

# Summary and Recommendation

In today's competitive business landscape, customer retention is as important as customer acquisition. I recently explored a detailed dataset of 7,043 customers to uncover insights into what drives **customer churn** for a telecommunications company. Using advanced data analysis techniques with tools like **NumPy**, **Pandas**, **Seaborn**, and **Matplotlib**, we were able to extract some compelling insights. Here's what we found:

## Objective of the Analysis

The primary objective was to understand the reasons behind customer churn and identify trends or patterns that could help mitigate it. We focused on factors such as customer demographics, services subscribed, payment methods, and contract types to examine their influence on churn.

## Key Insights:

1. **Customer Churn Rate:**
  - **26.54%** of the company's customers have churned. This is a significant number, implying a quarter of customers have left, potentially affecting revenue.
2. **Churn by Contract Type:**
  - Customers with **month-to-month contracts** are far more likely to churn compared to those with **one-year** or **two-year contracts**. A staggering **1,655** customers churned from month-to-month contracts, while only **166** and **48** churned from one- and two-year contracts, respectively.
  - **Insight:** Long-term contracts result in higher customer retention, making it clear that locking customers in longer terms can drastically reduce churn.
3. **Senior Citizens and Churn:**
  - Senior citizens have a significantly higher churn rate (**41.7%**) compared to non-senior citizens (**23.6%**). This suggests that older customers may need targeted services or customer care to improve retention.
4. **Impact of Additional Services:**
  - Customers using additional services like **Online Security**, **Tech Support**, and **Device Protection** tend to have lower churn rates. Conversely, customers using **Fiber optic internet** show a higher tendency to churn compared to those using DSL.
  - **Insight:** Encouraging subscriptions to additional services could potentially lower churn rates by providing more value to customers.

#### 5. Churn by Payment Method:

- Customers who use **Electronic Check** as a payment method are more likely to churn. This finding suggests that payment methods play a role in customer retention.
- **Insight:** Offering more convenient or customer-friendly payment methods may reduce churn.

#### 6. Gender and Churn:

- The data shows no significant difference in churn between male and female customers, implying that **gender does not play a major role** in churn decisions.

#### 7. Tenure and Churn:

- New customers, particularly those with **tenure of 1-2 months**, show a higher tendency to churn, suggesting that the first few months are critical for customer retention.
- **Insight:** Improving the onboarding experience or offering early incentives could help retain new customers.

### Conclusion:

Understanding the dynamics of customer churn is crucial for businesses aiming to improve retention. This analysis reveals that factors like **contract type, additional services, payment methods**, and **customer demographics** significantly influence churn rates. By addressing these areas, telco companies can reduce churn, retain more customers, and increase overall profitability.