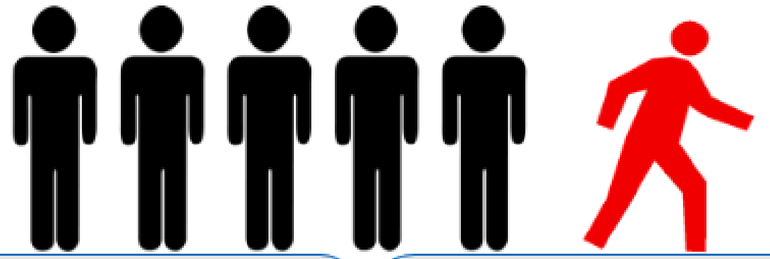
Customer Churn Analysis

DATE: JULY 26, 2024
PREPARED BY: **BIDHAN PANT**

Monthly_Charged_Status: All

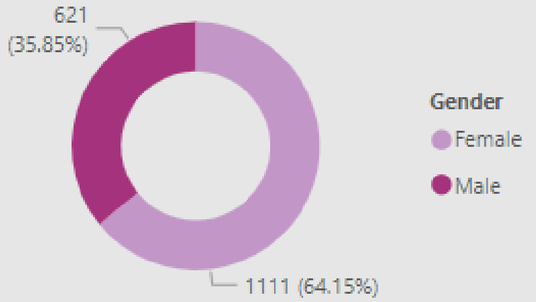
Married: All

CHURN ANALYSIS - SUMMARY

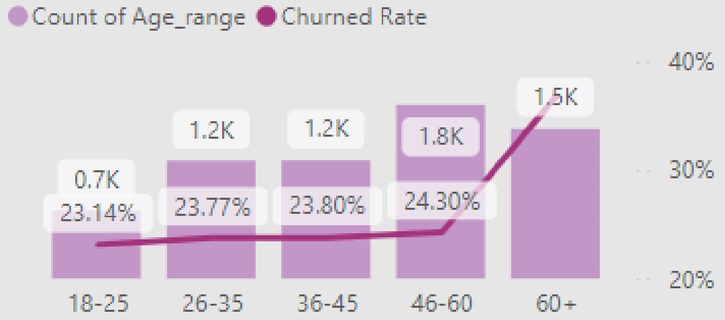


6418	411	1732	26.99%
Total Customers	New Joiners	Total Churned	Churned Rate

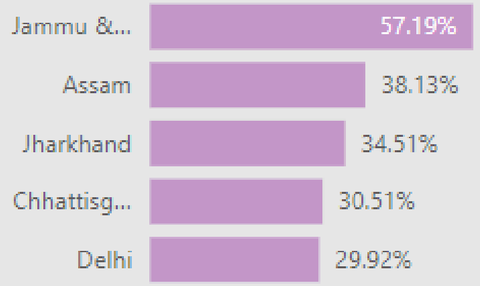
Total churned based on Gender



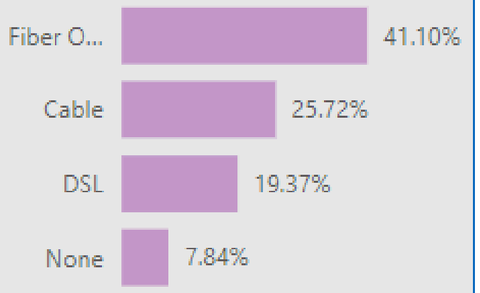
Churned Rate According to Age Range



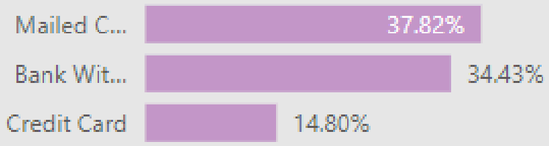
Top 5 Churn Rate by State



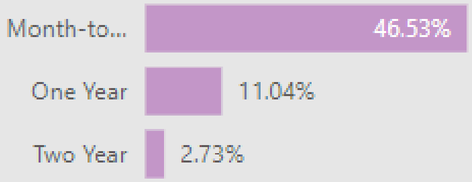
Churn Rate by Internet Type



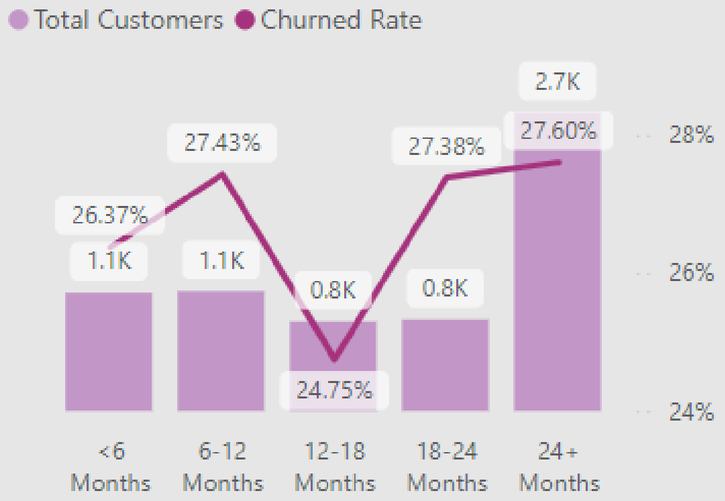
Churn Rate by Payment Method



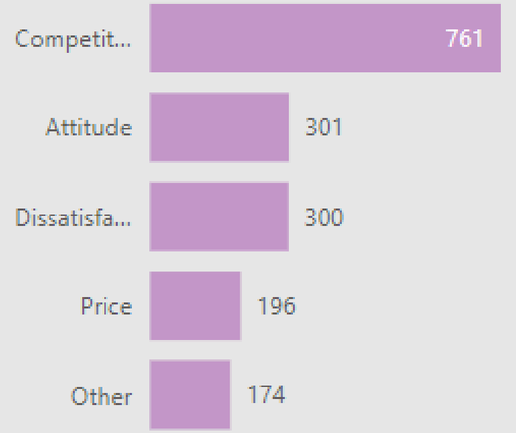
Churn Rate by Contract



Total customers and churn Rate by Tenure group



Total Churn by Churn Category



Churn by Services

Services	No	Yes
Device_Protection_Plan	71.02%	28.98%
Internet_Service	6.29%	93.71%
Multiple_Lines	54.79%	45.21%
Online_Backup	71.88%	28.12%
Online_Security	84.64%	15.36%
Paperless_Billing	25.40%	74.60%
Phone_Service	9.41%	90.59%
Premium_Support	83.49%	16.51%
Streaming_Movies	56.00%	44.00%

Introduction

In the highly competitive banking industry, customer retention is a critical factor for sustainable growth and profitability. Understanding why customers leave and identifying the factors that influence their decision to churn can provide valuable insights for developing effective retention strategies.

