Ex.No.5                                                 VIEWS AND INDEX

18.04.2024

**AIM:**

      To create different views and different index methods using SQL commands.

A) VIEWS

        Views are virtual tables created from original tables.

B) INDEX

       Indexes are special lookup tables that need to be used by the database search engine to speed up data retrieval.

**TABLES:**

SQL> create table emp(eid number(5),name varchar(20),salary number(7),dno number(5));

SQL> select \* from emp;

       EID NAME                     SALARY        DNO

---------- -------------------- ---------- ----------

         1 Babu                    70000          3

         2 Arasu                      60000          4

         3 Dhoni                    60000          2

         4 Virat                        75000          1

         5 Amal                      50000          3

         6 Muthu                    55000          4

SQL> create table dept(eid number(5),dname varchar(20));

SQL> select \* from dept;

       EID DNAME

---------- --------------------

         1   IT

         2   CSE

         3    ECE

         4    AIDS

         5    CSD

         6   FT

SQL> create table faculty(fid number(5) primary key,fname varchar(20),dept varchar(5),sa

lary number(7));

SQL> select \* from faculty;

       FID     FNAME       DEPT      SALARY

---------- -------------------- ----- ----------

         1 Babu                 IT         80000

         2 Arasu               CSE        70000

         3 Dhoni               ECE        65000

         4 Amal                 CSD        60000

         5 Muthu             AIDS       55000

**A)VIEWS**

**1. Creating the view by selecting the attributes from one table.**

SQL> create view empview as select eid,name,salary,dno from emp;

View created.

SQL> select \* from empview;

       EID NAME                     SALARY        DNO

---------- -------------------- ---------- ----------

         1 Babu                    70000          3

         2 Arasu                     60000           4

         3 Dhoni                    60000          2

         4 Virat                         75000          1

         5 Amal                   50000          3

         6 Muthu                        55000          4

6 rows selected.

**2. Creating the view by selecting the attributes from one table with predicate**

SQL> create view eview as select eid,name,salary,dno from emp where dno=3 or

 dno=4;

View created.

SQL> select \* from eview;

       EID NAME                     SALARY        DNO

---------- -------------------- ---------- ----------

         1 Babu                    70000          3

         2 Arasu                    60000          4

         5 Amal                   50000          3

         6 Muthu                 55000          4

**3. Creating the view by selecting the attributes from two tables with predicate**

SQL> create view combo as select emp.eid as emp\_eid,name,salary,dno,dept.eid as dept\_eid,dname from emp,dept where emp.eid=dept.eid;

View created.

SQL> select \* from combo;

   EMP\_EID NAME        SALARY        DNO   DEPT\_EID

---------- -------------------- ---------- ---------- ----------

         1 Babu              70000          3          1

         2 Arasu             60000          4          2

         3 Dhoni           60000          2          3

         4 Virat              75000          1          4

         5 Amal              50000          3          5

         6 Muthu            55000          4          6

**4. Creating the view using join clause.**

SQL> create view emp2view as select e.eid,e.name,e.salary,e.dno,d.dname from emp e join dept d on e.eid=d.eid;

View created.

SQL> select \* from emp2view;

       EID NAME                     SALARY     DNO    DNAME

---------- -------------------- ---------- ---------- --------------------

         1 Babu                    70000          3 IT

         2 Arasu                       60000          4 CSE

         3 Dhoni                    60000          2 ECE

         4 Virat                         75000          1 AIDS

         5 Amal                    50000          3 CSD

         6 Muthu                     55000          4 FT

5. **Creating the view using Sub query.**

SQL> create view faculty\_view as select f.fid,(select f.fname from faculty ff where ff.fid=f.fid)as name from faculty f;

View created.

SQL> select \* from faculty\_view;

       FID NAME

---------- --------------------

         1 Babu

         2 Arasu

         3 Dhoni

         4 Amal

         5 Muthu

**6. Creating the view using aggregate and group by clause.**

SQL> create view faculty\_view2(dept,total\_salary)as select dept,sum(salary)

from faculty group by dept;

View created.

SQL> select \* from faculty\_view2;

DEPT    TOTAL\_SALARY

-----          ------------

IT             80000

CSD          60000

CSE          70000

AIDS         55000

ECE          65000

**7. Materialized view.**

Certain database systems allow view relations to be stored, but they make sure that, if the actual relations used in the view definition change, the view is kept up-to-date. Such views are called materialized views.

To show that the changes made on the main table reflects in the view

SQL> create view fview as select f.dept,count(f.fname) as viewtable from fac

ulty f group by f.dept;

View created.

