

SYRIATEL CUSTOMER ANALYSIS



PRESENTATION BY:
VIVIAN MOSOMI

INTRODUCTION

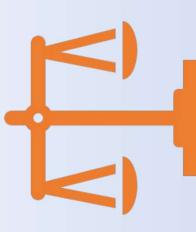
- SyriaTel - A Telecommunication Company, is facing crucial challenges. Understanding and predicting customer churn is crucial for sustainability and growth in the telecommunications industry. The company is interested in reducing how much money is lost because customers don't stick around very long by being able to use a predictive model to identify customers who are likely to churn based on various factors.

BUSINESS PROBLEM

OBJECTIVE

- To be able to predict and identify factors causing customer churn, this will help the company can take measures to retain customers and prevent financial loss

DATA UNDERSTANDING



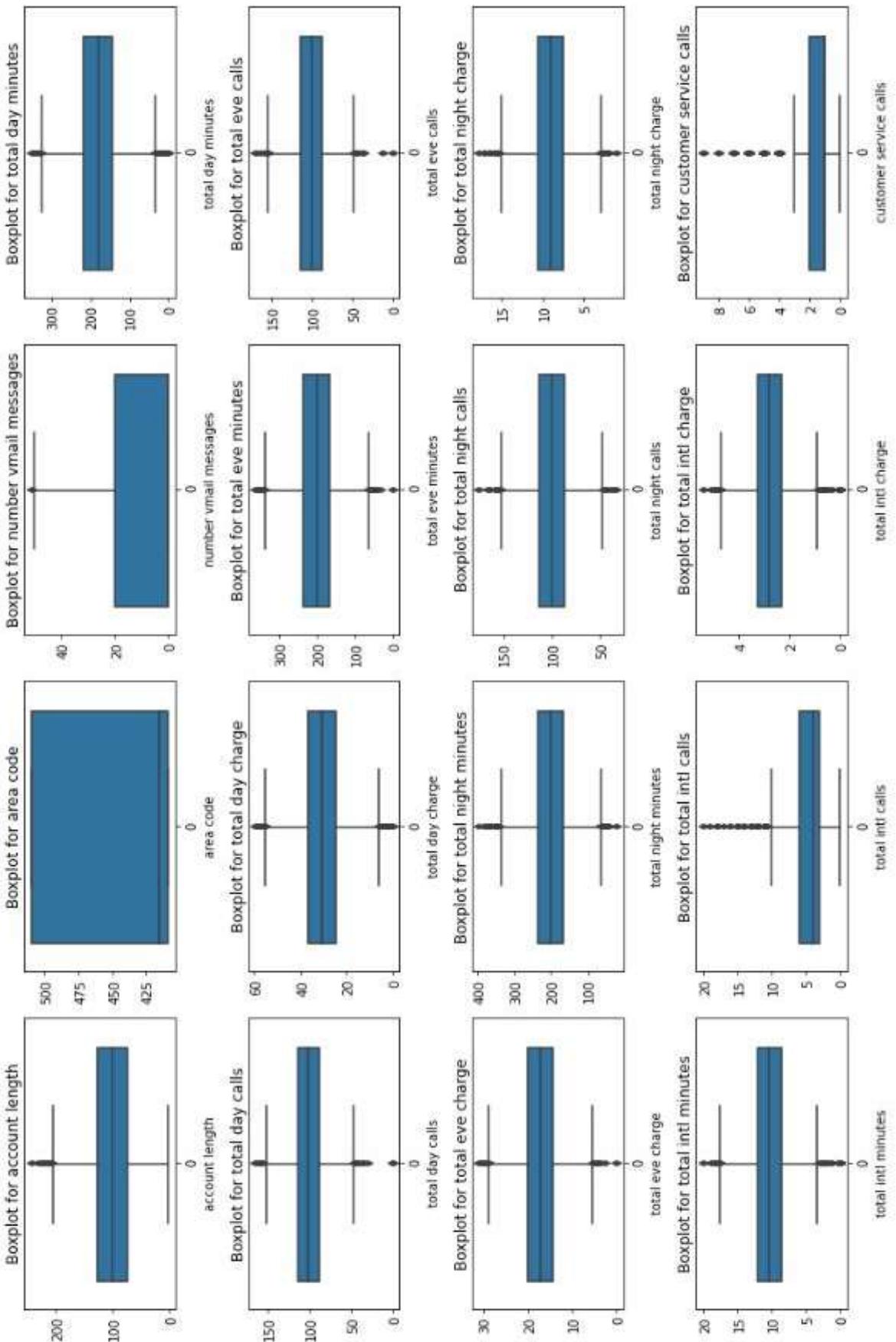
- The dataset consists of 3333 rows, 21 columns

