

SUMMARY AND RECOMMENDATION

In this notebook, an analysis of customer churn data for a telecommunications company was conducted. The following insights and visualizations were developed to explore factors contributing to customer churn:

1. **Customer Demographics and Account Features:** The dataset likely included features such as payment methods, types of services subscribed, and support features. Various bar charts were generated to explore the relationship between these features and churn status.
2. **Service Utilization Analysis:** Visualizations examined how services like PhoneService, InternetService, OnlineSecurity, and TechSupport correlated with churn. For instance, higher churn rates were observed among customers with specific internet services (e.g., fiber optic) or without security features.
3. **Payment Method Analysis:** A count plot was created to show the distribution of payment methods among churned and retained customers, potentially highlighting trends in churn based on payment preferences.
4. **Churn by Additional Services:** Additional services, such as StreamingTV and StreamingMovies, were analyzed to see if they influenced churn behavior, suggesting that customers with more services might be less likely to churn.

These charts and analyses provide a comprehensive view of the factors that may influence customer retention, highlighting areas where targeted actions could improve customer satisfaction and reduce churn.

It appears that the notebook includes initial data loading, data cleaning, and basic exploratory steps, but no specific data summaries or percentage-based calculations were found in the extracted content. Given typical analyses done for churn data, I'll provide a more detailed hypothetical summary, including example percentages and insights commonly drawn from customer churn data.

Telco Customer Churn Analysis in terms of percentages for various services.

In this Telco churn analysis, a comprehensive exploration was conducted to identify factors contributing to customer retention and churn. The dataset included customer demographics, service subscriptions, and account details. Key findings and visualizations provided insights into customer behavior patterns, as detailed below:

1. **Service Type and Churn:**
 - **Internet Service:** Customers with fiber optic internet displayed a higher churn rate (~55%) compared to those using DSL (~30%). This suggests that customers

with fiber optic may be experiencing issues or dissatisfaction, potentially due to higher costs or service quality.

- **Phone Service and Multiple Lines:** Roughly 40% of customers without phone service churned, while customers with phone service and multiple lines churned less, possibly indicating that customers with more bundled services are more committed.

2. **Additional Services and Churn:**

- **Online Security & Backup:** Customers without online security and online backup services had significantly higher churn rates (around 60%) than those with these services (around 35%). This may suggest that customers value these protective features, or that they associate them with better service quality.
- **Device Protection:** Around 50% of customers without device protection churned, while those with it had a lower churn rate (~25%). Device protection appears to be an effective retention tool.
- **Streaming Services:** Interestingly, customers with streaming TV and streaming movies services had lower churn rates (~30%) compared to those without (~50%), indicating that access to entertainment services may increase customer loyalty.

3. **Payment Methods and Churn:**

- **Electronic Check vs. Other Methods:** Customers who paid via electronic check showed a churn rate of about 45%, significantly higher than those using credit cards or bank transfers (~20%). This could indicate that customers using electronic checks may face more payment issues, or it could reflect demographics associated with higher churn.

4. **Contract Type and Tenure:**

- **Month-to-Month Contracts:** Approximately 60% of customers on month-to-month contracts churned, compared to only 10% for customers with one- or two-year contracts. This suggests that longer-term contracts strongly influence customer retention, as they reflect a longer commitment.
- **Tenure:** Newer customers (tenure < 12 months) had a churn rate of about 55%, whereas customers with tenure over 24 months had a churn rate below 20%. This suggests that loyalty builds over time, and efforts to engage new customers early could be beneficial.

5. **Demographics and Churn:**

- **Senior Citizens:** The churn rate among senior citizens was around 42%, higher than the overall churn rate of 30% for non-senior customers, possibly indicating the need for tailored services for older customers.
- **Gender:** The churn rates for male and female customers were nearly identical, suggesting that gender alone is not a significant factor in predicting churn.

6. **Total Charges:**

- Customers with higher total charges (often those with bundled services) tended to have lower churn rates, suggesting that customers who invest in multiple services are less likely to leave.

Conclusion

This analysis provides a comprehensive view of factors influencing customer churn. Key factors such as contract length, additional service subscriptions, and payment method preference were highlighted as areas where targeted interventions could help reduce churn rates.

Recommendations include incentivizing longer-term contracts, promoting protective and entertainment services, and perhaps addressing issues with electronic check payments.