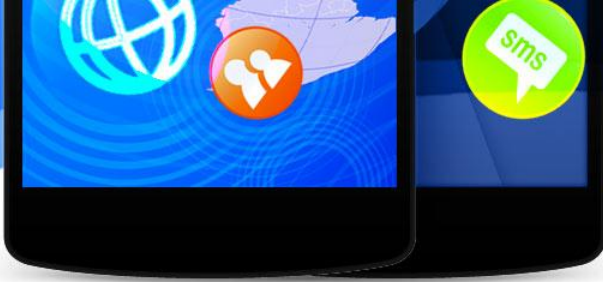




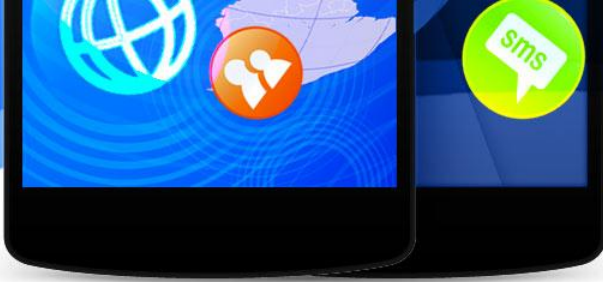
**SYRIATEL TELECOMUNICATION**

# **PREDICTING CHURNING RATE AND REASONS FOR CHURNING IN SYRIATEL TELECOMUNICATION**



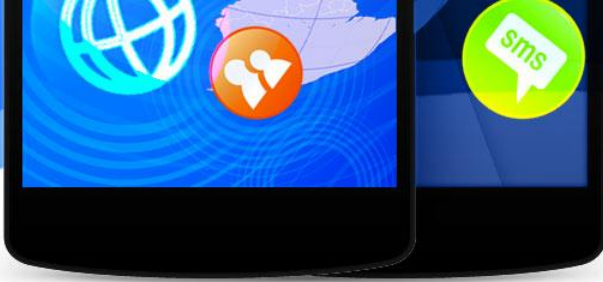
## OVERVIEW

- This project is aim to develop a binary classification problem to help predict the churning rate in SyriaTel and essentialy help the comapny improve their methods of customer rentention
- What does churn mean in business?
  - Churn is the measure of how many customers stop using a product.



## BUSINESS UNDERSTANDING

- Syriatel Telecommunications company is a Syria Based telecom company that is facing a problem of losing customers, this action is known as churning. The company is concerned by this and would like to know if the rate of churning would increase on the future. Not only does this project help them know that but also know how to better their relationship with their users to maintain a high rate of retention and even a high attraction of new clients.



## OBJECTIVES

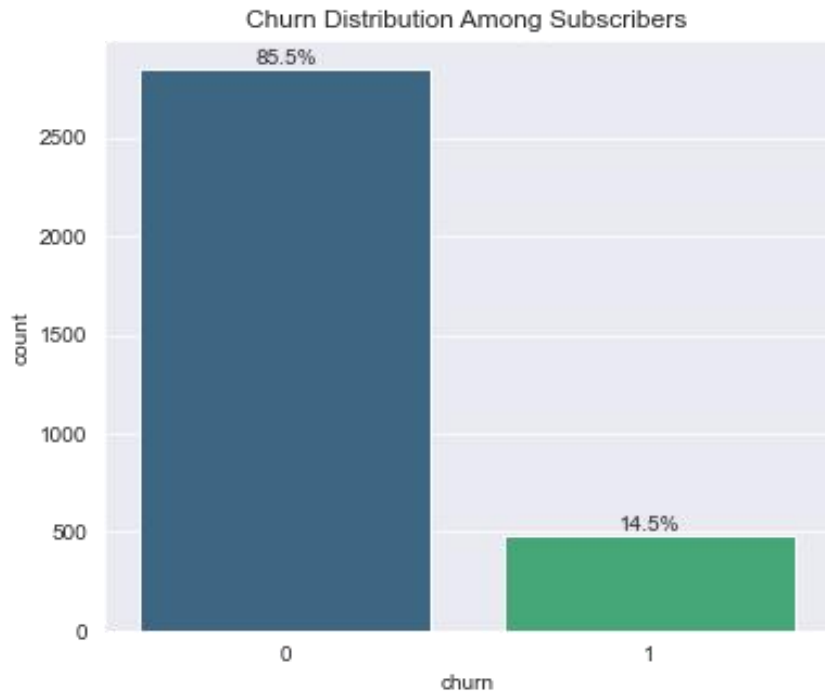
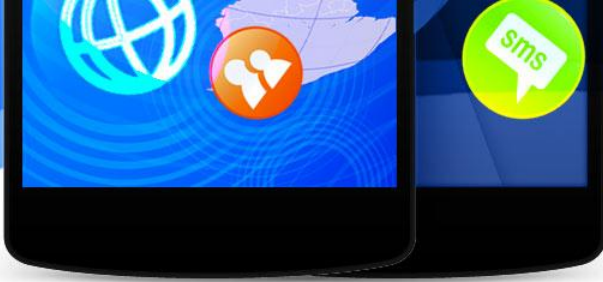
- Find out why customers are churning.
- Develop a model that will accurately predict future rate of churning.
- Find a probable solution to reduce churning.