FEATURE COLUMNS

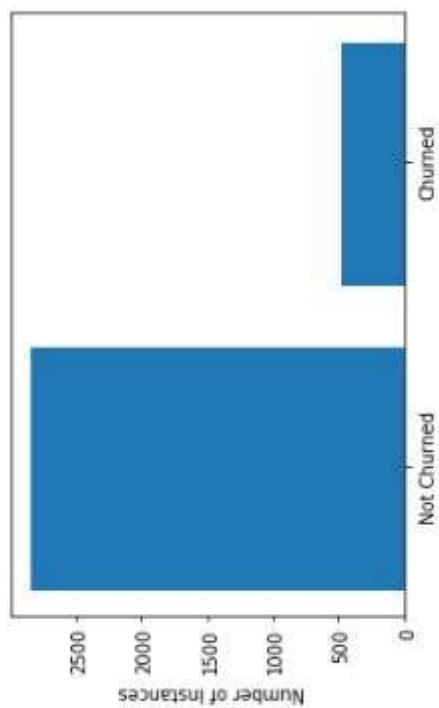
state, account length, area code, phone number, international call charge, number vmail messages, total day minutes, total day calls, total eve charge, total eve minutes, total eve calls, total night charge, total night minutes, total night calls, total intl minutes, total intl calls, total intl charge, customer service representative, churn



