**SQL Assignment**

Table Structure Example:

Let’s assume we have the following two tables:

**1. employees table:**

CREATE TABLE employees (

employee\_id INT PRIMARY KEY,

first\_name VARCHAR(50),

last\_name VARCHAR(50),

hire\_date DATE,

department\_id INT,

salary DECIMAL(10, 2)

);

**2. departments table:**

CREATE TABLE departments (

department\_id INT PRIMARY KEY,

department\_name VARCHAR(100)

);

INSERT INTO departments (department\_id, department\_name)

VALUES

(1, 'Sales'),

(2, 'Marketing'),

(3, 'Engineering'),

(4, 'HR'),

(5, 'Finance');

INSERT INTO employees (employee\_id, first\_name, last\_name, hire\_date, department\_id, salary) VALUES

(1, 'John', 'Doe', '2015-06-23', 1, 55000.00),

(2, 'Jane', 'Smith', '2018-02-10', 2, 62000.00),

(3, 'Samuel', 'Adams', '2012-11-04', 3, 90000.00),

(4, 'Emily', 'Clark', '2020-03-15', 1, 45000.00),

(5, 'Daniel', 'Harris', '2016-07-19', 4, 49000.00),

(6, 'Rachel', 'Baker', '2019-10-01', 3, 95000.00),

(7, 'Paul', 'Jones', '2017-09-13', 2, 55000.00),

(8, 'Sophia', 'Taylor', '2014-12-21', 5, 73000.00),

(9, 'Michael', 'Lee', '2011-08-14', 4, 47000.00),

(10, 'Olivia', 'King', '2022-01-30', 3, 98000.00);

1. To concat the first\_name and last\_name of employees into a single column named full\_name.

QUERY :

SELECT CONCAT(first\_name, ' ', last\_name) AS full\_name FROM employees;

2. Query that retrieves the first and last names of employees, as well as their department names by using a subquery inside the SELECT statement.

QUERY :

SELECT first\_name, last\_name,

(SELECT department\_name FROM departments d WHERE d.department\_id = e.department\_id) AS department\_name

FROM employees e;

1. Query counts the number of employees in each department.

QUERY :

SELECT department\_id, COUNT(\*) AS employee\_count

FROM employees

GROUP BY department\_id;

1. Query to lists all departments and counts the number of employees in each department .

QUERY :

SELECT d.department\_name, COUNT(e.employee\_id) AS employee\_count

FROM departments d

LEFT JOIN employees e ON d.department\_id = e.department\_id

GROUP BY d.department\_name;

1. To find employees with salary greater than average salary of their department

QUERY :

SELECT \* FROM employees e

WHERE salary > (SELECT AVG(salary) FROM employees WHERE department\_id = e.department\_id);

1. To get all employee names in each department.

QUERY :

SELECT d.department\_name, GROUP\_CONCAT(CONCAT(e.first\_name, ' ', e.last\_name) ORDER BY e.first\_name SEPARATOR ', ') AS employees

FROM departments d

LEFT JOIN employees e ON d.department\_id = e.department\_id

GROUP BY d.department\_name;

1. Subquery to find the employee with the highest salary in each department.

QUERY :

SELECT \* FROM employees e

WHERE salary = (SELECT MAX(salary) FROM employees WHERE department\_id = e.department\_id);

1. Group employees by hire year and calculate the total salary for each year

QUERY :

SELECT YEAR(hire\_date) AS hire\_year, SUM(salary) AS total\_salary

FROM employees

GROUP BY hire\_year;

1. Group departments and count the number of employees in each department

QUERY :

SELECT department\_id, COUNT(\*) AS employee\_count

FROM employees

GROUP BY department\_id;

1. Find the highest salary in each department

QUERY :

SELECT department\_id, MAX(salary) AS highest\_salary

FROM employees

GROUP BY department\_id;

1. Group employees by department and show the average salary in each department.

QUERY :

SELECT department\_id, AVG(salary) AS average\_salary

FROM employees

GROUP BY department\_id;

1. Find departments with more than 5 employees

QUERY :

SELECT department\_id, COUNT(\*) AS employee\_count

FROM employees

GROUP BY department\_id

HAVING employee\_count > 5;

1. List departments where the average salary is greater than 50,000.

QUERY :

SELECT department\_id, AVG(salary) AS avg\_salary

FROM employees

GROUP BY department\_id

HAVING avg\_salary > 50000;

1. List employees who earn more than 60,000 and belong to a department with more than 3 employees.

QUERY :

SELECT \* FROM employees e

WHERE salary > 60000

AND department\_id IN (

SELECT department\_id

FROM employees

GROUP BY department\_id

HAVING COUNT(\*) > 3

);

1. Show departments where there is more than one employee with a salary over 100,000.

QUERY :

SELECT department\_id

FROM employees

WHERE salary > 100000

GROUP BY department\_id

HAVING COUNT(\*) > 1;

1. Delete an employee with a specific employee\_id (e.g., 5)

QUERY :

DELETE FROM employees WHERE employee\_id = 5;

1. Delete employees who have a salary lower than 30,000

QUERY :

DELETE FROM employees WHERE salary < 30000;