# DATA UNDERSTANDING

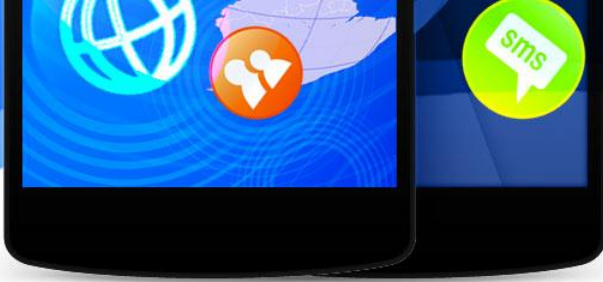
- We will work with a customer churn dataset from the telecom industry sourced from Kaggle website.

It contains 3,333 records and 21 columns(4 categorical, 17 numerical)



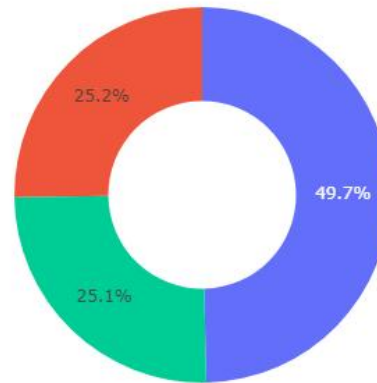


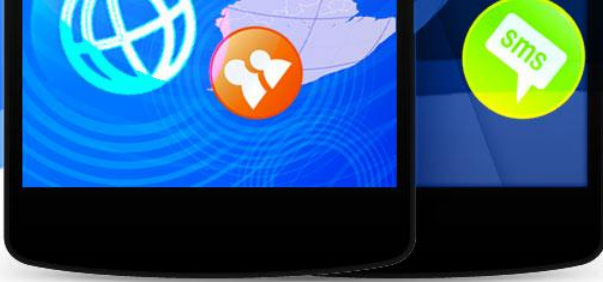
- Total customers(3333)
- Churned customers(483 or 14.5%)



