

CUSTOMER CHURN PREDICTOR FOR SYRIALTEL

Minimizing Churn, Maximizing Value

Business Problem

SyriaTel is experiencing customer churn—when users stop using the service—which leads to significant revenue loss in a competitive telecom market.

This project aims to develop a machine learning classifier that predicts customer churn using historical behavioral and demographic data.

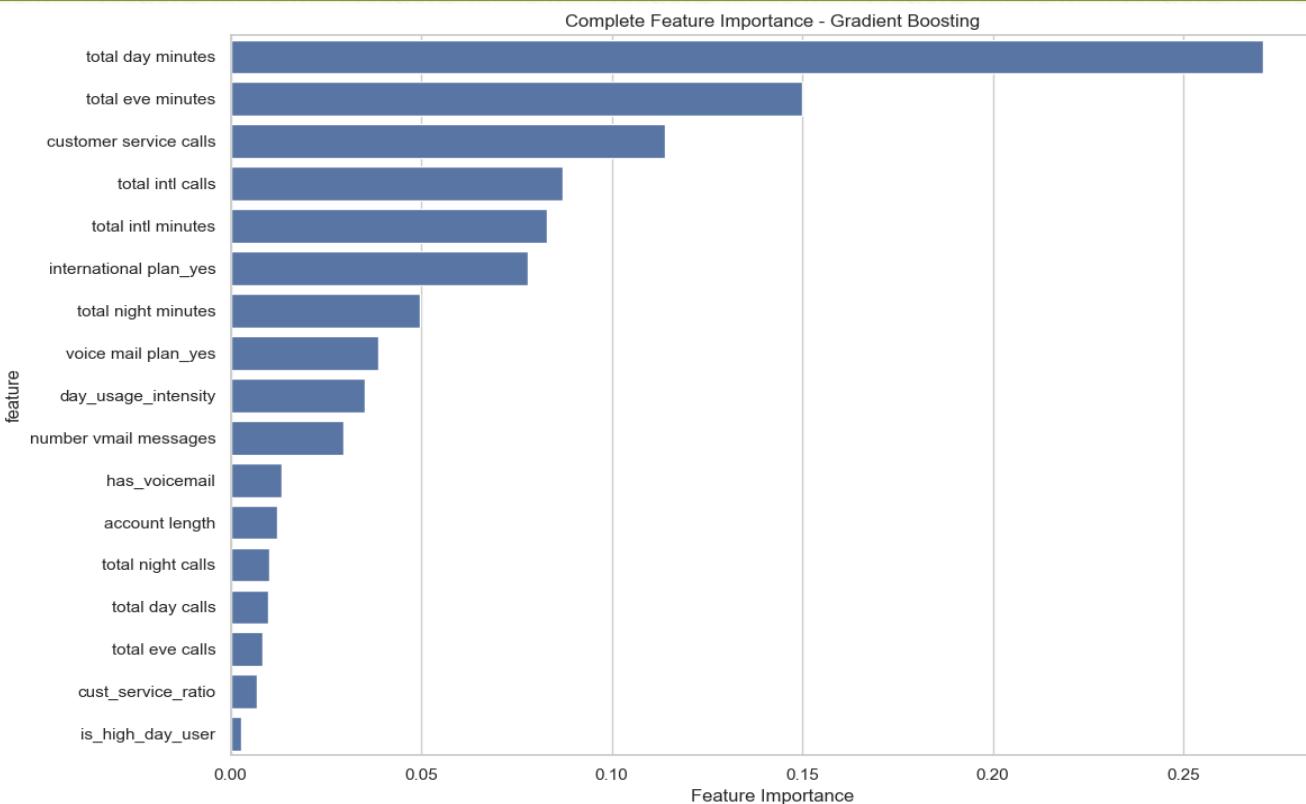
By identifying at-risk customers early, SyriaTel can take proactive measures (e.g. loyalty offers, targeted outreach) to improve retention and revenue stability.

