



# TTIC TECH CONSULTING

TIM COOK - TYLER CONCIALDI - ISAAC MCSORLEY - CADE KEENAN

TTIC Tech Consulting

# OVERVIEW

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# CUSTOMER RETENTION

- Customer retention - Company's ability to maintain current customers and continue to generate revenue from existing members.
- It's vital to retain existing customers —and keep customer retention as a priority within a business to overcome competition.
- Proven 6 - 7 times more costly to gain a new customer vs maintaining an existing customer.

# BUSINESS & DATA MINING GOAL

Our goal is to build a model that will identify what variables have significant effects on our client's customer churn rate and provide recommendations to minimize it.

Keep existing customers

New scaling and growth opportunity

Increase customer loyalty

# DATASET OVERVIEW

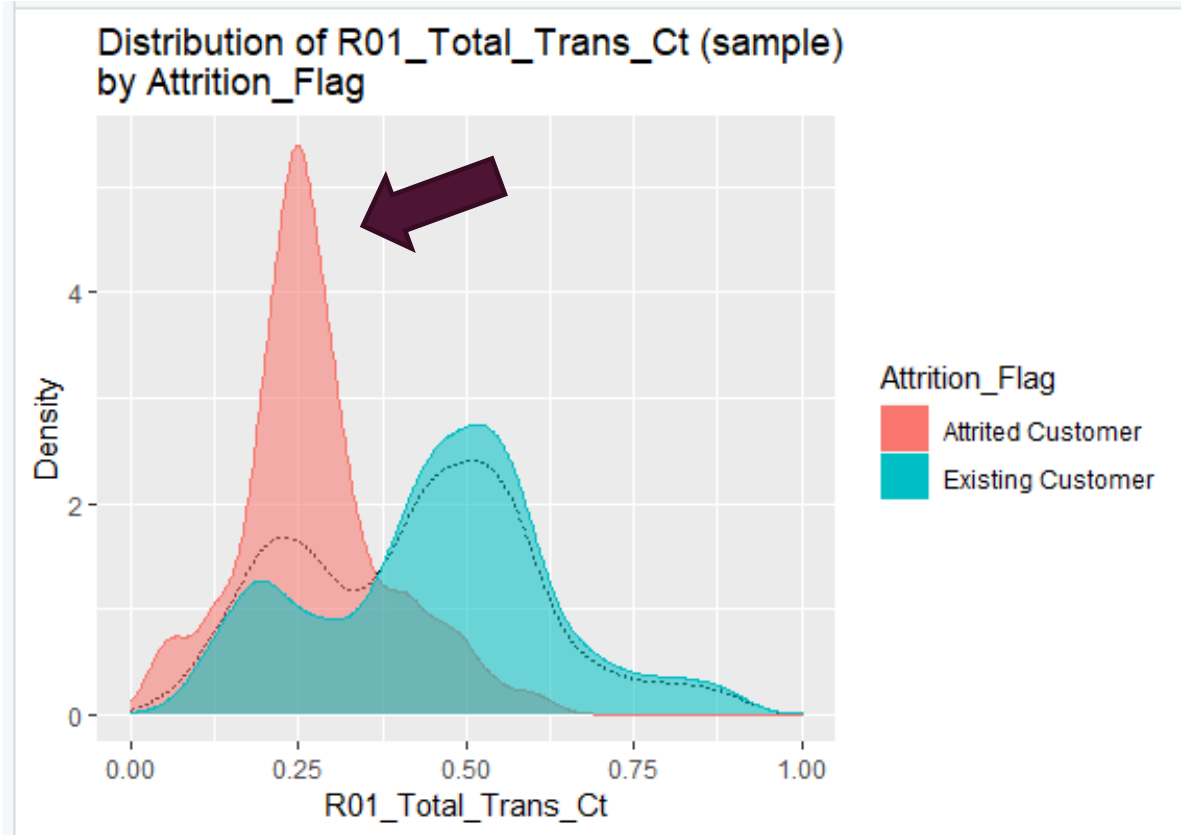
**Instances: 10,000**

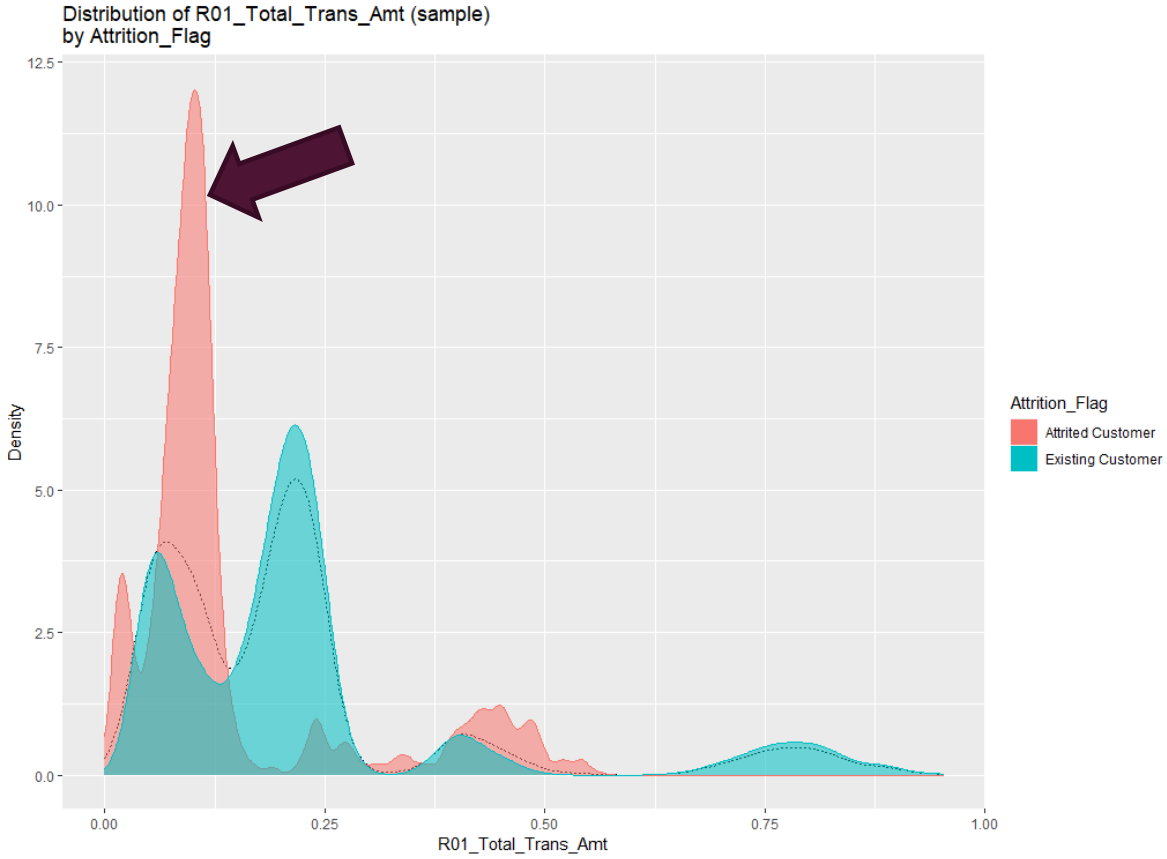
**Categorical Features: 6** : Education Level, Marital Status, Income Category, Card Category, Gender

**# of Numeric Features: 16:** Age, # of Dependents, Months on book, Credit limit, Total Revolving Balance, Total Transactions

