

# Telecommunication Customer Churn Analysis

This project focuses on understanding customer churn behavior within a telecommunication company through data exploration and analysis. The primary goal is to provide insights into churn patterns and identify factors contributing to customer attrition.

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## Key Objectives

1. **Understand Churn Trends:**
    - Analyze historical data to identify patterns in customer churn.
    - Visualize differences between churned and retained customers.
  2. **Explore Influential Factors:**
    - Assess key customer attributes (e.g., demographics, service type, and usage) affecting churn behavior.
    - Provide actionable insights for reducing churn rates.
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## Data Description

- **Source:** Telecommunications customer records.
  - **Attributes:**
    - **Customer Information:** Demographics, tenure, and account details.
    - **Service Details:** Subscriptions (internet, phone, TV), contract type, and payment method.
    - **Usage Metrics:** Call duration, data usage, and monthly charges.
    - **Churn Indicator:** Binary field denoting if a customer churned (Yes/No).
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## Project Workflow

1. **Data Preprocessing:**
    - Loaded data into Python.
    - Handled missing values, duplicates, and inconsistencies.
    - Performed feature engineering to create new metrics or reformat data.
  2. **Exploratory Data Analysis (EDA):**
    - Visualized customer distribution based on churn status.
    - Explored correlations between churn and factors like contract type, tenure, and charges.
    - Created summary statistics and charts for better understanding.
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## Key Findings

1. High churn rates are observed among customers with:
    - Month-to-month contracts.
    - High monthly charges.
    - Low tenure (new customers).
  2. Service issues and limited bundling options are significant contributors to churn.
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## Recommendations

- **Enhance Customer Retention:**
  - Incentivize long-term contracts with discounts or perks.
  - Target low-tenure customers with proactive outreach.
- **Improve Services:**
  - Address common complaints related to service downtimes.
  - Offer bundled packages to reduce overall costs for customers.
- **Monitor Churn Factors:**
  - Regularly analyze churn rates and their correlation with key metrics.