E XERCISE 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						
N AME	T YPE	L ENGTH	P RECISION	S CALE	N ULLABLE	D EFAULT
Id						
name						
date_opened						
address						
city						
zip/postal code						
phone						
email						
manager_id						
Emergency contact						

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

1.
A constraint is a rule applied to data columns in relational databases to enforce data integrity, such as preventing duplicates or ensuring non-null values. Constraints help maintain correctness and validity of the data stored in the table

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

2.
- Column-level constraints are defined alongside individual columns and can only apply to that specific column (e.g., NOT NULL, UNIQUE).
- Table-level constraints are defined after all columns are listed and can involve multiple columns, such as composite PRIMARY KEY or FOREIGN KEY constraints, and named constraints

Why is it important to give meaningful names to constraints?

3.
Meaningful constraint names help in understanding the business rule being enforced and make debugging or managing the database easier (e.g., `unique_email` for a UNIQUE constraint on the email column).

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

Column name	Example Data Type	Length/Precision/Scale	Nullable
id	NUMBER	(6)	NOT NULL
name	VARCHAR2	(50)	NOT NULL
date_opened	DATE		NOT NULL
address	VARCHAR2	(100)	NOT NULL
city	VARCHAR2	(30)	NOT NULL
zip/postal_code	VARCHAR2	(10)	NULLABLE
phone	VARCHAR2	(15)	NULLABLE
email	VARCHAR2	(50)	UNIQUE, NULLABLE
manager_id	NUMBER	(6)	NULLABLE
emergency_contact	VARCHAR2	(50)	NULLABLE

5. 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)       NOT NULL,
    name               VARCHAR2(50)    NOT NULL,
    date_opened        DATE            NOT NULL,
    address            VARCHAR2(100)   NOT NULL,
    city               VARCHAR2(30)    NOT NULL,
    zip_postal_code    VARCHAR2(10),
    phone              VARCHAR2(15),
    email              VARCHAR2(50)    UNIQUE,
    manager_id         NUMBER(6),
    emergency_contact  VARCHAR2(50)
);
```

Table GLOBAL_LOCATIONS created.

Elapsed: 00:00:00.023

Execute the CREATE TABLE statement in Oracle Application Express.

6.

Table GLOBAL_LOCATIONS created.

Elapsed: 00:00:00.023

Execute a DESCRIBE command to view the Table Summary information.

7.

DESC global_locations;

Elapsed: 00:00:00.023

SQL> DESC global_locations

Name	Null?	Type
ID	NOT NULL	NUMBER(6)
NAME	NOT NULL	VARCHAR2(50)
DATE_OPENED	NOT NULL	DATE
ADDRESS	NOT NULL	VARCHAR2(100)
CITY	NOT NULL	VARCHAR2(30)
ZIP_POSTAL_CODE		VARCHAR2(10)
PHONE		VARCHAR2(15)
EMAIL		VARCHAR2(50)
MANAGER_ID		NUMBER(6)
EMERGENCY_CONTACT		VARCHAR2(50)

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.

8.

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	