SYRIATEL

CUSTOMER CHURN PROJECT
PHASE III

https://github.com/warigiasue89/Phase_III_project

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INTRODUCTION

SyriaTel is trying to understand the churn level of its customers and what should be done to maximize profits.

PROJECT OUTLINE

BUSINESS UNDERSTANDING

DATA UNDERSTANDING

MODELLING

EVALUATION

CONCLUSION

RECOMMENDATION

BUSINESS UNDERSTANDING

This project aims to help and guide SyriaTel on predicting the patterns that leads to customers churn. By doing so, SyriaTel will be able to manimize the losses incured due to the customers that don't still around for long. At the end, with the predictions SyriaTel will be able to make better decisions based on the final recomendations derived from the in depth Data analysis.

DATA UNDERSTANDING

data source

* https://www.kaggle.com/datasets/becksddf/churn-in-telecoms-dataset

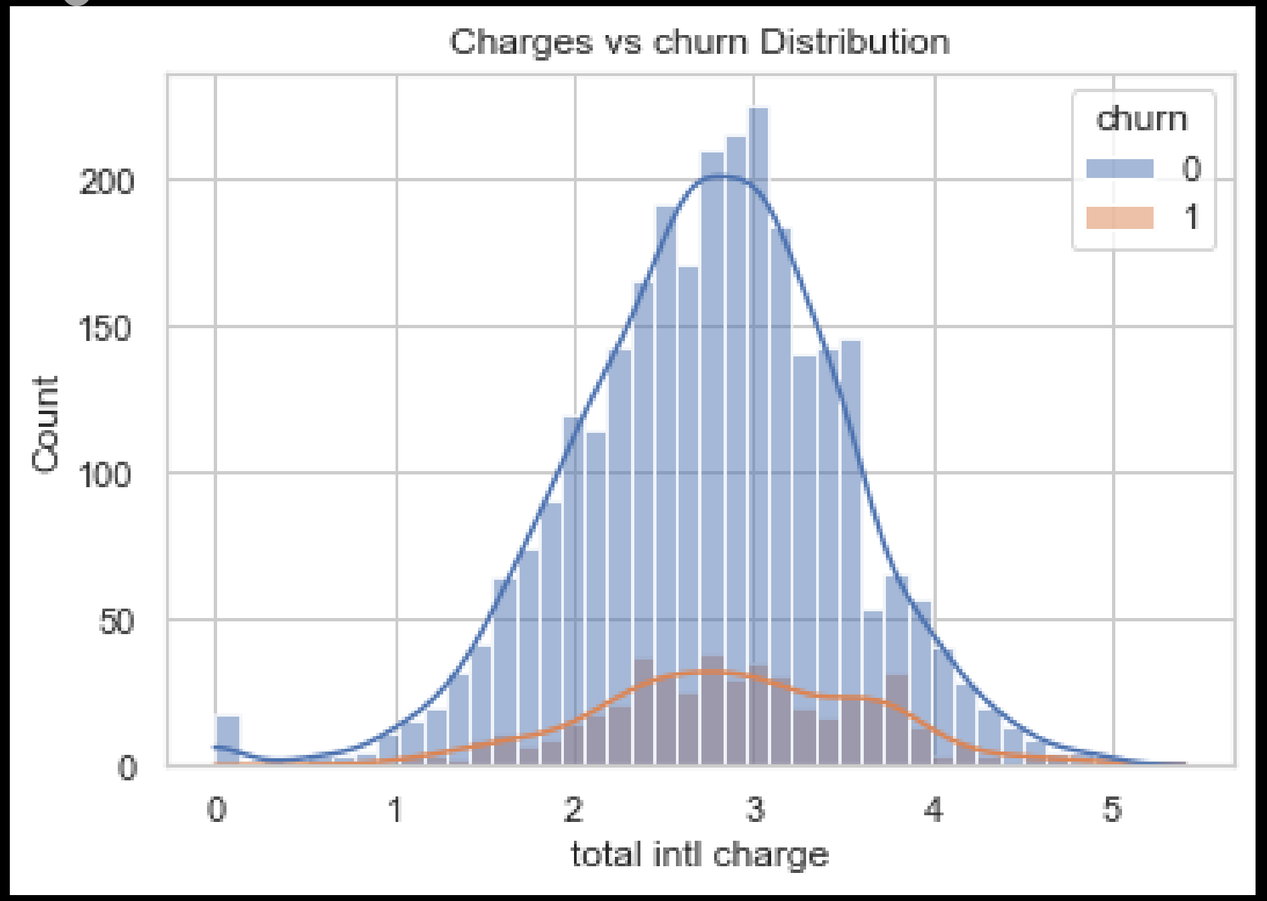
The data had 21 columns and 3333 rows which I later added 3 more columns.

