📊 Executive Summary: Customer Churn Analysis

This project presents a comprehensive analysis of customer churn patterns within a telecom dataset. The objective is to uncover critical factors that influence customer retention using Python, pandas, seaborn, and matplotlib.

🖌️ Data Cleaning & Preparation

🗒️ Loaded Customer Churn.csv and identified formatting issues.

🔄 Converted Total Charges from object to float after handling blank entries.

✅ No missing or duplicate data detected.

👴 Created a more interpretable senior Citizen column (yes/no).

📊 Key Visualizations & Insights

1. 📉 Churn Distribution

🧮 Count Plot & 📈 Pie Chart indicate 26.54% of customers have churned.

🚨 Highlights a significant customer retention concern.

2. 👥 Demographic Factors

👫 Gender: Churn is fairly balanced across genders.

👴 Senior Citizens: Exhibit a higher churn rate, suggesting targeted service improvement is needed.

3. ⏳ Tenure Analysis

📉 Highest churn among customers with 1–2 months of tenure.

📈 Long-tenure customers show greater loyalty.

4. 📄 Contract Type

🗓️ Month-to-month contracts see the highest churn.

🔐 1 or 2-year contracts improve retention significantly.

5. 📶 Service Usage Behaviour

📊 Subplots revealed churn trends across:

☎️ Phone Service

🌐 Internet Type (DSL/Fiber)

🔒 Online Security

📦 Online Backup

🛡️ Device Protection

👨‍💻 Tech Support

📺 Streaming TV / 🎬 Movies

📌 **Key Finding: Lack of value-added services (security, support, backups) = higher churn.**

📞 **DSL and Phone Services are more common among retained customers.**

🧠 Conclusion & Recommendations

🚪 Churn is more common among:

🆕 New users

👴 Senior citizens

🗓️ Month-to-month subscribers

🧩 Customers with no add-on services are more likely to churn.

🔧 Recommendations:

🎁 Offer bundled value services (security, support, etc.).

🧲 Promote long-term contracts with loyalty incentives.

🤝 Improve onboarding & support for seniors and new users.