**/\*TE CMPN A-27\*/**

**Expt: 2**

**Aim:** Study and Implementation of Advanced SQL Queries.

**1. Timestamp**

SQL> create table Emp\_record27(e\_id number(10),e\_break Timestamp(4));

Table created.

SQL> insert into Emp\_record27 values(01 ,Timestamp ' 20-09-05 02:25:50.23479');

1 row created.

SQL> insert into Emp\_record27 values(02 ,Timestamp ' 05-10-12 08:51:43.45239');

1 row created.

SQL> insert into Emp\_record27 values(03 ,Timestamp ' 27-10-12 07:04:21.17823');

1 row created.

SQL> insert into Emp\_record27 values(03 ,Timestamp ' 21-12-12 21:08:42.35628');

1 row created.

SQL> select \* from Emp\_record27;

E\_ID

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E\_BREAK

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

1

05-SEP-20 02.25.50.2348 AM

2

12-OCT-05 08.51.43.4524 AM

3

12-OCT-27 07.04.21.1782 AM

E\_ID

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E\_BREAK

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

3

12-DEC-21 09.08.42.3563 PM

**2. Interval**

SQL> create table Emp\_record27\_1(e\_id number(10),break\_reason varchar (20),break\_time interval Day(3) to Second(2));

Table created.

SQL> insert into Emp\_record27\_1 values(01 , 'Resignation',Timestamp '2010-09-09

00:00:00.0000' - Timestamp '2012-09-09 00:00:00.0000');

1 row created.

SQL> select \* from Emp\_record27\_1;

E\_ID BREAK\_REASON

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BREAK\_TIME

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

1 Resignation

-731 00:00:00.00

SQL> insert into Emp\_record27\_1 values(02 , 'Office work',Interval '3' Day);

1 row created.

SQL> insert into Emp\_record27\_1 values(02 , 'Vacation',Interval '5 1' Day to Hou

r);

1 row created.

SQL> insert into Emp\_record27\_1 values(03 , 'Vacation',Interval '7 1:42' Day to

Minute);

1 row created.

SQL> insert into Emp\_record27\_1 values(04 , 'Resignation',Interval '4 1:23:10' D

ay to second);

1 row created.

SQL> insert into Emp\_record27\_1 values(04 , 'Resignation',Interval '4 ' Minute);

1 row created.

SQL> insert into Emp\_record27\_1 values(05 , 'Vacation',Interval '4 ' Minute);

1 row created.

SQL> insert into Emp\_record27\_1 values(06 , 'Office work',Interval '6' Hour);

1 row created.

SQL> insert into Emp\_record27\_1 values(07 , 'Office work',Interval '54' second);

1 row created.

SQL> select \* from Emp\_record27\_1;

E\_ID BREAK\_REASON

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BREAK\_TIME

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

1 Resignation

-731 00:00:00.00

2 Office work

+003 00:00:00.00

2 Vacation

+005 01:00:00.00

E\_ID BREAK\_REASON

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BREAK\_TIME

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

3 Vacation

+007 01:42:00.00

4 Resignation

+004 01:23:10.00

4 Resignation

+000 00:04:00.00

E\_ID BREAK\_REASON

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BREAK\_TIME

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

5 Vacation

+000 00:04:00.00

6 Office work

+000 06:00:00.00

7 Office work

+000 00:00:54.00

9 rows selected.

**3. Table Extension**

SQL> create table temp\_account as (select \* from Account27 where acc\_bal<=30000);

Table created.

SQL> select \* from temp\_account;

ACC\_N ACC\_BAL C\_ID

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

A001 22000 C001

A002 27500 C002

A004 27500 C005

**4.Merge clause**

SQL> create table Fund\_received27(acc\_no varchar(05),acc\_amt number(06));

Table created.

SQL> select \* from Fund\_received27;

ACC\_N ACC\_AMT

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

A002 2500

A004 7500

A005 6000

A007 8000

SQL> merge into Account27 a using Fund\_received27 f on (a.acc\_no=f.acc\_no)when matched then update set a.acc\_bal=acc\_bal+f.acc\_amt;

2 rows merged.

SQL> select \* from Account27;

ACC\_N ACC\_BAL C\_ID

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

A001 22000 C001

A002 30000 C002

A003 33000 C004

A004 35000 C005

SQL> merge into Account27 a using Fund\_received27 f on (a.acc\_no=f.acc\_no)when not matched then insert values (f.acc\_no,f.acc\_amt,null);

2 rows merged.

