**SQL Case Study [ Data Bank]**



**INTRODUCTION:**

Neo-Banks are a recent development in the financial sector; they are new banks that solely operate online.

I believed that there should be some kind of connection between the digital world, these new age institutions, and cryptocurrencies.

So I made the decision to start a new project called Data Bank!

Customers of Data Bank receive cloud data storage allotments that are directly related to the balances in their accounts. The Data Bank team needs your assistance since this business model comes with some intriguing drawbacks.

This case study focuses on metrics calculations, business growth, and smart data analysis to assist the company more accurately estimate and plan for the future.

**SCHEMA USED**

|  |  |
| --- | --- |
| regions | |
| region\_id | int |
| region\_name | varchar |

|  |  |  |
| --- | --- | --- |
| customer\_transactions | | |
| customer\_id | int |
| txn\_date | | date |
| txn\_type | | varchar |
| txn\_amount | | int |

|  |  |
| --- | --- |
| customer\_nodes | |
| customer\_id | int |
| region\_id | int |
| node\_id | int |
| start\_date | date |
| end\_date | date |

**CASE STUDY QUESTIONS**

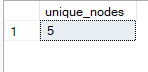
1. How many different nodes make up the Data Bank network?
2. How many nodes are there in each region?
3. How many customers are divided among the regions?
4. Determine the total amount of transactions for each region name.
5. How long does it take on an average to move clients to a new node?
6. What is the unique count and total amount for each transaction type?
7. What is the average number and size of past deposits across all customers?
8. For each month - how many Data Bank customers make more than 1 deposit and at least either 1 purchase or 1 withdrawal in a single month?

Q1 - How many different nodes make up the Data Bank network?

SOLUTION

SELECT count(DISTINCT node\_id) AS unique\_nodes

FROM customer\_nodes;



Q2- How many nodes are there in each region?

SELECT

customer\_nodes.region\_id,

regions.region\_name,

COUNT(node\_id) AS node\_count

FROM

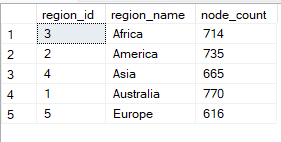
customer\_nodes

INNER JOIN

regions ON customer\_nodes.region\_id = regions.region\_id

GROUP BY

customer\_nodes.region\_id, regions.region\_name;



Q3-How many customers are divided among the regions?

SOLUTION

SELECT

customer\_nodes.region\_id,

regions.region\_name,

COUNT(customer\_nodes.node\_id) AS node\_count

FROM

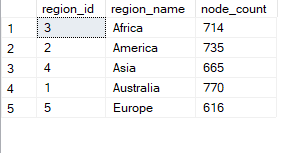
customer\_nodes

INNER JOIN

regions ON customer\_nodes.region\_id = regions.region\_id

GROUP BY

customer\_nodes.region\_id, regions.region\_name;



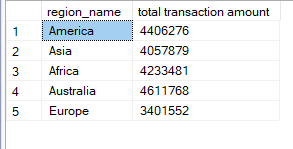
Q4-Determine the total amount of transactions for each region name.

SOLUTION

select region\_name, sum(txn\_amount) as 'total transaction amount' from regions,customer\_nodes,customer\_transactions

where regions.region\_id=customer\_nodes.region\_id and customer\_nodes.customer\_id=customer\_transactions.customer\_id

group by region\_name;



Q5-How long does it take on an average to move clients to a new node?

SOLUTION

SELECT round(avg(datediff(end\_date, start\_date)), 2) AS avg\_days

FROM customer\_nodes

WHERE end\_date!='9999-12-31';



Q6- What is the unique count and total amount for each transaction type?

SOLUTION

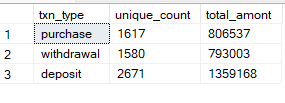
SELECT txn\_type,

count(\*) AS unique\_count,

sum(txn\_amount) AS total\_amont

FROM customer\_transactions

GROUP BY txn\_type;



Q7-What is the average number and size of past deposits across all customers?

SOLUTION

SELECT ROUND(count(customer\_id)/

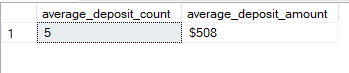
(SELECT count(DISTINCT customer\_id)

FROM customer\_transactions),2) AS average\_deposit\_count,

concat('$', round(avg(txn\_amount),2)) AS average\_deposit\_amount

FROM customer\_transactions

WHERE txn\_type ='deposit';



Q8-For each month - how many Data Bank customers make more than 1 deposit and at least either 1 purchase or 1 withdrawal in a single month?

SOLUTION

WITH transaction\_count\_per\_month\_cte AS

(SELECT customer\_id,

month(txn\_date) AS txn\_month,

SUM(CASE WHEN txn\_type = 'deposit' THEN 1 ELSE 0 END) AS deposit\_count,

SUM(CASE WHEN txn\_type = 'withdrawal' THEN 1 ELSE 0 END) AS withdrawal\_count,

SUM(CASE WHEN txn\_type = 'purchase' THEN 1 ELSE 0 END) AS purchase\_count

FROM customer\_transactions

GROUP BY customer\_id, month(txn\_date))

SELECT txn\_month,

COUNT(DISTINCT customer\_id) as customer\_count

FROM transaction\_count\_per\_month\_cte

WHERE deposit\_count > 1

AND (purchase\_count = 1 OR withdrawal\_count = 1)

GROUP BY txn\_month;

