

# **TELCO CUSTOMER CHURN PROJECT**

## **BACKGROUND**

Telco Customer Churn case study is likely based on a real-world scenario in the telecommunications industry, where companies are constantly trying to improve customer retention rates and reduce churn. Churn is a significant problem for telecommunications companies, as it results in the loss of revenue and can damage their reputation.

To address this problem, data analysis has to understand the customers and identify the factors driving churn. By analyzing customer data, identify patterns and trends that can help develop targeted retention strategies, improve their products and services, and ultimately increase customer satisfaction and loyalty.

## **BUSINESS TASK**

Develop effective retention strategies to reduce churn and increase customer loyalty

## **FOCUS**

1. Analyzing customer data to identify patterns and trends that are associated with churn.
2. Developing predictive models to identify customers who are at risk of churning.
3. Recommending targeted retention strategies.

## **DATA PREPARATION AND DATA CLEANING**

To answer the business problem of reducing customer churn, data was sourced from a public dataset on Kaggle, which provides data for public use. The dataset was originally collected and published by a telecommunications company and has been made available to the public for research and analysis purposes. By using this data, the analysis was able to provide valuable insights and recommendations that can help companies better understand and address customer churn.

## **DATA PREPARATION**

I chose to use SQL for my data cleaning and exploration process because the dataset was relatively large, with 21 columns and 7032 rows. After importing the CSV file into MySQL, I named the table "customers" to make it easier to work with in my analysis.

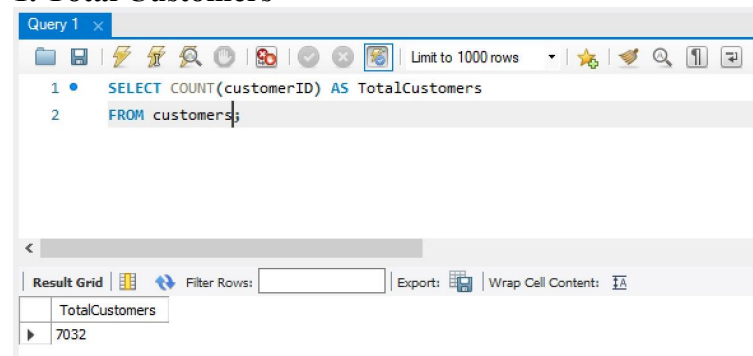
## **DATA CLEANING**

After a thorough review, it appears that the data provided for this case study was already relatively clean and did not require significant additional cleaning or pre-processing. This was likely due to the data being sourced from a reputable public dataset. The data was reviewed for missing or invalid values, inconsistencies, and outliers, and any identified issues were addressed before further analysis.

## STATISTICS ANALYSIS

As part of my analysis, I employed a range of summary metrics to address the business problem. I calculated the total number of customers, churn rate, average monthly charges, top 5 tenure distribution, service usage, contract type, dependent customers, payment method, and top 5 additional service engagement. Furthermore, I examined the impact of paperless billing on customer behavior. By analyzing these metrics, I gained valuable insights into the customer base and identified key areas for improvement. My experience with data analysis allowed me to effectively utilize the available data and make informed recommendations to drive business growth and success.

### 1. Total Customers



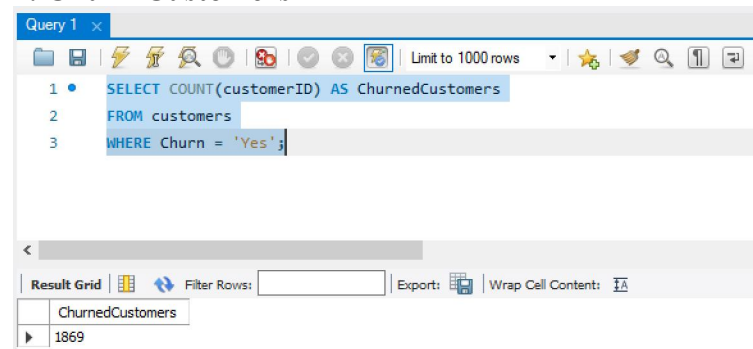
Query 1

```
1 • SELECT COUNT(customerID) AS TotalCustomers
2 FROM customers;
```

