

# TELEPHONE CUSTOMER CHURN ANALYSIS

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FLATIRON SCHOOL



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**Executive  
Summary**



Findings



Next Steps



Acknowledgement



# EXECUTIVE SUMMARY

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- Identifying customers at-risk of changing services vital to business success. More funds expended attracting new customers than retaining old customers.
- Development of classification model will assist with business retention efforts.
- The goal of this analysis is to highlight the handful of customer characteristics that best portend future customer behaviors.



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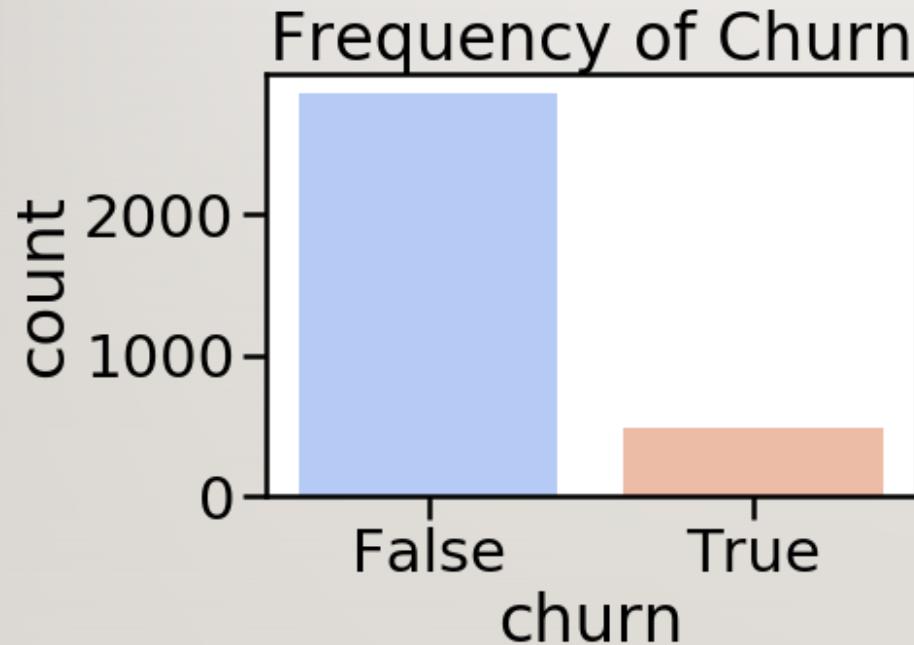


Acknowledgement



# INITIAL IMPRESSIONS OF DATA SET

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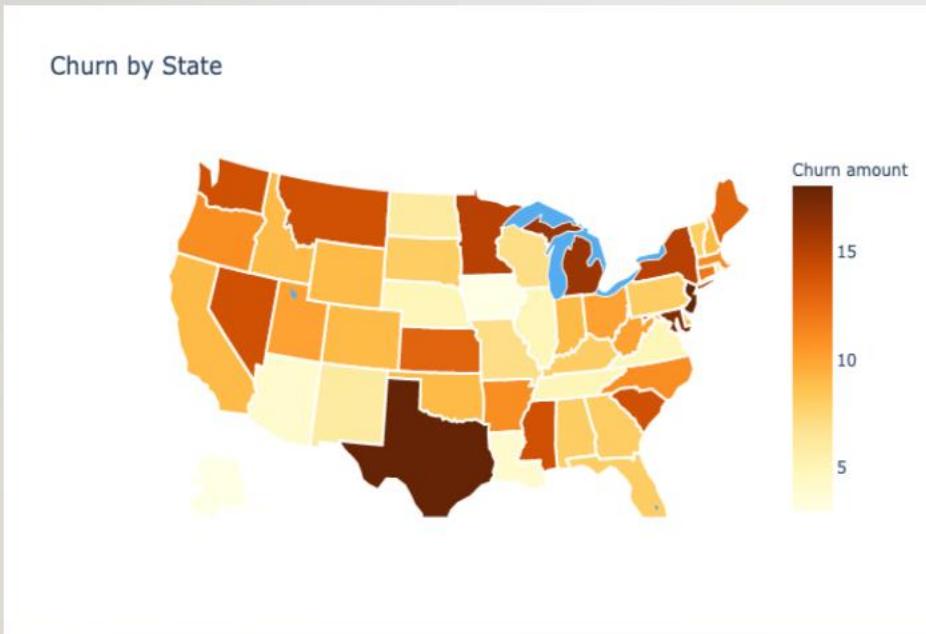


