

Customer Churn Analysis Using SQL & Excel

Tools Used: MySQL, Excel

Dataset Source: Telco Customer Churn – Kaggle

Completed On : October 2025

Executive Summary

This project analyzes customer churn behavior using SQL queries and Excel dashboards. Using a dataset of 7,032 customers, the goal was to identify churn drivers and present actionable insights. The final dashboard includes slicers and visuals that allow dynamic exploration of churn patterns across tenure, contract type, and payment method.

Project Objectives

Bullets:

- 1. Segment customers by tenure, contract type, Internet Service and payment method.**
- 2. Identify high-risk churn groups using SQL.**
- 3. Build an interactive Excel dashboard with slicers.**
- 4. Deliver business recommendations based on data insights.**

Dataset Overview

Key Metrics

| MATRIC | VALUE |
|--------------------|--|
| Total Customers | 7,032 |
| Churned Customers | 1,869 |
| Retained Customers | 5,163 |
| Churn Rate | 26.58% |
| Contract Types | 4 types (Electronic Check, Mailed Check, Bank Transfer, Credit Card) |
| Payment Methods | Month-to-month, One year, Two year |

Insight: Over one-quarter of customers have churned, indicating a significant retention challenge. You can pair this with a pie chart showing the churn vs. retained split, using teal for retained and orange for churned to match your theme. Let me know if you'd like help designing that visual or formatting the slide layout.

SQL Query - Churn By Contract Type




SELECT

```
Contract,  
COUNT(*) AS total_customers,  
SUM(CASE WHEN Churn = 'Yes' THEN 1 ELSE 0 END) AS churned_customers,  
ROUND(SUM(CASE WHEN Churn = 'Yes' THEN 1 ELSE 0 END) * 100.0 / COUNT(*), 2) AS churn_rate_percentage
```

FROM Churn_Analysis

GROUP BY Contract

ORDER BY churn_rate_percentage DESC;

| Result Grid  Filter Rows: <input type="text"/> Export:  Wrap Cell Content:  | | | | |
|--|----------------|-----------------|-------------------|-----------------------|
| | Contract | total_customers | churned_customers | churn_rate_percentage |
| ▶ | Month-to-month | 3875 | 1655 | 42.71 |
| | One year | 1472 | 166 | 11.28 |
| | Two year | 1685 | 48 | 2.85 |

SQL Query - Churn by internet service




SELECT

```
InternetService,  
COUNT(*) AS total_customers,  
SUM(CASE WHEN Churn = 'Yes' THEN 1 ELSE 0 END) AS churned_customers,  
ROUND(SUM(CASE WHEN Churn = 'Yes' THEN 1 ELSE 0 END) * 100.0 / COUNT(*), 2) AS churn_rate_percentage
```

FROM Churn_Analysis

GROUP BY InternetService

ORDER BY churn_rate_percentage DESC;

| Result Grid  Filter Rows: <input type="text"/> Export:  Wrap Cell Content:  | | | | |
|--|-----------------|-----------------|-------------------|-----------------------|
| | InternetService | total_customers | churned_customers | churn_rate_percentage |
| ▶ | Fiber optic | 3096 | 1297 | 41.89 |
| | DSL | 2416 | 459 | 19.00 |
| | No | 1520 | 113 | 7.43 |

SQL Query - Churn by payment method




SELECT

```
PaymentMethod,  
COUNT(*) AS total_customers,  
SUM(CASE WHEN Churn = 'Yes' THEN 1 ELSE 0 END) AS churned_customers,  
ROUND(SUM(CASE WHEN Churn = 'Yes' THEN 1 ELSE 0 END) * 100.0 / COUNT(*), 2) AS churn_rate_percentage
```

FROM Churn_Analysis




GROUP BY PaymentMethod

ORDER BY churn_rate_percentage DESC;

| Result Grid  Filter Rows: <input type="text"/> Export:  Wrap Cell Content:  | | | | |
|--|---------------------------|-----------------|-------------------|-----------------------|
| | PaymentMethod | total_customers | churned_customers | churn_rate_percentage |
| ▶ | Electronic check | 2365 | 1071 | 45.29 |
| | Mailed check | 1604 | 308 | 19.20 |
| | Bank transfer (automatic) | 1542 | 258 | 16.73 |
| | Credit card (automatic) | 1521 | 232 | 15.25 |

