**Customer Churn Analysis Summary**

**Project Overview**

The objective of this analysis was to identify patterns that lead to customer churn in a subscription-based service, focusing on various customer demographics, subscription details, and usage patterns. The aim was to generate insights to inform targeted retention strategies.

**Data Information**

The analysis was conducted using a PostgreSQL database, and the dataset used is the Telco Customer Churn dataset from [Kaggle](https://www.kaggle.com/datasets/blastchar/telco-customer-churn). For clarity and to demonstrate advanced SQL skills, the dataset was reviewed in Excel and split into two tables: Customers and Subscriptions. This split was done to showcase SQL joins and other advanced querying techniques.

* Customers Table:
  + Columns: ID (primary key), gender, SeniorCitizen (boolean), Partner (boolean), and Dependents (boolean).
* Subscriptions Table:
  + Columns: ID (randomly generated without duplicates), customerID (foreign key referencing Customers.ID), tenure (in months), PhoneService (boolean), InternetService (boolean), Contract, MonthlyCharges, TotalCharges, and Churn.

During the data import process into pgAdmin 4, an issue was identified with the TotalCharges column, as it contained empty strings, which caused an import error. These rows were cleared in Excel, allowing the data to be successfully imported into PostgreSQL for analysis.

**Key Findings**

1. Churn by Contract Type:
   * Month-to-Month Contracts: 42% churn rate, the highest among contract types, indicating that customers on flexible terms are at higher risk of churning.
   * One-Year Contracts: 11% churn rate, showing improved retention with longer commitment.
   * Two-Year Contracts: 2% churn rate, suggesting the highest loyalty for customers who commit long-term.

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***Insight: Customers on month-to-month contracts are more likely to churn, indicating a need for retention efforts targeting flexible contracts.***

1. Churn by Internet Service Type:
   * Fiber Optic: 41% churn rate, indicating possible dissatisfaction among fiber optic customers.
   * DSL: 18% churn rate, suggesting moderate retention.
   * No Internet Service: 7% churn rate, the lowest, likely because these customers are less reliant on the service.

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***Insight: Fiber optic customers are at higher risk of churning. Service improvements or pricing adjustments might be necessary.***

1. Monthly Charges and Churn:
   * Customers who churn have a higher average monthly charge ($74.44) compared to those who stay ($61.27).

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***Insight: Higher charges correlate with higher churn rates, suggesting that customers may be sensitive to pricing. Offering discounts or value-added services could help retain high-paying customers.***

1. Retention by Tenure Bucket:
   * 1-12 months: 52.32% retention, indicating high churn risk for new customers.
   * 13-24 months: Retention improves to 71.29%.
   * 60+ months: 93.44% retention, showing strong loyalty among long-term customers.

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***Insight: The first year is a critical period for customer retention. Retention efforts should be intensified for new customers to increase their likelihood of staying longer.***

1. Retention Analysis by Senior Citizen Status:
   * Senior Customers: Show lower retention rates across most tenure buckets, especially within the first 12 months.
   * Non-Senior Customers: Generally have higher retention across tenure periods.

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***Insight: Senior customers may need targeted onboarding and engagement, especially in the first year, to reduce early-stage churn.***

**Recommendations**

1. Engage New Customers: Focus on improving retention in the first 12 months through onboarding programs, targeted offers, and personalized engagement.
2. Address Pricing Sensitivity: Consider tiered pricing, discounts, or added benefits for high-paying customers to reduce churn due to monthly charges.
3. Target Month-to-Month Customers: Implement loyalty incentives, such as discounts for switching to longer-term contracts, to reduce churn among flexible contract holders.
4. Improve Fiber Optic Service Satisfaction: Investigate potential issues with fiber optic service, as this group shows a higher churn rate.
5. Support Senior Customers: Provide additional engagement and support for senior customers, especially during the first year, to build long-term loyalty.