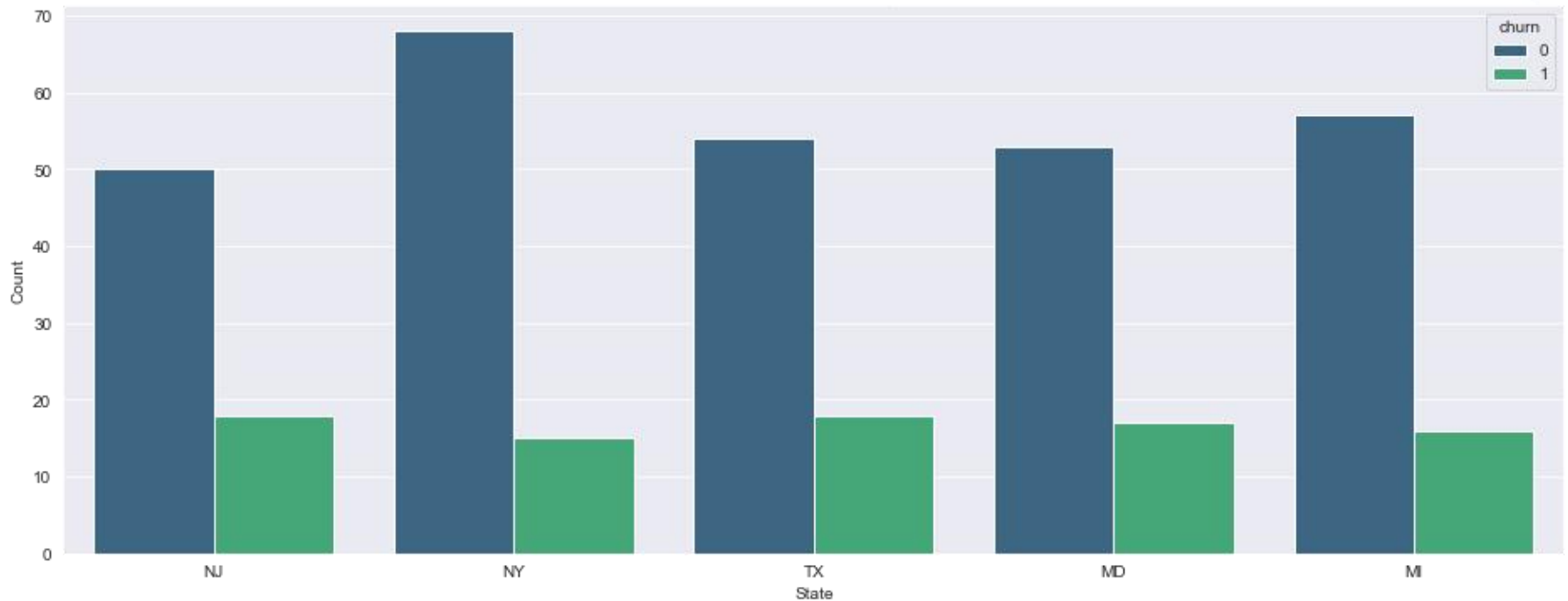
Distribution of Area Code Feature

The area code 415 has the highest proportion, accounting for (49.7%) of the total customer base. Both area codes 510 and 408 have an equal number of customers.(25.2% and 25.1%) respectively.