- Customers tend to stay with firm 85% of the time in dataset
- What are the feature variables that are worth keeping for analysis versus those that are futile?
- Are there any columns that we can dismiss at this moment?



# CHURN BY STATE – IS CHURN A GEOGRAPHICAL PHENOMENA AS WELL?

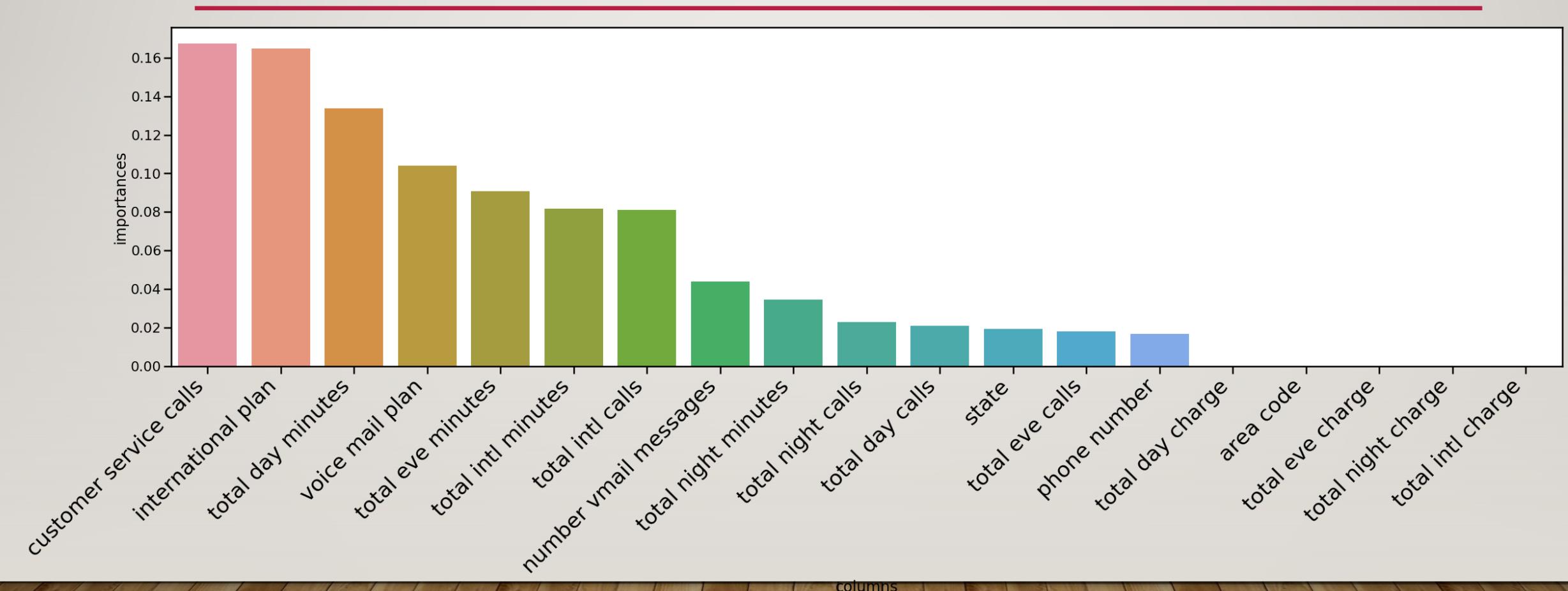
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- For states such as Texas, New Jersey and Michigan; could churn be caused by something specific to these localities?
- Identifying exact cause of higher churn in these specific states can be valuable after-work opportunity.

