**Churn Analysis Process**

**Data Preparation (Transformation & Cleaning):**

* Remove Duplicated Rows.
* Remove Blank Rows.
* Create New Custom Column for handling ‘Total Charges’ column’s missing values by using ‘Monthly Charges’ and ‘Tenure Months’ columns to estimate it (Monthly Charges \* Tenure Months), then remove the original ‘Total Charges’ Column and rename the new column with ‘Total Charges’.
* Change type of the new custom column ‘Total Charges’ to Decimal Number and ‘Senior Citizen’ column from Whole Number to Logical.
* Rename Columns to match same criteria:

customerID -> Customer ID

gender -> Gender

SeniorCitizen -> Senior Citizen

start date -> Start Date

tenure months -> Tenure Months

PhoneService -> Phone Service

MultipleLines -> Multiple Lines

service ID -> Service ID

InternetService -> Internet Service

OnlineSecurity -> Online Security

OnlineBackup -> Online Backup

DeviceProtection -> Device Protection

TechSupport -> Tech Support

StreamingTV -> Streaming TV

StreamingMovies -> Streaming Movies

payment Method ID -> Payment Method ID

PaymentMethod -> Payment Method

MonthlyCharges -> Monthly Charges

TotalCharges -> Total Charges

* Handling errors by replacing “Digital Subscriber Line” value with “DSL” which have the same meaning in ‘Internet Service’ column.

**Data Modeling:**

1. **Measures:**

* **Avg Tenure:** Average of Tenure Months.
* **Avg Tenure (Churned):** Average of Tenure Months for Churned Customers.
* **Avg Tenure (Retained):** Average of Tenure Months for Retained Customers.
* **Avg Tenure by Contract:** Average of Tenure Months for Customers by their Contract Type.
* **Avg\_MonthlyCharges\_Churned:** Average of Monthly Charges for Churned Customers.
* **Avg\_MonthlyCharges\_Retained:** Average of Monthly Charges for Retained Customers.
* **Avg\_TotalCharges\_Churned:** Average of Total Charges for Churned Customers.
* **Avg\_TotalCharges\_Retained:** Average of Total Charges for Retained Customers.
* **Churn Rate:** Churn Rate (%) percentage (Number of Churned Customers / Total Numbers of Customers).

1. **Calculated Column:**

* **Total Subscriptions:** Total number of Subscriptions for each customer.

**Insights:**

* **Month-to-month contracts** have higher churn rates due to the lack of long-term commitment.
* **Churned customers** have a lower average tenure, indicating they leave early in their subscription lifecycle.
* **One year** and **Two year** contracts have higher average tenures due to longer commitments, while **Month-to-month** contracts show lower average tenure.
* **Fiber Optic Internet Service** have higher churn rates than **DSL** or **No internet service**.
* Customers who **have not dependents** have higher churn rates than who **have dependents** about half.
* **Churned** customers spending more monthly than **retained** customers (might be a pricing issue).
* Average **Total Charges** for **churned** customers lower than **retained** customers (indicating they are churning early in the customer lifecycle).
* **Electronic check** payment method has higher churn due to lack of automation compared to **credit cards** or **bank transfers**, while **Mailed check** or **automatic** payments have lower churn rates because of convenience and commitment. Customers on **month-to-month** contracts use **Electronic Check** more frequently, contributing to higher churn.
* Customers with more **subscriptions** (e.g., 6+) are more engaged and less likely to churn. Customers with fewer or no additional services (e.g., only phone or internet) churn at higher rates.

**Recommendations:**

### Focus on Early Customer Retention:

* + **Onboarding Programs**: Create a robust onboarding program to help customers understand and utilize services effectively during the early stages of their subscription lifecycle.
  + **Proactive Support**: Reach out to new customers within the first few months to address any concerns or issues.
* Enhance **Fiber Optic Internet**, **Streaming Movies** and **Streaming TV** services by retention strategies such as offering discounts plans or bundling value-added services.
* Explore why **dependents** may correlate with lower churn (e.g., stability, service preferences, or contract types).
* Develop targeted marketing campaigns or engagement strategies for single customers or those **without** **dependents**, as they show higher churn rates.
* Provide flexible service packages that align with the needs of customers **without dependents**, such as single-user plans.
* High monthly charges for **churned** customers might indicate a pricing issue. So, offer tiered pricing options or promotions to make services feel more affordable and highlight the benefits of services to justify higher costs and retain customers spending more monthly.
* Consider targeted retention strategies for **Electronic Check** customers:
  + Discounts for customers switching to automated payments.
  + Special offers for **month-to-month** customers using high-risk payment methods.
* For customers with fewer **subscriptions**:
  + **Upsell Campaigns**: Offer discounts or bundle deals to encourage adoption of additional services.
  + **Promote Engagement**: Educate customers about the benefits of having multiple subscriptions to enhance perceived value and retention.
  + **Retention Strategies**: Target high-churn segments (e.g., those with 1-5 services) with special retention offers.
* For customers with high churn in **month-to-month** contracts, design targeted retention campaigns.
* Continuous monitoring for the churn prediction model (or build it) by updating it as new data becomes available.
* Regularly analyze customer feedback, churn data, and behavior patterns to ensure the recommendations are effective and adapt them as necessary.