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| Ex.No. 4 | I N T E G R I T Y C O N S T R A I N T S | 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:
* NOT NULL
* UNIQUE Key
* PRIMARY KEY
* FOREIGN KEY
* CHECK
* DEFAULT
* Create a constraint:
* At the same time as the table is created
* 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);

# NOT NULL Constraint

* Ensures that null values are not permitted for the column

CREATE TABLE Persons (  
    ID int NOT NULL,  
    LastName varchar(255) NOT NULL,  
    FirstName varchar(255) NOT NULL,  
    Age int  
);

# CHECK Constraint

* Defines a condition that each row must satisfy

CREATE TABLE Persons (  
    ID int NOT NULL,  
    LastName varchar(255) NOT NULL,  
    FirstName varchar(255),  
    Age int CHECK (Age>=18)  
);

# UNIQUE Constraint

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

CREATE TABLE Persons (  
    ID int NOT NULL UNIQUE,  
    LastName varchar(255) NOT NULL,  
    FirstName varchar(255),  
    Age int  
);

DEFAULT Contraint

* The DEFAULT constraint is used to set a default value for a column.

ALTER TABLE Persons  
MODIFY City DEFAULT 'Sandnes';

# PRIMARY KEY Constraint

* Avoids duplication of rows and does not allow NULL values

CREATE TABLE Persons (  
    ID int NOT NULL PRIMARY KEY,  
    LastName varchar(255) NOT NULL,  
    FirstName varchar(255),  
    Age int  
);

# 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*

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

*REFERENCES*

* Identifies the table and column in the parent table

*ON DELETE CASCADE*

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

# create table order(Order\_no int, id int, foreign key(id) references Persons(id));

# 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*);

ALTER TABLE Persons  
ALTER COLUMN Age int NOT NULL;

DROPING CONSTRAINTS

* Removing constraints from the table

**ALTER TABLE *table* DROP CONSTRAINT *const-name;***

Q1) Create the table Department with the attributes listed.

Add Primary key constraint to the column DEPTNO of DEPT table.

|  |  |  |
| --- | --- | --- |
| Column name | Data type | constraints |
| DEPT\_NO | Number(5) | Primary Key |
| DNAME | Varchar(10) |  |
| DLOC | Varchar(10) |  |

# ANSWER : SQL>

Q2) Create table EMP with columns listed below. Add PRIMARY KEY constraint for EMPNO column with constraint name. Give default constraint for Manager name.

|  |  |  |
| --- | --- | --- |
| Column name | Data type | constraints |
| EMP\_NO | Number(5) | Primary Key |
| ENAME | Varchar(10) |  |
| JOB | Varchar(10) |  |
| MANAGER\_NAME | Varchar(10) | Default (Mr.K. RAM) |
| HIRE\_DATE | DATE |  |
| SALARY | Number(50) |  |
| COMMISSION | Number(50) |  |
| DEP\_NO | Varchar(5) |  |

# ANSWER : SQL>

Q3) Add Unique key constraint to the column DNAME of DEPT table

# ANSWER : SQL>

Q4) Add ‘NOT NULL’ constraint to the column ‘hire date’ in the dept table.

# ANSWER : SQL>

Q5) Add Check constraint to the table EMP to restrict the values of salary lies between 10,000 and 20,000.

# ANSWER : SQL>

Q6) Add Foreign key constraint to the column DEPTNO of EMP table references DEPTNO of DEPT table.

# ANSWER : SQL>

Q7) Add Check constraint to the table EMP to restrict the values of commission. It has to be less than 10%.

ANSWER : SQL>

# ANSWER : SQL>

# Q8) Do insertion in the above two tables as per the rules given below.

# Insert data into the table which satisfies the constraints on DEPT table first.

# Insert data into the table which satisfies the constraints on EMP table and keep the default value for manager.

ANSWER : SQL>

# Q9) Insert data in to the EMP table not satisfying the foreign key constraints. Notice the error and mention it .

ANSWER : SQL>

Q10) Remove the primary key constraint on the EMP table.

ANSWER : SQL>

*Verified by*