Customer Churn Analysis Report

Objective

The purpose of this analysis is to understand the key factors influencing customer churn, identify patterns and trends within the dataset, and propose actionable recommendations to improve customer retention.

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1. Data Overview

The dataset consists of customer information from a telecom company, including demographic details, service usage, and subscription patterns. The analysis focuses on identifying relationships between these factors and churn status.

Key Data Cleaning and Preprocessing Steps

- Replaced missing or blank values in the `TotalCharges` column with `0` and converted it to a numeric format.
- Transformed the `SeniorCitizen` column into readable labels ("Yes" for 1 and "No" for 0).
- Verified the absence of duplicate entries in the `customerID` column.

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2. Churn Overview

Customer Distribution

- **Churn Rate**: Approximately **26.5%** of customers have churned, while **73.5%** remain active.
  - This distribution highlights a significant minority of customers at risk, emphasizing the need for retention strategies.
- The count plot and pie chart clearly illustrate the imbalance between churned and non-churned customers.

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3. Service-Based Insights

Internet Service

- **Fiber Optic Internet** customers exhibit the highest churn rate, with **41%** of fiber-optic users churning compared to **20%** for DSL and **7%** for those without internet service.
  - This suggests potential dissatisfaction with fiber-optic service quality or pricing.

OnlineSecurity and OnlineBackup

- Customers without **OnlineSecurity** and **OnlineBackup** services have significantly higher churn rates:
  - Approximately **60%** of churned customers do not subscribe to OnlineSecurity.
  - **55%** of churned customers lack OnlineBackup services, underscoring the importance of these features in retention.

Streaming Services

- Customers not using **StreamingTV** or **StreamingMovies** churn more frequently.
  - About **50%** of churned customers do not subscribe to StreamingTV or StreamingMovies, suggesting that customers who do not perceive value in entertainment services may have a higher risk of leaving.

Phone Services

- Single-line users churn at higher rates (~30%) compared to those with multiple lines (~20%), indicating potential benefits of bundling services.

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4. Demographic Insights

Senior Citizens

- Senior citizens display a higher churn rate (**42%**) compared to non-senior citizens (**22%**).
  - Targeted retention strategies, such as simplified plans or dedicated customer support, could address this issue.

Dependents

- Customers with dependents have lower churn rates (**18%**) compared to those without dependents (**30%**), possibly due to increased reliance on services by families.

Gender

- No significant difference in churn rates is observed across genders, indicating that churn behavior is more influenced by service-related factors.

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5. Financial and Contractual Factors

Contract Type

- Customers with **monthly contracts** churn at a much higher rate (~43%) compared to those with one-year (~11%) or two-year (~3%) contracts.
  - This highlights the effectiveness of long-term contracts in reducing churn and fostering loyalty.

Payment Methods

- **Electronic check** users have the highest churn rate (~40%), compared to other payment methods like credit cards (~22%), bank transfers (~15%), or mailed checks (~12%).
  - This may indicate potential dissatisfaction with the payment experience or pricing.

Total Charges

- Churned customers tend to have lower average lifetime total charges, with **75%** of churned customers spending less than the median total charges of active customers.
  - Retaining these customers could lead to significant revenue growth over time.

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6. Key Patterns and Correlations

- Lack of additional services (e.g., OnlineSecurity, OnlineBackup, and TechSupport) correlates strongly with higher churn rates.
- Fiber Optic Internet, while popular, is associated with higher churn, suggesting a need for service improvement.
- Customers on monthly contracts are far more likely to churn than those on long-term plans.

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7. Recommendations

Service Enhancements

1. **Upselling Security and Backup Services**:
   - Promote OnlineSecurity and OnlineBackup through bundled offers or discounts.
2. **Improve Fiber Optic Services**:
   - Investigate pain points such as pricing and reliability for Fiber Optic Internet users.

Targeted Retention Strategies

1. **Senior Citizen Plans**:
   - Simplify plans and offer special pricing or additional support for senior customers.
2. **Monthly to Long-Term Conversion**:
   - Incentivize customers to switch from monthly to long-term contracts through discounts, free trials, or added benefits.

Payment Experience

1. **Optimize Payment Methods**:
   - Address issues with electronic check payments by offering rewards or improving ease of use.

Customer Engagement

1. **Surveys and Feedback**:
   - Conduct surveys to understand customer dissatisfaction, particularly among Fiber Optic users.
2. **Proactive Support**:
   - Engage with at-risk customers (e.g., those on monthly contracts or without additional services) through personalized offers and proactive support.

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8. Conclusion

This analysis highlights critical factors driving customer churn and offers actionable insights to mitigate it. By focusing on service enhancements, targeted retention strategies, and optimized payment experiences, the telecom company can significantly improve customer satisfaction and reduce churn. The findings serve as a foundation for strategic decision-making to enhance long-term customer loyalty and revenue growth.