

FLATIRON MODULE 3 PROJECT: PREDICTING WHETHER A SYRIATEL CUSTOMER WILL CHURN

KIARASH AHMADI

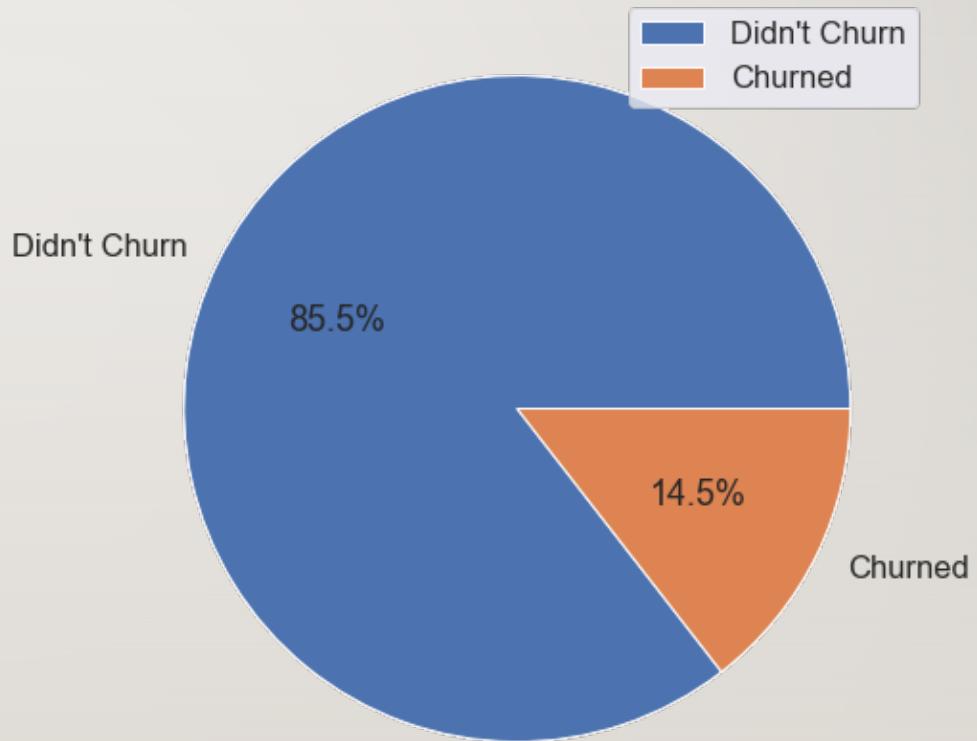


HELLO!

- My name is Kiarash Ahmadi. I'm an aspiring Data Scientist and I am pursuing a Master's in Computational Science & Engineering and Aerospace Engineering at Georgia Tech
- My field of work is in the building energy modeling industry
- Discussion today will be about the insight gained from developing and analyzing classifier models

PROJECT BACKGROUND

- Using a dataset of 3,333 customers to predict whether one will churn or not
- The data includes:
 - Area code
 - Categorized minute usage
 - Categorized charges
- From there a series of classifier models are built and assessed in order to predict customer churn as accurately as possible

