

Telco Customer Churn Analysis (EDA in Python)

Overview

This exploratory data analysis (EDA) investigates the **Telco Customer Churn dataset** to uncover key drivers of customer attrition.

Using **Python (Pandas, NumPy, Matplotlib, Seaborn)**, the project analyzes customer demographics, service usage, and billing behaviors to derive insights that can guide **customer retention strategies**.

Dataset Summary

- **Total Records:** 7,043 customers
- **Features:** 21 (including demographics, subscription details, and churn status)
- **Churned Customers:** 1,867 (**26.54%**)
- **Average Tenure:** 32.37 months
- **Median Tenure:** 29 months
- **Average Monthly Charges:** \$64.76
- **Average Total Charges:** \$2,279.73
- **Senior Citizens:** 16.21%

Key Insights

- **26.54%** of customers have churned, indicating a **high retention risk**.
- Customers with **tenure below 3 months** are most likely to churn, showing poor early-stage engagement.
- **Month-to-month contract** holders exhibit the **highest churn rate**, while **1–2 year contracts** retain customers better.

- **Electronic Check** payment users churn the most — likely due to **inconvenience or dissatisfaction**.
- Customers **without OnlineSecurity or TechSupport** are more prone to leave.
- **Higher monthly charges** are correlated with **increased churn**, suggesting **price sensitivity** among premium users.

Recommendations

- Strengthen **onboarding programs** to engage customers within the first 3 months.
- Offer **loyalty discounts** to shift customers from month-to-month to annual contracts.
- **Reassess pricing models** for high-billing customers to reduce cost-driven churn.
- Promote **value-added service bundles** like *OnlineSecurity* and *TechSupport*.
- Improve **payment convenience** by promoting digital and automated payment options.

Conclusion

This analysis provides a data understanding of customer churn behavior. By focusing on early retention, contract optimization, pricing strategy, and service enhancements, telecom providers can **significantly reduce churn and improve customer lifetime value**.