3268. Find Overlapping Shifts II `Premium`

`Hard` 🏷 Topics

SQL Schema > Pandas Schema >

Table: `EmployeeShifts`

```
+------------------+----------+
| Column Name      | Type     |
+------------------+----------+
| employee_id      | int      |
| start_time       | datetime |
| end_time         | datetime |
+------------------+----------+
(employee_id, start_time) is the unique key for this table.
This table contains information about the shifts worked by employees, including the start time, and end time.
```

Write a solution to analyze overlapping shifts for each employee. Two shifts are considered overlapping if they occur on the **same date** and one shift's `end_time` is **later than** another shift's `start_time`.

For **each employee**, calculate the following:

1. The **maximum** number of shifts that **overlap** at any **given time**.

2. The **total duration** of all overlaps in minutes.

Return the result table ordered by `employee_id` in **ascending** order.

The query result format is in the following example.

Example:

Input:

`EmployeeShifts` table:

```
+-------------+---------------------+---------------------+
| employee_id | start_time          | end_time            |
+-------------+---------------------+---------------------+
| 1           | 2023-10-01 09:00:00 | 2023-10-01 17:00:00 |
| 1           | 2023-10-01 15:00:00 | 2023-10-01 23:00:00 |
| 1           | 2023-10-01 16:00:00 | 2023-10-02 00:00:00 |
| 2           | 2023-10-01 09:00:00 | 2023-10-01 17:00:00 |
| 2           | 2023-10-01 11:00:00 | 2023-10-01 19:00:00 |
| 3           | 2023-10-01 09:00:00 | 2023-10-01 17:00:00 |
+-------------+---------------------+---------------------+
```

Output:

```
+-------------+-----------------------+-----------------------+
| employee_id | max_overlapping_shifts | total_overlap_duration |
+-------------+-----------------------+-----------------------+
| 1           | 3                     | 600                   |
| 2           | 2                     | 360                   |
| 3           | 1                     | 0                     |
+-------------+-----------------------+-----------------------+
```

Explanation:

- Employee 1 has 3 shifts:
  - 2023-10-01 09:00:00 to 2023-10-01 17:00:00

  - 2023-10-01 15:00:00 to 2023-10-01 23:00:00

  - 2023-10-01 16:00:00 to 2023-10-02 00:00:00

  The maximum number of overlapping shifts is 3 (from 16:00 to 17:00). The total overlap duration is: - 2 hours (15:00-17:00) between 1st and 2nd shifts - 1 hour (16:00-17:00) between 1st and 3rd shifts - 7 hours (16:00-23:00) between 2nd and 3rd shifts Total: 10 hours = 600 minutes

- Employee 2 has 2 shifts:
  - 2023-10-01 09:00:00 to 2023-10-01 17:00:00

  - 2023-10-01 11:00:00 to 2023-10-01 19:00:00

  The maximum number of overlapping shifts is 2. The total overlap duration is 6 hours (11:00-17:00) = 360 minutes.

- Employee 3 has only 1 shift, so there are no overlaps.

The output table contains the employee_id, the maximum number of simultaneous overlaps, and the total overlap duration in minutes for each employee, ordered by employee_id in ascending order.

Seen this question in a real interview before?   1/5

`Yes` `No`

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`Database`

💬 Discussion (3)