SQL> select \* from faculty;

       FID FNAME        DEPT      SALARY

---------- --------------- - ----- ----------

         1 Babu               IT         80000

         2 Arasu             CSE       70000

         3 Dhoni             ECE       65000

         4 Amal              CSD      60000

         5 Muthu            AIDS       55000

SQL> select \* from fview;

DEPT   VIEWTABLE

----- ----------

IT                1

CSD            1

CSE            1

AIDS           1

ECE            1

SQL> insert into faculty values(6,'Allwin','IT',75000);

1 row created.

SQL> select \* from faculty;

       FID FNAME                DEPT      SALARY

---------- -------------------- ----- ----------

         1 Babu               IT         80000

         2 Arasu                CSE        70000

         3 Dhoni               ECE        65000

         4 Amal               CSD        60000

         5 Muthu              AIDS       55000

         6 Allwin                 IT         75000

6 rows selected.

SQL> select \* from fview;

DEPT   VIEWTABLE

----- ----------

IT             2

CSD            1

CSE            1

AIDS          1

ECE            1

**8. Updatable view:** The views that allows modification operations like INSERT, UPDATE, or DELETE to be performed on the underlying tables through the view.

SQL> create view f2view as select fid,fname from faculty;

View created.

SQL> select \* from f2view;

       FID FNAME

---------- ------------

         1 Babu

         2 Arasu

         3 Dhoni

         4 Amal

         5 Muthu

         6 Allwin

SQL> insert into f2view values(7,'Siva');

1 row created.

SQL> select \* from f2view;

       FID  FNAME

---------- ----------

         1 Babu

         2 Arasu

         3 Dhoni

         4 Amal

         5 Muthu

         6 Allwin

         7 Siva

SQL> select \* from faculty;

       FID FNAME                DEPT      SALARY

---------- -------------------- ----- ----------

         1 Babu               IT         80000

         2 Arasu                CSE        70000

         3 Dhoni               ECE        65000

         4 Amal              CSD        60000

         5 Muthu                  AIDS       55000

         6 Allwin               IT            75000

          7 Siva

7 rows selected.

ii)

SQL> create view emview as select e.eid,e.name,e.salary,e.dno,d.dname from emp e join dept d on e.eid=d.eid;

View created.

SQL> select \* from emview;

       EID NAME          SALARY     DNO DNAME

---------- -------------------- ---------- ---------- --------------------

         1 Babu               70000          3 IT

         2 Arasu              60000          4 CSE

         3 Dhoni              60000          2 ECE

         4 Virat                75000          1 AIDS

         5 Amal              50000          3 CSD

         6 Muthu            55000          4 FT

6 rows selected.

SQL> select \* from emp;

       EID NAME          SALARY        DNO

---------- -------------------- ---------- ----------

         1 Babu               70000          3

         2 Arasu              60000          4

         3 Dhoni             60000          2

         4 Virat               75000          1

         5 Amal               50000          3

         6 Muthu           55000          4

6 rows selected.

SQL> select \* from dept;

       EID DNAME

---------- --------------------

         1 IT

         2 CSE

         3 ECE

         4 AIDS

         5 CSD

         6 FT

6 rows selected.

SQL> insert into emview values(7,'Suresh',80000,5,'AIML');

insert into emview values(7,'Suresh',80000,5,'AIML')

\*

ERROR at line 1:

ORA-01779: cannot modify a column which maps to a non key-preserved table

**Reason:**

           The view must be created on a single table.where as here we created a view from two table.

**9. Dropping the view**

SQL> drop view f2view;

View dropped.

SQL> select \* from f2view;

select \* from f2view

              \*

ERROR at line 1:

ORA-00942: table or view does not exist

**10. Find Read only view or materialized view.**

SQL>  select view\_name,case when view\_type='MATERIALIZED VIEW' then 'Materialized view' else 'Regular View' end as view\_type from all\_views where view\_name='FACULTY\_VIEW2';

VIEW\_NAME                      VIEW\_TYPE

------------------------------ -----------------

FACULTY\_VIEW2                  Regular View

**B)INDEX**

**1. Single column Index :**

SQL> create index teacher on faculty(fname);

Index created.

**2. Composite index :**

SQL> create index fac\_detail on faculty(fname,dept);

Index created.

3. **Dropping an Index:**

SQL> drop index teacher;

Index dropped.

|  |  |  |
| --- | --- | --- |
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**Result**

Thus,the different views and different indexes were created using sql commands.