

第09章_子查询

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【题目】

- #1. 查询和Zlotkey相同部门的员工姓名和工资
- #2. 查询工资比公司平均工资高的员工的员工号，姓名和工资。
- #3. 选择工资大于所有JOB_ID = 'SA_MAN'的员工的工资的员工的last_name, job_id, salary
- #4. 查询和姓名中包含字母u的员工在相同部门的员工的员工号和姓名
- #5. 查询在部门的location_id为1700的部门工作的员工的员工号
- #6. 查询管理者是King的员工姓名和工资
- #7. 查询工资最低的员工信息：last_name, salary
- #8. 查询平均工资最低的部门信息
- #9. 查询平均工资最低的部门信息和该部门的平均工资（相关子查询）
- #10. 查询平均工资最高的 job 信息
- #11. 查询平均工资高于公司平均工资的部门有哪些？
- #12. 查询出公司中所有 manager 的详细信息
- #13. 各个部门中 最高工资中最低的那个部门的 最低工资是多少？
- #14. 查询平均工资最高的部门的 manager 的详细信息：last_name, department_id, email, salary
- #15. 查询部门的部门号，其中不包括job_id是"ST_CLERK"的部门号
- #16. 选择所有没有管理者的员工的last_name
- #17. 查询员工号、姓名、雇用时间、工资，其中员工的管理者为 'De Haan'
- #18. 查询各部门中工资比本部门平均工资高的员工的员工号，姓名和工资（相关子查询）
- #19. 查询每个部门下的部门人数大于 5 的部门名称（相关子查询）
- #20. 查询每个国家下的部门个数大于 2 的国家编号（相关子查询）

1.查询和Zlotkey相同部门的员工姓名和工资

```
SELECT last_name, salary
FROM employees
WHERE department_id = (
    SELECT department_id
    FROM employees
    WHERE last_name = 'Zlotkey'
)
```

2.查询工资比公司平均工资高的员工的员工号，姓名和工资

```
SELECT employee_id, last_name, salary
FROM employees
WHERE salary > (
    SELECT AVG(salary)
    FROM employees
)
```

3.选择工资大于所有JOB_ID = 'SA_MAN'的员工的工资的员工的last_name, job_id, salary

```
SELECT last_name, job_id, salary
FROM employees
WHERE salary > ALL (
    SELECT salary
    FROM employees
    WHERE job_id = 'SA_MAN'
);
```

4.查询和姓名中包含字母u的员工在相同部门的员工的员工号和姓名

```
SELECT employee_id, last_name
FROM employees
WHERE department_id = ANY(
    SELECT DISTINCT department_id
    FROM employees
    WHERE last_name LIKE '%u%'
)
```

5.查询在部门的location_id为1700的部门工作的员工的员工号

```
SELECT employee_id
FROM employees
WHERE department_id IN (
    SELECT department_id
    FROM departments
    WHERE location_id = 1700
)
```

6. 查询管理者是King的员工姓名和工资

```
SELECT last_name, salary
FROM employees
WHERE manager_id IN (
    SELECT employee_id
    FROM employees
    WHERE last_name = 'King'
)
```

7. 查询工资最低的员工信息: last_name, salary

```
SELECT last_name, salary
FROM employees
WHERE salary = (
    SELECT MIN(salary)
    FROM employees
);
```

8. 查询平均工资最低的部门信息

```
#方式一:
SELECT *
FROM departments
WHERE department_id = (
    SELECT department_id
    FROM employees
    GROUP BY department_id
    HAVING AVG(salary) = (
        SELECT MIN(dept_avgsal)
        FROM (
            SELECT AVG(salary) dept_avgsal
            FROM employees
            GROUP BY department_id
        ) avg_sal
    )
);
```

```
#方式二:
SELECT *
FROM departments
WHERE department_id = (
    SELECT department_id
    FROM employees
    GROUP BY department_id
    HAVING AVG(salary) <= ALL(
        SELECT AVG(salary) avg_sal
        FROM employees
        GROUP BY department_id
    )
);
```

```
#方式三:
SELECT *
FROM departments
WHERE department_id = (
```

```

SELECT department_id
FROM employees
GROUP BY department_id
HAVING AVG(salary) = (
    SELECT AVG(salary) avg_sal
    FROM employees
    GROUP BY department_id
    ORDER BY avg_sal
    LIMIT 0,1
)
)

```

#方式四:

```

SELECT d.*
FROM departments d,(
    SELECT department_id,AVG(salary) avg_sal
    FROM employees
    GROUP BY department_id
    ORDER BY avg_sal
    LIMIT 0,1) dept_avg_sal
WHERE d.department_id = dept_avg_sal.department_id

