



## Executive Summary: Exploratory Data Analysis on Customer Churn Dataset

This EDA project provides deep insights into customer behavior and churn trends within a telecom company, using a dataset of **7043 customers** and **21 features**.



### Key Highlights:

- 📁 **Dataset Overview:**
  - Variables span demographics (e.g., gender, senior citizen status), service usage (e.g., Internet, Streaming, Support), and financial info (e.g., Monthly Charges, Payment Method).
- 🧹 **Data Cleaning:**
  - Null or empty **TotalCharges** entries for customers with zero tenure were replaced with **0.0** and type-cast to numeric for further analysis.



### Insights Uncovered:

- **Contract Type** is a major churn driver — users on **month-to-month contracts** are most likely to leave.
- Customers with **Fiber Optic Internet** and who pay via **Electronic Check** showed a higher likelihood of churn.
- **Senior Citizens**, and customers **without Tech Support or Online Security**, churn more often.



### Visualizations:

- You created **10+ insightful charts** using libraries like **Matplotlib**, **Seaborn**, and **Plotly**, including:
  - Distribution plots for **MonthlyCharges**, **Tenure**, and **TotalCharges**
  - Count plots and bar charts to show churn distribution across categories
  - Correlation heatmaps and group-wise churn analysis

## **Conclusion:**

This analysis successfully identifies key customer segments at risk of churning. The visualizations clearly communicate the impact of contract type, support services, and payment behavior on customer retention. These insights can be leveraged for targeted retention strategies and service improvements.