SUBSCRIPTION UP-SELL POTENTIAL

JAN 2024

Case, CTE, Group Concat& Aggregation

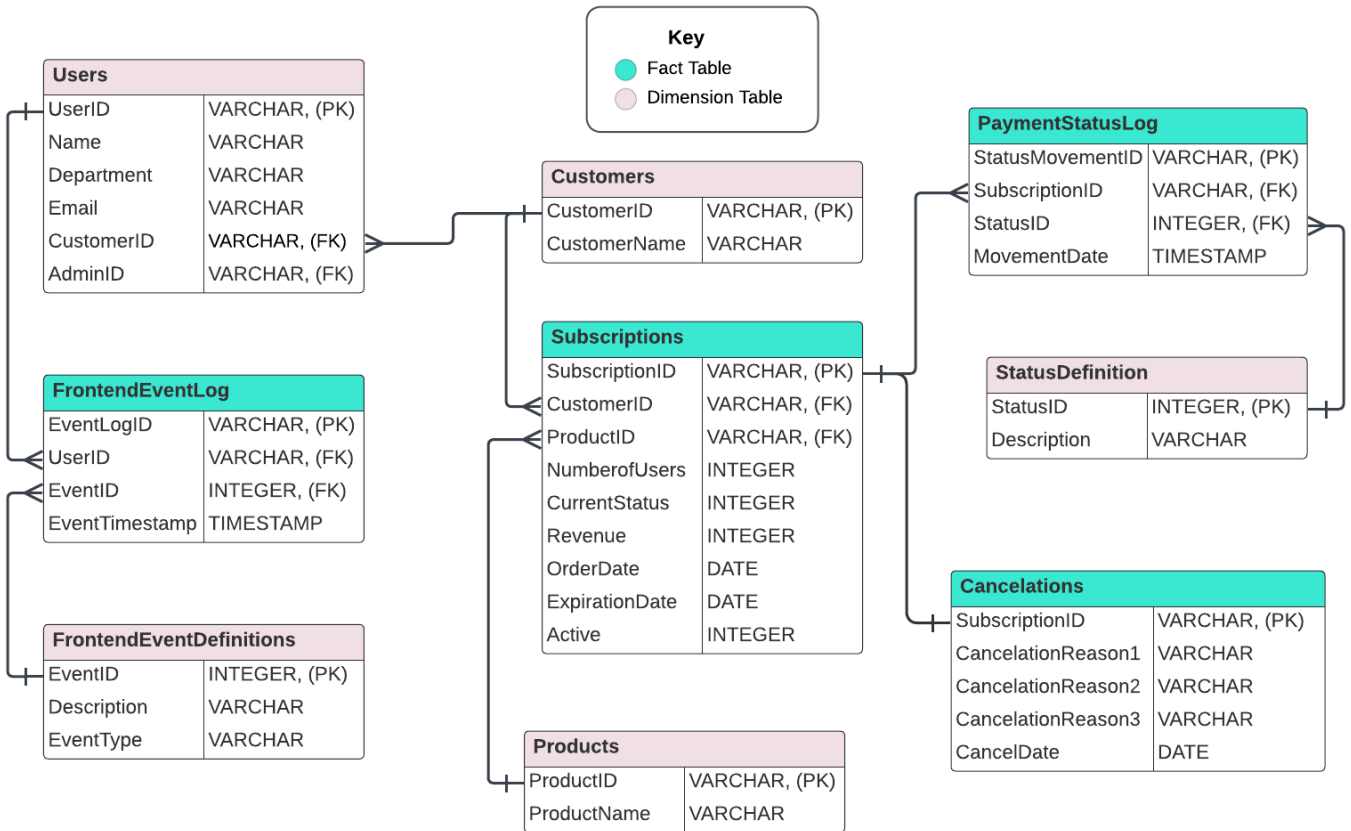**LinkedIn Coding Challenge**

Intermediate

A B2B product team is launching a new offering that will increase a client's annual fee by adding it on top of a current subscription. The sales team decided to test this product offering on clients with a large user scope to get feedback and maximize the revenue from up-selling before offering it to their wider client base,

Create a report on the up-sell potential of each client using subscription data and summarize the findings for the sales team.