SQL> select \* from Account27;

ACC\_N ACC\_BAL C\_ID

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A001 22000 C001

A002 30000 C002

A003 33000 C004

A004 35000 C005

A005 6000

A007 8000

6 rows selected.

**5.Joins**

SQL> select \* from Customer27;

C\_ID C\_NAME C\_JEN C\_ADD

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C001 FLEVIA F Nallasopara

C002 GLANGY F Virar

C003 VIVIANA F Virar

C004 STALEN M Virar

C005 FLAVIAN M Nallasopara

C006 OLIVIA F Nallasopara

6 rows selected.

SQL> select \* from Account27;

ACC\_N ACC\_BAL C\_ID

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

A001 22000 C001

A002 30000 C002

A003 33000 C004

A004 35000 C005

A005 6000

A007 8000

6 rows selected.

**a)Cross Join**

**(i)Explicit Join**

SQL> select \* from Customer27 cross join Account27;

C\_ID C\_NAME C\_JEN C\_ADD ACC\_N ACC\_BAL C\_ID

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

C001 FLEVIA F Nallasopara A001 22000 C001

C001 FLEVIA F Nallasopara A002 30000 C002

C001 FLEVIA F Nallasopara A003 33000 C004

C001 FLEVIA F Nallasopara A004 35000 C005

C001 FLEVIA F Nallasopara A005 6000

C001 FLEVIA F Nallasopara A007 8000

C002 GLANGY F Virar A001 22000 C001

C002 GLANGY F Virar A002 30000 C002

C002 GLANGY F Virar A003 33000 C004

C002 GLANGY F Virar A004 35000 C005

C002 GLANGY F Virar A005 6000

C\_ID C\_NAME C\_JEN C\_ADD ACC\_N ACC\_BAL C\_ID

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C002 GLANGY F Virar A007 8000

C003 VIVIANA F Virar A001 22000 C001

C003 VIVIANA F Virar A002 30000 C002

C003 VIVIANA F Virar A003 33000 C004

C003 VIVIANA F Virar A004 35000 C005

C003 VIVIANA F Virar A005 6000

C003 VIVIANA F Virar A007 8000

C004 STALEN M Virar A001 22000 C001

C004 STALEN M Virar A002 30000 C002

C004 STALEN M Virar A003 33000 C004

C004 STALEN M Virar A004 35000 C005

C\_ID C\_NAME C\_JEN C\_ADD ACC\_N ACC\_BAL C\_ID

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C004 STALEN M Virar A005 6000

C004 STALEN M Virar A007 8000

C005 FLAVIAN M Nallasopara A001 22000 C001

C005 FLAVIAN M Nallasopara A002 30000 C002

C005 FLAVIAN M Nallasopara A003 33000 C004

C005 FLAVIAN M Nallasopara A004 35000 C005

C005 FLAVIAN M Nallasopara A005 6000

C005 FLAVIAN M Nallasopara A007 8000

C006 OLIVIA F Nallasopara A001 22000 C001

C006 OLIVIA F Nallasopara A002 30000 C002

C006 OLIVIA F Nallasopara A003 33000 C004

C\_ID C\_NAME C\_JEN C\_ADD ACC\_N ACC\_BAL C\_ID

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C006 OLIVIA F Nallasopara A004 35000 C005

C006 OLIVIA F Nallasopara A005 6000

C006 OLIVIA F Nallasopara A007 8000

36 rows selected.

**(ii)Implicit Join**

SQL> select \* from Customer27, Account27;

C\_ID C\_NAME C\_JEN C\_ADD ACC\_N ACC\_BAL C\_ID

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C001 FLEVIA F Nallasopara A001 22000 C001

C001 FLEVIA F Nallasopara A002 30000 C002

C001 FLEVIA F Nallasopara A003 33000 C004

C001 FLEVIA F Nallasopara A004 35000 C005

C001 FLEVIA F Nallasopara A005 6000

C001 FLEVIA F Nallasopara A007 8000

C002 GLANGY F Virar A001 22000 C001

C002 GLANGY F Virar A002 30000 C002

C002 GLANGY F Virar A003 33000 C004

C002 GLANGY F Virar A004 35000 C005

C002 GLANGY F Virar A005 6000

C\_ID C\_NAME C\_JEN C\_ADD ACC\_N ACC\_BAL C\_ID

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C002 GLANGY F Virar A007 8000

