Summary and Recommendations

Telecom Customer Churn Analysis

This project delivers an in-depth **customer churn analysis** for a telecom company using a dataset of **7,043 customers**. The objective was to identify **key churn drivers**, understand customer behavior across demographics, tenure, contracts, services, and payment methods, and translate these findings into **actionable business insights**. The analysis is supported by multiple well-structured visualizations, including bar charts, stacked percentage charts, histograms, and pie charts.

Overall Churn Performance

- Out of all customers analyzed, **26.54% have churned**, while **73.46% remain active**.
- This indicates that **approximately 1 in every 4 customers leaves the service**, highlighting churn as a major business concern requiring targeted retention strategies.

Demographic Analysis

Gender

- Churn distribution across **male and female customers is nearly identical**.
- This indicates that **gender is not a significant predictor of churn**, and retention strategies should focus on behavioral and contractual factors instead of demographic gender segmentation.

Senior Citizens

- **Senior citizens represent a smaller portion of the customer base**, yet their **churn rate is significantly higher** compared to non-senior customers.
- Stacked percentage analysis shows that **senior citizens have a noticeably higher proportion of churned customers**, making them a **high-risk segment**.
- This suggests a need for:
  - Simplified plans
  - Personalized support
  - Better onboarding and assistance for senior users

Tenure-Based Insights

- Customers with **very low tenure (0–2 months)** show the **highest churn concentration**.
- As tenure increases, churn **declines sharply**, indicating strong customer loyalty among long-term users.
- Customers who stay beyond the **initial few months are significantly more likely to remain long-term**.

Key Insight:
The **first 60–90 days** are the most critical period for customer retention, emphasizing the importance of early engagement, onboarding, and proactive support.

Contract Type Analysis

- Customers on **month-to-month contracts** contribute the **largest share of churn**.
- In contrast:
  - **One-year contract customers** show much lower churn
  - **Two-year contract customers** show the **lowest churn rates**

Interpretation:
Longer contract commitments significantly reduce churn, indicating that **contract length is one of the strongest churn predictors**.

Service Usage & Feature Adoption

A multi-variable service-level analysis highlights clear patterns:

Services Associated with Lower Churn

Customers who **do not churn** are more likely to have:

- Phone Service
- Internet Service (particularly **DSL**)
- Online Security

These services appear to increase customer dependency and perceived value.

Services Associated with Higher Churn

Churn rates are noticeably higher among customers who:

- Do **not** use Online Backup

- Do **not** use Tech Support
- Do **not** subscribe to Streaming TV or Streaming Movies

Insight:
Customers using fewer services are **less engaged and more likely to leave**, whereas customers with bundled or value-added services are more loyal.

Payment Method Analysis

- Customers using **Electronic Check** as a payment method show the **highest churn levels**.
- Customers using **automatic bank transfers or credit cards** have significantly **lower churn rates**.

Possible Reasons:

- Manual payments increase friction
- Automatic payments improve continuity and reduce service interruptions

Recommendation:
Encouraging automated payment methods could directly reduce churn risk.

Key Business Takeaways

- **26.54% churn rate** represents a substantial revenue and customer lifetime value risk.
- Highest churn risk segments include:
  - New customers (≤ 2 months tenure)
  - Senior citizens
  - Month-to-month contract users
  - Customers without bundled services
  - Customers using electronic check payments
- Retention improves significantly with:
  - Longer contracts
  - Higher service adoption
  - Automated payment methods

Recommendations

- Strengthen **early-stage onboarding** and engagement programs
- Introduce incentives for **long-term contracts**

- Promote **service bundling** to increase customer stickiness
- Offer targeted retention plans for **senior citizens**
- Encourage migration from **electronic checks to auto-pay options**

Conclusion

This analysis successfully combines **data cleaning, feature transformation, and insightful visualizations** to uncover the key drivers of telecom customer churn. By translating raw data into percentage-based insights and actionable recommendations, the project demonstrates strong **analytical thinking, business understanding, and storytelling with data**—making it highly valuable for decision-makers and stakeholders.