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

```sql
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

```sql
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

```sql
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

```sql
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

```sql
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

```sql
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

```sql
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

```sql
#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
                    )
            );
```

```sql
#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
                    )
            );
```

```sql
#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_avgsal
                )
        );
```

```
#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：
```sql
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：
```sql
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：
```sql
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`
    );
```