



# **CUSTOMER CHURN PREDICTION**

**SYRIATEL MOBILE TELCOM**



# OUTLINE



**Business Understanding**



**Data Understanding**



**Data preparation**



**Modelling**



**Evaluation**



**Conclusion**



**Recommendations**

# OVERVIEW



Customer churn is a key concern in the telecommunications industry.



It costs 5 times more to acquire a new customer than to keep an existing one



For telecommunications companies, comprehending churn rates and focusing on customer retention are essential for achieving sustained profitability and long-term success.





# BUSINESS PROBLEM

**Syriatel Telecommunications is experiencing a substantial increase in customer churn rates in USA and wants to understand the underlying factors contributing to this trend.**



# OBJECTIVES

- To identify the factors or variables that have the greatest impact on customer churn.
- To distinguish various customer segments according to their churn behavior.
- To create a model capable of accurately forecasting customer churn.
- To gain valuable insights that facilitate the development of optimal recommendations for safeguarding Syriatel's revenue.

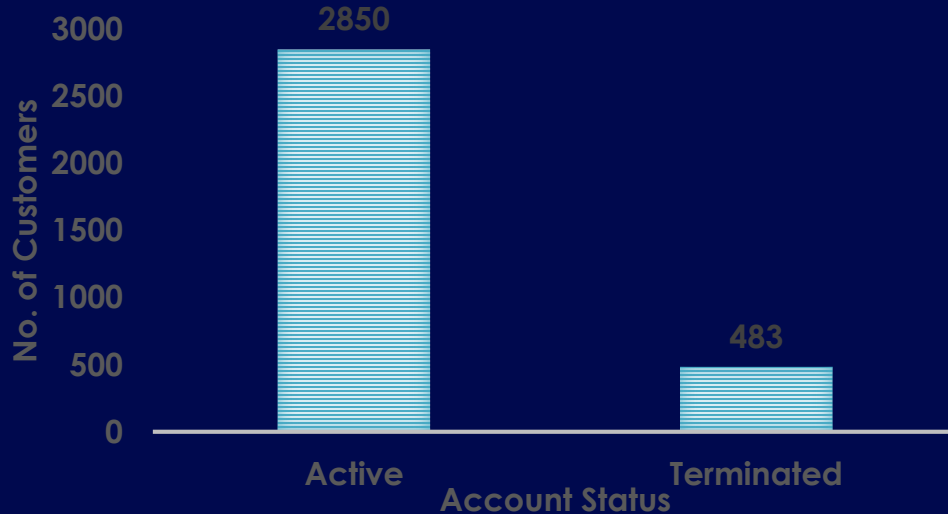


# DATA UNDERSTANDING & PREPARATION

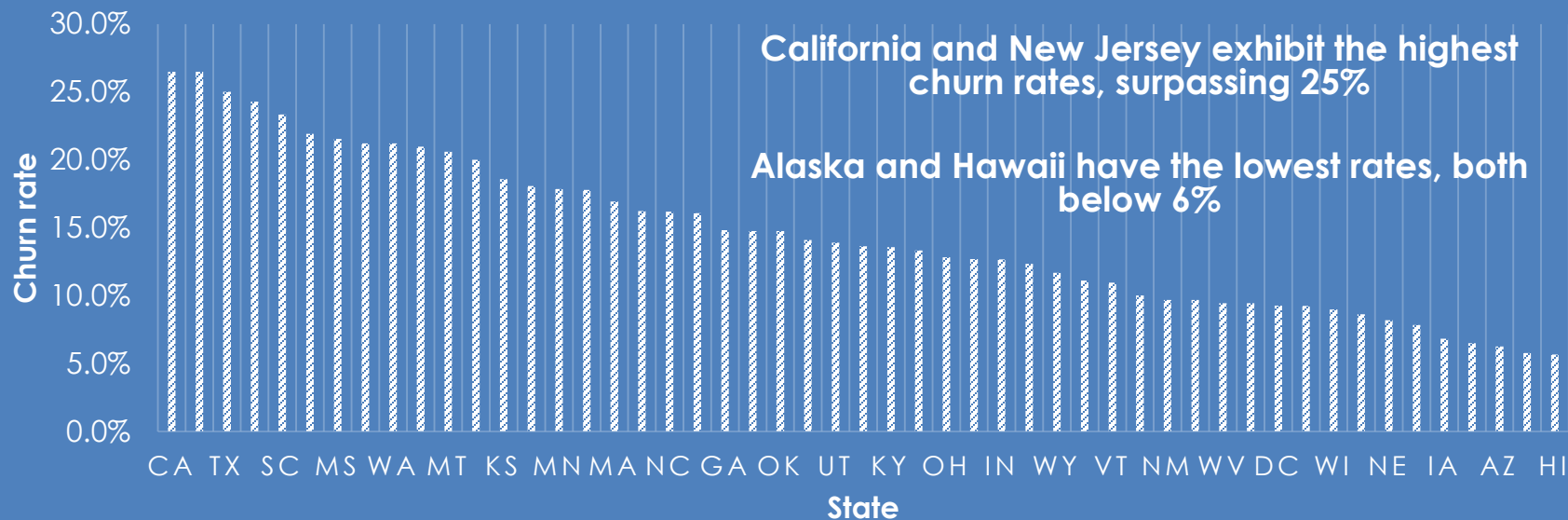
- The analysis investigates a telco dataset containing 3333 records and 21 variables
- The features encompass a mix of numerical and categorical variables. The target variable is "churn"
- The dataset underwent cleaning, including checking for duplicated rows and missing values and dropping unnecessary columns
- Data analysis included univariate analysis of the target variable "churn", bivariate and multivariate analysis of churn in relation to other features in the dataset

