

### EXP:3

## SQL COMMANDS USING CONSTRAINTS AND SUB QUERIES

Govind Sankar H

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### AIM:

To write SQL commands using constraints and sub queries to create tables insert values and perform operations.

### Theory:

Constraints in SQL are rules defined on tables to ensure the data's integrity and consistency. They apply special conditions to columns or tables to ensure that data follows specified rules. Primary key constraints, foreign key constraints, unique constraints, and check constraints are all common forms of constraints. SQL prohibits the introduction of erroneous or inconsistent data by using constraints, enhancing data correctness and reliability.

### >Creating a table and inserting values

```
SQL> create table departmen1_21b1c1059(deptno number(6) primary key,dname varchar2(15) not null,location varchar2(13) not null);
Table created.

SQL> insert into departmen1_21b1c1059 values(1,'finance','newyork');
1 row created.

SQL> insert into departmen1_21b1c1059 values(2,'marketting','thirupura');
1 row created.

SQL> insert into departmen1_21b1c1059 values(3,'administration','dharmapuri');
1 row created.

SQL> insert into departmen1_21b1c1059 values(4,'interiorde','thirunalveli ');
1 row created.

SQL> insert into departmen1_21b1c1059 values(5,'transport','maadurai');
1 row created.

SQL> insert into departmen1_21b1c1059 values(6,'travel','chennai');
1 row created.

SQL> insert into departmen1_21b1c1059 values(7,'security','thirupura');
1 row created.

SQL> insert into departmen1_21b1c1059 values(8,'imports','maadurai');
1 row created.

SQL> insert into departmen1_21b1c1059 values(9,'exports','maadurai');
1 row created.

SQL> insert into departmen1_21b1c1059 values(10,'food','dharmapuri');
1 row created.
```

>viewing elements in the table

```
SQL> select *from departmen1_21blc1059;
```

| DEPTNO | DNAME          | LOCATION     |
|--------|----------------|--------------|
| 1      | finance        | newyork      |
| 2      | marketting     | thirupura    |
| 3      | administration | dharmapuri   |
| 4      | interiorde     | thirunalveli |
| 5      | transport      | maadurai     |
| 6      | travel         | chennai      |
| 7      | security       | thirupura    |
| 8      | imports        | maadurai     |
| 9      | exports        | maadurai     |
| 10     | food           | dharmapuri   |

```
10 rows selected.
```

>creating another table

```
SQL> create table employ1_21blc1059(empno varchar2(4) primary key,ename varchar2(15),deptno number(5)references departmen1_21blc1059,hiredate date,job varchar2(9),sal number(7,2),comm number(7,2));
```

```
Table created.
```

>Inserting values to the table

```
SQL> insert into employ1_21blc1059 values(001,'ram',1,'19-jan-1991','manager',15000,3000);
1 row created.

SQL> insert into employ1_21blc1059 values(002,'harish',2,'06-may-1008','chiefexe',18800,8000);
1 row created.

SQL> insert into employ1_21blc1059 values(003,'raju',3,'01-may-1989','clerk',14555,567);
1 row created.

SQL> insert into employ1_21blc1059 values(004,'ramesh',4,'31-jan-1008','ca',17666,7564);
1 row created.

SQL> insert into employ1_21blc1059 values(005,'kumar',5,'29-apr-2000','account',20000,2000);
1 row created.

SQL> insert into employ1_21blc1059 values(006,'ragav',6,'09-dec-2001','manager',25000,2700);
1 row created.

SQL> insert into employ1_21blc1059 values(007,'raman',7,'11-nov-1008','clerk',25080,2430);
1 row created.

SQL> insert into employ1_21blc1059 values(008,'madan',8,'13-apr-2003','manager',28000,2420);
1 row created.

SQL> insert into employ1_21blc1059 values(009,'tommy',9,'19-apr-1991','ceo',28000,2500);
1 row created.

SQL> insert into employ1_21blc1059 values(010,'rajesh',10,'20-sep-2004','accounts',17000,2534);
1 row created.
```

>viewing all data

```
SQL> select * from employ1_21blc1059;
```

| EMPNO | ENAME  | DEPTNO | HIREDATE  | JOB      | SAL   | COMM |
|-------|--------|--------|-----------|----------|-------|------|
| 1     | ram    | 1      | 19-JAN-91 | manager  | 15000 | 3000 |
| 2     | harish | 2      | 06-MAY-08 | chiefexe | 18800 | 8000 |
| 3     | raju   | 3      | 01-MAY-89 | clerk    | 14555 | 567  |
| 4     | ramesh | 4      | 31-JAN-08 | ca       | 17666 | 7564 |
| 5     | kumar  | 5      | 29-APR-00 | account  | 20000 | 2000 |
| 6     | ragav  | 6      | 09-DEC-01 | manager  | 25000 | 2700 |
| 7     | raman  | 7      | 11-NOV-08 | clerk    | 25080 | 2430 |
| 8     | madan  | 8      | 13-APR-03 | manager  | 28000 | 2420 |
| 9     | tommy  | 9      | 19-APR-91 | ceo      | 28000 | 2500 |
| 10    | rajesh | 10     | 20-SEP-04 | accounts | 17000 | 2534 |

```
10 rows selected.
```

