Information System - Lab work 6

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Database

- employees (emp_no, birth_date, first_name, last_name, gender)

- departments (dept_no, dept_name)

- dept_emp (emp_no, dept_no, from_date, to_date)

- dept_manager (dept_no, emp_no, from_date, to_date)

- titles (emp_no, title, from_date, to_date)

- salaries (emp_no, salary, from_date, to_date)

SQL queries using subqueries

1. Who have the same name as the managers of the "Finance" department?

   ```
   SELECT emp_no, CONCAT(first_name, "", last_name) AS full_name
   FROM employees WHERE last_name IN (
           SELECT last_name FROM dept_manager
       JOIN employees
       ON dept_manager.emp_no = employees.emp_no
       JOIN departments
       ON dept_manager.dept_no = departments.dept_no
           WHERE dept_name = "Finance");
   ```

2. Who in the "Production" department were hired after the promotion of
   the last manager in that departments?

   ```
   SELECT employees.emp_no,
   CONCAT(first_name, "", last_name) AS fullname, hire_date
   FROM employees
   JOIN (SELECT emp_no FROM departments
   ```

```
                NATURAL JOIN dept_emp
                WHERE dept_name = 'Production ') AS R1
                ON employees.emp_no = R1.emp_no
                WHERE hire_date > (SELECT MAX( from_date )
                            FROM dept_manager
                            NATURAL JOIN departments
                            WHERE dept_name = 'Production ');
```

3. Find the average salary of each department, from highest to lowest.

```
SELECT dept_no , dept_name , AVG( R1_salary )
FROM (SELECT emp_no, AVG( salary ) AS R1_salary
FROM salaries GROUP BY emp_no) AS R1
JOIN (SELECT emp_no, dept_emp.dept_no , dept_name
FROM dept_emp
JOIN departments
ON dept_emp.dept_no = departments.dept_no ) AS R2
ON R2.emp_no = R1.emp_no
GROUP BY dept_name
ORDER BY AVG( R1_salary ) DESC;
```

4. Find the average salary for each type of Engineer, from highest to lowest.

```
SELECT title , AVG( R3_salary )
FROM (SELECT emp_no, AVG( salary ) AS R3_salary
FROM salaries GROUP BY emp_no ) AS R3
JOIN (SELECT title , emp_no
FROM titles WHERE title LIKE '%Engineer%' ) AS R4
ON R3.emp_no = R4.emp_no
GROUP BY title
ORDER BY AVG( R3_salary ) DESC;
```

Results

The figure below presents the results after implement queries (limit from 0 to 10 for some long results) above:

```
+--------+--------------------+    +--------+--------------------+------------+
| emp_no | full_name          |    | emp_no | fullname           | hire_date  |
+--------+--------------------+    +--------+--------------------+------------+
|  10210 | YupingAlpin        |    |  10024 | SuzettePettey      | 1997-05-19 |
|  10414 | YinlinAlpin        |    |  10218 | ZhenhuaMagalhaes   | 1997-01-15 |
|  11856 | GaoAlpin           |    |  10267 | ShaunakCullers     | 1996-12-11 |
|  12920 | TetsushiLegleitner |    |  10284 | MasaliMurrill      | 1997-07-02 |
|  13292 | BokyungAlpin       |    |  10298 | DietrichDuCasse    | 1999-03-30 |
|  13785 | ShietungLegleitner |    |  10552 | KazuhitoShiratori  | 1998-08-18 |
|  14045 | YmteAlpin          |    |  10684 | AimeeTokunaga      | 1999-10-28 |
|  14813 | NaftaliAlpin       |    |  10811 | AshishFortenbacher | 1997-07-08 |
|  15331 | GutherLegleitner   |    |  11075 | KarstenBelinskaya  | 1996-10-29 |
|  15504 | KasturiAlpin       |    |  11115 | SahrahDemos        | 1998-11-03 |
              Query 1                             Query 2

+---------+-------------------+----------------+
| dept_no | dept_name         | AVG(R1_salary) |
+---------+-------------------+----------------+
| d007    | Sales             | 78313.22247361 |
| d001    | Marketing         | 69541.61771136 |  +------------------+----------------+
| d002    | Finance           | 68061.43501801 |  | title            | AVG(R1_salary) |
| d008    | Research          | 57322.03105659 |  +------------------+----------------+
| d004    | Production        | 57253.31382027 |  | Senior Engineer  | 59144.76835191 |
| d005    | Development       | 57152.20845497 |  | Engineer         | 57244.45845623 |
| d009    | Customer Service  | 56480.08591880 |  | Assistant Engineer | 56963.53043254 |
| d006    | Quality Management| 54892.93507273 |  +------------------+----------------+
| d003    | Human Resources   | 53214.29085744 |              Query 4
              Query 3
```

Figure 1: Results