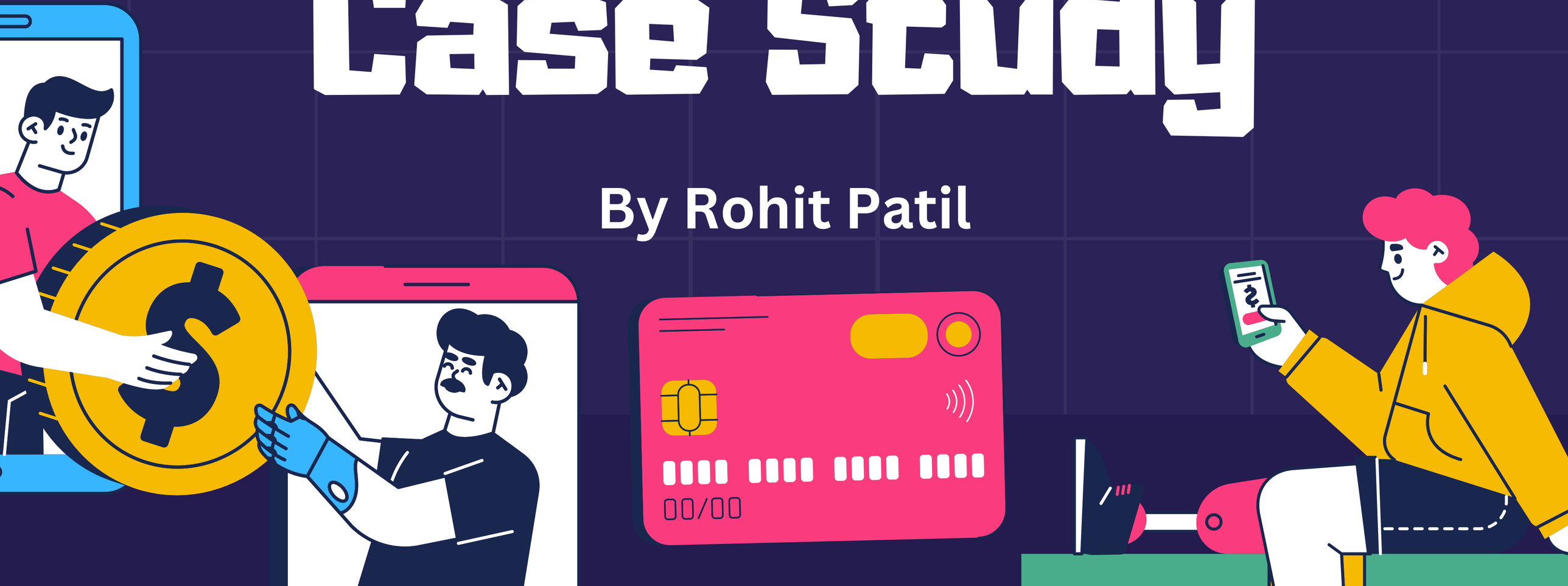
Data Bank Case Study

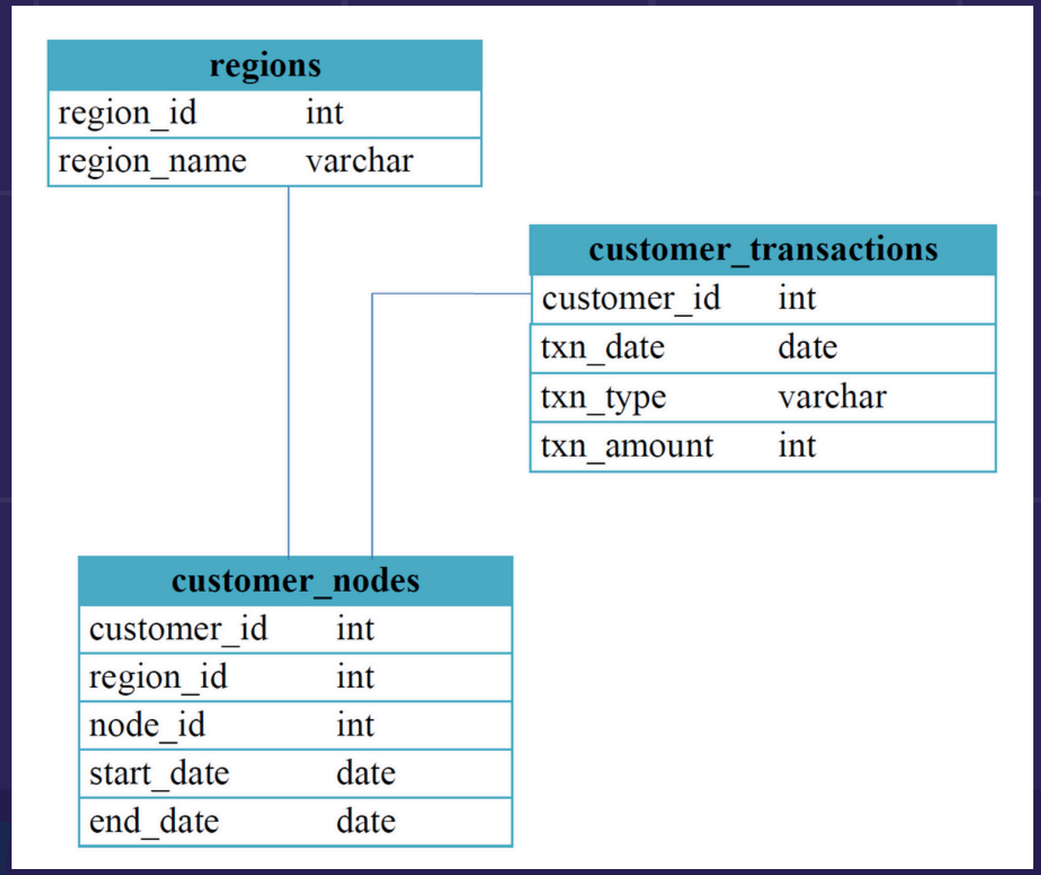
By Rohit Patil



Introduction

- **Venture:** Data Bank
- **Concept:** Data Bank links customers' account balances to cloud data storage, creating a connection between digital banking, data, and cryptocurrencies.
- **Goal:** Analyze challenges related to metrics calculations, business