14-8-25

Operators

Task-4: Developing queries with DML Multi-row functions & perform the advanced query processing and test its heuristics using the designing of optimal correlated and nested subqueries such as finding summary statistics.

Consider the schema for

EMPLOYEES (emp_no, emp_name, department, deptno, salary, age)

Orders (emp_no, orderid, price, qty_ord, qty_hand)

ItemFile (itemid, itemname, qty_ord, qty_hand, itemrate)

Queries using UNION, INTERSECT, MINUS:

UNION:

SQL> select emp_no from employees;

SQL> select emp_no from orders;

SQL> select emp_no from employees union select emp_no from orders;

UNION All:

SQL> select emp_no from employees union all select emp_no from orders;

INTERSECT:

SQL> select emp_no from employees intersect select emp_no from orders;

MINUS:

SQL> Select emp_no from employees minus select emp_no from orders;

Queries using Group By, Having clause & order clause

GROUP BY:

SQL> select deptno, count(*) from employees group by deptno;

Group By having:

SQL> Select deptno, count(*) from employees groupby deptno having Deptno is not null;

order by:

Syntax: <column(s)> from <TN> where [condition(s)] [order by <column name> [asc/] desc];

SQL> select empno, ename, salary from employees order by salary;

SQL> select empno, emp-name, salary from employees order by salary desc;

SQL*Plus having following operators.

SQL> Select salary + comn from emp. master;

salary + comm

SQL> select salary + comn net_sal from emp_master;

SQL> select 12*(salary+column) annual_net sal from emp_master.

Sub queries:

SQL > select * from employees

SQL > insert into employees select * from employees where emp_id in (select emp_id from employees);

SQL > update employee set salary * 10 where department in (select department from employees where department = 'sales';

Delete from employees where department in (select department from employees where department = 'sales');

IN:

Query: Select * from employees where department IN ('Sales', 'marketing');

NOT IN:

For not in, NOT

Query: Select * from employees where exists (select * from orders where orders.emp_no = (link unavailable));

Exists:

Query: select * from employees where exists (select * from orders where orders.emp_no = (link unavailable));

```
SQL*Plus: Release 11.2.0.2.0 Production on Thu Sep 11 14:36:21 2025

Copyright (c) 1982, 2014, Oracle.  All rights reserved.

SQL> connect
Enter user-name: system
Enter password:
Connected.
SQL> select* from employeees;

     EMPNO EMPNAME    DEPARTME     DEPTNO     SALARY        AGE
---------- --------- -------- ---------- ---------- ----------
         1 x         xx             11      10000         25
         3 z         zz             33      12000         26
         2 y         yy             22      10500         24
         4 a         aa             44       9500         24
         5 b         bb             55      20000         22

SQL> select* from orderss;

    EMP_NO   ORDER_ID      PRICE  QTY_ORDER   QTY_HAND
---------- ---------- ---------- ---------- ----------
         1          2          3          4          5
         2          3          4          5          6
         3          4          5          6          7
         4          5          6          7          8
         5          6          7          8          9

SQL> select* from itemfile;

   ITEM_ID ITEM_NAME    QTY_ORD   QTY_HAND  ITEM_RATE
---------- --------- ---------- ---------- ----------
         1 j                 11          2         22
         2 a                 22          3         33
         3 g                 33          4         44
         4 a                 44          5         55
         5 n                 55          6         66

SQL> select empno from employeees;
     EMPNO
----------
         1
         3
         2
         4
         5

SQL> select emp_no from orderss;

    EMP_NO
----------
         1
         2
         3
```

```
         4
         5

SQL> select empno from employeees union select emp_no from orderss;

     EMPNO
----------
         1
         2
         3
         4
         5

SQL>  select empno from employeees union all select emp_no from orderss;

     EMPNO
----------
         1
         3
         2
         4
         5
         1
         2
         3
         4
         5

10 rows selected.

SQL> select empno from employeees intersect select emp_no from orderss;

     EMPNO
----------
         1
         2
         3
         4
         5

SQL> select empno from employeees minus select emp_no from orderss;

no rows selected

SQL> select deptno,count(*)from employeees group by deptno;

    DEPTNO   COUNT(*)
---------- ----------
        22          1
        11          1
        44          1
        55          1
        33          1
```

```
SQL> select deptno,count(*) from employeees group by deptno having deptno is not
null;

    DEPTNO   COUNT(*)
---------- ----------
        22          1
        11          1
        44          1
        55          1
        33          1

SQL> select empno,empname,salary from employeees order by salary;

     EMPNO EMPNAME        SALARY
---------- --------- ----------
         4 a                9500
         1 x               10000
         2 y               10500
         3 z               12000
         5 b               20000

SQL> select empno,empname,salary from employeees order by salary desc;

     EMPNO EMPNAME        SALARY
---------- --------- ----------
         5 b               20000
         3 z               12000
         2 y               10500
         1 x               10000
         4 a                9500

SQL> select salary+empno from employeees;

SALARY+EMPNO
------------
       10001
       12003
       10502
        9504
       20005

SQL> select salary+empno net_sal from employeees;

   NET_SAL
----------
     10001
     12003
     10502
      9504
     20005

SQL> select 12*(salary+empno)annual_net_sal from employeees;

ANNUAL_NET_SAL
```

```
--------------
        120012
        144036
        126024
        114048
        240060

SQL> select* from employeees;

     EMPNO EMPNAME    DEPARTME      DEPTNO      SALARY         AGE
---------- --------- -------- ---------- ---------- ----------
         1 x         xx               11      10000          25
         3 z         zz               33      12000          26
         2 y         yy               22      10500          24
         4 a         aa               44       9500          24
         5 b         bb               55      20000          22

SQL> insert into employeees select* from employeees where empno in (select empno
from employeees);

5 rows created.

SQL> select*from employeees;

     EMPNO EMPNAME    DEPARTME      DEPTNO      SALARY         AGE
---------- --------- -------- ---------- ---------- ----------
         1 x         xx               11      10000          25
         3 z         zz               33      12000          26
         2 y         yy               22      10500          24
         4 a         aa               44       9500          24
         5 b         bb               55      20000          22
         1 x         xx               11      10000          25
         3 z         zz               33      12000          26
         2 y         yy               22      10500          24
         4 a         aa               44       9500          24
         5 b         bb               55      20000          22

10 rows selected.


SQL> update employeees set salary=salary*5 where deptno in (select deptno from
employeees where deptno=11);

2 rows updated.

SQL> select* from employeees;

     EMPNO EMPNAME    DEPARTME      DEPTNO      SALARY         AGE
---------- --------- -------- ---------- ---------- ----------
         1 x         xx               11      50000          25
         3 z         zz               33      12000          26
         2 y         yy               22      10500          24
         4 a         aa               44       9500          24
```

```
         5 b         bb                55      20000         22
         1 x         xx                11      50000         25
         3 z         zz                33      12000         26
         2 y         yy                22      10500         24
         4 a         aa                44       9500         24
         5 b         bb                55      20000         22

10 rows selected.

SQL> delete from employeees where deptno in (select deptno from employeees where
deptno=44);

2 rows deleted.

SQL> select*from employeees;

     EMPNO EMPNAME    DEPARTME      DEPTNO      SALARY         AGE
---------- --------- -------- ---------- ---------- ----------
         1 x         xx                11      50000         25
         3 z         zz                33      12000         26
         2 y         yy                22      10500         24
         5 b         bb                55      20000         22
         1 x         xx                11      50000         25
         3 z         zz                33      12000         26
         2 y         yy                22      10500         24
         5 b         bb                55      20000         22

8 rows selected.

SQL> select* from employeees where deptno in(11,33);

     EMPNO EMPNAME    DEPARTME      DEPTNO      SALARY         AGE
---------- --------- -------- ---------- ---------- ----------
         1 x         xx                11      50000         25
         3 z         zz                33      12000         26
         1 x         xx                11      50000         25
         3 z         zz                33      12000         26

SQL> select* from employeees where deptno not in (22,55);

     EMPNO EMPNAME    DEPARTME      DEPTNO      SALARY         AGE
---------- --------- -------- ---------- ---------- ----------
         1 x         xx                11      50000         25
         3 z         zz                33      12000         26
         1 x         xx                11      50000         25
         3 z         zz                33      12000         26

SQL> select* from employeees where exists (select* from orderss where
orderss.emp_no=(link unavailable));
select* from employeees where exists (select* from orderss where
orderss.emp_no=(link unavailable))

      *
```

```
SQL> select* from employeees where exists (select* from orderss where
orderss.emp_no=(1));

     EMPNO EMPNAME    DEPARTME      DEPTNO      SALARY         AGE
---------- --------- -------- ---------- ---------- ----------
         1 x         xx               11      50000         25
         3 z         zz               33      12000         26
         2 y         yy               22      10500         24
         5 b         bb               55      20000         22
         1 x         xx               11      50000         25
         3 z         zz               33      12000         26
         2 y         yy               22      10500         24
         5 b         bb               55      20000         22

8 rows selected.

SQL> select* from employees where not exists (select* from orderss where
orderss.emp_no=(1));

no rows selected


SQL> select* from employeees where salary>all (select salary from employeees
where deptno=11);

no rows selected

SQL> select* from employeees where salary>any (select salary from employeees
where deptno=22);

     EMPNO EMPNAME    DEPARTME      DEPTNO      SALARY         AGE
---------- --------- -------- ---------- ---------- ----------
         1 x         xx               11      50000         25
         1 x         xx               11      50000         25
         5 b         bb               55      20000         22
         5 b         bb               55      20000         22
         3 z         zz               33      12000         26
         3 z         zz               33      12000         26

6 rows selected.
```

NOT exists:

Query: select * from employees where not exists (select * from orders where orders.emp_no = (link unavailable));

ALL:

Query: Select * from employees where salary > All (select salary from employees where department = 'sales');

ANY:

Query: Select * from employees where salary > ANY (Select salary from employees where department = 'sales')

SQL> select * from order_masters where order_no = (select order_no from order where order_no = '0001');

SQL> Select * from order_master where order_no = (select order_no from orders);

SQL> select * from order_master where order_no = any (select order_no from order_detail);

SQL> select * from order_master where order_no in (select order_no from order_detail);

SQL> select * from order_detail where qty_ord = all (select qty_hand from itemfile where itemrate = 250);

Result:- Thus the developing queries with DML multi row functions & operations has been executed successfully.

VEL TECH	
EX NO.	4
PERFORMANCE (5)	5
RESULT AND ANALYSIS (5)	5
VIVA VOCE (5)	5
RECORD (5)	5
TOTAL (20)	20
SIGN WITH DATE	2/11