PRODUCT USER CONFIRMATION RATE

JUNE 2024

Window, Aggregrate, Grouping & Case When Functions

Leetcode

Advanced

A product team has requested an analysis of HVAs on their app's paid account sign up page.

The confirmation rate of a user is the number of 'confirmed' messages divided by the total number of requested confirmation messages. Round the confirmation rate to two decimal places.

Write a solution to find the confirmation rate of each user. Return the result table in descending order.

INPUT FORMAT

The main source tables are **SIGNUPS** and **CONFIRMATIONS.**
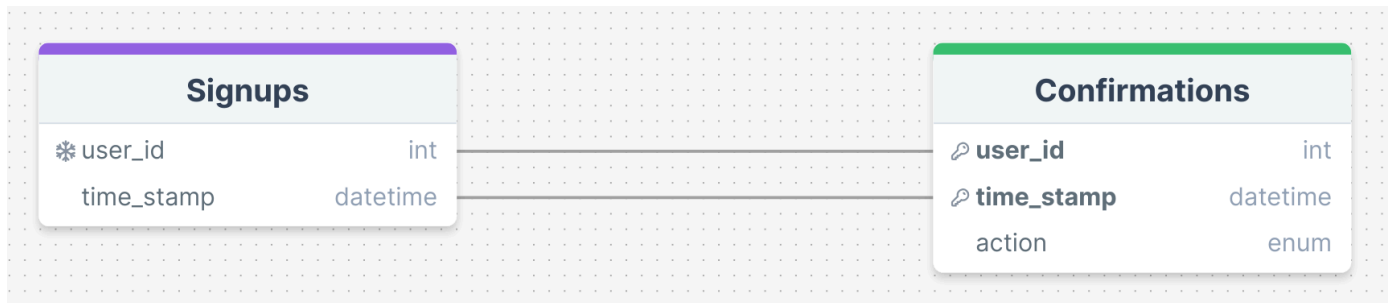
Signups Table

user_id	time_stamp
3	2020-03-21 10:16:13
7	2020-01-04 13:57:59
2	2020-07-29 23:09:44
6	2020-12-09 10:39:37

Confirmations Table

user_id	time_stamp	action
3	2021-01-06 03:30:46	timeout
3	2021-07-14 14:00:00	timeout
7	2021-06-12 11:57:29	confirmed
7	2021-06-13 12:58:28	confirmed
7	2021-06-14 13:59:27	confirmed
2	2021-01-22 00:00:00	confirmed
2	2021-02-28 23:59:59	timeout

CODE SOLUTION

```sql
SELECT

s.user_id,

ROUND(

    CAST(SUM(CASE WHEN c.action = 'confirmed' THEN 1 ELSE 0 END) AS FLOAT)

    /

    CAST(COUNT(CASE WHEN c.action IS NULL THEN 1 ELSE 1 END) AS FLOAT)

    ,2) AS confirmation_rate

FROM Signups s

LEFT JOIN Confirmations c ON s.user_id = c.user_id OR s.time_stamp =
c.time_stamp

GROUP BY s.user_id

ORDER BY s.user_id DESC
```

SOLUTION PROCESS

- Sum-nested Case When: Aggregates the number of confirmed actions and assigns a zero value to records that would otherwise return a null value under this condition
- Count-nested Case When: Counts all records including null values to evade zero values being included in totaled values
- Group By: Returns confirmation_rate, calculated by dividing the two nested CASE WHEN statements, for each individual user
- Cast: Used to convert values into decimals because aggregate functions return integer types that would render the ROUND function ineffective

OUTPUT

user_id	confirmation_rate
7	1
6	0
3	0
2	0.5