SyriaTel Churn Analysis

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December 27, 2021

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OVERVIEW

SyriaTel, a telecommunication company with customers across the United States.

It is suffering from a loss of valuable customers to competitors.

Our team is hired to build a classification model and determine the primary features that lead to the churn of customers.

The datasets include 3333 customers in 51 states (including D.C.) on a monthly basis.

14.5% Customers will churn based on current dataset.

OUR APPROACH

Perform exploratory data analysis on current data

Build up baseline model using logistic regression

Apply multiple machine learning algorithms to build the best classification model

Find the primary determinants of churn

CLASSIFICATION METHODS

K-Nearest
Neighbors

Decision Tree

Random
Forest

Boosting
Strategies

Support Vector
Machines

NOTES:
- The above boosting strategies include AdaBoost, Gradient Boost and XGBoost (i.e., Extreme Gradient Boost)
- We applied SMOTE (Synthetic Minority Over-sampling Technique) for unbalanced datasets.
- We reduced regularization in the modeling.
- We performed GridSearchCV in the final tuning.

BEST MODEL – Tuned XGBoost

Accuracy Score = 96%

Precision Score = 93%

Recall Score = 80%

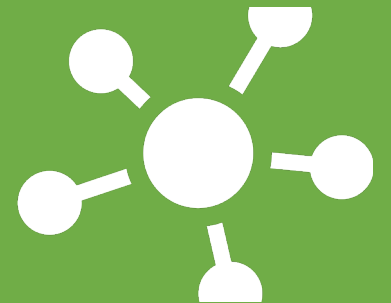F1 Score (comprehensive) = 96%

AUC = 0.91

PRIMARY DETERMINANTS

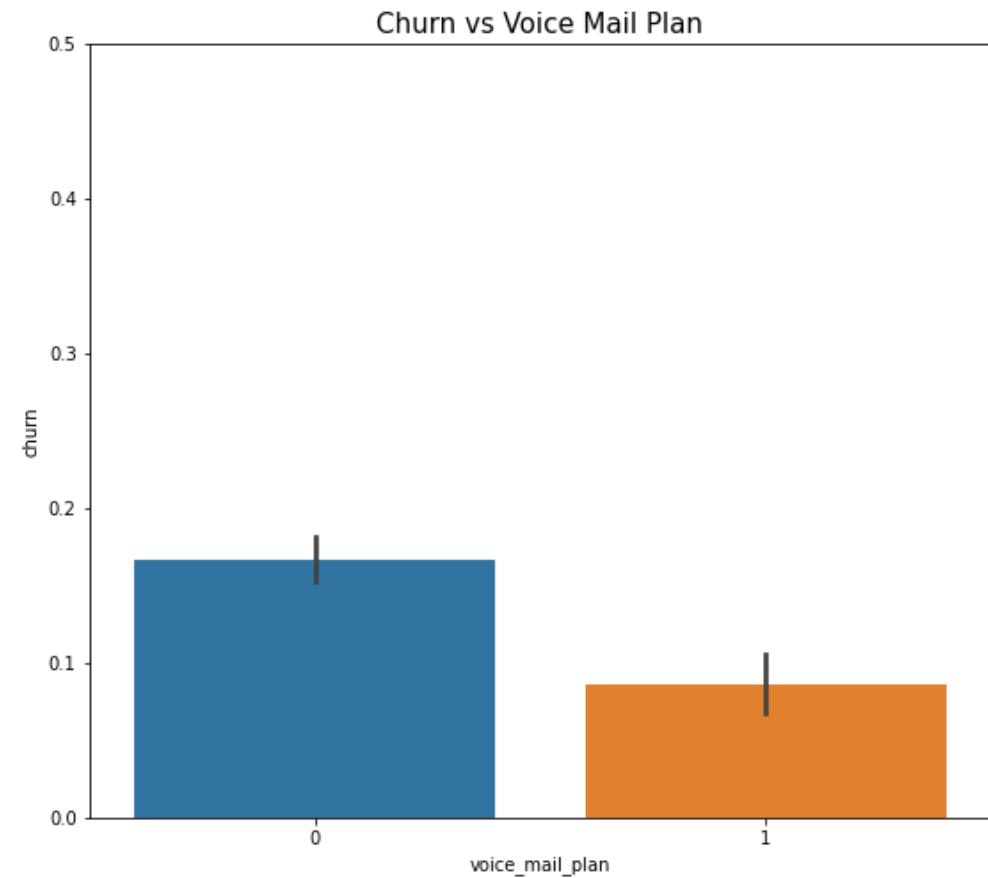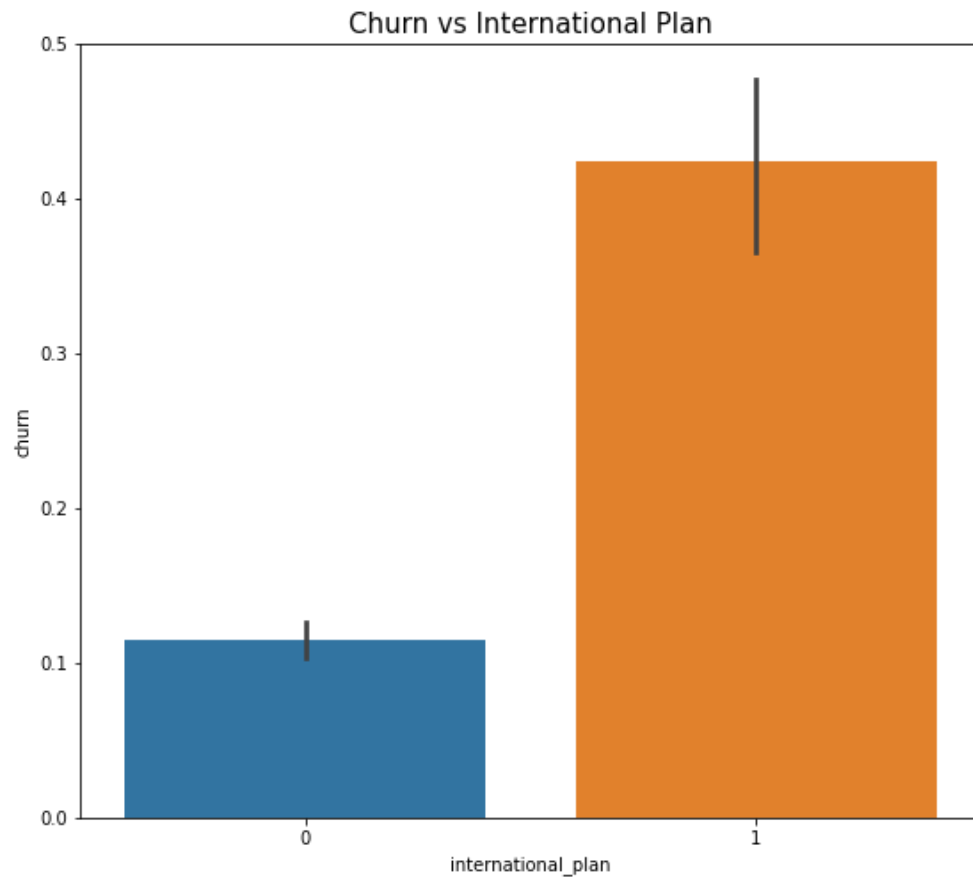International Plan and Voice Mail Plan
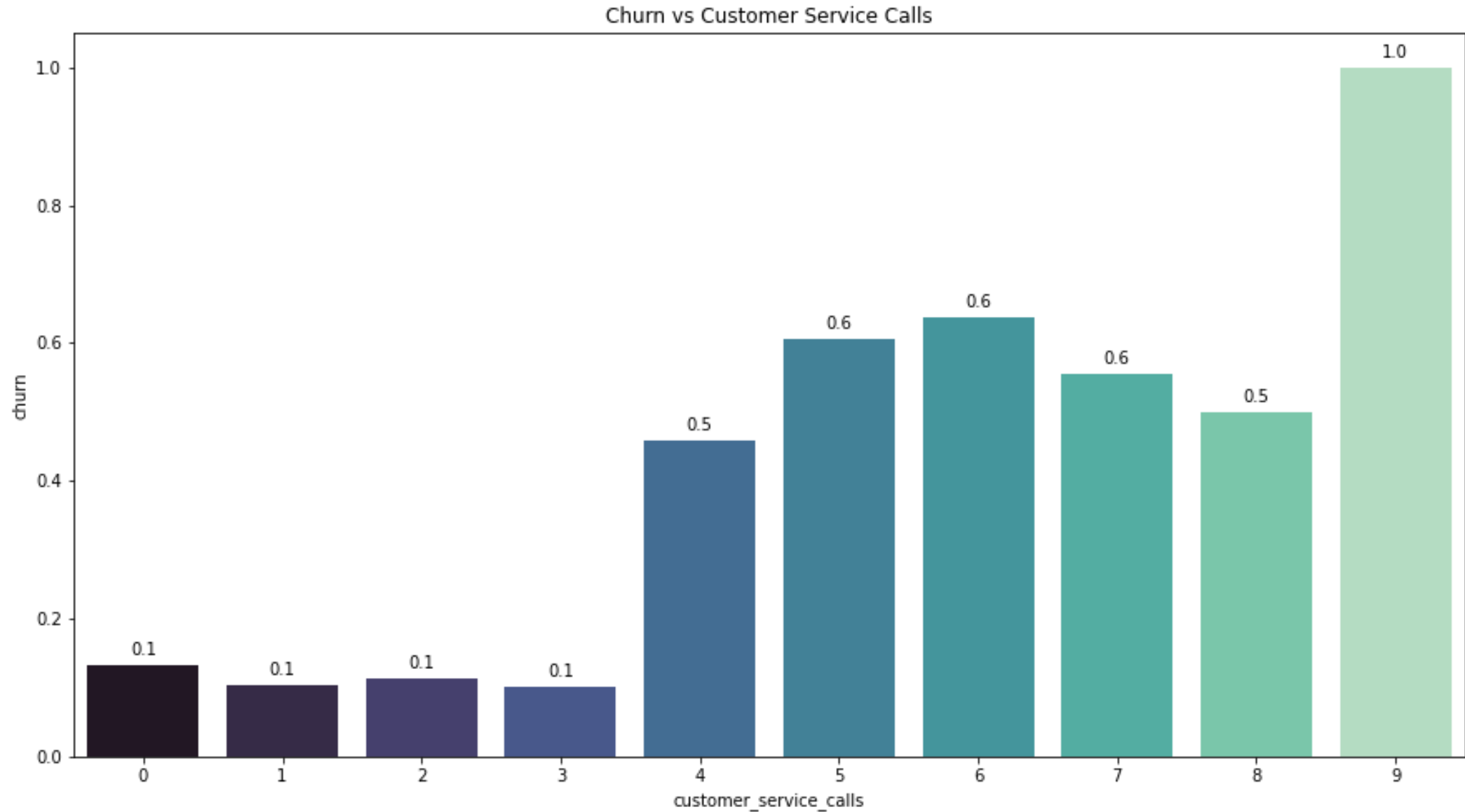
Customer Service Calls

