

1661. Average Time of Process per Machine

Table: Activity

+-----+	
Column Name	Type
+-----+	
machine_id	int
process_id	int
activity_type	enum
timestamp	float
+-----+	

The table shows the user activities for a factory website.

(machine_id, process_id, activity_type) is the primary key (combination of columns with unique values) of this table.

machine_id is the ID of a machine.

process_id is the ID of a process running on the machine with ID machine_id.

activity_type is an ENUM (category) of type ('start', 'end').

timestamp is a float representing the current time in seconds.

'start' means the machine starts the process at the given timestamp and 'end' means the machine ends the process at the given timestamp.

The 'start' timestamp will always be before the 'end' timestamp for every (machine_id, process_id) pair.

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.

The result format is in the following example.

Example 1:

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	

+-----+-----+-----+-----+

Output:

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

Explanation:

There are 3 machines running 2 processes each.

Machine 0's average time is $((1.520 - 0.712) + (4.120 - 3.140)) / 2 = 0.894$

Machine 1's average time is $((1.550 - 0.550) + (1.420 - 0.430)) / 2 = 0.995$

Machine 2's average time is $((4.512 - 4.100) + (5.000 - 2.500)) / 2 = 1.456$

Write your MySQL query statement below

```
select a.machine_id,
       round( avg(CASE WHEN a.activity_type="end" THEN a.timestamp END)-
              avg(CASE WHEN a.activity_type="start" THEN a.timestamp END)
              ,3)as processing_time
from Activity a
group by a.machine_id
```