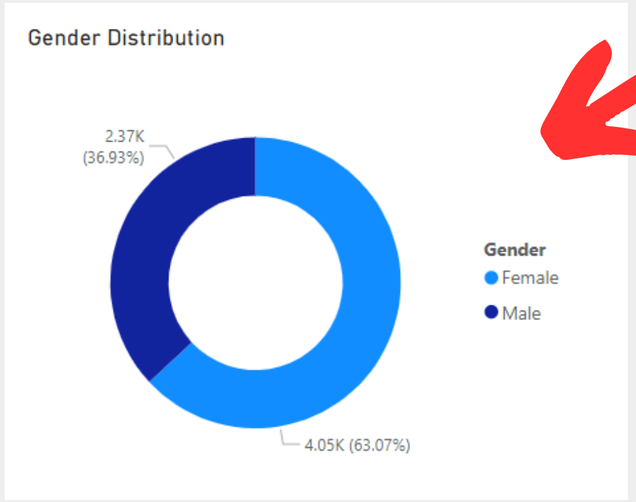
This project focuses on a comprehensive churn analysis of a bank's customer base, aiming to uncover patterns and trends that contribute to customer attrition. By leveraging advanced data analysis techniques and visualization tools, we aim to provide actionable recommendations to enhance customer loyalty and reduce churn rates.

Objectives

- Identify Key Demographics Influencing Churn
- Evaluate Service and Contract Impact
- Analyze Payment Method Preferences
- Regional Churn Analysis
- Determine Primary Churn Reasons and Provide Actionable Recommendations
- Visualize Data for Stakeholder Insights

Demographic Analysis

Gender

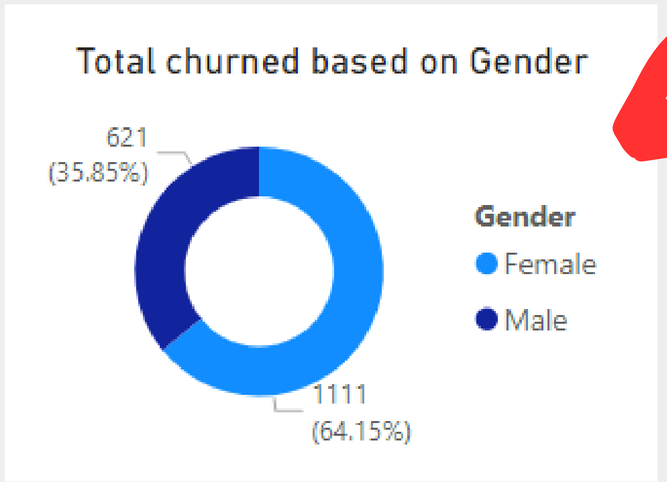



```sql
-- Gender
select gender, count(gender) as total_count,
count(gender) * 100.1 / (select count(*) from dbo.stg_churn_data) as total_percentage
from dbo.stg_churn_data
group by Gender;
```

100 %

Results | Messages

	gender	total_count	total_percentage
1	Male	2370	36.964319102524
2	Female	4048	63.135680897475




```sql
--- Total churned based on gender
select gender, count(Gender) as total_count
from dbo.prod_Churn_analysis
where Customer_Status = 'Churned'
group by Gender;
```