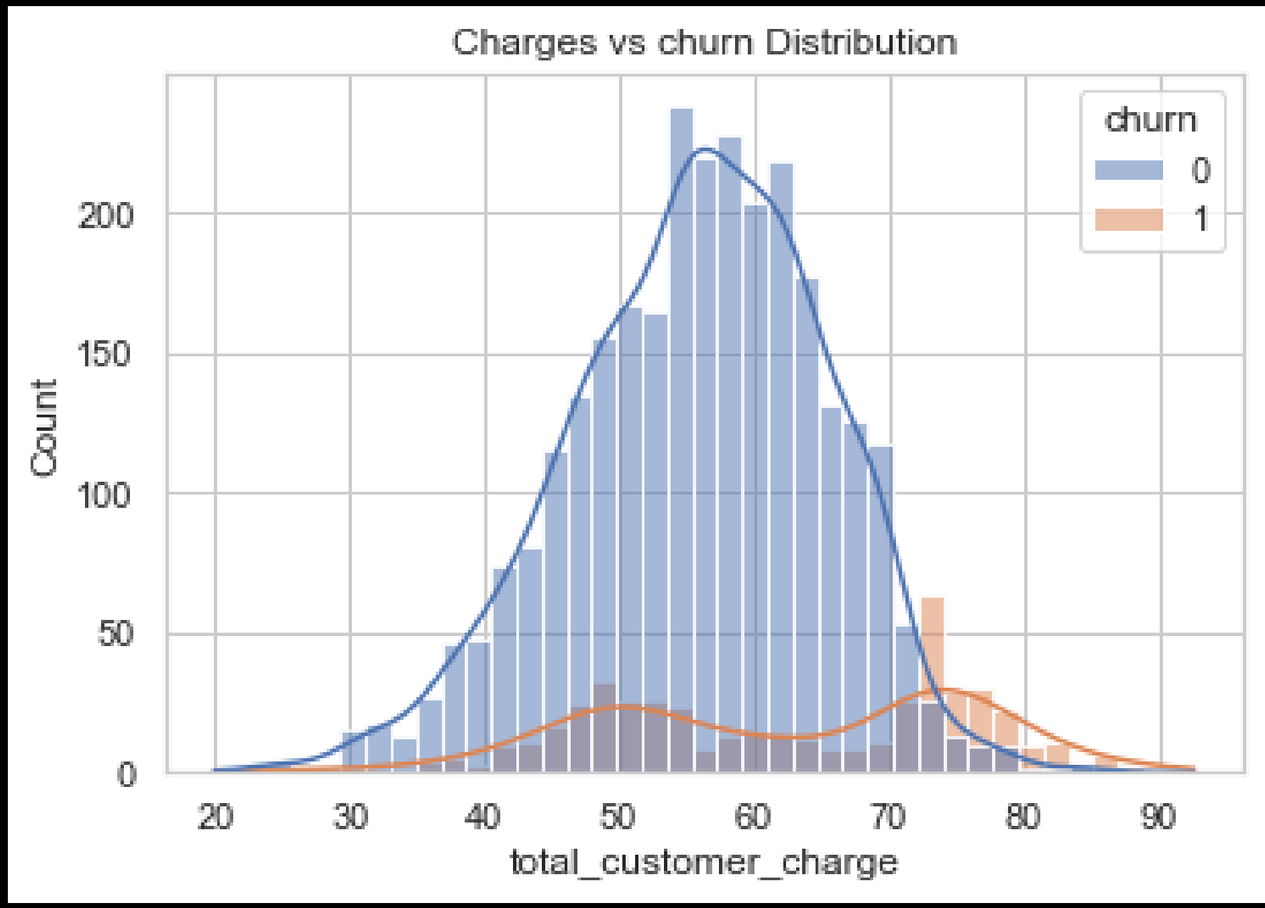
The data was cleaned and analysed to prepare for modelling.

