**Telco Customer Churn Analysis Report**

**1. Objective**

The goal of this analysis is to identify the patterns and factors influencing **customer churn** (i.e., customers leaving the service) in a telecom company, using the **Telco Customer Churn dataset**. Understanding these drivers helps in designing better customer retention strategies.

**2. Data Preprocessing**

* **Dataset Used**: Telco\_Customer\_Churn.csv
* **Missing Values**:
  + The TotalCharges column contained blanks, which were treated as missing and replaced with 0.
  + Converted TotalCharges to float for analysis.
* **Feature Engineering**:
  + The SeniorCitizen column was mapped from 0/1 to "No"/"Yes" for better interpretability.
  + Data types for numerical and categorical columns were corrected.

**3. Exploratory Data Analysis (EDA)**

**A. Churn Distribution**

* **Overall Churn Rate**:
  + Out of all customers, **26.5%** have churned, while **73.5%** have remained with the company.
  + This is a significant churn rate, indicating potential issues in customer satisfaction or pricing.

**B. Gender vs Churn**

* Churn rate across **males and females is nearly identical**.
* Insight: **Gender does not have a strong impact** on whether a customer churns or not.

**C. Senior Citizens and Churn**

* **Senior Citizens (Yes)**: ~42% have churned.
* **Non-Senior Citizens (No)**: ~24% have churned.
* Insight: **Senior Citizens are almost twice as likely to churn** compared to younger users. This group may feel underserved or price-sensitive.

**D. Tenure and Churn**

* Customers with **low tenure (0–12 months)** show a **churn rate of 50% or more**.
* Customers with **longer tenure (60+ months)** have a **churn rate below 10%**.
* Insight: **Early-stage customers are at high risk**. Most churn happens within the first year.

**E. Contract Type and Churn**

* **Month-to-month contracts**: ~44% churn rate.
* **One-year contracts**: ~11% churn rate.
* **Two-year contracts**: ~3% churn rate.
* Insight: **Short-term contracts are a major contributor to churn**. Long-term contracts show strong retention.

**F. Internet Service and Churn**

* Customers with **Fiber Optic** have a churn rate of **42%**.
* Customers with **DSL**: ~19% churn.
* Customers with **No Internet Service**: ~8% churn.
* Insight: **Fiber users churn more**—possibly due to higher prices or expectations of better service.

**G. Payment Method and Churn**

* **Electronic Check**: Highest churn at **34%**.
* **Bank Transfer / Credit Card (Automatic)**: Churn ~15–18%.
* Insight: Customers using **manual payment methods** are more likely to churn. They may be more disengaged.

**H. Monthly Charges and Churn**

* Churned customers had **higher monthly charges on average (~$75)**.
* Retained customers had **lower charges (~$61)**.
* Insight: **Price sensitivity** is a key churn factor. Higher charges correlate with dissatisfaction.

**4. Key Takeaways**

| **Factor** | **Higher Churn Group** | **% Churn** | **Insight** |
| --- | --- | --- | --- |
| **Contract** | Month-to-month | 44% | Long-term contracts reduce churn |
| **SeniorCitizen** | Yes | 42% | Older customers churn more |
| **InternetService** | Fiber Optic | 42% | May be due to price or quality |
| **Tenure** | < 12 months | > 50% | New users are at high churn risk |
| **PaymentMethod** | Electronic check | 34% | Auto-pay reduces churn |
| **MonthlyCharges** | > $70 | High | Price-conscious customers leave |

**5. Summary: Reasons Behind Churn**

Based on the analysis, the **primary drivers of churn** are:

* **Short-Term Contracts**: Month-to-month plans give users an easy exit option.
* **High Monthly Charges**: Cost-sensitive users are more likely to churn when prices are high.
* **Senior Customers**: Possibly facing usability issues or lacking digital support.
* **Fiber Optic Users**: Expectations for performance may not be met.
* **New Users (<1 year tenure)**: Initial dissatisfaction leads to early departure.
* **Manual Payment Methods**: Less convenience may result in lower engagement and loyalty.

**6. Recommendations**

* Promote **long-term contracts** with discounts or added benefits.
* Offer **custom onboarding experiences** and retention incentives in the first 6 months.
* **Review pricing strategies** for fiber optic plans.
* Encourage **auto-payment** options with incentives.
* Design **senior-friendly service features** and support channels.

**7. Conclusion**

This churn analysis reveals that **approximately one in every four customers** leaves the telecom service, with distinct trends explaining why. The most influential factors behind churn are **contract length, tenure, monthly charges, payment method, and age group**.

Notably, **short-term and high-cost services** result in higher churn, while **long-term plans and automatic payments** contribute significantly to customer retention. Additionally, **new customers and senior citizens** represent vulnerable segments that require tailored engagement strategies.

To combat churn, the company should prioritize:

* **Enhancing early customer experience**
* **Offering loyalty incentives for longer commitments**
* **Optimizing pricing structures**
* **Simplifying billing through automated options**
* **Creating inclusive service designs for all age groups**

In conclusion, **a data-driven customer retention strategy**, rooted in understanding the behavioral and demographic patterns identified in this analysis, will be key to reducing churn and increasing lifetime value.