Problem 3586: Find COVID Recovery Patients

Problem Information

Difficulty: Medium
Acceptance Rate: 40.62%
Paid Only: No
Tags: Database

Problem Description

Table: `patients`

+-------------+---------+ | Column Name | Type | +-------------+---------+ | patient_id | int | | patient_name| varchar | | age | int | +-------------+---------+ patient_id is the unique identifier for this table. Each row contains information about a patient.

Table: `covid_tests`

+-------------+---------+ | Column Name | Type | +-------------+---------+ | test_id | int | | patient_id | int | | test_date | date | | result | varchar | +-------------+---------+ test_id is the unique identifier for this table. Each row represents a COVID test result. The result can be Positive, Negative, or Inconclusive.

Write a solution to find patients who have **recovered from COVID** \- patients who tested positive but later tested negative.

* A patient is considered recovered if they have **at least one** **Positive** test followed by at least one **Negative** test on a **later date** * Calculate the **recovery time** in days as the **difference** between the **first positive test** and the **first negative test** after that **positive test** * **Only include** patients who have both positive and negative test results

Return _the result table ordered by_`recovery_time` _in**ascending** order, then by _`patient_name` _in**ascending** order_.

The result format is in the following example.

Example:

Input:

patients table:

+------------+--------------+-----+ | patient_id | patient_name | age | +------------+--------------+-----+ | 1 | Alice Smith | 28 | | 2 | Bob Johnson | 35 | | 3 | Carol Davis | 42 | | 4 | David Wilson | 31 | | 5 | Emma Brown | 29 | +------------+--------------+-----+

covid_tests table:

+---------+------------+------------+--------------+ | test_id | patient_id | test_date | result | +---------+------------+------------+--------------+ | 1 | 1 | 2023-01-15 | Positive | | 2 | 1 | 2023-01-25 | Negative | | 3 | 2 | 2023-02-01 | Positive | | 4 | 2 | 2023-02-05 | Inconclusive | | 5 | 2 | 2023-02-12 | Negative | | 6 | 3 | 2023-01-20 | Negative | | 7 | 3 | 2023-02-10 | Positive | | 8 | 3 | 2023-02-20 | Negative | | 9 | 4 | 2023-01-10 | Positive | | 10 | 4 | 2023-01-18 | Positive | | 11 | 5 | 2023-02-15 | Negative | | 12 | 5 | 2023-02-20 | Negative | +---------+------------+------------+--------------+

Output:

+------------+--------------+-----+---------------+ | patient_id | patient_name | age | recovery_time | +------------+--------------+-----+---------------+ | 1 | Alice Smith | 28 | 10 | | 3 | Carol Davis | 42 | 10 | | 2 | Bob Johnson | 35 | 11 | +------------+--------------+-----+---------------+

Explanation:

* **Alice Smith (patient_id = 1):** * First positive test: 2023-01-15 * First negative test after positive: 2023-01-25 * Recovery time: 25 - 15 = 10 days * **Bob Johnson (patient_id = 2):** * First positive test: 2023-02-01 * Inconclusive test on 2023-02-05 (ignored for recovery calculation) * First negative test after positive: 2023-02-12 * Recovery time: 12 - 1 = 11 days * **Carol Davis (patient_id = 3):** * Had negative test on 2023-01-20 (before positive test) * First positive test: 2023-02-10 * First negative test after positive: 2023-02-20 * Recovery time: 20 - 10 = 10 days * **Patients not included:** * David Wilson (patient_id = 4): Only has positive tests, no negative test after positive * Emma Brown (patient_id = 5): Only has negative tests, never tested positive

Output table is ordered by recovery_time in ascending order, and then by patient_name 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
```