

SYRIATEL CUSTOMER CHURN ANALYSIS

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INTRODUCTION

- Businesses around the world have at some point in their life cycle experienced customer switch / churn, which in extreme cases led to their downfall. The Telecommunication industry has not been spared either.
- Customer churn refers to customer exit from an entity by way of failing to renew subscriptions and patronizing a competitor business. In order to retain their customers and potentially increase its market share, SyriaTel a Telecom company wishes to know how much money it loses due to customer churn and if there are predictable patterns they may have missed out on.

PROBLEM STATEMENT

What is the problem

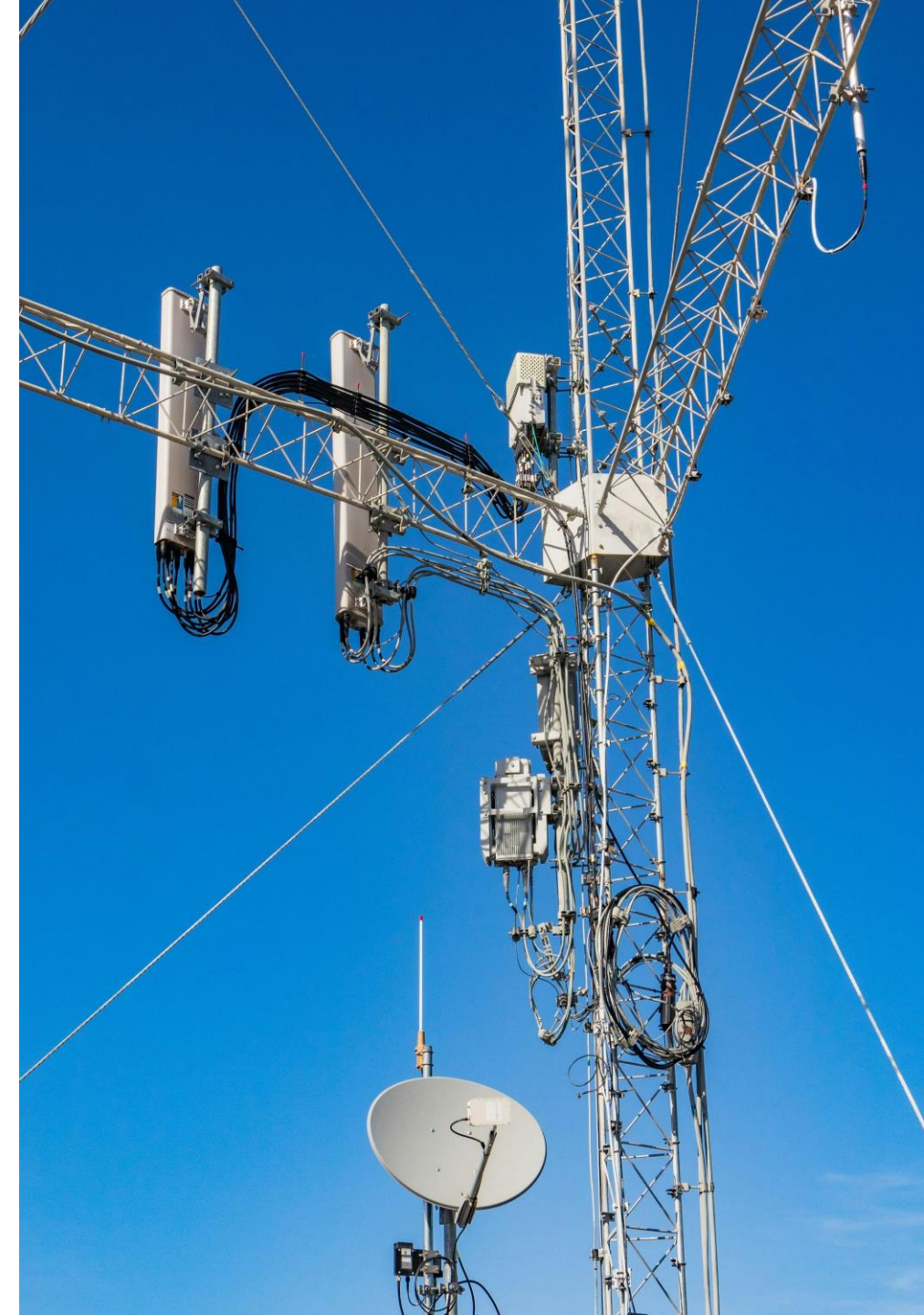
- SyriaTel , a Telecommunication company has been experiencing customer churn which has led to decrease in market share resulting in losses

How to solve the problem

- Build a classifier to predict whether a customer will soon stop doing business with SyriaTel.

