

If I Could Churn Back Time



By - Whitlee Pearson (And Cher)

About Me

Avid knitter

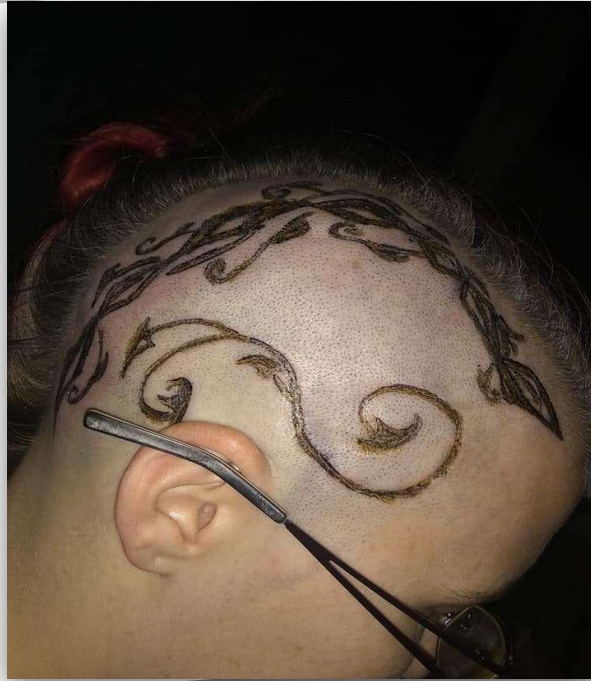
Intense gamer

Creative writer

Data dork

Animal lover

Body mod canvas



Overview

“Customer Churn” -
when a customer stops
doing business with a
company.

Properly addressing
“customer churn” can
save a company untold
amounts of money.



Customer churn is one
of the biggest issues
facing almost every
industry today.

Business Understanding

Can a model successfully predict that a customer would “soon” stop doing business with a company, thereby allowing that company to stop that “customer churn”?



Lower “customer churn” =
higher customer retention
= more money overall.

Data Understanding

- Fictional data from IBM of a telecommunications company.
- Contained predictors like gender, services used, friend referrals, and similar.

```
No      0.73463  
Yes     0.26537  
Name: Churn, dtype: float64
```

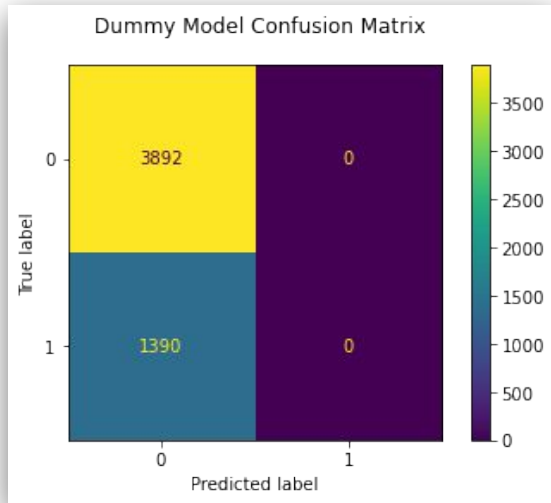
Class Imbalance

& Prep

- Removed unnecessary or repeated columns.
- Removed location-based predictors.
- Numerous dataframes stitched together to form one.
- Encoded and scaled data as necessary to ensure proper modeling.

