Customer Churn

Megan Lyons
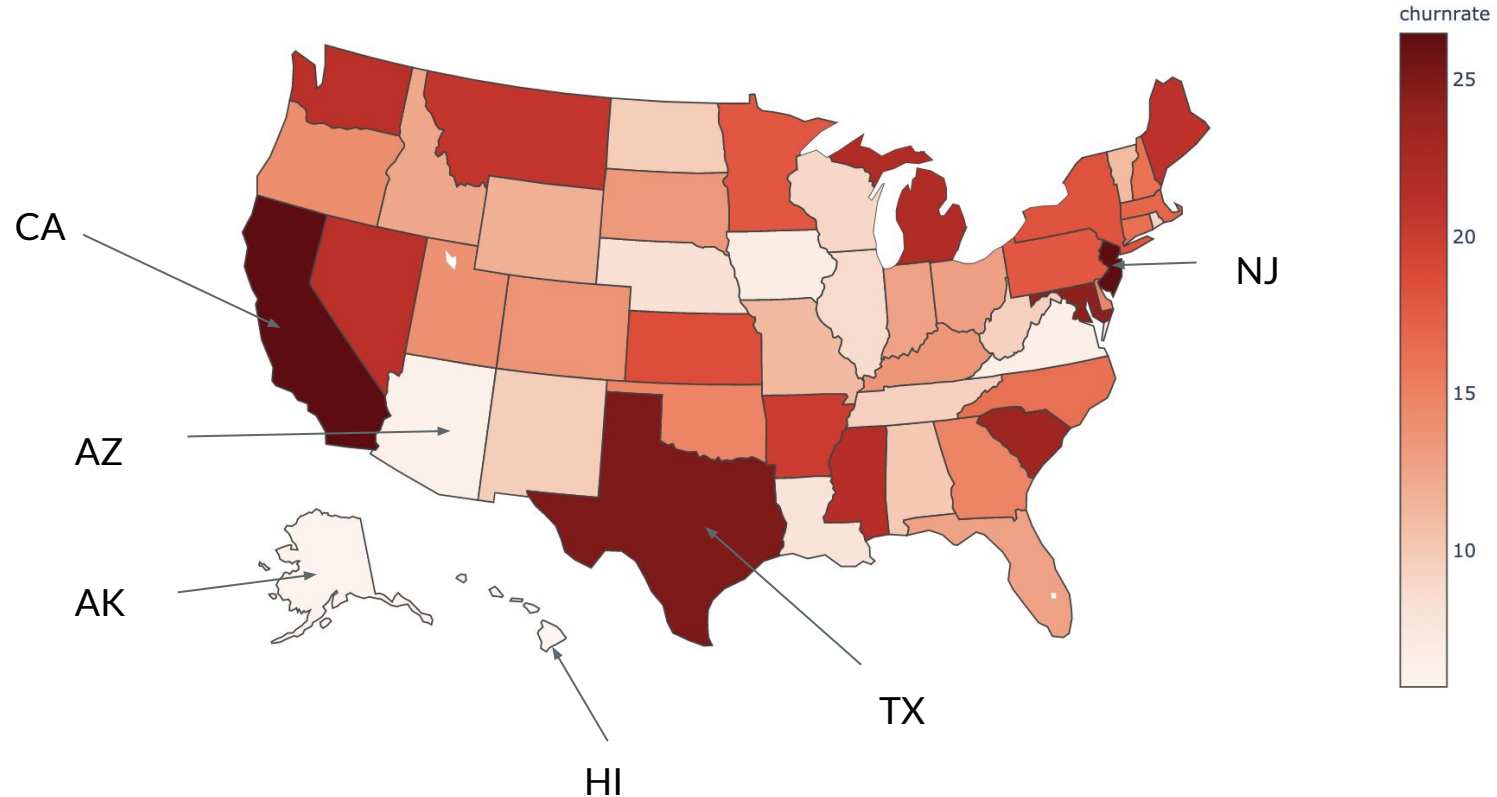
Why will this analysis help?

➔ **Identify Key Causes of Churn**
Strategy to reduce churn will depend on why people are leaving

➔ **Improve Retention**
By segmenting customers based on behaviours and demographics

Does Churn Rate vary by State?