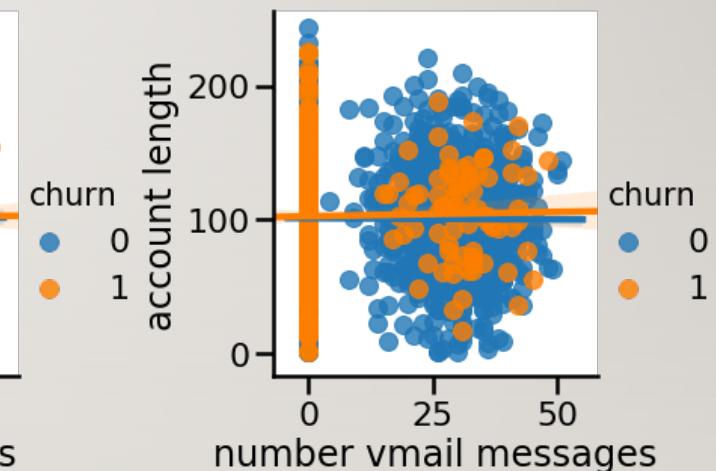
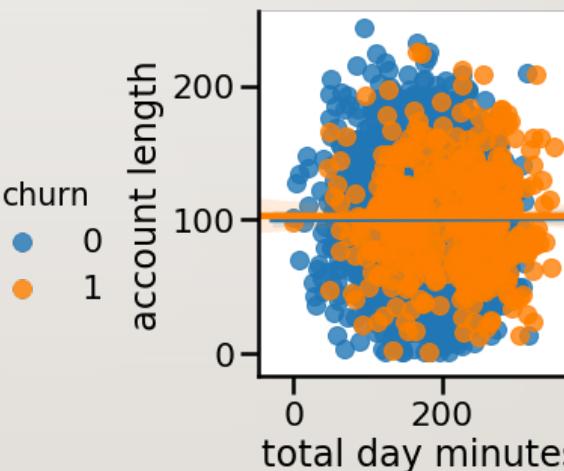
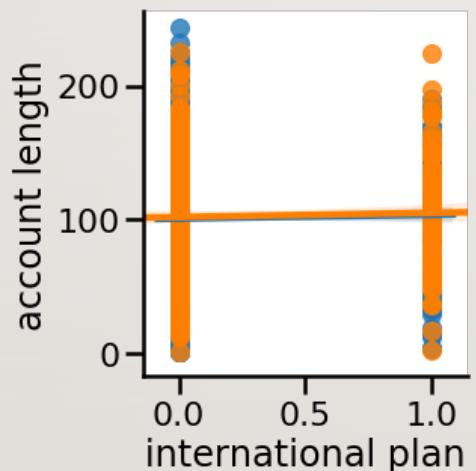
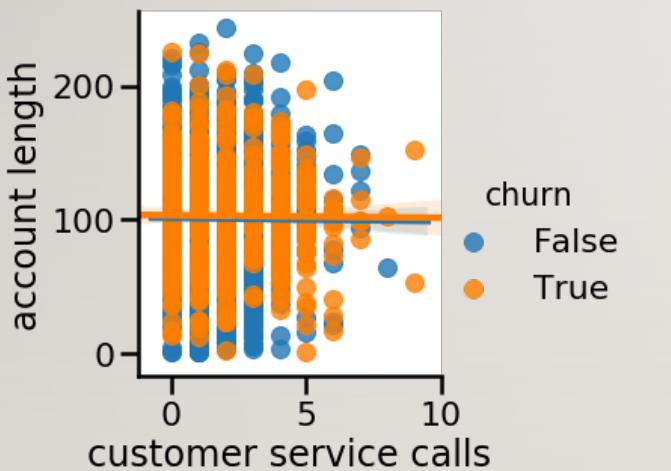


