



Patient Support Analysis [p3] (UnitedHealth)

QUESTION

UnitedHealth Group has a program called Advocate4Me, which allows members to call an advocate and receive support for their health care needs – whether that's behavioural, clinical, well-being, health care financing, benefits, claims or pharmacy help.

Write a query to get the patients who made a call within 7 days of their previous call. If a patient called more than twice in a span of 7 days, count them as once.

callers Table:

Column Name	Type
policy_holder_id	integer
case_id	varchar
call_category	varchar
call_received	timestamp
call_duration_secs	integer
original_order	integer

callers Example Input:

policy_holder_id	case_id	call_category	call_received	call_duration_secs	original_order
50837000	dc63-acae-4f39-bb04	claims	3/9/2022 2:51	205	130
50837000	41be-bebe-4bd0-a1ba	IT_support	3/12/2022 5:37	254	129
50837000	bab1-3ec5-4867-90ae	benefits	5/13/2022 18:19	228	339
50936674	12c8-b35c-48a3-b38d	claims	5/31/2022 7:27	240	31
50886837	d0b4-8ea7-4b8c-aa8b	IT_support	3/11/2022 3:38	276	16
50886837	a741-c279-41c0-90ba		3/19/2022 10:52	131	325

Step 1: Identify the problem of the case

OUTPUT

Column Name	Type
patient_count	integer

Step 2 : Analyze and solve problems

We must obtain the prior call for each logged call using the `call_received` field.

The LAG() window method may be used to get data from the previous row, the row before the previous row, and so on. Take a peek at this page to learn more about the LAG() function.

```
SELECT policy_holder_id, case_id, call_received
      , LAG(call_received) OVER(
        PARTITION BY policy_holder_id ORDER BY call_received
      ) previous_call
FROM callers
```

Subtract the `previous_call` column values from the `call_received` column values for each row.

```
WITH tbl AS (SELECT policy_holder_id, case_id, call_received
      , LAG(call_received)
        OVER(PARTITION BY policy_holder_id ORDER BY call_received) previous_call
  FROM callers)

SELECT policy_holder_id, call_received
      , call_received - previous_call time_difference
FROM tbl
```

Because the time difference involves various units of time, we only use the `EXTRACT()` method to extract the `DAY` component. To address this, the `EPOCH` method can be used with the `EXTRACT()` function to output results in seconds format.

The `time_difference` column now indicates the difference in seconds between two calls. We multiply it by the following to convert it to days:

1 day is equal to 24 hours x 60 minutes x 60 seconds.

```
WITH tbl AS (SELECT policy_holder_id, case_id, call_received
      , LAG(call_received)
        OVER(PARTITION BY policy_holder_id ORDER BY call_received) previous_call
  FROM callers)

SELECT policy_holder_id, call_received
      , EXTRACT(EPOCH FROM call_received - previous_call)/(24*60*60) time_difference
FROM tbl
```

Finally, we filter the records to only include calls with no more than seven days difference.

```

WITH tbl AS (SELECT policy_holder_id, case_id, call_received
               , LAG(call_received)
               OVER(PARTITION BY policy_holder_id ORDER BY call_received) previous_call
              FROM callers)

SELECT COUNT(DISTINCT policy_holder_id) patient_count
FROM (
  SELECT policy_holder_id, call_received
         , EXTRACT(EPOCH FROM call_received - previous_call)/(24*60*60) time_difference
  FROM tbl) sub
WHERE time_difference <= 7

```

Result:

patient_count

1

Another solution

```

WITH calls AS (
  SELECT
    policy_holder_id,
    call_received AS current_call,
    LEAD(call_received) OVER (
      PARTITION BY policy_holder_id ORDER BY call_received) AS next_call
  FROM callers
)

SELECT COUNT(DISTINCT policy_holder_id) AS patient_count
FROM calls
WHERE current_call + INTERVAL '168 hours' >= next_call;

```