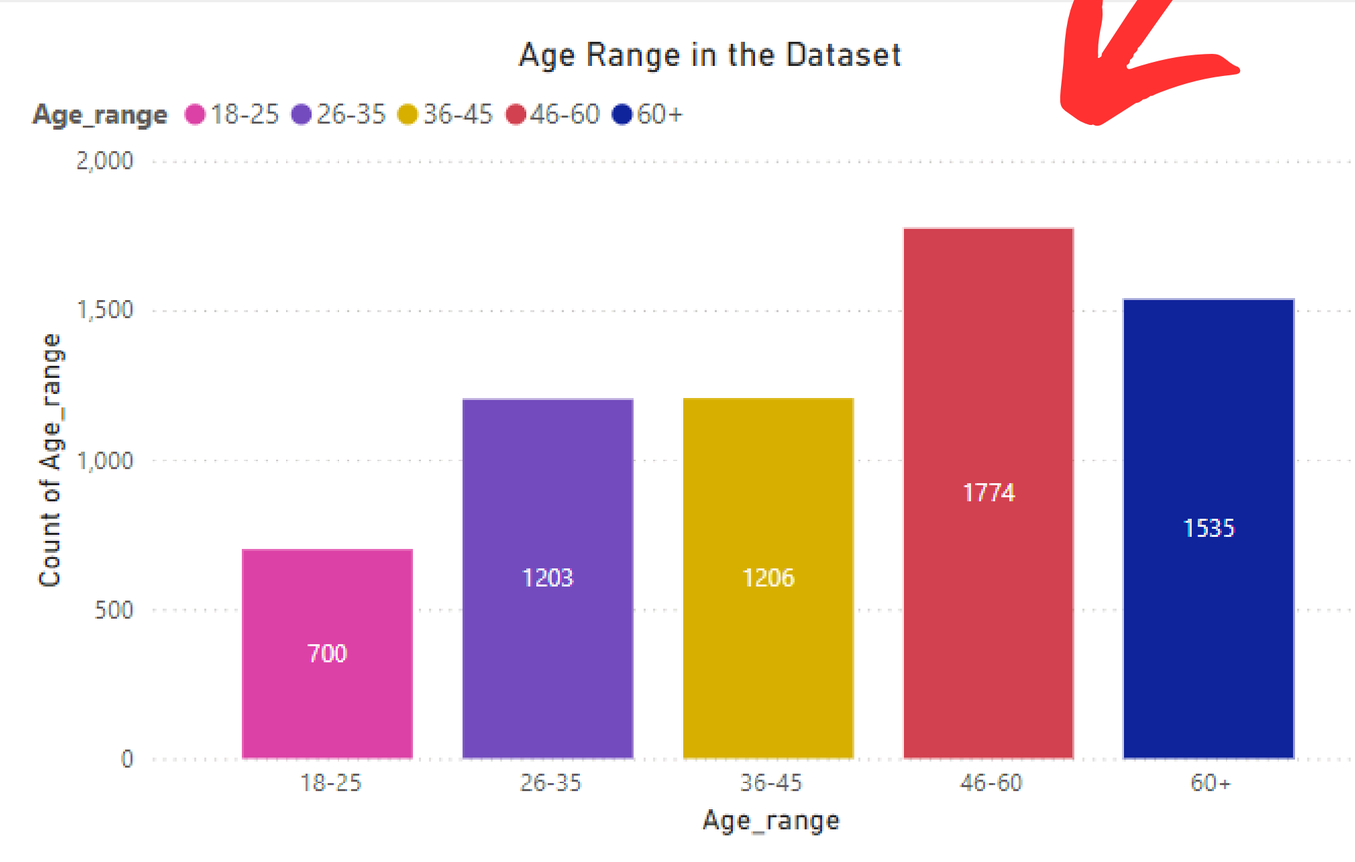
100 %

Results | Messages

	gender	total_count
1	Male	621
2	Female	1111

Demographic Analysis

Age




```sql
-- Age
select
case
    WHEN Age < 18 THEN 'Under 18'
        WHEN Age BETWEEN 18 AND 25 THEN '18-25'
        WHEN Age BETWEEN 26 AND 35 THEN '26-35'
        WHEN Age BETWEEN 36 AND 45 THEN '36-45'
        WHEN Age BETWEEN 46 AND 60 THEN '46-60'
        ELSE 'Above 60'
    END AS Age_Group,
    count(*) as customer_Count

from dbo.stg_churn_data
GROUP BY
    case
    WHEN Age < 18 THEN 'Under 18'
        WHEN Age BETWEEN 18 AND 25 THEN '18-25'
        WHEN Age BETWEEN 26 AND 35 THEN '26-35'
        WHEN Age BETWEEN 36 AND 45 THEN '36-45'
        WHEN Age BETWEEN 46 AND 60 THEN '46-60'
        ELSE 'Above 60'
    END
    order by
        Age_Group;
```

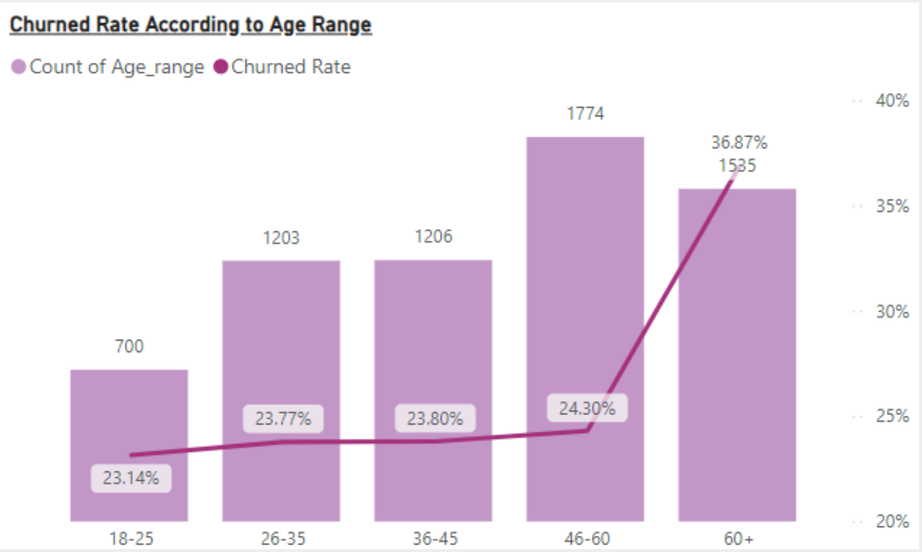
00 %

Results Messages

	Age_Group	customer_Count
1	18-25	700
2	26-35	1203
3	36-45	1206
4	46-60	1774
5	Above 60	1535

Demographic Analysis

Age




```sql
-- Churned Rate based on age distribution

WITH TotalCustomers AS (
    SELECT
        CASE
            WHEN Age < 18 THEN 'Under 18'
            WHEN Age BETWEEN 18 AND 25 THEN '18-25'
            WHEN Age BETWEEN 26 AND 35 THEN '26-35'
            WHEN Age BETWEEN 36 AND 45 THEN '36-45'
            WHEN Age BETWEEN 46 AND 60 THEN '46-60'
            ELSE 'Above 60'
        END AS Age_Group,
        COUNT(*) AS Total_Customer_Count
    FROM dbo.stg_churn_data
    GROUP BY
        CASE
            WHEN Age < 18 THEN 'Under 18'
            WHEN Age BETWEEN 18 AND 25 THEN '18-25'
            WHEN Age BETWEEN 26 AND 35 THEN '26-35'
            WHEN Age BETWEEN 36 AND 45 THEN '36-45'
            WHEN Age BETWEEN 46 AND 60 THEN '46-60'
            ELSE 'Above 60'
        END
),
ChurnedCustomers AS (
    SELECT
        CASE
            WHEN Age < 18 THEN 'Under 18'
            WHEN Age BETWEEN 18 AND 25 THEN '18-25'
            WHEN Age BETWEEN 26 AND 35 THEN '26-35'
            WHEN Age BETWEEN 36 AND 45 THEN '36-45'
            WHEN Age BETWEEN 46 AND 60 THEN '46-60'
            ELSE 'Above 60'
        END AS Age_Group,
        COUNT(*) AS Churned_Customer_Count
    FROM dbo.stg_churn_data
    WHERE Customer_Status = 'Churned'
    GROUP BY
        CASE
            WHEN Age < 18 THEN 'Under 18'
            WHEN Age BETWEEN 18 AND 25 THEN '18-25'
            WHEN Age BETWEEN 26 AND 35 THEN '26-35'
            WHEN Age BETWEEN 36 AND 45 THEN '36-45'
            WHEN Age BETWEEN 46 AND 60 THEN '46-60'
            ELSE 'Above 60'
        END
)
```

```sql
SELECT
    t.Age_Group,
    t.Total_Customer_Count,
    c.Churned_Customer_Count,
    CAST(c.Churned_Customer_Count AS FLOAT) * 100.0 / t.Total_Customer_Count AS Churn_Rate
FROM
    TotalCustomers t
LEFT JOIN
    ChurnedCustomers c
ON
    t.Age_Group = c.Age_Group
ORDER BY
    t.Age_Group;
```