# MOST IMPORTANT FEATURES RELATED TO CHURN



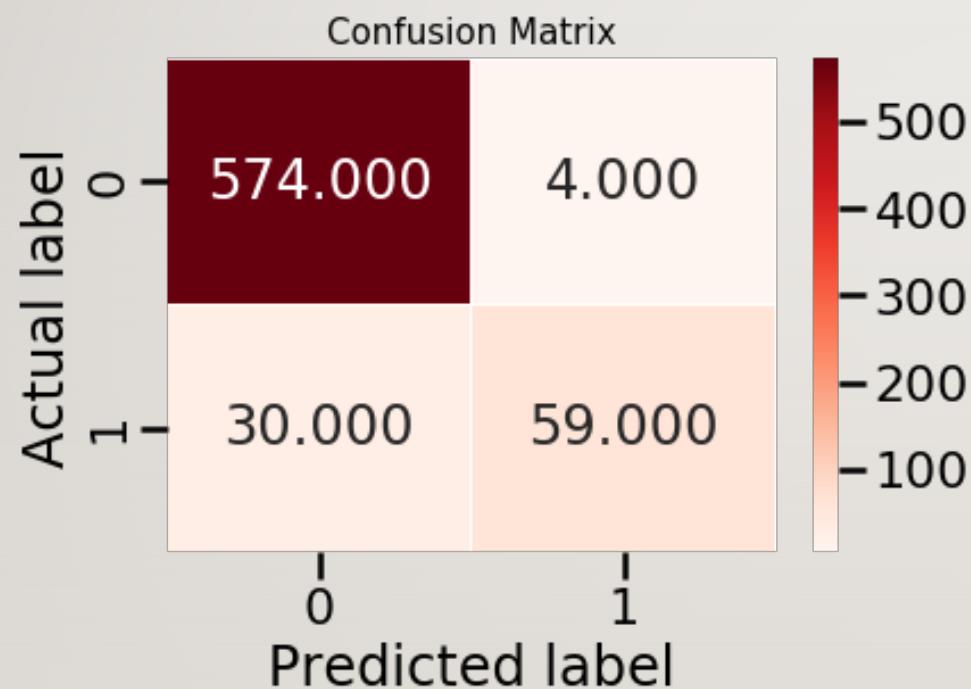
# RELATIONSHIP BETWEEN TOP 4 FEATURE VARIABLES AND ACCOUNT LENGTH/CHURN

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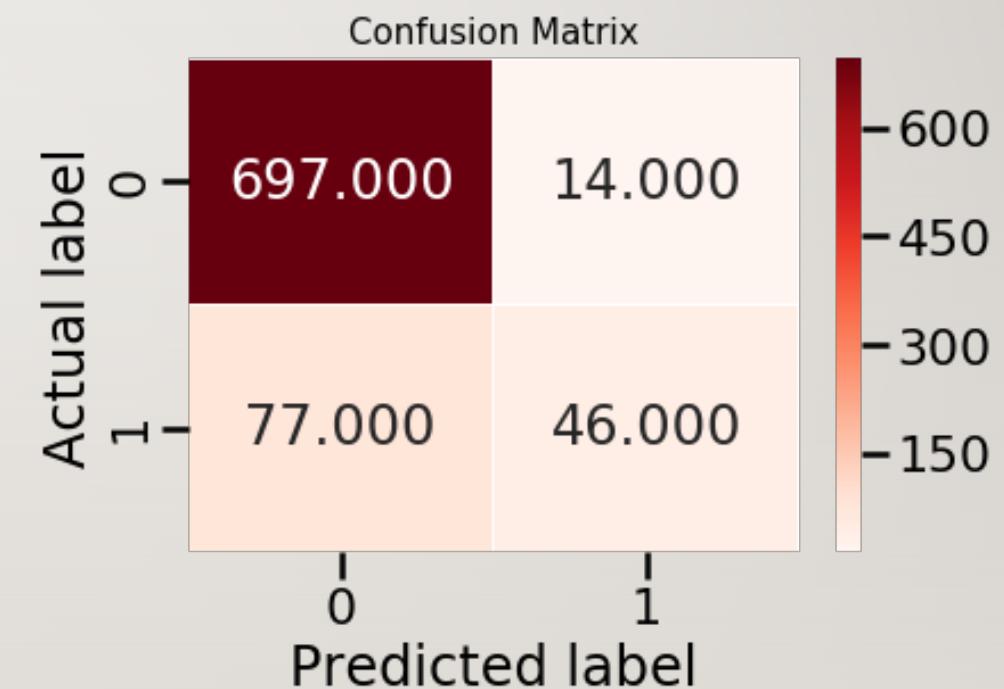