Result Grid

TotalCustomers
7032

### 2. Churn Customers



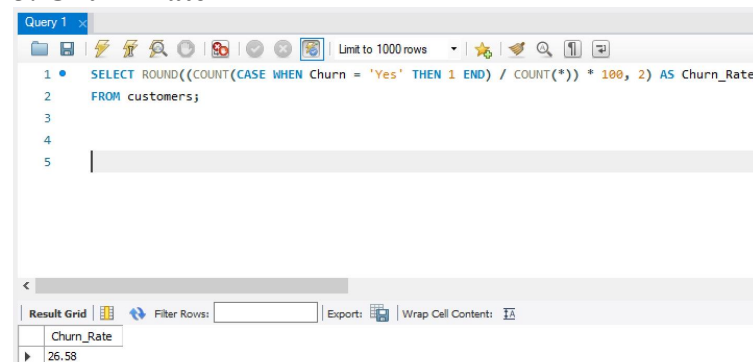
Query 1

```
1 • SELECT COUNT(customerID) AS ChurnedCustomers
2 FROM customers
3 WHERE Churn = 'Yes';
```

Result Grid

ChurnedCustomers
1869

### 3. Churn Rate



Query 1

```
1 • SELECT ROUND((COUNT(CASE WHEN Churn = 'Yes' THEN 1 END) / COUNT(*)) * 100, 2) AS Churn_Rate
2 FROM customers;
3
4
5
```

Result Grid

Churn_Rate
26.58

## 4. Average Monthly Charges for Churn Customers

Query 1

```
1 • SELECT ROUND(AVG(MonthlyCharges),2) AS AverageMonthlyCharge
2 FROM customers
3 WHERE Churn = 'Yes';
4
```

Result Grid

AverageMonthlyCharge
74.44

## 5. Top 5 Tenure Distribution

Query 1

```
1 • SELECT tenure, COUNT(*) AS Customer_Count
2 FROM customers
3 WHERE Churn = 'Yes'
4 GROUP BY tenure
5 ORDER BY Customer_Count DESC
6 LIMIT 5;
7
```

Result Grid

tenure	Customer_Count
1	380
2	123
3	94
4	83
5	64

## 6. Service Usage

Query 1

```
1 • SELECT InternetService, COUNT(*) AS Customer_Count
2 FROM customers
3 WHERE Churn = 'Yes'
4 GROUP BY InternetService
5 ORDER BY Customer_Count DESC;
6
```

Result Grid

InternetService	Customer_Count
Fiber optic	1297
DSL	459
No	113

## 7. Contract Type

Query 1

```
1 • SELECT Contract, COUNT(*) AS Customer_Count
2 FROM customers
3 WHERE Churn = 'Yes'
4 GROUP BY Contract
5 ORDER BY Customer_Count DESC;
```

Result Grid

Contract	Customer_Count
Month-to-month	1655
One year	166
Two year	48

## 8. Dependent Customers

Query 1

```
1 • SELECT gender, SeniorCitizen, Partner, Dependents, COUNT(*) AS Customer_Count
2 FROM customers
3 WHERE Churn = 'Yes'
4 GROUP BY gender, SeniorCitizen, Partner, Dependents
5 ORDER BY Customer_Count DESC
6 LIMIT 5;
```

Result Grid

gender	SeniorCitizen	Partner	Dependents	Customer_Count
Female	0	No	No	429
Male	0	No	No	418
Female	1	No	No	158
Male	0	Yes	No	128
Female	0	Yes	Yes	124

## 9. Payment Method

Query 1

```
1 • SELECT PaymentMethod, COUNT(*) AS Customer_Count
2 FROM customers
3 WHERE Churn = 'Yes'
4 GROUP BY PaymentMethod
5 ORDER BY Customer_Count DESC;
```

Result Grid

PaymentMethod	Customer_Count
Electronic check	1071
Mailed check	308
Bank transfer (automatic)	258
Credit card (automatic)	232

## 10. Top 5 Additional Service Engagement

Query 1

Limit to 1000 rows

1

•

```
SELECT TechSupport, DeviceProtection, StreamingTV, StreamingMovies, COUNT(*) AS Customer_Count
FROM customers
WHERE Churn = 'Yes'
GROUP BY TechSupport, DeviceProtection, StreamingTV, StreamingMovies
ORDER BY Customer_Count DESC
LIMIT 5;
```

Result Grid

Filter Rows:

Export:

Wrap Cell Content:

Fetch rows:

