PREDICTING CUSTOMER CHURN

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OVERVIEW

Business and Data Understanding

Modeling

Evaluation

Recommendations

Next Steps

BUSINESS AND DATA UNDERSTANDING

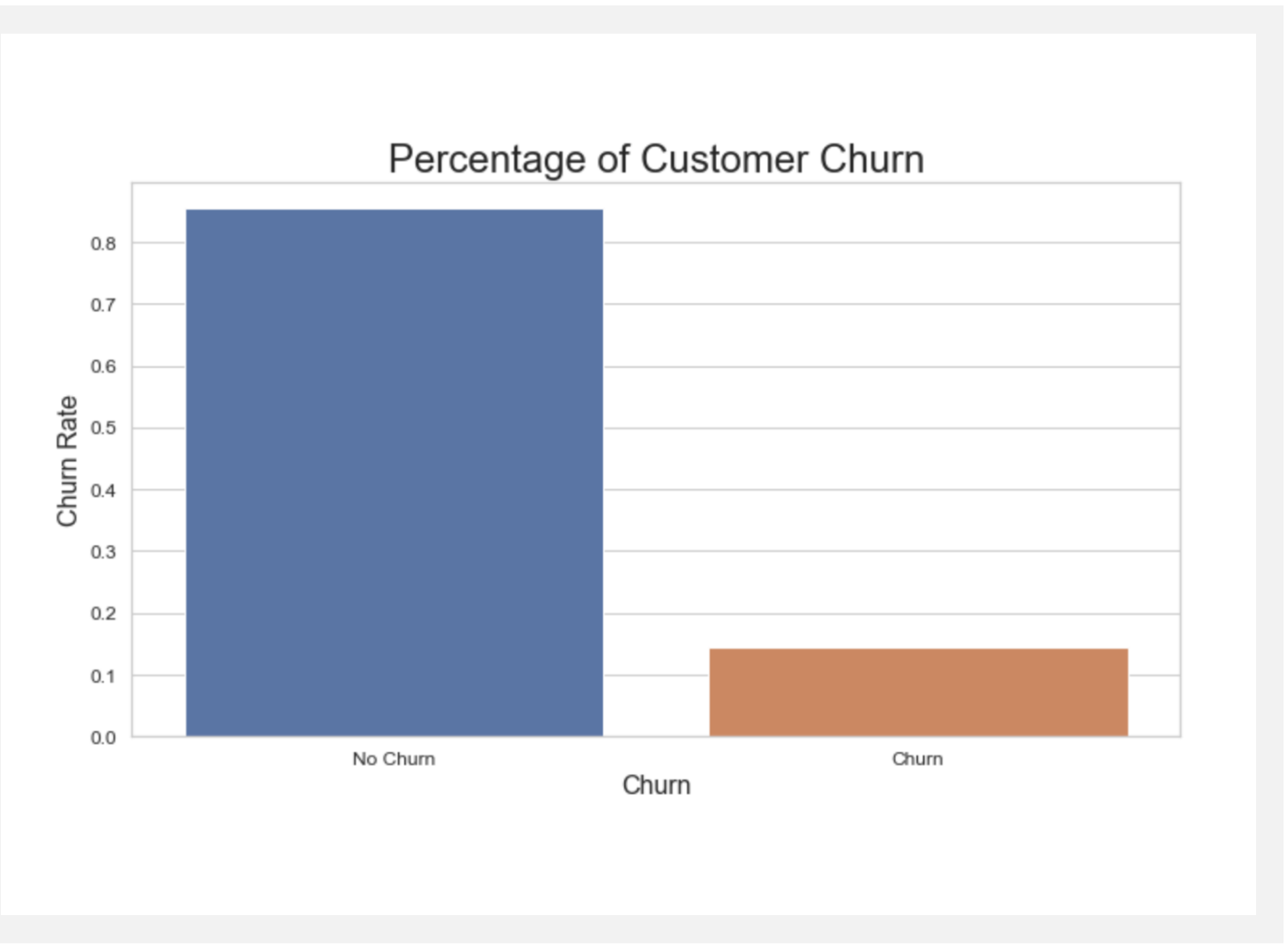
Problem: Better predicting when SyriaTel's customers will soon churn.

