Problem 3657: Find Loyal Customers

Problem Information

Difficulty: Medium
Acceptance Rate: 61.65%
Paid Only: No

Problem Description

Table: `customer_transactions`

+------------------+---------+ | Column Name | Type | +------------------+---------+ | transaction_id | int | | customer_id | int | | transaction_date | date | | amount | decimal | | transaction_type | varchar | +------------------+---------+ transaction_id is the unique identifier for this table. transaction_type can be either 'purchase' or 'refund'.

Write a solution to find **loyal customers**. A customer is considered **loyal** if they meet ALL the following criteria:

* Made **at least** `3` purchase transactions. * Have been active for **at least** `30` days. * Their **refund rate** is less than `20%` .

Refund rate is the proportion of transactions that are refunds, calculated as the number of refund transactions divided by the total number of transactions (purchases plus refunds).

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

The result format is in the following example.

Example:

Input:

customer_transactions table:

+----------------+-------------+------------------+--------+------------------+ | transaction_id | customer_id | transaction_date | amount | transaction_type | +----------------+-------------+------------------+--------+------------------+ | 1 | 101 | 2024-01-05 | 150.00 | purchase | | 2 | 101 | 2024-01-15 | 200.00 | purchase | | 3 | 101 | 2024-02-10 | 180.00 | purchase | | 4 | 101 | 2024-02-20 | 250.00 | purchase | | 5 | 102 | 2024-01-10 | 100.00 | purchase | | 6 | 102 | 2024-01-12 | 120.00 | purchase | | 7 | 102 | 2024-01-15 | 80.00 | refund | | 8 | 102 | 2024-01-18 | 90.00 | refund | | 9 | 102 | 2024-02-15 | 130.00 | purchase | | 10 | 103 | 2024-01-01 | 500.00 | purchase | | 11 | 103 | 2024-01-02 | 450.00 | purchase | | 12 | 103 | 2024-01-03 | 400.00 | purchase | | 13 | 104 | 2024-01-01 | 200.00 | purchase | | 14 | 104 | 2024-02-01 | 250.00 | purchase | | 15 | 104 | 2024-02-15 | 300.00 | purchase | | 16 | 104 | 2024-03-01 | 350.00 | purchase | | 17 | 104 | 2024-03-10 | 280.00 | purchase | | 18 | 104 | 2024-03-15 | 100.00 | refund | +----------------+-------------+------------------+--------+------------------+

Output:

+-------------+ | customer_id | +-------------+ | 101 | | 104 | +-------------+

Explanation:

* **Customer 101** : * Purchase transactions: 4 (IDs: 1, 2, 3, 4) * Refund transactions: 0 * Refund rate: 0/4 = 0% (less than 20%) * Active period: Jan 5 to Feb 20 = 46 days (at least 30 days) * Qualifies as loyal * **Customer 102** : * Purchase transactions: 3 (IDs: 5, 6, 9) * Refund transactions: 2 (IDs: 7, 8) * Refund rate: 2/5 = 40% (exceeds 20%) * Not loyal * **Customer 103** : * Purchase transactions: 3 (IDs: 10, 11, 12) * Refund transactions: 0 * Refund rate: 0/3 = 0% (less than 20%) * Active period: Jan 1 to Jan 3 = 2 days (less than 30 days) * Not loyal * **Customer 104** : * Purchase transactions: 5 (IDs: 13, 14, 15, 16, 17) * Refund transactions: 1 (ID: 18) * Refund rate: 1/6 = 16.67% (less than 20%) * Active period: Jan 1 to Mar 15 = 73 days (at least 30 days) * Qualifies as loyal

The result table is ordered by customer_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
```