

Customer Churn Business Analysis

Business Context

Customer churn is a major concern for businesses as it directly impacts revenue, profitability, and long-term growth. Retaining existing customers is significantly more cost-effective than acquiring new ones. Understanding the key drivers behind customer churn enables organizations to design targeted retention strategies and improve customer lifetime value.

This capstone project focuses on analyzing customer churn data to identify the factors contributing to customer attrition and to provide actionable, data-driven business recommendations.

Objective

The primary objective of this analysis is to:

- Identify key factors influencing customer churn
 - Understand customer behavior patterns related to pricing and tenure
 - Validate findings using statistical methods
 - Recommend practical business strategies to reduce churn
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Data & Methodology

The analysis was conducted using a customer churn dataset containing over 500 customer records. The dataset included information such as customer tenure, monthly charges, total charges, contract type, payment method, and churn status.

The project followed an end-to-end data analysis workflow:

1. Data cleaning and preparation
2. Exploratory Data Analysis (EDA)

3. Statistical hypothesis testing
4. Insight generation and interpretation

Python libraries such as Pandas, Matplotlib, Seaborn, and Scipy were used for analysis and visualization.

Key Findings

The analysis revealed several important insights:

- Customers with **shorter tenure** are significantly more likely to churn
- **Higher monthly charges** are strongly associated with increased churn
- Customers on **month-to-month contracts** exhibit the highest churn rates
- Pricing sensitivity is a critical driver of customer attrition

Statistical hypothesis testing confirmed that the difference in monthly charges between churned and retained customers is statistically significant.

Business Recommendations

Based on the findings, the following recommendations are proposed:

1. Encourage customers to shift from month-to-month plans to long-term contracts through incentives
 2. Improve onboarding and engagement strategies for new customers
 3. Offer targeted retention discounts to high-risk customers
 4. Introduce loyalty rewards for long-term customers
 5. Regularly monitor churn metrics to enable proactive intervention
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Conclusion

This project demonstrates how data-driven analysis can uncover actionable business insights from real-world datasets. By addressing pricing strategies, improving early customer engagement, and promoting long-term contracts, businesses can significantly reduce customer churn and enhance customer lifetime value. The analysis provides a strong foundation for implementing effective retention strategies and supports informed decision-making.