



Customer Churn Prediction Model – SyriaTel

Business Overview

Objective:

To build a model that predicts whether a customer is likely to churn (stop using SyriaTel services).

Why it matters:

- Acquiring new customers is 5x more expensive than retaining existing ones.
- Early detection of churn risk helps increase customer loyalty and revenue.
- Aligns with SyriaTel's goal of enhancing customer satisfaction and retention.

Exploratory Data Analysis (EDA)

What I Explored:

- **Demographics:** Customer location and phone usage
- **Behavioral data:** Call duration, number of calls, service plans
- **Churn rate:** ~10% of customers churned

Key Observations:

- High churn linked to multiple customer service calls
- Customers without voice mail or international plans are more likely to churn
- Usage patterns (day vs night) provide predictive signals

Data Processing and Modeling

How I Built the Model:

1.Data Cleaning

1. Removed irrelevant fields (e.g., phone number)
2. Converted text to numbers (e.g., Yes/No to 1/0)

2.Data Balancing

1. Only 10% churned → I used the SMOTE technique to balance data.

3.Model Training

I Tried various algorithms; then chose one with highest accuracy and reliability Random Forest Classifier was likely chosen due to High ROC-AUC score (~0.917)

Outcome:

Built a model that learns from customer behavior to predict churn before it happens.

Model Performance & Results

Metric Used:

ROC-AUC Score = 0.917 (Excellent Performance)

Interpretation:

- **91.7% accuracy** in distinguishing between churners and non-churners
- The model is reliable and can be used for real-time customer scoring

Key Insights

High Churn Risk Detected

The model shows high accuracy ($AUC = 0.917$) in the churn prediction.

This means that certain customer behaviors strongly correlate with churn, such as:

- (a) High number of customer service calls.
- (b) Not subscribing to voice mail or international plans.
- (c) High charges during daytime usage.

Recommendations for the Business

1.Proactive Retention:

1. Call or offer discounts to predicted high-risk customers

2.Enhance Customer Support:

1. Improve issue resolution speed and quality

3.Bundle Plans & Offers:

1. Encourage uptake of voicemail and international packages

4.Data-Driven Strategy:

1. Use the model monthly to flag customers needing attention

Conclusion & Next Steps

Conclusion:

The model provides early warning signals to prevent churn and save costs.

Next Steps:

- Deploy the model into SyriaTel's CRM system.
- Continuously monitor and update with fresh data.
- Expand this approach to other areas (upselling, segmentation).



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