OBJECTIVES

- ▶ Identify key factors influencing customer churn.
- ▶ Build a classifier model that will predict customer churn.
- ▶ Offer practical strategies to Syria Telecom that will enhance customer retention, increase profitability and ultimately increase their market share.



BUSINESS UNDERSTANDING

This project will use data from SyriaTel dataset and includes the below features:

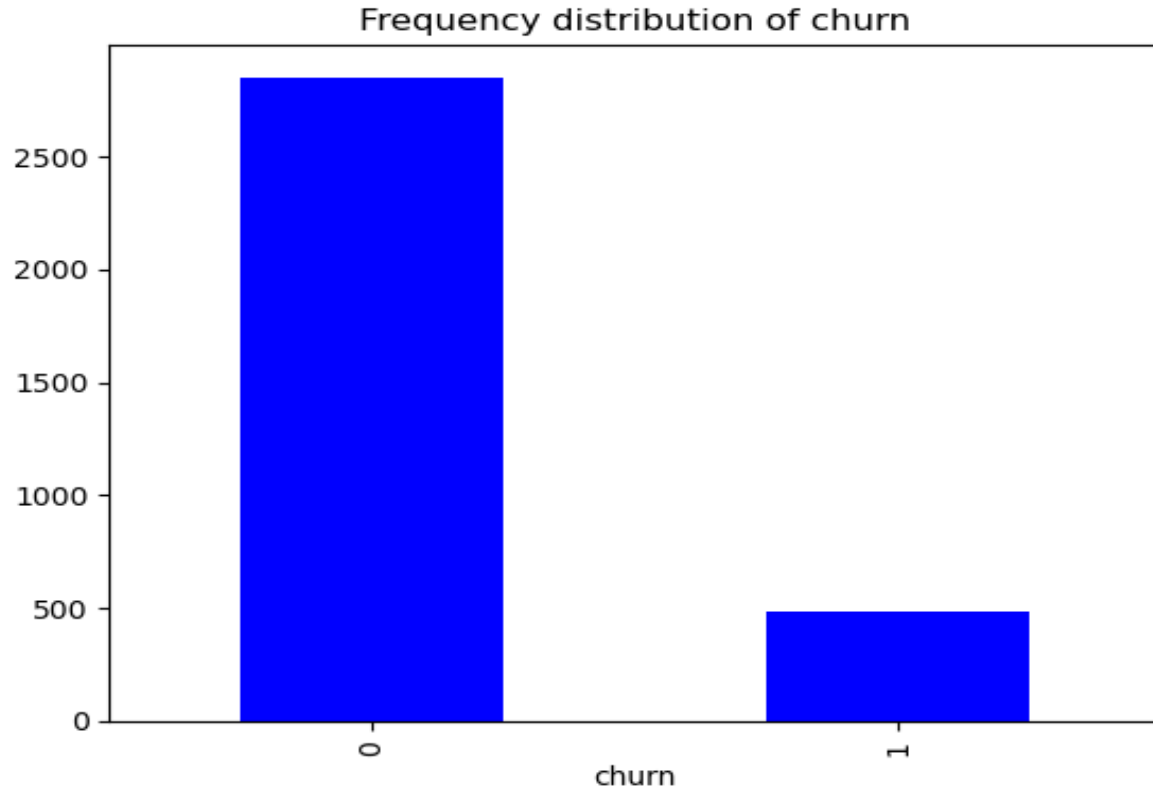
- Account length.
- Area code.
- Total day , evening and night charge.
- Customer service calls.
- Voice mail plan and no. of voicemail messages.