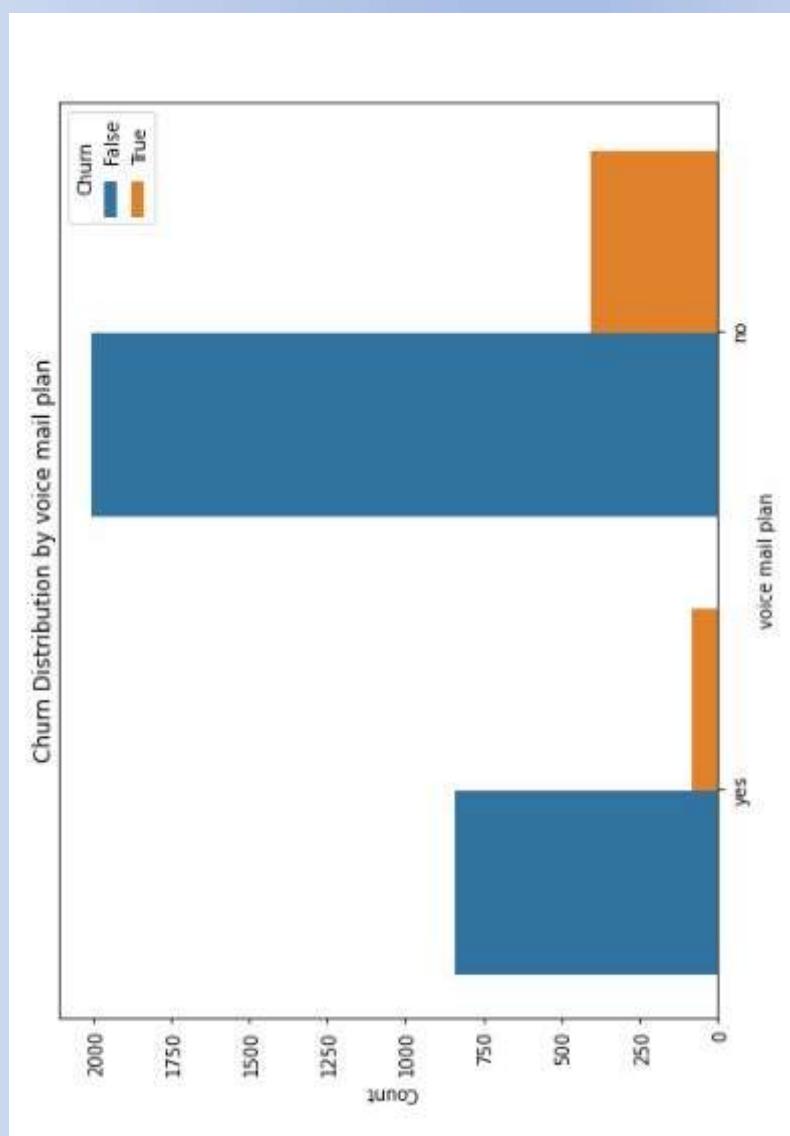
VISUALIZATION



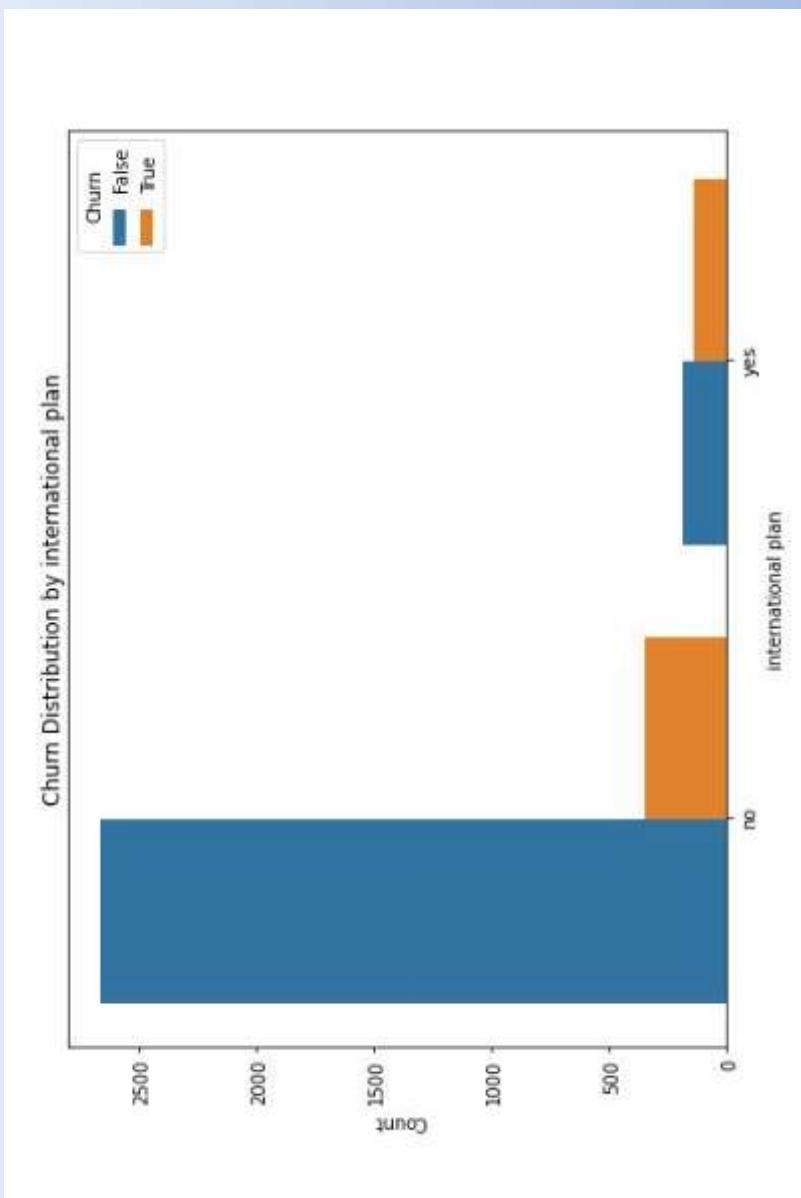
- Visualizing the relationship between number of churn and not churn instances



