Day 33 – SQL Advanced HR Analytics Challenge

Dataset simulates a Human Resources system with employees, departments, salaries, and leave records. Use the given schema and sample data to answer the questions.

# Schema & Sample Data

Departments

|  |  |
| --- | --- |
| DeptID | DeptName |
| 1 | HR |
| 2 | Finance |
| 3 | IT |
| 4 | Marketing |

Employees

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| EmpID | Name | DeptID | HireDate | ManagerID | Salary |
| 101 | Alice | 1 | 2018-02-12 | NULL | 60000 |
| 102 | Bob | 2 | 2019-04-01 | 101 | 55000 |
| 103 | Charlie | 3 | 2020-06-23 | 101 | 70000 |
| 104 | David | 3 | 2021-01-15 | 103 | 65000 |
| 105 | Eva | 4 | 2017-09-10 | NULL | 72000 |
| 106 | Frank | 4 | 2022-03-05 | 105 | 50000 |

Leaves

|  |  |  |  |
| --- | --- | --- | --- |
| LeaveID | EmpID | LeaveDate | LeaveType |
| 1 | 101 | 2023-01-02 | Sick |
| 2 | 101 | 2023-03-15 | Casual |
| 3 | 103 | 2023-02-18 | Sick |
| 4 | 104 | 2023-04-20 | Vacation |
| 5 | 106 | 2023-05-05 | Casual |

# Questions

1. List all employees with their department names.

2. Find employees who joined before 2020 and earn more than 60,000.

3. Show the total salary expense per department.

4. Find employees who report directly to 'Alice'.

5. For each employee, find how many leaves they have taken.

6. Use a window function to rank employees by salary within their department.

7. Find employees who have never taken a leave.

8. Retrieve the department with the highest average salary.

9. Using a recursive CTE, display the employee hierarchy starting from Alice.

10. For each department, calculate the percentage of employees earning above 60,000.

## Bonus Challenge

Find employees whose salary is above the overall company average but who have taken more than 1 leave in 2023.