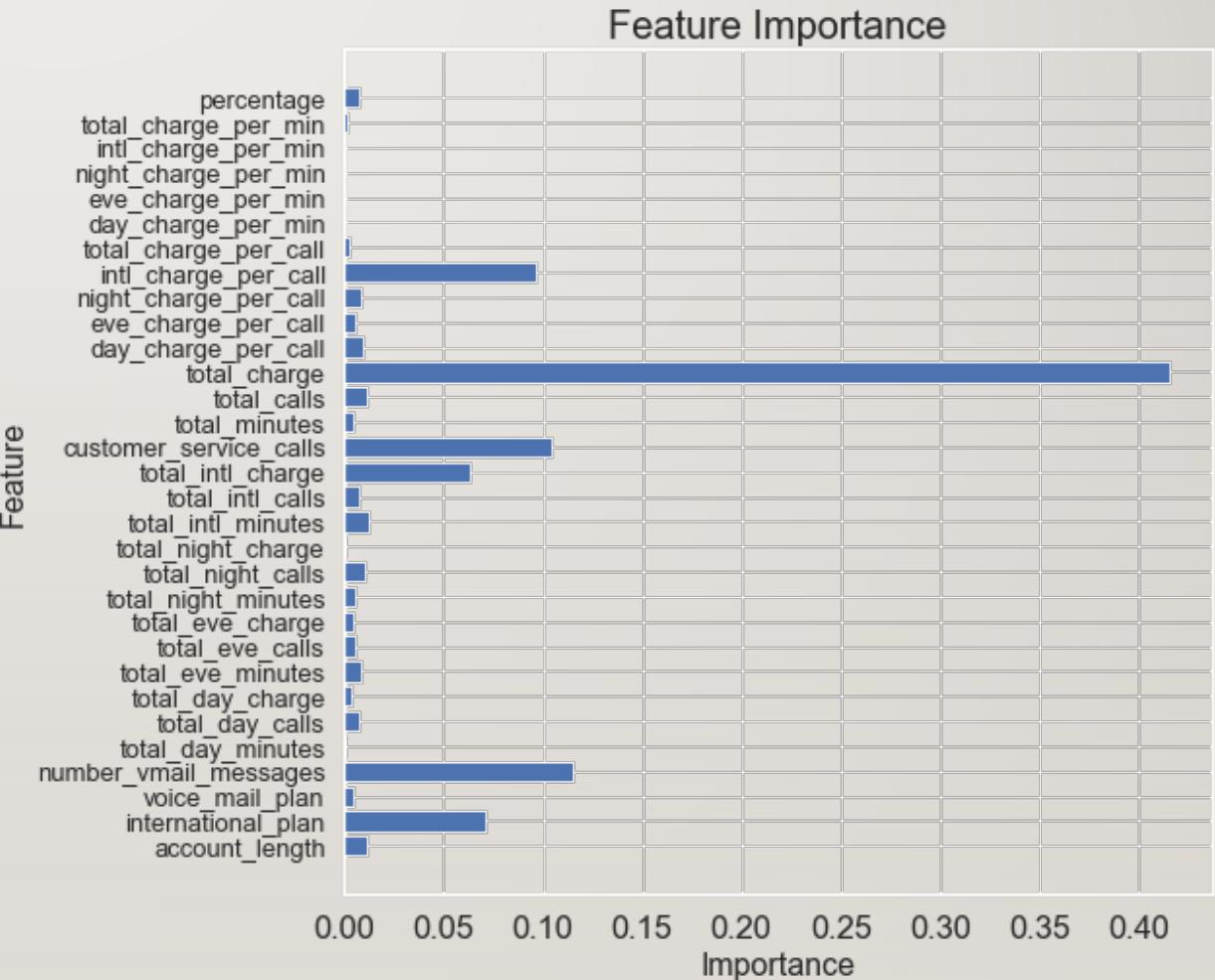


CLASSIFIER MODEL

- Multiple iterations of different types classifier models were assessed to find the best outcome
- The best model has:
 - A testing accuracy of 98.441%
 - 100% precision when predicting customers who churn
 - 98% precision when predicting customers who stay
 - 90% recall when predicting customers who churn
 - 100% recall when predicting customers who stay

