

## Hard

Table: Failed

Column Name	Type
fail_date	date

fail\_date is the primary key (column with unique values) for this table.  
This table contains the days of failed tasks.

Table: Succeeded

Column Name	Type
success_date	date

success\_date is the primary key (column with unique values) for this table.  
This table contains the days of succeeded tasks.

A system is running one task **every day**. Every task is independent of the previous tasks. The tasks can fail or succeed.

Write a solution to report the period\_state for each continuous interval of days in the period from 2019-01-01 to 2019-12-31.

period\_state is 'failed' if tasks in this interval failed or 'succeeded' if tasks in this interval succeeded. Interval of days are retrieved as start\_date and end\_date.

Return the result table ordered by start\_date.

The result format is in the following example.

### Example 1:

#### Input:

Failed table:

fail_date
2018-12-28
2018-12-29
2019-01-04
2019-01-05

Succeeded table:

success_date
2018-12-30
2018-12-31
2019-01-01
2019-01-02
2019-01-03

```
| 2019-01-06 |  
+-----+
```

#### Output:

```
+-----+-----+-----+  
| period_state | start_date | end_date |  
+-----+-----+-----+  
| succeeded    | 2019-01-01 | 2019-01-03 |  
| failed      | 2019-01-04 | 2019-01-05 |  
| succeeded    | 2019-01-06 | 2019-01-06 |  
+-----+-----+-----+
```

#### Explanation:

The report ignored the system state in 2018 as we care about the system in the period 2019-01-01 to 2019-12-31.

From 2019-01-01 to 2019-01-03 all tasks succeeded and the system state was "succeeded".

From 2019-01-04 to 2019-01-05 all tasks failed and the system state was "failed".

From 2019-01-06 to 2019-01-06 all tasks succeeded and the system state was "succeeded".

# Write your MySQL query statement below

```
WITH CTE AS (SELECT fail_date AS date,'failed' AS period_state  
FROM Failed  
WHERE fail_date BETWEEN '2019-01-01' AND '2019-12-31'  
UNION ALL  
SELECT success_date AS date,'succeeded' AS period_state  
FROM Succeeded  
WHERE success_date BETWEEN '2019-01-01' AND '2019-12-31'  
ORDER BY date),  
CTE2 AS (SELECT *,ROW_NUMBER() OVER () -  
RANK() OVER (PARTITION BY period_state ORDER BY date) AS Diff  
FROM CTE)  
  
SELECT period_state,MIN(date) AS start_date,MAX(date) AS end_date  
FROM CTE2  
GROUP BY Diff,period_state  
ORDER BY start_date
```