29/8/25

EXERCISE 12

Intro to Constraints; NOT NULL and UNIQUE Constraints

Global Fast Foods has been very successful this past year and has opened several new stores. They need to add a table to their database to store information about each of their store's locations. The owners want to make sure that all entries have an identification number, date opened, address, and city and that no other entry in the table can have the same email address. Based on this information, answer the following questions about the global_locations table. Use the table for your answers.

Global Fast Foods global_locations Table						
NAME	TYPE	LENGTH	PRECISION	SCALE	NULLABLE	DEFAULT
Id	Number	4			Not Null	
name	varchar2	20			Not Null	
date_opened	Date	-			Not Null	
address	varchar2	30			Not Null	
city	varchar2	20			Not Null	
zip/postal code	varchar2	20			Nullable	
phone	varchar2	15			Nullable	
email	varchar2	30			Nullable	
manager_id	Number	4			Nullable	
Emergency contact	varchar	2			Nullable	

1. What is a "constraint" as it relates to data integrity?

* Constraint is a rule enforced on data in a database to maintain data integrity and accuracy. It ensures that only valid data is entered into table

2. What are the limitations of constraints that may be applied at the column level and at the table level?

* Column level constraints can only be applied to a single column where the column is defined
* Table-level constraints can refer to multiple columns together

3. Why is it important to give meaningful names to constraints?

* Identify the purpose of the constraint easily
* Simplify debugging or when an error message references the constraint. * Maintain clarity in large databases

4. Based on the information provided by the owners, choose a datatype for each column. Indicate the length, precision, and scale for each NUMBER datatype.

5. Use "(nullable)" to indicate those columns that can have null values.

* Zip/Postal code (nullable)
* Phone (nullable)
* manager_id (nullable)
* Emergency contact (nullable)

6. Write the CREATE TABLE statement for the Global Fast Foods locations table to define the constraints at the column level.

```
Create table global_locations (id_Number (4) Primary Key,
name varchar2(20) Not Null,
date_opened Date Not Null,
address Varchar2(30) Not Null,
city varchar2(20) Not Null
zip_Postal varchar2(20),
Phone varchar2(15),
email varchar2(80) Unique Not Null
manager_id Number(4),
contact varchar2(40);
```

7. Execute the CREATE TABLE statement in Oracle Application Express.

you would own the above SQL code in SQL commands or SQL workshop inside Oracle APEX. (Just Type and click run)

8. Execute a DESCRIBE command to view the Table Summary information.

```
Desc global_locations;
```

This command displays the column names, data type and nullability

9. Rewrite the CREATE TABLE statement for the Global Fast Foods locations table to define the UNIQUE constraints at the table level. Do not execute this statement.

NAME	TYPE	LENGTH	PRECISION	SCALE	NULLABLE	DEFAULT
id	number	4				
loc_name	varchar2	20			X	
	date					
address	varchar2	30				
city	varchar2	20				
zip_postal	varchar2	20			X	
phone	varchar2	15			X	
email	varchar2	80			X	
manager_id	number	4			X	
contact	varchar2	40			X	

```
Create table global_locations(
id Number(4),
name varchar(20) Not Null,
date_opened Date Not Null,
address Varchar2(30) Not Null,
city Varchar2(20) Not Null,
zip_Postal Varchar2(20),
Phone varchar2(10),
email varchar(80) Not Null,
manager_id Number(4),
contact Varchar2(40),
Constraint PK_global_
locations_id Primary Key(id),
Constraint
UQ_global_locations_mail
Unique(email));
```

PRIMARY KEY, FOREIGN KEY, and CHECK Constraints

1. What is the purpose of a
   - PRIMARY KEY
   - FOREIGN KEY
   - CHECK CONSTRAINT

a) A primary key uniquely identifies each word in a table
It cannot contain Null values and must be unique

b) A Foreign key is used to link two table together

c) A check constraint is used to limit the range of values that can be stored in a column.

2. Using the column information for the animals table below, name constraints where applicable at the table level, otherwise name them at the column level. Define the primary key (animal_id). The license_tag_number must be unique. The admit_date and vaccination_date columns cannot contain null values.

animal_id NUMBER(6)
name VARCHAR2(25)
license_tag_number NUMBER(10)
admit_date DATE
adoption_id NUMBER(5),
vaccination_date DATE

- animal_id → Primary Key
- license_tag_number → unique
- admit_date and Vaccination_date → Not Null

3) Create table animals (
animal_id Number(6) constraint PK_animal primary key,
name varchar2(20),
license_tag_Number Number(10) constraint uq-license unique,
admit_date Date constraint nn-admit_date Not Null,
adoption_id Number,
Vaccination_date Date Constraint nn-vaccination_date Not Null

3. Create the animals table. Write the syntax you will use to create the table.

4. Enter one row into the table. Execute a SELECT * statement to verify your input. Refer to the graphic below for input.

ANIMAL_ID	NAME	LICENSE_TAG_NUMBER	ADMIT_DATE	ADOPTION_ID	VACCINATION_DATE
101	Spot	35540	10-Oct-2004	205	12-Oct-2004

insert into animals (animal_id, name, license_tag_number, admit_date, adoption_id, vaccination_date)
values
(101, 'Spot', 35540, '10-oct-2004', 205, '12-oct-2004');
Select * from animals.

5. Write the syntax to create a foreign key (adoption_id) in the animals table that has a corresponding primary-key reference in the adoptions table. Show both the column-level and table-level syntax. Note that because you have not actually created an adoptions table, no adoption_id primary key exists, so the foreign key cannot be added to the animals table.

Create table animals (animal_id Number(6) Primary key,
name varchar(25),
license_tag_number Number(10) Unique,
admit_date Date Not Null,
adoption_id Number(6) References adoptions (adoption_id));

6. What is the effect of setting the foreign key in the ANIMAL table as:

a. ON DELETE CASCADE
b. ON DELETE SET NULL

a) If an adoption record is deleted, all animals linked to that adoption will also be deleted automatically

b) If an adoption record is deleted, the adoption_id field in the Animal table for those animals becomes Null

7. What are the restrictions on defining a CHECK constraint?

1) Check constraint can only refer to columns within the same table it cannot reference columns in other tables

2) It cannot include Subqueries

3) It must be boolean expression that evaluates to True or False

4) It cannot be use functions that return non-deterministic values (like Sysdate, user)

Evaluation Procedure	Marks awarded
Query(5)	5
Execution (5)	5
Viva(5)	5
Total (15)	15
Faculty Signature	