# CHURN VS. RETENTION

## CHURN

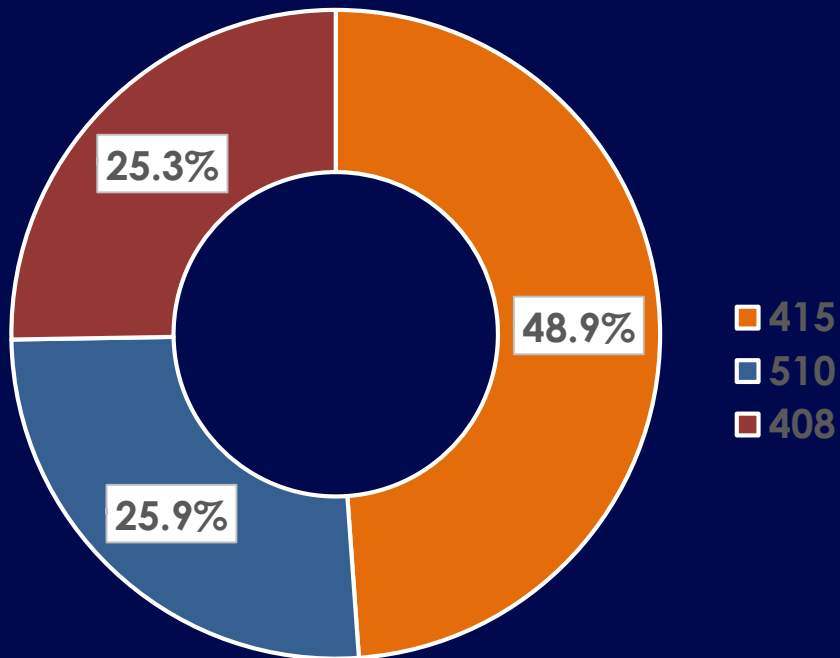


- Total number of customers: **3,333**
- Terminated accounts: **483**
- Churn rate: **14.5%**