DATA CLEANING AND PREPARATION

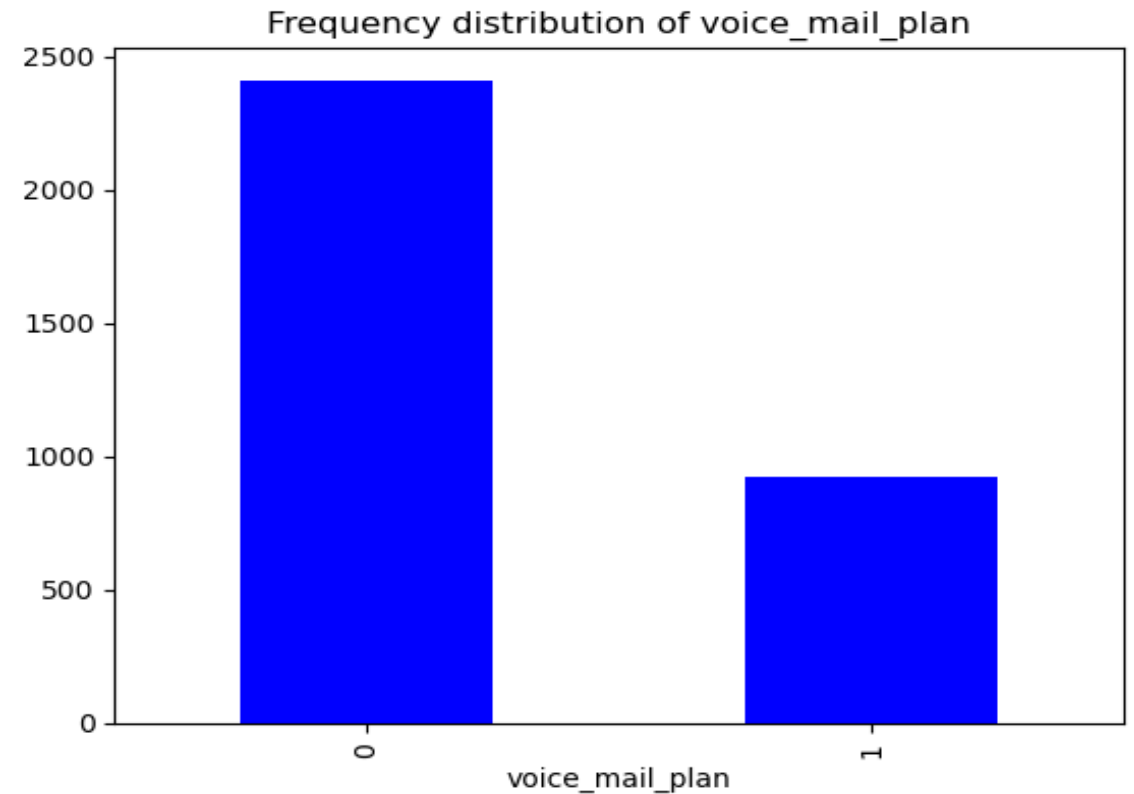
- Check and handle missing values
- Check for duplicates
- Transform the data
- Check for outliers

