



SyriaTel Churn Prediction

Understanding and Reducing Customer Turnover

By: **Samuel Abwan Wanga**

Project Goals:

- Predict which customers might leave SyriaTel.
- Understand why customers leave.
- Help SyriaTel keep more customers.

Value to Stakeholders:

- Reduce revenue loss from customer turnover.
- Improve customer satisfaction.

Business Understanding

- SyriaTel is facing competition and some customers are leaving, and studies show its more serious losing a customer than getting a new one.

Objective:

To use data to predict and prevent customer churn.

Data Overview

Data Source: **Kaggle**

Data Details:

<https://www.kaggle.com/datasets/becksddf/churn-in-telecoms-dataset>

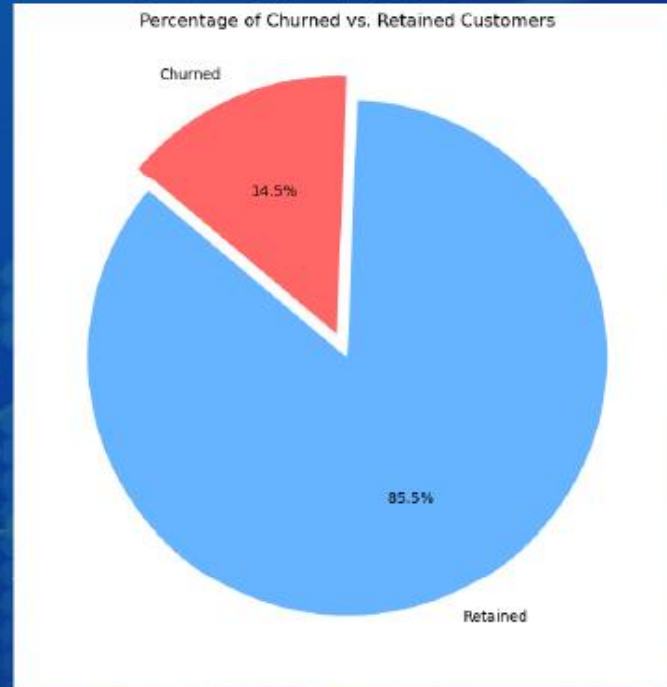
Inside the dataframe there is information on **3,333** customers.

This comes with alot of features like service usage, international plan and churn status etc.

kaggle

Detail	Compact	Column							21 of 21 columns
Δ state	# account le...	# area code	Δ phone nu...	✓ internatio...	✓ voice mail...	# number v...	# t		
KS	128	415	382-4657	no	yes	25	265		
OH	187	415	371-7191	no	yes	26	161		
NJ	137	415	358-1921	no	no	0	243		
OH	84	408	375-9999	yes	no	0	299		
OK	75	415	338-6626	yes	no	0	166		
AL	118	510	391-8827	yes	no	0	223		
MA	121	510	355-9993	no	yes	24	218		
NO	147	415	329-9881	yes	no	0	157		

Percentage of Churn vs retained customers

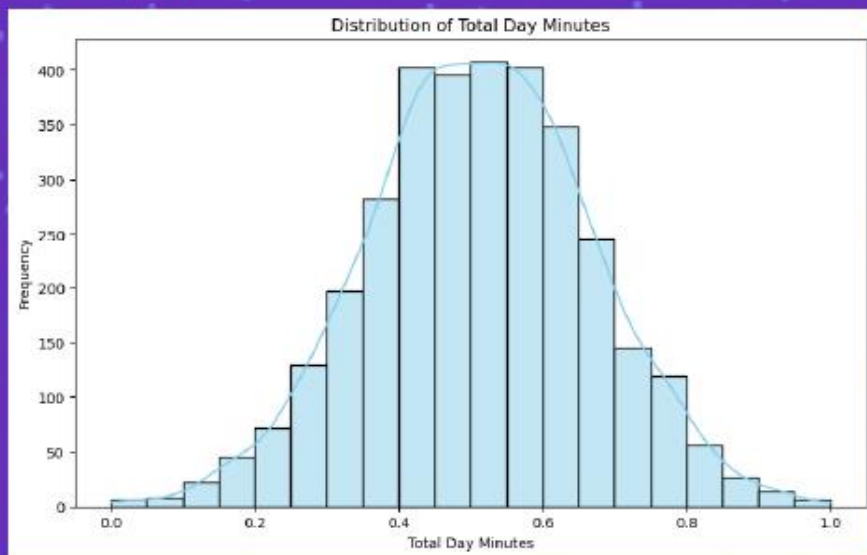


Key Insights from Data

- Churn Rate: 14.5% of customers have left.
- Meaning 483 out of 3,333 people terminated their contract with SyriaTel.

Not a good look!!





Most Customers:

- The histogram shows a peak around moderate total day minutes.
- A lot of customers are within this range, suggesting that they use their phones moderately during the day.

Customer Behavior

Most Customers:

- Most customers fall into a group where they use their phones moderately during the day.
- Some of them churn (stop using the service), while others don't.

Less Common:

- Low Usage customers are less likely to impact churn significantly while high usage customers are more likely to churn.

Why high usage might lead to churn:

- High usage could mean like frequent calls, heavy data usage, overage charges.
- All these factors increase the likelihood of churn.

Predictive Model

Explanation:

1. Input Data: We feed the data into our predictive model e.g XGBoost Model.
2. Model or Algorithm: The predictive model processes the input data and generates predictions based on its learned patterns and parameters.
3. Prediction (Output): The outcome produced by the model is based on the input data depending on the nature of the problem.



