

Telco Customer Churn

Project Overview

Project Name: Predict Behavior to Retain Customers

Company Name: IBM (International Business Machines) - Sample Dataset

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The primary objective of this project was to analyze customer churn within IBM's telecommunications sector. By utilizing data analytics and visualization techniques, we aimed to identify key factors driving customer retention and develop predictive insights that can inform strategic decision-making.

Objectives

- **Understand Churn Dynamics:** Identify the main factors contributing to customer churn.
- **Segment Customers:** Analyze customer demographics and service usage to understand retention patterns.
- **Visualize Data Insights:** Create effective visualizations to communicate findings.
- **Provide Actionable Recommendations:** Develop strategies to enhance customer retention based on analytical insights.

Data Analysis

Dataset Overview

- **Size:** 7,043 customer records
- **Features:** 21 variables, including:
 - **Demographic Information:** Gender, age, senior citizen status
 - **Service Usage:** Tenure, contract type, internet service type
 - **Financial Data:** Monthly charges, total charges

Churn Rate Analysis

- The overall churn rate was calculated, revealing significant insights into customer behavior.
- **Churn Rate:** Approximately **26.54%** of customers in the dataset exhibited churn behavior.

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Key Variables Influencing Churn

1. Tenure:

- Customers with a tenure of **1-2 months** exhibited a high churn rate.
- **Churn Rate by Tenure:**
 - 1-2 months: High churn
 - 6-12 months: Moderate churn
 - Over 12 months: Low churn

2. Contract Type:

- Month-to-month contracts were associated with a higher churn rate compared to longer contracts.
- **Churn Rates by Contract Type:**
 - Month-to-month: **26.54%**
 - One-year: Significantly lower
 - Two-year: Lowest churn rates observed

3. Monthly Charges:

- A direct correlation was found between high monthly charges and increased churn rates.
- Customers paying over a certain threshold were more likely to discontinue service.

Customer Demographics

- Analysis of customer demographics revealed:
 - **Senior Citizens:** This group had a significantly higher churn rate compared to younger customers.
 - **Churn Rate by Senior Citizen Status:**
 - Senior Citizens: Higher churn
 - Non-Seniors: Lower churn

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Visual Insights

Charts and Graphs

1. **Count Plot of Churn:**

- Illustrates the total number of customers who churned versus those who remained, effectively showing churn distribution.

2. **Pie Chart of Churn Distribution:**

- Provides a visual representation: **26.54%** of customers churned, emphasizing the need for targeted retention strategies.

3. **Histogram of Tenure:**

- Indicates that customers with shorter tenures (1-2 months) are more likely to churn.

4. **Churn by Contract Type:**

- A stacked bar chart shows the relationship between contract type and churn, reinforcing insights about the month-to-month contracts.

5. **Churn by Senior Citizen Status:**

- A count plot highlights that senior citizens are more likely to churn, necessitating focused retention efforts.

Recommendations

Based on the analysis and visual insights, the following recommendations were made:

- **Targeted Marketing Campaigns:**

- Develop and implement campaigns aimed specifically at senior citizens, focusing on services that cater to their needs.

- **Contract Revisions:**

- Introduce incentives for customers to sign longer-term contracts, reducing churn risk.

- **Pricing Strategy:**

- Reassess pricing structures to ensure competitiveness and align with customer expectations, particularly for at-risk groups.

- **Customer Engagement Initiatives:**

- Implement proactive engagement strategies for new customers, especially during their first few months, to build loyalty.

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- **Continuous Monitoring:**
 - Regularly analyze churn patterns and customer feedback to adapt strategies as needed.

Conclusion

This project has equipped IBM with essential insights into customer churn behavior, underscoring the value of data analytics in strategic decision-making. By focusing on the identified key factors influencing churn, IBM can enhance customer retention strategies, ensuring sustainable growth and maintaining a competitive edge in the telecommunications market.