growth, and smart data analysis to improve forecasting and strategic planning.

Schema



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

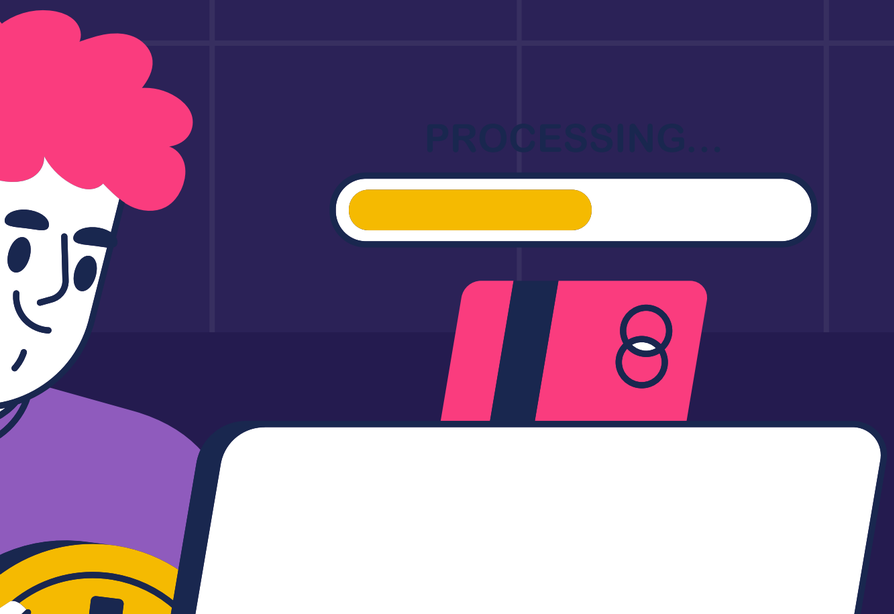
Questions

- Question 1: How many different nodes make up the Data Bank network?

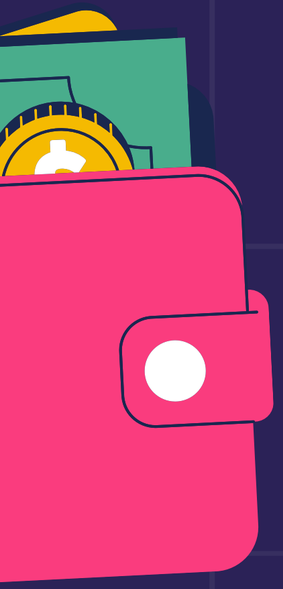
```
13
14  Select count(distinct node_id) as unique_nodes from customer_nodes
15
```

