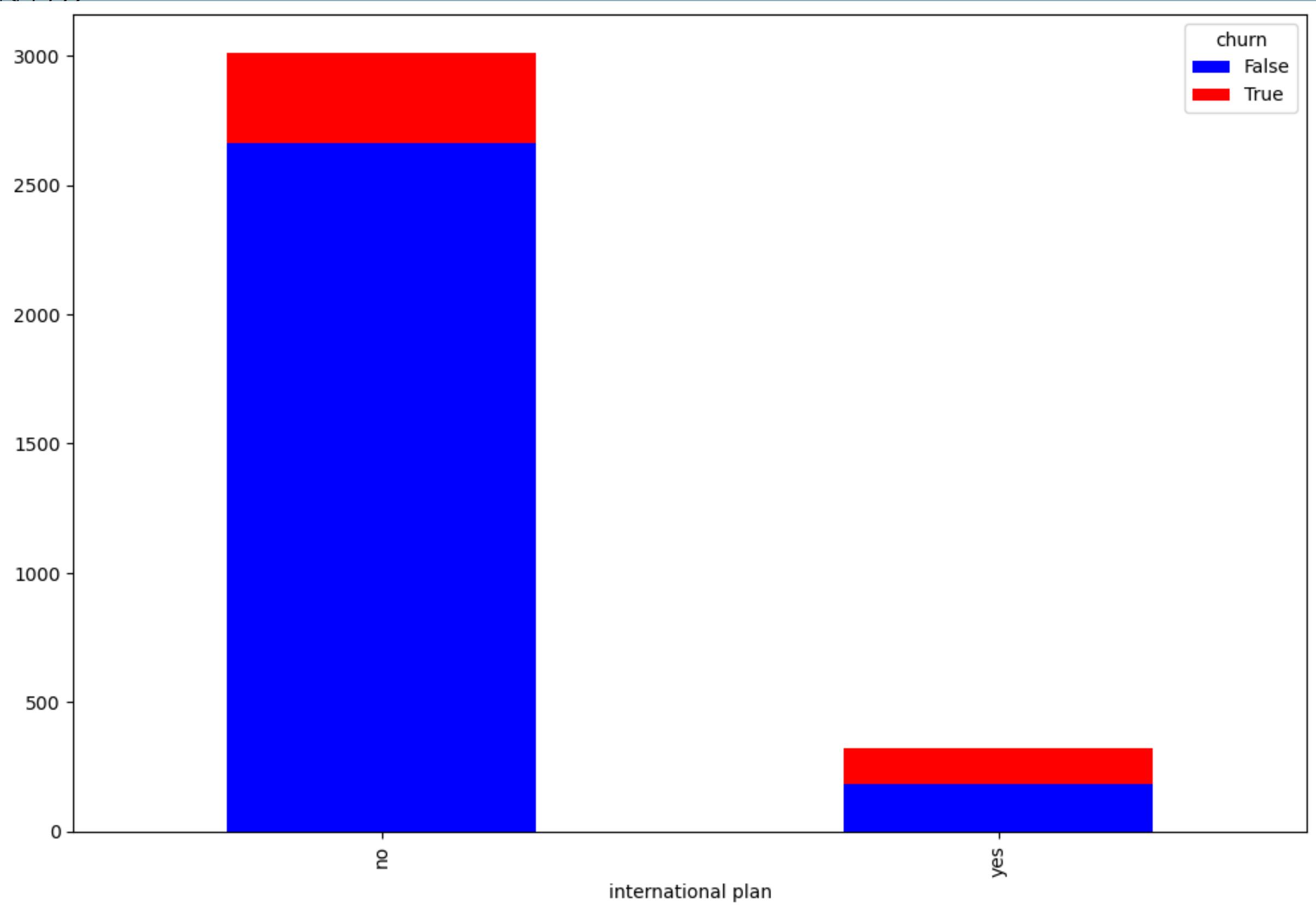
It is evident that from the 3,333 customers, 483 customers have churned from SyriaTel. This is approximately 14.5 % of the total customers indicating a loss in their customer base.

