Project8 Problem Solving SQL with Various Company Cases

Case 1 – Technology Company Case: Finding the Most Popular Client_Id Among Users Using Video and Voice Calls

Task

Find and select the most popular client_id based on a count of the number of users who have at least 50% of their events from the following list:

- video call received
- video call sent
- voice call received
- voice call sent

Data

Table name = fact_events

id:	int
time_id:	datetime
user_id:	varchar
customer_id:	varchar
client_id:	varchar
event_type:	varchar
event_id:	int

Sample data for table fact_events:

id	time_id	user_id	customer_id	client_id	event_type	event_id
1	2020-02-28	3668-QPYBK	Sendit	desktop	message sent	3
2	2020-02-28	7892-POOKP	Connectix	mobile	file received	2
3	2020-04-03	9763-GRSKD	Zoomit	desktop	video call received	7
4	2020-04-02	9763-GRSKD	Connectix	desktop	video call received	7
5	2020-02-06	9237-HQITU	Sendit	desktop	video call received	7

Solution

MS SQL

```sql
with user_criteria_percentage as (
select
    user_id,
    100 * sum (CASE WHEN event_type = 'video call received'
                or event_type ='video call sent'
                or event_type ='voice call received'
                or event_type ='voice call sent'
        THEN 1
        ELSE 0
    END )/count(*) as criteria_percentage
from fact_events
group by user_id)

select client_id,
        count(client_id)
from fact_events
where user_id in (select user_id from user_criteria_percentage
                    where criteria_percentage >= 50)
group by client_id
```

100 %

Results | Messages

	client_id	(No column name)
1	desktop	11
2	mobile	3

- first thing to do in this solution is to get the percentage for each user_id. I'm using count with conditional, in query the method is using SUM function with CASE WHEN with BOOLEAN result. And I store this in CTE.
- Next, after we got the percentage, we can filter user_id with WHERE clause. Store this in subquery
- Last, I take the client_id and count of it and filter it by subquery we created on previous step

Case 2 – Online Retailing Company Case: Monthly Percentage Difference

Task

Given a table of purchases by date, calculate the month-over-month percentage change in revenue. The output should include the year-month date (YYYY-MM) and percentage change, rounded to the 2nd decimal point, and sorted from the beginning of the year to the end of the year.

The percentage change column will be populated from the 2nd month forward and can be calculated as ((this month's revenue - last month's revenue) / last month's revenue) *100.

Data

Solution

Reference Code

Case 1 : SS_2029

Case 2 :

Case 3 :

Case 4 :

Case 5 :