IBM Telco Customer Churn Data Analysis Project - Report

Project Overview

In the highly competitive world of telecom, customer retention has become imperative for business success today. By knowing the churn reasons, companies can rethink their strategies for customer satisfaction or even reduce attrition. Article aims to elaborate on a SQL Customer Churn Analysis for Telecom Industry using real data on churned customers, payment behaviours & feedback. This analysis uses Structured Query Language and some of the other ones to detect patterns that may serve as a guiding principle for companies on how they can maintain customer loyalty.

Dataset Overview

The dataset includes the following attributes:

- Demographics: Includes demographic data about the customer, such as customer ID, age, gender, marital status, and number of dependents.
- Location: Contains location specifics like the nation, state, city, and zip code.
- Population: Offers demographic information related to various zip codes.
- Services: Describes the services that clients utilize, such as phone and internet service types, monthly costs, contract types, and durations.
  Status of customer churn: Provides data on customer satisfaction levels, churn rates, and causes for churn.

This data is organized in a CSV file and imported into a MySQL database for analysis.

Analytical Queries

The following analyses were performed to extract meaningful insights:

1. Top Groups with the Highest Monthly Charges among Churned Customers.
2. Customer Feedback and Complaints Analysis.
3. The Influence of Payment Method on Churn Behaviour.

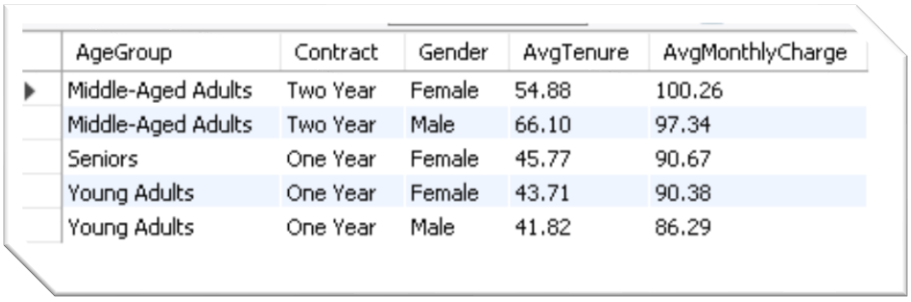
Several SQL queries were executed to perform analysis:

1. **Identifying High-Risk Customer Groups Based on Monthly Charges**

   Objective: To find the top 5 groups of churned customers who had the highest average monthly charges and analyse factors like age, gender, and contract type. This helps in developing targeted retention offers for high-value customers.

SQL Query Used:

```
SELECT
    CASE
        WHEN Age < 30 THEN 'Young Adults'
        WHEN Age >= 30 AND Age < 50 THEN 'Middle-Aged Adults'
        ELSE 'Seniors'
    END AS AgeGroup,
    Contract,
    Gender,
    ROUND(AVG(`Tenure in Months`),2) AS AvgTenure,
    ROUND(AVG(`Monthly Charge`),2) AS AvgMonthlyCharge
FROM dataset_for_import
WHERE `Churn Label` LIKE '%Yes%'
GROUP BY AgeGroup, `Customer Status`, Contract, Gender
ORDER BY AvgMonthlyCharge DESC
LIMIT 5;
```



AgeGroup	Contract	Gender	AvgTenure	AvgMonthlyCharge
Middle-Aged Adults	Two Year	Female	54.88	100.26
Middle-Aged Adults	Two Year	Male	66.10	97.34
Seniors	One Year	Female	45.77	90.67
Young Adults	One Year	Female	43.71	90.38
Young Adults	One Year	Male	41.82	86.29

Insight: Older generation of churned customers that were on month-to-month contracts had a high monthly charge. They tend to churn because they are not willing to pay for prices or try a monthly commitment instead of committing long-term. In the context of a subscription service, an offer prepared for this type of high-value customer could feature heavily reduced rates on longer term plans or special perks they would receive as a thank you for sticking with the company. The analysis also notes that churn is a bit higher for older

customers which could mean they need additional personalized, one-to-one support or pricing discounts to stay.

2. Analysing Customer Feedback and Complaints

Objective: To assess the feedback provided by churned customers, helping to pinpoint the specific reasons for their dissatisfaction and departure.