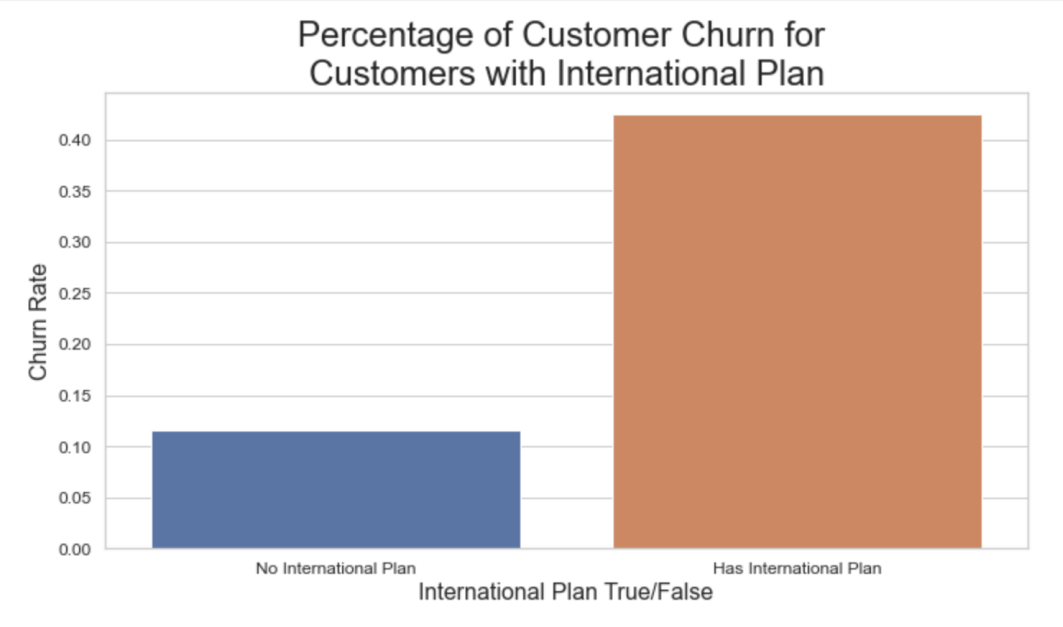
Solution: Finding predictable patterns using a classification model will benefit SyriaTel's business practices to minimize customer churn.

Data: Includes 21 features (both categorical and continuous and 3,333 data points from SyriaTel related to its customers and their accounts and churn information

% OF CUSTOMER CHURN

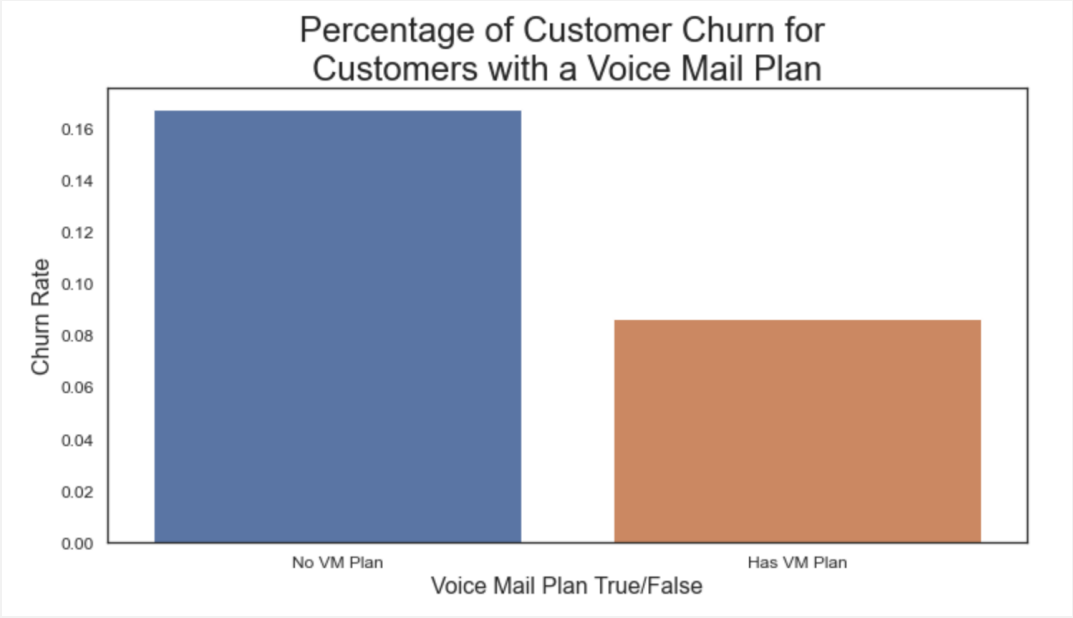
- 14.5% of the customers in this dataset have churned





