

Executive Summary: Telco Customer Churn Analysis

This Telco Customer Churn Analysis aims to identify key drivers behind customer attrition. Through targeted visualizations and data segmentation, actionable insights have been extracted to support retention strategies.

✔ Key Findings & Insights

1. Overall Churn Rate

- Out of the total customer base, **26.54%** have churned while **73.46%** have remained.
- **Pie Chart Visualization** effectively demonstrates this imbalance, signaling the need for focused intervention on the churned segment.

2. Customer Demographics & Behavior

Feature	Churn %	Non-Churn %	Insight
Senior Citizen	~41.9%	~58.1%	Senior citizens have a significantly higher churn rate than younger customers.
Gender	Nearly Equal	Nearly Equal	Gender has no significant impact on churn.
Partner Status	32.1% (No partner)	67.9% (With partner)	Customers without a partner are more likely to churn.
Dependents	31.6% (No dependents)	68.4% (With dependents)	Customers without dependents are more churn-prone.

3. Contract & Subscription Types

Contract Type	Churn %	Key Insight
Month-to-month	~43.9%	Highest churn – Customers with flexible contracts churn more.
One year	~11.5%	Moderate churn.
Two year	~2.7%	Lowest churn – Indicates long-term contracts reduce churn risk .

- Customers with **Electronic Check** payments churned at **33.6%**, the highest among all payment types.
- **Paperless Billing** users show a churn rate of over **33%**, indicating possible dissatisfaction or billing transparency issues.

4. Monthly & Total Charges

- **High Monthly Charges → High Churn:**
 - Customers paying **above ₹80/month** show increased churn.
 - This trend is visualized using histograms and KDE plots.
- **TotalCharges:** Lower total charges often correlate with newer users who may churn early – this insight is crucial for onboarding processes.

5. Service-Level Analysis

Service Feature	Churn Trend
StreamingTV & Movies	Customers with these services churn more – possibly due to bundled upselling.
TechSupport	Churn is lower among customers who have opted for tech support – indicates value perception.

Online Security & Backup

Similar trend as tech support – add-on services **help retain customers**.

Data Preprocessing Notes

- Missing values in **TotalCharges** (0.15% of rows) were handled efficiently by removing those entries.
 - Categorical data such as "Yes/No" fields were cleaned and recoded for better interpretability in plots.
 - All visualizations use **Seaborn countplots** with labeled bars, enabling quick percentage-based insight retrieval.
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Conclusion & Strategic Recommendations

- Target **Month-to-Month** contract customers with loyalty benefits to reduce churn.
- **Senior citizens and high bill payers** need special attention via personalized engagement or discounts.
- Invest in **upselling support services** like Tech Support or Security – shown to retain users.
- Consider reevaluating **Paperless Billing** messaging or interface.