# XGBOOST MODEL PERFORMANCE – ALL VARIABLES VERSUS FEATURE SELECTION

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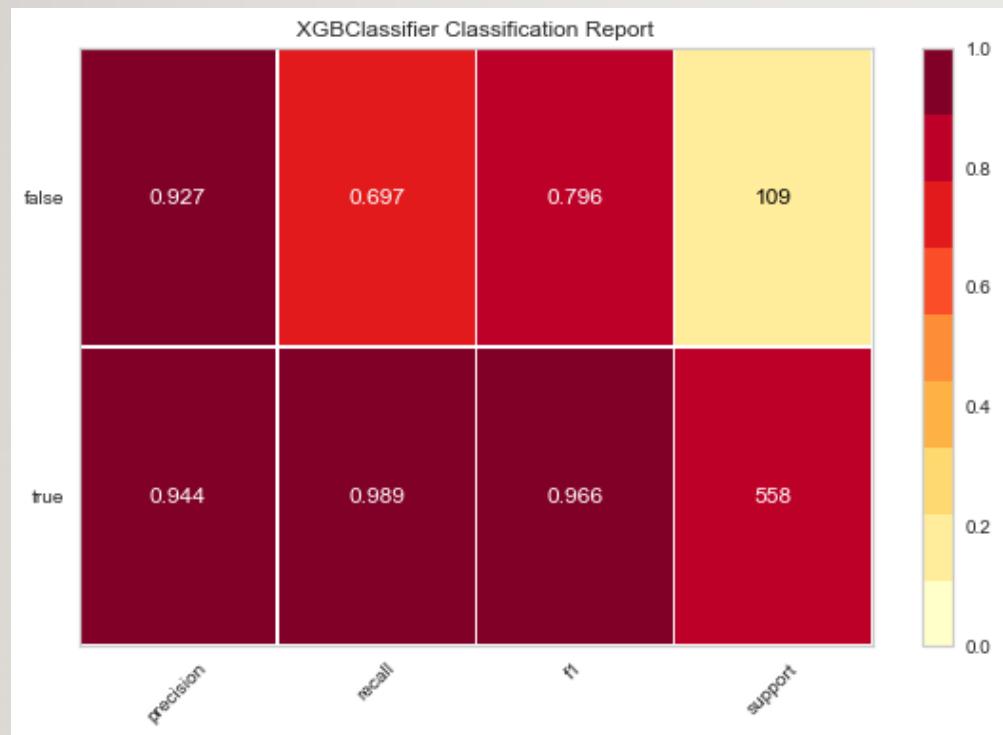


Accuracy = 94.5% (all variables)