Churn Distribution Across Top 5 States



**These five states have the highest churning rate:**

**NY: New York**

**NJ: New Jersey**

**TX: Texas**

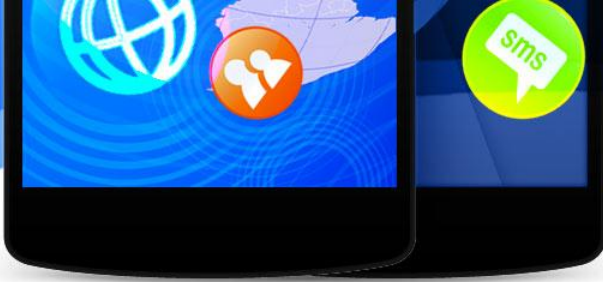
**MD: Maryland**

**MI: Michigan**





# MODELLING...



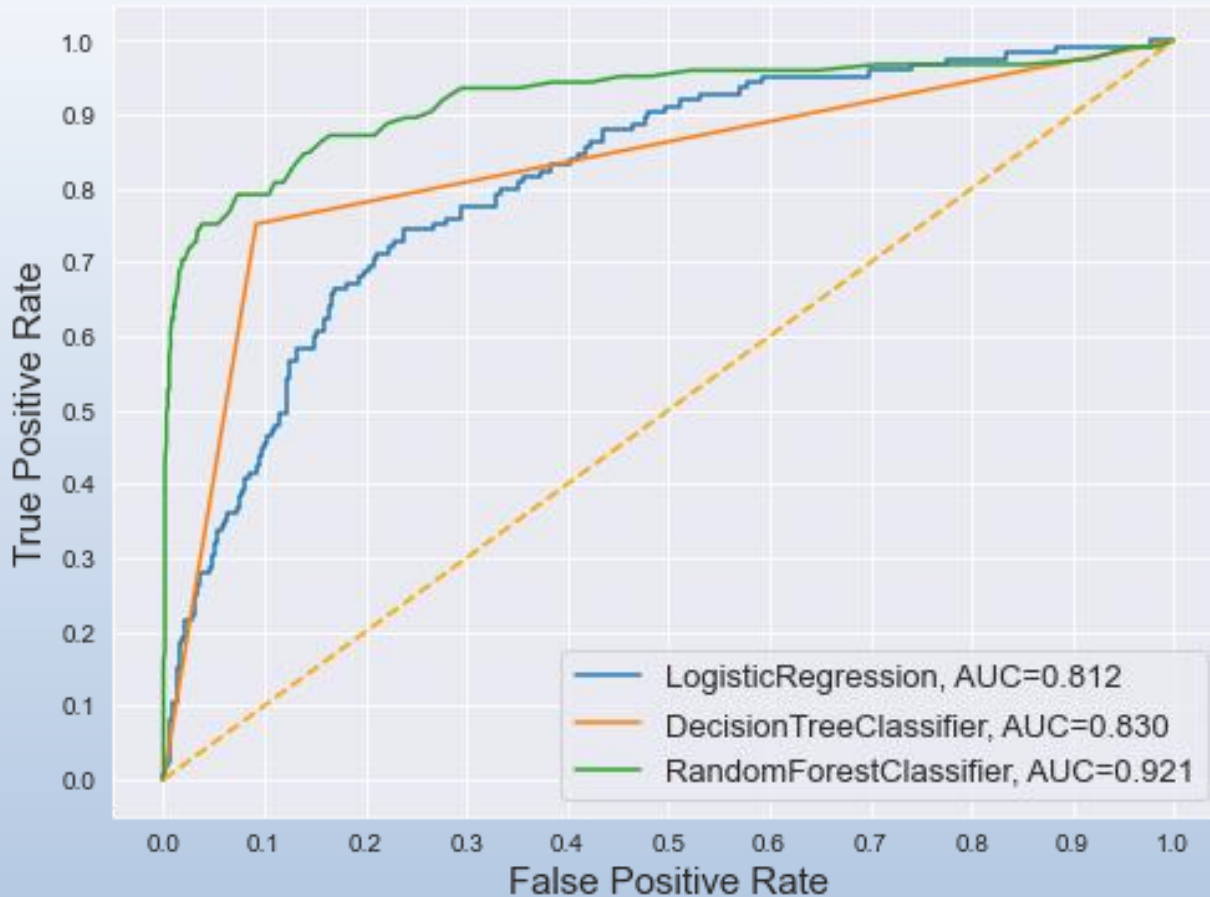
## Algorithms used;

- Logistic Regression
- Decision Tree Classifier
- Logistic Regression Classifier

## Metrics used;

- Recall-focuses on the model's ability to correctly identify positive cases.
- ROC\_AUC Curve-plots the true positive rate (sensitivity) against the false positive rate (1 - specificity) at various classification thresholds.

