Database Programming with SQL
14-1: Intro to Constraints; NOT NULL and UNIQUE Constraints Practice Solutions
Vocabulary

Directions: Identify the vocabulary word for each definition below.

UNIQUE constraint	Every value in a column or set of columns (a composite key) must be unique
NOT NULL constraint	For every row entered into the table, there must be a value for that column
PRIMARY KEY	Constraint ensures that the column contains no null values and uniquely identifies each row of the table
CHECK constraint	Specifies a condition for a column that must be true for each row of data
REFERENCES	Identifies that table and column in the parent table
UNIQUE KEY	An integrity constraint that requires every value in a column or set of columns be unique
FOREIGN KEY	Designates a column (child table) that establishes a relationship between a primary key in the same table and a different table (parent table)
Table level constraint	References one or more columns and is defined separately from the definitions of the columns in the table
Constraint	Database rule.
Column-level constraint	Database rule that references a single column

Try It / Solve It

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?

   Solution:
   A constraint is a database rule

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

   Solution:
   A column level constraint applies to only one column, consequently composite keys may not be applied at the column level. The NOT NULL constraint may only be applied at the column level.

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

   Solution:
   The Oracle server will automatically assign a meaningless name to a constraint if it is not given a meaningful one, making it difficult to identify a constraint from its name.

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.

   Solution:
   See table in student guide

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

   Solution:
   See table in student guide

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

   Solution:

```
CREATE TABLE global_locations (
Id                 NUMBER(4) CONSTRAINT g_loc_id_nn NOT NULL,
loc_name           VARCHAR2(20),
date_opened        DATE CONSTRAINT g_loc_date_nn NOT NULL,
address            VARCHAR2(30) CONSTRAINT g_loc_address_nn NOT NULL,
city               VARCHAR2(20) CONSTRAINT g_loc_city_nn NOT NULL,
zip_postal_code    VARCHAR2(20),
phone              VARCHAR2(15),
email              VARCHAR2(15) CONSTRAINT g_loc_email_uk UNIQUE,
manager_id         NUMBER(4),
emergency_contact VARCHAR2(20));
```

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

   Solution:
   Execute the CREATE TABLE statement in Oracle Application Express.

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

   Solution:

```
DESCRIBE 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	

Solution:

```
CREATE TABLE global_locations (
Id                NUMBER(4) CONSTRAINT g_loc_id_nn NOT NULL,
loc_name          VARCHAR2(20),
date_opened       DATE CONSTRAINT g_loc_date_nn NOT NULL,
address           VARCHAR2(30) CONSTRAINT g_loc_address_nn NOT NULL,
city              VARCHAR2(20) CONSTRAINT g_loc_city_nn NOT NULL,
zip_postal_code   VARCHAR2(20),
phone             VARCHAR2(15),
email             VARCHAR2(15),
manager_id        NUMBER(4),
emergency_contact  VARCHAR2(20),
 CONSTRAINT g_loc_email_uk UNIQUE(email));
```