EXPLANATORY DATA ANALYSIS

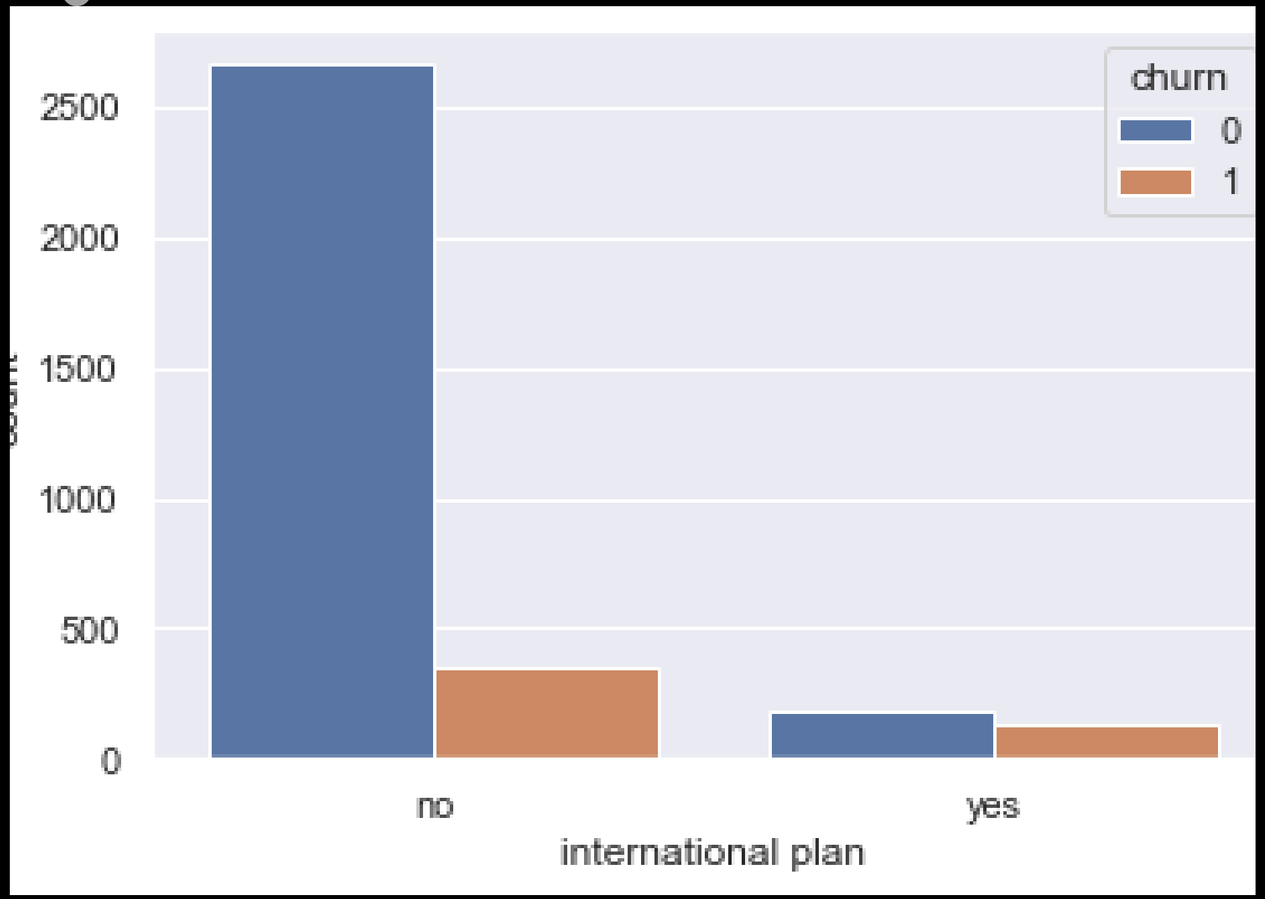
- The churn status was 85.5 % stayed while 14.5 stopped being customers.
- The charges had normal distribution
- It was evident that the clients who didn't have the international plan continued being customers as compared to those had the plan. This meant that having the international plan didn't stop the customers from leaving.
- The customers who had a voice mail plan were less compared to those who didn't purchase the plan. 2000 customers which is 60% of the data didn't have the voice mail plan and they decided to stay.
- The area code determined the total number of customers that wanted to transact with SyriaTel. The area code between 300-400 had more subscriptions and more customers were willing to continue transacting and a very small number less that 10% of the customers that did churn.
- Customer loyalty is witnessed as those customers who stayed were those that had been using SyriaTel for long compared to the most current ones.