FEATURES

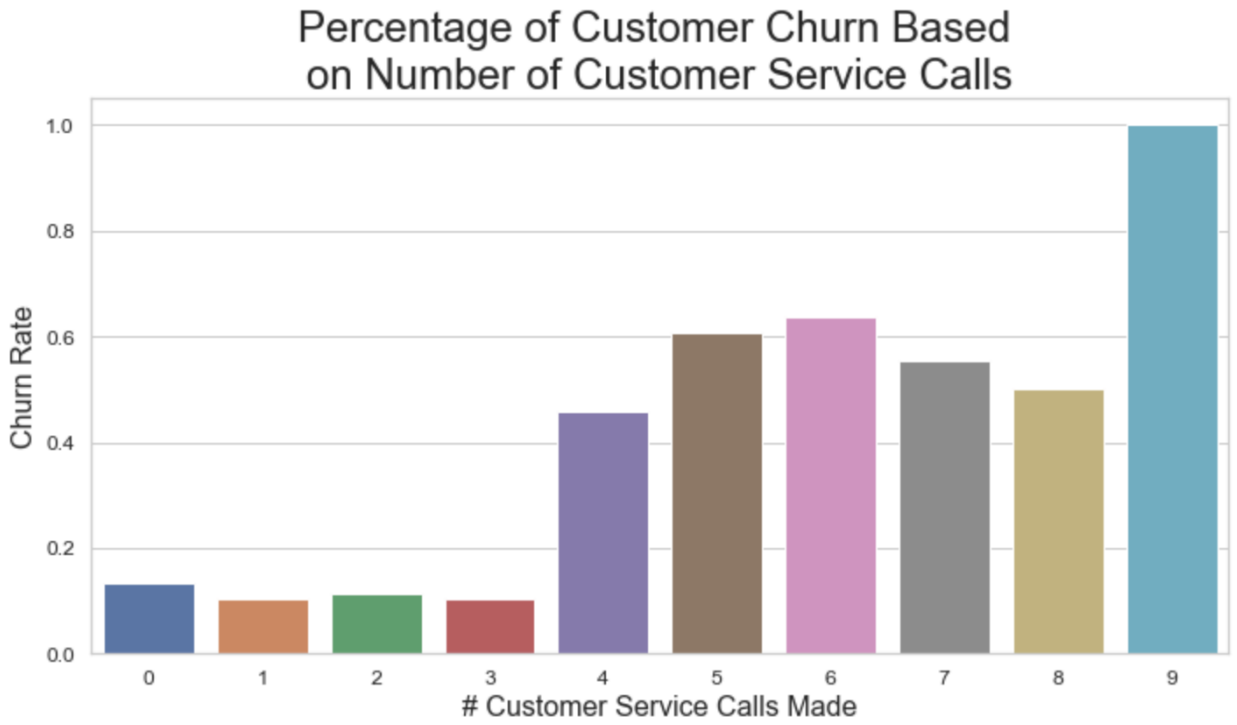
- 42% of customers with an international plan churn



- 17% of customers without a voice mail plan churn

CUSTOMER SERVICE

- Customers who call customer services four or more times have a higher churn rate than those who call fewer than four times



MODELING

- Used a type of machine learning algorithm called Classification, which is the process of predicting the class of given data points
  - In this case, the "class" is customer churn – whether a customer will leave SyriaTel
- Out of the five different algorithms evaluated in this project, the best performing model used an eXtreme Gradient Boosting (XGBoost) algorithm, which provides best-in-class performance among other classifiers

EVALUATION

- Performance metric: F1-score, which combines two classifier metrics:
  - Precision measures what percent of the model's predictions were correct
  - Recall measures what percent of the positive cases were caught correctly
  - F1 is the harmonic mean of the model's precision and recall scores
- F1-score values range 0-1, with 0 as the worst value and 1 as the best value
  - The closer the F1-score is to 1, the more perfect the model is classifying samples

EVALUATION

- The final tuned XGBoost model achieved an F1-score of 0.94
- The most important features influencing the model:
  - **the number of calls the customer made to customer service***
  - whether the customer has a voice mail plan
  - the total number of minutes used per day
  - **whether the customer has an international plan***
  - the total number of international calls made
- Both bolded features were also influential in other models evaluated

RECOMMENDATIONS FOR FUTURE WORK

Provide a larger dataset with greater number of customer information and dates of data collection (to ascertain timeframes)

Further Analysis of Feature Importance: International plans, voice mail plans, calls to customer service

Evaluate Customer Service: Conduct customer service surveys for more information on why customers are calling

Conduct industry benchmarking to determine how voice mail and international plans compare to competitors

THANK YOU

Questions?

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