Executive Summary: Customer Churn Analysis

This exploratory data analysis (EDA) provides an in-depth understanding of factors influencing customer churn in a telecom service provider's dataset. The objective is to uncover patterns and insights that can inform targeted retention strategies and improve customer lifetime value

Key Findings

1. Overall Churn Landscape

- The **overall churn rate** stands at approximately **26.5%**, meaning over one in four customers leave the service.
- Retaining even a fraction of these customers could have a significant impact on recurring revenue, emphasizing the importance of churn mitigation strategies.

2. Demographic Insights

- **Senior Citizens** represent a smaller portion of the customer base but have a **disproportionately high churn rate (~42%)** compared to non-senior customers (**~24%**).
- This suggests a potential gap in service accessibility, digital literacy, or targeted support for older customers.
- **Gender** does not show a significant impact on churn, indicating that other factors (e.g., service and payment models) are more influential.

3. Customer Tenure and Loyalty

- A stark pattern is visible in **tenure vs churn**:
    - **Customers in their first 2 months** have a churn rate exceeding **60%**.
    - Those with **6+ months of tenure** show a **progressive drop** in churn rate, often falling below **15%**.
    - Customers who stay beyond **24 months** exhibit **single-digit churn rates**, demonstrating the value of early-stage engagement and onboarding.

4. Contract Type and Churn

- Contract type is one of the **most predictive factors** of churn:
  - **Month-to-month** customers churn at an alarming **~43%** rate.
  - **One-year contract** customers churn at **~11%**.
  - **Two-year contracts** have a churn rate of just **~3%**.
- This indicates that commitment length strongly correlates with retention, possibly due to stability and incentives.

5. Payment Method

- The churn rate is highest among customers paying by **Electronic Check** (**~45%**), likely due to the ease of cancellation or possibly customer demographics associated with this method.
- Customers using **Credit Card, Bank Transfer, or Mailed Check** have significantly lower churn rates (all under **20%**), suggesting a potential loyalty link with more stable or automated payment methods.

6. Service Subscriptions and Usage

- A recurring trend across multiple service lines is that customers **not subscribed** to value-added services are **more likely to churn**:
  - **Tech Support**: No → **~31%** churn vs Yes → **~13%**
  - **Online Security**: No → **~29%** vs Yes → **~12%**
  - **Device Protection**: No → **~28%** vs Yes → **~13%**
- These patterns indicate that **multi-service bundling** could increase customer stickiness.

7. Internet and Streaming Services

- Customers with **Fiber Optic Internet** show the **highest churn** among internet types at around **42%**, compared to **~20%** for DSL users and **~7%** for those without internet.

- Users **without streaming services** (TV/Movies) also churn more, though the difference is less pronounced than in support-related services.

Strategic Recommendations

1. **Early Lifecycle Interventions**
    - Target customers in the **first 3 months** with onboarding programs, loyalty incentives, and usage education to reduce initial drop-off.
2. **Promote Long-Term Contracts**
    - Use discounts or service bundles to transition customers from month-to-month to annual or biennial contracts.
3. **Bundle Services**
    - Encourage the uptake of value-added services like **tech support**, **online security**, and **device protection** via bundling or cross-selling.
4. **Analyze Fiber Optic Segment**
    - Investigate quality, pricing, or satisfaction issues among fiber users, as this segment shows high attrition.
5. **Improve Payment Method Experience**
    - Encourage customers to use stable, automated payment methods by offering minor discounts or additional perks over electronic check users.

Conclusion

This analysis highlights clear risk factors and strategic levers to reduce churn. Targeting high-risk segments with tailored engagement, product offerings, and payment incentives can significantly enhance customer retention and drive sustainable growth.