

SyriaTel

Predicting Customer Churn

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\$ 77 Billion

Verizon Gross Profit 2021



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Currently

- 14.5% per month Churn rate
- Losing most profitable customers
- Frequent customer service calls



Proposals

- Targeted discounts
- High volume pricing plan
- Competitive international rates
- Customer support training





Business Problem

Acquiring new customers is more difficult
and expensive than retaining existing
customers.



Objective



Who?

Predict who will churn.



Why?

Explore reasons customers churn.



What?

Steps to take to reduce churn.



Telecom Data

One month usage data from 3300+ customers :

- Age of account
- Total charges to account
- Phone plan
- Customer service calls

Methods



Exploration

Preliminary
exploratory
analysis of the data



Modeling

Make basic models
& optimize the best
performers



Validation

Verify model
performance and
draw insights

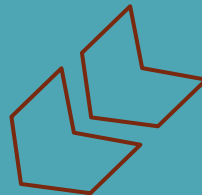
Recall

Of the customers who did churn,
how many did the model identify?



Precision

Of the customers predicted to churn,
how many did churn?



F-beta Score

Considers Recall and Precision
Beta=2 Favors Recall



Gradient Boosting Model

True Label	Stay	Churn
	567	3
Churn	16	81
Predicted Label		

Recall - 83%

Of the customers who did churn, how many did the model identify?

Precision - 96%

Of the customers predicted to churn, how many did churn?



Objective



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Feature Importance

The most important predictors of churn are:

- Total account charge
- No. Customer service calls
- International plan
- International charge



Objective



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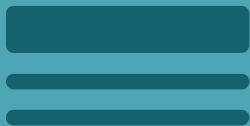
What?

Steps to take to
reduce churn.

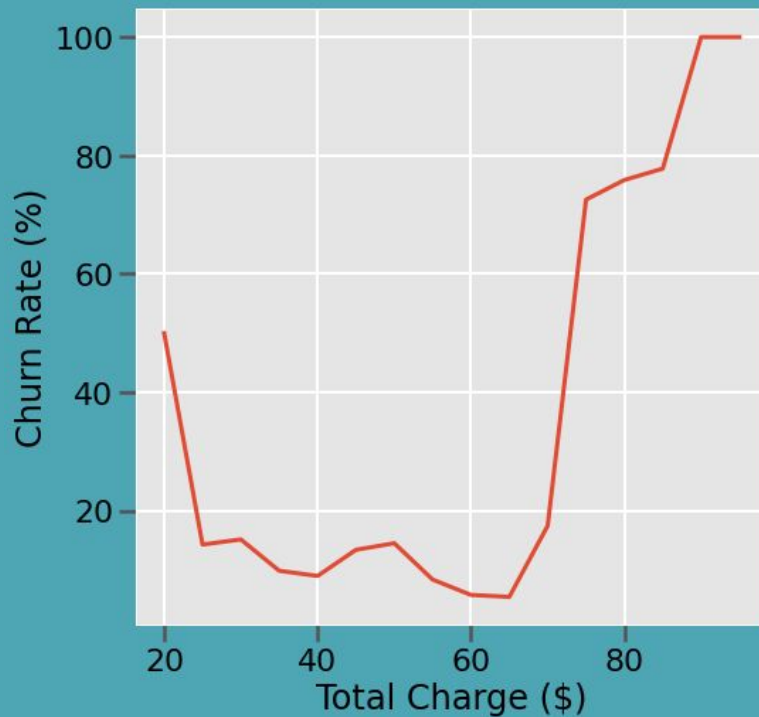


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Targeted Discounts



High Volume Pricing



Customer Support



Invest in improving customer support resources.

International Plan Pricing

Small Group Large Churn

- 42% per month Churn Rate
- Losing long-term customers
- Reduce cost of International Plan





Objective



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What?

