19/9/25

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						
name						
date_opened						
address						
city						
zip/postal code						
phone						
email						
manager_id						
Emergency contact						

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

A constraint is a rule enforced on a column or table to ~~enforce~~ maintain accuracy, data integrity. It ensures that the data entered into the database adhers to specific rules, such as uniqueness, nullness or value references

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

* Column level constraints apply to a single column only * Table level constraints can span multiple columns * NOT NULL must be defined at column level * Table level constraints must be named if using the constraint keyword

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

It helps identify errors and improves clarity. Makes debugging and maintenance easier

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.

- id Number(6)
- name Varchar2(50)(nullable)
- date_opened date
- address Varchar2(100)
- city varchar2(50)
- zip varchar2(10)(nullable)
- phone varchar2(15)(nullable)
- email varchar2(100)(nullable)
- managerid number(6)(nullable)
- emergency contact varchar2(50)(nullable)

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

name, zip, phone, email, manager_id, emergency_contact

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(6,0) Constraint gl_id_pk Primary key, name varchar2(50), date_opened DATE Not Null, address Varchar2(30) Not Null, city varchar2(50) Not Null, zip_postal_code varchar2(10), phone varchar2(15), email varchar2(100) Constraint gl_email_uk UNIQUE, manager_id number(6,0), emergency_contact Varchar2(50));

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

Paste and run in SQL commands

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

Desc global_locations

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(6,0) Constraint gl_id_pk PRIMARY KEY, name varchar2(50), date_opened DATE Not Null, address Varchar2(100) Not Null, city varchar2(50) Not Null, zip_postal_code varchar2(10), phone varchar2(15), email varchar2(100), manager_id number(6,0), emergency_contact Varchar2(50) constraint gl_email_uk unique(email));

PRIMARY KEY, FOREIGN KEY, and CHECK Constraints

1. What is the purpose of a
- PRIMARY KEY - Uniquely identifies each row in a table
- FOREIGN KEY - Ensures referential integrity between tables
- CHECK CONSTRAINT - Validates that column values meet a specific condition

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) PRIMARY KEY
name VARCHAR2(25)
license_tag_number NUMBER(10) UNIQUE
admit_date DATE NOT NULL
adoption_id NUMBER(5),
vaccination_date DATE NOT NULL

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

Create table animals (animal_id number (6) constraint animal_pk Primary key, name varchar2(25), license_tag_number number(10) Constraint license_uk Unique, admit_date DATE Not Null, adoption_id number (5), vaccination_date DATE not null);

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 Values (101, 'Spot', 35540, To_DATE ('10-Oct-2004', 'DD-Mon-YYYY'))
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.

Column level
adoption_id number(5) constraint fk_adoption_id References adoptions (adoption_id)

Table level
Constraint fk_adoption_id Foreign key (adoption_id) References adoptions (adoption_id)

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

a. ON DELETE CASCADE — Delete child rows when parent is deleted
b. ON DELETE SET NULL — Sets foreign key to NULL when parent is deleted

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

- Cannot reference other tables
- Must be a boolean expression
- Cannot include subqueries
- Must apply to values in the same row

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

(3)