**Ex. No. 3. CREATION OF VARIOUS CONSTRAINTS IN DATABASES**

**AIM**

To create and implement various constraints on the databases.

**DESCRIPTION:**

**SQL CONSTRAINTS**

Constraints are the rules enforced on data columns on table. These are used to limit the type of data that can go into a table. This ensures the accuracy and reliability of the data in the database.

Constraints could be column level or table level. Column level constraints are applied only to one column, whereas table level constraints are applied to the whole table.

Following are commonly used constraints available in SQL.

* NOT NULL Constraint: Ensures that a column cannot have NULL value.
* UNIQUE Constraint: Ensures that all values in a column are different.
* PRIMARY Key: Uniquely identified each rows/records in a database table.
* FOREIGN Key: Uniquely identified a rows/records in any another database table.
* CHECK Constraint: The CHECK constraint ensures that all values in a column satisfy

certain conditions.



SQL> create table emp\_1(empno number(4) primary key,ename varchar2(30),designation varchar2(10),age number(3),salary number(8,2));

Table created.

SQL> alter table progress\_1 add constraint rrr primary key(regno);

Table altered.

SQL> alter table progress\_1 add constraint rrr primary key(regno);

Table altered.

SQL> desc progress\_1;

Name Null? Type

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

REGNO NOT NULL NUMBER(3)

NAME VARCHAR2(30)

MARK NUMBER(4)

RANK NUMBER(2)

SQL> insert into progress\_1 values(3,'ragumaan',470,4);

insert into progress\_1 values(3,'ragumaan',470,4)

\*

ERROR at line 1:

ORA-00001: unique constraint (SCOTT.RRR) violated

UNIQUE

SQL> alter table progress\_1 add constraint yyy unique(rank);

Table altered.

SQL> desc progress\_1;

Name Null? Type

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

REGNO NOT NULL NUMBER(3)

NAME VARCHAR2(30)

MARK NUMBER(4)

RANK NUMBER(2)

SQL> insert into progress\_1 values(4,'ram',480,3);

insert into progress\_1 values(4,'ram',480,3)

\*

ERROR at line 1:

ORA-00001: unique constraint (SCOTT.YYY) violated

SQL> insert into progress\_1 values('&regno','&name','&mark','&rank');

Enter value for regno: 4

Enter value for name: ram

Enter value for mark: 479

Enter value for rank: 4

old 1: insert into progress\_1 values('&regno','&name','&mark','&rank')

new 1: insert into progress\_1 values('4','ram','479','4')

1 row created.

NOT NULL:

SQL> alter table progress\_1 add constraint zzz not null(mark);

alter table progress\_1 add constraint zzz not null(mark)

\*

ERROR at line 1:

ORA-00904: : invalid identifier

CHECK:

SQL> alter table progress\_1 add constraint xxx check(mark>100 and mark<500);

Table altered.

SQL> insert into progress\_1 values('&regno','&name','&mark','&rank');

Enter value for regno: 5

Enter value for name: rajesh

Enter value for mark: 500

Enter value for rank: 5

old 1: insert into progress\_1 values('&regno','&name','&mark','&rank')

new 1: insert into progress\_1 values('5','rajesh','500','5')

insert into progress\_1 values('5','rajesh','500','5')

\*

ERROR at line 1:

ORA-02290: check constraint (SCOTT.XXX) violated

NOT NULL:

SQL> alter table progress\_1 modify mark number NOT NULL;

Table altered.

SQL> select \* from progress\_1;

REGNO NAME MARK RANK

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4 ram 479 4

1 Ragu 495 1

2 Rathika 490 2

3 ragavan 480 3

SQL> insert into progress\_1 values('&regno','&name','&mark','&rank');

Enter value for regno: 7

Enter value for name: ggg

Enter value for mark: null

Enter value for rank: 7

old 1: insert into progress\_1 values('&regno','&name','&mark','&rank')

new 1: insert into progress\_1 values('7','ggg','null','7')

insert into progress\_1 values('7','ggg','null','7')

\*

ERROR at line 1:

ORA-01722: invalid number

SQL>

SQL> insert into progress\_1 values('&regno','&name','&mark','&rank');

Enter value for regno: 3

Enter value for name: sdf

Enter value for mark:

Enter value for rank: 6

old 1: insert into progress\_1 values('&regno','&name','&mark','&rank')

new 1: insert into progress\_1 values('3','sdf','','6')

insert into progress\_1 values('3','sdf','','6')

\*

ERROR at line 1:

ORA-01400: cannot insert NULL into ("SCOTT"."PROGRESS\_1"."MARK")

FOREIGN KEY

SQL> create table dept\_1(noofdept number(3) primary key,name varchar(20));

Table created.

SQL> create table staff(regno number(3) primary key,nameofstaff varchar(20),salary number(10),noofdept number(3) references dept\_1);

Table created.

SQL> insert into dept\_1 values('&noofdept','&name');

Enter value for noofdept: 1

Enter value for name: cse

old 1: insert into dept\_1 values('&noofdept','&name')

new 1: insert into dept\_1 values('1','cse')

1 row created.

SQL> insert into dept\_1 values('&noofdept','&name');

Enter value for noofdept: 2

Enter value for name: it

old 1: insert into dept\_1 values('&noofdept','&name')

new 1: insert into dept\_1 values('2 ','it')

1 row created.

SQL> select \*from dept\_1;

NOOFDEPT NAME

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1 cse

2 it

SQL> insert into staff values('&regno','&nameofstaff','&salary','&noofdept');

Enter value for regno: 1

Enter value for nameofstaff: ram

Enter value for salary: 10000

Enter value for noofdept: 3

old 1: insert into staff values('&regno','&nameofstaff','&salary','&noofdept')

new 1: insert into staff values('1','ram','10000','3')

insert into staff values('1','ram','10000','3')

\*

ERROR at line 1:

ORA-02291: integrity constraint (SCOTT.SYS\_C0010936) violated - parent key not Found