

596. Classes More Than 5 Students

July 10, 2017 | 49.3K views

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There is a table `courses` with columns: `student` and `class`

Please list out all classes which have more than or equal to 5 students.

For example, the table:

student	class
A	Math
B	English
C	Math
D	Biology
E	Math
F	Computer
G	Math
H	Math
I	Math

Should output:

class
Math

Note:

The students should not be counted duplicate in each course.

Solution

Approach: Using `GROUP BY` clause and `sub-query` [Accepted]

Intuition

First, we can count the student number in each class. And then select the ones have more than 5 students.

Algorithm

To get the student number in each class. We can use `GROUP BY` and `COUNT`, which is very popular used to statistic bases on some character in a table.

```
SELECT
  class, COUNT(DISTINCT student)
FROM
  courses
GROUP BY class
;
```

Note: We use `DISTINCT` here since the student name may duplicated in a class as it is mentioned in the problem description.

class	COUNT(student)
Biology	1
Computer	1
English	1
Math	6

To continue, we can filter the classes by taking the above query as a sub-query.

```
SELECT
  class
FROM
  (SELECT
    class, COUNT(DISTINCT student) AS num
    FROM
      courses
    GROUP BY class) AS temp_table
WHERE
  num >= 5
;
```

Note: Make an alias of `COUNT(student)` ('num' in this case) so that you can use in the `WHERE` clause because it cannot be used directly over there.

Approach: Using `GROUP BY` and `HAVING` condition [Accepted]

Algorithm

Using sub-query is one way to add some condition to a `GROUP BY` clause, however, using `HAVING` is another simpler and natural approach. So we can rewrite the above solution as below.

MySQL

```
SELECT
  class
FROM
  courses
GROUP BY class
HAVING COUNT(DISTINCT student) >= 5
;
```

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glad2be ★48 September 21, 2017 2:20 AM

```
SELECT
class
FROM
courses
GROUP BY class
```

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123456789zilan ★6 December 17, 2017 7:04 AM

```
select class from courses
GROUP BY class
HAVING COUNT(distinct student) >4
;
```

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samudaodan ★10 August 27, 2018 1:44 PM

```
select tmp.class from (select distinct student,class from courses ) tmp group by
tmp.class having count(tmp.class)>=5
```

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morinhu ★1 June 21, 2019 7:06 PM

duplicate rows should be considered, so should add distinct in count()

```
select class from courses group by class having count(distinct student) >= 5
```

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Paul222 ★0 January 26, 2019 7:36 PM

```
select class from courses group by class having count(class) >= 5
```

Why this is wrong answer?

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Jonaae ★4 September 24, 2018 2:04 AM

This is my solution:

```
select a.class
from
(select class,count(distinct student)conteo
```

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nwh1102 ★29 August 1, 2018 4:00 AM

```
HAVING COUNT(DISTINCT student) >= 5
```

is that the wrong thing?

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ralmilk ★1 July 26, 2018 10:45 PM

Got pretty much the same thing as the example response:

```
select x.class from (
  select count(distinct c.student) as numStudents, c.class
  from courses c
```

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a.shoaibsbx ★11 July 15, 2018 3:23 AM

```
select x.class from
(select class, count(distinct student)
from courses
group by class
having count(distinct student) >= 5) x;
```

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wasato89 ★0 June 5, 2018 7:15 AM

second method still give me Math while true should be null, cos one person attend Math twice.

Have no idea what is wrong

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