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 rule enforced on data in a table to ensure accuracy and reliability (data integrity).

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 reference the column they are defined on. Table level constraints (defined at the end of the create table) can reference multiple columns, which is necessary for composite keys or complex check constraints.

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

It makes debugging easier. An Oracle message like ORA-02291: integrity constraint (SCOTT.SYS_C00123) violated is unhelpful, whereas ORA-02291: integrity constraint (SCOTT.FK_EMP_DEPTNO) violated tells you the exact problem.

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 4, name varchar2 · 20, date_opened date, address varchar2 30, city varchar2 · 20, zip_postal · varchar2 20, phone varchar2 15, email varchar2 80, manager_id number 4, contact varchar2 40

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

zip_postal, phone, email, manager_id, 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(4) NOT NULL, name Varchar2(20), date_opened Date NOTNULL, address Varchar2(30 NOTNULL, city Varchar2(20 NotNULL, zip_postal Varchar2(20), phone Varchar2(15), email Varchar2(80) Unique, manager_id Number(4), Contact Varchar2(40);

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

~~Desc global_locations;~~

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_2 (id Number(4) NOTNULL, name Varchar(20), date_opend date NOTNULL, address varchar2(30) NOT NULL, city Varchar2(20) NOTNULL, zip_postal Varchar2(20), phone Varchar2(15), email Varchar2(80), manager_id Number(4), Contact Varchar2(40), Constraint glob_loc_email_uk UNIQUE (email);

PRIMARY KEY, FOREIGN KEY, and CHECK Constraints

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

Primary key: To uniquely identify each record in a table
Foreign key: To link to tables together
check constraints: To enforce domain integrity by maintain constraints

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

Create table animals (animal_id NUMBER(6),
constraint pk_animals Primary key, name
Varchar2(25), license_tag_number NUMBER(10)
Constraint ul_license_tag unique, admit_date
DATE constraint nn_admit_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_numb, admit_date,
adoption_id, vaccination_date) Value (101, 'Spot', 3554°, To_date(
'10-oct-2004', 'DD-Mon-YYYY'), 20, TO_DATE ('12-Oct-2004',
'DD-Mon-YYYY');

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.

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 a record in the parent table is deleted all corresponding records in the child are also deleted.
b) If a record in the parent table is deleted, the foreign key column in child records is set to NULL

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

- Cannot check other table
- Cannot use Subqueries
- Cannot use non-deterministic functions

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