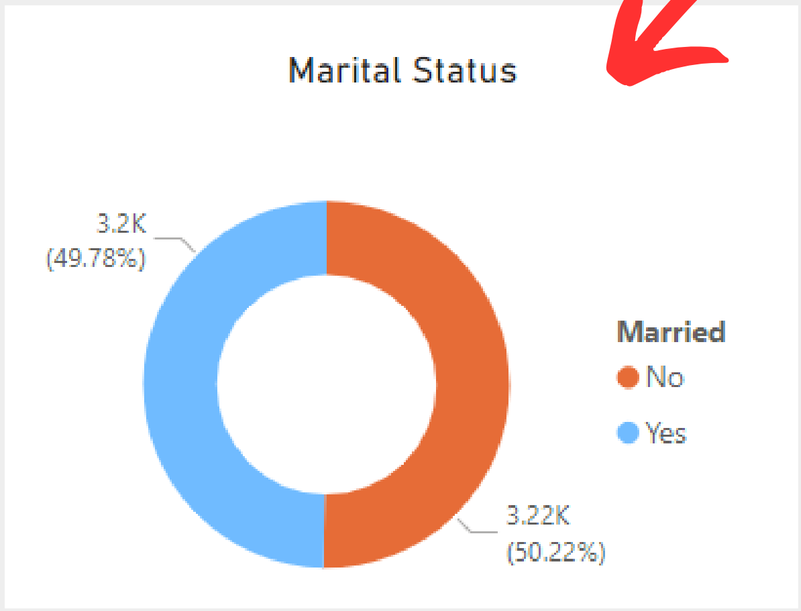
00 %

Results | Messages

	Age_Group	Total_Customer_Count	Churned_Customer_Count	Churn_Rate
1	18-25	700	162	23.1428571428571
2	26-35	1203	286	23.7738985868662
3	36-45	1206	287	23.7976782752902
4	46-60	1774	431	24.2953776775648
5	Above 60	1535	566	36.8729641693811

Demographic Analysis

Marital Status




```sql
-- Marital Status
select Married, count(Married) as total_count,
count(Married) * 100.0 / (select count(*) from stg_churn_data) as marital_status_precentage
from stg_churn_data
group by Married;
```

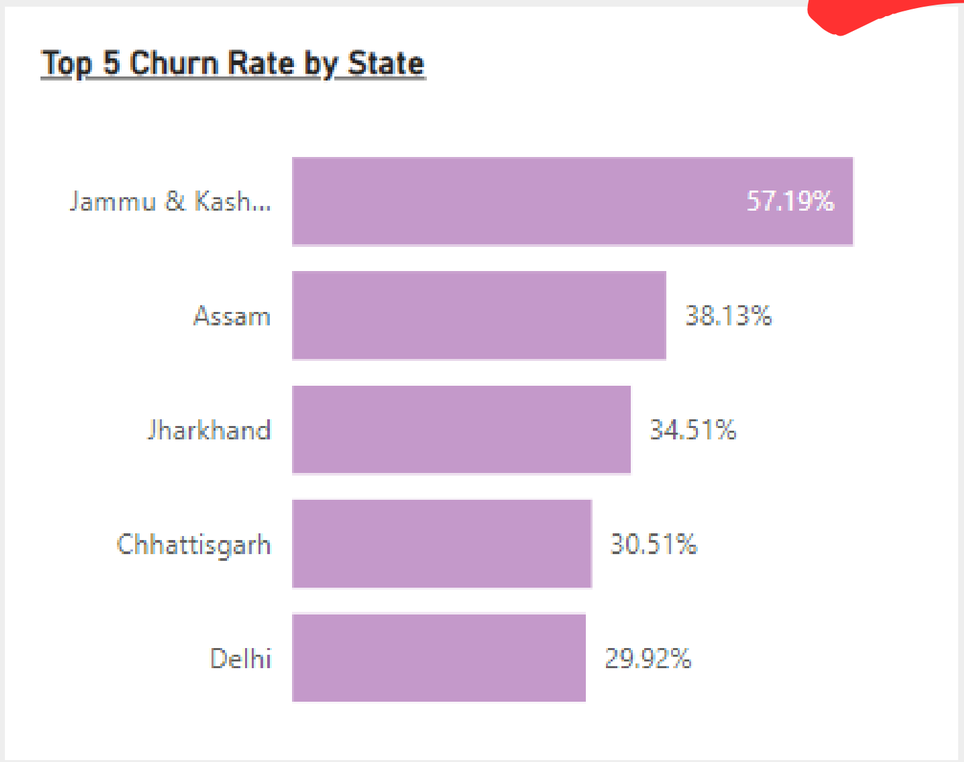
100 %

Results | Messages

	Married	total_count	marital_status_precentage
1	Yes	3195	49.781863508881
2	No	3223	50.218136491118

Demographic Analysis

Top states




```sql
--top churned rate states
WITH TotalCustomers AS (
    SELECT
        State,
        COUNT(Customer_ID) AS Total_Customers
    FROM dbo.prod_Churn_analysis
    GROUP BY State
),
ChurnedCustomers AS (
    SELECT
        State,
        COUNT(Customer_ID) AS Total_Churned
    FROM dbo.prod_Churn_analysis
    WHERE Customer_Status = 'Churned'
    GROUP BY State
)
SELECT
    t.State,
    t.Total_Customers,
    c.Total_Churned,
    c.Total_Churned * 1.0 / t.Total_Customers AS churned_rate
FROM
    TotalCustomers t
LEFT JOIN
    ChurnedCustomers c ON t.State = c.State
ORDER BY
    churned_rate DESC
OFFSET 0 ROWS FETCH NEXT 5 ROWS ONLY;
```