Dummy Model

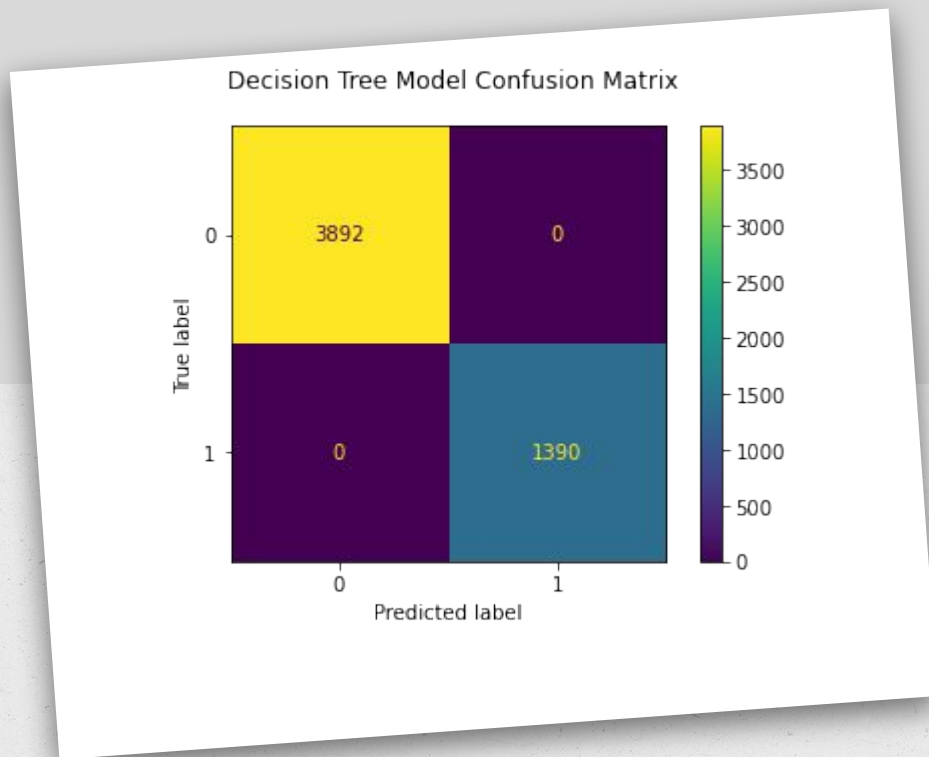
- Always predicts most common response.
- Will not identify customers who are about to churn due to class imbalance.



