



SQL Data Analyst Project

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1. List of Employees by Department

Question: Write a query to list all employees along with their respective department names. Include employee number, first name, last name, department number, and department name.

Query:

```
SELECT e.emp_no,e.first_name,e.last_name,d.dept_no,d.dept_name FROM employees as e
JOIN dept_emp as de
ON e.emp_no = de.emp_no
JOIN departments as d
ON de.dept_no = d.dept_no
```

Output:

| | emp_no | first_name | last_name | dept_no | dept_name |
|---|--------|-------------|-------------|---------|------------------|
| ▶ | 10011 | Mary | Sluis | d009 | Customer Service |
| | 10038 | Huan | Lortz | d009 | Customer Service |
| | 10049 | Basil | Tramer | d009 | Customer Service |
| | 10060 | Breannnda | Billingsley | d009 | Customer Service |
| | 10088 | Jungsoon | Syrzycki | d009 | Customer Service |
| | 10098 | Sreekrishna | Servieres | d009 | Customer Service |

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2. Current and Past Salaries of an Employee

Question: Write a query to retrieve all the salary records of a given employee (by employee number). Include employee number, salary, from_date, and to_date. And find the Highest salary

Query:

```
SELECT * FROM salaries  
WHERE emp_no = '10044' order by salary desc  
LIMIT 1;
```

Output:

| emp_no | salary | from_date | to_date |
|--------|--------|------------|------------|
| 10044 | 58345 | 2002-05-19 | 9999-01-01 |
| NULL | NULL | NULL | NULL |



3. Employees with Specific Titles

Question: Write a query to find all employees who have held a specific title (e.g., 'Engineer'). Include employee number, first name, last name, and title.

Query:

```
SELECT e.emp_no,first_name,last_name,title FROM employees as e
JOIN titles as t
ON e.emp_no = t.emp_no
where t.title = 'Engineer';
```

Output:

| | emp_no | first_name | last_name | title |
|---|--------|------------|-----------|----------|
| ► | 10004 | Chirstian | Koblick | Engineer |
| | 10009 | Sumant | Peac | Engineer |
| | 10010 | Duangkaew | Piveteau | Engineer |
| | 10012 | Patricio | Bridgland | Engineer |
| | 10014 | Berni | Genin | Engineer |
| | 10018 | Kazuhide | Peha | Engineer |

4. Departments with Their Managers

Question: Write a query to list all departments along with their current managers. Include department number, department name, manager's employee number, first name, and last name.

Query:

```
SELECT d.dept_no,d.dept_name,e.emp_no,e.first_name,e.last_name FROM departments as d
JOIN dept_manager as dm
ON d.dept_no = dm.dept_no
JOIN employees as e
ON e.emp_no = dm.emp_no
```

Output:

| | dept_no | dept_name | emp_no | first_name | last_name |
|---|---------|------------------|--------|------------|-------------|
| ▶ | d009 | Customer Service | 111692 | Tonny | Butterworth |
| | d009 | Customer Service | 111784 | Marjo | Giarratana |
| | d009 | Customer Service | 111877 | Xiaobin | Spinelli |
| | d009 | Customer Service | 111939 | Yuchang | Weedman |
| | d005 | Development | 110511 | DeForest | Hagimont |
| | d005 | Development | 110567 | Leon | DasSarma |



5. Employee Count by Department

Question: Write a query to count the number of employees in each department. Include department number, department name, and employee count.

Query:

```
SELECT d.dept_no,dept_name,count(de.emp_no) as emp_count FROM departments as d
JOIN dept_emp as de
ON d.dept_no = de.dept_no
GROUP BY dept_no,dept_name
```

Output:

| | dept_no | dept_name | emp_count |
|---|---------|------------------|-----------|
| ▶ | d009 | Customer Service | 23580 |
| | d005 | Development | 85707 |
| | d002 | Finance | 17346 |
| | d003 | Human Resources | 17786 |
| | d001 | Marketing | 20211 |
| | d004 | Production | 73485 |

6. Employees' Birthdates in a Given Year

Question: Write a query to find all employees born in a specific year (e.g., 1953). Include employee number, first name, last name, and birth date.