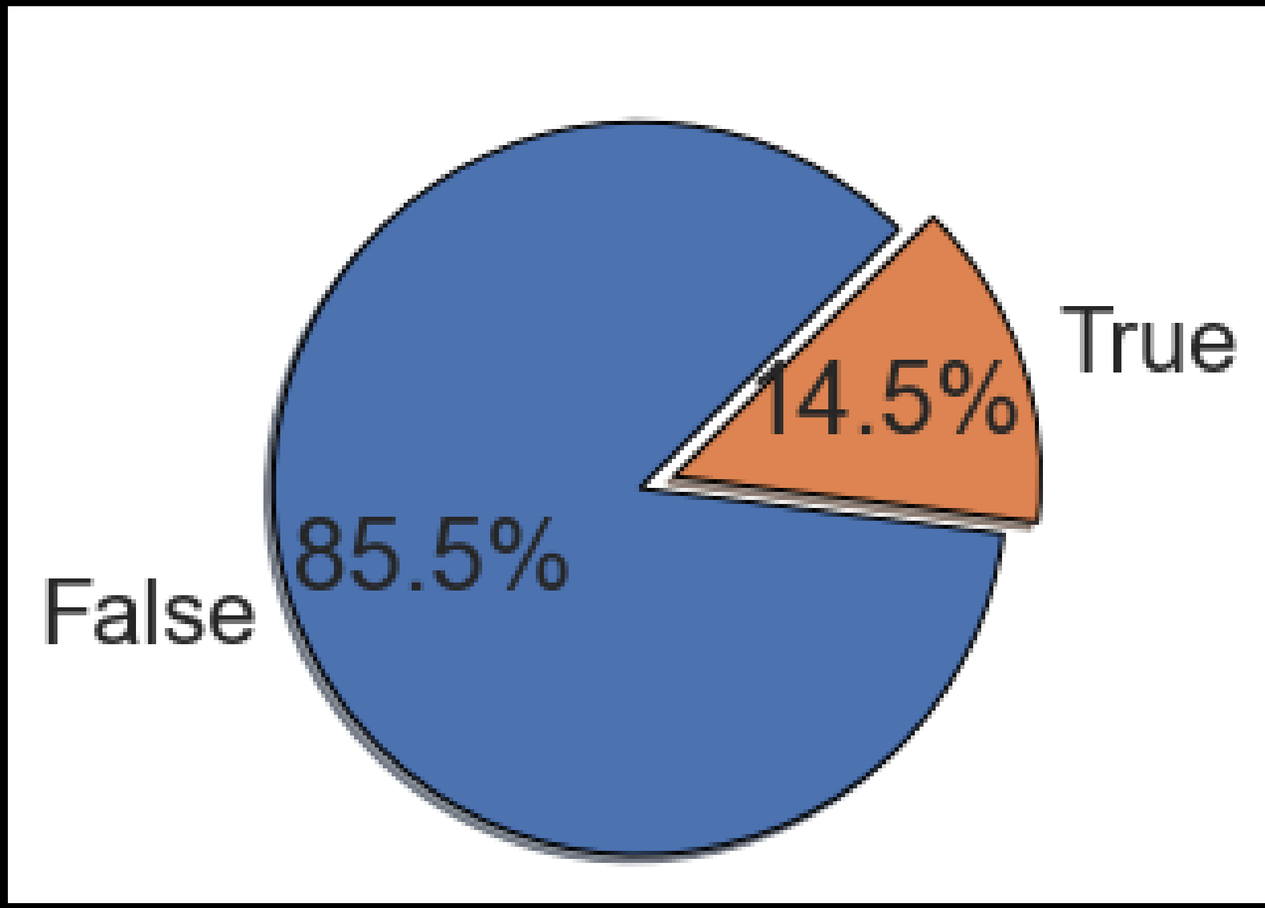
Analysis


Charges vs churn Distribution
churn
0
1
Count
200
150
100
50
0
0
1
2
3
4
5
total intl charge


Charges vs churn Distribution
churn
0
1
Count
200
150
100
50
0
20
30
40
50
60
70
80
90
total_customer_charge