SQL Query - Churn by Tenure Group

```
SELECT
CASE
  WHEN tenure <= 6 THEN '0-6 months'
  WHEN tenure BETWEEN 7 AND 12 THEN '7-12 months'
  WHEN tenure BETWEEN 13 AND 24 THEN '13-24 months'
  ELSE '25+ months'
END AS tenure_group,
COUNT(*) AS total_customers,
SUM(CASE WHEN Churn = 'Yes' THEN 1 ELSE 0 END) AS churned_customers,
ROUND(SUM(CASE WHEN Churn = 'Yes' THEN 1 ELSE 0 END) * 100.0 / COUNT(*), 2) AS churn_rate_percentage
FROM Churn_Analysis
GROUP BY tenure_group
ORDER BY churn_rate_percentage DESC;
```

| Result Grid  Filter Rows: <input type="text"/> Export:  Wrap Cell Content:  | | | | |
|---|--------------|-----------------|-------------------|-----------------------|
| | tenure_group | total_customers | churned_customers | churn_rate_percentage |
| ▶ | 0-6 months | 1470 | 784 | 53.33 |
| | 7-12 months | 705 | 253 | 35.89 |
| | 13-24 months | 1024 | 294 | 28.71 |
| | 25+ months | 3833 | 538 | 14.04 |

SQL Query - Average Monthly Charges for Churned vs Non-Churned

```
SELECT
    Churn,
    ROUND(AVG(MonthlyCharges), 2) AS avg_monthly_charges
FROM Churn_Analysis
GROUP BY Churn;
```

| Result Grid | | | Filter Rows: |
|-------------|-------|---------------------|--------------|
| | Churn | avg_monthly_charges | |
| ▶ | No | 61.31 | |
| | Yes | 74.44 | |

Dashboard Overview

SLICERS

Contract  

Month-to-month

One year

Two year

InternetService  

DSL

Fiber optic

No

PaymentMethod  

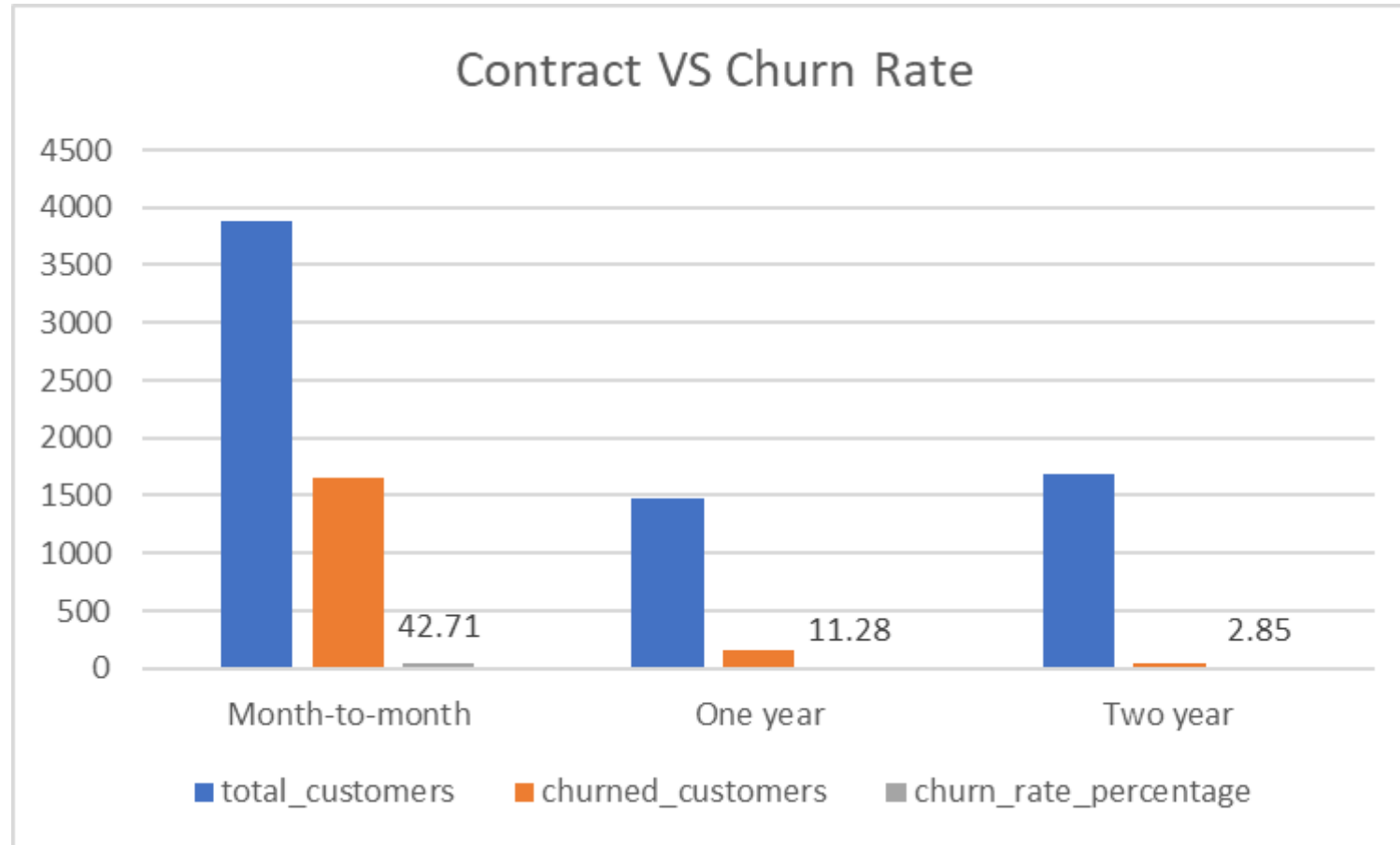
Bank transfer (automatic)

