TELECOM CUSTOMER CHURN ANALYSIS

PROJECT OVERVIEW

Customer retention is a crucial factor in the telecom industry. This project aims to analyze customer churn patterns and identify factors contributing to customer attrition. The study includes demographic, geographic, payment, contract, tenure, and service-based insights to help predict and reduce churn.

The analysis was conducted using **Power BI**, where an **ETL process** was set up to transform raw customer data into meaningful insights through **data visualization**.

OBJECTIVES

- **Visualize and analyze customer churn trends** across different dimensions
- **Identify key churn factors** based on demographics, account info, geography, and services
- **Study churner profiles** to help implement targeted marketing strategies
- **Predict potential future churners** using defined KPIs

DATA TRANSFORMATION & PREPARATION

Step 1: Data Cleaning & Processing

- Added a new **Churn Status** column:

  - If `Customer Status` = "Churned", assigned value **1**, else **0**.
  - Changed data type to **whole number** for calculations.

- Created a **Monthly Charge Range** column for grouping values:
  - `< 20, 20-50, 50-100, > 100`.
- Created **Reference Tables** for better data organization:
  - **Age Groups:** `<20, 20-35, 36-50, >50`.
  - **Tenure Groups:** `<6 months, 6-12 months, 12-18 months, 18-24 months, >24 months`.

    - **Services:** Unpivoted service columns to a structured format.

Step 2: Key Measures Calculated

- **Total Customers** = COUNT(`Customer_ID`)
- **New Joiners** = COUNT(`Customer_ID`) where `Customer Status` = "Joined"
- **Total Churn** = SUM(`Churn Status`)
- **Churn Rate** = [`Total Churn`] / [`Total Customers`]

Data Visualization & Insights

- **Summary Dashboard**
- The **Top Metrics Cards** included:
- **Total Customers**

- **New Joiners**
- **Total Churn**
- **Churn Rate (%)**

Demographic Analysis
Gender-based Churn (Donut Chart)

- **Male:** 50.48% churn rate
- **Female:** 49.53% churn rate

Age Group Analysis (Line & Stacked Column Chart)

- `<20`: 14.17% churn rate
- `20-35`: 23.26%
- `36-50`: 23.76%
- `>50`: 30.92%

Account & Payment Insights
Payment Method Churn Rate (Bar Chart)

- **Mailed Cheque:** 36.88%
- **Bank Withdrawal:** 34.00%
- **Credit Card:** 14.48%

Contract Type Churn Rate (Bar Chart)

- **Month-to-month:** 45.84%
- **One-year:** 10.71%
- **Two-year:** 2.55%

Tenure-Based Analysis

Total Customers & Churn Rate by Tenure Group (Line & Stacked Column Chart)

Months	Total customer	Churn rate
<6	1.4K	54.71
6-12	0.7K	35.97
12-18	0.6K	33.63
18-24	0.5K	24.63
>24	3.9K	14.29

Geographic Analysis
- **Churn Rate by City (Bar Chart)** (Using Measures)
- **Top 5 States with Highest Churn Rates** (Data not conclusive due to many states showing 100% churn)

Churn Distribution

- **Churn Rate by Category (Bar Chart)**
    - **Competitor:** 841 churned customers
    - **Dissatisfaction:** 321 churned customers
    - **Attitude:** 314 churned customers
    - **Price:** 221 churned customers
    - **Other:** 182 churned customers
- **Churn Rate by Internet Type (Bar Chart)**

> - **Fiber Optics:** 40.72%
> - **Cable:** 25.66%
> - **DSL:** 18.58%
> - **No Internet:** 7.4%

CONCLUSION & RECOMMENDATIONS

- **Contract Type & Tenure Are Key Drivers:** Customers on **month-to-month contracts** and those with **shorter tenures** show the highest churn rates. Offering **discounts for long-term contracts** could improve retention.
- **Competitor-Driven Churn:** A large proportion of customers leave due to competitors. **Loyalty programs & better pricing strategies** could reduce this.
- **Fiber Optics Users Have Highest Churn:** Understanding customer pain points for Fiber Optics users and improving service quality may help reduce churn.

- **Targeted Retention Campaigns:** Focus marketing efforts on **high-risk segments** such as **younger age groups, month-to-month contract users, and users with tenure <6 months**.

This analysis provides **actionable insights** that can help reduce customer churn and improve retention strategies.