INPUT FORMAT

The main source table is **SUBSCRIPTIONS.**

Main Data Model

Key
- Fact Table
- Dimension Table

Users

UserID	VARCHAR, (PK)
Name	VARCHAR
Department	VARCHAR
Email	VARCHAR
CustomerID	VARCHAR, (FK)
AdminID	VARCHAR, (FK)

Customers

CustomerID	VARCHAR, (PK)
CustomerName	VARCHAR

PaymentStatusLog

StatusMovementID	VARCHAR, (PK)
SubscriptionID	VARCHAR, (FK)
StatusID	INTEGER, (FK)
MovementDate	TIMESTAMP

FrontendEventLog

EventLogID	VARCHAR, (PK)
UserID	VARCHAR, (FK)
EventID	INTEGER, (FK)
EventTimestamp	TIMESTAMP

Subscriptions

SubscriptionID	VARCHAR, (PK)
CustomerID	VARCHAR, (FK)
ProductID	VARCHAR, (FK)
NumberofUsers	INTEGER
CurrentStatus	INTEGER
Revenue	INTEGER
OrderDate	DATE
ExpirationDate	DATE
Active	INTEGER

StatusDefinition

StatusID	INTEGER, (PK)
Description	VARCHAR

Cancelations

SubscriptionID	VARCHAR, (PK)
CancelationReason1	VARCHAR
CancelationReason2	VARCHAR
CancelationReason3	VARCHAR
CancelDate	DATE

FrontendEventDefinitions

EventID	INTEGER, (PK)
Description	VARCHAR
EventType	VARCHAR

Products

ProductID	VARCHAR, (PK)
ProductName	VARCHAR

CONSTRAINTS

The conditions for an up-sell opportunity are that the client either has at least 5,000 registered users or has only one product subscription. The high user volume shows potential for high revenue and the clients with a single subscription are more likely to layer on another one. The results of this queried condition should be summarized in a column named *UPSELL_OPPORTUNITY*.

CODE SOLUTION

```
WITH report AS (


SELECT

subs.CUSTOMERID,

COUNT(subs.PRODUCTID) AS num_products,

SUM(subs.NUMBEROFUSERS) AS total_users,

CASE

    WHEN count(subs.PRODUCTID) = 1

    OR SUM(subs.NUMBEROFUSERS) >= 5000 THEN 1

    ELSE 0

END AS upsell_opportunity

FROM subscriptions subs

GROUP BY subs.CUSTOMERID

)


SELECT CONCAT(

'The customer IDs for the clients who met the conditions to test the new product
offering are as follows: ',

GROUP_CONCAT(report.CUSTOMERID))

AS Summary

FROM report

WHERE report.UPSELL_OPPORTUNITY = 1
```

SOLUTION PROCESS

- CTE function: This CTE labeled **REPORT** contains the summary table which queries the numbers of products and user volume for each while aggregating the sum per client using the SELECT AND GROUP BY functions on the ***customerid*** field.
- Case function: This function serves to define each ***upsell_opportunity*** in boolean values, where 1 signifies that the conditions for the product test have been met
- Outer Select function: Concatenates a string of text used as the summary sentences with values from the **REPORT** CTE. The GROUP_CONCAT returns the records of a queried column into a single row or output line. The purpose of this overall function is to present a high level overview of the report's findings in layman's terms.

OUTPUT

CUSTOMERID	NUM_PRODUCTS	TOTAL_USERS	UPSELL_OPPORTUNITY
11627	2	1300	0
18226	2	2000	0
23561	2	1700	0
28333	2	1050	0
29335	1	50	1
33222	2	325	0
33663	2	1750	0
33667	2	1600	0
38822	2	1000	0
44538	2	3000	0
55533	2	17000	1
76338	2	1700	0
82772	2	5300	1
93888	1	5000	1
99402	2	2000	0

| SUMMARY |

| The customer IDs for the clients who met the conditions to test the new product offering are as follows: 29335,55533,82772,93888 |