Credit card (automatic)

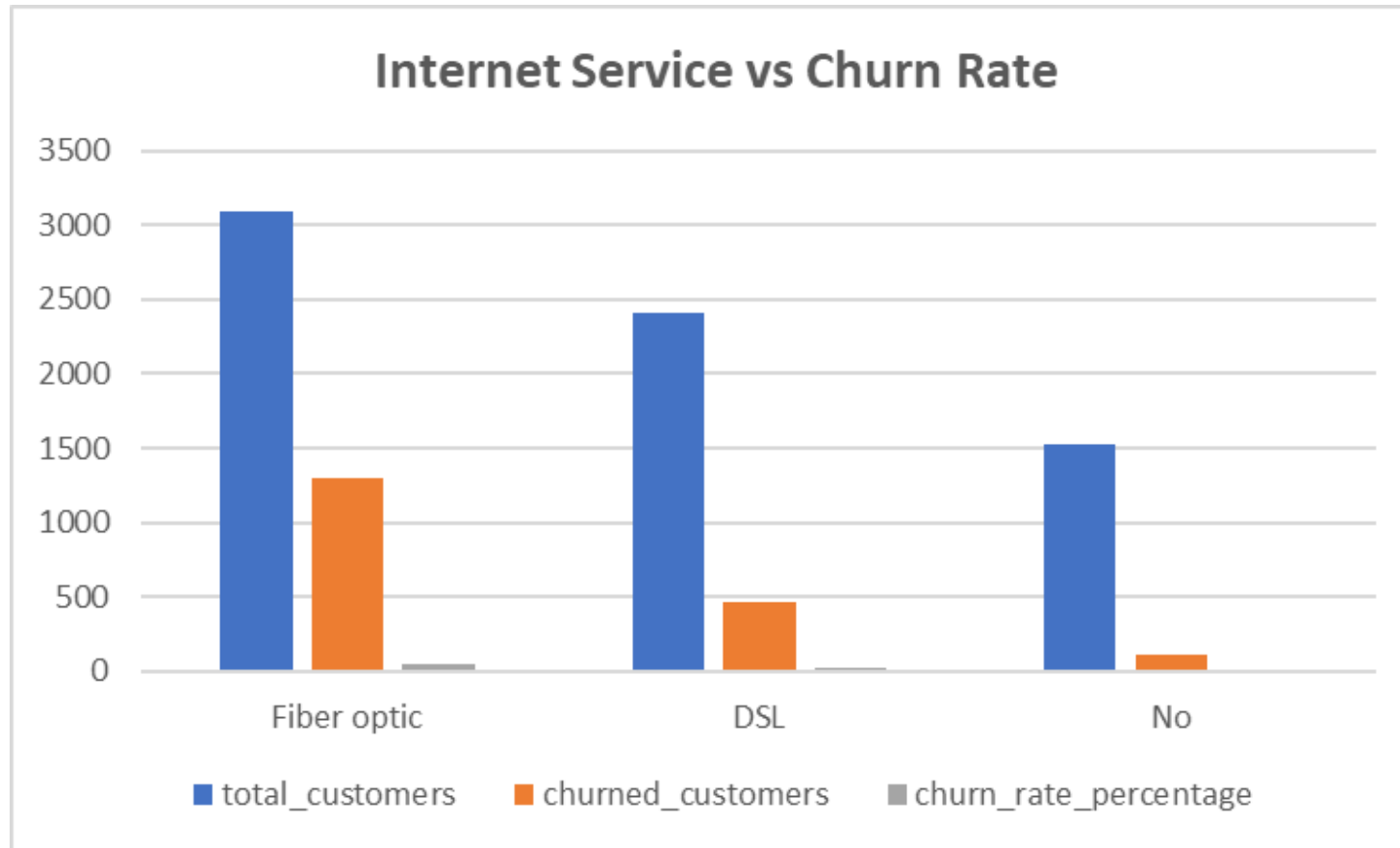
Electronic check

Mailed check

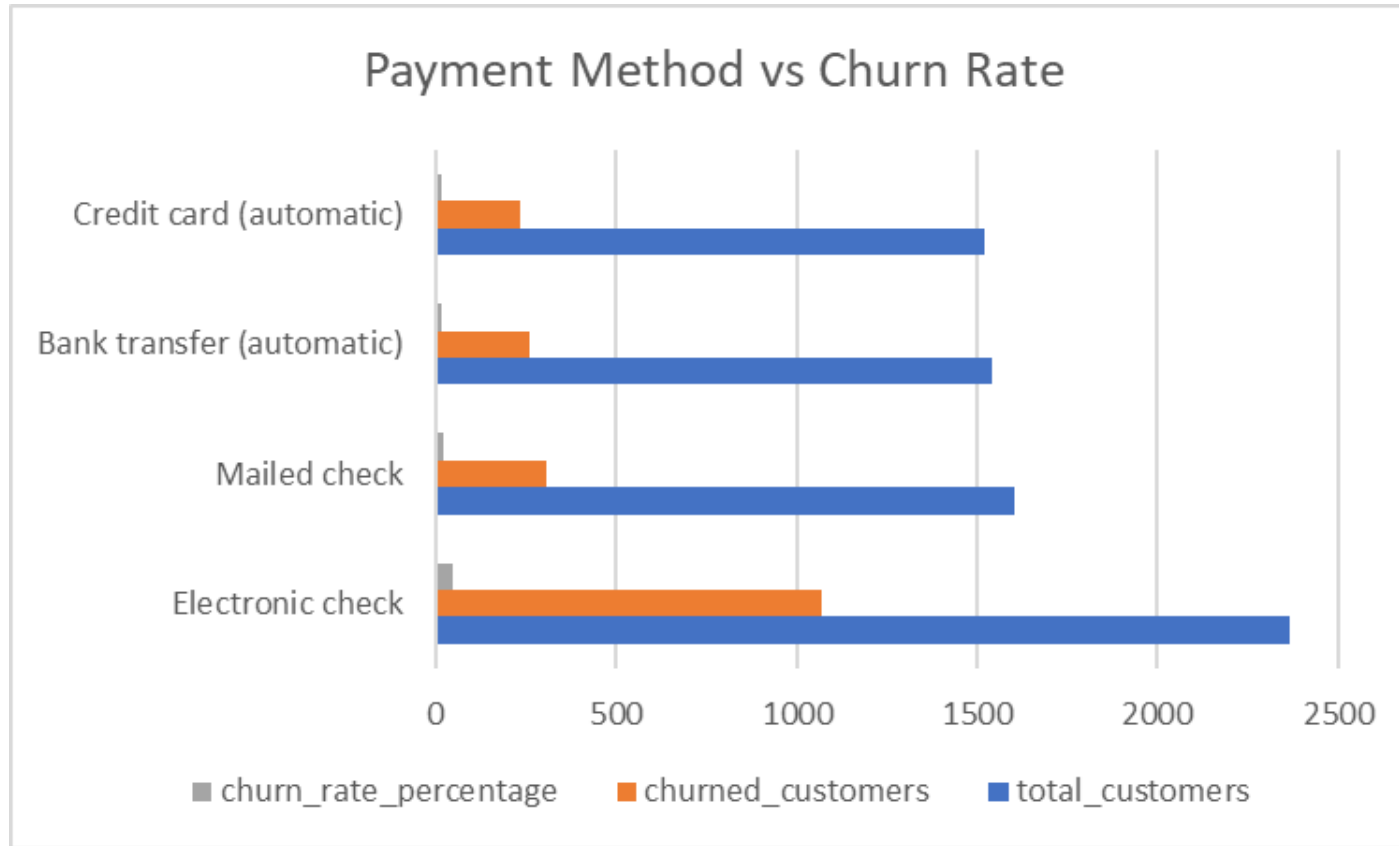
