

数据库第二次上机

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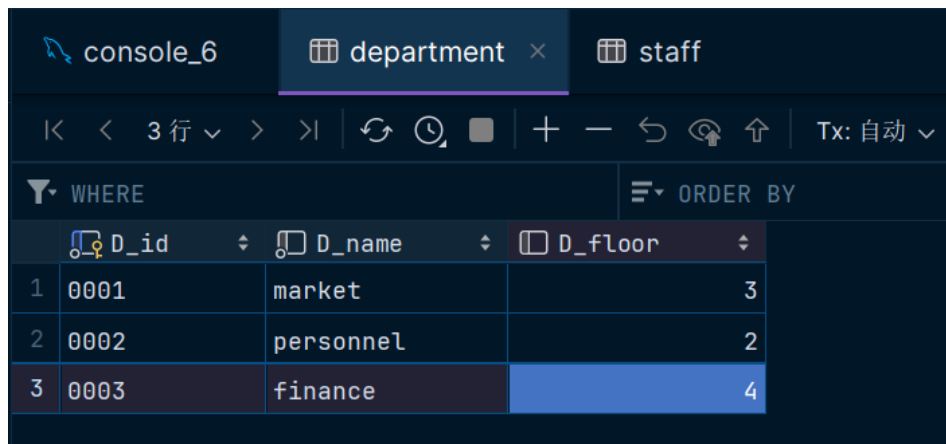
TASK 1 约束

Q1

```
1  create table Department(  
2      D_id char(30) NOT NULL PRIMARY KEY,  
3      D_name varchar(255) NOT NULL,  
4      D_floor smallint  
5  );  
6  
7  create table Staff(  
8      S_id char(30) NOT NULL PRIMARY KEY,  
9      S_name varchar(255) NOT NULL,  
10     S_salary int,  
11     S_absence int default 0,  
12     S_birth date,  
13     S_marriage bool,  
14     S_Did char(30) NOT NULL,  
15     constraint fk_Did foreign key (S_Did)  
16         references Department(D_id),  
17     check (S_salary >= 2000 and S_name LIKE '^[A-Z][a-z]*([- ]?[A-Z][a-z]*)*$')  
18 );
```

Q2

Department:



	D_id	D_name	D_floor
1	0001	market	3
2	0002	personnel	2
3	0003	finance	4

Stuff:

console_6

department

staff x

10 行

Tx: 自动

DDL

Q

WHERE

ORDER BY

	S_id	S_name	S_salary	S_absence	S_birth	S_marriage	S_Did
1	1001	Emily Johnson	5000	0	1970-01-09	<null>	0001
2	1002	Benjamin Lee	2004	0	1983-07-15	1	0003
3	1003	Sophia Carter	10002	4	1994-12-30	1	0001
4	1004	Oliver Evans	114514	0	1980-06-06	0	0002
5	1005	William Garcia	2000	3	1989-10-26	<null>	0002
6	1006	Mia Thompson	4005	0	1983-07-15	0	0003
7	1007	Alexander Moore	6060	2	1976-01-07	1	0001
8	1008	Michael Davis	6666	1	2000-07-13	0	0003
9	1009	Ava Wilson	7777	0	<null>	<null>	0002
10	1010	Amelia Wright	8888	0	<null>	<null>	0003

报错1:

```
lab2> use lab2
[2024-03-28 19:03:33] 在 0 ms 内完成
lab2> insert into staff
      values (1011, 'Gao Ming', 1980, 0, '2004-06-29', 0, '0001')
[2024-03-28 19:03:38] [HY000][3819] Check constraint 'staff_chk_1' is violated.
```

触发报错，因为插入数据S_salary为1980不合规，而要求该值不小于2000。

报错2:

```
lab2> insert into staff
      values (1012, 'Zhou Guanyu', 1200000, 0, '1999-05-30', 0, '0009')
[2024-03-28 19:06:06] [23000][1452] Cannot add or update a child row: a foreign key constraint fails (`lab2`.`staff`, CONSTRAINT `fk_Did` FOREIGN KEY (`S_Did`) REFERENCES `department` (`D_id`))
```

