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 key performance indicators and data points from SyriaTel related to its customers and their accounts and churn information

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 0.79, the highest and closest to 1.0 of all the evaluated models

- Further analysis indicated that the most important features influencing the model are:

  - **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 of these features were also influential in other models evaluated

RECOMMENDATIONS

- Utilize the final tuned XGBoost model to predict when SyriaTel's customers will soon churn

NEXT STEPS

- Most influential features:

  - the number of calls the customer made to customer service

  - whether the customer has an international plan

- Conduct further customer analysis to identify trends regarding calls to customer service – issues, volume, customer service rating

- Based on exploratory analysis, customers with an international plan are more likely to churn than those without an international plan – what about the international plan may be influencing churn?

THANK YOU

Questions?

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