Query:

```
SELECT emp_no,first_name,last_name,birth_date FROM employees
WHERE year(birth_date) = 1953
```

Output:

| | emp_no | first_name | last_name | birth_date |
|---|--------|------------|-------------|------------|
| ► | 10012 | Patricio | Bridgland | 1960-10-04 |
| | 10025 | Prasadram | Heyers | 1958-10-31 |
| | 10039 | Alejandro | Brender | 1959-10-01 |
| | 10058 | Berhard | McFarlin | 1954-10-01 |
| | 10060 | Breannnda | Billingsley | 1961-10-15 |
| | 10061 | Tse | Herber | 1962-10-19 |

7. Employees Hired in the Last 5 Years

Question: Write a query to find all employees hired in the last 50 years. Include employee number, first name, last name, and hire date.

Query:

```
SELECT emp_no,first_name,last_name,hire_date FROM employees
WHERE hire_date >= date_sub(curdate(),INTERVAL 50 YEAR)
```

Output:

| | emp_no | first_name | last_name | hire_date |
|---|--------|------------|-----------|------------|
| ▶ | 10001 | Georgi | Facello | 1986-06-26 |
| | 10002 | Bezalel | Simmel | 1985-11-21 |
| | 10003 | Parto | Bamford | 1986-08-28 |
| | 10004 | Chirstian | Koblick | 1986-12-01 |
| | 10005 | Kyoichi | Maliniak | 1989-09-12 |
| | 10006 | Anneke | Preusig | 1989-06-02 |

8. Average Salary by Department

Question: Write a query to calculate the average salary for each department. Include department number, department name, and average salary.

Query:

```
SELECT d.dept_no,d.dept_name,avg(s.salary) as avg_salary FROM departments as d
JOIN dept_emp as de
ON de.dept_no = d.dept_no
JOIN salaries as s ON de.emp_no = s.emp_no
GROUP BY d.dept_no,d.dept_name
```

Output:

| | dept_no | dept_name | avg_salary |
|---|---------|--------------------|------------|
| ► | d001 | Marketing | 71913.2000 |
| | d002 | Finance | 70489.3649 |
| | d003 | Human Resources | 55574.8794 |
| | d004 | Production | 59605.4825 |
| | d005 | Development | 59478.9012 |
| | d006 | Quality Management | 57251.2719 |

9. Gender Distribution in Each Department

Question: Write a query to find the gender distribution (number of males and females) in each department. Include department number, department name, count of males, and count of females.

Query:

```
SELECT d.dept_no,d.dept_name,  
SUM(CASE when e.gender = 'M' THEN 1 ELSE 0 END ) as male_count,  
SUM(CASE when e.gender = 'F' THEN 1 ELSE 0 END ) as female_count  
FROM departments as d  
JOIN dept_emp as de ON de.dept_no = d.dept_no  
JOIN employees as e on de.emp_no = e.emp_no  
GROUP by d.dept_no,d.dept_name
```

Output:

| | dept_no | dept_name | male_count | female_count |
|--|---------|--------------------|------------|--------------|
| | d003 | Human Resources | 10711 | 7075 |
| | d001 | Marketing | 12174 | 8037 |
| | d004 | Production | 43936 | 29549 |
| | d006 | Quality Management | 12039 | 8078 |
| | d008 | Research | 12687 | 8439 |
| | d007 | Sales | 31391 | 20854 |

10. Longest Serving Employees

- Question: Write a query to find the employees who have served the longest in the company. Include employee number, first name, last name, and number of years served.

Query:

```
SELECT emp_no,first_name,last_name,  
timestampdiff(YEAR,hire_date,CURdate()) as year_served  
FROM employees  
ORDER By year_served desc  
LIMIT 10
```

Output:

| | emp_no | first_name | last_name | year_served |
|---|--------|------------|-----------|-------------|
| ► | 10116 | Dayanand | Czap | 39 |
| | 10245 | Ramalingam | Gente | 39 |
| | 10233 | Lein | Vendrig | 39 |
| | 10137 | Maren | Hutton | 39 |
| | 10076 | Erez | Ritzmann | 39 |
| | 10048 | Florian | Syrotiuk | 39 |

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