- Business Question-Can historical customer data reveal patterns that predict who is likely to churn?
- Machine Learning Task-Binary Classification – Predict whether a customer will churn (Yes/No)

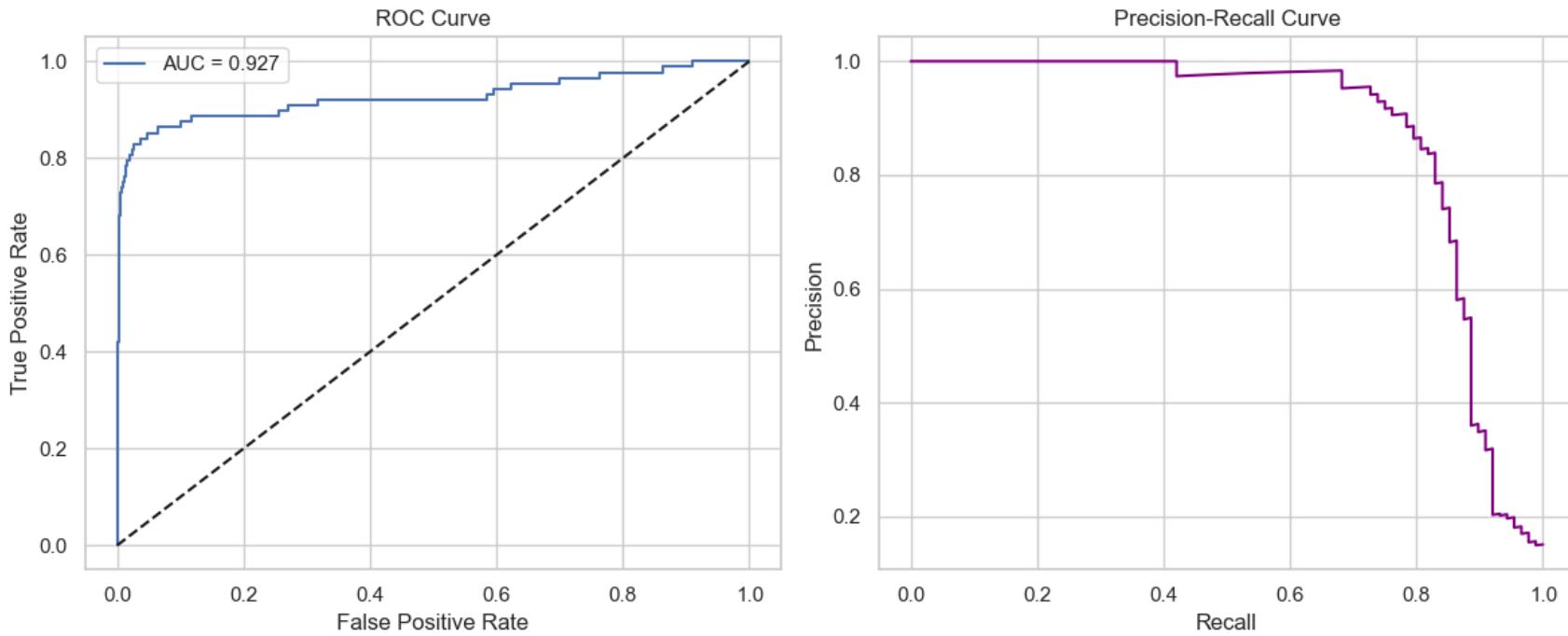
Project Objectives

1. Identify the key drivers and patterns that contribute to customer churn
2. Predict churn with a classification model .
3. Provide actionable business insights and interventions.
4. Reduce customer attrition and increase revenue stability.

Key features Driving Churn Prediction.



Model's performance in identifying potential Churners



Interpreting ROC –AUC & precision-recall curve

ROC Curve (Left Chart)

The Good News: Our model dramatically outperforms random guessing

When we need to identify customers at risk, our model gets it right 9 out of 10 times