Churn Rate by State

Does Monthly Charge affect Churn?
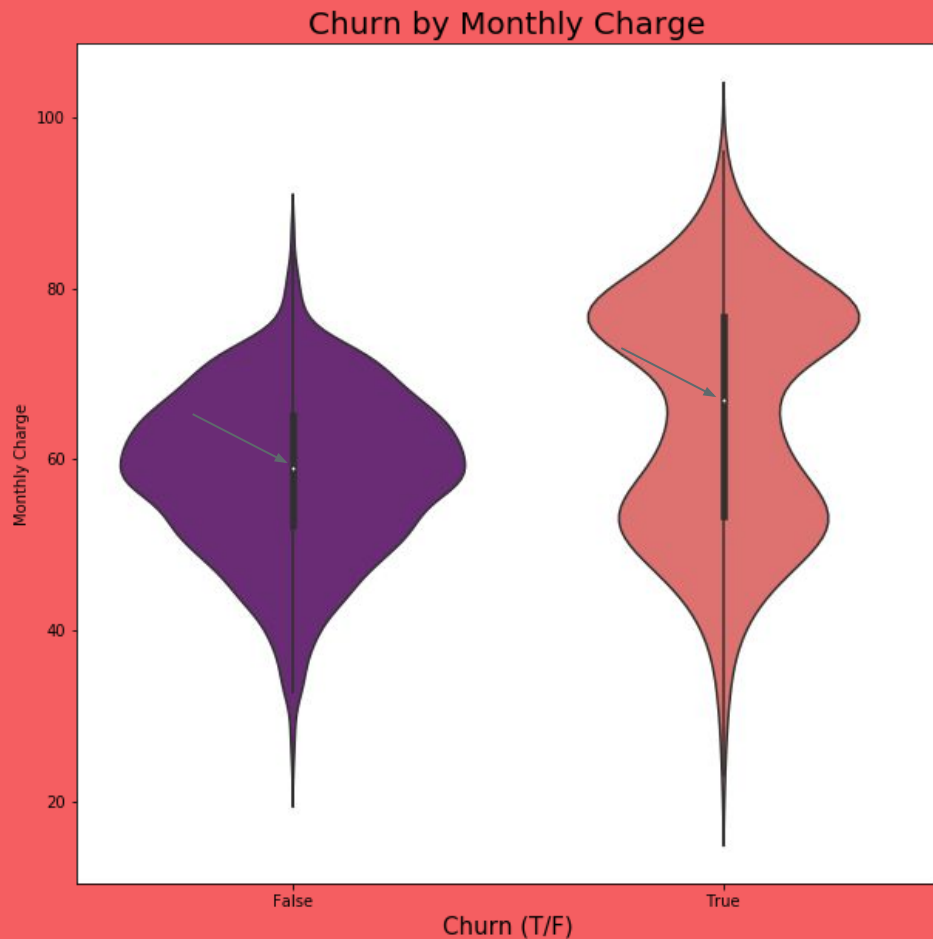
Monthly Charge