Voice mail plan effect on churn



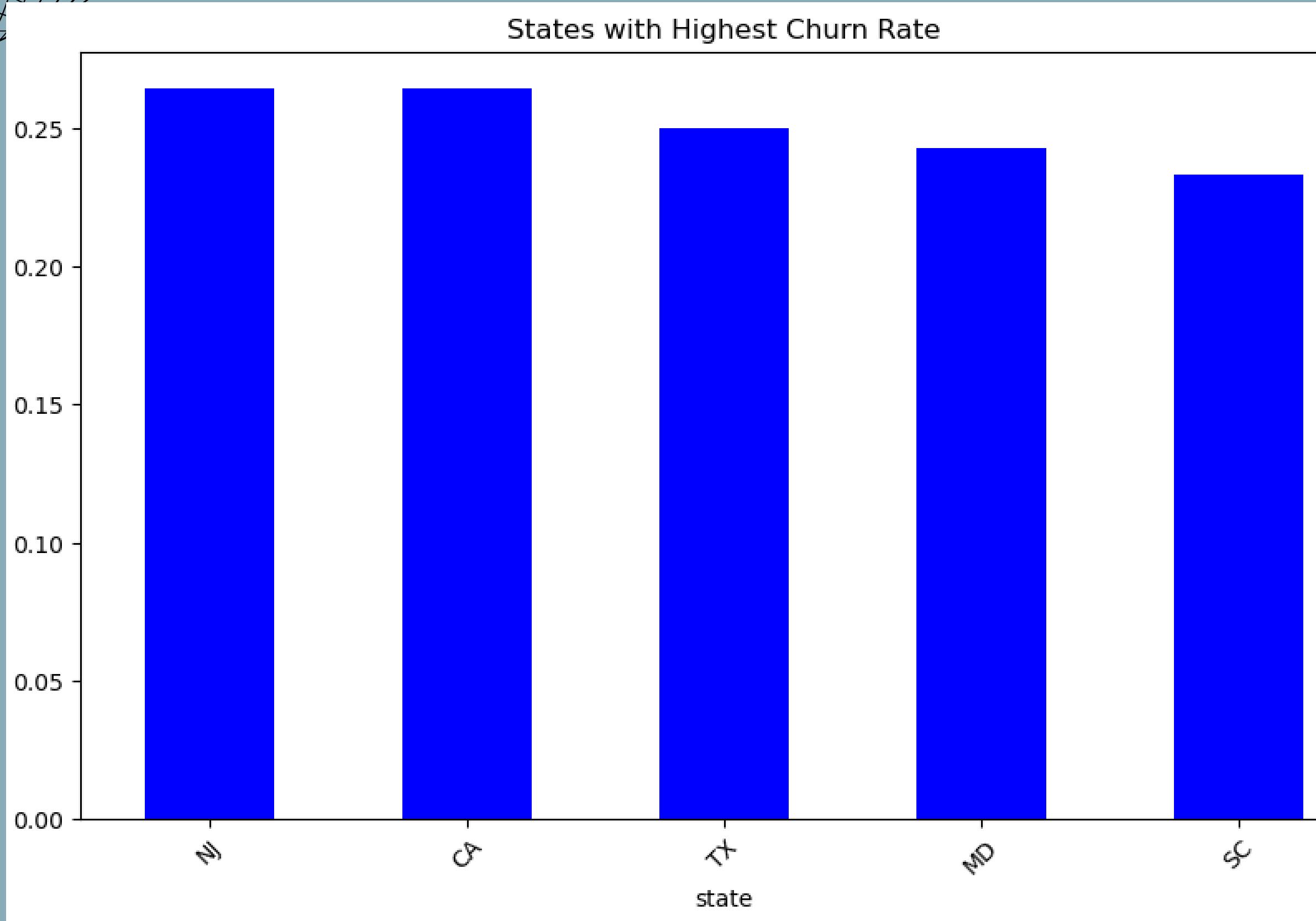
The voicemail plan seems to have an impact on customer churn, however, it is not as significant as the other factors

International plan effect on churn



The international plan affects customer churn, as seen in those without it churning more.

Top states with highest churn rate



- NJ: New Jersey
- CA: California
- TX: Texas
- MD: Maryland
- SC: South Carolina

MODELLING

- Logistic regression
- K-Nearest Neighbours
- Decision Trees
- Random Forest Classifier
- XGBoost Classifier