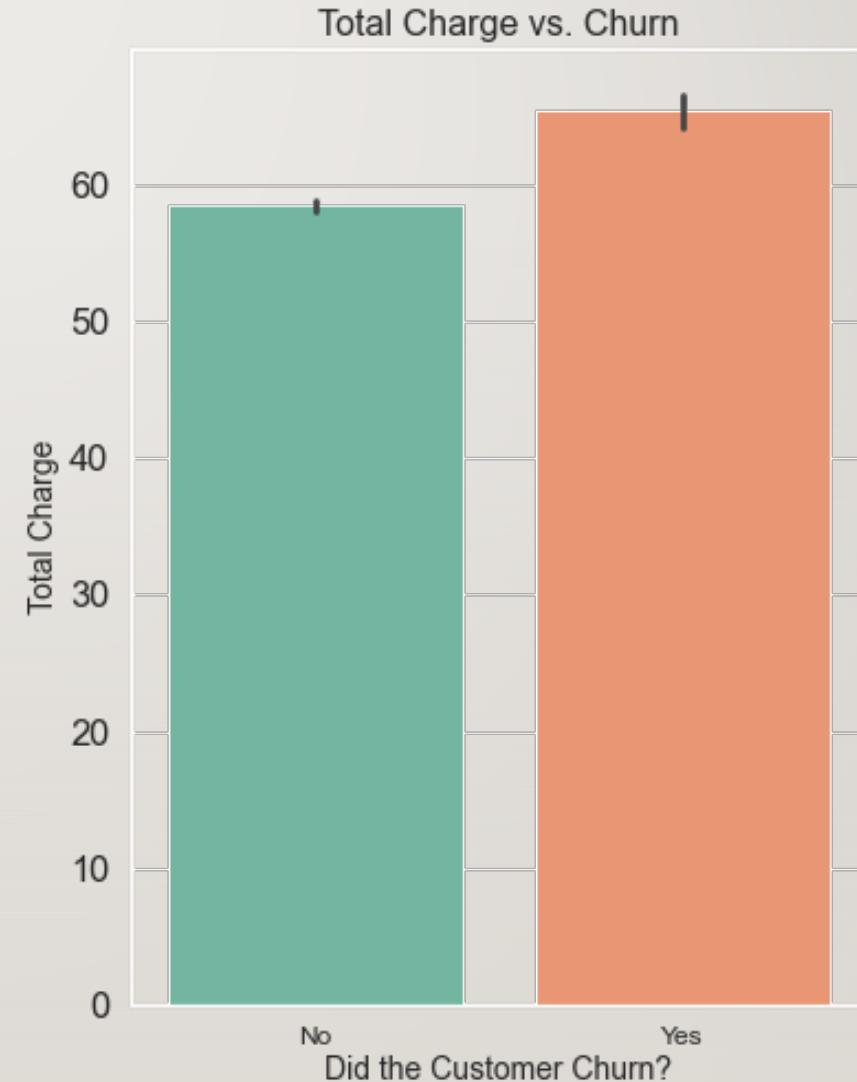
TOP FACTORS THAT AFFECT CUSTOMER CHURN

- The top features that separate themselves in terms of predicting whether a customer will churn or not are:
 - Total Charge
 - Number of Voicemail Messages
 - Number of Customer Service Calls
 - International Charge per Call
 - International Plan
 - Total International Charge



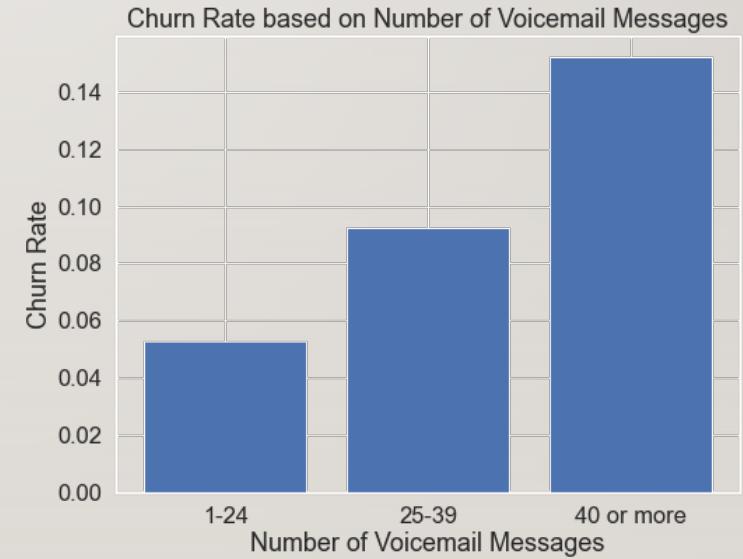
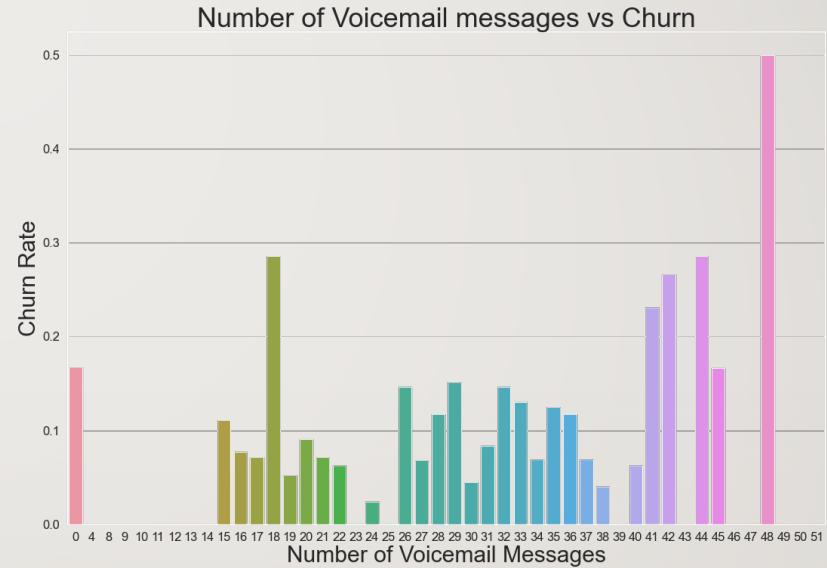
TOTAL CHARGE

