

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 | Breannda | Billingsley | d009 | Customer Service |
| | 10088 | Jungsoon | Syrzycki | d009 | Customer Service |
| | 10098 | Sreekrishna | Servieres | d009 | Customer Service |
| | 10112 | Yuichiro | Swick | d009 | Customer Service |
| | 10115 | Chikara | Rissland | d009 | Customer Service |
| | 10126 | Kayoko | Valtorta | d009 | Customer Service |
| | 10128 | Babette | Lamba | d009 | Customer Service |

2. Current and Past Salaries of an Employee

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.

Query:

```
select max(salary) from salaries  
where emp_no = '10044';
```

output:

| | |
|---|-------------|
| | max(salary) |
| ▶ | 58345 |

3. Employees with Specific Titles

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, 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 | 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 |
| | 10020 | Mayuko | Warwick | Engineer |
| | 10022 | Shahaf | Famili | Engineer |
| | 10023 | Bojan | Montemayor | Engineer |
| | 10026 | Yongqiao | Berztiss | Engineer |
| | 10027 | Divier | Reistad | 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
dm.emp_no = e.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 |
| | d002 | Finance | 110085 | Ebru | Alpin |
| | d002 | Finance | 110114 | Isamu | Legleitner |
| | d003 | Human Resources | 110183 | Shirish | Ossenbruggen |
| | d003 | Human Resources | 110228 | Karsten | Sigstam |
| | d001 | Marketing | 110022 | Margareta | Markovitch |

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 |
|---|---------|--------------------|-----------|
| ▶ | d001 | Marketing | 20211 |
| | d002 | Finance | 17346 |
| | d003 | Human Resources | 17786 |
| | d004 | Production | 73485 |
| | d005 | Development | 85707 |
| | d006 | Quality Management | 20117 |
| | d007 | Sales | 52245 |
| | d008 | Research | 21126 |
| | d009 | Customer Service | 23580 |

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 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
dm.emp_no = e.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 |
| | d002 | Finance | 110085 | Ebru | Alpin |
| | d002 | Finance | 110114 | Isamu | Legleitner |
| | d003 | Human Resources | 110183 | Shirish | Ossenbruggen |
| | d003 | Human Resources | 110228 | Karsten | Sigstam |
| | d001 | Marketing | 110022 | Margareta | Markovitch |

7. Employees Hired in the Last 5 Years

Question: Write a query to find all employees hired in the last 5 years. Include employee number, first name, last name, and hire date.

query:

```
select emp_no,first_name,last_name,year(hire_date) from employees  
where year(hire_date) > 1995;
```

output:

| | emp_no | first_name | last_name | year(hire_date) |
|---|--------|------------|------------|-----------------|
| ▶ | 10019 | Lillian | Haddadi | 1999 |
| | 10024 | Suzette | Pettey | 1997 |
| | 10093 | Sailaja | Desikan | 1996 |
| | 10105 | Hironoby | Piveteau | 1999 |
| | 10120 | Armond | Fairtlough | 1996 |
| | 10139 | Ewing | Foong | 1998 |
| | 10183 | Mechthild | Bonifati | 1996 |
| | 10199 | Kazuhisa | Ranta | 1997 |
| | 10218 | Zhenhua | Magalhaes | 1997 |
| | 10230 | Clyde | Vernadat | 1996 |
| | 10231 | Shaowen | Desikan | 1996 |

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,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 s.emp_no= de.emp_no
group by d.dept_no,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 |
| | d007 | Sales | 80667.6058 |
| | d008 | Research | 59665.1817 |
| | d009 | Customer Service | 58770.3665 |

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 |
|---------|--------------------|------------|--------------|
| d005 | Development | 51449 | 34258 |
| d007 | Sales | 31391 | 20854 |
| d004 | Production | 43936 | 29549 |
| d003 | Human Resources | 10711 | 7075 |
| d008 | Research | 12687 | 8439 |
| d006 | Quality Management | 12039 | 8078 |
| d009 | Customer Service | 14132 | 9448 |
| d001 | Marketing | 12174 | 8037 |
| d002 | Finance | 10331 | 7015 |

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 | last_name | year_served |
|--------|-------------|-------------|
| 10126 | Kayoko | 39 |
| 10137 | Maren | 39 |
| 10098 | Sreekrishna | 39 |
| 10195 | Annemarie | 39 |
| 10116 | Dayanand | 39 |
| 10076 | Erez | 39 |
| 10156 | Sumali | 39 |
| 10009 | Sumant | 39 |
| 10048 | Florian | 39 |
| 10061 | Tse | 39 |