

PHASE 3 PROJECT

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DATA SCIENCE PT (DSF-PT13)

Project Overview

- **Title:** SyriaTel Customer Churn Prediction: Strategic Retention Analysis
- **Prepared for:** Customer Retention Department
- **Objective:** To decrease revenue loss by proactively identifying customers at risk of leaving (churning) for competitors.

Business & Data Understanding

- **The Problem:** Customer loss directly impacts market share and revenue. It is significantly more cost-effective to retain an existing customer than to acquire a new one.
- ▶ **Our Goal:** Develop a predictive model with **high Recall**. We want to minimize "missed opportunities"—catching as many potential churners as possible.
- ▶ **The Data:** * **Volume:** 3,333 customer records.
- ▶ **Features:** Analyzed usage (minutes across day, evening, and night), service plans (international and voicemail), and direct interactions (customer service calls).

Modeling

- ▶ **Approach:** We utilized **Logistic Regression** as our primary model.
- ▶ **Why Logistic Regression?** It offers high **interpretability**. For business stakeholders, this means we can clearly see which specific behaviors drive a customer to leave rather than just getting a "yes/no" answer.
- ▶ **Optimization:** We applied "balanced weights" to the model to ensure it properly learned from the 14.5% minority of customers who churn.

Evaluation

- **Performance Metrics:**

- ▶ **Recall:** 74% — Our model successfully identified nearly three-quarters of all actual churners.
- ▶ **Accuracy:** 76% overall.
- ▶ **The Trade-off:** To catch more churners (High Recall), we accept a lower "Precision" (35%). This means we will offer retention incentives to some customers who might not have left, but we drastically reduce the number of customers who leave without any intervention.

Recommendations

- ▶ **The "3-Call Threshold":** Customer service calls were a top predictor of churn. SyriaTel should implement a protocol where any customer reaching 3 support calls receives an automatic follow-up from a senior specialist.
- ▶ **Daytime Usage Incentives:** High daytime usage is strongly linked to churn. We recommend offering "Free Daytime Minutes" rewards or loyalty discounts for high-volume users to reduce price sensitivity.
- ▶ **Plan Optimization:** The "International Plan" showed high churn when usage was low. Suggesting a downgrade to more appropriate plans for these users can build trust and prevent dissatisfaction.

THANK YOU!