>using select with constraints

```
SQL> select * from employ1_21blc1059 where job='manager';
```

| EMPNO | ENAME | DEPTNO | HIREDATE  | JOB     | SAL   | COMM |
|-------|-------|--------|-----------|---------|-------|------|
| 1     | ram   | 1      | 19-JAN-91 | manager | 15000 | 3000 |
| 6     | ragav | 6      | 09-DEC-01 | manager | 25000 | 2700 |
| 8     | madan | 8      | 13-APR-03 | manager | 28000 | 2420 |

```
SQL> select *from employ1_21blc1059 where sal>(select min(sal) from employ1_21blc1059 group by deptno having deptno=10);
```

| EMPNO | ENAME  | DEPTNO | HIREDATE  | JOB      | SAL   | COMM |
|-------|--------|--------|-----------|----------|-------|------|
| 2     | harish | 2      | 06-MAY-08 | chiefexe | 18800 | 8000 |
| 4     | ramesh | 4      | 31-JAN-08 | ca       | 17666 | 7564 |
| 5     | kumar  | 5      | 29-APR-00 | account  | 20000 | 2000 |
| 6     | ragav  | 6      | 09-DEC-01 | manager  | 25000 | 2700 |
| 7     | raman  | 7      | 11-NOV-08 | clerk    | 25080 | 2430 |
| 8     | madan  | 8      | 13-APR-03 | manager  | 28000 | 2420 |
| 9     | tommy  | 9      | 19-APR-91 | ceo      | 28000 | 2500 |

7 rows selected.

```
SQL> select max(sal) from employ1_21blc1059 group by job having job='manager';
```

| MAX(SAL) |
|----------|
| 28000    |

```
SQL> select job,max(sal) from employ1_21blc1059 group by job;
```

| JOB      | MAX(SAL) |
|----------|----------|
| accounts | 17000    |
| chiefexe | 18800    |
| account  | 20000    |
| clerk    | 25080    |
| ca       | 17666    |
| ceo      | 28000    |
| manager  | 28000    |

7 rows selected.

```
SQL> select to_char(hiredate,'yyyy'),count(empno) from employ1_21blc1059 group by to_char(hiredate,'yyyy') having count(empno)=(select max(count(empno)) from employ1_21blc1059 group by to_char(hiredate,'yyyy'));
```

| TO_C | COUNT(EMPNO) |
|------|--------------|
| 1008 | 3            |

```
SQL> select ename ||' has '|| trunc(months_between(sysdate,hiredate)/12) ||' years '||trunc(mod(months_between(sysdate,hiredate),12))||' months '||' as length of service' "length of service" from employ1_21blc1059;
```

length of service

| ename  | length of service   |
|--------|---------------------|
| ram    | 32 years 3 months   |
| harish | 1015 years 0 months |
| raju   | 34 years 0 months   |
| ramesh | 1015 years 3 months |
| kumar  | 23 years 0 months   |
| ragav  | 21 years 5 months   |
| raman  | 1014 years 6 months |
| madan  | 20 years 1 months   |
| tommy  | 32 years 0 months   |
| rajesh | 18 years 7 months   |

10 rows selected.

```
SQL> select ename,location from employ1_21blc1059,departmen1_21blc1059 where employ1_21blc1059.deptno=departmen1_21blc1059.deptno and location='maadurai';
```

| ENAME | LOCATION |
|-------|----------|
| kumar | maadurai |
| madan | maadurai |
| tommy | maadurai |

```
SQL> select ename,dname from employ1_21blc1059,departmen1_21blc1059 where employ1_21blc1059.deptno=departmen1_21blc1059.deptno;
```

| ENAME  | DNAME          |
|--------|----------------|
| ram    | finance        |
| harish | marketting     |
| raju   | administration |
| ramesh | interiorde     |
| kumar  | transport      |
| ragav  | travel         |
| raman  | security       |
| madan  | imports        |
| tommy  | exports        |
| rajesh | food           |

10 rows selected.

## Result

The use of constraints and sub quires in SQL was studied from the given tasks