Monthly Charges

Total Day Minutes

INTL PLAN & VOICE MAIL PLAN
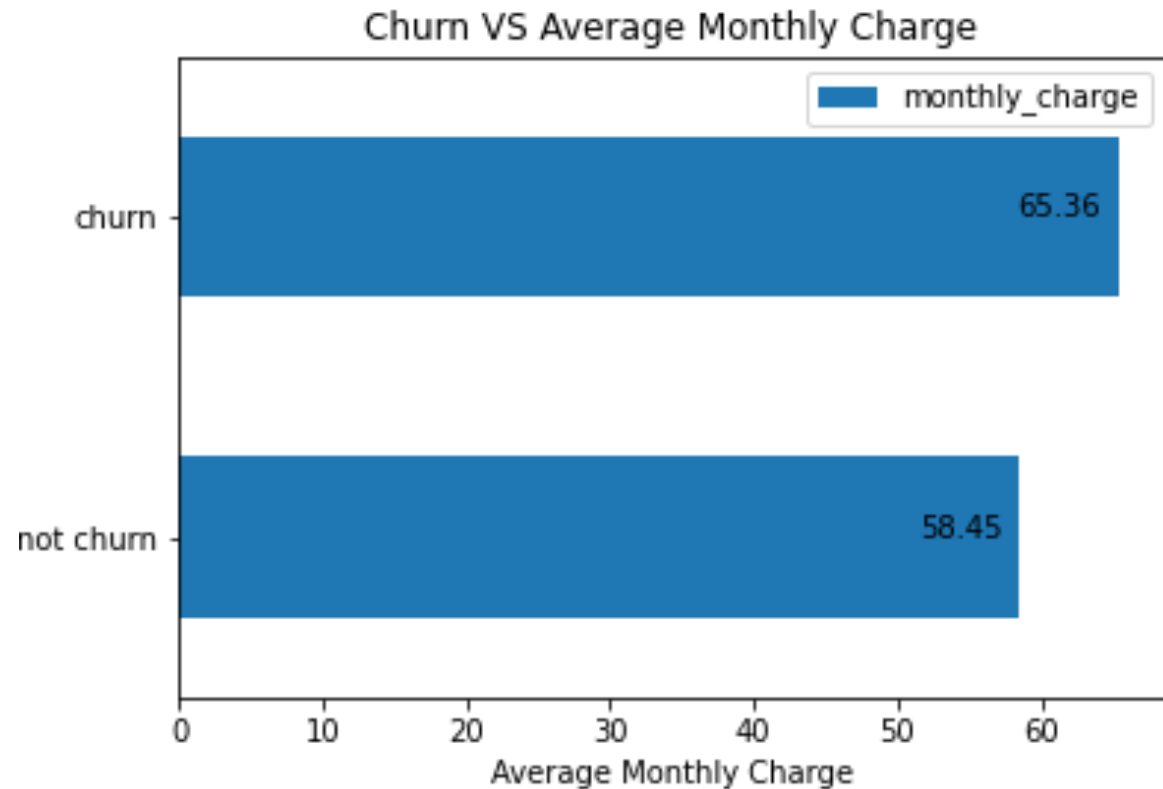
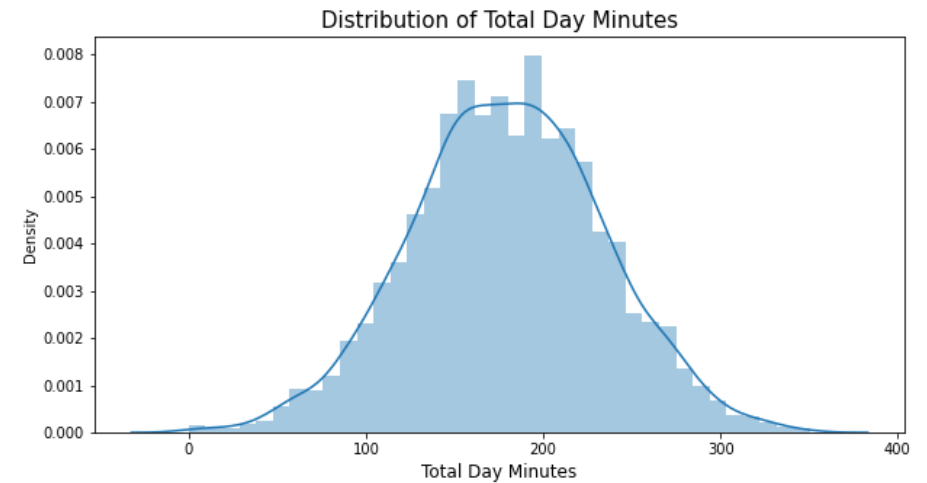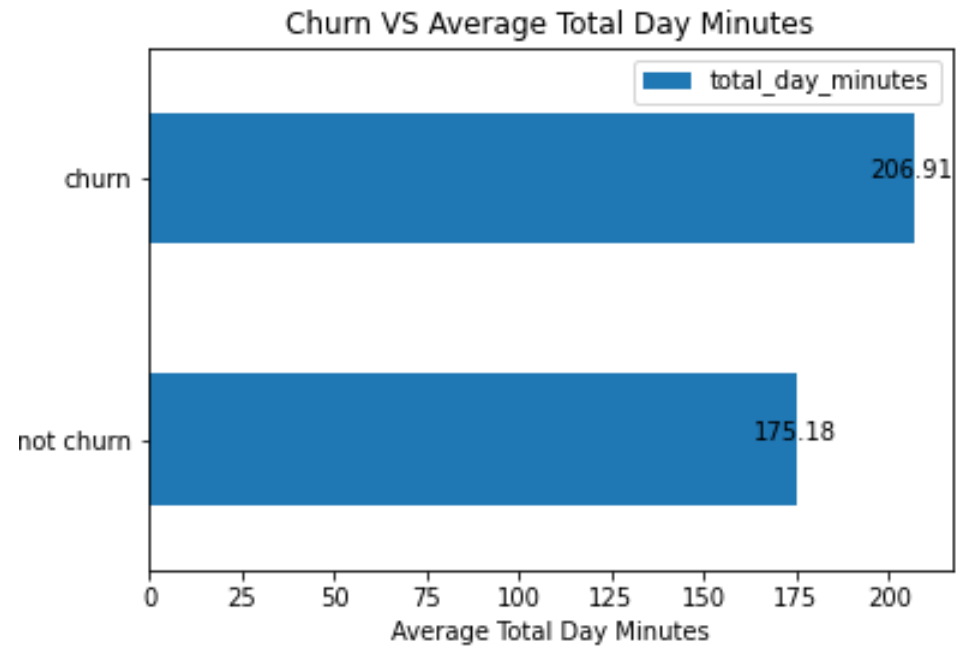# CUSTOMER SERVICE CALLS

Churn vs Customer Service Calls

MONTHLY CHARGE

Monthly Charge
= Total Day Charge
+ Total Eve Charge
+ Total Night Charge
+ Total Intl Charge

Average Monthly Charge = $59.5
Max Monthly Charge = $96.2
Min Monthly Charge = $22.9

Churn VS Average Monthly Charge

TOTAL DAY MINUTES

RECOMMENDATIONS

Market research on competitors and industry benchmark

Customer experience measurement and design

Partnership with local carriers

Thank you!