C003 VIVIANA F Virar A001 22000 C001

C003 VIVIANA F Virar A002 30000 C002

C003 VIVIANA F Virar A003 33000 C004

C003 VIVIANA F Virar A004 35000 C005

C003 VIVIANA F Virar A005 6000

C003 VIVIANA F Virar A007 8000

C004 STALEN M Virar A001 22000 C001

C004 STALEN M Virar A002 30000 C002

C004 STALEN M Virar A003 33000 C004

C004 STALEN M Virar A004 35000 C005

C\_ID C\_NAME C\_JEN C\_ADD ACC\_N ACC\_BAL C\_ID

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

C004 STALEN M Virar A005 6000

C004 STALEN M Virar A007 8000

C005 FLAVIAN M Nallasopara A001 22000 C001

C005 FLAVIAN M Nallasopara A002 30000 C002

C005 FLAVIAN M Nallasopara A003 33000 C004

C005 FLAVIAN M Nallasopara A004 35000 C005

C005 FLAVIAN M Nallasopara A005 6000

C005 FLAVIAN M Nallasopara A007 8000

C006 OLIVIA F Nallasopara A001 22000 C001

C006 OLIVIA F Nallasopara A002 30000 C002

C006 OLIVIA F Nallasopara A003 33000 C004

C\_ID C\_NAME C\_JEN C\_ADD ACC\_N ACC\_BAL C\_ID

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C006 OLIVIA F Nallasopara A004 35000 C005

C006 OLIVIA F Nallasopara A005 6000

C006 OLIVIA F Nallasopara A007 8000

36 rows selected.

**b)Natural Join**

SQL> select \* from Customer27 natural join Account27;

C\_ID C\_NAME C\_JEN C\_ADD ACC\_N ACC\_BAL

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

C001 FLEVIA F Nallasopara A001 22000

C002 GLANGY F Virar A002 30000

C004 STALEN M Virar A003 33000

C005 FLAVIAN M Nallasopara A004 35000

**c)Equi Join**

SQL> select \* from Customer27 c,Account27 a where c.c\_id=a.c\_id;

C\_ID C\_NAME C\_JEN C\_ADD ACC\_N ACC\_BAL C\_ID

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C001 FLEVIA F Nallasopara A001 22000 C001

C002 GLANGY F Virar A002 30000 C002

C004 STALEN M Virar A003 33000 C004

C005 FLAVIAN M Nallasopara A004 35000 C005

**d)Outer Join**

**(i) Left Outer Join:**

SQL> select \* from Customer27 c left outer join Account27 a on c.c\_id=a.c\_id;

C\_ID C\_NAME C\_JEN C\_ADD ACC\_N ACC\_BAL C\_ID

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C001 FLEVIA F Nallasopara A001 22000 C001

C002 GLANGY F Virar A002 30000 C002

C004 STALEN M Virar A003 33000 C004

C005 FLAVIAN M Nallasopara A004 35000 C005

C003 VIVIANA F Virar

C006 OLIVIA F Nallasopara

6 rows selected.

**(ii)Right Outer Join:**

SQL> select \* from Customer27 c right outer join Account27 a on c.c\_id=a.c\_id;

C\_ID C\_NAME C\_JEN C\_ADD ACC\_N ACC\_BAL C\_ID

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C001 FLEVIA F Nallasopara A001 22000 C001

C002 GLANGY F Virar A002 30000 C002

C004 STALEN M Virar A003 33000 C004

C005 FLAVIAN M Nallasopara A004 35000 C005

A007 8000

A005 6000

6 rows selected.

**(iii)Full Outer Join:**

SQL> select \* from Customer27 c full outer join Account27 a on c.c\_id=a.c\_id;

C\_ID C\_NAME C\_JEN C\_ADD ACC\_N ACC\_BAL C\_ID

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C001 FLEVIA F Nallasopara A001 22000 C001

C002 GLANGY F Virar A002 30000 C002

C004 STALEN M Virar A003 33000 C004

C005 FLAVIAN M Nallasopara A004 35000 C005

A005 6000

A007 8000

C003 VIVIANA F Virar

C006 OLIVIA F Nallasopara

8 rows selected.

**6. Null Values**

SQL> create table Faculty27(f\_no varchar(05),salary number(05));

Table created.

