

IBM Telco Customer Churn

DATA ANALYSIS PROJECT REPORT

Rian Qadir

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IBM Telco Customer Churn Analysis Project

Project Overview:

This project involved a comprehensive analysis of customer churn patterns to help the telecom company enhance its customer retention strategies. By utilizing the IBM Telco Customer Churn dataset and conducting analysis in MySQL Workbench, the primary goal was to investigate the factors driving customer churn, focusing on variables like payment methods, demographic details, contract types, and customer feedback.

Dataset Overview:

The dataset comprises five key tables, each providing different insights about the customers:

- **Customer Demographics:** Includes data such as customer ID, gender, age, marital status, and the number of dependents.
- **Customer Location:** Contains geographic details like country, state, city, and zip code.
- **Population Data:** Relates to population figures tied to various zip codes.
- **Customer Services:** Details the services each customer uses, including phone services, internet types, monthly charges, contract lengths, and tenure.
- **Customer Churn Status:** Provides information on the customers' churn status, satisfaction scores, and reasons for leaving.

Key Objectives:

Three main queries were explored to gain insights that could be used to reduce churn:

1. How can tailored offers improve retention among churned customers with high monthly charges, based on age, gender, and contract type?
2. What feedback or complaints do churned customers have, and how can those insights guide retention strategies?
3. What impact does the payment method have on customer churn?

Methodologies to be used:

- **MySQL Workbench:** For executing SQL queries and analyzing data.
- **IBM Telco Customer Churn Dataset:** The primary dataset used for the analysis.

Query 1: High-Spending Churned Customers and Personalized Offers

Objective:

This query sought to identify the top 5 groups of churned customers with the highest average monthly charges and to propose personalized offers based on demographic details like age, gender, and contract type.

Key Findings:

- **One-Year Contracts:** Several churned customers, including males aged 31, 51, and 53, had high average monthly bills and one-year contracts.
- **Month-to-Month Contracts:** A 76-year-old female with a high monthly charge was on a month-to-month plan.
- **Two-Year Contract:** A 25-year-old male was on a two-year contract but also had significant monthly charges.

Proposed Personalized Offers:

- **One-Year Contract Holders:** Provide these customers with incentives to extend their contracts to two years, emphasizing long-term savings and possibly bundling services like faster internet.
- **Month-to-Month Customers:** Offer discounts for switching to a longer contract, potentially targeting senior customers with plans that focus on simplicity.
- **Two-Year Contract Customers:** Tech-savvy or younger customers might benefit from add-ons like streaming services or special offers for new technology.

SQL Query

```
-- checking for duplicate customer id
select `Customer ID`, count(`Customer ID`)
from telco_customer_churn_services
group by `Customer ID`
having count(`Customer ID`) > 1;
```

```

28
29 with telco_services as (
30     select a.`Customer ID`, a.`Contract` as contract_type,
31     avg(`Monthly Charge`) over (partition by `Customer ID` order by `Monthly Charge` desc) as average_monthly_charges, b.`Customer Status`
32     from telco_customer_churn_services a
33     join telco_customer_churn_status b
34     on a.`Customer ID` = b.`Customer ID`
35     where b.`Customer Status` = "churned")
36     select a.*, b.`Age`, b.`Gender`
37     from telco_services a
38     join telco_customer_churn_demographics b
39     on a.`Customer ID` = b.`Customer ID`
40     order by a.average_monthly_charges desc
41     limit 5;
42

```

Query Results

Customer ID	Contract Type	Avg Monthly Charges	Customer Status	Age	Gender
8199-ZLLSA	One Year	118.35	Churned	53	Male
2889-FPWRM	One Year	117.80	Churned	31	Male
2302-ANTDP	Month-to-Month	117.45	Churned	76	Female
9053-JZFKV	Two Year	116.20	Churned	25	Male
1444-VVSGW	One Year	115.65	Churned	51	Male

General Strategy for Improvement

- **Age-Based Offers:**
 - **Younger Customers:**
 - Likely to value tech upgrades, streaming, or gaming packages.
 - Offering discounts or bundling these services may encourage retention.
 - **Older Customers:**
 - Might prefer simplified service plans with less hassle.
 - Enhanced customer service support could improve satisfaction.

Query 2: Feedback and Complaints from Churned Customers

Objective:

The goal of this query was to analyze feedback from churned customers to understand the reasons behind their departure and identify areas for improvement.

SQL Query

```
with telco_services as (  
  select a.`Customer ID`, a.`Contract` as contract_type,  
         avg(`Monthly Charge`) over (partition by `Customer ID` order by `Monthly Charge` desc) as average_monthly_charges, b.`Customer Status`, b.`Churn Reason` as feedback  
  from telco_customer_churn_services a  
  join telco_customer_churn_status b  
  on a.`Customer ID` = b.`Customer ID`  
  where b.`Customer Status` = "churned")  
select a.*, b.`Age`, b.`Gender`  
from telco_services a  
join telco_customer_churn_demographics b  
on a.`Customer ID` = b.`Customer ID`  
order by a.average_monthly_charges desc  
limit 5;
```

```
1  
2 • SELECT s.`Customer ID`, s.`Contract` AS contract_type, s.`Monthly Charge`, st.`Customer Status`, st.`Churn Reason`  
3 FROM telco_customer_churn_services s  
4 JOIN telco_customer_churn_status st  
5 ON s.`Customer ID` = st.`Customer ID`  
6 WHERE st.`Customer Status` = 'churned'  
7 AND st.`Churn Reason` IS NOT NULL;  
8  
9
```

Query Results

Customer ID	Contract Type	Avg Monthly Charges	Customer Status	Feedback	Age	Gender
8199-ZLLSA	One Year	118.35	Churned	Competitor had better devices	53	Male
2889-FPWRM	One Year	117.80	Churned	Competitor offered higher download speeds	31	Male
2302-ANTDP	Month-to-Month	117.45	Churned	Competitor offered more data	76	Female
9053-JZFKV	Two Year	116.20	Churned	Don't know	25	Male
1444-VVSGW	One Year	115.65	Churned	Product dissatisfaction	51	Male

Key Insights:

- **Competitor-Related Issues:** Customers frequently cited competitors' better devices, faster speeds, or more data as reasons for leaving.
- **Product Dissatisfaction:** Some customers reported general dissatisfaction with products or services.
- **Unclear Reasons for Leaving:** A few customers were unsure why they left, indicating possible disengagement or a lack of communication.

