

SQL Assignment: Joins and Aggregation

February 3, 2025

1 Employees Table

EmployeeID	Name	JobTitle	DepartmentID	Salary
1	Alice	Software Engineer	201	70000
2	Bob	Data Scientist	202	75000
3	Charlie	Engineering Manager	201	95000
4	David	System Analyst	203	72000
5	Eve	Cybersecurity Analyst	204	69000
6	Frank	AI Engineer	202	80000
7	Grace	Cloud Engineer	201	73000
8	Hank	DevOps Engineer	205	77000
9	Ivy	Network Engineer	NULL	68000
10	Jake	Embedded Systems Engineer	203	71000

2 Departments Table

DepartmentID	DepartmentName
201	Software Engineering
202	Data Engineering
203	Electrical Engineering
204	Cybersecurity
205	Cloud Computing

3 SQL Questions

1. Retrieve employee names, job titles, department names, and salaries using an INNER JOIN.
2. Retrieve all employees and their department names, including those without departments, using a LEFT JOIN.
3. Retrieve all departments and the employees working in them using a RIGHT JOIN.
4. Retrieve all employees and all departments, including those without a match, using a FULL OUTER JOIN.
5. List employees and their managers using a SELF JOIN.

6. Find the highest salary per department.
7. Find departments with no employees.
8. Find employees who earn more than their manager.
9. List employees with a higher salary than the average salary of their department.
10. Rank employees based on salary within each department.
11. Find the total salary expense per department.
12. List departments where the average salary is greater than 70,000.
13. List employees who earn more than the average salary of all employees.
14. List all departments that do not have any employees assigned.
15. List departments where the number of employees is greater than 3.