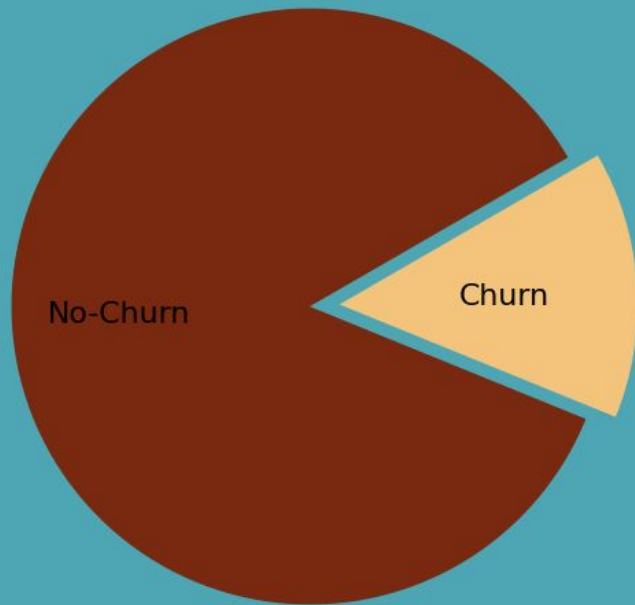
Steps to take to
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Model Limitations

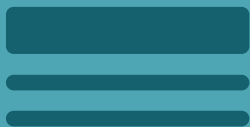
Dealing With Class Imbalance

- Weighting data points
- Generated data points
- Various model architectures



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Data From 2012





Future Research



More Recent Data

Cell phone tech moves quickly.



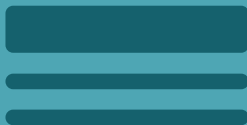
Location

Are some areas more profitable?



Internet Plans

Would offering mobile data help?





THANKS!

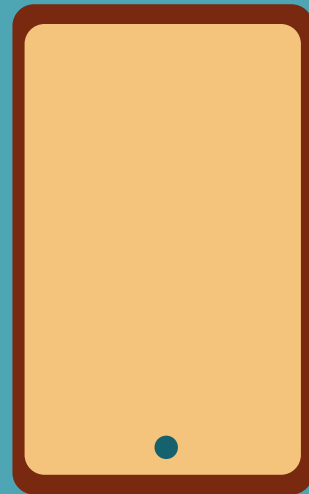
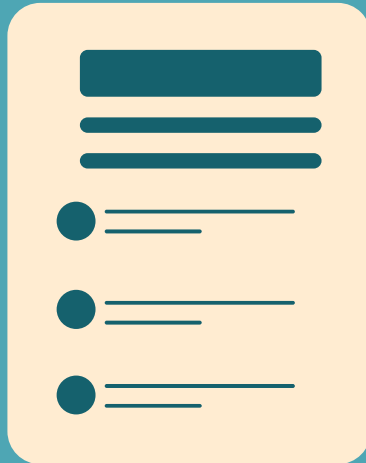
Do you have any questions?

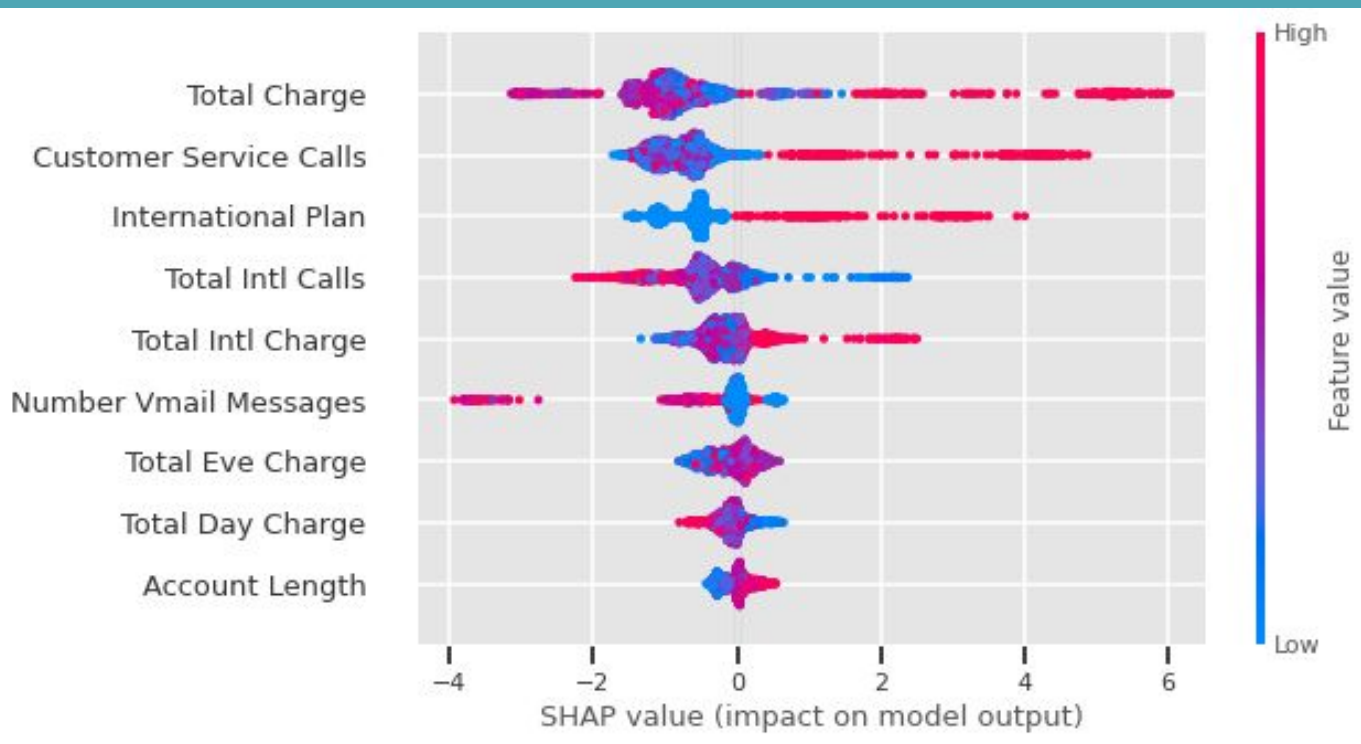
[Project Repository](#)