```

9.查询平均工资最低的部门信息和该部门的平均工资（相关子查询）

#方式一:

```

SELECT d.*, (SELECT AVG(salary) FROM employees WHERE department_id = d.department_id)
avg_sal
FROM departments d
WHERE department_id = (
    SELECT department_id
    FROM employees
    GROUP BY department_id
    HAVING AVG(salary) = (
        SELECT MIN(dept_avgsal)
        FROM (
            SELECT AVG(salary) dept_avgsal
            FROM employees
            GROUP BY department_id
        ) avg_sal
    )
);

```

#方式二:

```

SELECT d.*, (SELECT AVG(salary) FROM employees WHERE department_id = d.`department_id`)
avg_sal
FROM departments d
WHERE department_id = (
    SELECT department_id
    FROM employees
    GROUP BY department_id
    HAVING AVG(salary) <= ALL(
        SELECT AVG(salary) avg_sal
        FROM employees
        GROUP BY department_id
    )
);

```

#方式三:

```
SELECT d.*, (SELECT AVG(salary) FROM employees WHERE department_id = d.department_id)
avg_sal
FROM departments d
WHERE department_id = (
    SELECT department_id
    FROM employees
    GROUP BY department_id
    HAVING AVG(salary) = (
        SELECT AVG(salary) avg_sal
        FROM employees
        GROUP BY department_id
        ORDER BY avg_sal
        LIMIT 0,1
    )
)
```

#方式四:

```
SELECT d.*, dept_avg_sal.avg_sal
FROM departments d, (
    SELECT department_id, AVG(salary) avg_sal
    FROM employees
    GROUP BY department_id
    ORDER BY avg_sal
    LIMIT 0,1) dept_avg_sal
WHERE d.department_id = dept_avg_sal.department_id
```

10. 查询平均工资最高的 job 信息

#方式一:

```
SELECT *
FROM jobs
WHERE job_id = (
    SELECT job_id
    FROM employees
    GROUP BY job_id
    HAVING AVG(salary) = (
        SELECT MAX(avg_sal)
        FROM(
            SELECT AVG(salary) avg_sal
            FROM employees
            GROUP BY job_id
        ) job_avg_sal
    )
);
```

#方式二:

```
SELECT *
FROM jobs
WHERE job_id = (
    SELECT job_id
    FROM employees
    GROUP BY job_id
    HAVING AVG(salary) >= ALL(
        SELECT AVG(salary)
        FROM employees
        GROUP BY job_id
    )
);
```

#方式三:

```
SELECT *
FROM jobs
WHERE job_id = (
    SELECT job_id
    FROM employees
    GROUP BY job_id
    HAVING AVG(salary) = (
        SELECT AVG(salary) avg_sal
        FROM employees
        GROUP BY job_id
        ORDER BY avg_sal DESC
        LIMIT 0,1
    )
);
```

#方式四:

```
SELECT j.*
FROM jobs j,(
    SELECT job_id,AVG(salary) avg_sal
    FROM employees
    GROUP BY job_id
    ORDER BY avg_sal DESC
    LIMIT 0,1 ) job_avg_sal
WHERE j.job_id = job_avg_sal.job_id
```

11. 查询平均工资高于公司平均工资的部门有哪些?

```
SELECT department_id
FROM employees
WHERE department_id IS NOT NULL
GROUP BY department_id
HAVING AVG(salary) > (
    SELECT AVG(salary)
    FROM employees
);
```

12. 查询出公司中所有 manager 的详细信息.

#方式1:

```
SELECT employee_id, last_name, salary
FROM employees
WHERE employee_id IN (
    SELECT DISTINCT manager_id
    FROM employees
);
```

#方式2:

```
SELECT DISTINCT e1.employee_id, e1.last_name, e1.salary
FROM employees e1 JOIN employees e2
WHERE e1.employee_id = e2.manager_id;
```

#方式3:

```
SELECT employee_id, last_name, salary
FROM employees e1
WHERE EXISTS ( SELECT *
                FROM employees e2
                WHERE e2.manager_id = e1.employee_id);
```

13. 各个部门中 最高工资中最低的那个部门的 最低工资是多少?