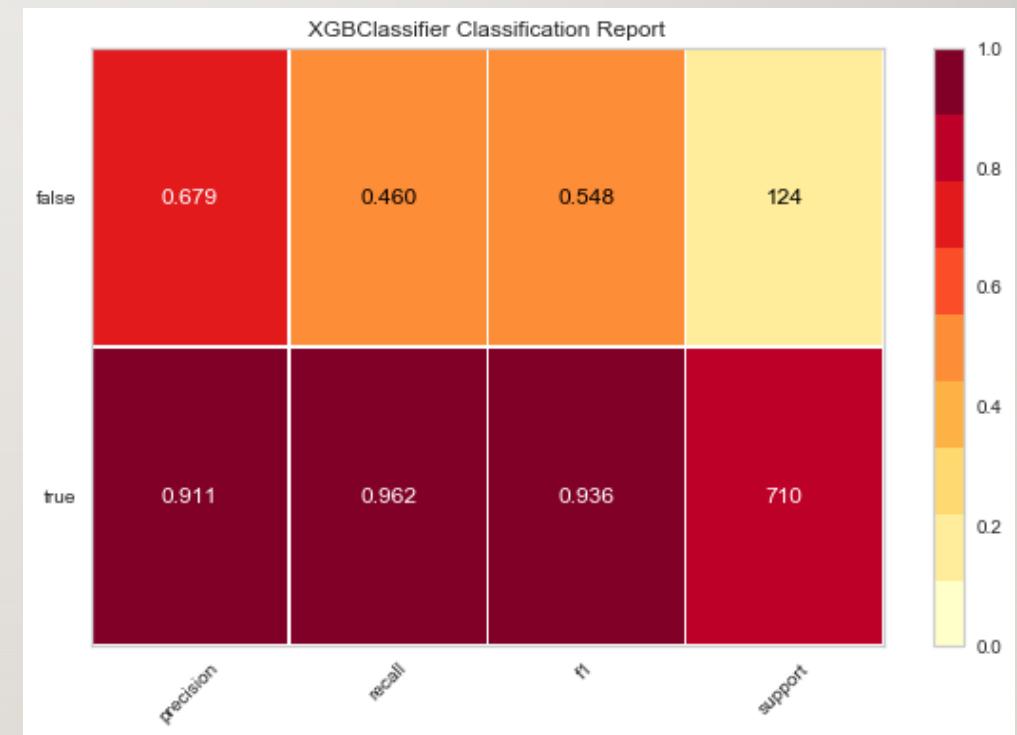


Accuracy = 90.0% (top 4)

# XGBOOST MODEL PERFORMANCE – ALL VARIABLES VERSUS FEATURE SELECTION (CONT'D)



All Variables



Top 4

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# RECOMMENDATIONS

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- Promote packages that target a business consumer or personal consumers with international communication needs. In these packages, market to this type of consumer by championing the productivity gains that can be realized through usage of voicemail plan features and savings for daytime usage and international calls.
  - The likelihood of a customer churning decreases dramatically when they are actively engaged with the voicemail feature.
  - Customers that use their phones more during the day than night churn less.
  - Customers that have an international plan and use it regularly are also less likely to churn
- Monitor trends in why customers are calling into the customer service centers. As the number of interactions with customer service rise, so does the likelihood of churn

# THANK YOU FOR YOUR TIME – FOLLOW-UP WORK PROPOSALS

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- It was a pleasure performing this analysis to assist with keeping your brand a leader in the marketplace.
- As follow-up, we would be glad to:
  - .
- Feed new datapoints into the model so that your leadership team to ensure that the model is adaptable to new datapoints and simply doesn't replicate the training data.
- Examine the cause of higher churn in certain states. Is this a phenomena that is due to infrastructure in that locality or other market forces that we might have been unaware of during this analysis.

# THANKYOU FOR YOUR TIME – FOLLOW-UP WORK PROPOSALS

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- It was a pleasure doing this analysis for your company. I look forward to partnering in the future to further assist with targeting clients that fit the ideal business/international caller profile.
- Future work that can assist with achieving this business objective include:
  - Analyze data to identify customers that utilize international plan services as part of a potential referral incentive to hopefully potentially target additional customers with similar communication need while encouraging more usage.
  - Analyze data to identify common features utilized by voicemail system to assist marketing campaigns to educate consumers about productivity gains that can be achieved and encourage package upsells.
  - Utilize neural networks to perform additional churn analysis. Academic articles speak to such machine learning approaches being able to predict churn in cellular plan subscribers with 92% accuracy.