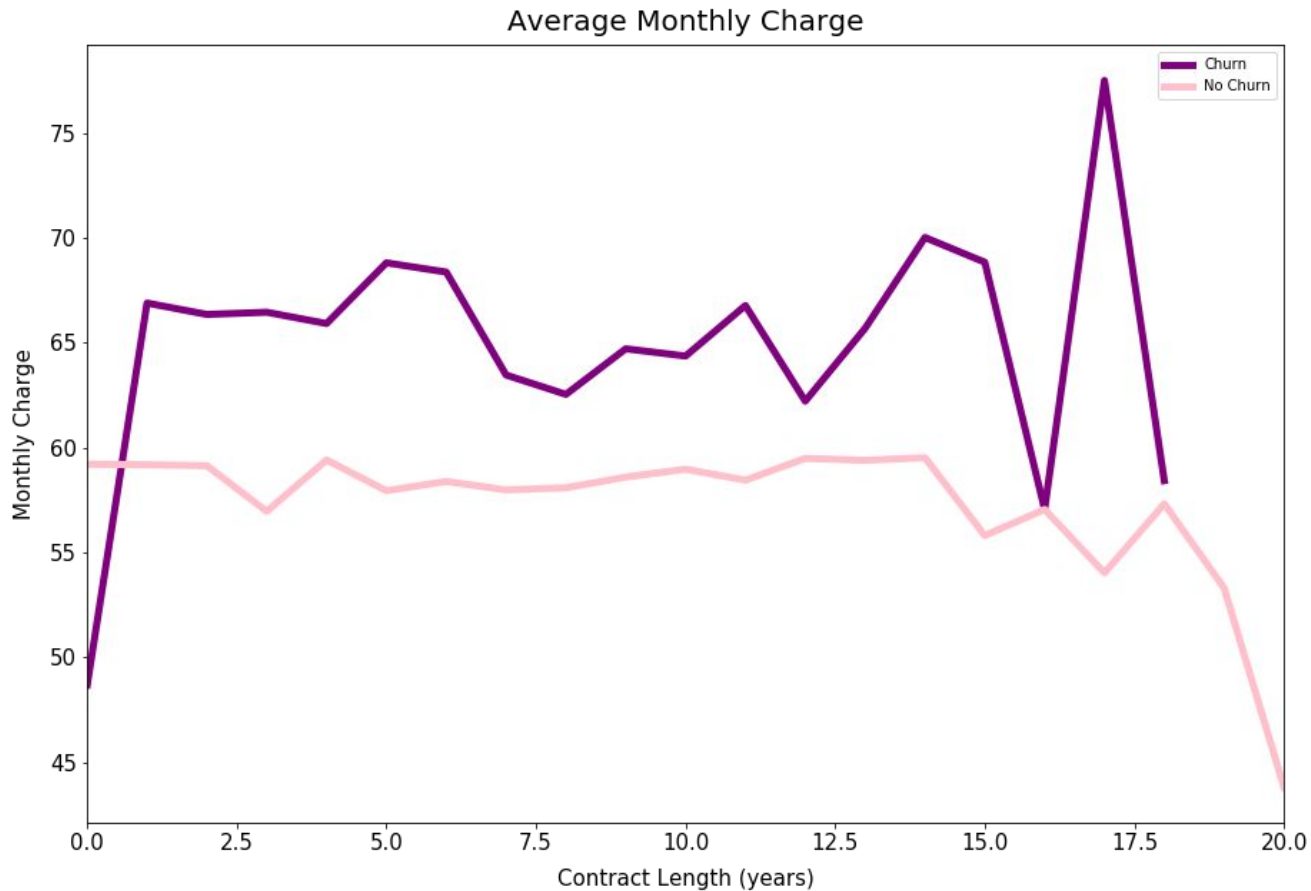## 75%

Of people with monthly
charge over $75 leave

$8

The extra amount churners
pay on average

46%

Of churners have a total
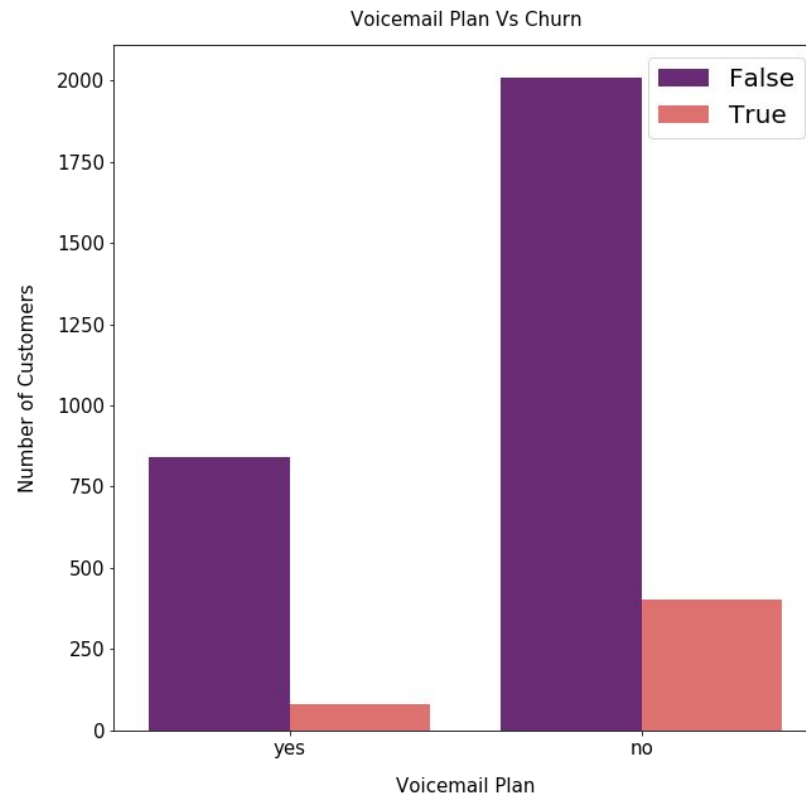monthly charge over 70$
(compared with 10% of non churners)