ROC Curve Analysis

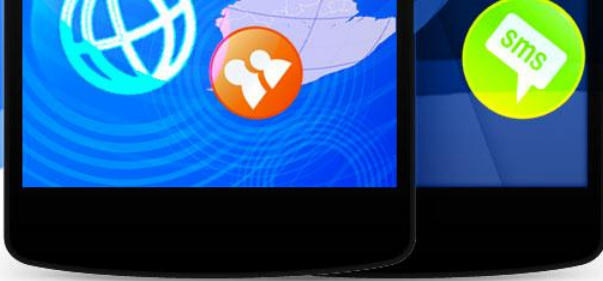


**Based on recall score;**

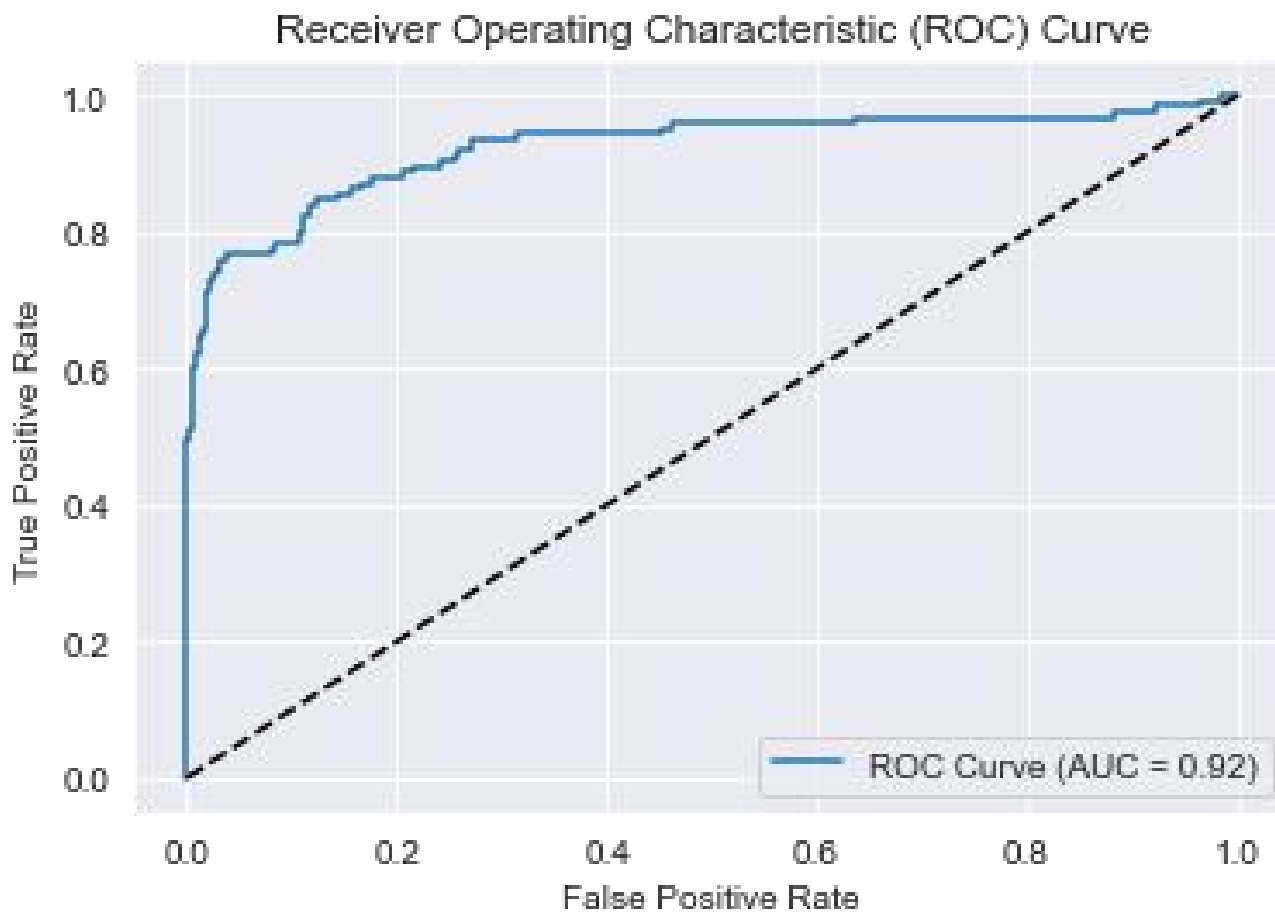
- **Random Forest – 0.72**
- **Logistic Regression – 0.72**
- **Decision Tree – 0.75**