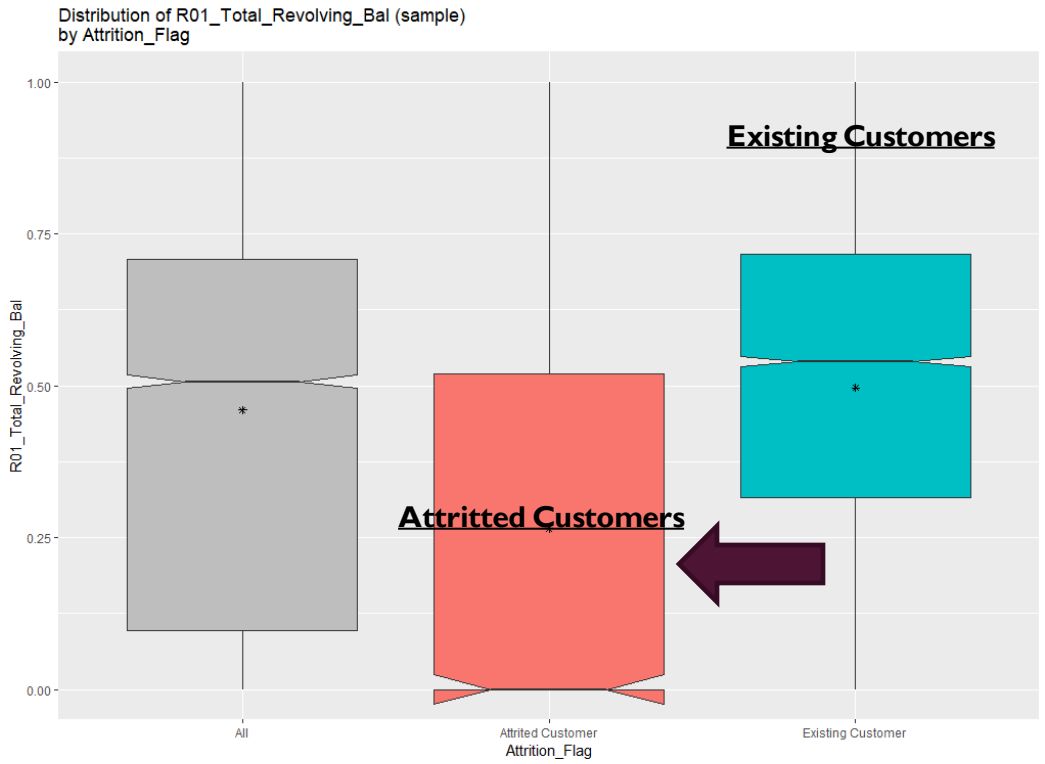
**Target variable Percentage: 16.07% of customers have churned**

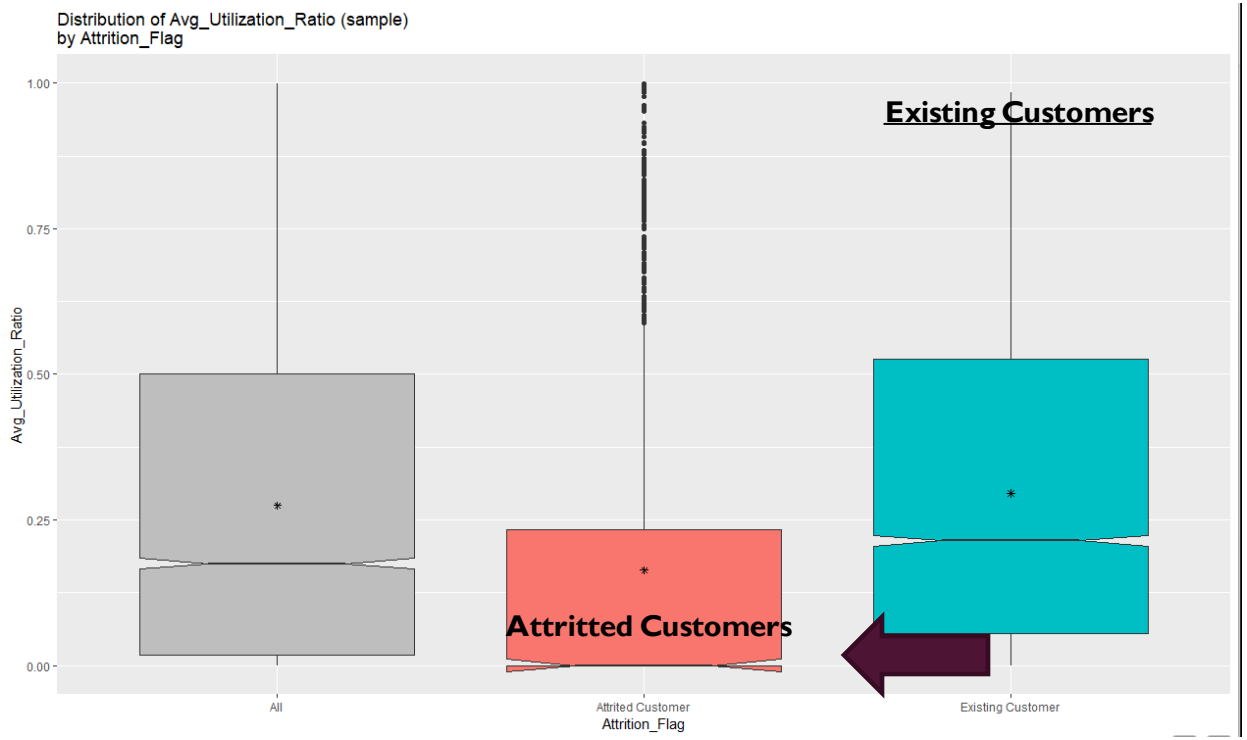
# Customers with lower numbers of transactions and total transactions amount are more likely to churn.



