telecom-churn-casestudy Presentation

Business Challenge Overview

In the dynamic telecom industry, where customers have multiple service providers to choose from, retaining existing customers has become more crucial than ever. Telecom companies face an annual churn rate ranging from 15% to 25%. Given the high cost of acquiring new customers compared to retaining existing ones, reducing churn is a top priority.

For incumbent operators, the primary objective is to retain high-profit customers. To achieve this, telecom companies need predictive models to identify customers at risk of churn.

Defining Churn

Churn in the telecom industry is when customers switch from one operator to another. It can be straightforward to identify in postpaid models, as customers usually inform their current provider when switching. However, in prepaid models, customers can stop using services without notice, making churn prediction more challenging.

In this project, we focus on the Indian and Southeast Asian markets, where prepaid models are prevalent, and define churn based on usage patterns.

Churn Definitions

Churn can be defined in various ways, such as:

Revenue-based churn: Identifying customers who generate minimal or no revenue over a period.

Usage-based churn: Recognizing customers who have not used any services like calls, internet, etc., over a specific period.

In this project, we opt for the usage-based definition.

High-Value Churn

In the Indian and Southeast Asian markets, the top 20% of customers contribute to about 80% of revenue. To mitigate revenue loss, we target churn prediction specifically for high-value customers.

Understanding the Objective and Data

The project's goal is to predict churn in the ninth month using data from the first three months. This requires understanding customer behavior during the churn process.

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Customer Behavior During Churn

Churn doesn't happen abruptly; it unfolds over time. We observe three phases:

The 'good' phase: Customers are satisfied and behave normally.

The 'action' phase: Customers start experiencing issues or receive enticing offers from competitors. Their behavior differs from the 'good' phase, and this is a critical phase for identifying high-risk churn customers.

The 'churn' phase: This is when the customer officially churns. Churn is defined based on this phase. Importantly, data from this phase is unavailable at the time of prediction, so we use it only to tag churned customers and remove corresponding data.

Data Preparation

Key data preparation steps include:

Feature Engineering: Derive relevant features that can serve as indicators of churn.

Identify High-Value Customers: Define high-value customers as those with a recharge amount greater than or equal to the 70th percentile of the average recharge amount during the 'good' phase.

Tag Churners and Remove Churn Phase Data: Identify churned customers as those who haven't made calls or used mobile internet in the 'churn' phase. Remove attributes related to the 'churn' phase.

Modeling

To build predictive models for churn, we pursue two main objectives:

Predict whether high-value customers will churn in the near future (the 'churn' phase) to enable proactive actions like special offers or discounts.

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Identify significant predictors of churn that can provide insights into why customers switch to other networks.

To address class imbalance (low churn rates), we consider techniques to handle it. Suggested modeling steps include data preprocessing, exploratory analysis, feature engineering, dimensionality reduction using PCA, training various models, hyperparameter tuning, and selecting appropriate evaluation metrics.

Important Feature Identification

In addition to the predictive model, we build another model (e.g., logistic regression or a tree-based model) with the primary goal of identifying crucial predictor attributes. These attributes offer insights into churn indicators, and we visually present them through plots or summary tables.

Recommendations

Based on our observations and identified indicators of churn, we can recommend strategies to manage customer churn effectively.

Thank you

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