Results | Messages

	unique_nodes
1	5



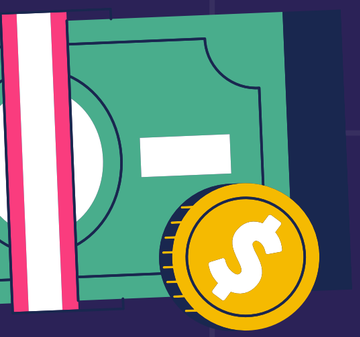
Question 2: How many nodes are there in each region?



```
21  Select
22  r.region_name,count(cn.node_id) as Number_of_nodes
23  from customer_nodes as cn join regions as r
24  on cn.region_id = r.region_id
25  group by r.region_name
```

	region_name	Number_of_nodes
1	Africa	714
2	America	735
3	Asia	665
4	Australia	770
5	Europe	616

Question 3: How many customers are divided among the regions?




```
Select
r.region_name,count(distinct cn.customer_id) as Number_of_Customers
from customer_nodes as cn join regions as r
on cn.region_id = r.region_id
group by r.region_name
```

Results | Messages

	region_name	Number_of_Customers
1	Africa	102
2	America	105
3	Asia	95
4	Australia	110
5	Europe	88

Question 4: Determine the total amount of transactions for each region name.

```
Select
r.region_name,sum(ct.txn_amount) as Total_amount_transactions
from regions as r
join customer_nodes as cn
on r.region_id = cn.region_id
join customer_transactions as ct
on cn.customer_id = ct.customer_id
group by r.region_name
```

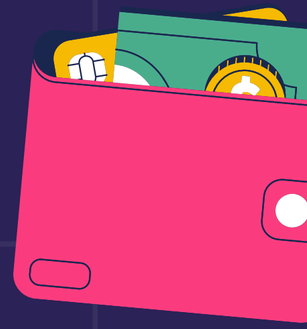
	region_name	Total_amount_transactions
1	America	4406276
2	Europe	3401552
3	Africa	4233481
4	Asia	4057879
5	Australia	4611768

Question 5: How long does it take on an average to move clients to a new node?

```
Select avg(datediff(DAY,start_date,end_date)) as avg_days from customer_nodes where end_date != '9999-12-31'
```

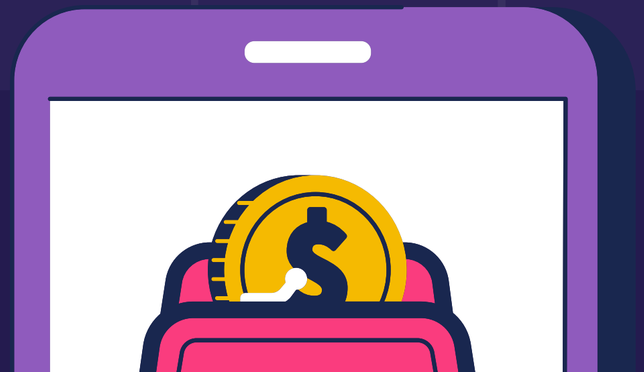
	avg_days
1	14

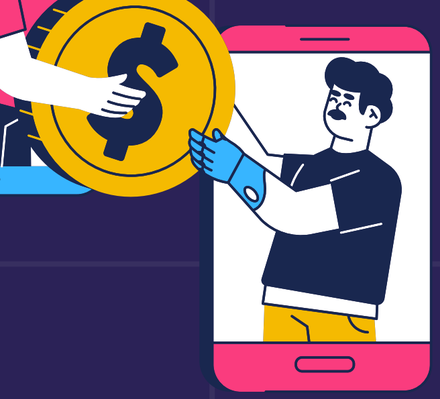
Question 6: What is the count and total amount for each transaction type?



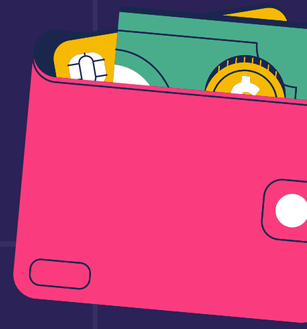
```
Select txn_type, count(*) as count_tran,sum(txn_amount) as total_amount
from customer_transactions
group by txn_type
```

	txn_type	count_tran	total_amount
1	withdrawal	1580	793003
2	deposit	2671	1359168
3	purchase	1617	806537





Question 6: 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?



```sql
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;
```

Results | Messages

	txn_month	customer_count
1	1	115
2	2	108
3	3	113
4	4	50


Thank You
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