**Objective**

To familiarize with nested SQL queries on the COMPANY database.

**Problem Statement**

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

1. Make a list of all project numbers for projects that involve an employee whose last name is ‘Smith’, either as a worker or as a manager of the department that controls the project.
2. Select the Essns of all employees who work on the same project and hours as some project that employee ‘John Smith’ (whose Ssn = ‘123456789’) works on.
3. Return the names of employees whose salary is greater than the salary of all the employees in department 5
4. Retrieve the name of each employee who has a dependent with the same first name and is the same sex as the employee
5. Retrieve the names of employees who have no dependents
6. List the names of managers who have at least one dependent using EXISTS and NOT EXISTS functions
7. Retrieve the name of each employee who works on all the projects controlled by department number 5 using EXISTS and NOT EXISTS functions
8. Retrieve the names of all employees who have two or more dependents
9. Retrieves the names of all employees who work on only one project

1. SELECT DISTINCT Pnumber

-> FROM project

-> WHERE Pnumber IN

-> (SELECT Pnumber FROM

-> project, department, employee

-> WHERE Dnum=Dnumber and Mgr\_ssn=Ssn and Lname='Smith');

2. SELECT DISTINCT Essn

-> FROM works\_on

-> WHERE (Pno, Hours) IN (SELECT Pno, Hours FROM works\_on WHERE Essn='111223333');

3. select Lname, Fname

-> from employee

-> where Salary > all(select Salary

-> from employee

-> where Dno=5);

4. select E.Fname, E.Lname

-> from employee as E

-> where E.Ssn in (select Essn

-> from dependent as D

-> where E.Fname=Dependent\_name and E.Sex=Sex);

5. SELECT Fname, Lname

-> FROM employee e

-> WHERE NOT EXISTS (

-> SELECT 1

-> FROM dependent d

-> WHERE e.Ssn = d.Essn

-> );

6. SELECT e.Fname, e.Lname

-> FROM employee e

-> WHERE e.Ssn IN (

-> SELECT Mgr\_ssn

-> FROM department

-> WHERE EXISTS (

-> SELECT 1

-> FROM dependent

-> WHERE Essn = department.Mgr\_ssn

-> )

-> );

SELECT e.Fname, e.Lname

-> FROM employee e

-> WHERE e.Ssn IN (

-> SELECT Mgr\_ssn

-> FROM department

-> WHERE NOT EXISTS (

-> SELECT 1

-> FROM dependent

-> WHERE Essn = department.Mgr\_ssn

-> )

-> );

7. -- Using EXISTS

SELECT e.Fname, e.Lname

FROM employee e

WHERE NOT EXISTS (

SELECT p.Pnumber

FROM project p

WHERE p.Dnum = 105

AND NOT EXISTS (

SELECT 1

FROM works\_on w

WHERE w.Essn = e.Ssn AND w.Pno = p.Pnumber

)

);

-- Using NOT EXISTS

SELECT e.Fname, e.Lname

FROM employee e

WHERE NOT EXISTS (

SELECT p.Pnumber

FROM project p

WHERE p.Dnum = 105

AND EXISTS (

SELECT 1

FROM works\_on w

WHERE w.Essn = e.Ssn AND w.Pno = p.Pnumber

)

);

8. SELECT e.Fname, e.Lname

-> FROM employee e

-> WHERE (

-> SELECT COUNT(\*)

-> FROM dependent d

-> WHERE d.Essn = e.Ssn

-> ) >= 2;

9. SELECT e.Fname, e.Lname

-> FROM employee e

-> WHERE (

-> SELECT COUNT(DISTINCT Pno)

-> FROM works\_on w

-> WHERE w.Essn = e.Ssn

-> ) = 1;