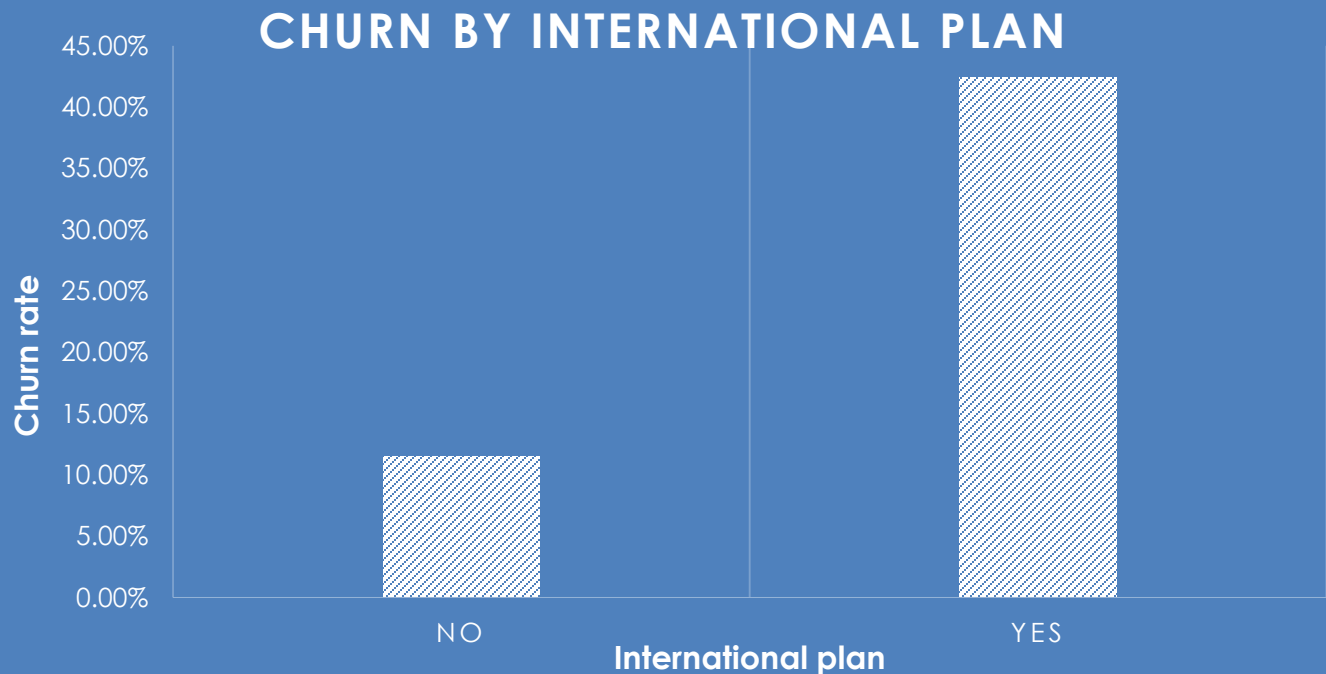


# CHURN BY AREA CODE



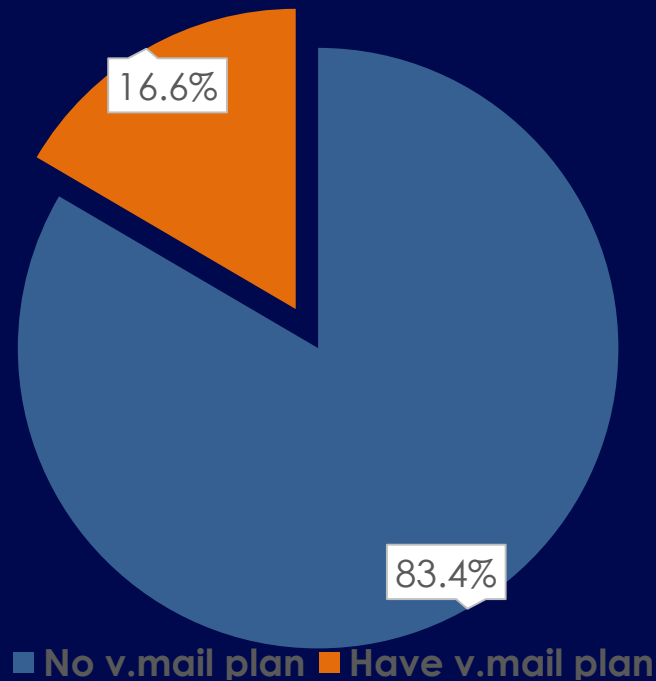
Area code 415 (San Francisco City ) in California state exhibits the highest percentage of account terminations