	TechSupport	DeviceProtection	StreamingTV	StreamingMovies	Customer_Count
▶	No	No	No	No	513
	No	No	Yes	Yes	221
	No	Yes	Yes	Yes	204
	No	No	No	Yes	165
	No	No	Yes	No	149

## 11. Paperless Billing

Query 1

Limit to 1000 rows

1

•

```
SELECT PaperlessBilling, COUNT(*) AS Customer_Count
FROM customers
WHERE Churn = 'Yes'
GROUP BY PaperlessBilling;
```

Result Grid

Filter Rows:

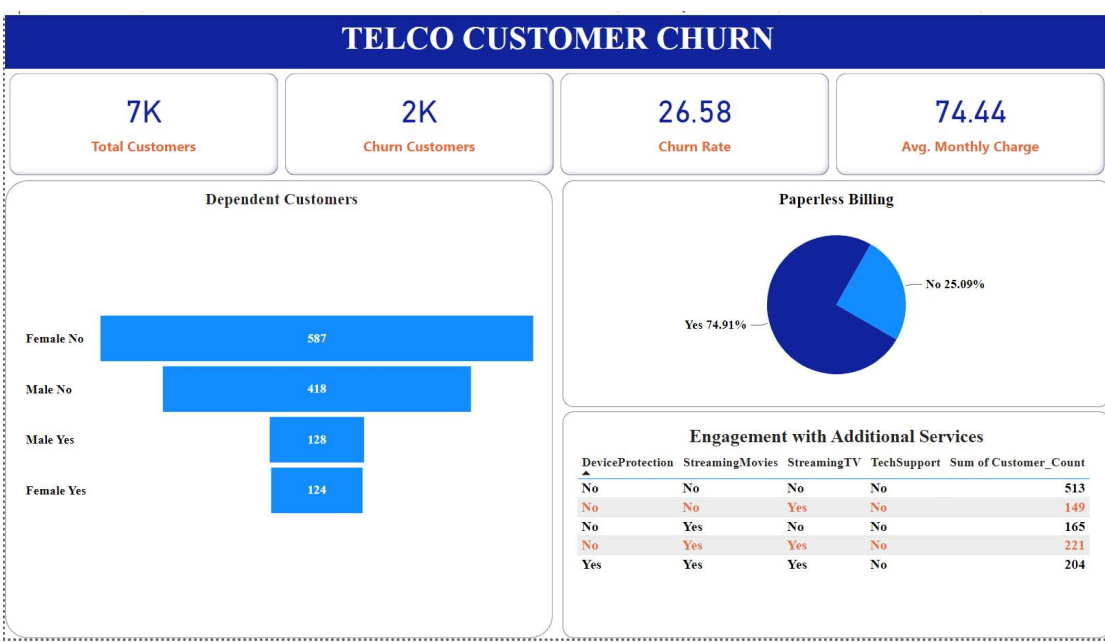
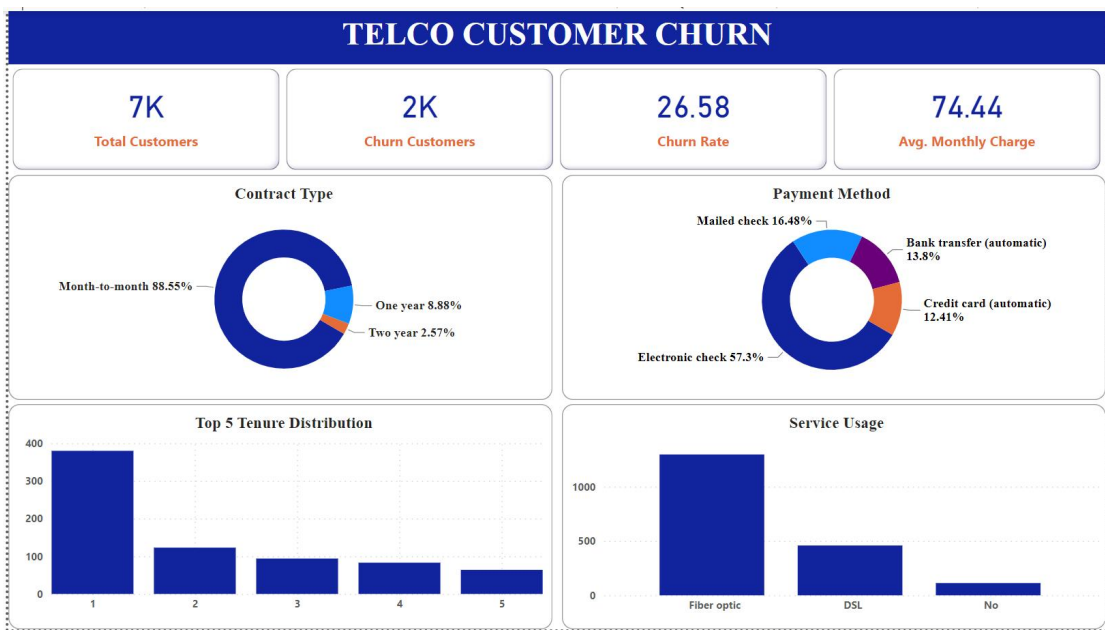
Export:

