📊 Customer Churn Analysis – Summary & Insights

1️⃣ Data Cleaning & Preparation

- The dataset (`Customer Churn.csv`) was loaded and checked for missing values.
- The `TotalCharges` column had **empty spaces**, which were replaced with `0` and converted to a **numeric format**.
- The `SeniorCitizen` column was transformed from **1/0** values to **"Yes/No"** for better readability.
- **No duplicate customer IDs were found**, ensuring data consistency.

2️⃣ Key Findings from Visualizations

📌 Overall Churn Rate

- **26%** of customers have **churned**, while **74%** have stayed.
- **This means that for every 100 customers, about 26 left the service.**
- Retaining even **a small portion of these churned customers** can significantly impact revenue.

📌 Senior Citizens & Churn

- Senior Citizens make up **16.2%** of the total customer base.
- Among **Senior Citizens**, **42% have churned**, compared to **24% of non-senior citizens**.
- 🔍 **Insight: Older customers are more likely to leave**—likely due to **cost concerns or difficulty using digital services**.
- 🛠️ **Recommendation:** Providing **senior-friendly plans or support services** may help reduce churn in this group.

📌 Gender & Churn

- **Churn rates are almost equal for males (25.5%) and females (26.4%).**
- 🔍 **Insight: Gender does not significantly impact churn.** The focus should be on other factors like contract type, services, and payment methods.

📌 Services & Churn

- **Customers without additional services (like Online Security, Tech Support, etc.) churn more.**
- **Internet Service Type:**
  - **Fiber Optic users churn at 41%**, much higher than **DSL users (19%)**.
  - Customers with **no internet service churn only at 7%**.
- 🔍 **Insight: Fiber Optic customers face higher dissatisfaction, possibly due to pricing or reliability issues.**
- 🛠️ **Recommendation: Loyalty programs or bundle discounts** for fiber-optic users can help retain them.

📌 Contract Type & Churn

- **Month-to-month contract customers have the highest churn rate at 42%.**
- **1-year contract churn rate: 11%.**
- **2-year contract churn rate: 3%.**
- 🔍 **Insight:** The **shorter the contract, the higher the churn**.
- 🛠️ **Recommendation:** Encourage customers to **switch to longer contracts** by offering **discounts or perks**.

📌 Tenure & Churn

- **Churn rate for customers with tenure ≤ 6 months is 45%.**
- **For customers with tenure > 3 years, the churn rate drops to 6%.**
- 🔍 **Insight:** Customers who stay longer are much less likely to leave.
- 🛠️ **Recommendation:** Implementing a **welcome bonus, special first-year discounts, or loyalty rewards** can improve retention in the first 6 months.

📌 Payment Method & Churn

- **Electronic Check users have the highest churn rate at 45%.**
- **Customers paying via Credit Card (16%), Bank Transfer (22%), or Mailed Check (15%) churn less.**
- 🔍 **Insight:** Electronic check payments may be linked to **less financially stable customers or those who don't prefer automated payments**.
- 🛠️ **Recommendation:** Encouraging **auto-payment methods** (like credit card or bank transfers) with small discounts could improve retention.

3️⃣ Conclusion & Strategic Recommendations 🚀

Based on the findings, we can make the following suggestions:

✅ **Tackle Early Churn:**

- Offer **discounts or loyalty perks for new customers** (first 6 months).
- Provide **better onboarding or customer support** for new users.

✅ **Encourage Longer Contracts:**

- Customers on **month-to-month plans** should be incentivized to **upgrade to 1- or 2-year contracts**.

✅ **Retain Fiber Optic Users:**

- Address **customer concerns about fiber-optic service** (cost, performance).
- Offer **exclusive deals** to prevent fiber-optic users from switching.

✅ **Promote Safer Payment Methods:**

- Educate customers on **benefits of auto-payment** (credit card, bank transfer).
- Provide **discounts for recurring payments** to reduce churn.

✅ **Target Senior Citizens:**

- Offer **customized plans for seniors** with better customer service.

By implementing these strategies, the company can significantly **reduce churn and improve customer retention.**