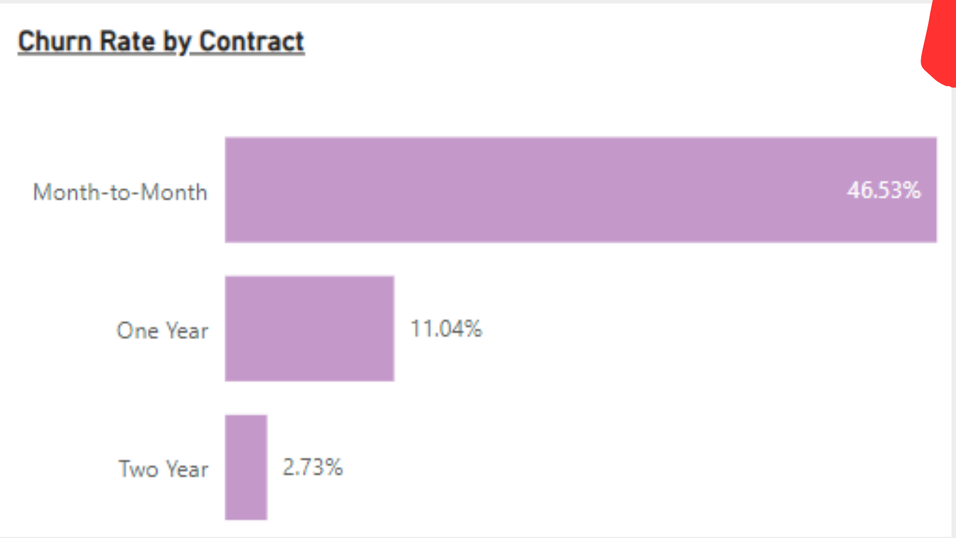
00 %

Results | Messages

	State	Total_Customers	Total_Churned	churned_rate
1	Jammu & Kashmir	320	183	0.571875000000
2	Assam	139	53	0.381294964028
3	Jharkhand	113	39	0.345132743362
4	Chhattisgarh	59	18	0.305084745762
5	Delhi	127	38	0.299212598425

Contract Analysis

Distribution of contracts of customers




```sql
--churn rate by contract
WITH TotalCustomers AS (
    SELECT
        Contract,
        COUNT(Customer_ID) AS Total_Customers
    FROM dbo.prod_Churn_analysis
    GROUP BY Contract
),
ChurnedCustomers AS (
    SELECT
        Contract,
        COUNT(Contract) AS Total_Contract
    FROM dbo.prod_Churn_analysis
    WHERE Customer_Status = 'Churned'
    GROUP BY Contract
)
SELECT
    t.Contract,
    t.Total_Customers,
    c.Total_Contract,
    c.Total_Contract * 100.0 / t.Total_Customers AS churned_rate
FROM
    TotalCustomers t
LEFT JOIN
    ChurnedCustomers c ON t.Contract = c.Contract
ORDER BY
    churned_rate DESC;
```

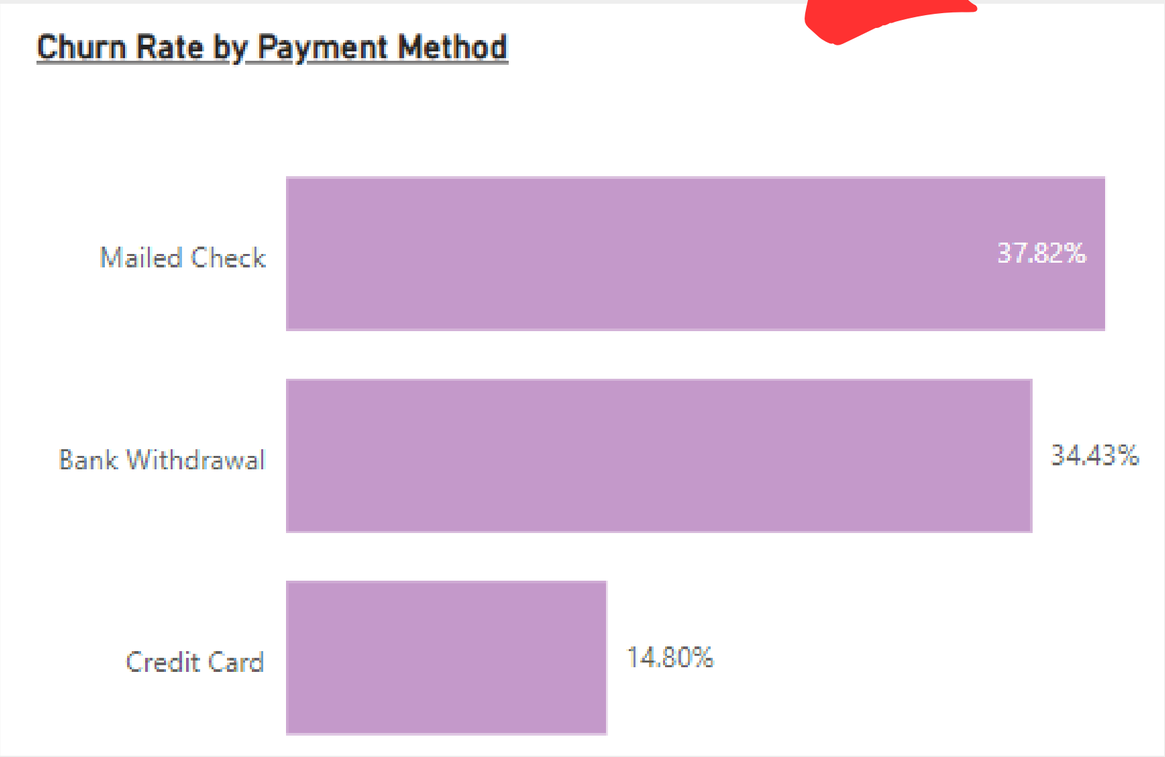
100 %

Results | Messages

	Contract	Total_Customers	Total_Contract	churned_rate
1	Month-to-Month	3286	1529	46.530736457699
2	One Year	1413	156	11.040339702760
3	Two Year	1719	47	2.734147760325

Customer Status

Churn rate by payment method




```sql
--churn rate by payment method
WITH TotalCustomers AS (
    SELECT
        Payment_Method,
        COUNT(Customer_ID) AS Total_Customers
    FROM dbo.prod_Churn_analysis
    GROUP BY Payment_Method
),
ChurnedCustomers AS (
    SELECT
        Payment_Method,
        COUNT(Payment_Method) AS Total_payment
    FROM dbo.prod_Churn_analysis
    WHERE Customer_Status = 'Churned'
    GROUP BY Payment_Method
)
SELECT
    t.Payment_Method,
    t.Total_Customers,
    c.Total_payment,
    c.Total_payment * 100.0 / t.Total_Customers AS churned_rate
FROM
    TotalCustomers t
LEFT JOIN
    ChurnedCustomers c ON t.Payment_Method = c.Payment_Method
ORDER BY
    churned_rate DESC;
```

