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# 元地月日盈

自连接:

查询各工号和其经理的名字

对同一个表产生镜像,并连接

```
select  
worker.last_name,  
manager.last_name  
from  
s_emp  
worker,  
s_emp  
manager  
where  
worker.manager_id =  
manager.id
```

自连接: 自身表中的列关联自身表中的其它列  
查询员工的名字、员工经理的名字?  
select worker.last\_name,manager.last\_name  
from s\_emp worker,s\_emp manager  
where worker.manager\_id=manager.id;  
查询员工的名字、员工经理的名字(即便员工没有经理)?  
select worker.last\_name,manager.last\_name  
from s\_emp worker,s\_emp manager  
where worker.manager\_id=manager.id(+);

组函数:

AVG()

COUNT()

1. avg: 求平均值, 操作数值类型
2. sum: 求和, 操作数值类型
3. min: 求最小值, 操作任意类型
4. max: 求最大值, 操作任意类型  
select avg(salary),sum(salary),min(salary),max(salary)  
from s\_emp;
5. count: 统计记录条数  
select count(\*)  
from s\_emp;  
  
select count(last\_name)  
from s\_emp;  
统计非空记录数  
select count(commision\_pct)  
from s\_emp;

```
select avg(salary), max(salary),min(salary),sum(salary)  
from s_emp
```

| AVG(SALARY) | MAX(SALARY) | MIN(SALARY) | SUM(SALARY) |
|-------------|-------------|-------------|-------------|
| 1255.08     | 2500        | 750         | 31377       |

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Count(\*)

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SQL Worksheet

Clear Actions Save Run

```
1 select count(*)|
2 from s_emp
```

COUNT(\*)

25

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SQL Worksheet

Clear Actions Save Run

```
1 select count(last_name)
2 from s_emp
```

COUNT(LAST\_NAME)

25

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SQL Worksheet

```

1 select count(commission_pct)
2 from s_emp

```

COUNT(COMMISSION\_PCT)

5

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count(\*) 统计所有记录

count(column) 统计非空

count(1) --> count(PK)

无

→ Group By

→ Having

查询和部门，部门

```

select dept_id, count(*)
from s_emp
group by dept_id

```

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SQL Worksheet

```

1 select dept_id, count(*)
2 from s_emp
3 group by dept_id

```

| DEPT_ID | COUNT(*) |
|---------|----------|
| 50      | 2        |
| 31      | 2        |
| 42      | 3        |
| 43      | 3        |
| 41      | 4        |
| 44      | 2        |
| 45      | 3        |
| 34      | 2        |
| 10      | 1        |
| 35      | 1        |
| 33      | 1        |
| 32      | 1        |

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o Order by 中可以出现组函数

- 1) 如果出现了组函数, 所有没有放到组函数中的列, 必须放到 group by 子句中

✗ is

Having

where 2

Having

Having avg (sal) > 2000

SELECT \*\*\*

FROM \*\*\*

WHERE \*\*\*

GROUP BY \*\*\*

HAVING \*\*\*

Order By \*\*\*

select dept\_id, avg(salary)

HAVING xxx

Order By xxx

```
select dept_id, avg(salary)
from s_emp
where salary > 1000
group by dept_id
having avg(salary) > 2000
order by avg(salary)
```

| DEPT_ID | AVG(SALARY) |
|---------|-------------|
| 50      | 2025        |

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在 Select 子句中

## Lesson Six 子查询

把 Select 语句嵌套在  
其它 sql 语句中

① select dept\_id  
from s\_emp  
where lower(last\_name) = 'smith';

② select last\_name, salary, dept\_id  
from s\_emp  
where dept\_id = (①);

子查询, 返回结果可以是 1 个或多个结果

子查询返回结果是受限定条件的,  
对其进行排序无意义, 而且会报错!

只是中间结果

① select avg(salary)  
from s\_emp

② select last\_name, salary, dept\_id  
from s\_emp  
where salary < (①);

子查询是多行数据, 用 IN 来处理返回结果.

① select salary  
from s\_emp  
where dept\_id = 41

② select \* ...  
from s\_emp  
where salary in (①);

① select avg(salary)  
from s\_emp  
where dept\_id = 32  
group by dept\_id

② select dept\_id, avg(salary)  
from s\_emp  
where avg(salary) >= Max(①);  
group by dept\_id

~~group by dept\_id,~~

```
select dept_id, avg(salary)
from s_emp
group by dept_id
having avg(salary) > (
  select avg(salary)
  from s_emp
  where dept_id = 41
)
```



## 一、概念

子查询：将select语句嵌套在其它SQL语句中

先执行select子句，将结果传给外围SQL继续处理

## 二、练习

1. 查询Smith所在部门员工的信息？

```
select last_name, salary, dept_id
from s_emp
where dept_id = (
```

```
select dept_id
from s_emp
where lower(last_name) = 'smith'
);
select last_name, salary, dept_id
from s_emp
where dept_id in (
  select dept_id
  from s_emp
);
```

子查询出现在where中，不能用order by  
子查询返回多个值，不能用等号，可以用in

2. 查询工资低于平均工资的员工的信息？

```
select last_name, salary
from s_emp
where salary < (
  select avg(salary)
  from s_emp
);
```

3. 查询部门平均工资大于32号部门平均工资的部门？

```
select dept_id, avg(salary)
from s_emp
group by dept_id
having avg(salary) > (
  select avg(salary)
  from s_emp
  where dept_id = 32
);
```

4. 查询和smith相同部门并且相同职称的员工的信息？

```
select last_name, dept_id, title
from s_emp
where dept_id = (
  select dept_id
  from s_emp
  where lower(last_name) = 'smith'
)
and title = (
  select title
  from s_emp
  where lower(last_name) = 'smith'
);
```

```
select last_name, dept_id, title
from s_emp
where (dept_id, title) = (
  select dept_id, title
  from s_emp
  where lower(last_name) = 'smith'
);
```

5. 取出表中第11到20条数据？

```
select rownum, last_name, salary
from s_emp
where rownum <= 20
minus
select rownum, last_name, salary
from s_emp
where rownum <= 10;
```

效率不高

```
select r, last_name, salary
from (
  select rownum r, last_name, salary
  from s_emp
)
```

效率又高

```
where r between 11 and 20;

select r, last_name, salary
from (
  select rownum r, last_name, salary
  from s_emp
  where rownum <= 20
)
```

真正循环中

```
where r >= 11;
```

子查询出现在from中，可以使用order by

Σ

顺序排列

黑河呼喻喻

where (dept\_id, title) = (xxx);

黑呵呼喻例  
where (dept\_id, title) = (xxx);

残歌  
霜叶满城雨满地  
亭上孤鸟独悒悒  
不知云雾处  
远山安在几千里

mjk

```
select r,last_name,salary
from(
select rownum r,last_name,salary
from (
select last_name,salary
from s_emp
order by salary desc
)
where rownum<=20
)
where r >=11
```

|    |           |      |
|----|-----------|------|
| 11 | Hagee     | 1400 |
| 12 | Havel     | 1307 |
| 13 | Catchpole | 1300 |
| 14 | Menchu    | 1250 |
| 15 | Urguhart  | 1200 |
| 16 | Nozaki    | 1200 |
| 17 | Biri      | 1100 |
| 18 | Schwartz  | 1100 |
| 19 | Smith     | 940  |
| 20 | Dancs     | 860  |

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10 rows selected.