触发报错，因为插入数据S_Did为0009不合规。S_Did是外键，要求和Stuff的主键D_id保持对应。但是0009并不在表Stuff中的D_id的域中，故触发报错。

删去还有员工的部门

```
[2024-03-28 19:12:37] 已连接
lab2> use lab2
[2024-03-28 19:12:37] 在 2 ms 内完成
lab2> delete from department
        where D_id = '0001'
[2024-03-28 19:12:37] [23000][1451] Cannot delete or update a parent row: a foreign key constraint fails ('lab2','staff', CONSTRAINT 'fk_Did' FOREIGN
KEY ('S_Did') REFERENCES 'department' ('D_id'))
```

报错，因为想要删去的0001部门还与stuff中的数据存在外键约束，无法删除。

TASK 2

Q3 查询员工表的员工薪资、缺勤天数两列信息

department staff console_9 x

Tx: 自动 ✓ ↺

```

1 ✓ select S_salary, S_absence
2   from staff

```

输出 lab2.staff x

10行

	S_salary	S_absence
1	5000	0
2	2004	0
3	10002	4
4	114514	0
5	2000	3
6	4005	0
7	6060	2
8	6666	1
9	7777	0
10	8888	0

Q4 统计员工人数

department staff console_9 x

Tx: 自动 ✓ ↺

```

1 ✓ select count(*)
2   from staff

```

输出 count(*):int x

1行

	`count(*)`
1	10

JSON

Q5 查询全体员工的平均薪资

department

staff

console_9

▶

🕒

Ⓟ

⚙️

📄

Tx: 自动

✓

↺

■

>

lab2

1

✓

select avg(S_salary)

2

from staff

输出

avg(S_salary):decimal

📄

📈

⏪

<

1行

>

⏩

🔄

🕒

■

🔗

JSON

avg(S_salary)

1

16691.6000

Q6 某个部门的最高工资、最低工资。我们指定“某个”部门为0002

department

staff

console_9

▶

🕒

Ⓟ

⚙️

📄

Tx: 自动

✓

↺

■

>

lab2

console

1

✓

select max(S_salary), min(S_salary)

2

💡

from staff

3

where S_Did = '0002'

输出

Result 5

📄

📈

⏪

<

1行

>

⏩

🔄

🕒

■

🔗

JSON

⬇️

⬆️

max(S_salary)

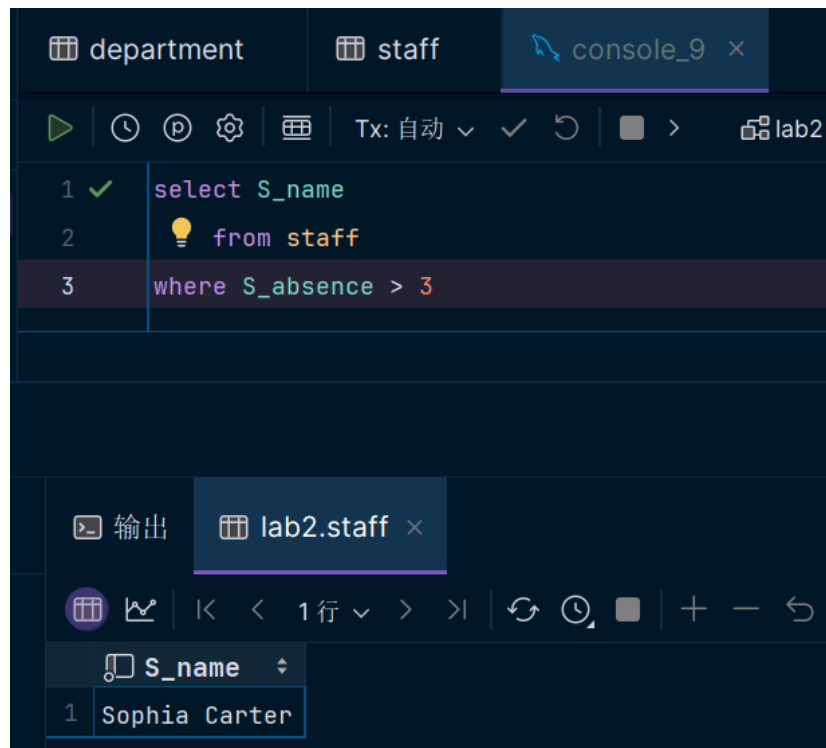
min(S_salary)