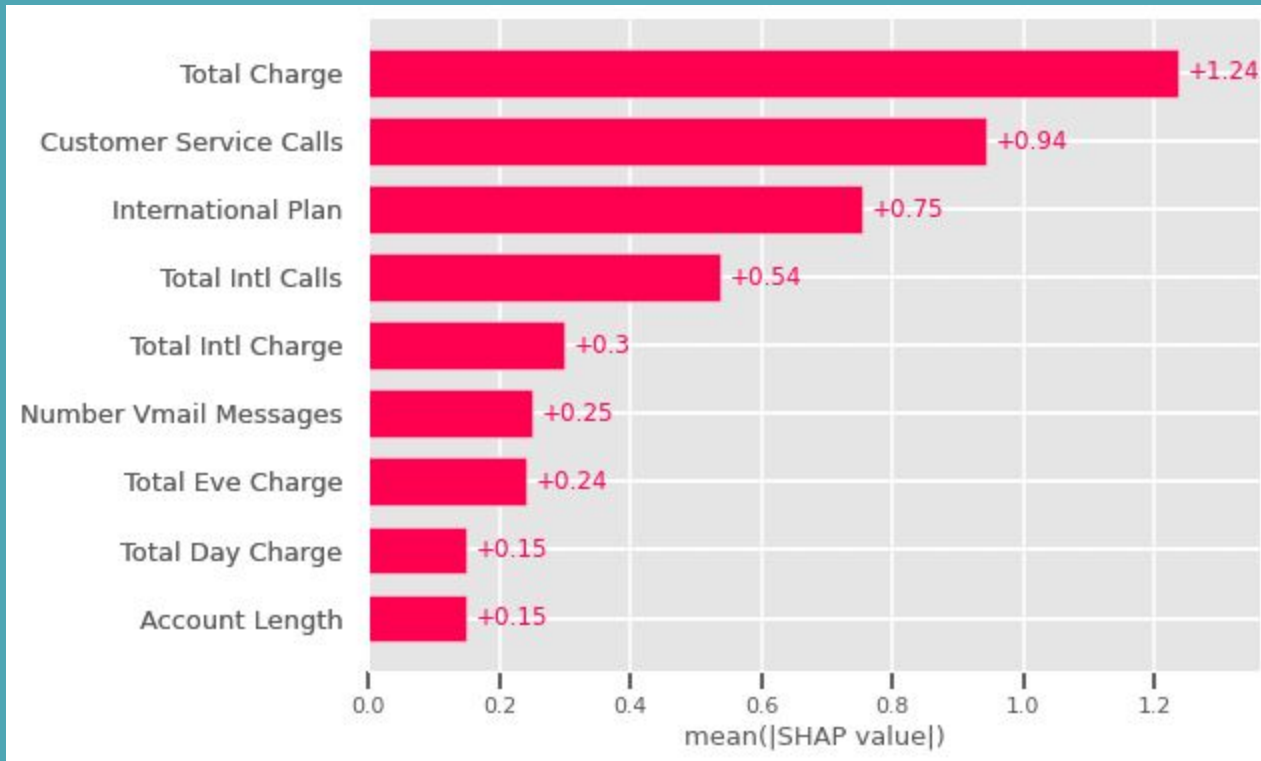
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