Churn By Contract Type



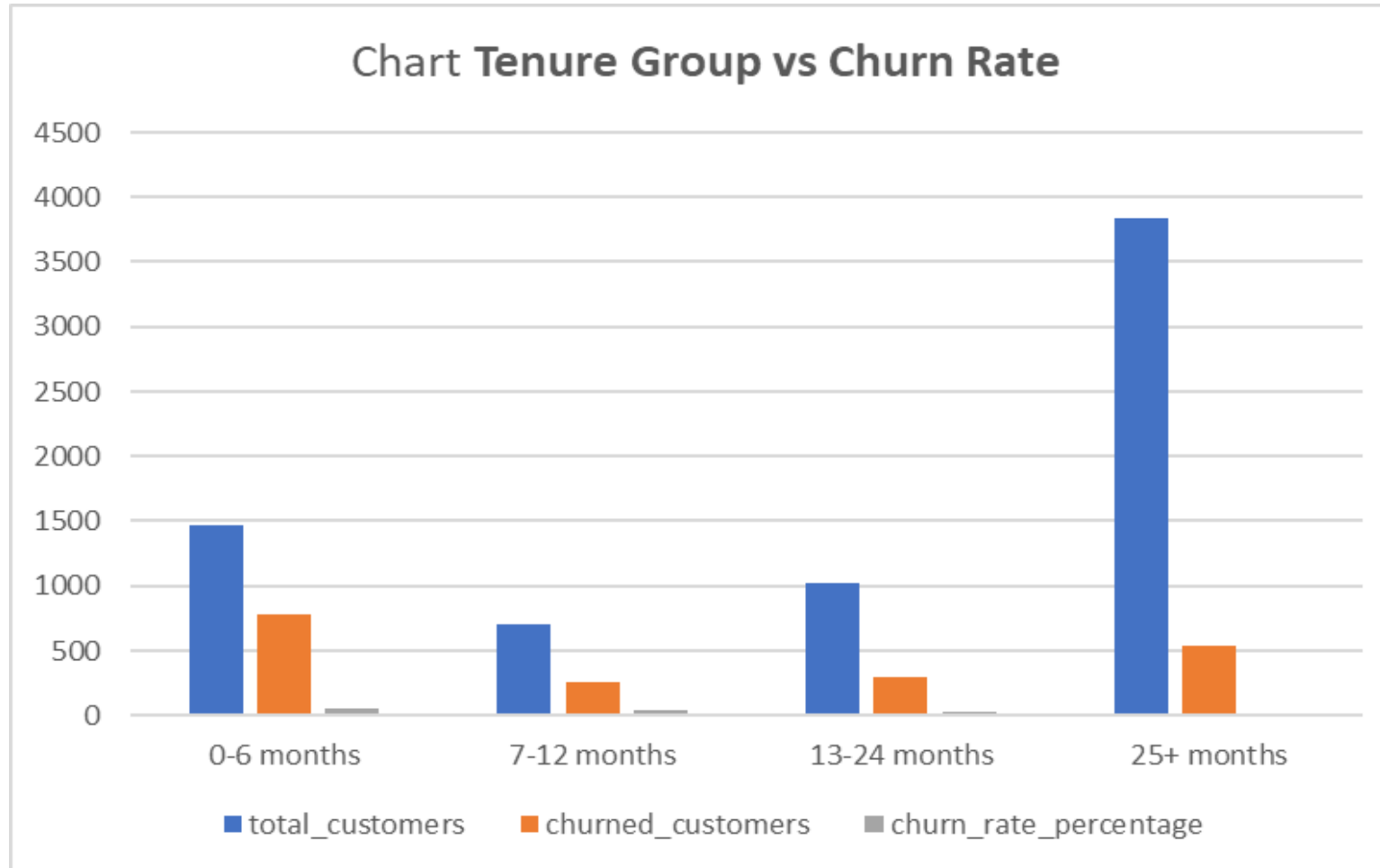
Churn by Internet Service



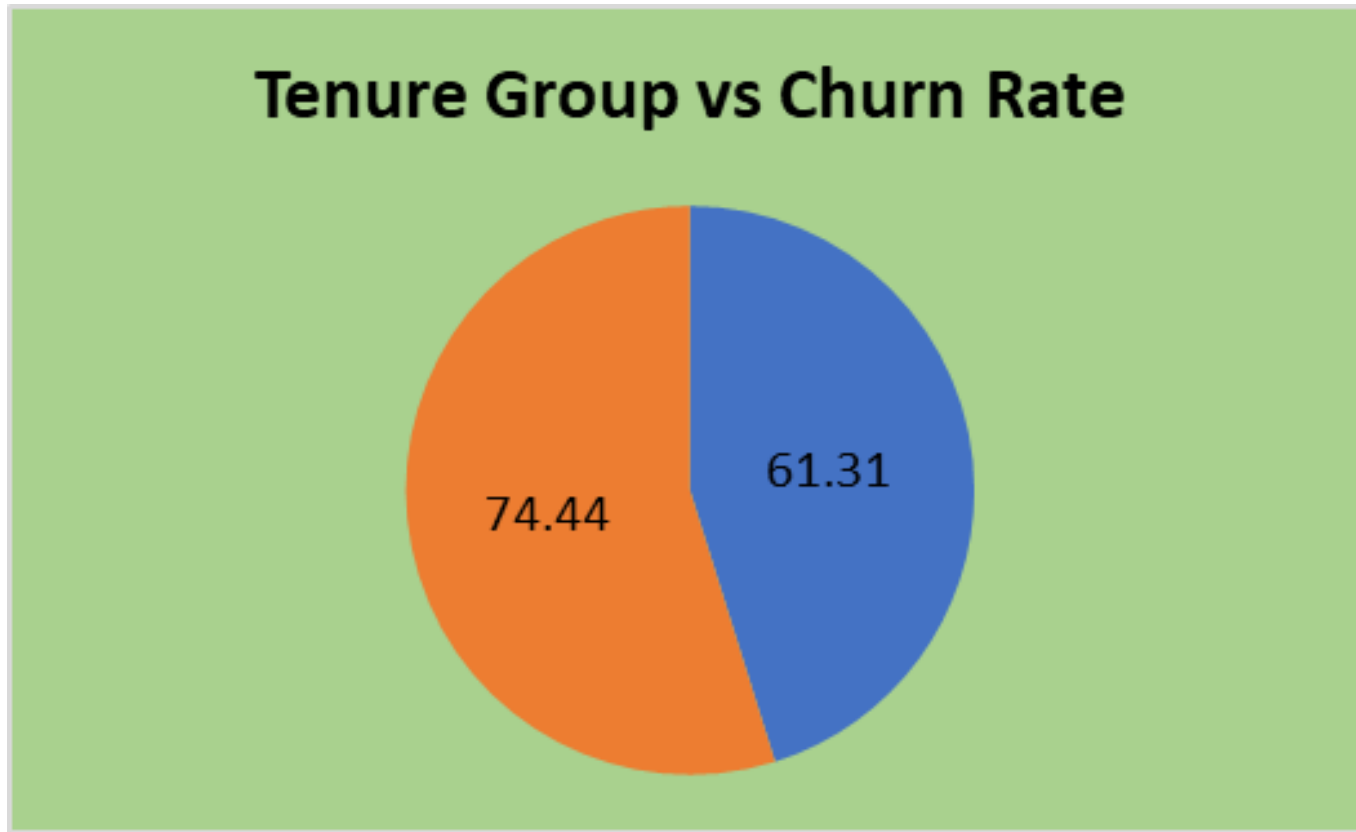
Churn by Payment Method



Churn by Tenure Group



Average Monthly Charges for Churned vs Non-Churned



DASHBOARD

Churn Analysis Dashboard

Contract

Month-to-mo...

One year

InternetService

DSL

Fiber optic

PaymentMethod

Bank transfer (a...

Credit card (aut...