SQL> select \* from Faculty27;

F\_NO SALARY

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

F001 10000

F002 39000

F003 54000

F004

45000

**a)Null values-Arithmetic operator**

SQL> select salary + 5000 from Faculty27 where f\_no='F004';

SALARY+5000

-----------

**b)Null values-Relational operator**

SQL> select f\_no from Faculty27 where salary > null;

no rows selected

**c)Null values-Boolean operator**

SQL> select f\_no from Faculty27 where salary = null AND f\_no ='F004';

no rows selected

SQL> select f\_no from Faculty27 where salary = null AND f\_no ='F005';

no rows selected

SQL> select f\_no from Faculty27 where salary = null AND f\_no =NULL;

no rows selected

SQL> select f\_no from Faculty27 where salary = null OR f\_no ='F004';

F\_NO

-----

F004

SQL> select f\_no from Faculty27 where salary = null OR salary = 10000;

F\_NO

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F001

SQL> select f\_no from Faculty27 where NOT(salary=null);

no rows selected

**7. Set Comparison**

SQL> select \* from Account27;

ACC\_N ACC\_BAL C\_ID

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A001 22000 C001

A002 30000 C002

A003 33000 C004

A004 35000 C005

A005 6000

A007 8000

A008 7500 C002

A009 9000 C002

8 rows selected.

**a) Some**

SQL> select acc\_no from Account27 where acc\_bal > some (select acc\_bal from Account27 where c\_id='C002');

ACC\_N

-----

A004

A003

A002

A001

A009

A007

6 rows selected.

SQL> select acc\_no from Account27 where acc\_bal < some (select acc\_bal from Account27 where c\_id='C002');

ACC\_N

-----

A005

A008

A007

A009

A001

SQL> select acc\_no from Account27 where acc\_bal = some (select acc\_bal from Account27 where c\_id='C002');

ACC\_N

-----

A002

A008

A009

**b)all**

SQL> select acc\_no from Account27 where acc\_bal > all (select acc\_bal from Account27 where c\_id='C002');

ACC\_N

-----

A003

A004

SQL> select acc\_no from Account27 where acc\_bal < all (select acc\_bal from Account27 where c\_id='C002');

ACC\_N

-----

A005

SQL> select acc\_no from Account27 where acc\_bal = all (select acc\_bal from Account27 where c\_id='C002');

no rows selected

**8. Escape**

SQL> select \* from Customer27;

C\_ID C\_NAME C\_JEN C\_ADD

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

C001 FLEVIA F Nallasopara\_%

C002 GLANGY F Virar

C003 VIVIANA F Virar\_66

C004 STALEN M Virar45

C005 FLAVIAN M Nallasopara

C006 OLIVIA F Nallasopara

6 rows selected.

SQL> select \* from Customer27 where c\_add like 'Nallaso\_%';

C\_ID C\_NAME C\_JEN C\_ADD

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C001 FLEVIA F Nallasopara\_%

C005 FLAVIAN M Nallasopara

C006 OLIVIA F Nallasopara

SQL> select c\_name from Customer27 where c\_add like 'Nallasopara\\_%' escape'\';

C\_NAME

----------

FLEVIA

SQL> select c\_name from Customer27 where c\_add like 'Virar\\_66%' escape'\';

C\_NAME

----------

VIVIANA

SQL> select c\_name from Customer27 where c\_add like 'Virar%' escape'\';

C\_NAME

----------

GLANGY

VIVIANA

STALEN

SQL> select c\_name from Customer27 where c\_add like '%ar%' escape'\';

C\_NAME

----------

FLEVIA

GLANGY

VIVIANA

STALEN

FLAVIAN

OLIVIA

6 rows selected.

SQL>

**9. Exists**

SQL> select \* from Customer27;

C\_ID C\_NAME C\_JEN C\_ADD

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

C001 FLEVIA F Nallasopara\_%

C002 GLANGY F Virar

C003 VIVIANA F Virar\_66

C004 STALEN M Virar45

C005 FLAVIAN M Nallasopara

C006 OLIVIA F Nallasopara

6 rows selected.

SQL> select c\_id from Customer27 where c\_add='Virar' and c\_jender='F' and exists (select \* from Customer27 where c\_id='C006' and c\_jender='F');

C\_ID

-----

C002

C003

**10.Not exsists**

SQL> select \* from Customer27;

C\_ID C\_NAME C\_JEN C\_ADD

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

C001 FLEVIA F Nallasopara\_%

C002 GLANGY F Virar

C003 VIVIANA F Virar\_66

C004 STALEN M Virar45

C005 FLAVIAN M Nallasopara

C006 OLIVIA F Nallasopara

6 rows selected.

SQL> select c\_id from Customer27 where c\_add='Nallasopara' and c\_jender='F' and not exists (select \* from Customer27 where c\_id='C007' and c\_name='Neha');

C\_ID

-----

C001

C006