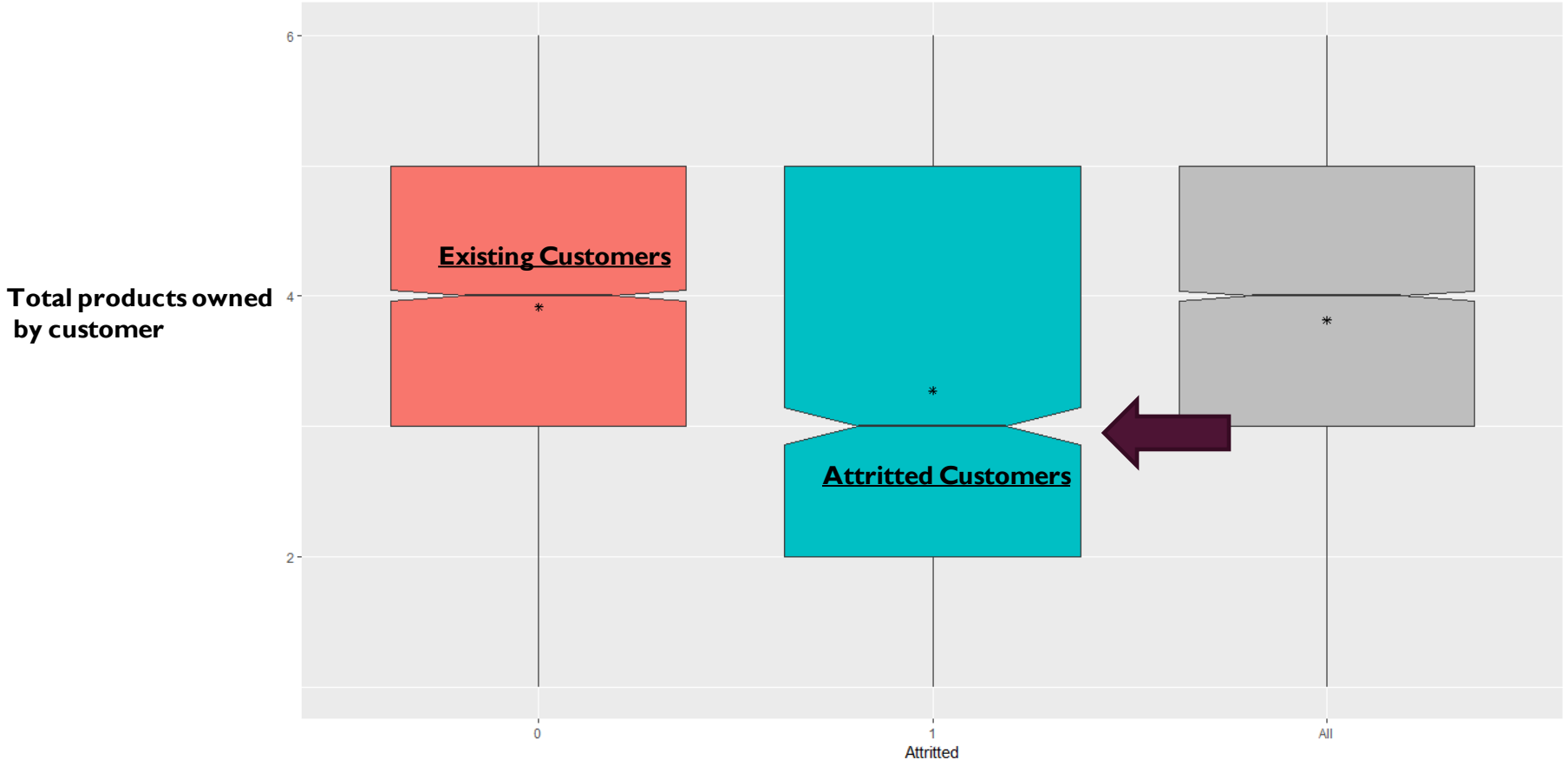



# Customers with lower total revolving balance and average utilization ratio are more likely to churn.



# Customers with fewer total company products (credit cards), are more likely to churn.



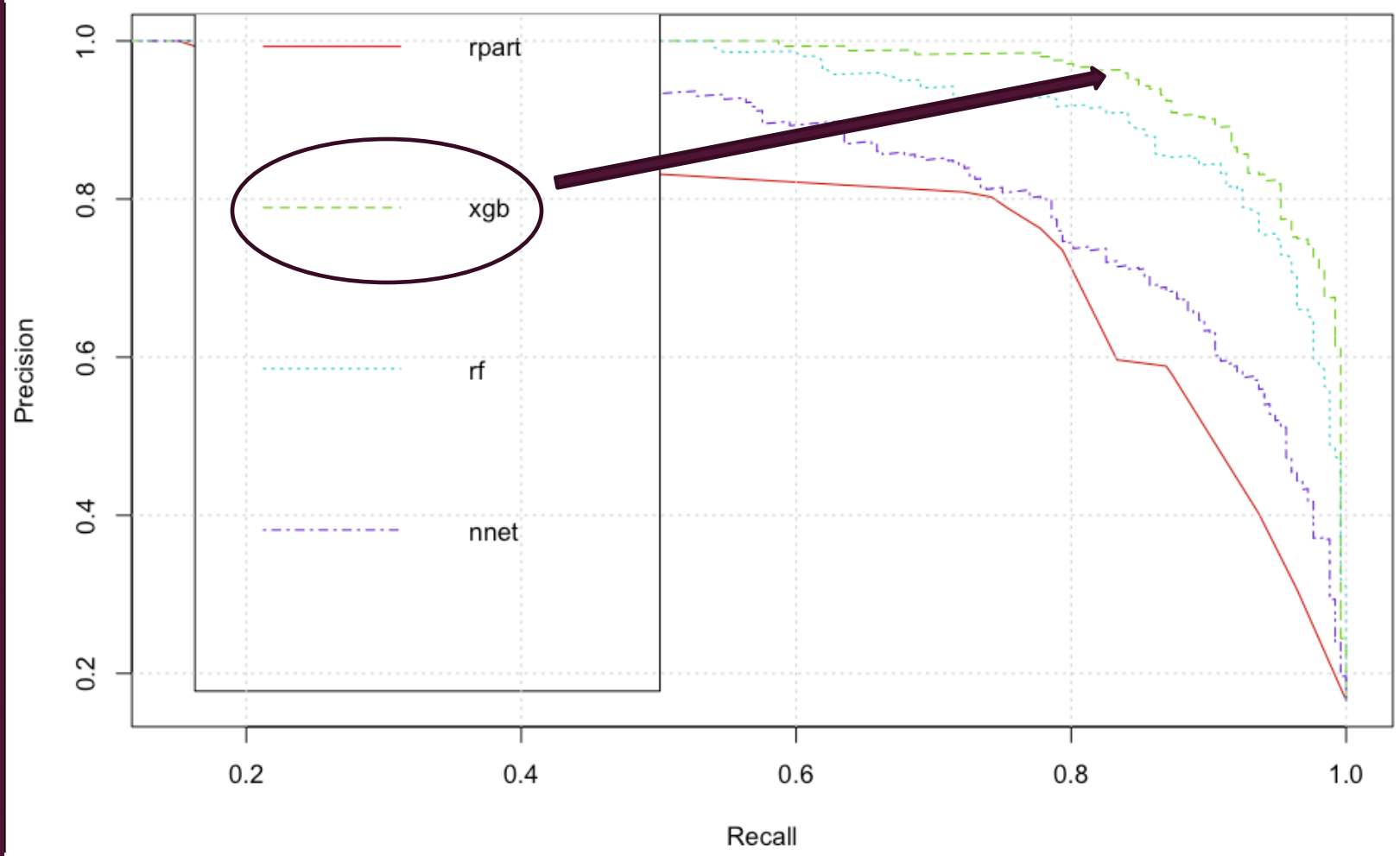
# METHODS AND EVALUATION

- Tested All Classification Models
- Evaluation metrics
  - ROC and AUC
  - Error Matrix: Precision and Recall
- Cross-Validation with random seed values 42, 294290, 990998

| Model | AUC (best model) |
|---|---|
| **Gradient Boosting** | **.9911** |
| Ada Boost | .9880 |
| Logistic Regression | .9252 |
| Random Forest | .9874 |
| SVM | .9344 |

