**Objective**

To understand Aggregate functions using SQL queries on the COMPANY database.

**Problem Statement**

Consider the COMPANY database in Experiment 1 and execute the following queries:

1. Find the sum of the salaries of all employees, the maximum salary, the minimum salary, and the average salary.
2. Find the sum of the salaries of all employees of the ‘Research’ department, as well as the maximum salary, the minimum salary, and the average salary in this department.
3. Retrieve the total number of employees in the company.
4. Retrieve the number of employees in the ‘Research’ department.
5. Count the number of distinct salary values in the database
6. For each department, retrieve the department number, the number of employees in the department, and their average salary.
7. For each project, retrieve the project number, the project name, and the number of employees who work on that project.
8. For each project *on which more than two employees work,* retrieve the project number, the project name, and the number of employees who work on the project
9. For each project, retrieve the project number, the project name, and the number of employees from department 5 who work on the project.
10. For each department that has more than five employees, retrieve the department number and the number of its employees who are making more than $40,000.

1.

SELECT

SUM(Salary) AS total\_salary,

MAX(Salary) AS max\_salary,

MIN(Salary) AS min\_salary,

AVG(Salary) AS avg\_salary

FROM

employee;

2. SELECT

SUM(e.Salary) AS total\_salary,

MAX(e.Salary) AS max\_salary,

MIN(e.Salary) AS min\_salary,

AVG(e.Salary) AS avg\_salary

FROM

employee e

JOIN

department d ON e.Dno = d.Dnumber

WHERE

d.Dname = 'Research';

3. SELECT COUNT(\*) AS total\_employees

FROM employee;

4. SELECT COUNT(\*) AS total\_employees\_in\_research

FROM employee e

JOIN department d ON e.Dno = d.Dnumber

WHERE d.Dname = 'Research';

5. SELECT COUNT(DISTINCT Salary) AS distinct\_salary\_count

FROM employee;

6. SELECT

Dno AS department\_number,

COUNT(\*) AS num\_employees,

AVG(Salary) AS avg\_salary

FROM

employee

GROUP BY

Dno;

7. SELECT

p.Pnumber AS project\_number,

p.Pname AS project\_name,

COUNT(\*) AS num\_employees

FROM

project p

JOIN

works\_on w ON p.Pnumber = w.Pno

GROUP BY

p.Pnumber, p.Pname;

8. SELECT

p.Pnumber AS project\_number,

p.Pname AS project\_name,

COUNT(\*) AS num\_employees

FROM

project p

JOIN

works\_on w ON p.Pnumber = w.Pno

GROUP BY

p.Pnumber, p.Pname

HAVING

COUNT(\*) > 2;

9. SELECT

p.Pnumber AS project\_number,

p.Pname AS project\_name,

COUNT(\*) AS num\_employees\_dept\_5

FROM

project p

JOIN

works\_on w ON p.Pnumber = w.Pno

JOIN

employee e ON w.Essn = e.Ssn

WHERE

e.Dno = 5

GROUP BY

p.Pnumber, p.Pname;

10. SELECT

e.Dno AS department\_number,

COUNT(\*) AS num\_employees\_above\_40k

FROM

employee e

JOIN

department d ON e.Dno = d.Dnumber

WHERE

e.Salary > 40000

GROUP BY

e.Dno

HAVING

COUNT(\*) > 5;