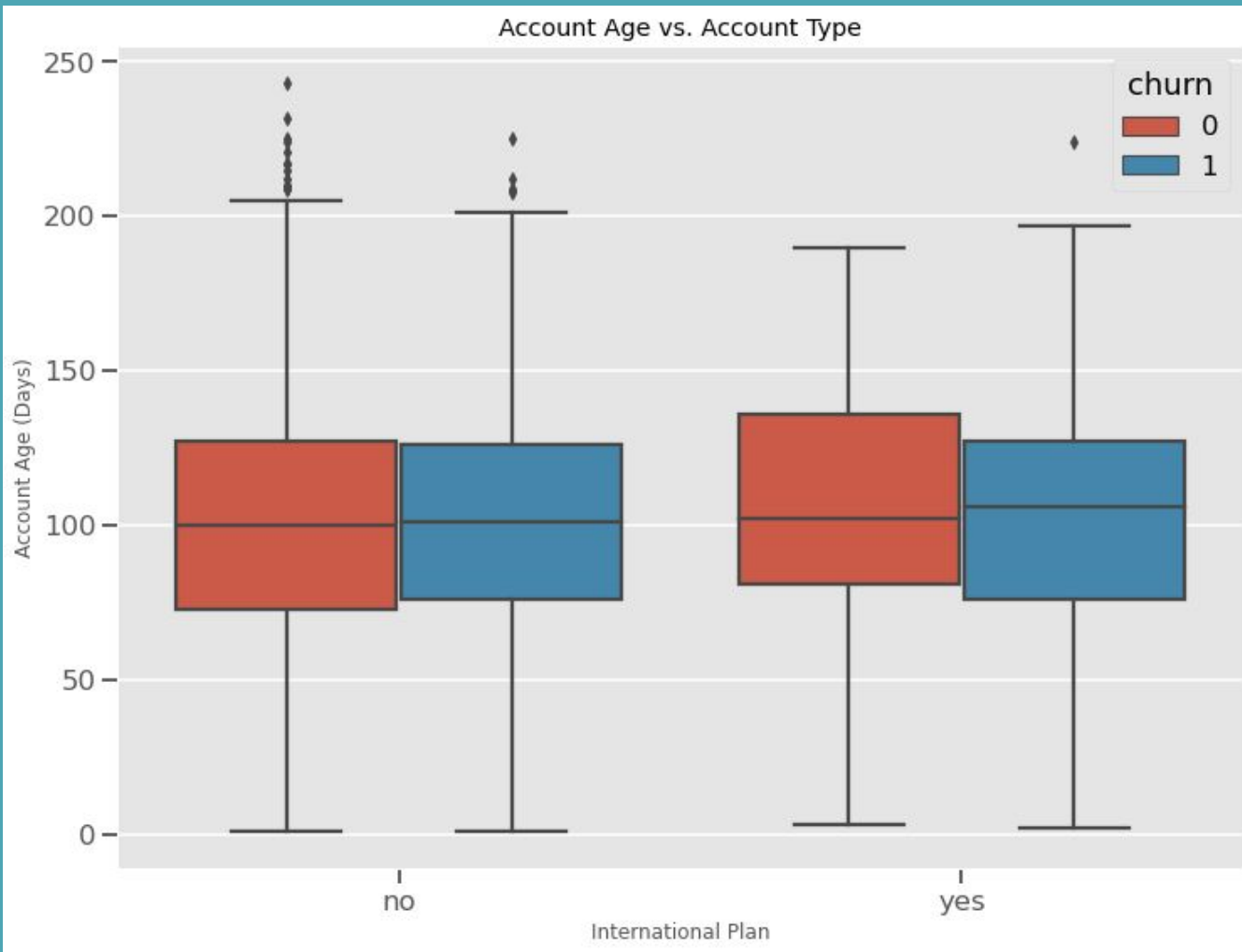


Appendix









Correlation Coefficients

