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:

```sql
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

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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:

```sql
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:

```sql
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:

```sql
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:

```sql
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:

```sql
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	Breannda	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:

```sql
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:

```sql
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:

```sql
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:

```sql
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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