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580. Count Student Number in Departments 2

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A university uses 2 data tables, **student** and **department**, to store data about its students and the departments associated with each major.

for all departments in the *department* table (even ones with no current students). Sort your results by descending number of students; if two or more departments have the same number of

Write a query to print the respective department name and number of students majoring in each department

students, then sort those departments alphabetically by department name. The **student** is described as follow:

Column Name | Type

```
student_id | Integer
  | student_name | String
                  Character
    gender
  dept_id
                  Integer
where student_id is the student's ID number, student_name is the student's name, gender is their gender,
and dept_id is the department ID associated with their declared major.
```

And the **department** table is described as below:

| Column Name | Type

Jack

Mark

Jane

```
dept_id
                 Integer
  | dept_name | String
where dept_id is the department's ID number and dept_name is the department name.
Here is an example input:
```

student table:

M

| student_id | student_name | gender | dept_id

2

3

departmen	nt table:		
dept_	id dept_name		
1	Engineering		
2	Science		

1

| 3 Law

Science

Law

```
The Output should be:
   dept_name | student_number
   Engineering | 2
```

Approach: Using OUTER JOIN and COUNT(expression) [Accepted]

Solution

Use GROUP BY function can measure student number in a department, and then use COUNT function to count the number of records of each department.

dept_name, COUNT(*) AS student_number

Algorithm

SELECT

FROM

FROM

department

LEFT OUTER JOIN

GROUP BY department.dept_name

department

Engineering | 2

You can refer to the MySQL manual for the details.

Thus, here is a right solution after fixing the issue above.

dept_name, COUNT(student_id) AS student_number

student ON department.dept_id = student.dept_id

ORDER BY student_number DESC , department.dept_name

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Intuition

We can use OUTER JOIN to query all departments. The problem is to display '0' for departments without no current students. Some people will write the following query using COUNT(*).

```
LEFT OUTER JOIN
      student ON department.dept_id = student.dept_id
  GROUP BY department.dept_name
  ORDER BY student_number DESC , department.dept_name
Unfortunately, it wrongly displays '1' for departments like 'Law' without current students for the sample
input.
   dept_name
                 student_number
```

Law Science 1

Instead, COUNT(expression) could be used because it does not take account if expression is null.

MySQL

```
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