- The customers who churned paid more on average:
 - Churned: \$65.36
 - Did not Churn: \$58.45
- This feature was 260% more influential in predicting churn than the next most important feature
- Recommendation: to focus on providing more low-cost benefits or discounts to higher paying customers as it has been shown they are more likely to churn.



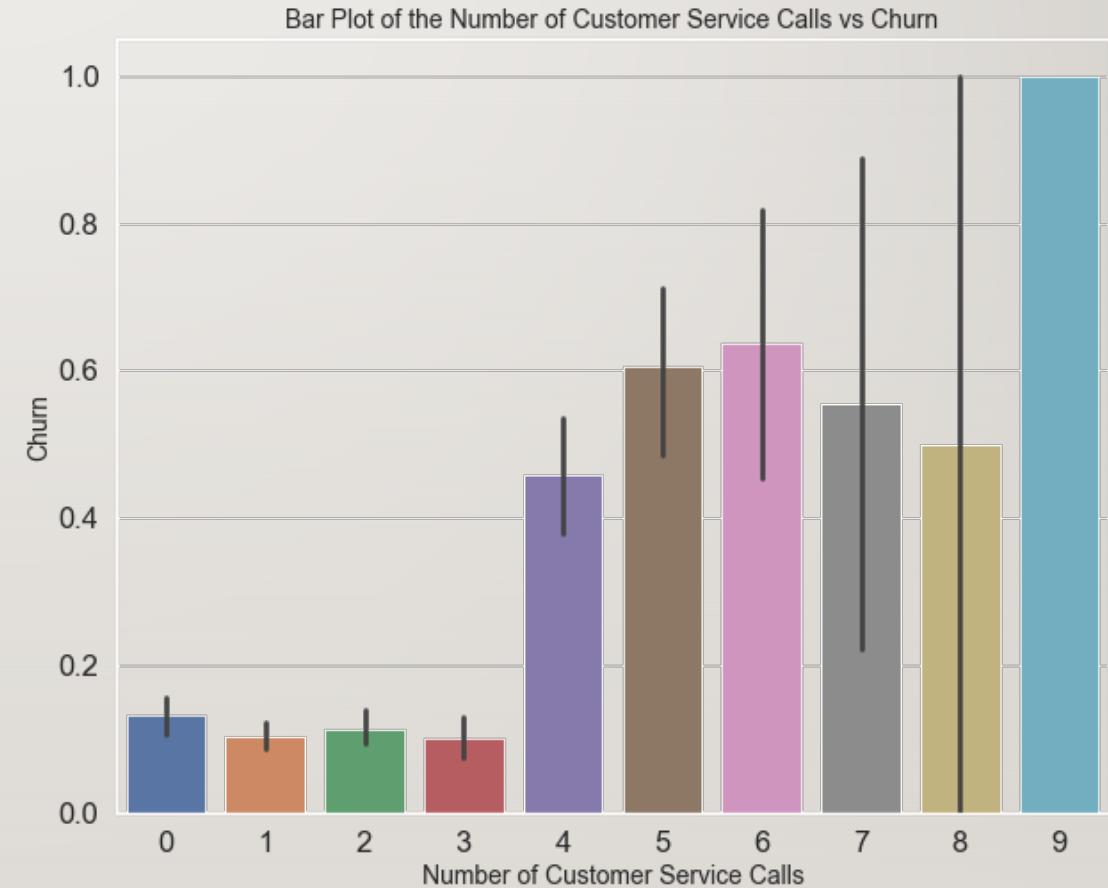
NUMBER OF VOICEMAIL MESSAGES

- Customers with no voicemail plan churned at a rate of 16.71%
- Once customers without a voicemail plan are eliminated from analysis the trend indicates that as the number of voicemail messages increase so does the churn rate
 - 1-24: 5.26%
 - 25-39: 9.22%
 - >39: 15.19%
- Recommendation: Explore avenues of improvement in quality of the voicemail plan as the indication is the more frequent a user one is of said plan, the more likely they are to churn.