EXPLORATORY DATA ANALYSIS

1. Univariate analysis

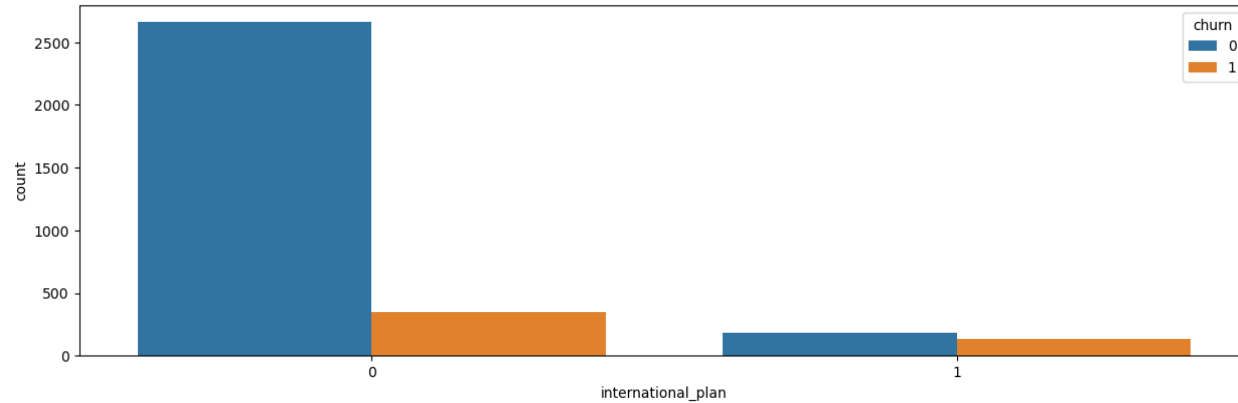


-500 customers are likely to churn

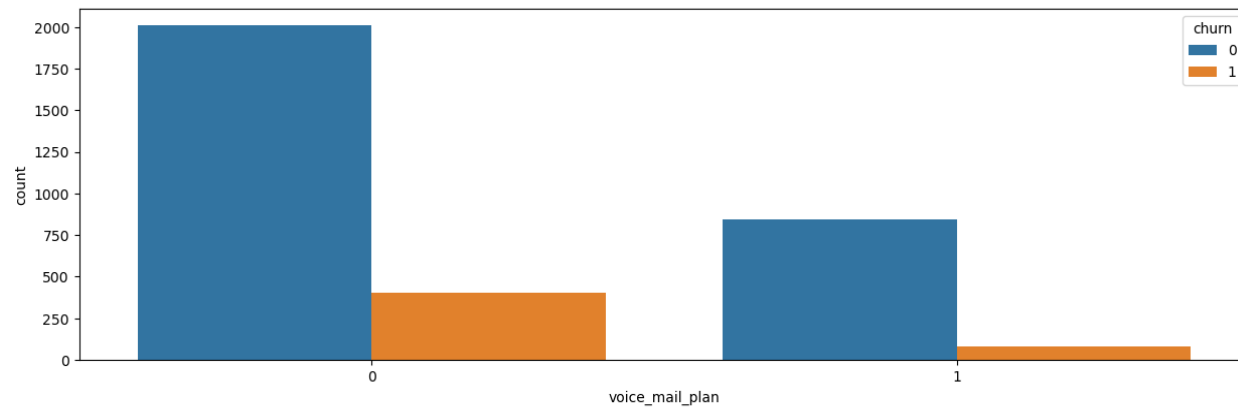


-About 2400 customers don't have a voicemail plan and are unlikely to churn

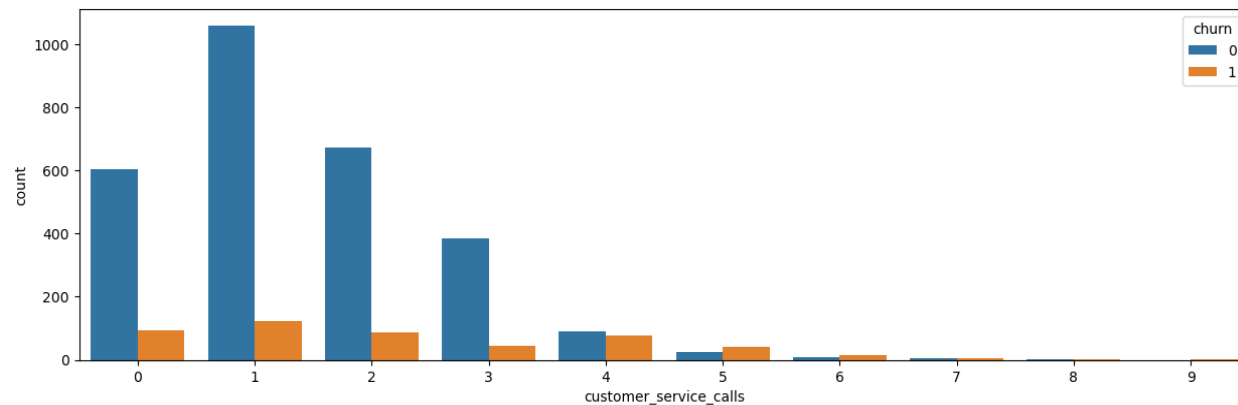
BIVARIATE ANALYSIS



- Of the customers without an international plan , majority are unlikely to churn.