SQL Query Used:

```
SELECT `Churn Category`, COUNT(`Customer ID`) AS churn_count
FROM dataset_for_import
WHERE `Churn Label` LIKE "%Yes%"
GROUP BY `Churn Category`
ORDER BY churn_count DESC;

SELECT `Churn Category`, COUNT(`Customer ID`) AS churn_count,
       ROUND(COUNT(`Customer ID`)/7043*100,2) AS proportion_in_percent
FROM dataset_for_import
GROUP BY `Churn Category`
ORDER BY churn_count DESC;
```

Churn Category	churn_count	proportion_in_percent
	5174	73.46
Competitor	841	11.94
Attitude	314	4.46
Dissatisfaction	303	4.30
Price	211	3.00
Other	200	2.84

Insights: Among the responses, the biggest factors driving changers were billing frustrations and Bad customer service followed by Competitors Offers and Products, Dissatisfaction and Price. Many of the complaints related to billing indicating there may be an opportunity for more transparent invoicing or better front-end support. Moreover, customers who suffered from service outages or slow internet speeds expressed a high level of umbrage.

3. The Influence of Payment Method on Churn Behaviour

Objective: To determine whether certain payment methods (e.g., credit cards, electronic checks, etc.) are more prone to churn than others.

SQL Query Used:

```
WITH ChurnData AS (
    SELECT `Payment Method`, COUNT(`Customer ID`) AS Churned
    FROM dataset_for_import
    WHERE `Churn Label` LIKE '%Yes%'
    GROUP BY `Payment Method`),
LoyalData AS (
    SELECT  `Payment Method`, COUNT(`Customer ID`) AS Loyal
    FROM dataset_for_import
    WHERE `Churn Label` LIKE '%No%'
    GROUP BY `Payment Method`)

SELECT
    a.`Payment Method`, a.Churned, b.Loyal,
    a.Churned + b.Loyal AS total,
    SUM(a.Churned + b.Loyal) OVER (ORDER BY a.`Payment Method`) AS running_total
FROM ChurnData a
INNER JOIN LoyalData b
ON a.`Payment Method` = b.`Payment Method`;
```

Payment Method	Churned	Loyal	total	running_total
Bank Withdrawal	1329	2580	3909	3909
Credit Card	398	2351	2749	6658
Mailed Check	142	243	385	7043

Data shows that the customers, who pay via electronic checks have the most churn. It could be that customers paying with electronic checks are less happy, or it could mean that they chill harder to make payments, than do those who pay automatically via a credit card. Examine lowering churn by advising customers to change to easier payment options, like credit card autopay or direct debit. Give customers additional incentives like discounts or loyalty points when they switch to these methods.

Recommendations

Following are a few important actionable insights derived from the SQL queries and analysis which can aid telecom operators to fight against customer churn:

Target High Value Customers: Older people on month-to-month contracts with higher monthly charges churn most. These could take the form of giving them discounts or benefits in return for a long-term agreement, which might keep churn rates down.

Billing issues and unsatisfactory customer service: Churned customers most often cited billing problems and poor quality of customer services as to why they moved on from… To stem further churn, it might assist if these complaints were dealt with proactively – say in the form of detailed billing breakdowns and a better customer service response.

Promote Automated Payment Types: Electronic Check customers are at greater risk of churning. There may be opportunities to keep these clients by offering something like incentives to move from cash or lower valued forms of payment such as digital wallets and prepaid cards, to credit card or direct debit.

Based on this, the telecom company should further, utilize customer segmentation and personalization approaches to tailor retention offers for high-risk cohorts.

Introduce better customer service lines to address billing problems and increase the dimension of the network.

Reward Customers for Setting Up Automated Payment Promotions or Loyalty Rewards

This will help the company to decrease churn, increase customer satisfaction and eventually gain the long-term revenue growth.

Conclusion

To wrap up, customer churn is one of the most vital metrics in Telecom industry and companies can decrease their churn rate by analysing the data thoroughly and taking advance actions. Any SQL lover will appreciate that we can get deep in the customer data to track predictors from payment behaviour to contract type and customer complaints. These approaches are quite helpful for the organization to enhance customer loyalty and retention.