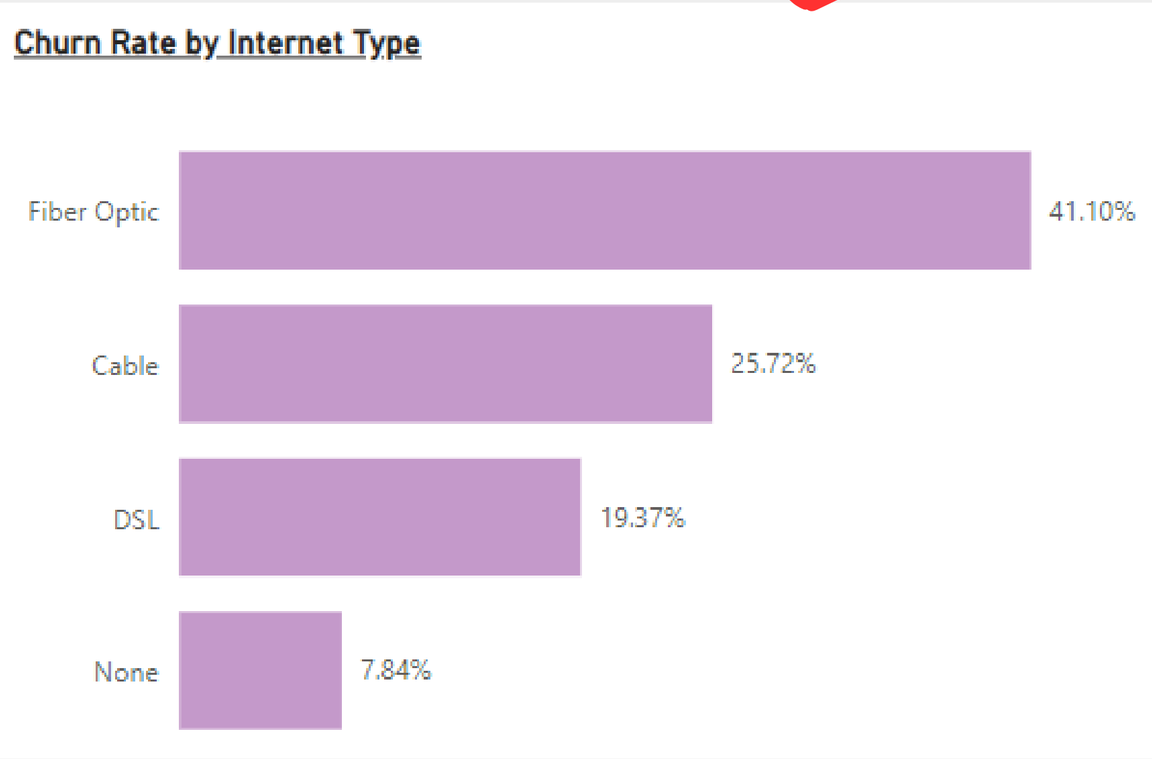
100 %

Results | Messages

	Payment_Method	Total_Customers	Total_payment	churned_rate
1	Mailed Check	349	132	37.822349570200
2	Bank Withdrawal	3575	1231	34.433566433566
3	Credit Card	2494	369	14.795509222133

Customer Status

Churn rate by internet type



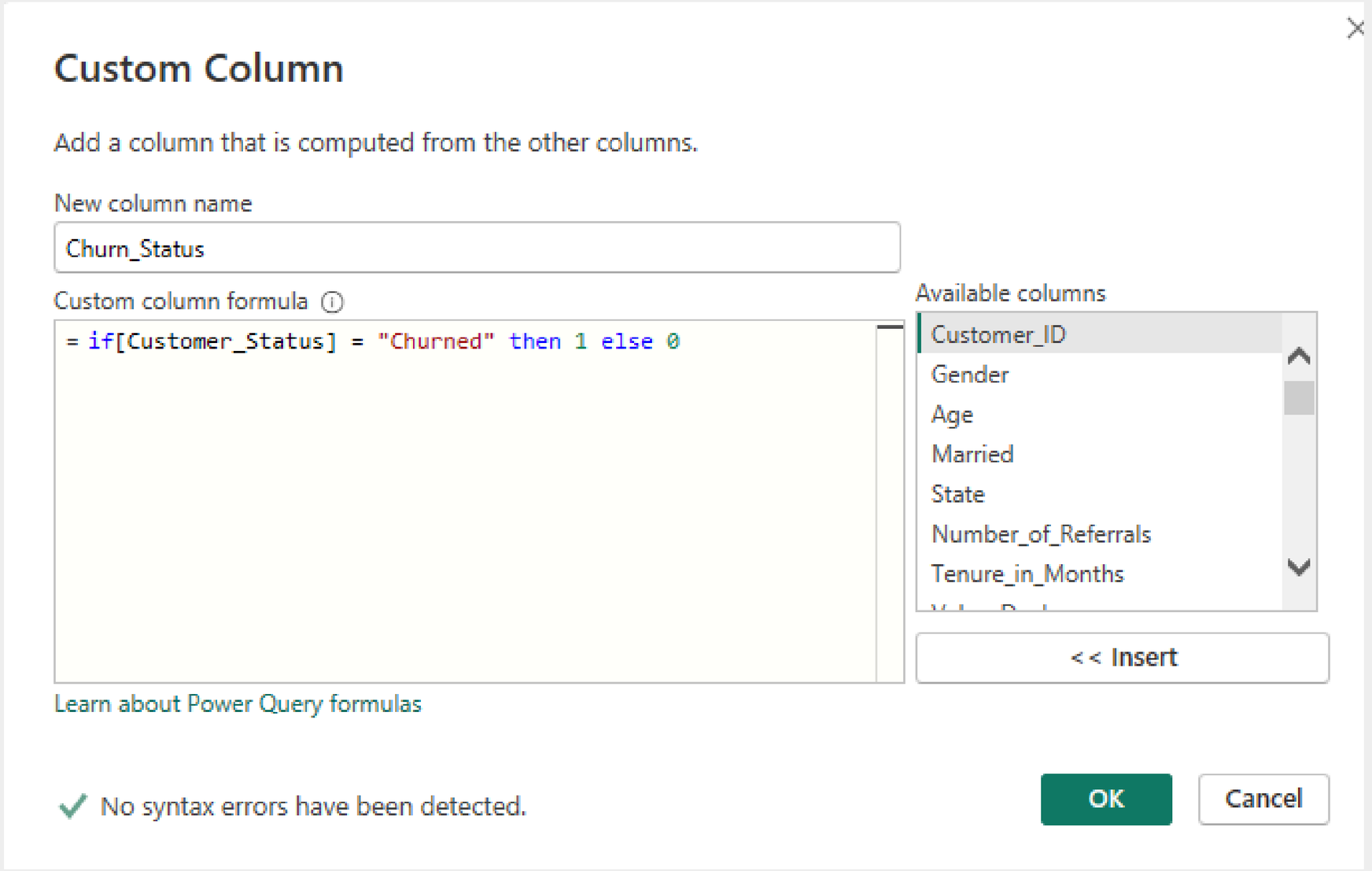

```sql
--churn rate by internet type
WITH TotalCustomers AS (
    SELECT
        Internet_Type,
        COUNT(Customer_ID) AS Total_Customers
    FROM dbo.prod_Churn_analysis
    GROUP BY Internet_Type
),
ChurnedCustomers AS (
    SELECT
        Internet_Type,
        COUNT(Internet_Type) AS Total_payment
    FROM dbo.prod_Churn_analysis
    WHERE Customer_Status = 'Churned'
    GROUP BY Internet_Type
)
SELECT
    t.Internet_Type,
    t.Total_Customers,
    c.Total_payment,
    c.Total_payment * 100.0 / t.Total_Customers AS churned_rate
FROM
    TotalCustomers t
LEFT JOIN
    ChurnedCustomers c ON t.Internet_Type = c.Internet_Type
ORDER BY
    churned_rate DESC;
```