Churn by Monthly Charge

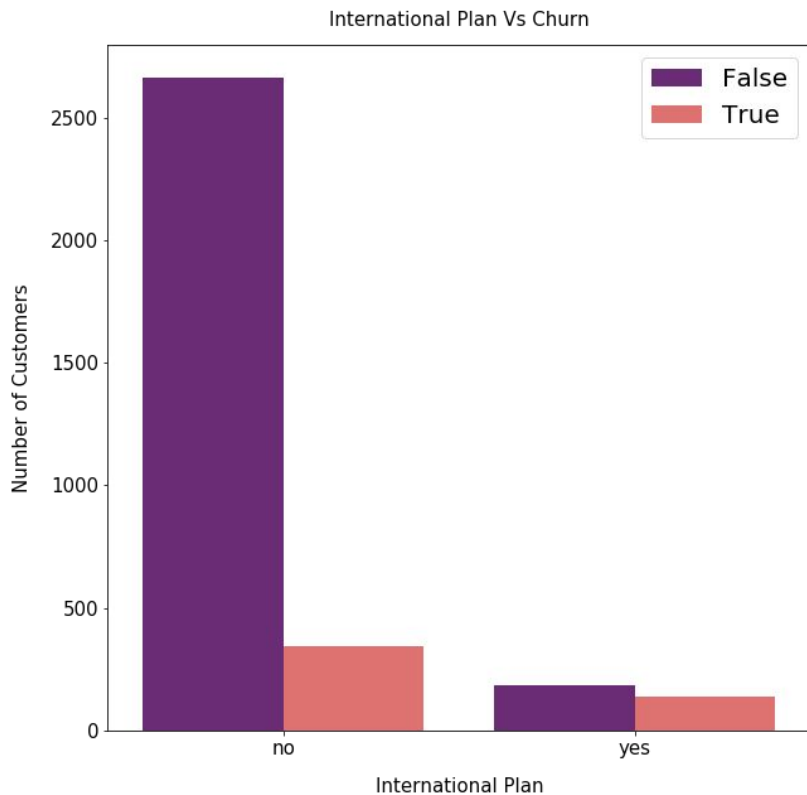# Monthly Charge by Tenor

Average Monthly Charge

Do Add-ons have an impact on churn?

Do Churn Rates vary by optional plans

Classification Model

Predicting Churn

90% of Churn predicted

Important Features of Model:

1. State
2. International Plan
3. Voicemail Plan
4. Total Charge
5. Customer Service Calls

See Appendix for more detailed explanation

Preventing Churn - Next Steps

Customer Service Calls	- Review each call to ensure the customer is happy - Identify negative experiences to reduce attrition - Investigate Complaints
Monitor Minutes/Charge	- When Number of Minutes per month reaches threshold - Reach out to customer to see if this was a one off or if they need a new plan
International Plans	Reach out to all International Plan customers to ask for feedback how the plan can be improved
States	- Churns Rates vary by State - Refer to thresholds by state to determine course of action

Future Work

1 **More Data**

Gather more information about customers
- When contract started
- Monthly data to see fluctuations
- Age,gender

2 **Customer Segmentation**

More In-Depth Analysis on customer segmentation

3 **Explore Add-On Combinations**

Specifically why International plans have such a high attrition rate

4 **Competitor Analysis**

Perform SWOT Analysis

Conclusion

What have we learned about our Customers?