Recommended Actions:

- **Competitor Analysis:** Investigate competitors' device offerings and service packages, and aim to match or surpass these features.
- **Customer Feedback Mechanisms:** Introduce regular surveys to identify specific dissatisfaction points.
- **Targeted Promotions:** Create personalized offers addressing each reason for churn, especially for those on annual contracts.

Addressing Churn Due to Competitors

1. Device Offerings

- **Invest in Device Partnerships:**
 - Collaborate with popular manufacturers to offer competitive devices.
 - Provide exclusive devices or upgrades.
- **Offer Device Upgrades or Trade-In Options:**
 - Allow mid-contract upgrades or trade-ins to keep customers engaged.
- **Device Comparison Marketing:**
 - Transparently compare devices with competitors, highlighting advantages.

2. Faster Download Speeds

- **Speed Testing and Improvement:**
 - Conduct assessments to identify areas needing speed enhancements.
- **Tiered Internet Packages:**
 - Offer competitive pricing on higher-speed packages.
- **Communicate Improvements:**
 - Keep customers informed about network upgrades and enhancements.

Query 3: Payment Method Impact on Churn

Objective:

This query aimed to explore how different payment methods affected churn rates and how the company could improve retention by addressing payment-related issues.

SQL Query

```
SELECT s.`Payment Method`, COUNT(st.`Customer ID`) AS total_customers, SUM(CASE WHEN st.`Churn Label` = 'Yes' THEN 1 ELSE 0 END) AS churned_customers,
ROUND(SUM(CASE WHEN st.`Churn Label` = 'Yes' THEN 1 ELSE 0 END) / COUNT(st.`Customer ID`) * 100, 2) AS churn_rate_percentage
FROM telco_customer_churn_services s
JOIN telco_customer_churn_status st
ON s.`Customer ID` = st.`Customer ID`
GROUP BY s.`Payment Method`
ORDER BY churn_rate_percentage DESC;
```

Query Results

Payment Method	Total Customers	Churned Customers	Churn Rate (%)
Mailed Check	385	142	36.88
Bank Withdrawal	3,909	1,329	34.00
Credit Card	2,749	398	14.48

Findings:

- **Mailed Checks:** Customers paying by mailed check had the highest churn rate (36.88%).
- **Bank Withdrawal:** This method also showed a significant churn rate (34.00%), likely due to issues with the withdrawal process.
- **Credit Card Payments:** These had the lowest churn rate (14.48%), suggesting higher customer satisfaction.

Analysis

- **Higher Churn with Mailed Checks and Bank Withdrawals:**
 - Indicates challenges or less engagement with these payment methods.
- **Credit Card Payments:**
 - Preferred due to convenience, security, and possibly rewards.

Recommendations

1. Address Issues with Mailed Checks

- **Customer Feedback Analysis:**

- Gather feedback to identify pain points.
- **Incentives to Switch:**
 - Offer discounts or bonuses for transitioning to electronic payments.
- **Process Improvements:**
 - Streamline mailed check processing and provide clear instructions.

2. Improve Bank Withdrawal Processes

- **Identify Common Complaints:**
 - Analyze issues such as failed transactions or delays.
- **Enhanced Communication:**
 - Provide updates on payment status to build trust.
- **Alternative Options:**
 - Introduce direct debit or automatic payment setups.

3. Promote Credit Card Use

- **Exclusive Rewards Program:**
 - Implement rewards for credit card users.
- **Highlight Benefits:**
 - Market the convenience and security of credit card payments.
- **Partnerships:**
 - Collaborate with credit card companies for exclusive offers.

4. Customer Engagement Strategies

- **Personalized Communication:**
 - Target customers using higher-churn methods with tailored messages.
- **Loyalty Programs:**
 - Reward customers for continued use and preferred payment methods.
- **Regular Follow-Ups:**
 - Check in with customers to address concerns proactively.

Implementation Steps

1. **Month 1:**
 - Analyze feedback from customers using higher-churn payment methods.
 - Launch initial campaigns promoting credit card usage.

2. **Month 2:**

- Develop and offer incentives for switching payment methods.
- Improve communication regarding bank withdrawals.

3. **Month 3:**

- Roll out loyalty programs for credit card users.
- Collect initial feedback on initiatives.

4. **Ongoing:**

- Monitor churn rates and refine strategies as needed.

Conclusion and Recommendations:

By focusing on personalized offers, improving service quality, and addressing specific customer concerns, the company can significantly reduce churn and increase customer loyalty. Strategies include:

- **Tailored Offers:** Develop personalized offers based on age, gender, and contract type, with younger customers likely valuing tech upgrades and older customers preferring simplicity.
- **Addressing Competitors:** Stay competitive by regularly updating device offerings, data packages, and internet speeds.
- **Payment Method Improvements:** Encourage electronic payments and address issues with mailed checks and bank withdrawals.
- **Continuous Customer Engagement:** Implement ongoing feedback mechanisms to stay attuned to customer concerns and improve retention.

By applying these strategies, the company can foster a more loyal and satisfied customer base.