LOGISTIC REGRESSION

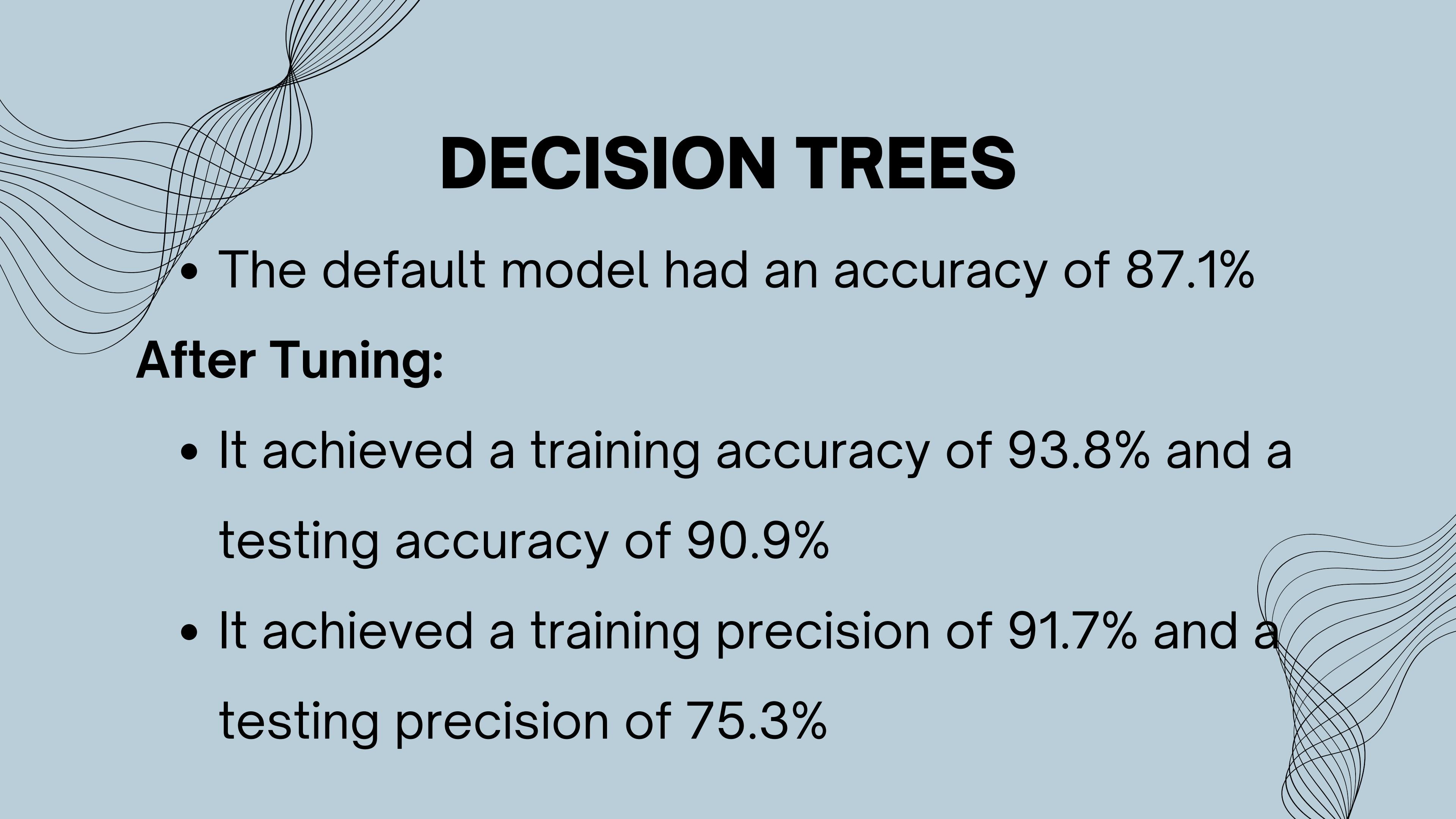
- This was the baseline model
- It achieved a training accuracy of 85.4% and a testing accuracy of 84.8%
- It achieved a training precision of 40.5% and a testing accuracy of 40%

K-NEAREST NEIGHBOURS

- The default model had an accuracy of 90.2%

After Tuning:

- It achieved a training accuracy of 89.79% and a testing accuracy of 45.80%
- It achieved a training precision of 92.6% and a testing precision of 18.3%



DECISION TREES

- The default model had an accuracy of 87.1%

After Tuning:

- It achieved a training accuracy of 93.8% and a testing accuracy of 90.9%
- It achieved a training precision of 91.7% and a testing precision of 75.3%

RANDOM FOREST

- The default model had an accuracy of 91.48%

After Tuning:

- It achieved a training accuracy of 98.9% and a testing accuracy of 90.9%
- It achieved a training precision of 99.9% and a testing precision of 87.7%

XGBOOST CLASSIFIER

- The default model had an accuracy of 91.2%

After Tuning:

