1709. Biggest Window Between Visits

Problem Description:

We are given a table called UserVisits which contains logs of the dates that users visited a specific retailer. The table has two columns `user_id` and `visit_date`. We have to write an SQL query to find out the largest window of days between each visit and the one right after it (or today if we are considering the last visit) for each user_id. We return the result table ordered by user_id.

Example:

Given UserVisits table:

user_id	visit_date
1	2020-11-28
1	2020-10-20
1	2020-12-3
2	2020-10-5
2	2020-12-9
3	2020-11-11

The result table should be:

user_id	biggest_window
1	39
2	65
3	51

Solution Approach:

To solve this problem, we first need to create a temporary table with visit dates sorted for each user. Then, calculate the difference in days between each visit and the visit right after it. In the end, find out the largest difference for each user_id and return the result as the biggest_window.

Example:

Let's take the same UserVisits table as before:

1. Create a temporary table with user_id and their sorted visit dates.

user_id	visit_date	sorted_visit_date
1	2020-11-28	2020-10-20
1	2020-10-20	2020-11-28
1	2020-12-3	2020-12-3
2	2020-10-5	2020-10-5
2	2020-12-9	2020-12-9
3	2020-11-11	2020-11-11

2. Calculate the difference between each visit and the visit right after it.

user_id	visit_date	sorted_visit_date	difference
1	2020-11-28	2020-10-20	39
1	2020-10-20	2020-11-28	5
1	2020-12-3	2020-12-3	29
2	2020-10-5	2020-10-5	65
2	2020-12-9	2020-12-9	23
3	2020-11-11	2020-11-11	51

3. Find the largest difference for each user_id and return the result.

user_id	biggest_window
1	39
2	65
3	51

Solution:

SQL

```sql
WITH SortedVisits AS (
  SELECT user_id, visit_date,
         LEAD(visit_date) OVER (PARTITION BY user_id ORDER BY visit_date) next_visit_date
  FROM UserVisits
)

SELECT user_id, MAX(DATEDIFF(IFNULL(next_visit_date, '2021-01-01'), visit_date)) biggest_window
FROM SortedVisits
GROUP BY user_id
ORDER BY user_id;
```