# HOW DOES AN INTERNATIONAL PLAN AFFECT CHURN?



**42.4% of the customers that terminated their accounts had an international plan**

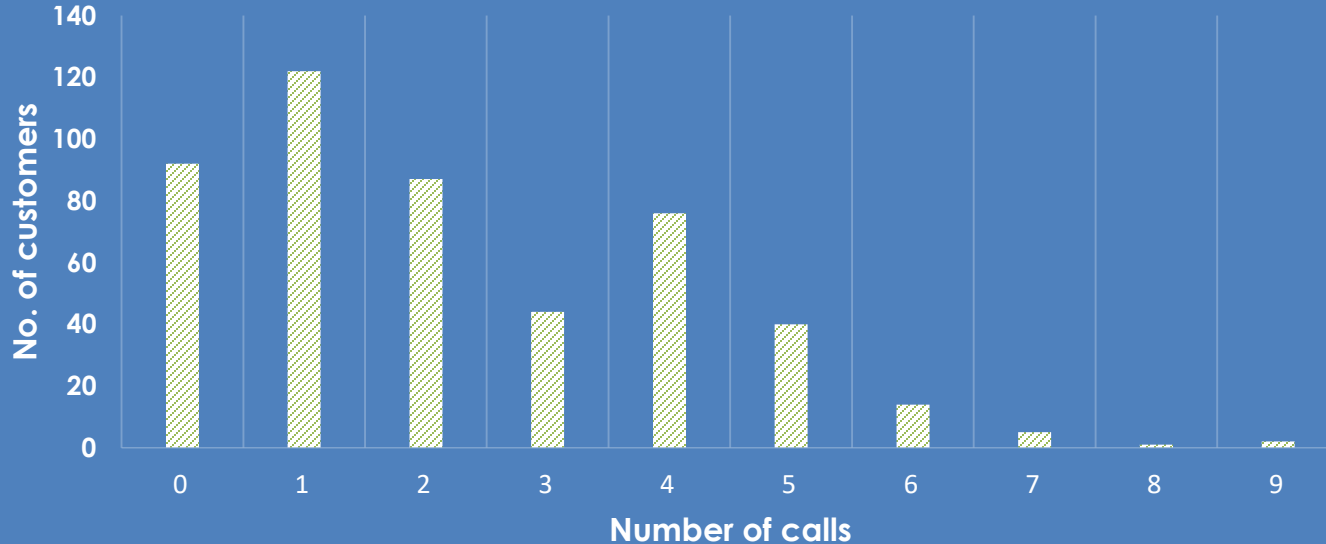
# HOW DOES A VOICEMAIL PLAN AFFECT CHURN?



Of the 483 customers that terminated their accounts, 83.4% did not have a voicemail plan

# CHURN BY CUSTOMER SERVICE CALLS

## CHURN BY CUSTOMER SERVICE CALLS



- Majority of account terminations are associated with customers who made only one call to customer service.
- A considerable proportion of customers terminated their accounts without contacting customer service.

# MODELLING

## Classification modeling algorithms used:



Logistic Regression



Decision Tree



Random Forest



XG Boost



# EVALUATION

## Based on:



**ROC\_AUC curve** – shows how efficient the model is in distinguishing between customers who churned and those who did not



**Recall** - quantifies the model's capacity to accurately detect customers who are likely to churn among all the customers who churn



**Accuracy** – measures the ability of the model to classify customers correctly



# Winning model: Tuned Random Forest Classifier

1

Surpassed other models with an 88% AUC score, highlighting its robust capability to distinguish between churned and active customers

2

Has a good balance between sensitivity (recall) and specificity, capturing a high proportion of both churned and active customers accurately

3

At 82% recall score, performed marginally better in identifying churned customers

4

Achieved 95% accuracy in correctly classifying the total number of customers



# CONCLUSIONS



- Poor customer service was the leading cause of account terminations by customers
- Customers with an international plan churn more than those with no plan
- Customers with higher charges on day calls, especially those who have subscribed to more day minutes, are significantly more likely to churn
- The significantly higher charges observed for total daytime calls and minutes, in comparison to evening and night-time calls and minutes, were a contributing factor to customer churn
- There is a lack of proportionality between the total number of international calls made and the corresponding charges, with higher charges even for fewer calls made



# RECOMMENDATIONS



**Prioritize customer service initiatives to strengthen customer loyalty and satisfaction**



**Review cost of daytime calls and minutes charges**



**Review pricing plans to align with the market and retain price-sensitive customers**



**Tailor personalized data and voice plan products for international customers based on their unique needs**



**Regularly gather customer feedback to understand pain points and areas of improvement**



# APPRECIATION

*Thank you!*