- It achieved a training accuracy of 95.64% and a testing accuracy of 91.97%
- It achieved a training precision of 99.60% and a testing precision of 91.43%

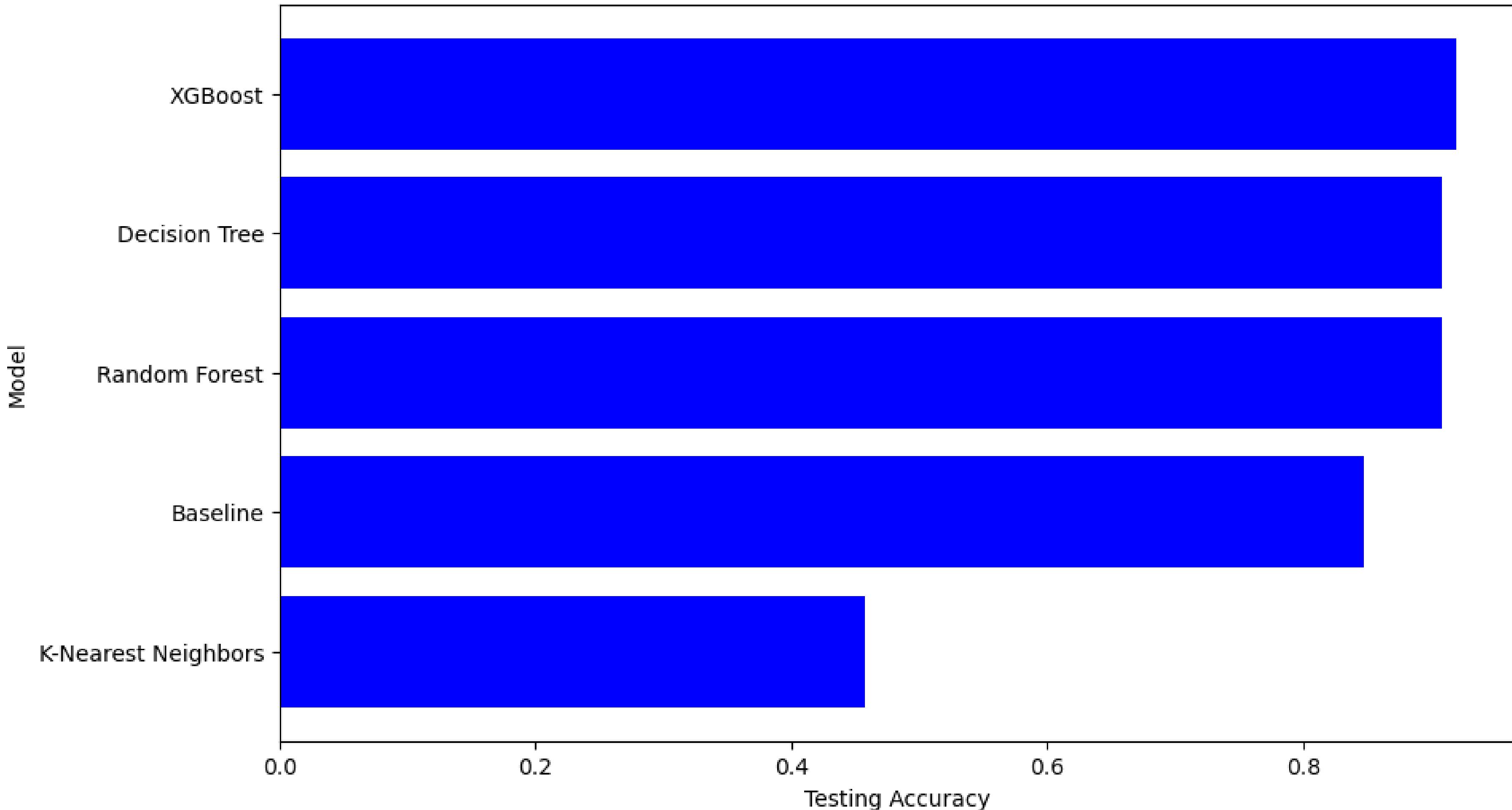
EVALUATION



EVALUATION

- The best model was one from XGBoost with a test accuracy of 91.97% and training accuracy of 95.64%.
- Based also on the Test ROC and AUC score, which is the measure of the ability of the model to distinguish positive and negative outcomes, XGBoost was the best with a score of 90%.