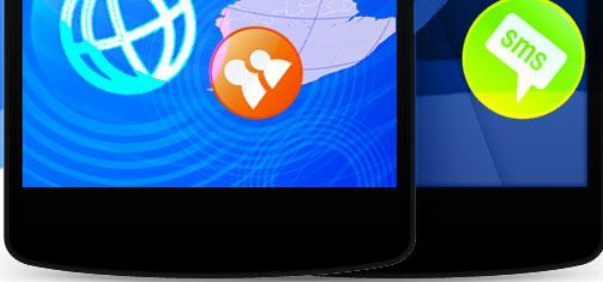
**Based on ROC\_AUC curve;**

- **Random Forest – 0.921**
- **Decision Tree – 0.830**
- **Logistic Regression – 0.812**



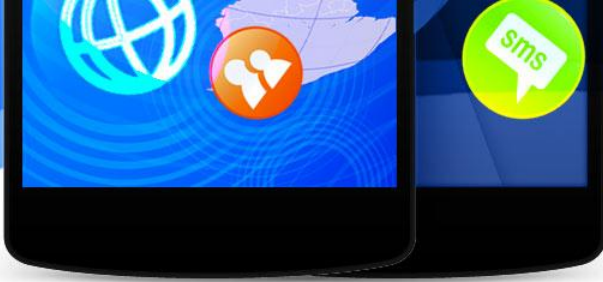
## Model Tuning Results



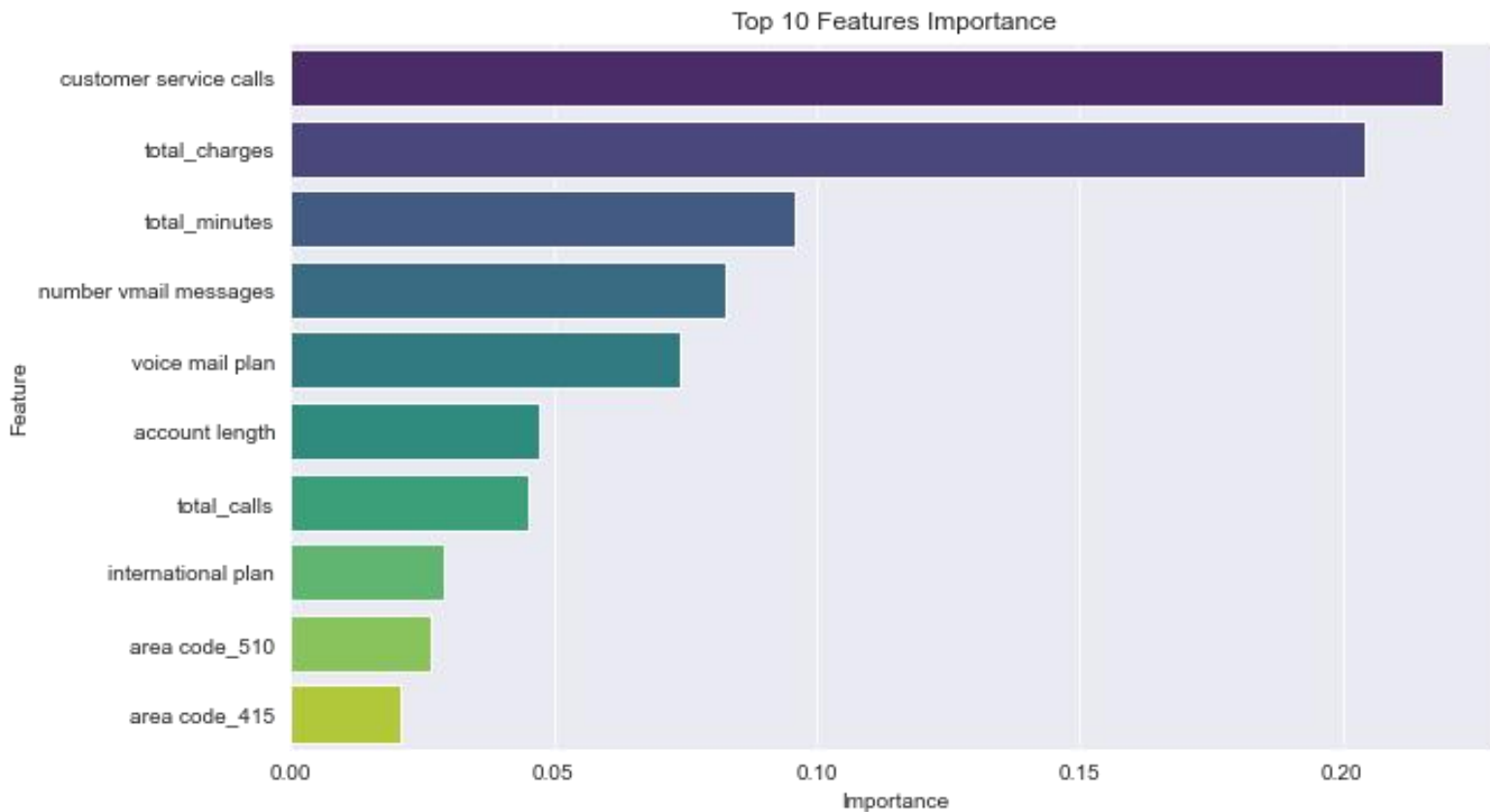


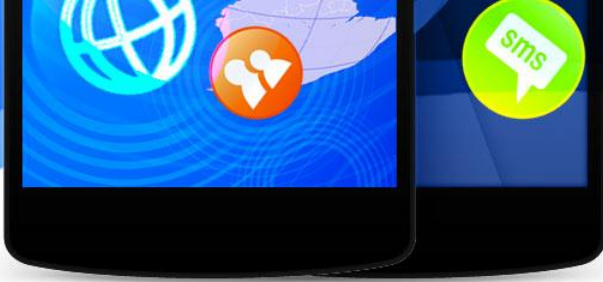
## RANDOM FOREST CLASSIFICATION

- For 'Churn' predictions, recall is 74% indicating that the model identified 74% of the actual 'Churn' instances. This is as close as to the 0.8 recall score we needed to make our model effective.
- This was an improvement from .72(72%)
- - The model with this recall score can be called Pretty Good model.



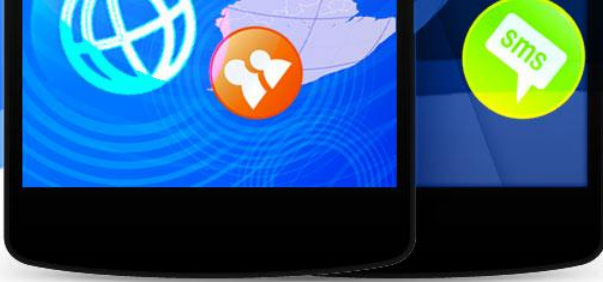
# Top 10 Features that helped Predict Churning





## CONCLUSION

- - As our recall score for our model was .74 as good as it is a predictive model, more time is needed for further engineering to help improve this score.
- While total day charge, number vmail charge, total eve charge are the most important features in determining customer churn.
- We achieved our objectives to be able to predict customer churn and had an acceptable recall score.



## RECOMMENDATIONS

- A few ways into which SyriaTel can reduce Churning rate is by:
  - Focusing on retention programss in area code 415 and 510 as these have the highest churning rate.
  - Improve on quality customer service call:
  - By having responsive customer support. Provide quick and effective customer support. Resolve issues promptly and ensure that customers feel heard and valued.
  - Encourage and act upon customer feedback. Use surveys, reviews, and feedback forms to understand customer satisfaction and areas for improvement.
  - Competitive Pricing on plans : Regularly review and adjust pricing strategies on different plans to remain competitive in the market. Consider offering flexible pricing plans that cater to different customer needs.





# THANK YOU