#方式1:

```
SELECT MIN(salary)
FROM employees
WHERE department_id = (
    SELECT department_id
    FROM employees
    GROUP BY department_id
    HAVING MAX(salary) = (
        SELECT MIN(max_sal)
        FROM (
            SELECT MAX(salary) max_sal
            FROM employees
            GROUP BY department_id) dept_max_sal
        )
);

SELECT *
FROM employees
WHERE department_id = 10;
```

#方式2:

```
SELECT MIN(salary)
FROM employees
WHERE department_id = (
    SELECT department_id
    FROM employees
    GROUP BY department_id
    HAVING MAX(salary) <= ALL(
        SELECT MAX(salary) max_sal
        FROM employees
        GROUP BY department_id
    )
);
```

#方式3:

```
SELECT MIN(salary)
FROM employees
WHERE department_id = (
    SELECT department_id
    FROM employees
    GROUP BY department_id
    HAVING MAX(salary) = (
        SELECT MAX(salary) max_sal
        FROM employees
        GROUP BY department_id
        ORDER BY max_sal
        LIMIT 0,1
    )
)
```

#方式4:

```
SELECT employee_id, MIN(salary)
FROM employees e,
    (SELECT department_id, MAX(salary) max_sal
     FROM employees
     GROUP BY department_id
     ORDER BY max_sal
     LIMIT 0,1) dept_max_sal
WHERE e.department_id = dept_max_sal.department_id
```

14. 查询平均工资最高的部门的 manager 的详细信息: last_name, department_id, email, salary

#方式一:

```
SELECT employee_id, last_name, department_id, email, salary
FROM employees
WHERE employee_id IN (
    SELECT DISTINCT manager_id
    FROM employees
    WHERE department_id = (
        SELECT department_id
        FROM employees
        GROUP BY department_id
        HAVING AVG(salary) = (
            SELECT MAX(avg_sal)
            FROM(
```



```

                SELECT AVG(salary) avg_sal
                FROM employees
                GROUP BY department_id
            ) dept_sal
        )
    );

```

#方式二:

```

SELECT employee_id,last_name, department_id, email, salary
FROM employees
WHERE employee_id IN (
    SELECT DISTINCT manager_id
    FROM employees
    WHERE department_id = (
        SELECT department_id
        FROM employees e
        GROUP BY department_id
        HAVING AVG(salary)>=ALL(
            SELECT AVG(salary)
            FROM employees
            GROUP BY department_id
        )
    )
);

```

#方式三:

```

SELECT *
FROM employees
WHERE employee_id IN (
    SELECT DISTINCT manager_id
    FROM employees e,(
        SELECT department_id,AVG(salary) avg_sal
        FROM employees
        GROUP BY department_id
        ORDER BY avg_sal DESC
        LIMIT 0,1) dept_avg_sal
    WHERE e.department_id = dept_avg_sal.department_id
)

```

15. 查询部门的部门号，其中不包括job_id是"ST_CLERK"的部门号

#方法一:

```

SELECT department_id
FROM departments d
WHERE department_id NOT IN (
    SELECT DISTINCT department_id
    FROM employees
    WHERE job_id = 'ST_CLERK'
);

```

```
#方法二:
SELECT department_id
FROM departments d
WHERE NOT EXISTS (
    SELECT *
    FROM employees e
    WHERE d.`department_id` = e.`department_id`
    AND job_id = 'ST_CLERK'
);
```

16. 选择所有没有管理者的员工的last_name

```
SELECT last_name
FROM employees e1
WHERE NOT EXISTS (
    SELECT *
    FROM employees e2
    WHERE e1.manager_id = e2.employee_id
);
```

17. 查询员工号、姓名、雇用时间、工资，其中员工的管理者为 'De Haan'

```
#方式1:
SELECT employee_id, last_name, hire_date, salary
FROM employees
WHERE manager_id = (
    SELECT employee_id
    FROM employees
    WHERE last_name = 'De Haan'
)
```

```
#方式2:
SELECT employee_id, last_name, hire_date, salary
FROM employees e1
WHERE EXISTS (
    SELECT *
    FROM employees e2
    WHERE e2.`employee_id` = e1.manager_id
    AND e2.last_name = 'De Haan'
);
```

18. 查询各部门中工资比本部门平均工资高的员工的员工号, 姓名和工资(难)

```
#方式一: 相关子查询
SELECT employee_id, last_name, salary
FROM employees e1
WHERE salary > (
    # 查询某员工所在部门的平均
    SELECT AVG(salary)
    FROM employees e2
    WHERE e2.department_id = e1.`department_id`
);
```

#方式二:

```
SELECT employee_id,last_name,salary
FROM employees e1,
(SELECT department_id,AVG(salary) avg_sal
FROM employees e2 GROUP BY department_id
) dept_avg_sal
WHERE e1.`department_id` = dept_avg_sal.department_id
AND e1.`salary` > dept_avg_sal.avg_sal;
```

19.查询每个部门下的部门人数大于 5 的部门名称

```
SELECT department_name,department_id
FROM departments d
WHERE 5 < (
    SELECT COUNT(*)
    FROM employees e
    WHERE d.`department_id` = e.`department_id`
);
```

20.查询每个国家下的部门个数大于 2 的国家编号

```
SELECT country_id
FROM locations l
WHERE 2 < (
    SELECT COUNT(*)
    FROM departments d
    WHERE l.`location_id` = d.`location_id`
);
```