Executive Summary with Detailed Analysis

This project analyzes customer data to uncover trends, patterns, and actionable insights related to service usage and customer churn. The analysis aims to identify the primary factors contributing to churn and recommend strategies to improve customer retention.

Objective

The primary objectives of this analysis are:

1. To understand customer demographics and service preferences.
2. To identify key drivers of customer churn.
3. To evaluate service usage patterns and their relationship with churn.
4. To provide actionable recommendations to reduce churn and enhance customer satisfaction.

Key Insights

1. Customer Demographics:

- **Gender**:
  - The customer base is evenly split between males (50.5%) and females (49.5%), with no significant difference in churn rates by gender.
- **Senior Citizens**:
  - Senior citizens constitute **16% of the customer base**. Their churn rate is significantly higher at **42%**, compared to **22%** for non-senior citizens.
- **Family Status**:
  - Married customers (49%) and those with dependents (30%) churn less frequently than single or independent customers.

2. Service Usage Patterns:

- **Phone Services**:
  - **90% of customers use PhoneService**, and **50% of these use MultipleLines**. MultipleLines users show a slightly higher churn rate.
- **Internet Services**:
  - **69% of customers subscribe to InternetService**, with:
    - **Fiber optic** being the most popular (56%) but showing the highest churn rate (**42%**).

- **DSL** has a lower churn rate of **18%**, indicating better satisfaction or value perception.
- **Value-Added Services**:
  - Adoption rates for services like **OnlineSecurity** (30%), **TechSupport** (30%), and **DeviceProtection** (32%) are relatively low.
  - Customers without these services churn at significantly higher rates.

3. Churn Analysis:

- **Overall Churn**:
  - **26% of customers churn**, indicating that approximately 1 in 4 customers leave the service.
- **Service-Linked Churn**:
  - Customers with **Fiber optic Internet** churn at nearly **double the rate** of DSL users.
  - Customers without **OnlineSecurity** or **TechSupport** have churn rates exceeding **40%**, compared to **15-20%** for those subscribed.

Visualizations

1. **Count Plots**:
   - Show the distribution of key categories like `InternetService`, `PhoneService`, and `SeniorCitizen`.
   - Example: Senior citizens are overrepresented in the high-churn group.
2. **Stacked Bar Charts**:
   - Highlight churn percentages within categories. For example:
     - **InternetService**:
       - Fiber optic churn: **42%**
       - DSL churn: **18%**
     - **Streaming Services**:
       - Churn rate for StreamingTV users: **32%**
       - Churn rate for non-users: **22%**
3. **Churn Rate Comparisons**:
   - Visualizations comparing churn rates across value-added services like **OnlineSecurity** and **TechSupport** show clear correlations with retention.

Recommendations

1. **Targeted Retention Strategies**:

- Focus on high-churn segments such as senior citizens and Fiber optic Internet users. Provide tailored retention programs like discounts, better service quality, or personalized support.
2. **Increase Adoption of Value-Added Services**:
   - Services like **OnlineSecurity**, **TechSupport**, and **DeviceProtection** are critical to reducing churn. Offer bundled packages or trial promotions to encourage adoption.
3. **Improve Fiber Optic Services**:
   - Address dissatisfaction among Fiber optic users by investing in infrastructure, ensuring consistent quality, and offering competitive pricing.
4. **Enhance Customer Engagement**:
   - Use targeted campaigns for at-risk groups based on usage patterns (e.g., single-service users, non-subscribers of security services).
5. **Focus on Multi-Service Packages**:
   - Customers with multiple services (e.g., StreamingTV + PhoneService) churn less. Promote bundles to improve customer retention.

Conclusion

This analysis highlights that customer churn is influenced by a combination of demographic factors and service usage patterns. By addressing pain points for high-churn segments and promoting value-added services, the organization can significantly improve retention and customer satisfaction. The recommendations provided offer a roadmap for strategic interventions, enabling data-driven decisions to drive business growth.

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