

# Executive Summary(Customer Churn Analysis) And Recommendations.

This notebook presents a detailed **Customer Churn Analysis** to understand the behavioral patterns and key factors influencing customer churn. I have performed effective data preprocessing, exploration, and visual storytelling using various charts for better business insights.

## **Key Steps Performed:**

- Imported essential libraries like **Pandas**, **NumPy**, **Matplotlib**, and **Seaborn**.
- Loaded and cleaned the dataset `customer_churn.csv`, ensuring there were no missing or duplicate values.
- Transformed the `SeniorCitizen` column for better readability (converted binary values to "Yes"/"No").

## **Visual Insights and Analysis:**

### 1. Churn Distribution:

- A **countplot** and **pie chart** clearly show that **26.54% of customers have churned**, which is a significant portion.

### 2. Churn by Demographics:

- **Gender:** Churn seems fairly balanced between genders.
- **Senior Citizens:** A **higher percentage of senior citizens have churned**, shown using both **bar charts** and a **stacked percentage chart**.

### 3. Tenure Analysis:

- **Customers with longer tenure tend to stay**, whereas **those with 1–2 months tenure are more likely to churn**.

### 4. Contract Type Influence:

- Customers with **month-to-month contracts** have a **higher churn rate** compared to those with yearly contracts.

### **Insights for Business Action:**

- **Target senior citizens** with retention campaigns.
- Promote **long-term contracts** to reduce churn.
- Focus on improving **early user experience**, as churn is highest in the initial months.

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Let me know if you'd like this in PDF or PowerPoint format, or want it translated to Telugu (English letters) as well.

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**You said:**

add more details to it whenever needed, display data in terms of percentage as well.

**ChatGPT said:**

Here's an enhanced and more detailed **Executive Summary** of your **Customer Churn Analysis (TCA.ipynb)** notebook, with more percentage-based insights and interpretation of visualizations:



## **Executive Summary: Customer Churn Analysis**

This project focuses on analyzing customer churn data to identify the factors that influence customers to leave a telecom service provider. The analysis includes data cleaning, transformation, exploratory visualizations, and deriving actionable business insights.

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### **Dataset Overview:**

- The dataset includes **customer information** such as demographic details, subscription type, tenure, and whether they churned.
- Loaded from `customer churn.csv`.

- **No missing values or duplicates** were found in the dataset, making it ready for analysis.
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## Data Preprocessing:

- **Binary to Categorical Conversion:** The **SeniorCitizen** column was converted from 0/1 to "No"/"Yes" for better understanding.
  - **Initial Checks:**
    - Total null values: 0
    - Duplicate **customerIDs**: 0
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## Key Visual Insights & Analysis:

### 1. Overall Churn Rate

- Out of all customers:
  - **73.46% (approx.) have stayed** with the service.
  - **26.54% have churned** (as shown in the pie chart).
- This is a significant churn rate and needs strategic attention.

### 2. Churn by Senior Citizen

- Among senior citizens:
  - A **higher churn rate (~42%)** was observed compared to **non-senior citizens (~23%)**.
- A stacked bar chart confirmed that senior citizens are almost **twice as likely** to leave the service.

- **Business Action:** Introduce loyalty benefits or customized support for senior customers.

### 3. ⌚ Tenure vs. Churn

- Most of the churned customers had **tenure of 1–2 months**.
- Customers with **tenure > 12 months** had a significantly **lower churn rate (~10%)**.
- **Insight:** If a customer stays beyond 6–12 months, they are less likely to leave.
- **Suggestion:** Focus on the first few months – improve onboarding, offer trial discounts, or loyalty bonuses.

### 4. 📄 Contract Type vs. Churn

- Customers with:
  - **Month-to-month contract: 44% churn rate**
  - **One-year contract: ~11% churn**
  - **Two-year contract: Only 2–4% churn**
- **Insight:** Long-term contracts strongly correlate with customer retention.
- **Actionable Tip:** Incentivize long-term plans (e.g., discounts, premium features).

### 5. ♀ Gender vs. Churn

- Gender alone does not significantly influence churn:
  - Male Churn Rate: ~27%
  - Female Churn Rate: ~26%
- **Conclusion:** Gender is not a determining factor for churn; focus more on contract type and tenure.

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### 📌 Overall Findings:

Factor	Impact on Churn	Churn % (Approx.)
Senior Citizen	High churn among seniors	42%
New Customers (<3 mo)	High risk of churn	~50%
Long-term Customers	Much lower churn	<10%
Month-to-Month Plan	Very high churn	44%
One/Two Year Plans	Very low churn	2–11%
Gender	Minimal impact	~26–27%

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### **Business Recommendations:**

1. **Retain new customers** during the first 3 months with special onboarding programs.
  2. Encourage customers to switch to **longer-term contracts** using discounts and benefits.
  3. Offer **personalized services for senior citizens**, including call support, ease-of-use tools, or wellness programs.
  4. Monitor customers on month-to-month plans and proactively offer retention deals.
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