DBMS Project

The HR database is a sample database that was originally created by Microsoft and used as the basis for their tutorials in a variety of database products for decades.

The HR sample database has seven tables:

1. The `employees` table stores the data of employees.
2. The `jobs` table stores the job data including job title and salary range.
3. The `departments` table stores department data.
4. The `job_history` table stores the job history of employees.
5. The `locations` table stores the location of the departments of the company.
6. The `countries` table stores the data of countries where the company is doing business.

7. The `regions` table stores the data of regions such as Asia, Europe, America, and the Middle East and Africa. The countries are grouped into regions.

Tasks

1. Write a query to find the addresses (location_id, street_address, city, state_province, country_name) of all the departments

Ans.
```
SELECT
   d.department_id,
   l.location_id,
   l.street_address,
   l.city,
   l.state_province,
   c.country_name
FROM
   departments d
JOIN
   locations l ON d.location_id = l.location_id
JOIN
   countries c ON l.country_id = c.country_id;
```

2. Write a query to find the name (first_name, last name), department ID and name of all the employees.

Ans.
```
SELECT
   e.first_name,
   e.last_name,
   d.department_id,
   d.department_name
FROM
   employees e
JOIN

   departments d ON e.department_id = d.department_id;
```

3. Write a query to find the name (first_name, last_name), job, department ID and name of the employees who works in London

Ans.
```
SELECT
   e.first_name,
   e.last_name,
   j.job_title,
   d.department_id,
   d.department_name
FROM
   employees e
JOIN
   jobs j ON e.job_id = j.job_id
JOIN
   departments d ON e.department_id = d.department_id
JOIN
   locations l ON d.location_id = l.location_id
WHERE
   l.city = 'London';
```

4. Write a query to find the employee id, name (last_name) along with their manager_id and name (last_name)

Ans. SELECT
  e.employee_id,
  e.last_name AS employee_last_name,
  e.manager_id,
  m.last_name AS manager_last_name
FROM
  employees e
LEFT JOIN
  employees m ON e.manager_id = m.employee_id;

5. Write a query to find the name (first_name, last_name) and hire date of the employees who was hired after 'Jones'

Ans. SELECT
  e.first_name,
  e.last_name,
  e.hire_date
FROM
  employees e
WHERE
  e.hire_date > (SELECT hire_date FROM employees WHERE last_name = 'Jones');

6. Write a query to get the department name and number of employees in the department

Ans. SELECT
  d.department_name,
  COUNT(e.employee_id) AS number_of_employees
FROM
  departments d
LEFT JOIN
  employees e ON d.department_id = e.department_id
GROUP BY

  d.department_name;

7. Write a query to display department name, name (first_name, last_name), hire date, salary of the manager for all managers whose experience is more than 15 years

Ans. SELECT
    d.department_name,
    e.first_name,
    e.last_name,
    e.hire_date,
    e.salary
FROM
    departments d
JOIN
    employees e ON d.manager_id = e.employee_id
WHERE
    e.hire_date <= (CURRENT_DATE - INTERVAL '15 YEAR');

8. Write a query to find the name (first_name, last_name) and the salary of the employees who have a higher salary than the employee whose last_name='Bull'

Ans. SELECT
    e.first_name,
    e.last_name,
    e.salary
FROM
    employees e
WHERE

    e.salary > (SELECT salary FROM employees WHERE last_name = 'Bull');

9. Write a query to find the name (first_name, last_name) of all employees who works in the IT department

```
SELECT
   e.first_name,
   e.last_name
FROM
   employees e
JOIN
   departments d ON e.department_id = d.department_id
WHERE
   d.department_name = 'IT';
```

10. Write a query to find the name (first_name, last_name) of the employees who have a manager and worked in a USA based department

Ans.
```
SELECT
   e.first_name,
   e.last_name
FROM
   employees e
JOIN
   departments d ON e.department_id = d.department_id
JOIN
   locations l ON d.location_id = l.location_id
JOIN
   countries c ON l.country_id = c.country_id
WHERE
   e.manager_id IS NOT NULL
AND

   c.country_name = 'United States of America';
```

11. Write a query to find the name (first_name, last_name), and salary of the employees whose salary is greater than the average salary

Ans. SELECT
  e.first_name,
  e.last_name,
  e.salary
FROM
  employees e
WHERE

  e.salary > (SELECT AVG(salary) FROM employees);

12. Write a query to find the name (first_name, last_name), and salary of the employees whose salary is equal to the minimum salary for their job grade

Ans. SELECT

  e.first_name,
  e.last_name,
  e.salary
FROM
  employees e
JOIN
  jobs j ON e.job_id = j.job_id
JOIN
  (
    SELECT
      job_id,
      MIN(salary) AS min_salary
    FROM
      employees
    GROUP BY
      job_id
) min_salaries ON e.job_id = min_salaries.job_id AND e.salary = min_salaries.min_salary;

13. Write a query to find the name (first_name, last_name), and salary of the employees who earns more than the average salary and works in any of the IT departments

Ans.
```
SELECT
   e.first_name,
   e.last_name,
   e.salary
FROM
   employees e
JOIN
   departments d ON e.department_id = d.department_id
JOIN
   (
      SELECT AVG(salary) AS avg_salary
      FROM employees
   ) avg_sal ON e.salary > avg_sal.avg_salary
WHERE
   d.department_name LIKE 'IT%';
```

14. Write a query to find the name (first_name, last_name), and salary of the employees who earn the same salary as the minimum salary for all departments.

Ans.
```
SELECT
   e.first_name,
   e.last_name,
   e.salary
FROM
   employees e
WHERE

   e.salary = (SELECT MIN(salary) FROM employees);
```

15. Write a query to find the name (first_name, last_name) and salary of the employees who earn a salary that is higher than the salary of all the Shipping Clerk (JOB_ID = 'SH_CLERK'). Sort the results of the salary of the lowest to highest

Ans.
```
SELECT
   e.first_name,
   e.last_name,
   e.salary
FROM
   employees e
WHERE
   e.salary > (SELECT MAX(salary) FROM employees WHERE job_id =
'SH_CLERK')
ORDER BY

   e.salary;
```