LAB 5 Sub Query, Correlated Query, Top – N Analysis

Topics

1. What is Sub Query?
2. Types of Sub Query (Single Row Sub Query and Multi Row Sub Query)
3. What is Correlated Query?
4. Difference between Sub Query and Correlated Query.
5. Semi Join and Anti Join (Exists and Not Exists)
6. Top – N Analysis (Rowid and Rownum)

Q.1. Display the employee number and name of employee working as 'CLERK' and earning highest salary among clerks.

```
SQL> Select empno, ename from emp where job = 'CLERK' and
     sal = ( Select max(sal) from emp where job = 'CLERK');
```

OUTPUT :

```
     EMPNO ENAME
---------- ----------
      7934 MILLER
```

Q.2 Display the names of 'SALESMAN' who earns a salary more than the highest salary of any 'CLERK'.

```
SQL> Select ename from emp where job = 'SALESMAN' and
     sal > ( select max(sal) from emp where job = 'CLERK');
```

OUTPUT :

```
ENAME
----------
ALLEN
TURNER
```

Q.3 Display the names of clerks who earn a salary more than the lowest salary of any 'SALESMAN'.

```
SQL> Select ename from emp where job = 'CLERK' and
     sal > ( select min(sal) from emp where job = 'SALESMAN');
```

OUTPUT :

```
ENAME
----------
MILLER
```

Q.4 Display the names of employees who earn a salary more than that of 'JONES' or that of salary greater than that of 'SCOTT'.

```
SQL> Select ename from emp where sal > any( select sal from emp
     where ename in ('JONES', 'SCOTT')) order by empno;
```

OUTPUT :

```
ENAME
----------
SCOTT
KING
FORD
```

Q.5 Display the names of employees who earn highest salary in their respective departments.

```
SQL> Select ename from emp where (deptno, sal) in (select
     deptno, max(sal) from emp group by deptno);
```

OUTPUT :

```
EMPNAME
----------
BLAKE
SCOTT
KING
FORD
```

Q.6 Display the names of the employees who earn highest salaries in their respective job groups.

```
SQL> Select ename as empname from emp where (deptno, sal)
     in (select deptno, max(sal) from emp group by job);
```

OUTPUT :

```
EMPNAME
----------
ALLEN
JONES
SCOTT
KING
FORD
MILLER

6 rows selected.
```

Q.7 Display the employee names who are working in 'ACCOUNTING' department.

SQL>
```
Select ename from emp where deptno = (select deptno
from ~~emp~~ dept where dname = 'ACCOUNTING') order
by empno desc;
```

OUTPUT :
```
ENAME
----------
MILLER
KING
CLARK
```

Q.8 Display the employee names who are working in 'CHICAGO'.

SQL>
```
Select ename from emp where deptno = (Select deptno from
dept where loc = 'CHICAGO') order by empno desc;
```

OUTPUT :
```
ENAME
----------
JAMES
TURNER
BLAKE
MARTIN
WARD
ALLEN

6 rows selected.
```

Q.9 Display the job groups having total salary greater than the maximum salary for managers.

SQL>
```
Select job from emp group by job having sum(sal)
>(select max(sal) from emp where job = 'MANAGER');
```

OUTPUT :
```
JOB
---------
CLERK
SALESMAN
PRESIDENT
MANAGER
ANALYST
```

Q.10 Display the names of employees from department number 10 with salary greater than that of any employee working in other department.

```
SQL> Select ename from emp where deptno =10 and sal >(select
sal from emp where deptno <>10) order by empno;
```

OUTPUT :

```
EMPNAME
----------
CLARK
KING
MILLER
```

Q.11 Display the names of the employees from department number 10 with salary greater than that of all employees working in other department.

```
SQL> Select ename as empname from emp where deptno =10
and sal > all (select sal from emp where deptno<>10);
```

OUTPUT :

```
EMPNAME
----------
KING
```

Q.12 Display the name of employee who is getting highest salary in the organization.

```
SQL> Select ename from emp e where 1= (select count(distinct sal)
from emp where sal >= e.sal);
```

OUTPUT :

```
ENAME
----------
KING
```

Q.13 Display the name of employee who is getting second highest salary in the organization.

```
SQL> Select ename from emp e where 2 = (select count(sal)
from emp where sal >= e.sal);
```

OUTPUT :

```
ENAME
----------
SCOTT
FORD
```

Q.14 Display the name of employee who is getting fourth highest salary in the organization.

SQL >
```
Select ename as empname from emp e where 4 = (select
count (distinct sal) from emp where sal >= e.sal);
```

OUTPUT :
```
EMPNAME
----------
BLAKE
```

Q.15 Display first 5 rows from emp table.

SQL >
```
Select * from emp where rownum <= 5;
```

OUTPUT :
```
     EMPNO ENAME      JOB              MGR HIREDATE         SAL       COMM
DEPTNO
---------- ---------- --------- ---------- --------- ---------- ---------- ---------
-
      7369 SMITH      CLERK            7902 17-DEC-80        800
20
      7499 ALLEN      SALESMAN         7698 20-FEB-81       1600        300
30
      7521 WARD       SALESMAN         7698 22-FEB-81       1250        500
30
      7566 JONES      MANAGER          7839 02-APR-81       2975
20
      7654 MARTIN     SALESMAN         7698 28-SEP-81       1250       1400
30
```

Q.16 Display last 5 rows from emp table.

