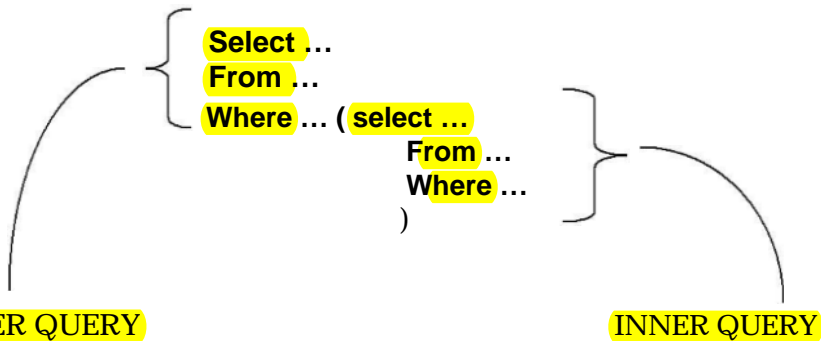


CHAPTER 6

SUB - QUERIES

A sub-query is also called as a nested query.

Syntax of a sub-query



Here, the inner query will be executed first.

The output of inner query is passed as input to the outer query.

To write a sub-query, at least 1 common column should be existing between the tables.

For ex :-

1) List the employees working in „Research“ department.

```
SQL> select * from emp
2  where deptno = (select deptno
3                  from dept
4                  where dname = 'RESEARCH'
5                  );
```

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7369	SMITH	CLERK	7902	17-DEC-80	800		20
7566	JONES	MANAGER	7839	02-APR-81	2975		20
7788	SCOTT	ANALYST	7566	19-APR-87	3000		20
7876	ADAMS	CLERK	7788	23-MAY-87	1100		20
7902	FORD	ANALYST	7566	03-DEC-81	3000		20

2) List the department names that are having analysts

```
SQL> select * from dept
2  where deptno IN (select deptno
3                  from emp
4                  where job = 'ANALYST'
5                  );
```

DEPTNO	DNAME	LOC
20	RESEARCH	DALLAS

3) List the employees in Research and Sales department

```
SQL> select * from emp
2   where deptno IN (select deptno
3                     from dept
4                     where dname IN ('RESEARCH','SALES'))
5
6   order by deptno ;
```

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7369	SMITH	CLERK	7902	17-DEC-80	800		20
7876	ADAMS	CLERK	7788	23-MAY-87	1100		20
7566	JONES	MANAGER	7839	02-APR-81	2975		20
7788	SCOTT	ANALYST	7566	19-APR-87	3000		20
7902	FORD	ANALYST	7566	03-DEC-81	3000		20
7900	JAMES	CLERK	7698	03-DEC-81	950		30
7844	TURNER	SALESMAN	7698	08-SEP-81	1500	0	30
7654	MARTIN	SALESMAN	7698	28-SEP-81	1250	1400	30
7521	WARD	SALESMAN	7698	22-FEB-81	1250	500	30
7499	ALLEN	SALESMAN	7698	20-FEB-81	1600	300	30
7698	BLAKE	MANAGER	7839	01-MAY-81	2850		30

11 rows selected.

Assignment

1) List the department names which are having salesmen in it.

```
SQL> select * from dept
2   where deptno in (select deptno from emp
3                     where job = 'SALESMAN')
4
```

DEPTNO	DNAME	LOC
30	SALES	CHICAGO

2) Display the employees whose location is having atleast one „O“ in it.

```
SQL> select * from emp
2   where deptno in (select deptno from
3                     dept where loc like '%O%')
4   order by deptno ;
```

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7782	CLARK	MANAGER	7839	09-JUN-81	2450		10
7839	KING	PRESIDENT		17-NOV-81	5000		10
7934	MILLER	CLERK	7782	23-JAN-82	1300		10
7698	BLAKE	MANAGER	7839	01-MAY-81	2850		30
7844	TURNER	SALESMAN	7698	08-SEP-81	1500	0	30
7900	JAMES	CLERK	7698	03-DEC-81	950		30
7654	MARTIN	SALESMAN	7698	28-SEP-81	1250	1400	30
7521	WARD	SALESMAN	7698	22-FEB-81	1250	500	30
7499	ALLEN	SALESMAN	7698	20-FEB-81	1600	300	30

9 rows selected.

3) List the department names that are having atleast 1 employee in it.

```
SQL> select dname from dept
2   where deptno IN (select deptno from emp
3                      group by deptno
4                      having count(*) >0 ) ;
```

DNAME

SALES
RESEARCH
ACCOUNTING

4) List the department names that are having atleast 4 employees in it

```
SQL> select dname from dept
2   where deptno in (select deptno from emp
3                      group by deptno
4                      having count(*) >=4);
```

DNAME

SALES
RESEARCH

5) Display the department names which are having atleast 2clerks in it

```
SQL> select dname from dept
2   where deptno in (select deptno from emp
3                      where job = 'CLERK'
4                      group by deptno
5                      having count('CLERK') >=2 ) ;
```

DNAME

RESEARCH

6) Display the 2nd maximum salary

```
SQL> select max(sal) from emp
2   where sal < (select max(sal) from emp) ;
```

MAX(SAL)

3000

7) Display the 3rd maximum salary

```
SQL> select max(sal) from emp
2   where sal < (select max(sal) from emp
3   where sal < (select max(sal) from emp) ) ;
```

MAX(SAL)

2975

8) Display the 4th least salary

```
SQL> select min(sal) from emp
2  where sal > (select min(sal) from emp
3  where sal > (select min(sal) from emp
4  where sal > (select min(sal) from emp ) ) ) ;
```

```
MIN(SAL)
-----
1250
```

This method is not efficient to find the maximum and minimum salary. The limit is 32. This is not efficient if you want to find the 100th maximum salary.

We can have upto 32 levels of sub-queries only.

9) List the department names that are having no employees at all

```
SQL> select * from dept
2  where deptno not in (select deptno from emp) ;
```

```
DEPTNO DNAME      LOC
-----
40 OPERATIONS    BOSTON
```

same as
S # for dept
when deptno (select deptno from
employee
group by deptno
having count(*)=0)