# PRECISION AND RECALL CURVE

- The gradient boosting model provided the best precision/recall curve



# EXPLORING THE RESULTS

**Precision**: 96%

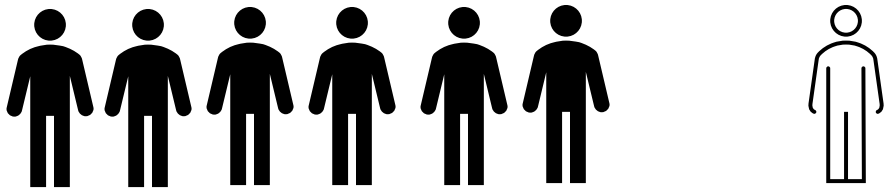
- This shows were able to predict the negative class well. (customers who do NOT churn)

**Recall**: 85.7%

- This shows we can predict the positive class well also. (customers who WILL churn)

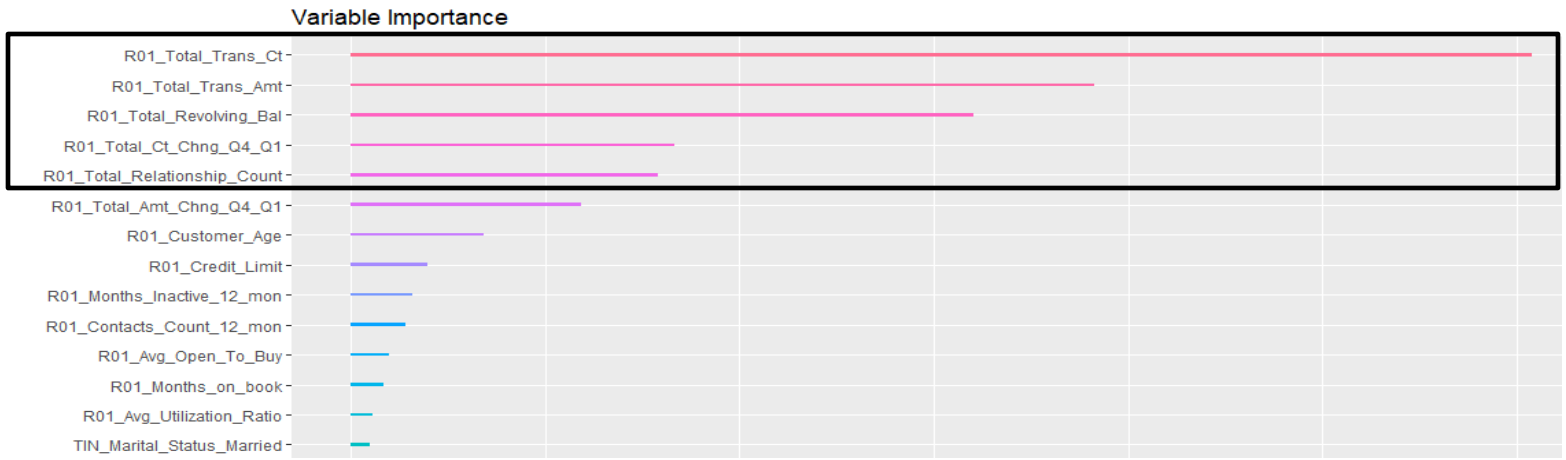
False Positive Rate: 14.3%

- Using the validation set to evaluate our model, we were able to correctly identify 6 out of every 7 customers who churned



## The top variables that affect customers attrition are:

1. Total transactions count
2. Total transaction amount
3. Total revolving balance
4. Change in transaction count Q1 to Q4
5. Total product count



# RECOMMENDATIONS

- Reward customers with a higher cash back percentage once they reach a certain number of monthly transactions
- Offer different incentives for individuals who use above their average monthly credit balance
- Offer incentives such as increased rewards for customers who have more than one company product

# THANK YOU!

Questions?