Total Customers

7032

Churned Customers

1869

Churn Rate %

26.58 %

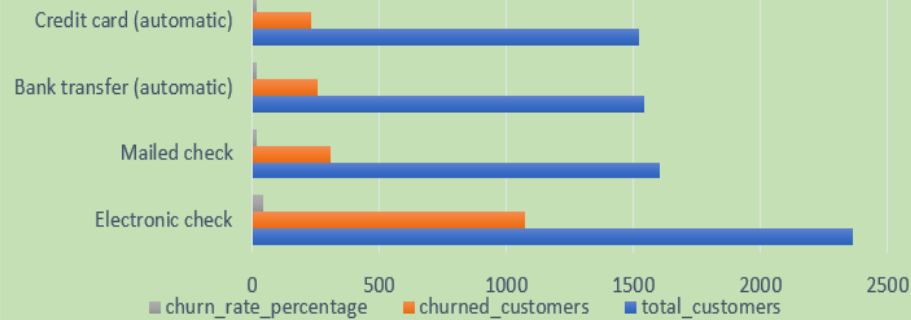
Data Source: Telco Customer Churn

- Kaggle

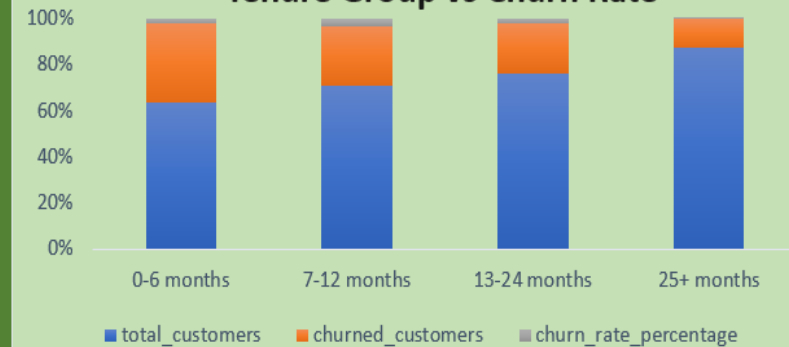
Prepared by: Sakshi Upadhyay

Tools Used : MySQL | Excel

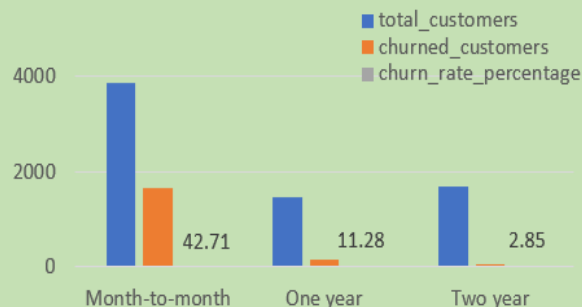
Payment Method vs Churn Rate



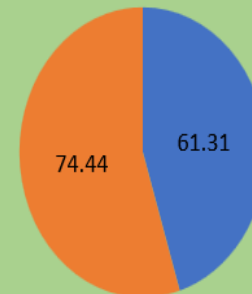
Tenure Group vs Churn Rate



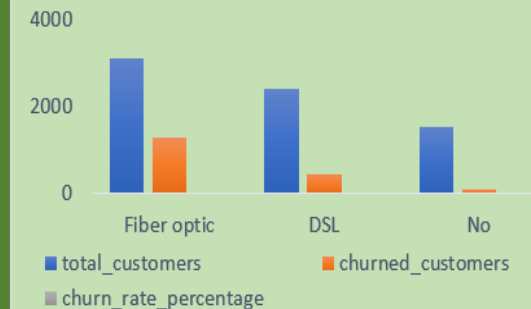
Contract VS Churn Rate



Tenure Group vs Churn Rate



Internet Service vs Churn Rate



Key Insights

- ❑ - Month-to-month contracts have a 42.8% churn rate
- ❑ - Electronic check payments are linked to 45.29% churn
- ❑ - Customers with tenure <12 months are most vulnerable
- ❑ - Fiber optic users churn at 41.89%, compared to 19% for DSL

Recommendations

- Offer discounts for long-term contracts.
- Promote auto-payment options like credit card and bank transfer.
- Launch onboarding campaigns for new customers.
- Target high-risk tenure groups with retention offers.

Conclusion

This project demonstrates how SQL and Excel can be used to extract meaningful insights from customer data. By segmenting customers and visualizing churn patterns, we can support strategic decisions that reduce churn and improve customer satisfaction.

Contact & Portfolio

Portfolio & Contact -

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