Wrap Cell Content:

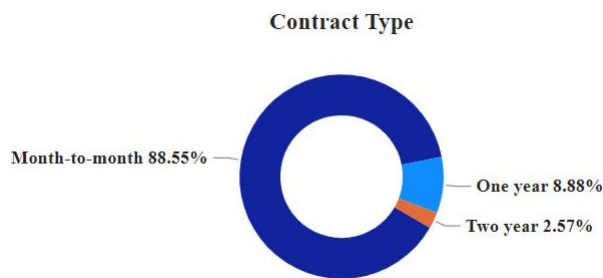
	PaperlessBilling	Customer_Count
▶	Yes	1400
	No	469

VISUALIZATION

I exported my clean CSV file to Tableau Public Desktop and I created a dashboard to display and communicate my findings for my visualization.

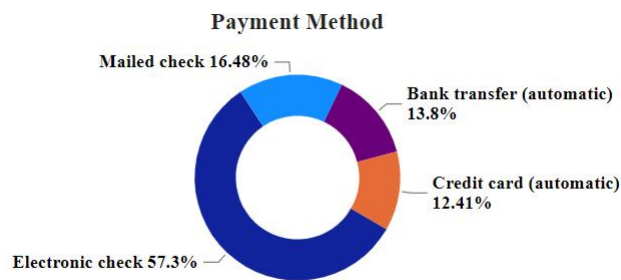


# COMMUNICATION AND INSIGHTS



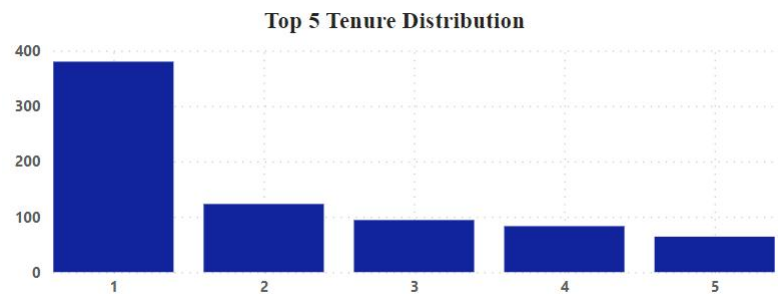
*This is the percentage of contract type by churn customer*

Analysis revealed a significant trend: 88.55% of churned customers exclusively opted for Month-to-Month contracts. Urging targeted retention strategies for this segment to reduce churn



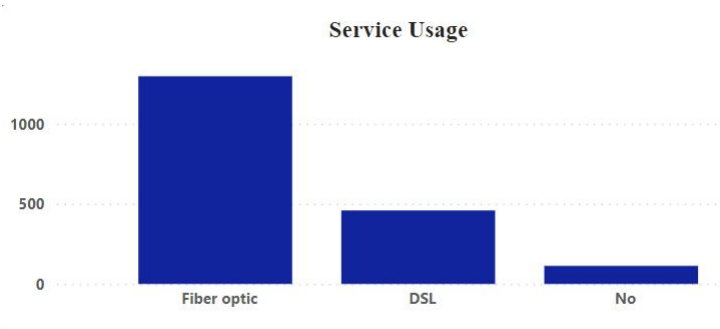
*This is the percentage of payment method used by the churn customers*

Analysis highlights a substantial trend: 57.3% of churned customers relied on Electronic check as their payment method, signaling an opportunity for targeted retention efforts in this segment.



