TELECOM CHURN PREDICTION CASE STUDY

Summary, Findings, and Recommendations

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INTRODUCTION

Problem Statement:

In the competitive telecom industry, customer churn significantly impacts revenue. Retaining high-value customers is crucial, especially as it costs 5-10 times more to acquire a new customer than to retain one.

Objectives:

Predict churn risk and identify main indicators, especially among high-value customers (top 20% revenue-generating customers).

DATA OVERVIEW

Dataset Summary:

Daily telecom data with variables on customer metrics, weather, seasonality, usage types, and demographics.

Key Data Points:

- Features like **Temperature, Humidity, Windspeed, Casual** and **Registered Users**

- Customer indicators: **Holiday, Working Day, Weather Type**

Data Processing:

Steps like cleaning, identifying high-value customers, and creating new features.

ANALYSIS PROCESS AND MODELS

High-Value Customer Identification:

Customers with recharge amounts in the top 30% over the first two months.

Models Used:

Logistic Regression, Decision Tree, Random Forest, and AdaBoost.

KEY FINDINGS

Based on the analysis conducted using various machine learning techniques, several factors were identified as significant predictors of churn. These factors include:

1. **Incoming Minutes of usage in August:**
   The number of minutes customers spend on incoming calls in August has a considerable impact on churn rate.

2. **Roaming Calls:**
   The duration of roaming calls, both incoming and outgoing, affects customer churn. Higher roaming call minutes may indicate a higher likelihood of churn.

3. **Network Calls:**
   The minutes spent on network calls, both on-net (within the same network) and off-net (outside the network), also influence churn rate.

4. **Tenure:**
   Customers with less than four years of tenure are more prone to churning. This suggests that retaining newer customers should be a focus area for the telecom company.

5. **Roaming:**
   The presence of roaming services has an impact on churn. Implementing strategies to cater to the needs of roaming customers may help reduce churn.

6. **Average Revenue per User:**
   The average revenue generated per user is an important factor affecting churn. Higher revenue per user might indicate a lower likelihood of churn.

CHURN PERCENTAGE IN HIGH VALUE CUSTOMER

Churn / Non Churn Percentage
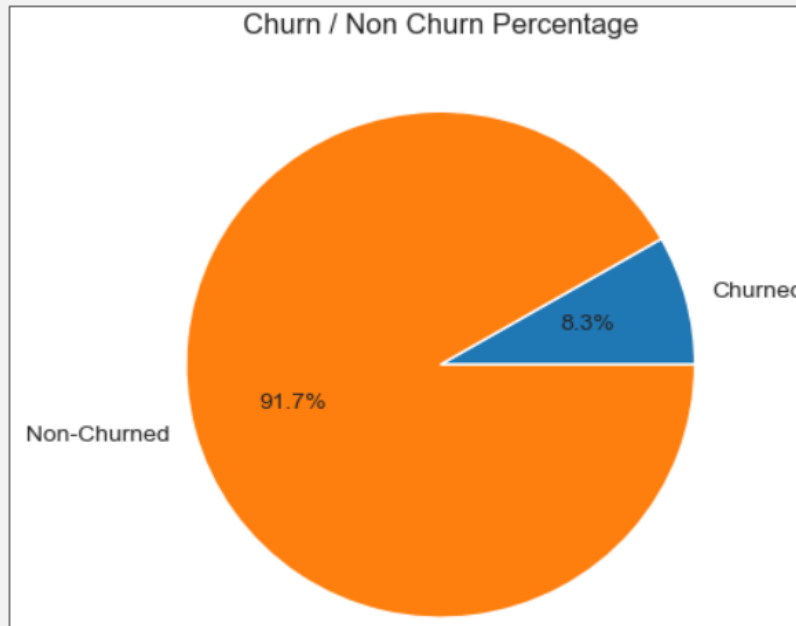
The analysis indicates that 91% of the high-value customers do not churn.

CONCLUSION

Based on the findings, here are some strategies to manage customer churn effectively:

1. **Engaging Campaigns:**
   The telecom company should develop engaging campaigns that encourage customer interaction through calls or internet usage. These campaigns can help retain customers and reduce churn.

2. **Promoting 3G Usage:**
   Since many customers are still using 2G networks, offering discounts on 3G data plans can incentivize them to upgrade. This shift to 3G may increase customer loyalty and reduce churn.

3. **Focus on New Customers:**
   Given that customers with less than four years of tenure are more likely to churn, the company should concentrate efforts on retaining this segment. Providing personalized offers, proactive customer support, and additional benefits can help improve customer retention.

4. **High Recall Priority:**
   To retain customers effectively, our model prioritizes high recall to correctly identify as many true churners as possible. Offering retention incentives to non-churners incurs a lower cost than losing a customer and acquiring a new one, making high recall essential for optimal retention.

When we compare the models trained we can see the tuned **Random Forest and AdaBoost are performing the best, which is highest accuracy along with highest recall i.e. 95% and 97% respectively**. So, we will go with random forest instead of adaboost as that is comparetively simpler model.

By implementing these strategies, the telecom company can enhance customer satisfaction, reduce churn rate, and foster long-term customer loyalty.