.00 %

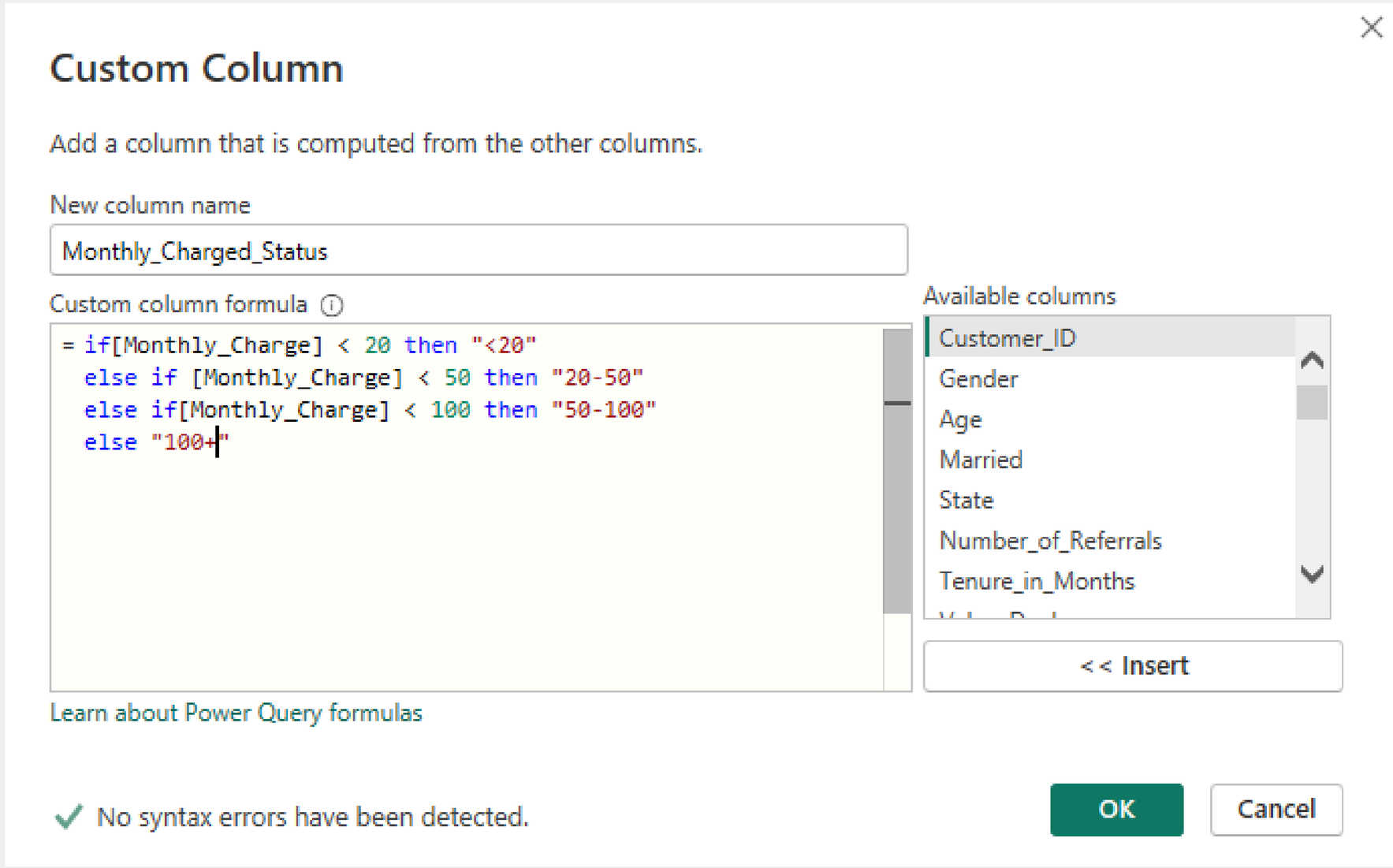
Results | Messages

	Internet_Type	Total_Customers	Total_payment	churned_rate
1	Fiber Optic	2764	1136	41.099855282199
2	Cable	762	196	25.721784776902
3	DSL	1502	291	19.374167776298
4	None	1390	109	7.841726618705