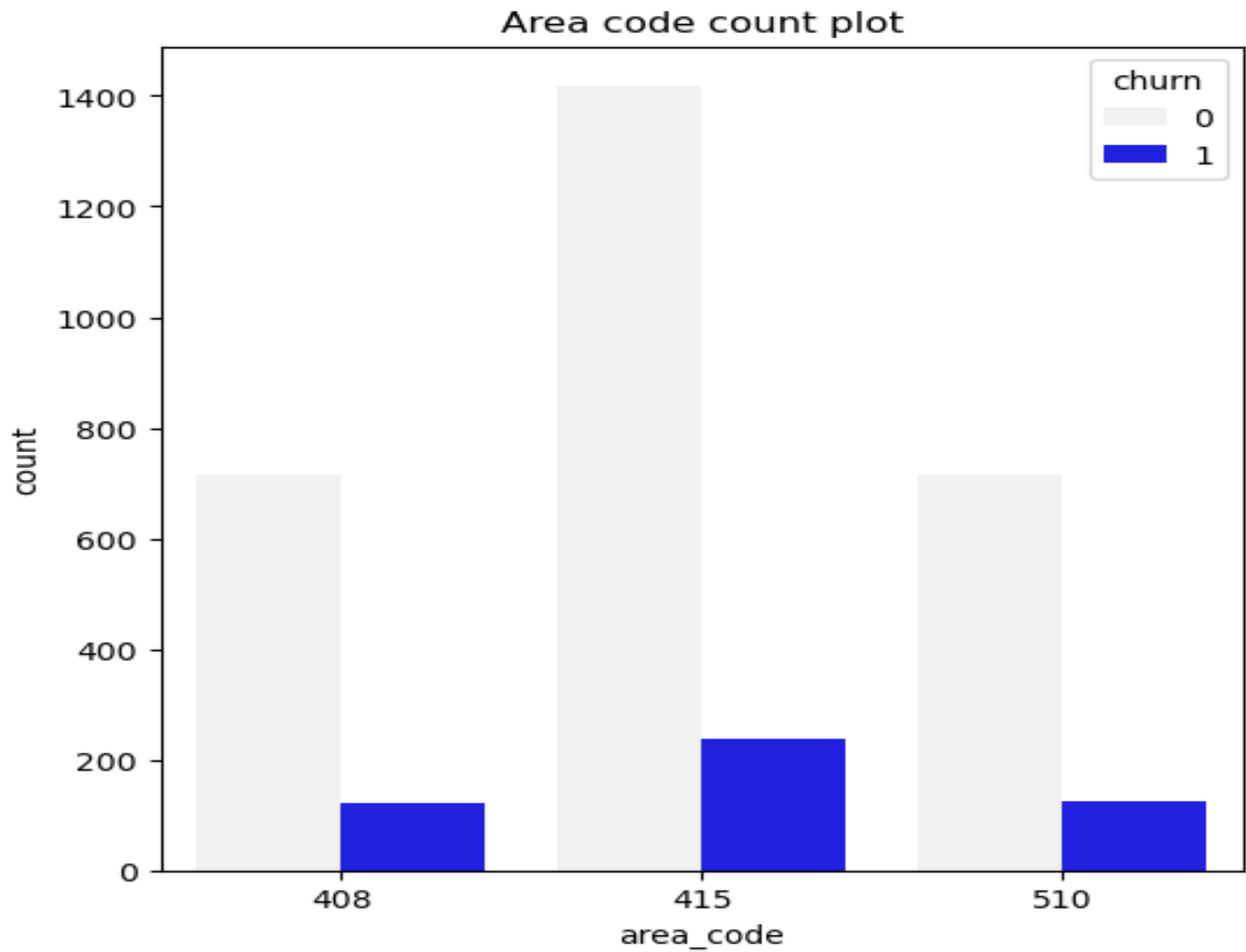


-Of the customers without a voicemail plan, majority are unlikely to churn.