Analysis


churn
0
1
2500
2000
1500
1000
500
0
no
yes
international plan

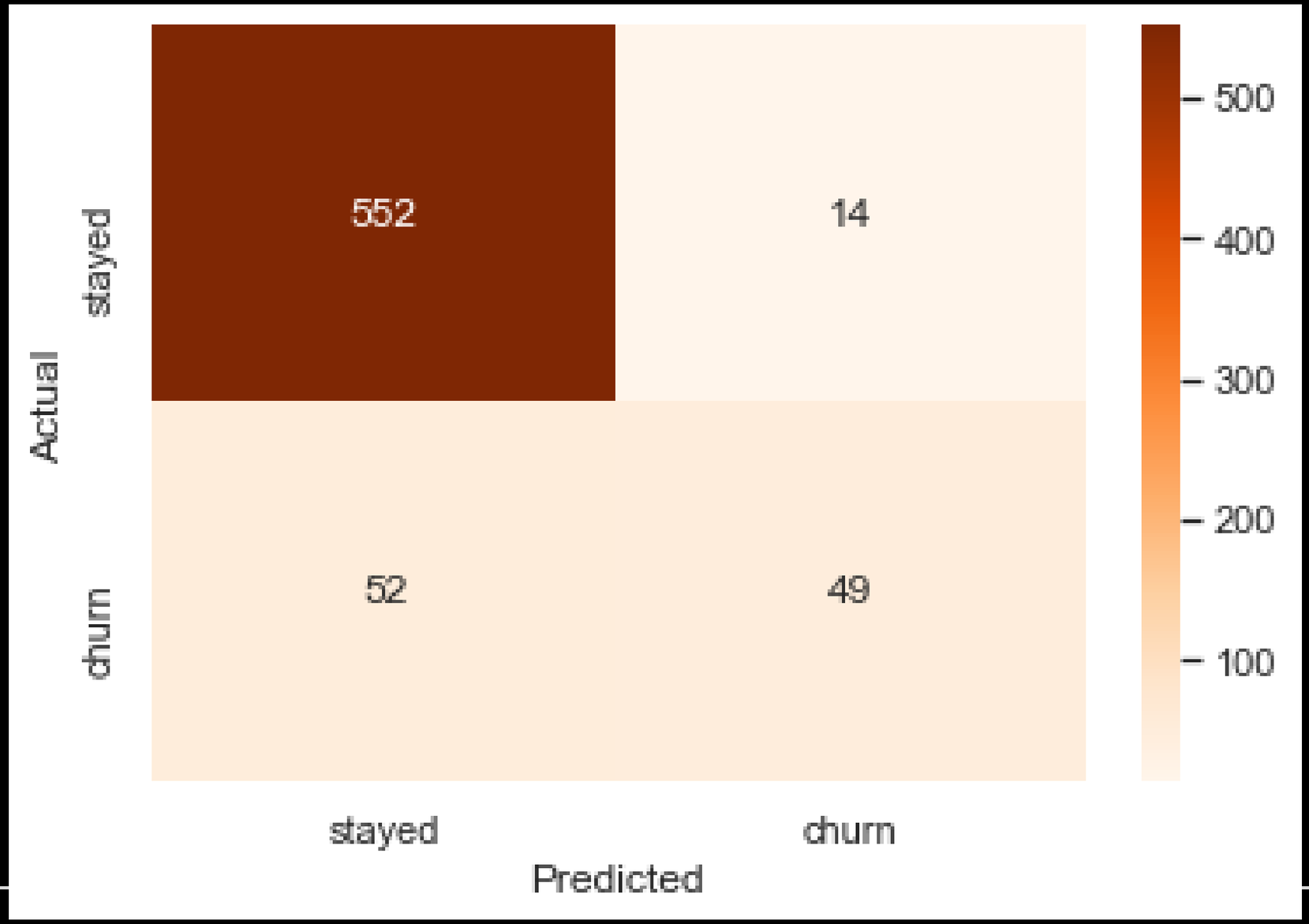

True
14.5%
False
85.5%

DATA MODELING

This project had 4 models including one vanilla model. The goal was to achieve the best performing models of them four. Accuracy-score was the guide to what would be considered to be performing well.
The models were:

- Logistic Regression,
- KNN model,
- Decision Tree Model,
- Random Forest

Decision Tree confusion matrix



Model Evaluation

The decision tree model was the best performing model as it had the best matrix:

- Precision Score: 0.8932939711159872
- Recall Score: 0.9010494752623688
- Accuracy Score: 0.9010494752623688
- F1 Score: 0.891192583820 66

With an accuracy of 90.1% it is safe then to say its a good performing model.

The confusion matrix also shows that it was able to predict almost the actual variables

CONCLUSION

- The churn status was affected by the total customer charges, international plan, customer service calls, area, voice mail plan and account length.
- The data was also biased area wise which was not as sufficient though a very important variable to analyze.
- The model confusion matrix performed well for predictions and the actual churn status.

Recommendation

- SyriaTel should consider improving the area coverage to attract more customers and to reduce the churn levels.
- The international plan maybe an expensive idea as it doesn't win the customer loyalty. The plan should be reconsidered to minimize losses and for the company to attract even more customers.
- The company should come up with a plan where those that spend most in a day are either rewarded or their calling rates are reduced at a certain point of the day. This is because, it was evident the more the customers spent in a day, the higher the chances of churning ehich is a loss for the company.
- The voice mail plan doesn't should be reconsidered either by evaluating the customers culture of maybe preferring phone calls over voice mail or by reducing its charging rates to attract more of both new and current suctomers.