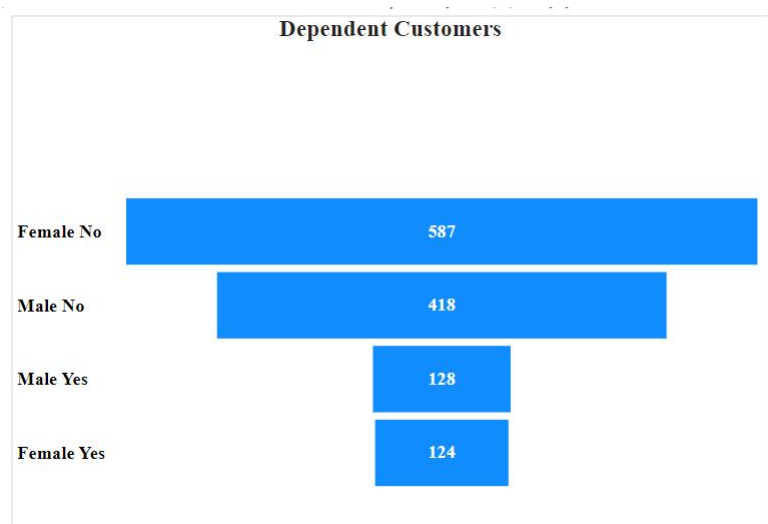
*This show the distribution of tenure(length of customer relationship) for churned customers*

Analysis reveals that the highest count of churned customers, numbering 380 had a tenure of 1 unit, indicating a potential need for tailored engagement strategies for this specific segment to enhance their retention and overall satisfaction.



*This show the count of churned customers based on different service usage(Internet Service Types)*

Analysis highlights a significant trend: among churned customers, 1297 utilized Fiber Optic internet service. Crafting targeted retention strategies for this segment could address service-related concerns and improve satisfaction within this high-churn group.

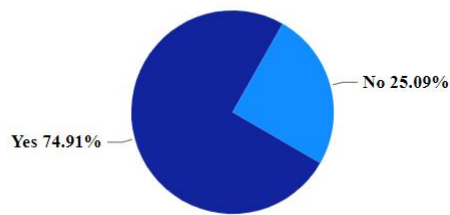


*This show churned customers rates based on gender and dependency.*

Analysis indicates that among churned customers, females without dependents total 587, while males in a similar category amount to 418, underscoring a potential opportunity to tailor retention strategies focused on individualized needs for each demographic segment.



### Paperless Billing



*This shown the churned rates for customers with and without paperless billing*

Analysis suggests a dominant trend: 74.91% of churned customers opted for paperless billing. Crafting retention strategies emphasizing the benefits or incentives tied to paperless billing may positively impact the segment's retention.

### Engagement with Additional Services

DeviceProtection	StreamingMovies	StreamingTV	TechSupport	Sum of Customer_Count
No	No	No	No	513
No	No	Yes	No	149
No	Yes	No	No	165
No	Yes	Yes	No	221
Yes	Yes	Yes	No	204

*This shown the count of churned customers based on their engagement with additional services*

Analysis highlights a notable trend: 513 churned customers did not utilize any of the additional services offered. Tailored outreach focusing on the value and benefits of these unused services may help improve retention within this segment.

## **RECOMMENDATION**

Based on the analyzed insights, there are recommendations aimed at developing effective retention strategies to reduce churn and increase customer loyalty.

1. Offer loyalty rewards or incentives to long-tenured customers to encourage their continued subscription.
2. Design retention programs tailored to customers' tenure groups, addressing specific needs and concerns.
3. Improve internet service quality and provide robust security features.
4. Offer bundled packages or discounts on additional services like tech support or device protection to increase perceived value.
5. Encourage customers to opt for longer-term contracts by providing benefits or discounts for annual or multi-year subscriptions.
6. Simplify billing and payment processes to reduce friction and potentially offer flexible payment options.
7. Leverage customer data to personalize marketing efforts and communicate tailored offers or promotions based on service usage.
8. Reach out to at-risk customers with targeted campaigns aimed at addressing their specific concerns or needs.
9. Enhance technical support services, possibly through more proactive assistance or better self-help resources, reducing the need for customers to seek alternatives.
10. Regularly gather customer feedback to identify pain points and areas of improvement, then actionable steps to address them promptly.