

Telecom Customer Churn Analysis

Overview

This repository contains SQL queries, Tableau visualisations, and data analysis focused on understanding customer churn behavior in the telecom industry. The analysis uses two datasets:

1. **Telecom Customer Churn Dataset:** Contains detailed customer information such as demographics, service usage, payment methods, and churn reasons.
2. **Telecom Zip Code Population Dataset:** Includes population data for various zip codes to analyze trends in high- and low-population areas.

The project explores the relationships between customer behavior (such as churn rates, total charges, and payment methods) and population demographics to provide valuable insights for reducing churn and improving customer retention strategies.

Datasets

1. telecom_customer_churn

This dataset contains information about telecom customers, including:

- **Customer ID, Gender, Age, Marital Status**
- **Dependents, Referrals, Contract Type**
- **Service Details:** Internet type, phone services, tech support, streaming services
- **Financials:** Monthly charges, total charges, long-distance charges, refunds
- **Customer Status:** Active, churned, churn reason (network issues, competitor pricing, etc.)

2. telecom_zipcode_population

This dataset contains population data for various zip codes, used to analyze trends based on population density:

- **Zip Code**
- **Population**

Key Analysis Questions

The project addresses several key business questions using SQL

1. **Customer Churn by Reason:**
 - Identified the most frequent reasons for customer churn, excluding missing values.
2. **Long-Distance Charges by City:**
 - Determined which cities have the highest long-distance charges for customers with more than 3 dependents.
3. **Payment Methods in High-Population Areas:**
 - Analyzed the payment methods used by customers with more than 5 referrals, specifically in high-population areas.
4. **Churn and Network Issues:**
 - Investigated the average monthly charges of customers who churned due to network issues.
5. **Refunds for Premium Tech Support in High-Population Areas:**
 - Summed the total refunds given to customers with premium tech support in high-population areas.
6. **Customer Lifetime Value (CLV):**
 - Calculated the total revenue from long-distance and extra data charges for customers with a high number of referrals.

Project Files

- **SQL Queries:** A collection of moderate to complex SQL queries that address various business problems using subqueries, window functions, and joins.

Visualizations

We created multiple visualizations on Tableau, such as:

- **Churn Reasons Ranked by Frequency:** A bar chart showing the top reasons for churn.
- **Churn Rates by City:** A geographic map showing churn rates across different cities.
- **Payment Method Analysis:** Pie charts and bar charts displaying payment methods based on customer behavior and population.
- **Revenue Insights:** Heatmaps and line charts visualizing long-distance charges and total revenue across different zip codes.

Setup Instructions

Clone the Repository:

Copy code

```
git clone https://github.com/yourusername/telecom-customer-churn.git
```

1. **Dataset:** Download or use the provided telecom datasets (`telecom_customer_churn.csv`, `telecom_zipcode_population.csv`) for local analysis or load them into your database.
2. **SQL Queries:** Execute SQL queries directly in your preferred SQL environment (e.g., MySQL, PostgreSQL).
3. **Tableau:** Import the datasets into Tableau to interact with the pre-built dashboards or create your own custom visualizations.

Usage

This project is aimed at:

- **Data Scientists:** Use the SQL queries to explore and analyze customer churn behavior and service usage patterns.
- **Business Analysts:** Leverage Tableau dashboards to derive actionable insights for reducing churn and improving customer satisfaction.
- **Students:** Learn how to apply SQL queries and visualization techniques to real-world datasets.

This document gives an overview of the datasets, key queries, visualizations, and setup instructions for others to easily understand and contribute to the project.