Telco Customer Churn Analysis

Objective:

The goal of this analysis is to understand the key drivers of customer churn for a telecommunications company. By examining various customer features, we aim to identify patterns that contribute to churn and provide actionable insights to reduce it.

Key Insights:

1. **Churn Distribution:**
    - Out of the total customers analyzed, approximately **26.5% of customers have churned**. This represents a significant portion of the customer base, indicating that churn is a critical issue for the company.
    - **73.5% of customers remain loyal**, providing a stable foundation but also highlighting that nearly one in four customers leave, which requires attention.
2. **Demographics and Churn:**
    - **Gender:** The churn rate is nearly **equal for male and female customers** (around 50% each), indicating that gender does not have a significant impact on churn.
    - **Senior Citizens:** Senior citizens, who account for about **16% of the total customers**, exhibit a **42% churn rate**—much higher than the overall churn average. Targeted retention efforts may be required for this group.
    - **Customers without a Partner:** Customers who do not have a partner (either single or divorced) have a higher churn rate at **32%**, compared to **19%** for customers who have a partner. This suggests that lifestyle and family status influence churn behavior.
3. **Service-Related Factors:**
    - **Contract Type:**
        - **Month-to-Month contracts** show the highest churn rate at **43%**, whereas customers on **one-year and two-year contracts** have significantly lower churn rates at **11%** and **3%**, respectively.
        - This indicates that customers on shorter-term contracts are more likely to leave, emphasizing the need to promote long-term plans.
    - **Internet Service:**
        - Customers with **Fiber Optic Internet** show a high churn rate of **41%**, compared to **16% for DSL users**. This suggests potential service quality or pricing issues with fiber optic services.
        - **Customers without internet service** have a significantly lower churn rate at **7%**, likely because they utilize fewer services, reducing dissatisfaction.

4. **Charges and Churn:**
    - **Monthly Charges:** Customers with higher monthly charges (over $70 per month) are **45% more likely to churn** than those with lower charges. The **average monthly charge of churned customers is $74.** This suggests that high costs could be a contributing factor to churn.
    - **Tenure:** Customers with shorter tenure (less than one year) are **56% more likely to churn** compared to those with tenure over two years. Long-term customers are more likely to remain loyal, which supports the idea of encouraging longer-term commitments.
    - **Total Charges:** There is a positive correlation between higher total charges and churn, with customers who have accrued more charges over time being more likely to leave.
5. **Outlier Analysis:**
    - Boxplots for key numerical variables like **tenure, monthly charges, and total charges** reveal no significant outliers. This implies that the data is well distributed and reliable for further analysis without distortion from extreme values.

Visualizations & Data:

1. **Churn Distribution:**
    - A pie chart illustrates that **26.5%** of customers have churned, while **73.5%** are retained.
2. **Monthly Charges:**
    - A bar plot of monthly charges shows that customers paying above $70 have the highest churn rate of **45%**, while those paying below $50 have the lowest churn rate at **15%**.
3. **Contract Type:**
    - A bar plot reveals that **43%** of customers on month-to-month contracts churn, compared to only **3%** of customers on two-year contracts.
4. **Internet Service:**
    - Customers using fiber optic services show a churn rate of **41%**, as compared to **16%** for DSL users. Those without internet service churn at just **7%**.
5. **Tenure:**
    - Customers with less than one year of tenure churn at **56%**, while those with over two years of tenure churn at a significantly lower rate of **7%**.

Recommendations:

1. **Targeted Retention Programs for High-Risk Groups:**
    - Focus on customers with month-to-month contracts and those using fiber optic internet, as these groups show the highest churn rates. Offering personalized retention packages, discounts, or upgrades could encourage them to stay.
2. **Encourage Long-Term Contracts:**
    - Since customers with one-year and two-year contracts churn much less frequently (**11%** and **3%**, respectively), promoting long-term contracts through discounts or added benefits could significantly reduce churn.
3. **Address High Monthly Charges:**
    - With **45% of high-charge customers** more likely to churn, reviewing the pricing structure and offering more flexible payment plans or loyalty rewards could alleviate the pressure on high-spending customers, reducing churn.
4. **Improve Fiber Optic Service Satisfaction:**
    - The **41% churn rate among Fiber optic users** indicates possible service or satisfaction issues. Investigating service quality, speed, and customer support in fiber optic areas, and addressing common complaints, could help retain these customers.
5. **Senior Citizen-Specific Offers:**
    - Since **42% of senior citizens** are churning, creating senior-specific packages with enhanced support or discounts may reduce churn in this demographic.

Conclusion:

The analysis of customer churn at this telecom company highlights that **contract type, monthly charges, and internet service type are major contributors to churn**. **Addressing pricing concerns**, **improving Fiber optic service quality**, and **encouraging longer-term contracts** will likely help reduce churn. Additionally, **targeted efforts for senior citizens and customers with high monthly charges** can further strengthen retention.