- Visualizing the churn distribution by voice mail plan

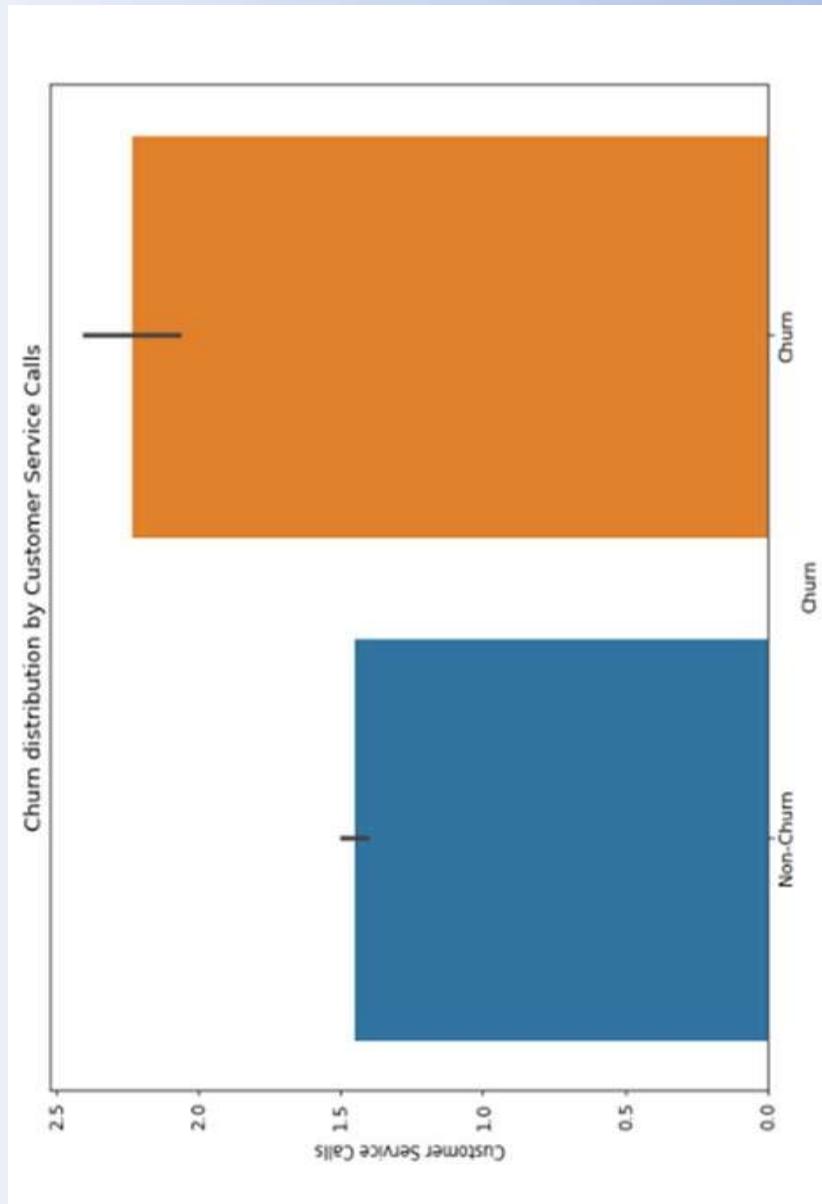


- Visualizing the churn distribution by international plan

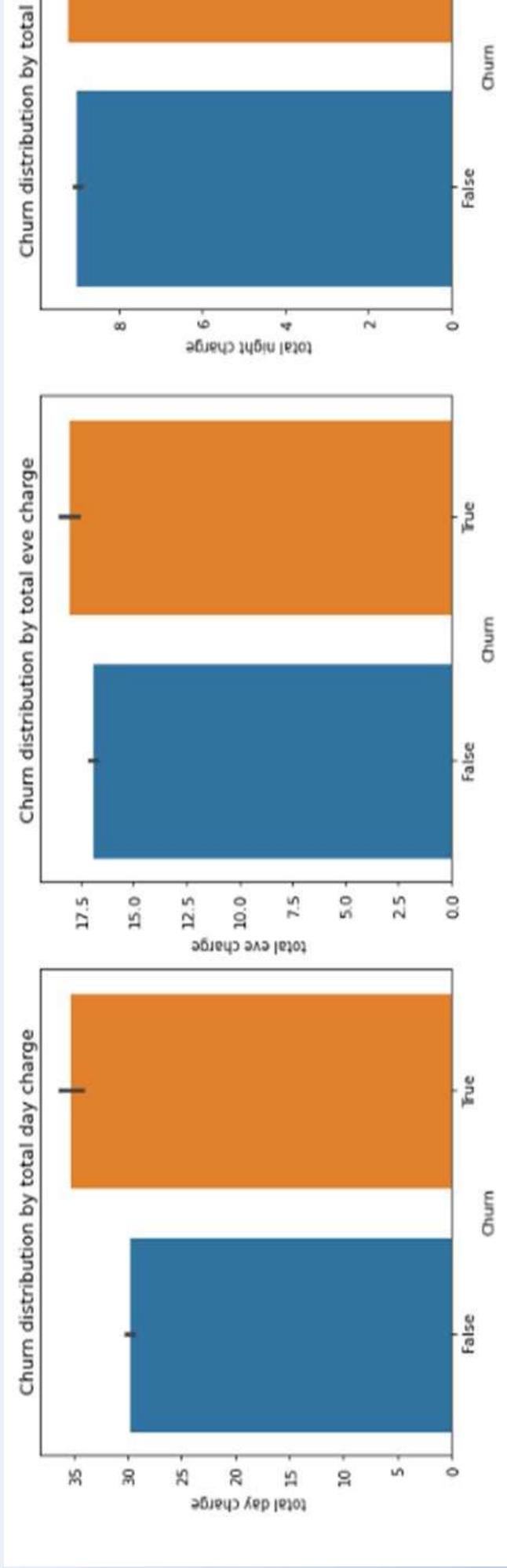


- From the above plots of voice mail plan and international plan, we can see that the count of customers with no voice mail and international plan have a high churn count.

- Visualizing the relationship between customer service with churn and