Creating Custom Column

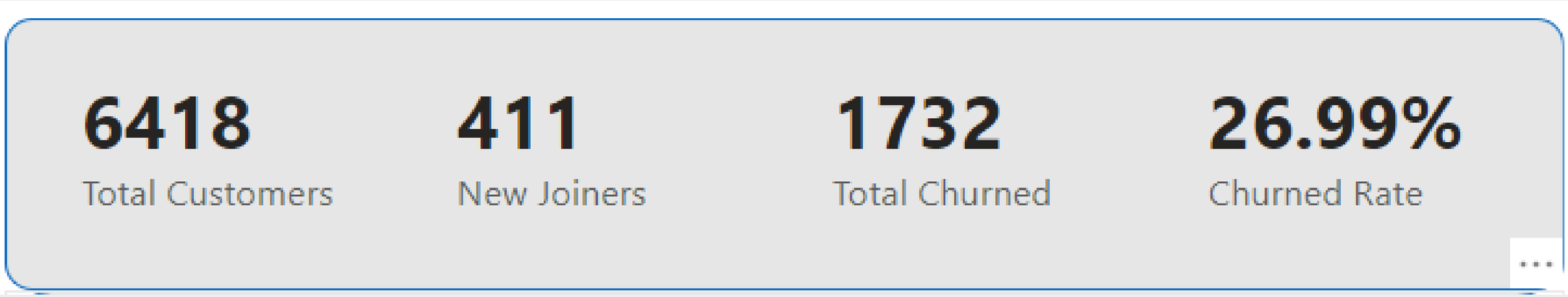


Creating Custom Column



Measures Created

- **Churned Rate** = [Total Churned] / [Total Customers]
- **New Joiners** = CALCULATE(COUNT(prod_Churn_analysis[Customer_ID]), prod_Churn_analysis[Customer_Status] = "Joined")
- **Total Churned** = SUM(prod_Churn_analysis[Churn_Status])
- **Total Customers** = COUNT(prod_Churn_analysis[Customer_ID])



Insights

Overall Churn Rate:
- The overall churn rate is 26.99%, with 1,732 out of 6,418 total customers churning.

Churn by Gender:
- Males make up 35.85% of the churned customers, whereas females account for 64.15%. This indicates that female customers are more likely to churn.

Churn Rate According to Age Range:
- The highest churn rate is observed in the "60+" age range, with a churn rate of 36.87%.
- The "18-25" age range has the lowest churn rate at 23.1%.
- Churn rates for the other age groups ("26-35", "36-45", "46-60") are fairly consistent, hovering around 23-24%.

Top 5 Churn Rate by State:
- The highest churn rate is in Jammu & Kashmir (57.19%), followed by Assam (38.13%), Jharkhand (34.51%), Chhattisgarh (30.51%), and Delhi (29.92%).

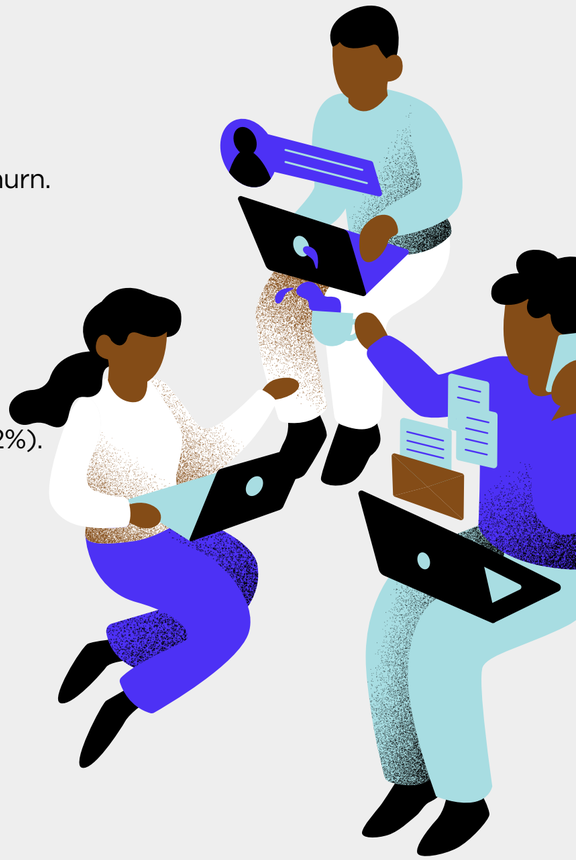
Churn Rate by Internet Type:
- Fiber Optic users have the highest churn rate at 41.10%.
- Cable users have a churn rate of 25.72%, DSL users 19.37%, and those with no internet service have the lowest churn rate at 7.84%.

Churn Rate by Payment Method:
- The highest churn rate is among customers using Mailed Check (37.82%), followed by Bank Withdrawal (34.43%).
- Credit Card users have the lowest churn rate at 14.80%.

Churn Rate by Contract:
- Month-to-Month contract users have the highest churn rate at 46.53%.
- One Year contract users have a churn rate of 11.04%, and Two Year contract users have the lowest churn rate at 2.73%.

Total Customers and Churn Rate by Tenure Group:
- Customers with tenure less than 6 months have a churn rate of 26.37%.
- The churn rate peaks for customers with 24+ months of tenure at 27.60%.

Total Churn by Churn Category:
- The top churn reason is 'Competitor' with 761 customers, followed by 'Attitude' (301), 'Dissatisfaction' (300), 'Price' (196), and 'Other' (174).



Recommendation

Targeted Retention Strategies:
- Gender-Based Campaigns: Develop targeted retention campaigns for male customers who are more likely to churn.
- Senior Customer Programs: Create programs specifically designed for customers aged 60 and above to reduce churn in this age group.

Regional Focus:
- High Churn States: Implement localized strategies in states with high churn rates such as Jammu & Kashmir, Assam, and Jharkhand.

Service Enhancement:
- Improve Fiber Optic Services: Since Fiber Optic users have the highest churn rate, investigate and address the reasons behind their dissatisfaction.
- Incentivize Service Adoption: Encourage customers to adopt services like Device Protection Plans and Internet Services which show a correlation with reduced churn.

Payment Method Optimization:
- Simplify Payment Processes: Address issues with Mailed Checks and Bank Withdrawals, and promote automated and digital payment methods.

Contractual Adjustments:
- Longer Contracts: Promote longer-term contracts (One Year, Two Year) which have lower churn rates through incentives and discounts.

Tenure-Based Strategies:
- New Customer Onboarding: Enhance onboarding experiences for new customers (tenure < 6 months) to build early loyalty.
- Loyalty Programs: Develop loyalty programs for long-term customers (tenure 24+ months) to reward and retain them.

Address Churn Categories:
- Competitive Analysis: Conduct a thorough analysis of competitor offerings and adjust services and pricing to remain competitive.
- Customer Feedback: Regularly collect and act on customer feedback to address issues related to 'Attitude' and 'Dissatisfaction'.

Service Utilization:
- Promote Service Benefits: Educate customers on the benefits of using services like Online Security, Multiple Lines, and Streaming Services to reduce churn.

BIDHAN PANT

THANK YOU FOR WATCHING!

Reach out for any questions.

WEBSITE
https://www.datascienceportfol.io/encrypted_666

EMAIL
bidpant@gmail.com