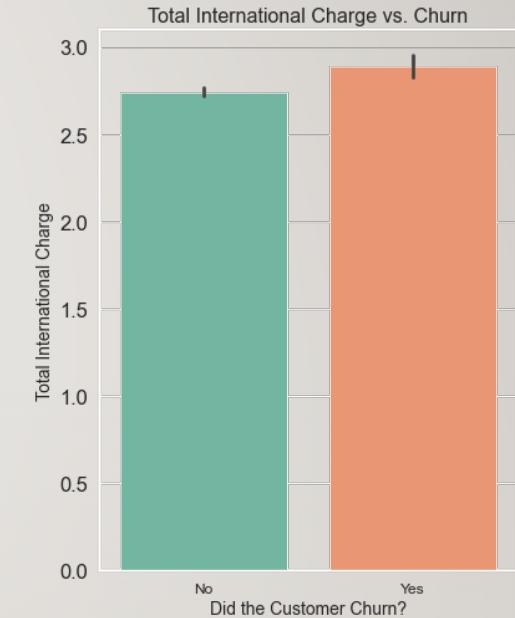
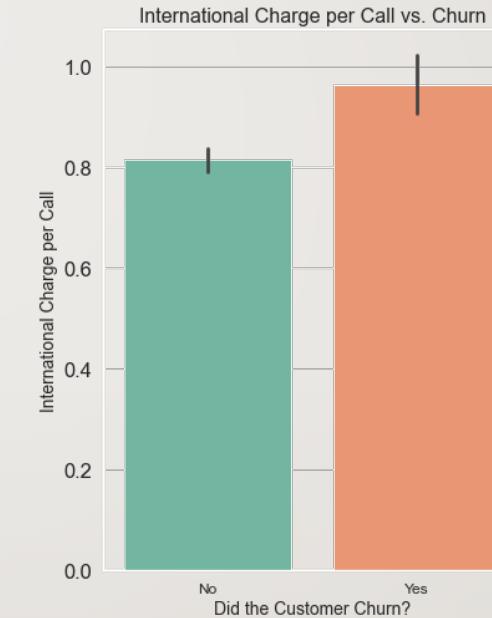
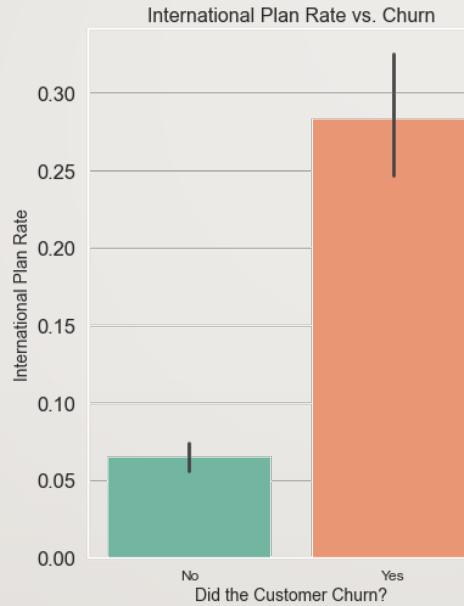
NUMBER OF CUSTOMER SERVICE CALLS

- The churn rate changes from when a customer calls customer service 3 time to 4 times by a total of 35.53%
- 4 customer service calls is the inflection point in that the churn rate stays above 45.78% at that point
- Recommendation: ensure the customer's problems are resolved in less than 4 calls and if not then provide extra benefits to any customers who call customer service at least four times.
- In addition, training the customer service staff more would ideally lead to quicker resolutions.