- From the above plot for customer service calls with churn rate, we can see that there's high rate of churn for churn customers.



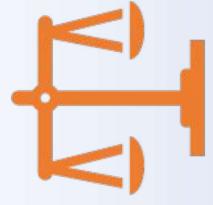
- Distribution of churn and charges(day, evening and night charges)

From the charges plot above, we can see that the higher the charges the higher the churn rate.
 For total evening charge and night charge, the churn rate is slightly higher than those who do not have them.

- From the contact matrix, most of the features do not perfectly capture features like:
 - total day charge
 - day minutes,
 - total evening charge
 - total evening minutes,
 - total night charge
 - night minutes,
 - total int'l charge
 - int'l minutes

MODELLING AND EVALUATION

	Logistic Regression	Random Forest Classifier	Decision Tree classifier
precision	0.38	0.80	0.67
Recall	0.78	0.75	0.71
F1-score	0.52	0.78	0.69
Accuracy	0.78	0.94	0.91

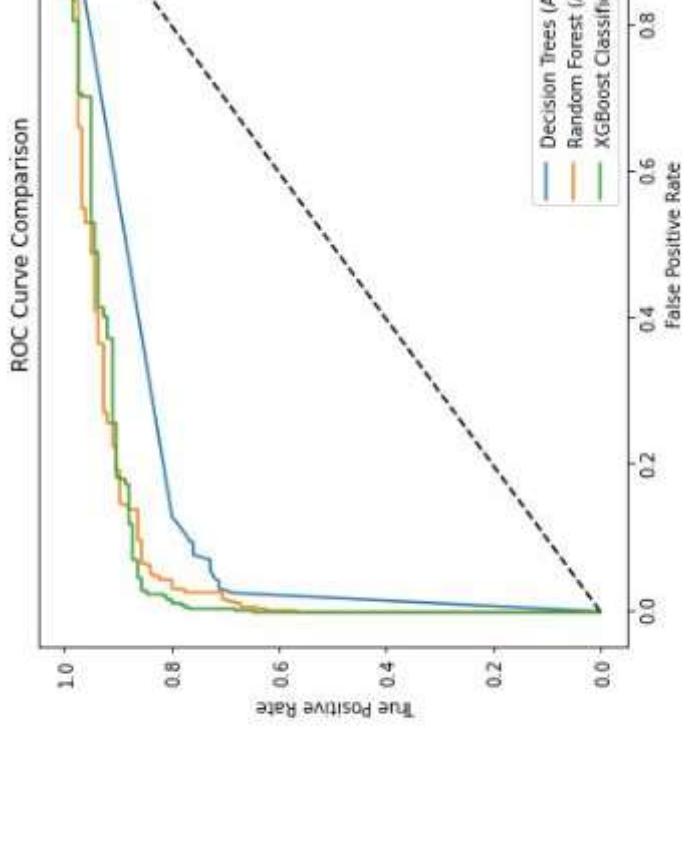
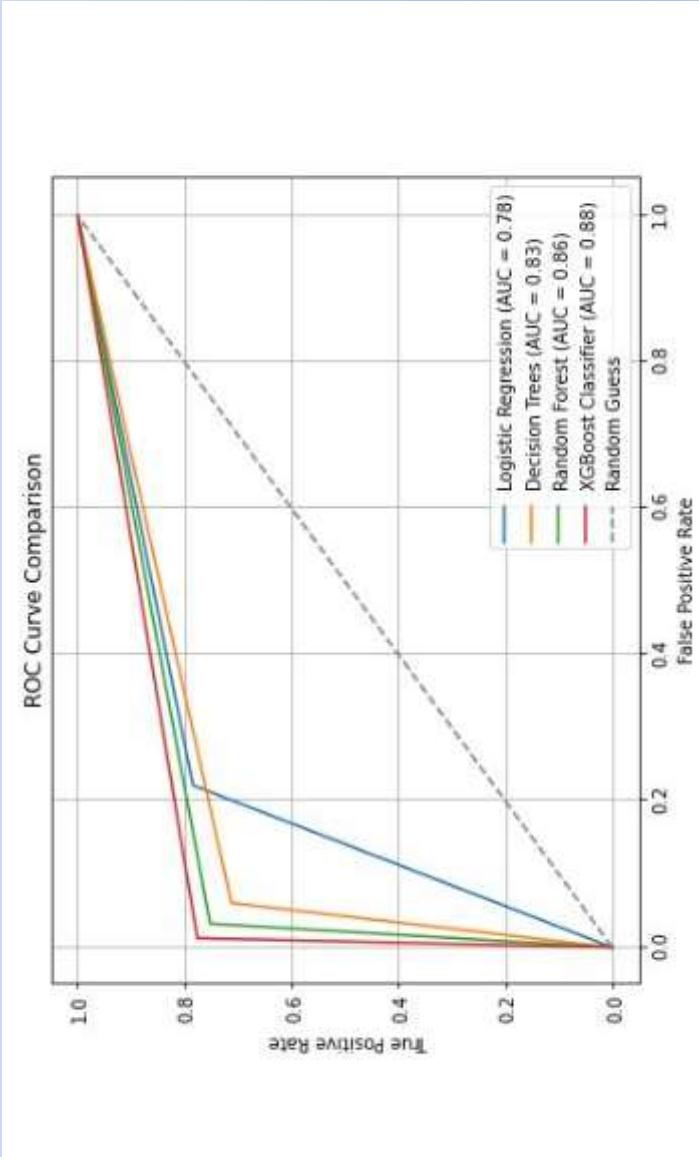