SQL >
```
Select * from emp minus
select * from emp where rownum <(select count(*) -5 from
emp);
```

OUTPUT :
```
     EMPNO ENAME      JOB              MGR HIREDATE         SAL       COMM
DEPTNO
---------- ---------- --------- ---------- --------- ---------- ---------- ---------
-
      7844 TURNER     SALESMAN         7698 08-SEP-81       1500          0
30
      7876 ADAMS      CLERK            7788 12-JAN-83       1100
20
      7900 JAMES      CLERK            7698 03-DEC-81        950
30
      7902 FORD       ANALYST          7566 03-DEC-81       3000
20
```

```
      7934 MILLER     CLERK           7782 23-JAN-82       1300
10
```

Q.17 Display 3rd to 7th rows from emp table.

SQL >

```
Select * from emp where rownum <= 7
minus select * from emp where rownum <= 2;
```

OUTPUT :

```
     EMPNO ENAME      JOB              MGR HIREDATE         SAL       COMM
DEPTNO
---------- ---------- --------- ---------- --------- ---------- ---------
-
      7521 WARD       SALESMAN        7698 22-FEB-81       1250        500
30
      7566 JONES      MANAGER         7839 02-APR-81       2975
20
      7654 MARTIN     SALESMAN        7698 28-SEP-81       1250       1400
30
      7698 BLAKE      MANAGER         7839 01-MAY-81       2850
30
      7782 CLARK      MANAGER         7839 09-JUN-81       2450
10
```

Q.18 Display even rows from emp table.

SQL >

```
Select * from emp where (rowid, 0) in (select rowid,
mod(rownum, 2) from emp);
```

OUTPUT :

```
     EMPNO ENAME      JOB              MGR HIREDATE         SAL       COMM
DEPTNO
---------- ---------- --------- ---------- --------- ---------- ---------
-
      7499 ALLEN      SALESMAN        7698 20-FEB-81       1600        300
30
      7566 JONES      MANAGER         7839 02-APR-81       2975
20
      7698 BLAKE      MANAGER         7839 01-MAY-81       2850
30
      7788 SCOTT      ANALYST         7566 09-DEC-82       3000
20
      7844 TURNER     SALESMAN        7698 08-SEP-81       1500          0
30
      7900 JAMES      CLERK           7698 03-DEC-81        950
30
      7934 MILLER     CLERK           7782 23-JAN-82       1300
10

7 rows selected.
```

Q.19 Display odd rows from emp table.

```
SQL> Select * from emp where (rowid,1) in (select
     rowid, mod(rownum,2) from emp);
```

OUTPUT :

```
     EMPNO ENAME      JOB              MGR HIREDATE         SAL       COMM
DEPTNO
---------- ---------- --------- ---------- --------- ---------- ---------- ---------
-
      7369 SMITH      CLERK           7902 17-DEC-80        800
20
      7521 WARD       SALESMAN        7698 22-FEB-81       1250        500
30
      7654 MARTIN     SALESMAN        7698 28-SEP-81       1250       1400
30
      7782 CLARK      MANAGER         7839 09-JUN-81       2450
10
      7839 KING       PRESIDENT            17-NOV-81       5000
10
      7876 ADAMS      CLERK           7788 12-JAN-83       1100
20
      7902 FORD       ANALYST         7566 03-DEC-81       3000
20

7 rows selected.
```

Q.20 Display every 3rd row from emp table.

```
SQL> Select * from emp where (rowid,0) in (select rowid, mod
     (rownum,3) from emp;
```

OUTPUT :

```
     EMPNO ENAME      JOB              MGR HIREDATE         SAL       COMM
DEPTNO
---------- ---------- --------- ---------- --------- ---------- ---------- ---------
-
      7521 WARD       SALESMAN        7698 22-FEB-81       1250        500
30
      7698 BLAKE      MANAGER         7839 01-MAY-81       2850
30
      7839 KING       PRESIDENT            17-NOV-81       5000
10
      7900 JAMES      CLERK           7698 03-DEC-81        950
30
```

Q.21 Display 3rd max salary from all the employees.

```
SQL> Select sal from emp e where 3 = (select count(distinct sal)
     from emp where sal >= e.sal);
```

```
OUTPUT :
  THIRDMAX
----------
      2975
```

Q.22 Display 3rd min salary from all the employees.

```
SQL> Select sal from emp e where 3 = (select count(distinct sal)
from emp where sal <= e.sal);
```

```
OUTPUT :
  THIRDMIN
----------
      1100
```

Q.23 Who was the last employee hired in each department.

```
SQL> Select ename from empname where (deptno, hiredate) in
(Select deptno, max(hiredate) from emp grouped by deptno);
```

```
OUTPUT :
EMPNAME
----------
ADAMS
JAMES
MILLER
```

Q.24 Display all the employees who have the same job as 'SCOTT'.

```
SQL> Select ename as empname from emp where job = (select
job from emp where ename = 'SCOTT') order by empno
desc;
```

```
OUTPUT :
EMPNAME
----------
FORD
SCOTT
```

Q.25 List the employees who earn more than the average salary in their own department.

```
SQL> Select ename as empname from emp e where sal >
(Select avg(sal) from emp where deptno = e.deptno
group by deptno);
```

OUTPUT :

```
EMPNAME
----------
ALLEN
JONES
BLAKE
SCOTT
KING
FORD

6 rows selected.
```


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