1

114514

2000

Q7 统计缺勤天数超过3天的所有员工名



Q8 查询平均工资最高的部门的名称和所在的楼层



Q9 查询所有员工名，英文名称均大写表示

department

staff

console_9

Tx: 自动

1

✓

select UPPER(S_name)

2

from staff

输出

UPPER(S_name):varchar

10 行

UPPER(S_name)

1

EMILY JOHNSON

2

BENJAMIN LEE

3

SOPHIA CARTER

4

OLIVER EVANS

5

WILLIAM GARCIA

6

MIA THOMPSON

7

ALEXANDER MOORE

8

MICHAEL DAVIS

9

AVA WILSON

10

AMELIA WRIGHT

Q10 将Date格式的出生日期列以“year/month/day”和“yearmonthday”格式展示

The screenshot shows a SQL IDE interface. At the top, there are tabs for 'department', 'staff', and 'console_9'. Below the tabs is a toolbar with icons for running queries, undo, redo, and other functions. The main area displays a SQL query:

```
select date_format(S_birth, '%Y/%m/%d'), date_format(S_birth, '%Y%m%d')
from staff
```

Below the query, there is a section labeled '输出' (Output) with a tab for 'Result 51'. This section shows the execution results of the query, which is a table with two columns: the date in 'YYYY/MM/DD' format and the date in 'YYYYMMDD' format. The results are as follows:

	`date_format(...`	`date_format(...`
1	1970/01/09	19700109
2	1983/07/15	19830715
3	1994/12/30	19941230
4	1980/06/06	19800606
5	1989/10/26	19891026
6	1983/07/15	19830715
7	1976/01/07	19760107
8	2000/07/13	20000713
9	<null>	<null>
10	<null>	<null>

Q11 选择某个员工，将其的姓和名分别单独查询出来

The screenshot shows a SQL IDE interface. At the top, there are tabs for 'department', 'staff', and 'console_9'. Below the tabs is a toolbar with icons for running, undo, redo, and other functions. The main area displays a SQL query:

```
1 select mid(S_name,1,5) as FIRST_NAME, mid(S_name,7,7) as LAST_NAME
2   from staff
3  where S_id = '1001' # 规定某个员工即1001号员工
```

Below the query, there is a section for '输出' (Output) with a tab for 'Result 53'. The results are displayed in a table:

	FIRST_NAME	LAST_NAME
1	Emily	Johnson

Q12 选择两个员工，查询出他俩生日差几天

The screenshot shows a database console interface with a dark theme. At the top, there are tabs for 'department', 'staff', and 'console_9'. Below the tabs is a toolbar with icons for running queries, undo, redo, and other functions. The main area contains a SQL query:

```
1 ✓ select datediff(s1.S_birth,s2.S_birth) as BIRTHDIFF
2   from staff as s1, staff s2
3   where s1.S_id = '1003' and s2.S_id = '1004'
```

Below the query editor, there is a section for the output. It shows a table with one column, 'BIRTHDIFF', and one row with the value '5320'.

BIRTHDIFF
5320

Q13 查询生日比2000年1月1日晚的员工

The screenshot shows a database console interface with a dark theme. At the top, there are tabs for 'department', 'staff', and 'console_9'. Below the tabs is a toolbar with icons for running queries, undo, redo, and other functions. The main area contains a SQL query:

```
1 ✓ select S_id, S_name
2   from staff
3   where datediff(S_birth,'2000-01-01') > 0
```

Below the query editor, there is a section for the output. It shows a table with two columns, 'S_id' and 'S_name', and one row with the values '1008' and 'Michael Davis'.

S_id	S_name
1008	Michael Davis