01

LeetCode

# 50 Days 50 SQL Questions
# Work In Progress

## Day 10/50

# 10. Average Time of Process per Machine

02

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# Question

There is a factory website that has several machines each running the **same number of processes**. Write a solution to find the **average time** each machine takes to complete a process.

The time to complete a process is the `'end' timestamp` minus the `'start' timestamp`. The average time is calculated by the total time to complete every process on the machine divided by the number of processes that were run.

The resulting table should have the `machine_id` along with the **average time** as `processing_time`, which should be **rounded to 3 decimal places**.

Return the result table in **any order**.

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# Table

**Input:**

Activity table:

| machine_id | process_id | activity_type | timestamp |
|---|---|---|---|
| 0 | 0 | start | 0.712 |
| 0 | 0 | end | 1.520 |
| 0 | 1 | start | 3.140 |
| 0 | 1 | end | 4.120 |
| 1 | 0 | start | 0.550 |
| 1 | 0 | end | 1.550 |
| 1 | 1 | start | 0.430 |
| 1 | 1 | end | 1.420 |
| 2 | 0 | start | 4.100 |
| 2 | 0 | end | 4.512 |
| 2 | 1 | start | 2.500 |
| 2 | 1 | end | 5.000 |

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# Approach

I used CTEs to make two temporary tables StartTimes and EndTimes and then made another CTE where I found process_time and then in AverageTimes CTE I found the avg. of process_time and round it to 3 decimal places.

05

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# Query

MySQL Auto

```sql
WITH StartTimes AS (
    SELECT machine_id, process_id, timestamp AS START
    FROM Activity
    WHERE activity_type = 'start'
),
EndTimes AS (
    SELECT machine_id, process_id, timestamp AS END
    FROM Activity
    WHERE activity_type = 'end'
),
ProcessTimes AS (
    SELECT
        S.machine_id,
        S.process_id,
        (E.END - S.START) AS process_time
    FROM StartTimes S
    JOIN EndTimes E ON S.machine_id = E.machine_id AND S.process_id = E.process_id
),
AverageTimes AS (
    SELECT
        machine_id,
        ROUND(AVG(process_time), 3) AS processing_time
    FROM ProcessTimes
    GROUP BY machine_id
)
SELECT machine_id, processing_time
FROM AverageTimes;

```

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# Output

**Output:**

| machine_id | processing_time |
|---|---|
| 0 | 0.894 |
| 1 | 0.995 |
| 2 | 1.456 |

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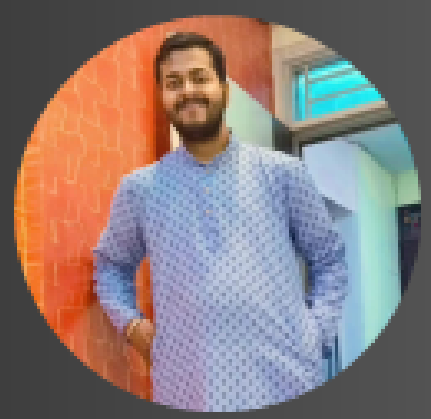

Thank You :)