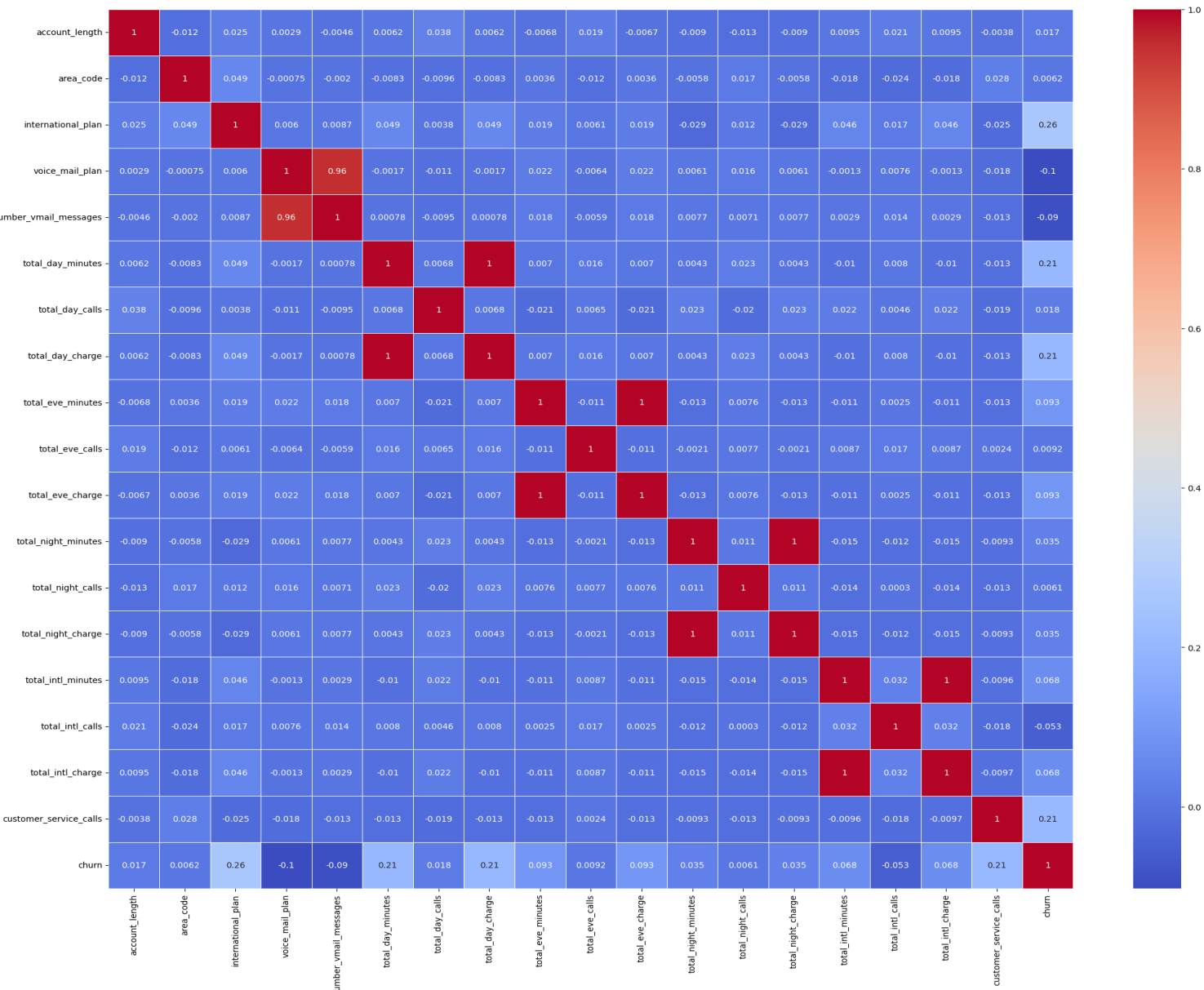
-Customers who did not make a call to customer care are not likely to churn

BIVARIATE ANALYSIS



- Area code 415 has the highest number of customers who are likely to churn

MULTIVARIATE ANALYSIS-CHURN VS ALL VARIABLES



- 1.The variable total intl charge and total intl minutes have a perfect positive correlation.
- 2.The variable total_night_charge and total night minutes have a perfect positive correlation.
- 3.The variable total eve charge and total eve minutes have a perfect positive correlation.

MODELLING

Models used were three, namely:

1. Random Forest Classifier with an accuracy level of 94%
2. Logistic Regression Model with an accuracy level of 78%
3. Gradient Boosting Model with an accuracy level of 98%

-Overall, Gradient Boosting model had the best f1score at 98% indicative of balanced performance and highest accuracy at 98%

MODEL EVALUATION

Models used were three, namely:

1. Random Forest Classifier with an accuracy level of 94% and F1score of 94%
2. Logistic Regression Model with an accuracy level of 78% and F1score of 78%
3. Gradient Boosting Model with an accuracy level of 98% and F1score of 98%

CONCLUSION

The following observations can be drawn from Syria Telcom dataset:

- 500 customers are likely to churn based on the univariate analysis.
- In the bivariate analysis of area code against churn, area code 415 has the highest number of customers (250) who are prone to churn.
- Customers who did not make a call to customer care are not likely to churn based on the analysis between customer service call against churn.
- The Gradient Boosting Model is best placed to predict customer churn due to high accuracy of 98% . F1score of 98% depicts classifier did well in terms of both precision and recall metrics.

RECOMMENDATIONS

- a. Variable enrichment: The dataset could have been enhanced by including additional variables like gender and age to better understand factors influencing customer churn.
- b. Network coverage: Syriatel should check on network coverage on area code 415 as it has the highest number of customers likely to churn.
- c. Upselling: SyriaTel could try convincing customers to take up extra packages to increase its profitability.
- d. Introduction of new products: Syriatel could try reduce churn by introducing new packages not in their company like internet service or loyalty program where customers can earn points for consistent patronage of services already offered.

