Telco Customer Churn Analysis

Executive Summary

1. Data inspection and preparation

- The Telco customer churn dataset was loaded and explored for column types, missing values, basic statistics and duplicates to ensure it was suitable for analysis.
- Categorical variables such as services, contract type, and payment method were reviewed, along with numerical variables like tenure and charges, to understand the structure before visualisation.

2. Overall churn level: Pie chart

- The overall churn rate in the dataset is **26.54%**, meaning **about one in four customers has left** the service.
- The remaining **73.46%** are retained, confirming churn is a significant issue that can materially affect revenue if not managed.

3. Churn by gender: Count plot

- The number and **percentage of churners are almost identical for male and female customers**.
- This shows that churn is **not driven by gender**, so gender-based targeting would not be a useful lever for retention.

4. Churn by senior-citizen status: Count plot

- A **higher percentage of senior citizens churn** compared with non-senior customers, even though seniors are a smaller share of the base.
- Senior citizens therefore form a **disproportionately high-risk group**, and may benefit from clearer communication, simpler plans, or targeted support.

5. Churn by tenure: Distribution and churn plot

- The analysis of tenure shows churn is **heavily concentrated in the early months**, especially within the **first month of service**.
- As tenure increases, the **churn percentage falls**, indicating that once customers stay beyond the initial period, they are more likely to remain loyal.
- This highlights the **onboarding period as critical** for proactive engagement, education and early satisfaction checks.

6. Churn by contract type: Count plot

- Customers on **month-to-month contracts have the highest churn percentage**.
- Those on **one-year and two-year contracts churn much less**, showing that longer contracts create stickier, more stable relationships.
- Encouraging month-to-month customers to upgrade to 1- or 2-year contracts (with clear value and incentives) is a key retention opportunity.

7. Churn by services and add-ons: Subplot grid of count plots

Columns analysed: PhoneService, MultipleLines, InternetService, OnlineSecurity, OnlineBackup, DeviceProtection, TechSupport, StreamingTV, StreamingMovies.

- **Core services**
  - Most customers have **phone and internet services**, so these segments contain the bulk of churners in absolute numbers.
  - Within internet users, **fiber-optic customers show a higher churn percentage** than DSL or "No internet service" customers, suggesting potential dissatisfaction or price–value issues for this segment.
- **Security, backup, and support add-ons**
  - Customers **without OnlineSecurity, OnlineBackup, DeviceProtection, or TechSupport** churn at a **noticeably higher rate** than those who subscribe to these services.
  - This indicates that protection and support bundles may increase perceived value and reduce churn.
- **Entertainment add-ons**
  - Customers using **StreamingTV and StreamingMovies** have a **slightly higher churn percentage** than customers with internet but no streaming.
  - Entertainment services alone do not appear to "lock in" customers; they may even be associated with more price-sensitive or experimental users.

8. Churn by payment method: Count plot

- The **Electronic Check** payment method stands out with the **highest churn percentage**.
- Customers who pay via more stable and automated channels (such as bank transfer or card) exhibit **lower churn rates**.
- This suggests that payment method is a strong behavioural signal, and migrating Electronic Check users to alternative methods could improve retention.

9. Overall conclusions

- Churn affects roughly **a quarter of the customer base (26.54%)**, with risk concentrated among **senior citizens**, **new customers**, **month-to-month** contracts, **fiber-optic** users, customers **without security/support add-ons**, and those paying by **Electronic Check**.
- Gender itself does not explain churn, so effective strategies should instead focus on **tenure, contract design, service mix, and payment behaviour**.
- The charts collectively point to clear levers for the business: strengthen early-tenure onboarding, promote longer contracts and value-adding bundles, and target high-risk payment and service segments with tailored retention offers.

10. Recommendations

Based on the patterns observed in the charts, the following actions are recommended:

1. Strengthen onboarding and early-tenure experience
   - Design a structured onboarding journey for the first 3–6 months, with welcome calls or messages, usage tips, and quick support options.
   - Monitor satisfaction and service issues closely in the first month, as this is where churn is most concentrated.
   - Offer early "check-in" touchpoints (for example, after 30 and 90 days) to resolve issues before customers consider leaving.
2. Shift customers away from high-risk month-to-month contracts
   - Create **clear, value-focused upgrade offers** that encourage month-to-month customers to move to 1- or 2-year contracts (discounted rates, added benefits, free installation, or extra data).
   - Target these campaigns first to month-to-month customers who already show risk signals (short tenure, Electronic Check, or multiple service complaints).
   - Make the benefits of longer contracts explicit in communication: lower effective price, more stability, and better bundled features.
3. Targeted initiatives for senior citizens
   - Simplify plan options and communication for senior citizens with clear, jargon-free descriptions.

    - Provide dedicated support or “priority help” for seniors, which can reduce frustration with billing or technical issues.
    - Consider senior-specific bundles (for example, essential services plus TechSupport) at a competitive price to improve stickiness.
4. Improve the value perception of fiber-optic and internet bundles
    - Investigate drivers behind the **higher churn among fiber-optic users**: speed vs. expectation gaps, outages, pricing concerns, or competition.
    - Offer retention bundles to at-risk fiber customers that combine **OnlineSecurity, OnlineBackup, DeviceProtection and TechSupport** to increase perceived value and reduce friction.
    - Communicate clearly why fiber-optic is worth the premium (speed, reliability, additional features) based on real performance data.
5. Promote support and protection add-ons as retention tools
    - Use the observed lower churn among customers with add-ons to justify **bundled offers** that include at least one of OnlineSecurity, OnlineBackup, DeviceProtection, or TechSupport.
    - Position these add-ons as “peace of mind” and “no-hassle” services that reduce problems and improve day-to-day experience, not just extra cost.
    - Test small bundles (e.g., Internet + TechSupport) in high-risk segments and evaluate impact on churn over time.
6. Address high-risk payment behaviours (Electronic Check)
    - Identify customers paying by **Electronic Check** and segment them as high churn risk.
    - Offer incentives to switch to **automatic card or bank payments** (for example, small discounts or reward points).
    - Combine payment method change campaigns with retention offers (like contract upgrades or add-on bundles) so that both revenue and retention are improved.
7. Build a monitoring and experimentation framework
    - Create a regular churn dashboard that tracks churn percentage by **tenure band, contract type, service mix, payment method and senior status**.
    - Use A/B testing for key interventions (contract upgrade offers, onboarding journeys, bundle promotions) to quantify actual impact on churn.
    - Feed insights from these experiments back into pricing, product design and customer support processes to continuously refine the churn strategy.

These recommendations translate the visual patterns from your charts into concrete actions that can be piloted, measured and iterated to systematically reduce churn over time.