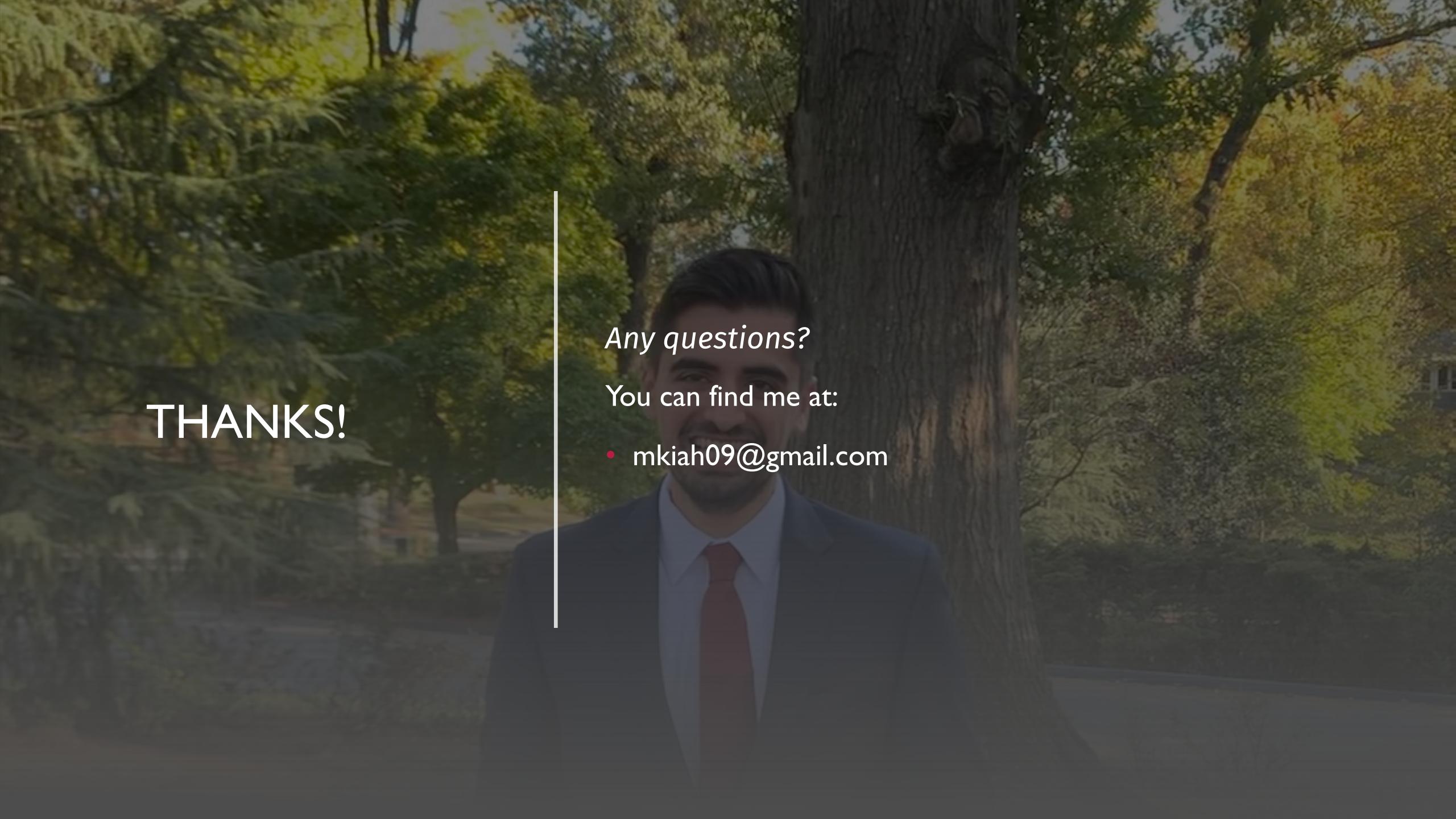
INTERNATIONAL PLAN

- These figures help to provide insight that various aspects of the international plan is causing the customer to churn more frequently.
- The recommendation from this would be to evaluate the overall scope of the international plan in hopes to decrease the charges for customers who have this plan as the indication is that they are not pleased with the charges and overall aspects of the plan.
- This could be due to competitor's prices for a similar international plan or quality of the plan in general



SUMMARY AND OUTLOOK

- Recommendations:
 - Total Charge: Focus on providing more low-cost benefits or discounts to higher paying customers as it has been shown they are more likely to churn
 - Number of Voicemail: Improve the quality of the voicemail plan as the more a customer uses the voicemail plan, the more likely they are to churn.
 - Number of Customer Service Calls: Ensure that customer resolution is reached in less than 4 calls and evaluate customer service staff
 - International Plan: Evaluate overall quality and price of international plan as a customer is 30.92% more likely to churn if they have an international plan
- Future work:
 - Address the false negatives in hopes to bring the amount down to zero
 - Research into implementing other classifying models such as Balanced Random Forest
 - Perform hyperparameter tuning and pruning on more models



THANKS!

Any questions?

You can find me at:

- mkiah09@gmail.com