Ex.No. 3 INTEGRITY	CONSTRAINTS	Date:
--------------------	-------------	-------

### **CONSTRAINTS**

- Constraints enforce rules at the table level. Constraints prevent the deletion of a table if there are dependencies.
- The following constraint types are valid in Oracle:
  - o NOT NULL
  - o UNIQUE Key
  - PRIMARY KEY
  - o FOREIGN KEY
  - o CHECK
- Name a constraint or the Oracle Server will generate a name by using the SYS\_C*n* format.
- Create a constraint:
  - o At the same time as the table is created
  - o After the table has been created
- Define a constraint at the column or table level.
- View a constraint in the data dictionary.

### **DEFINING CONSTRAINTS**

Column constraint level

column [CONSTRAINT constraint name] constraint type

Table constraint level

[CONSTRAINT constraint name] constraint type(column)

CREATE TABLE table (column data type, column\_constraint, ...., ...., table constraint);

Q1) Create table EMP1 with columns similar to EMP table and create NOT NULL (column) constraint for DEPTNO column and PRIMARY KEY (table) constraint for EMPNO column.

SQL> CREATE TABLE emp1( empno number(4), ename varchar2(10), job char(20), mgr number(10), hiredate date, sal number(5), comm number(5), deptno number(7,2) NOT NULL, CONSTRAINT emp1 pk PRIMARY KEY (empno));

#### NOT NULL Constraint

Ensures that null values are not permitted for the column

#### **CHECK Constraint**

> Defines a condition that each row must satisfy

### **UNIQUE** Constraint

➤ Prevent the duplication of values within the rows of a specified column

### **PRIMARY KEY Constraint**

➤ Avoids duplication of rows and does not allow NULL values

# **FOREIGN KEY Constraint**

- To establish a 'parent-child' or a 'master-detail' relationship between two tables having a common column, we make use of Foreign key (referential integrity) constraints.
- > To do this we should define the column in the parent table as primary key and the same column in the child table as a foreign key referring to the corresponding parent entry.

#### FOREIGN KEY

o Defines the column in the child table at the table constraint level

## REFERENCES

o Identifies the table and column in the parent table

## ON DELETE CASCADE

o Allows deletion in the parent table and deletion of the dependent rows in the child table

## ADDING A CONSTRAINT

- Add or drop, but not modify, a constraint
- Add a NOT NULL constraint by using the MODIFY clause

# ALTER TABLE table ADD CONSTRAINT const-name cons-type (column);

Q2) Add NOT NULL constraint to the columns ENAME and JOB of EMP table.

SQL> ALTER TABLE emp MODIFY(ename varchar2(20) NOT NULL,
job char(20) NOT NULL);

- Q3) Add Primary key constraint to the column EMPNO of EMP table SQL> ALTER TABLE emp ADD CONSTRAINT emp\_pk PRIMARY KEY(empno);
- Q4) Add Primary key constraint to the column DEPTNO of DEPT table SQL>
- Q5) Add Unique key constraint to the column DNAME of DEPT table SQL>
- **Q6)** Add Check constraint to the table EMP to restrict the values of EMPNO lies between 7000 and 8000.
  - SQL> ALTER TABLE emp ADD CONSTRAINT emp\_ck CHECK(empno BETWEEN 7000 AND 8000)
- Q7) Add Foreign key constraint to the column DEPTNO of EMP table references DEPTNO of DEPT table.
  - SQL> ALTER TABLE emp ADD CONSTRAINT emp\_fk FOREIGN KEY(deptno) REFERENCES DEPT(deptno);
- Q8) Add a Foreign key constraint to the EMP1 table indicating that a manager must already exist as a valid employee in the EMP1 table.SQL>

### DROPING CONSTRAINTS

Removing constraints from the table

# ALTER TABLE table DROP CONSTRAINT const-name;

- Q9) Remove the Manager constraint (added in Q8) from EMP table SQL>
- Q10) Remove the primary key constraint on the DEPT table and drop the associated foreign key constraint on the EMP.DEPTNO column.
  - **SQL> ALTER TABLE dept DROP PRIMARY KEY CASCADE;**

#### **DISABLE and ENABLE Constraint**

- Execute the DISABLE clause of the ALTER TABLE statement to deactivate an integrity constraint.
- Apply the CASCADE option to disable dependent integrity constraints.
- Activate an integrity constraint currently disabled in the table definition by using the ENABLE clause.

A UNIQUE or PRIMARY KEY index is automatically created if you enable a UNIQUE key or PRIMARY KEY constraint.

Q11) Disable the primary key constraint of EMP table.

**SQL>** ALTER TABLE emp DISABLE CONSTRAINT emp pk CASCADE;

Q12) Enable the primary key constraint of EMP table.

SQL>

- Q13) Query the USER\_CONSTRAINTS table to view all constraint definitions and names
  - SQL> SELECT constraint\_name, constraint\_type, search\_condition
    FROM user\_constraints
    WHERE table name = 'EMP';
- Q14) View the columns associated with the constraint names in the USER\_CONS\_COLUMNS view

SQL> SELECT constraint\_name, column\_name
FROM user\_cons\_columns
WHERE table\_name = 'EMP';

V	er	u	rea	DV

Staff In-charge Sign :	Date: