Course Name: **A Level (1st Sem)** Subject : **Introduction to DBMS**
Topic: **ERD – Constraints (Part 6)** Date: **08-Apr-2020**

ERD – Constraints

Constraints

Constraints enforce rules used to limit to the data or type of data that can be inserted/updated/deleted in the database. The main purpose of constraints is to maintain data integrity. The contents of the database must confirm the constraints.

Types of Constraints

1. NOT NULL
2. UNIQUE
3. DEFAULT
4. CHECK
5. Key Constraints
6. Domain Constraints
7. Mapping Cardinality
8. Participation Constraints

NOT NULL

NOT NULL constraint makes sure that a column or attribute does not hold NULL value. When we don't provide any value for a column while inserting record, it takes NULL value by default.

The primary key attribute has already this constraint. When we assign this constraint to any other attribute, then that particular attribute always must have some value.

For example, emp_name attribute may be assigned to this constraint as we cannot suppose a employee without name.

UNIQUE

This constraint enforces a column to have unique values. If a column has a unique constraints it means that it cannot have duplicate value. The primary key attribute has this constraint also.

For example, emp_adhaar attribute may be assigned to UNIQUE constraint because employee aadhaar can not contain duplicate value.

DEFAULT

This constraint provides a default value to a column when there is no value provided while inserting a record in the database.

For example, we can set this constraint to emp_city attribute that it has the value as "Gorakhpur" when no value is provided to this column.

CHECK

This constraint ensures that the specified column must have the value in the specified range.

For example, we can set this constraint to emp_salary attribute that it must have value between 10000 and 50000.

Key Constraints

These are defined by implementation of Primary key and Foreign key.

Primary key attribute uniquely identify each record in a relation. It must have unique values and cannot have null value.

Foreign key attribute points to the primary key field of another relation. Foreign key attribute can contain only those values that are available in primary key attribute that foreign key attribute points to.

We have already gone through about keys in detailed in our earlier lectures. (Please refer for detailed explanation)

Domain Constraints

Domain constraints are user defined data type. While creating table, we must have define the data type of each attribute, the attribute does not accept value of any other type of data.

For example, emp_dob attribute will have 'date' data type. By assigning this emp_dob will have always date value.

Mapping Constrains / Cardinality

It is also called cardinality ratio. We have already gone through about keys in detailed in our earlier lectures. (Please refer that)

Participation Constraints

We will cover this topic in detailed in our next lecture.

Exercise:

1. Identify constraints in following database schema:
    - employee (emp_no, emp_name, emp_dob, dept_no)
    - department (dept_no, dept_name, dept_location)
    - project (proj_no, proj_name, proj_budget)
    - works_on (emp_no, proj_no, job)