International Plan Churn Rate

50%

Over 50% of people with an International Plan leave the business

Monthly Charge

$8

Monthly Charge is higher for churners

Customer Services Calls

52%

Over 50% of people who left made more than 3 calls to customer service
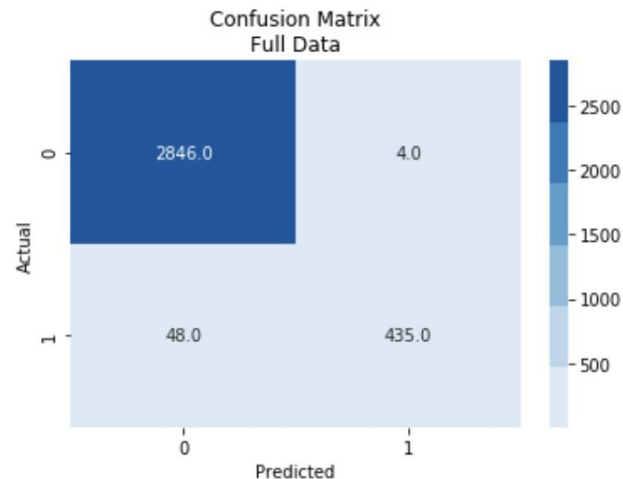
Thank You

Questions :)

Appendix I

Confusion Matrix for Full Data Set

- 1.4% classified as a False Negatives
- Correctly predicts 90% of churners

1.4401440144014401 of False Negatives

Confusion Matrix
Full Data

Precision Score: 0.9908883826879271
Recall Score: 0.9006211180124224
Accuracy Score: 0.9843984398439845
F1 Score: 0.9436008676789589

0.855263157894737 of False Negatives

Confusion Matrix
Train Data
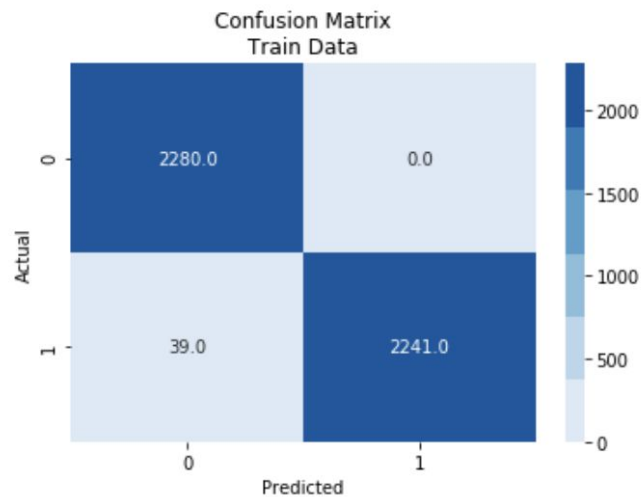
Precision Score: 1.0
Recall Score: 0.9828947368421053
Accuracy Score: 0.9914473684210526
F1 Score: 0.9913735899137359

1.3493253373313343 of False Negatives

Confusion Matrix
Test Data
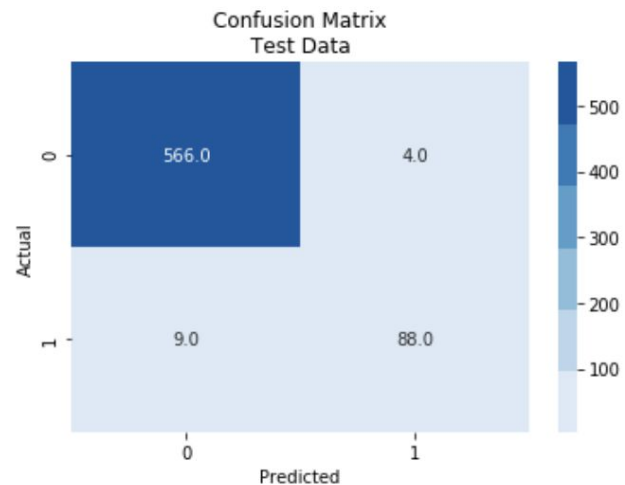
Precision Score: 0.9565217391304348
Recall Score: 0.9072164948453608
Accuracy Score: 0.9805097451274363
F1 Score: 0.9312169312169312

Appendix II

XGBoost

Ran the following parameters through gridsearchcv

Learning Rate: 0.001,0.05,0.01,0.1,0.5

Max_Depth: [3, 5, 7]

N_estimators: [5, 50, 100, 250, 500, 750]

The Best parameters were:

Learning Rate: 0.001

Max_Depth: 3

N_estimators: 5