📊 *Customer Churn Analysis Report*

Project Title: Customer Churn Analysis

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Tools Used: Python (Pandas, Seaborn, Matplotlib), Jupyter Notebook

Objective:

To analyze customer churn data, identify key factors influencing churn, and provide actionable insights to reduce customer attrition.

🔍 *1. Project Background*

Customer churn is one of the critical metrics that directly impacts the revenue of subscription-based businesses. This project aims to uncover patterns in customer behavior that indicate churn risk and suggest strategies to retain customers.

📜 *2. Dataset Overview*

The dataset consists of *5,283* customer records with the following key attributes:

- *Demographics:* Gender, SeniorCitizen, Partner, Dependents
- *Service Information:* PhoneService, InternetService, StreamingTV, StreamingMovies, etc.
- *Account Info:* Tenure, Contract Type, MonthlyCharges, TotalCharges
- *Target Variable:* Churn (Yes/No)

🧪 *3. Data Cleaning & Preprocessing*

- Removed rows with missing values in TotalCharges.
- Converted TotalCharges to numeric.
- Encoded categorical variables for modeling.
- Created new features like Tenure Groups for better segmentation.

📈 *4. Exploratory Data Analysis (EDA)*

A. *Churn Rate*

- Overall churn rate: *~26.5%*
- Indicates a considerable portion of customers leaving.

B. *Demographics & Churn*

- *Senior Citizens:* Higher churn rate (~42%) compared to non-seniors.
- *Customers without partners or dependents* are more likely to churn.

C. *Service-Based Insights*

- *Fiber optic* internet users churn more than DSL users.
- Customers using *multiple streaming services* have slightly higher churn rates.
- Lack of online security or tech support increases churn probability.

D. *Contract & Payment Analysis*

- *Month-to-month contract customers* churn the most (~43%).
- Long-term contracts (1-year, 2-year) significantly reduce churn.
- *Electronic check payments* have higher churn than other payment methods.

E. *Tenure and Charges*

- Customers with *tenure < 1 year* are most likely to churn.
- High *MonthlyCharges* customers also show high churn, particularly if tenure is low.

🧠 *5. Key Insights & Correlations*

Feature	Churn Rate	Insight
Contract: Month-to-month	High	More prone to churn
Internet Service: Fiber	High	Fast but less loyal
Tech Support: No	High	Support may be a retention factor
Tenure < 1 year	Very High	Onboarding experience critical
Payment Method: Electronic Check	High	Possibly linked to less committed customers

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🧩 *6. Recommendations*

1. *Incentivize long-term contracts* to reduce churn from month-to-month subscribers.
2. *Improve onboarding and support* in the first year of customer lifecycle.

3. *Targeted retention campaigns* for high-risk groups (e.g., fiber optic users, seniors).
4. *Introduce bundling options* to encourage multi-service usage in a controlled way.
5. *Offer payment flexibility or rewards* to convert electronic check users to auto-pay cards.

📌 *7. Potential Next Steps*

- Build a *churn prediction model* using logistic regression or decision trees.
- Apply *segmentation* to identify different churn personas.
- Conduct *A/B testing* for targeted retention strategies.
- Integrate *customer feedback/survey data* for qualitative analysis.

📂 *8. Project Files & Artifacts*

- Dataset: Cleaned_Churn_Customer_Analysis.csv
- Jupyter Notebook: EDA, Visualization, Preprocessing
- PDF Report: This document

✅ *Conclusion*

Understanding customer churn is essential for proactive business decision-making. This analysis provides a data-driven foundation to reduce attrition and improve customer satisfaction. With further modeling, the business can move towards predictive retention and smarter lifecycle management.

Would you like this in a *PowerPoint, **PDF, or **LinkedIn-ready visual format* as well? I can help format it into your preferred medium.