

Customer Churn Summary Report

1. Introduction

Customer churn refers to when customers stop using a company's product or service. For telecom companies, predicting churn is very important as it directly impacts revenue. This project aims to analyze customer churn patterns and identify the main factors that lead to churn.

2. Dataset Overview

The dataset used is 'Customer Churn.csv'. It contains details about telecom customers including:

- Demographics: Gender, Senior Citizen, Partner, Dependents
- Services: Phone service, Internet service, Streaming services, etc.
- Billing & Contracts: Monthly charges, Total charges, Contract type, Payment method
- Target Column: Churn (Yes/No)

3. Data Preprocessing

The following steps were taken to clean and prepare the data:

- Removed duplicate customer IDs
- Replaced blank values in TotalCharges with 0
- Converted SeniorCitizen column from 0/1 into Yes/No for better readability
- Checked and confirmed there were no significant missing values after cleaning

4. Exploratory Data Analysis (EDA)

Visualizations and analysis were performed to understand churn behavior:

- Overall churn rate: Around 26.5% of customers have churned
- Gender vs Churn: Similar churn rates across male and female customers
- Senior Citizens: Higher churn rate compared to younger customers
- Tenure: Customers with shorter tenure churn more
- Contract Type: Month-to-month contracts have the highest churn
- Payment Method: Electronic check users churn the most
- Monthly Charges: Higher monthly charges correlate with higher churn

5. Key Insights

From the analysis, the following insights were derived:

1. Customers on short-term contracts and with high monthly charges are most likely to churn
2. Senior citizens and electronic check users are at higher risk
3. Customers with long-term contracts are more stable
4. Gender has little impact on churn

6. Predictive Modeling

Predictive models such as Logistic Regression, Random Forest, or XGBoost can be applied to predict churn. The performance can be evaluated using accuracy, precision, recall, and F1-score. Feature importance analysis highlights tenure, contract type, payment method, and monthly charges as key factors.

7. Business Recommendations

Based on the insights, the following actions are recommended:

1. Encourage customers to choose long-term contracts with discounts and benefits
2. Provide special support and care programs for senior citizens
3. Offer loyalty rewards or discounts to high-paying customers
4. Promote auto-pay and credit card payments instead of electronic checks
5. Implement early engagement strategies for new customers

8. Result

The analysis revealed that approximately 26.5% of the customers churned. The major reasons identified include short-term contracts, high monthly charges, and the use of electronic check payments. Customers with longer tenure and long-term contracts are less likely to churn. By addressing these factors, the company can significantly reduce churn and improve customer retention.

9. Conclusion

The Customer Churn Analysis project successfully identified key drivers of churn in the telecom dataset. The results show that contract type, tenure, payment method, and monthly charges are the most important factors. By applying predictive models and implementing retention strategies, the company can lower churn rates and retain valuable customers.