Problem 3497: Analyze Subscription Conversion

Problem Information

Difficulty: Medium
Acceptance Rate: 74.40%
Paid Only: No
Tags: Database

Problem Description

Table: `UserActivity`

+------------------+---------+ | Column Name | Type | +------------------+---------+ | user_id | int | | activity_date | date | | activity_type | varchar | | activity_duration| int | +------------------+---------+ (user_id, activity_date, activity_type) is the unique key for this table. activity_type is one of ('free_trial', 'paid', 'cancelled'). activity_duration is the number of minutes the user spent on the platform that day. Each row represents a user's activity on a specific date.

A subscription service wants to analyze user behavior patterns. The company offers a `7`-day **free trial** , after which users can subscribe to a **paid plan** or **cancel**. Write a solution to:

1. Find users who converted from free trial to paid subscription 2. Calculate each user's **average daily activity duration** during their **free trial** period (rounded to `2` decimal places) 3. Calculate each user's **average daily activity duration** during their **paid** subscription period (rounded to `2` decimal places)

Return _the result table ordered by_`user_id` _in**ascending** order_.

The result format is in the following example.

Example:

Input:

UserActivity table:

+---------+---------------+---------------+-------------------+ | user_id | activity_date | activity_type | activity_duration | +---------+---------------+---------------+-------------------+ | 1 | 2023-01-01 | free_trial | 45 | | 1 | 2023-01-02 | free_trial | 30 | | 1 | 2023-01-05 | free_trial | 60 | | 1 | 2023-01-10 | paid | 75 | | 1 | 2023-01-12 | paid | 90 | | 1 | 2023-01-15 | paid | 65 | | 2 | 2023-02-01 | free_trial | 55 | | 2 | 2023-02-03 | free_trial | 25 | | 2 | 2023-02-07 | free_trial | 50 | | 2 | 2023-02-10 | cancelled | 0 | | 3 | 2023-03-05 | free_trial | 70 | | 3 | 2023-03-06 | free_trial | 60 | | 3 | 2023-03-08 | free_trial | 80 | | 3 | 2023-03-12 | paid | 50 | | 3 | 2023-03-15 | paid | 55 | | 3 | 2023-03-20 | paid | 85 | | 4 | 2023-04-01 | free_trial | 40 | | 4 | 2023-04-03 | free_trial | 35 | | 4 | 2023-04-05 | paid | 45 | | 4 | 2023-04-07 | cancelled | 0 | +---------+---------------+---------------+-------------------+

Output:

+---------+--------------------+--------------------+ | user_id | trial_avg_duration | paid_avg_duration | +---------+--------------------+--------------------+ | 1 | 45.00 | 76.67 | | 3 | 70.00 | 63.33 | | 4 | 37.50 | 45.00 | +---------+--------------------+--------------------+

Explanation:

* **User 1:** * Had 3 days of free trial with durations of 45, 30, and 60 minutes. * Average trial duration: (45 + 30 + 60) / 3 = 45.00 minutes. * Had 3 days of paid subscription with durations of 75, 90, and 65 minutes. * Average paid duration: (75 + 90 + 65) / 3 = 76.67 minutes. * **User 2:** * Had 3 days of free trial with durations of 55, 25, and 50 minutes. * Average trial duration: (55 + 25 + 50) / 3 = 43.33 minutes. * Did not convert to a paid subscription (only had free_trial and cancelled activities). * Not included in the output because they didn't convert to paid. * **User 3:** * Had 3 days of free trial with durations of 70, 60, and 80 minutes. * Average trial duration: (70 + 60 + 80) / 3 = 70.00 minutes. * Had 3 days of paid subscription with durations of 50, 55, and 85 minutes. * Average paid duration: (50 + 55 + 85) / 3 = 63.33 minutes. * **User 4:** * Had 2 days of free trial with durations of 40 and 35 minutes. * Average trial duration: (40 + 35) / 2 = 37.50 minutes. * Had 1 day of paid subscription with duration of 45 minutes before cancelling. * Average paid duration: 45.00 minutes.

The result table only includes users who converted from free trial to paid subscription (users 1, 3, and 4), and is ordered by user_id in ascending order.

Code Snippets

MySQL:

```
# Write your MySQL query statement below
```

MS SQL Server:

```
/* Write your T-SQL query statement below */
```

PostgreSQL:

```
-- Write your PostgreSQL query statement below
```