Question 4: **4. Customer Lifetime Value (CLV) Estimation**

**Scenario:** Marketing wants to estimate CLV based on account tenure and transaction volume (simplified model).

**Task:** For each customer, assuming the profit\_per\_transaction is 0.1% of the transaction value, calculate:

* Account tenure (months since signup)
* Total transactions
* Estimated CLV (Assume: CLV = (total\_transactions / tenure) \* 12 \* avg\_profit\_per\_transaction)
* Order by estimated CLV from highest to lowest

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Question 4: Customer Lifetime Value

Estimates CLV based on transaction history

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-- CTE to calculate basic customer statistics

WITH customer\_stats AS (

SELECT

u.id AS customer\_id,

CONCAT(u.first\_name, ' ', u.last\_name) AS name,

-- Calculate customer tenure in months (current date minus join date)

TIMESTAMPDIFF(MONTH, u.date\_joined, CURRENT\_DATE()) AS tenure\_months,

-- Count all successful transactions for each customer

COUNT(ss.id) AS total\_transactions,

-- Calculate average transaction amount (converted from cents to dollars)

AVG(ss.confirmed\_amount)/100 AS avg\_transaction\_amount

FROM

users\_customuser u

-- Left join to include customers even if they have no transactions

LEFT JOIN

savings\_savingsaccount ss ON u.id = ss.owner\_id

-- Filter for successful transactions with positive amounts

AND ss.transaction\_status = 'success'

AND ss.confirmed\_amount > 0

WHERE

u.is\_active = 1 -- Only active customers

GROUP BY

u.id, u.first\_name, u.last\_name, u.date\_joined

)

-- Main query to calculate estimated Customer Lifetime Value (CLV)

SELECT

customer\_id,

name,

tenure\_months,

total\_transactions,

-- Complex CLV calculation:

-- 1. (transactions/month) \* 12 months = annual transactions

-- 2. Multiply by (avg transaction \* 0.001) as a simple value factor

-- 3. NULLIF prevents division by zero for new customers

-- 4. ROUND to 2 decimal places for currency formatting

ROUND(

(total\_transactions / NULLIF(tenure\_months, 0)) \* 12 \*

(0.001 \* COALESCE(avg\_transaction\_amount, 0)),

2

) AS estimated\_clv

FROM

customer\_stats

WHERE

tenure\_months > 0 -- Exclude customers who joined this month

AND total\_transactions > 0 -- Only customers with transactions

ORDER BY

estimated\_clv DESC; -- Sort by highest value customers first