Customer Churn Analysis

This project focuses on analyzing customer churn behavior using a telecom customer dataset containing 7,043 records and 21 features related to customer demographics, services subscribed, billing details, and contract information. The objective of the analysis was to identify key factors influencing customer churn and derive actionable business insights through data exploration and visualization.

Key Findings

- **Overall Churn Rate:**
  Approximately **26.5%** of customers have churned, while **73.5%** have remained with the company. This indicates a significant portion of customers at risk, highlighting the need for targeted retention strategies.

- **Gender Impact:**
  Churn rates are **nearly equal across genders**, suggesting that gender does not play a major role in customer churn.

- **Senior Citizens:**
  Senior citizens exhibit a higher churn rate compared to non-senior customers. This indicates that elderly customers may require more tailored plans, better support, or simplified services.

- **Tenure Influence:**
  Customers with **shorter tenure are far more likely to churn**. As tenure increases, churn probability decreases significantly, emphasizing the importance of customer engagement during the early stages of subscription.

- **Contract Type:**
  Customers on **month-to-month contracts churn the most**, whereas those with **one-year and two-year contracts show much lower churn rates**. Long-term contracts clearly improve customer retention.

- **Service-Based Insights:**
  Higher churn is observed among customers who:

  - Use **fiber optic internet**

  - Do **not** have add-on services such as **Online Security, Tech Support, or Device Protection**

- This suggests dissatisfaction with service quality or pricing, especially for premium internet services without adequate support features.

- **Payment Method:**
  Customers using **electronic checks** show the **highest churn rate**, while those using **automatic payment methods** (credit card or bank transfer) are more likely to stay. This indicates that ease and automation of payment play a role in retention.

Business Recommendations

- Focus retention efforts on **new and month-to-month customers**, especially within the first year.

- Promote **long-term contracts** with incentives.

- Improve service quality and support for **fiber optic users**.

- Encourage customers to adopt **auto-payment methods**.

- Design customized engagement strategies for **senior citizens**.

Conclusion

Through effective data cleaning, exploration, and visualization, this analysis successfully identifies critical churn drivers. The insights derived can help the business reduce churn by implementing data-driven customer retention strategies, ultimately improving customer lifetime value and revenue stability.