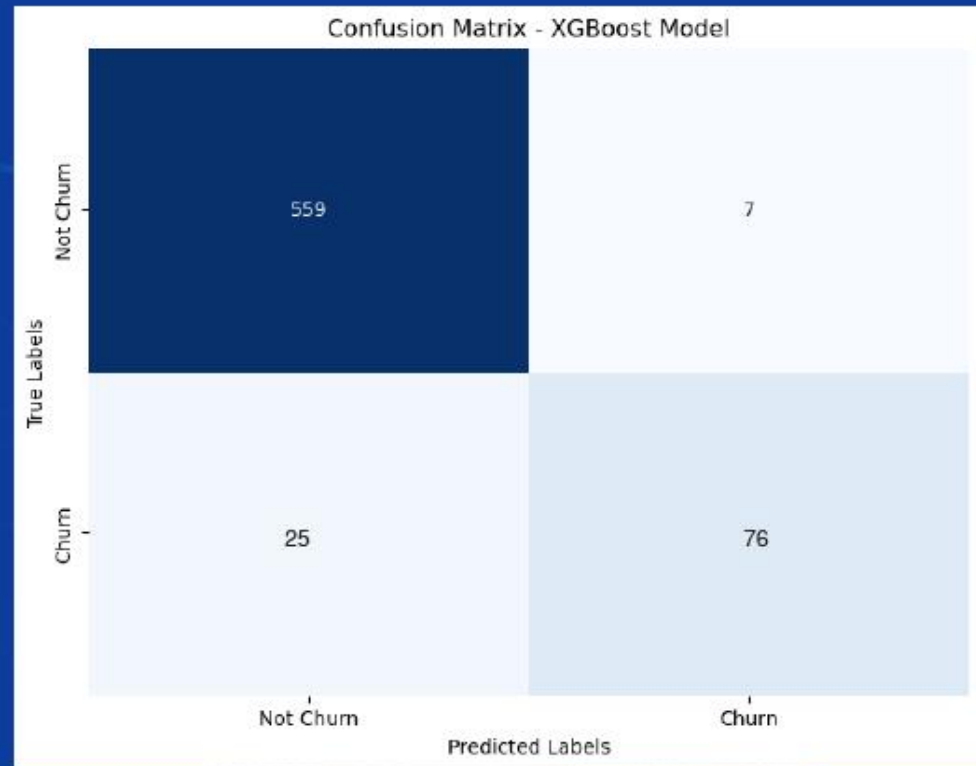
Model Results

Accuracy:

The **XGBoost model** correctly predicts churn **95.2%**.

As you can see on the Confusion matrix simplified to show correct vs. incorrect predictions.

- **76** - Churn customers that the model correctly predicted as churn.
- **7** - Non-churn customers that the model incorrectly predicted as churn.
- **559** - Non-churn customers that the model correctly predicted as non-churn.
- **25** - Churn customers that the model incorrectly predicted as non-churn.

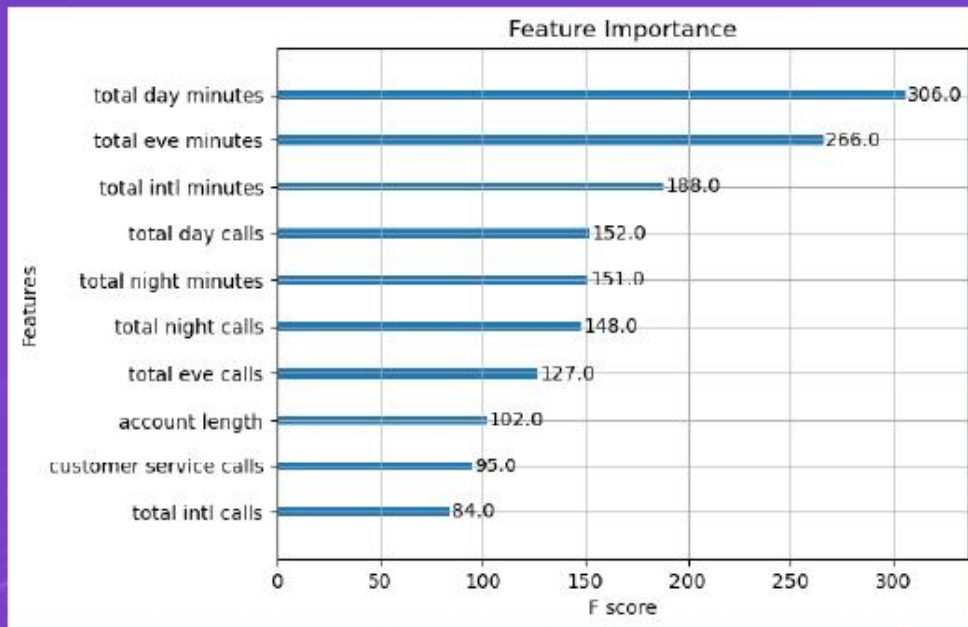


Important Factors

Key Factors:

Talking on the phone during the day. The more time you spend on calls, the more important this becomes for our prediction.

Bar chart of feature importance.



Here, “**total day minutes**” feature has the highest importance score (around 306.0).

This means that how much time customers spend on calls during the day significantly impacts whether they’ll leave or stay with Syriatel service.

Recommendations

- **Proactive Engagement:**

Reach out to customers with high day minutes.

- **Improve Service Calls:**

Resolve issues quickly to prevent churn.



Conclusion

Summary:

- Predicting churn helps understand why customers leave.
- Actionable steps can reduce churn and increase satisfaction.
- When our model comes into play, say bye to losing money and customers.





**Thank you for your
time.**