AFTER MODEL
TUNING



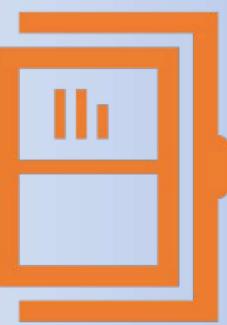
ROC CURVE ANALYSIS

BEFORE
TUNING

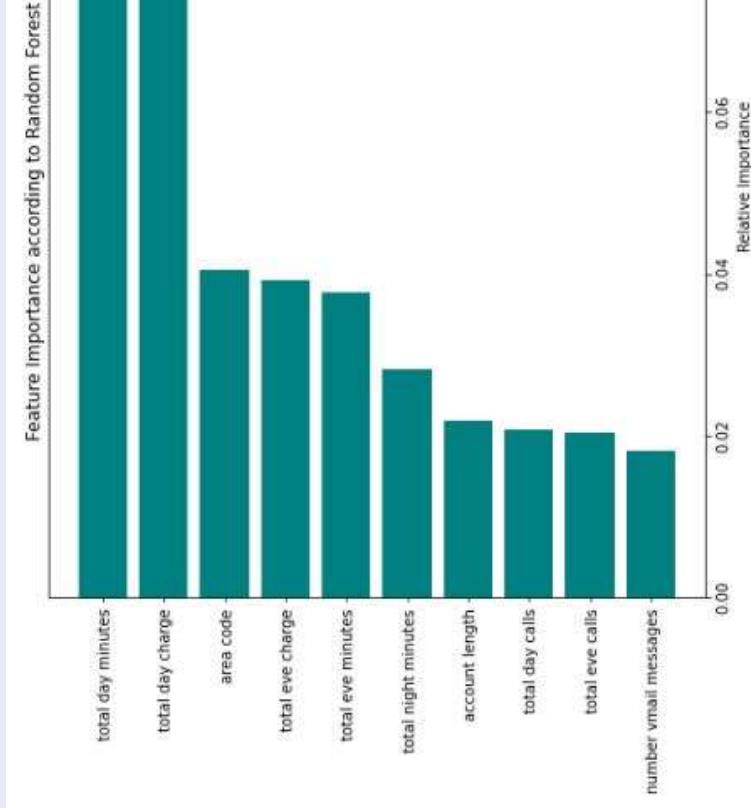
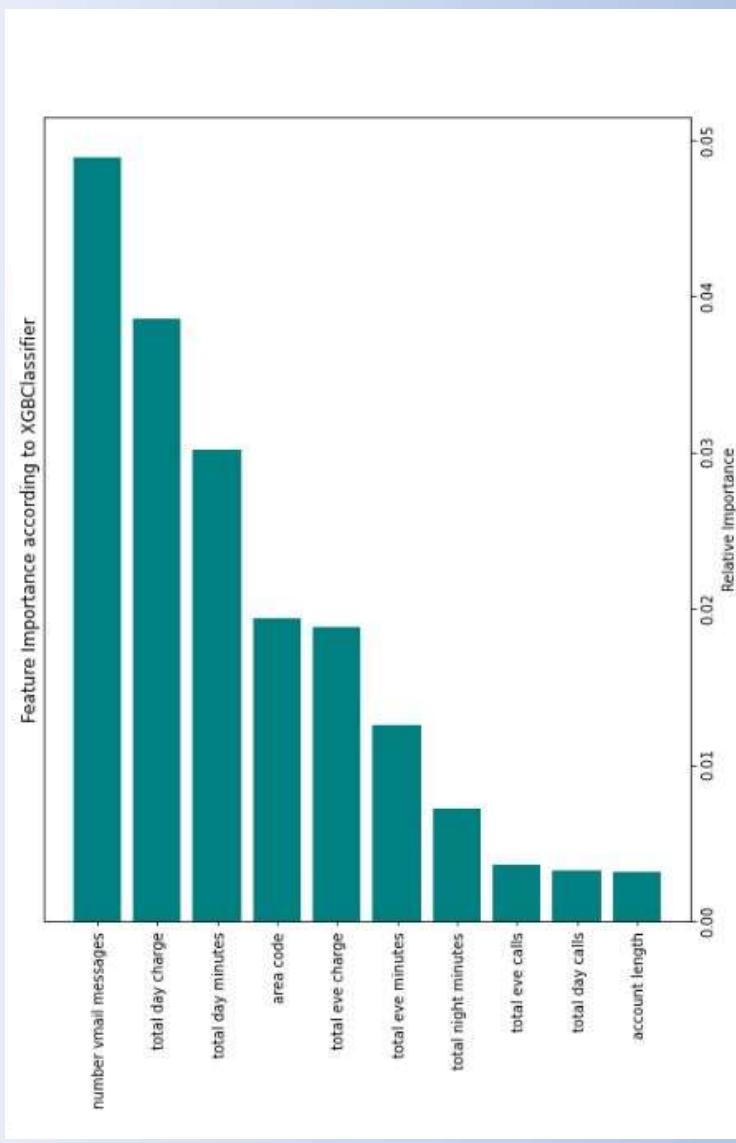


AFT
TUN

SELECTING OUR MODEL



- The XGBoost and Random Forest models were suitable due to its strong performance in terms and F1 score



- 3 top most important features for this model are:
number of voicemail messages, total day charge and
total day minutes

- 3 top most important features from
are: total day minutes, total day charge and
code

CONCLUSION

- Using the important features from our top tuned classifiers, that is Random Forest and XGBoost Classifier has the following important features:
 - Random Forest has the following important features: - Total day charge - Total day churn rate
 - XGBoost Classifier has the following important features: - Number of Voice Mail messages - Total day minutes - Total day charge - Total day minutes



RECOMMENDATIONS

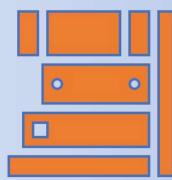
- Based on the insights gained, it is recommended to focus on enhancing the following
 - **Improve customer service quality** so as to reduce the high customer service calls that churn rate. That can be done by first understanding the individual customer needs and maintain high standard of service.

-Syria Tel Company can take measures to **revise pricing strategies for day**, evening and charges. The company can negotiate for different plans that offer reduced call charges preventing customer attrition.

-**Looking into the cause of high churn rate in New Jersey, California and Texas.** It may states experience poor network coverage or service disruptions hence leading to high Company can also consider marketing the company in those specific states.

-Area Code is also highlighted as one of the important features and hence, the company area codes that have high churn rates and introduce activities that will reduce churn rate marketing and offering promotions to customers.

- **Limitation:** Syria Tel can consider using the above predictive models to predict customer retention strategies, but should be aware of **constraints**, especially with models such as random forest and xgboost when using trees when tuning.



Project Presentation End

THANK YOU!!

