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Introduction

Good afternoon everyone!
So, today, I'am presenting my capstone project on Customer Churn Prediction. This project focuses on a DTH service provider struggling to retain its customess in face of growing competition. Churn, or the loss of customers, is a significant problem and identifying at-risk account is critical for the company's survival.

Understanding the Problem

The company is facing a growing churn problem due to increased competition, and losing just one account can be risk because each account often serves multiple customers. The goal was to build a churn prediction model that only identifies customes likely to leave but also helps the company create targeted, cost-effective campaign for rentention. This model enables better-informed business strategies, allowing the company to personalize marketing

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and retention. This model enables better-informed business strategies, allowing the company to personalize marketing and retention efforts to retain current customers while attracting new ones.

Data Overview and Exploratory Data Analysis

- We analyzed dataset containing 11,260 ~~or~~ rows and 19 columns including one target column.
- The dataset has null values and outliers in each column.
- The target variable, Churn, was imblance with more customer staying than leaving.
- We noted skewness in numerical variables meaning data wasn't perfectly distributed.

Univariate Analysis

(2) Our customer analysis shows 'Regular Plus' and 'super' plans are most popular. Account holder are mostly married and ~~marr~~ majority of login device are mobile then followed by computer. It also shows

(1) Tier 1 cities lead way. Debit Cards are payment method of choice and males makeup the majority of our customers

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Bivariate Analysis

Bivariate Analysis showed that Tier 1 customers were the most loyal, while Tier 3 had the highest churn. E-wallets and COD users churned more than those using debit or credit cards. Males churned slightly more than females and Regular Plus plan had the highest churn while Super Plus had the lowest.

Multivariate Analysis

- customers who had logged complaints in the last year were more likely to churn while those with longer tenure showed greater loyalty.
- We identified behavioral trends where customers with higher service satisfaction tended to stay longer, especially in Tier 1 cities. This allowed us to target key demographics for retention efforts, such as mobile users and single customers who are greater risk of leaving.

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Modelling Approach & Result

- ~~To address First~~ we did Data Preprocessing
- First, we tackled data preprocessing by imputing missing values, addressing outliers and scaling data to prevent feature dominance. Our modelling approach analyzed customes behaviour to identify patterns, pain points and abandond purchases, enabling targeted interventions Our goal is to gain deeper understanding of our customess and develop data-driven strategies to retain them.

To address the imbalances in churn data, we have utilized seversal models including Logistic Regression, Random Forest, XG Boost, Gradient Boost.

Random Forest was the top-performing model, while XGBoost and Gradient Boosting were also strong contenders. We optimized model using techniques like GridSearchCV and used SMOTE (Synthetic Minority Over Sampling Technique) to improve

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class implance detection. Overall, Random Forest and XGBoost handled the imbalance well, providing high accuracy in potential churners.

Key Recommendation

- Implement a rentention program targeting high-risk customers,
- Improve customer service and engagement, particularly for mobile users.
- Offer personalized promotion and loyalty programs to retain high-value customers.
- Increase presence in Tier 2 and Tier 3 cities by ~~pat~~ partnering with local business and running targeted marketing campaigns.

In conclusion, our churn prediction model provides a powerful tool for improving customer retention through target interventions. By acting on the insight gained, the company can reduce churn, improve customer satisfaction and stay competitive in an increasingly saturated market.