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## Supercloud Customer (Microsoft)

### QUESTION

A Microsoft Azure Supercloud customer is a company which buys at least 1 product from each product category.

Write a query to report the company ID which is a Supercloud customer.

As of 5 Dec 2022, data in the `customer_contracts` and `products` tables were updated.

`customer_contracts` Table:

Column Name	Type
customer_id	integer
product_id	integer
amount	integer

`customer_contracts` Example Input:

customer_id	product_id	amount
1	1	1000
1	3	2000
1	5	1500
2	2	3000
2	6	2000

`products` Table:

Column Name	Type
product_id	integer
product_category	string
product_name	string

`products` Example Input:

product_id	product_category	product_name
1	Analytics	Azure Databricks
2	Analytics	Azure Stream Analytics
4	Containers	Azure Kubernetes Service
5	Containers	Azure Service Fabric
6	Compute	Virtual Machines
7	Compute	Azure Functions

### Step 1: Identify the problem of the case

We take a step back to determine the essential elements of the job resolution before writing a query that reports Supercloud client company ID. Here's how we view it: We require product catalog information in addition to contract data, hence we must combine the tables. Customers who have purchased from all product categories (for example, Supercloud customers) should be identified. Client ID for Supercloud should be exported.

Column Name	Type
customer_id	integer

### Step 2 : Analyze and solve problems

Join the two tables with `INNER JOIN`

```
SELECT *
FROM customer_contracts
JOIN products
ON customer_contracts.product_id = products.product_id
```

To count the number of products of each product category, use the `COUNT()` function.

```
SELECT customer_id, customer_contracts.product_id, product_category, product_name
, COUNT(product_name) OVER(
    PARTITION BY customer_id
    ORDER BY product_category
)
FROM customer_contracts
JOIN products
ON customer_contracts.product_id = products.product_id
```

From the view, we utilize the window function in conjunction with the `DENSE_RANK()` method to determine which client has used all three goods.

```
SELECT customer_id, product_category, product_name
, DENSE_RANK() OVER(PARTITION BY customer_id ORDER BY product_category)
FROM (
    SELECT customer_id, customer_contracts.product_id, product_category, product_name
    , COUNT(product_name) OVER(PARTITION BY customer_id ORDER BY product_category)
    FROM customer_contracts
    JOIN products
    ON customer_contracts.product_id = products.product_id
) sub
```

Finally, we select clients who utilize three different sorts of items.

```
WITH tbl AS (SELECT customer_id, product_category, product_name
, DENSE_RANK() OVER(
    PARTITION BY customer_id
    ORDER BY product_category) num_category
FROM (
    SELECT customer_id, customer_contracts.product_id, product_category, product_name
    , COUNT(product_name) OVER(
        PARTITION BY customer_id
        ORDER BY product_category)
    FROM customer_contracts
    JOIN products
    ON customer_contracts.product_id = products.product_id
) sub)

SELECT customer_id
FROM tbl
WHERE num_category = (SELECT COUNT(DISTINCT product_category)
FROM products)
```

we have the output:

customer\_id

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Other solutions

```
SELECT customer_id
FROM (
    SELECT customers.customer_id
    FROM customer_contracts AS customers
    LEFT JOIN products
        ON customers.product_id = products.product_id
    GROUP BY customers.customer_id
    HAVING COUNT(DISTINCT products.product_category) = 3
) AS supercloud
ORDER BY customer_id;
```