SQL TIPS AND TRICKS

PART 31

Customer Retention and Customer Churn Analysis

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Sample Example-

customer_id	transaction_date
1	2023-01-15
1	2023-02-10
1	2023-03-05
2	2023-01-20
2	2023-02-15
3	2023-01-25
3	2023-02-20
3	2023-04-10
4	2023-02-05
4	2023-03-07
5	2023-03-10
5	2023-04-12
6	2023-01-15
6	2023-03-18
7	2023-02-25
7	2023-04-05
8	2023-01-30
8	2023-03-01
9	2023-02-12
10	2023-01-18
10	2023-02-28
11	2023-03-22

RETENTION

Retention analysis involves calculating the percentage of customers who continue to use your service over a given period.

Steps:

1. Define the Time Periods:
Determine the time intervals for your analysis (e.g., monthly, weekly).

2. Identify Unique Customers:
Extract the list of unique customers for each time period.

3. Calculate Retention Rate:
Compare the list of customers in each period to the previous period to see who has stayed.

```sql
WITH monthly_customers AS ( -- Extract unique customers per month
    SELECT customer_id, DATE_FORMAT(transaction_date, '%Y-%m-01') AS month
    FROM cus_transactions
    GROUP BY customer_id, month
),
retention AS ( -- Calculate retention
    SELECT mc1.month AS month,
        COUNT(DISTINCT mc1.customer_id) AS total_customers,
        COUNT(DISTINCT mc2.customer_id) AS retained_customers
    FROM monthly_customers mc1
    LEFT JOIN monthly_customers mc2
    ON mc1.customer_id = mc2.customer_id
        AND mc2.month = DATE_FORMAT(DATE_ADD(mc1.month, INTERVAL 1 MONTH), '%Y-%m-01')
    GROUP BY mc1.month
)
-- Select retention data
SELECT month, total_customers, retained_customers,
    (retained_customers / total_customers) * 100 AS retention_rate
FROM retention
ORDER BY month;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

month	total_customers	retained_customers	retention_rate
2023-01-01	6	4	66.6667
2023-02-01	7	2	28.5714
2023-03-01	6	1	16.6667
2023-04-01	3	0	0.0000

CHURN ANALYSIS

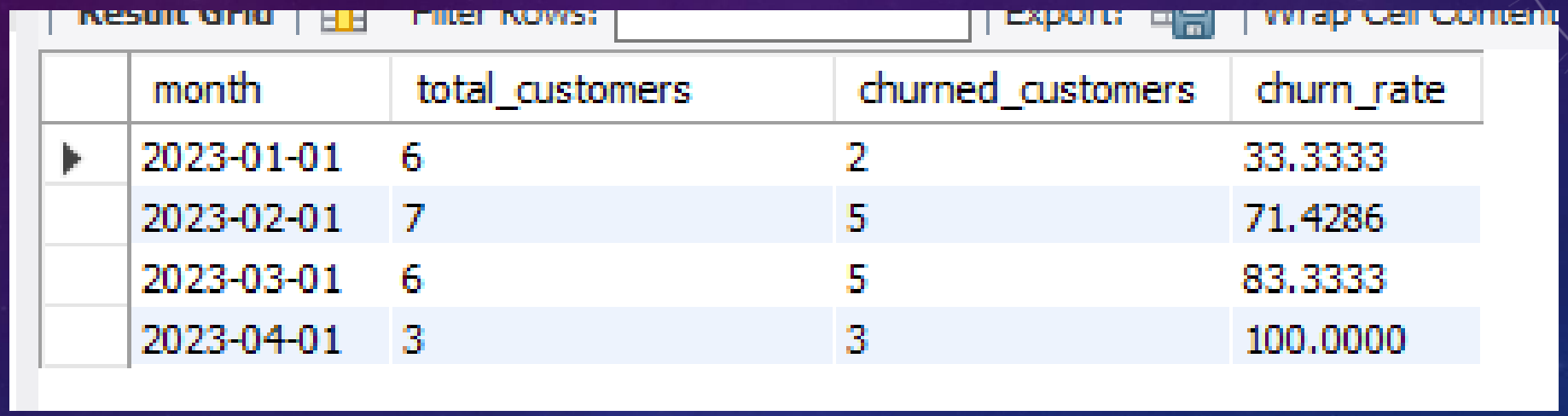
Churn analysis involves identifying the percentage of customers who stop using your service over a specified period.

Steps:
Define the Time Periods:
Similar to retention, determine the time intervals for your analysis.

2. Identify Churned Customers:
Identify customers who were active in one period but not in the subsequent period.

3. Calculate Churn Rate:
The churn rate can be calculated by comparing the number of churned customers to the total number of customers in the previous period.

```sql
WITH monthly_customers AS ( --  Extract unique customers per month
    SELECT customer_id, DATE_FORMAT(transaction_date, '%Y-%m-01') AS month
    FROM cus_transactions
    GROUP BY customer_id, month
),
churn AS ( -- Calculate churn
    SELECT mc1.month AS month,
        COUNT(DISTINCT mc1.customer_id) AS total_customers,
        COUNT(DISTINCT mc1.customer_id) - COUNT(DISTINCT mc2.customer_id) AS churned_customers
    FROM monthly_customers mc1
    LEFT JOIN monthly_customers mc2
    ON mc1.customer_id = mc2.customer_id
        AND mc2.month = DATE_FORMAT(DATE_ADD(mc1.month, INTERVAL 1 MONTH), '%Y-%m-01')
    GROUP BY mc1.month
)
--  Select churn data
SELECT month, total_customers, churned_customers,
    (churned_customers / total_customers) * 100 AS churn_rate
FROM churn
ORDER BY month;
```



month	total_customers	churned_customers	churn_rate
2023-01-01	6	2	33.3333
2023-02-01	7	5	71.4286
2023-03-01	6	5	83.3333
2023-04-01	3	3	100.0000

THANK YOU

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