**Department Top Three Salaries**

**Description**

The Employee table holds all employees. Every employee has an Id, and there is also a column for the department Id.

+----+-------+--------+--------------+

| Id | Name | Salary | DepartmentId |

+----+-------+--------+--------------+

| 1 | Joe | 70000 | 1 |

| 2 | Henry | 80000 | 2 |

| 3 | Sam | 60000 | 2 |

| 4 | Max | 90000 | 1 |

| 5 | Janet | 69000 | 1 |

| 6 | Randy | 85000 | 1 |

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The Department table holds all departments of the company.

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| Id | Name |

+----+----------+

| 1 | IT |

| 2 | Sales |

+----+----------+

Write a SQL query to find employees who earn the top three salaries in each of the department. For the above tables, your SQL query should return the following rows.

+------------+----------+--------+

| Department | Employee | Salary |

+------------+----------+--------+

| IT | Max | 90000 |

| IT | Randy | 85000 |

| IT | Joe | 70000 |

| Sales | Henry | 80000 |

| Sales | Sam | 60000 |

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**Observation**

Make the following observation to interviewers. Confirm your observation is correct. Ask for clarification if necessary.

* Are salary distinct for all employee? If not, must use **DISTINCT** keyword.
* How to display if department has fewer than 3 distinct salaries?
* Every employment belongs to a department? No employee has **NULL** in *Department*.

**On Correctness**

What does top-3 paid employees in each department have in common?

* They have the same Department.
* They have fewer than 3 persons who get paid higher salary (can use either < 3 or <= 2).
* Department No. 1 has 0 above him.
* Department No. 2 has 1 above him.
* Department No. 3 has 2 above him. The conditions are set-up for correlated subquery. In subquery, we can use an equijoin (*DepartmentId*) and non-equijoin (*Salary*) to filter the outer query.

|  |
| --- |
| SELECT  d.Name AS 'Department'  ,e.Name AS 'Employee'  ,e.Salary  FROM Employee e  JOIN Department d  ON e.DepartmentId = d.Id  WHERE  (SELECT COUNT(DISTINCT e2.Salary)  FROM  Employee e2  WHERE  e2.Salary > e.Salary  AND e.DepartmentId = e2.DepartmentId  ) < 3; |

|  |
| --- |
| -- MS SQL: cleaner version  WITH department\_ranking AS (  SELECT  e.Name AS Employee  ,e.Salary  ,e.DepartmentId  ,DENSE\_RANK() OVER (PARTITION BY e.DepartmentId ORDER BY e.Salary DESC) AS rnk  FROM Employee AS e  )  SELECT  d.Name AS Department  ,r.Employee  ,r.Salary  FROM department\_ranking AS r  JOIN Department AS d  ON r.DepartmentId = d.Id  AND r.rnk <= 3  ORDER BY d.Name ASC, r.Salary DESC; |