0% recall
73% cross-validated
accuracy

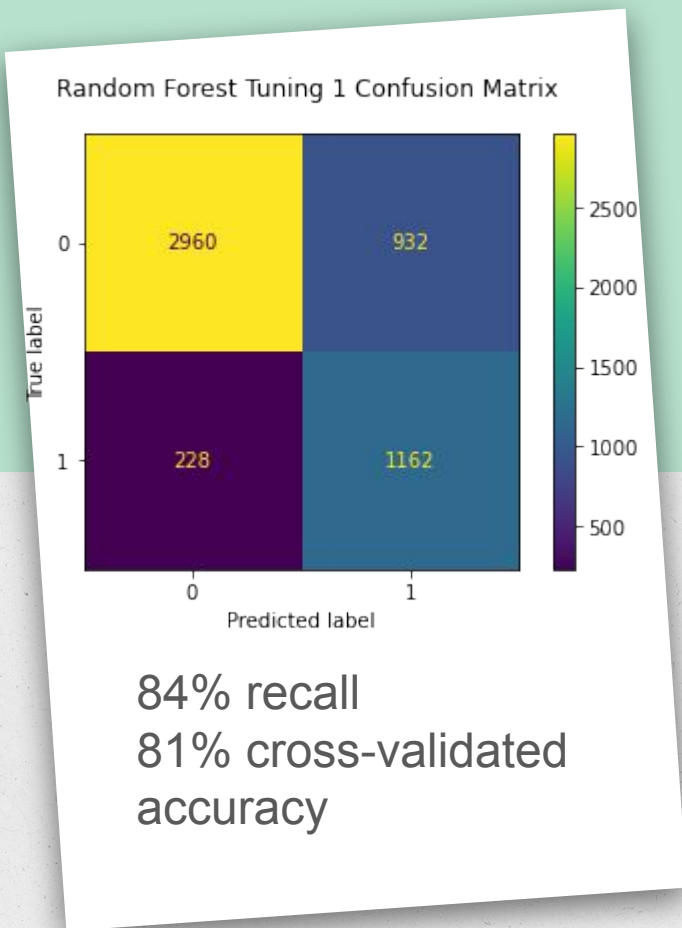
Simple Decision Tree

74%
cross-validated
accuracy, so a
slight
improvement

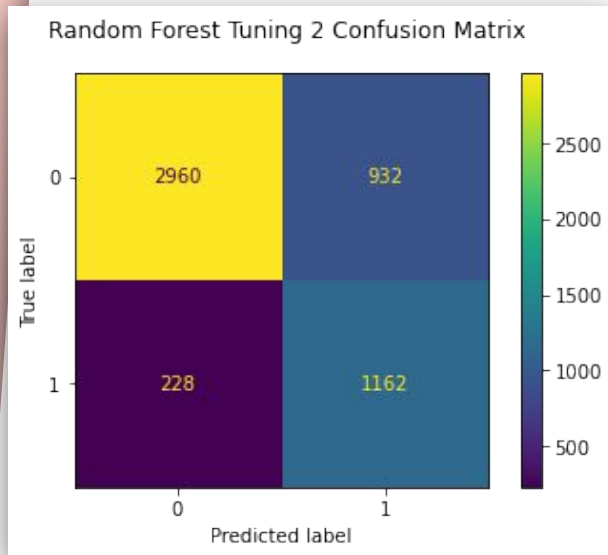


Very overfit

Random Forest Hypertune Attempt 1

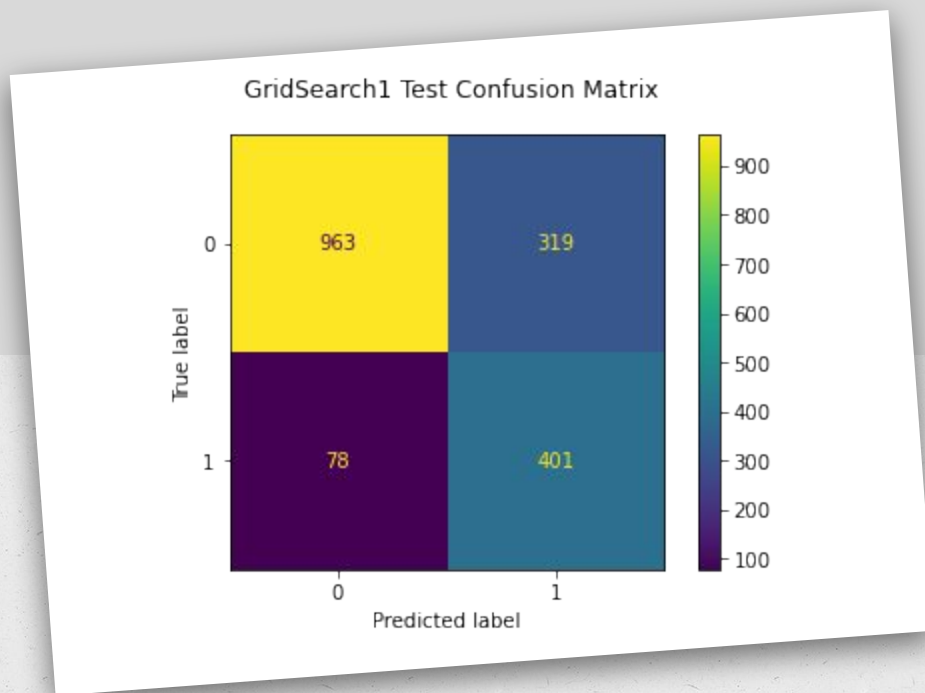


Random Forest Hypertune Attempt 2



84% recall
77% cross-validated
accuracy

Final Model Recommendation

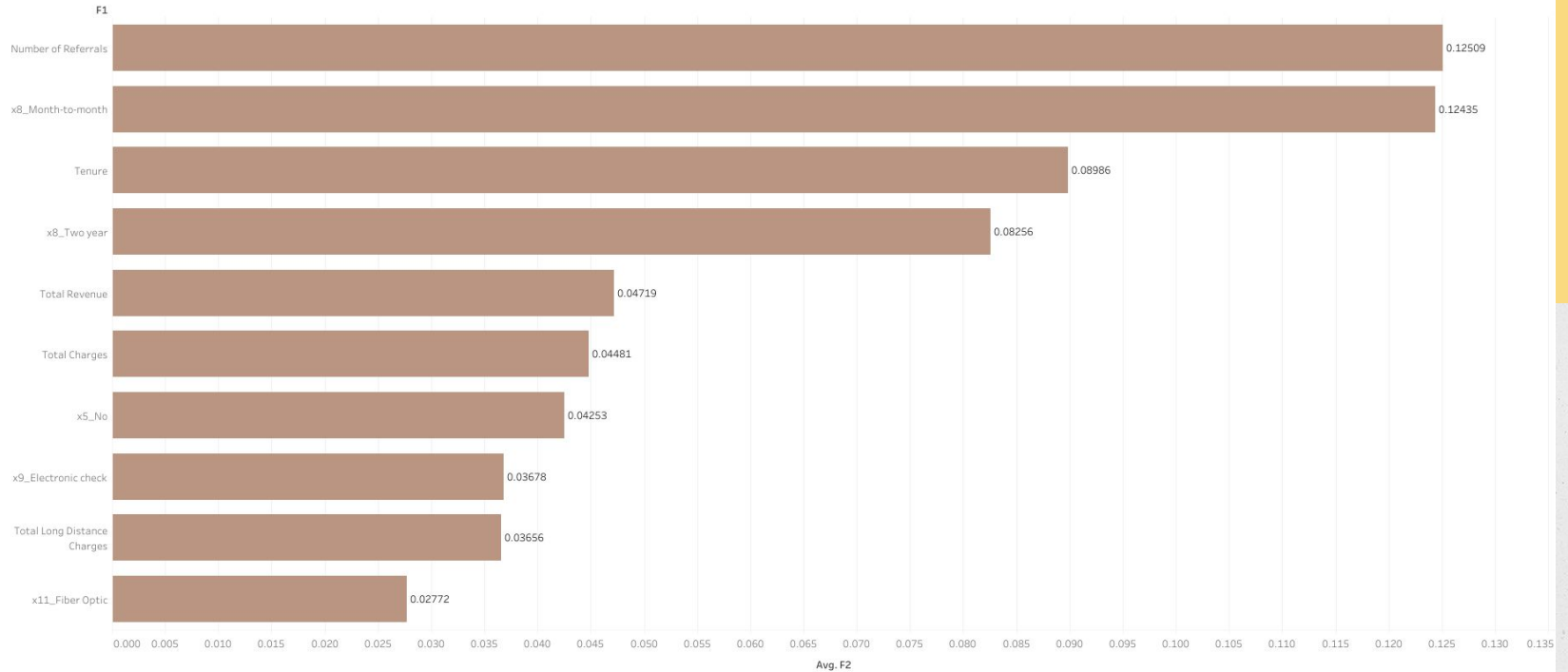


84% recall

81%
cross-validated
accuracy

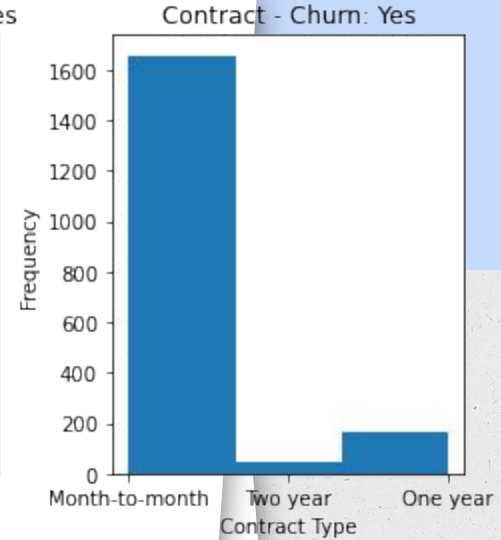
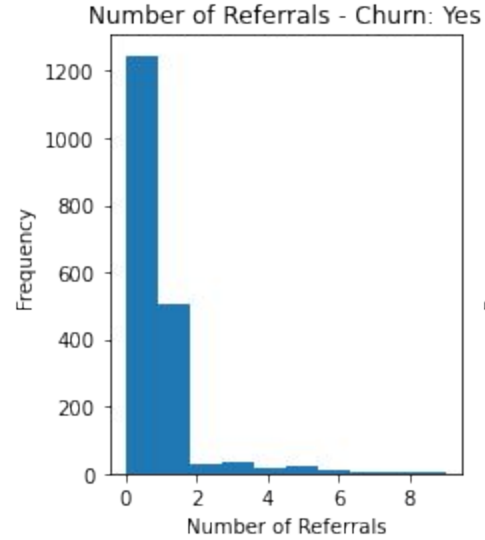
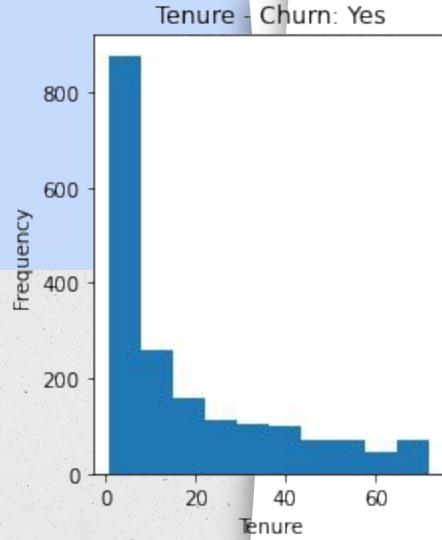
Feature Importance

Important Features to Note



Top 3 are # of referrals, month-to-month contract type, and tenure with company.

Recommendations



Conclusion

Can absolutely predict customer churn with the proper model.

Potential reward programs and incentives may further mitigate customer churn.



Mitigating customer churn will drive up customer retention, equalling more money.

The offered opportunity is potentially priceless.

Thank you for Cher-ing your time with me!



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