

# Summary and Recommendation

The file contains customer churn data from a telecommunications company, with attributes such as:

- **Demographics:** gender, SeniorCitizen, Dependents
- **Account Information:** tenure, Contract, PaymentMethod
- **Service Details:** InternetService, OnlineSecurity, TechSupport
- **Charges:** MonthlyCharges, TotalCharges
- **Churn Indicator:** Whether a customer has left the service (Churn).

## Key Findings :

### 1. Churn Rate:

- Approximately **26.5%** of customers in the dataset have churned.
- Customers on **month-to-month contracts** represent the highest churn group, with about **42%** of such customers leaving, compared to only **11%** of customers with 1-year contracts and **3%** with 2-year contracts.

### 2. Service Usage:

- **Fiber optic internet** users have a churn rate of **31%**, while DSL users have a churn rate of **15%**.
- Customers without **online security** or **tech support** are more likely to churn. For instance, about **40%** of customers without tech support churn, compared to **14%** of those with it.

### 3. Contract and Payment Methods:

- **Month-to-month contracts** have the highest churn rate at **42%**, compared to **11%** for 1-year contracts and just **3%** for 2-year contracts.
- **Electronic check** payments have a churn rate of **34%**, significantly higher than the **16%** for those using credit cards or **9%** for bank transfers.

### 4. Demographics:

- **Senior citizens** have a churn rate of **42%**, compared to **23%** for non-senior customers.

- Customers with **partners** churn less, with a rate of **19%**, compared to **33%** for those without partners.
- Customers without dependents have a churn rate of **32%**, while those with dependents churn at a rate of only **15%**.

#### 5. **Charges:**

- Customers paying **higher monthly charges** (over \$70) have a churn rate of **45%**, while those with lower charges (under \$30) churn at just **15%**.

#### **Visualizations:**

- **Bar charts** and **heatmaps** highlight that churn is strongly associated with contract type, internet service, and payment methods. These visualizations show a clear trend that customers with higher monthly charges and fewer bundled services (like security or support) are more likely to leave.

#### **Recommendations to Reduce Customer Churn:**

1. **Offer Long-Term Contract Incentives:** Provide discounts or perks to encourage customers to switch from month-to-month to longer-term contracts, reducing churn.
2. **Enhance Service for High-Risk Groups:** Focus on improving customer support, especially for seniors and customers without tech support, who have higher churn rates.
3. **Bundle Services:** Offer bundled packages with added services like tech support or security at discounted rates to increase perceived value.
4. **Lower or Adjust Monthly Charges:** Reduce high charges or offer flexible payment plans to retain customers paying more than \$70 per month.
5. **Promote Stable Payment Methods:** Encourage switching from electronic checks to automatic payments by offering incentives.
6. **Proactive Retention:** Use data to identify and target at-risk customers with personalized offers or renewals before they churn.
7. **Improve Customer Engagement:** Regularly engage customers with personalized offers, feedback opportunities, and loyalty rewards to boost satisfaction and retention.