Accuracy of Models

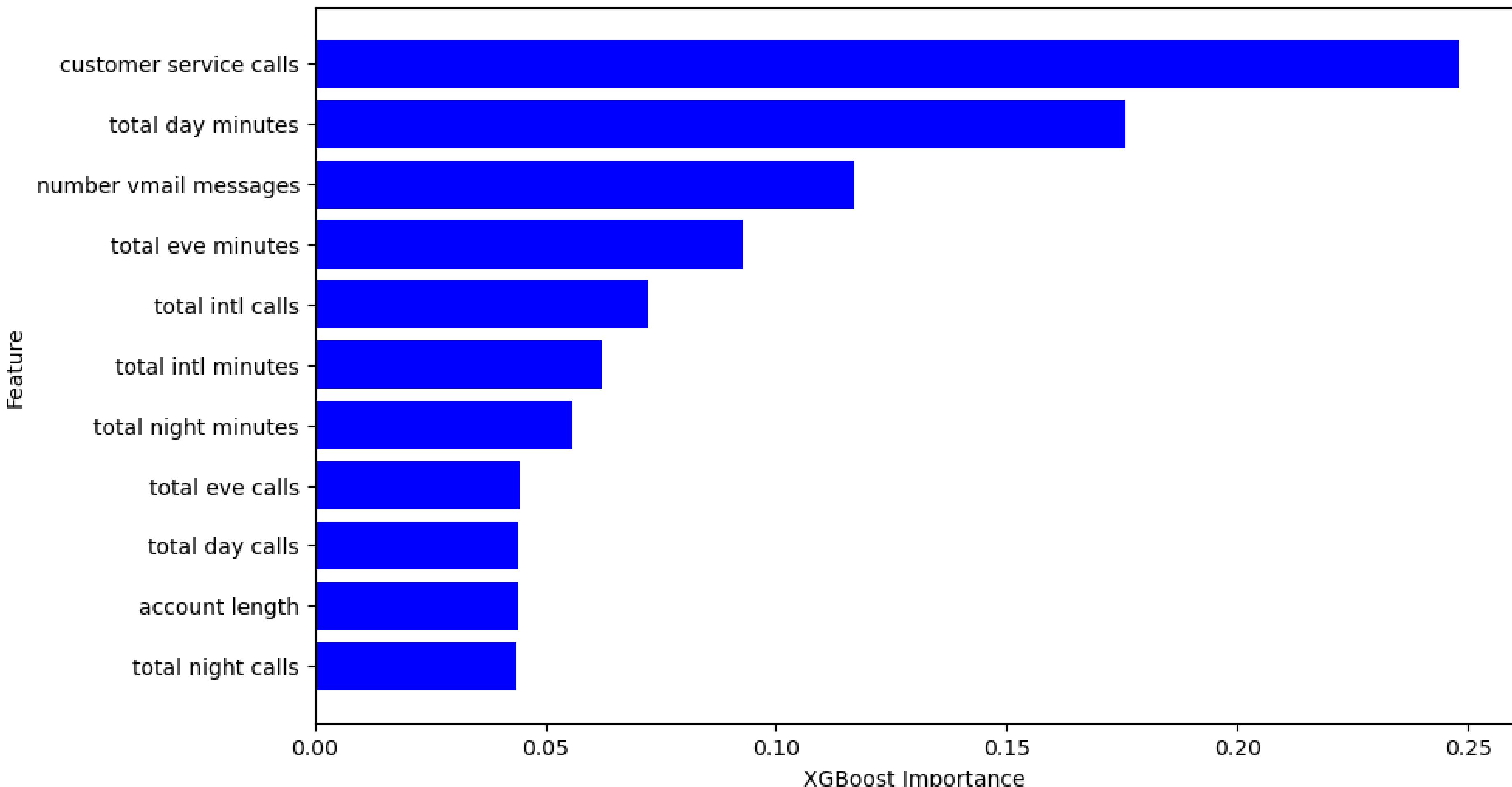


EVALUATION

Top five predictors were:

- Number of customer service Calls by customers
- Total minutes spent on calls during the day.
- Number of voicemail messages left by customers
- Total number of minutes call during the evenings
- The total number of international calls

XGBoost Feature Importance



CONCLUSIONS

Recommendations:

- Improve customer services
- Introduce Customised and affordable call plans
- Service Quality improvements
- Transparent pricing
- Proactive customer outreach
- Regular analysis of customer behaviour i.e “churn”

CONCLUSIONS

Next steps:

- Deploy the model
- Monitor and update the model
- Interpreting the model insights
- Collect more diverse data

Thank You!

QUESTION?

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