Business Impact: Minimal wasted effort on customers who aren't actually at risk

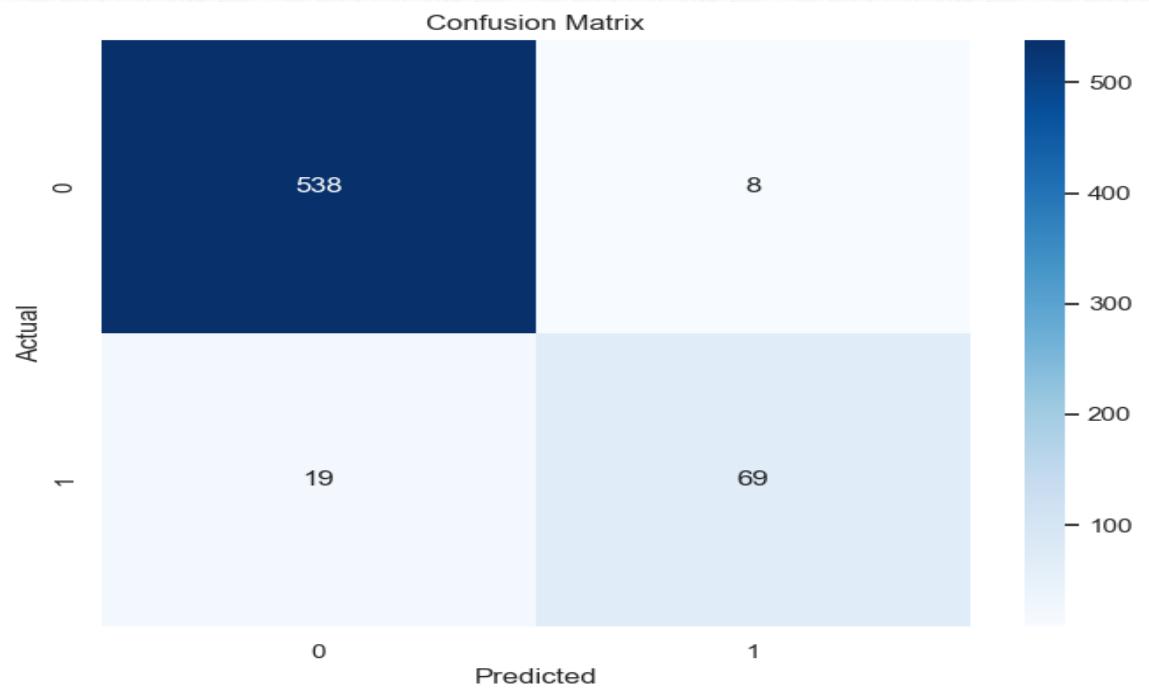
Precision-Recall Curve (Right Chart)

The Good News: When our model flags a customer as “at-risk,” it’s almost always correct- i.e

Very few false alarms - we won’t waste time and money on the wrong customers

Business Impact: Focused, efficient use of retention resources

Model's classification performance



Interpretation of the Confusion matrix

Class 0 (Non-Churners) - Precision- 0.97 - Of all customers predicted not to churn, 97% were correct.

Recall- 0.99- The model correctly identified 99% of actual non-churners.

F1-Score: 0.98 - Indicates excellent overall performance for this majority class.

Class 1(Churners)

Precision: 0.90 - 90% of customers predicted to churn actually did.

Recall: 0.78 -The model successfully detected 78% of true churners.

F1-Score: 0.84 - A solid score showing good balance despite slight under-detection of churners.

Recommendations

1. Revenue Protection Strategy

🔔 **Billing-Based Retention-Trigger** alerts for customers with high Total Day Minutes—that translate to high day charges. Offer 10–20% discounts to prevent high-value customer churn. Protect revenue by addressing pricing concerns before they escalate.

📞 **Customer Service Churn Triggers** • 🍔 Flag accounts with multiple recent support calls. Escalate early to retention specialists. Treat every service call as a churn prevention opportunity.

Recommendations

2. Operational Excellence

-  **Real-Time Risk Dashboards**- Use the model's near perfect precision to identify real churn threats, Focus retention efforts only where it matters most, Enable confident, efficient interventions.
-  **Voicemail Usage Monitoring**- Analyze voicemail behavior to detect dissatisfaction or evolving needs, Proactively resolve network or service issues before they trigger churn.

3. Smart Retention Tactics

- ⌚ Personalized Retention Tactics-Infrequent users: Offer usage-based plans, High complaint customers: Resolve fast, add goodwill gestures, Loyal but disengaging users: Deploy re-engagement campaigns.
- ⌚ Automate at Scale- Use churn scores to trigger retention workflows via SMS, email, or push.,Ensure timely, personalized outreach before it's too late.