**Group 6 Final Project Summary**

**Predict Customer’s Retention**

<https://www.kaggle.com/datasets/muhammadshahidazeem/customer-churn-dataset/data>

**Data Source:**

The Customer Churn Dataset is sourced from Kaggle, **contains 50,5206 customer records** with following key features:

Customer Demographics: Gender, age, marital status

Service Usage: Number of products, internet service, contract type

Account Details: Monthly charges, total charges, tenure

Target Variable: Churn (binary)

**Project Objective:**

The project aims to visually analyze customer churn behavior using **Tableau**, with the goal of identifying key patterns and influences that lead to churn.

**Methodology:**

1. Data Preparation:

* Merge training and test datasets
* Clean and format variables

1. Creating worksheets including:

* Churn Rate by Customer Type
* Contract type and Support Features(Bar chart / Heatmap)
* Monthly Charges vs Tenure Distribution for churned (Scatter)
* Demographic segmentation of Churned Customers (Stacked Bar Chart)

1. Building dashboards with filters including all worksheets
2. Trend analysis and recommendation:

* Interpreted patterns to derive actionable insights

**Findings:**

1. ***What is the overall finding?***

The **overall churn rate** stands at **55.52%**, higher than the retention rate of **44.48%**, based on a pie chart summary. This indicates that **over half of the customers are leaving the service**, suggesting a serious potential issue that requires further strategic focus.

1. ***How do support calls vary by contract length and customer churn status?***

The bar chart reveals that **churned customers make up the majority of support call volumes** across all contract types. Notably:

* **Monthly contracts have the highest churn-related support calls at 26.02%**
* **Annual and Quarterly contracts follow closely with 25.38% and 25.10%, respectively**

This pattern suggests that **shorter-term contracts may lead to more dissatisfaction or confusion**, prompting higher support engagement and eventual churn.

Interestingly, the **support call percentages are consistent across contract types**, indicating that **support demand is not solely tied to the length of commitment** but may also reflect broader service experience issues.

These findings highlight the importance of **improving support quality and proactive communication**, especially for monthly and quarterly subscribers, to enhance customer satisfaction and reduce churn triggers.

1. ***How does customer churn vary by subscription type?***

From the treemap visualization, churn is distributed relatively evenly across subscription types, Standard Churned (18.57%), Basic Churned (18.52%), and Premium Churned (18.43%). This consistency suggests that churn is not significantly impacted by the subscription tier alone.

However, **Standard and Basic customers collectively contribute to the largest share of churn**, indicating that users in lower or mid-tier plans may be more prone to leaving. One reason could be that customers don’t find enough value in these plans.

In contrast, the **retention rate is lowest for Basic plan users (14.04%)**, which may signal dissatisfaction or limited engagement within this group. While Premium customers also show a high churn rate, they retain a slightly better retention margin (15.23%)—possibly due to enhanced services or loyalty incentives provided in premium plans.

These insights suggest the need for **targeted retention strategies** for Basic and Standard users, such as improved onboarding, clearer value communication, or service upgrades.

1. ***How do demographics affect churn?***

One of the key aspects of our analysis was examining how demographics affect churn, specifically focusing on **Gender** and **Age**.

**Starting with Gender**, we concluded that it does not play a significant role in whether a customer will churn or remain retained. At the overall company level, churned females contributed 28.89% to the total churn, while churned males contributed 26.63%. Among retained customers, females made up 28.85% and males 15.63%. These marginal differences suggest that gender has minimal influence on churn behavior.

Breaking this down by contract type—**annual, monthly, and quarterly**—we observed a similar trend. For example, in the contract type with the highest churn rate (monthly), churned females accounted for 46.85%, while males accounted for 43.34%. Again, the variation is minimal.

Additionally, when analyzing customer support interactions, churned females accounted for 32–34% of support calls, while churned males ranged between 32–33%. This further supports the conclusion that gender has little to no impact on churn likelihood or customer experience.

**Moving on to Age**, we uncovered several notable findings. From the graph, it is clear that **retained customers consistently spend more than churned customers**, with average spending peaks of 736.6 and 523.4, respectively. This suggests that higher engagement and spending may be correlated with better satisfaction and retention, possibly due to better service or support.

However, this trend **only holds for customers under the age of 50**. After 50, there is a sharp decline in spending among retained customers, bringing it close to the churned customer average (544.2 vs. 523.4).

This drop indicates that the company may be **losing customer interest and revenue from the 50+ age group**, potentially due to the product being more appealing or better marketed to younger customers. This insight suggests the need for the company to either **adapt its product offering** or **revisit its marketing strategy** to better engage older demographics and reduce churn in this segment.

1. ***What is the relationship between payment behavior and customer tenure distribution?***

Based on a scatter plot analyzing monthly charges vs. tenure across different contract types, we have the following findings:

First, **higher churn at lower tenure**. The churned customers are highly concentrated at lower tenure values, which is the bottom part of the Y-axis; this indicates that **customers who churn tend to leave early, especially within the first 10 - 20 tenures**.

Besides, **lower monthly charges are linked to higher churn**. Many churned customers are clustered on the left side of the x-axis, which locates low monthly charge, this could suggest that **low-paying customers are more likely to leave**, possibly due to the lack of perceived value or minimal commitment.

Lastly, **retained customers stay longer and spend more**. Blue dots(retained customers) are more densely spread across higher tenure and span a broader range of monthly charges, this implies that **longer - term customers and higher-paying customers are more loyal**.

1. ***Do churned customers experience more payment delays?***

Yes – significantly! **Customers who churned have a significantly higher average payment delay compared to those who were retained**. Churned customers show **an average payment delay of about 16 days**, compared to **about 10 days** for retained ones. This implies a clear and strong correlation between delayed payments and customer churn, possibly pointing to underlying dissatisfaction, financial instability, or disengagement.

**Conclusion & Recommendations:**

From analyzing the churn data set in various visualization forms eg. bar stacks, bubble charts, heat maps, scatter plots with meaningful filters to assess trends, our group concluded that churn was predominantly high in the monthly contract length, low engagement and low spend segments. Overall for this data set, churn was materially high at 55.5% and our group also brainstormed ways to mitigate this issue as denoted in the following bullet points.

1. Prioritize Long-Term Contract Incentives - Encourage upgrades from monthly to annual plans through discounts, loyalty points, or bundled offerings to reduce short-term churn risk.
2. Launch Early Engagement Campaigns - Introduce proactive outreach, tutorials, and onboarding support for new monthly users to build stickiness.
3. Improve customer support services - reduce the repeat customer issue cases and give focused attention to short term contracts to gain renewals.
4. Use automated prompts like live-chat nudges to drive up engagement and also help in keeping customers happy and hence reducing churn.

We hope that upon implementing such mitigating measures, that churn can be effectively reduced.