Database Design Project

Oracle Baseball League Store Database

Project Scenario:

You are a small consulting company specializing in database development. You have just been awarded the contract to develop a data model for a database application system for a small retail store called Oracle Baseball League (OBL).

The Oracle Baseball League store serves the entire surrounding community selling baseball kit. The OBL has two types of customer, there are individuals who purchase items like balls, cleats, gloves, shirts, screen printed t-shirts, and shorts. Additionally customers can represent a team when they purchase uniforms and equipment on behalf of the team.

Teams and individual customers are free to purchase any item from the inventory list, but teams get a discount on the list price depending on the number of players. When a customer places an order we record the order items for that order in our database.

OBL has a team of three sales representatives that officially only call on teams but have been known to handle individual customer complaints.

Section 6 Lesson 3 Exercise : Data Definition Language

Use DDL to build and maintain database tables (S6L3 Objective 3)

Part 1: Reading information from a script

In this exercise you will use the "obl Sports.ddl" file to consolidate your knowledge of DDL.

Open the "obl Sports.ddl" in a text editor.

1. How many tables have been created using the CREATE TABLE statement?
   10 tables

2. How many columns are created for the price history table?
   6 columns

3. What statement is used to enforce the constraint that the category column of the items table must have a value?
   NOT NULL

4. What is the name of the foreign key constraint between the customers and customer addresses tables?
   customer_address_customer_fk

5. What are the lowest and highest values that can be stored in the commission_rate column for the sales_representatives table?
   Lowest value: -99
   Highest value: 99

6. What are the lowest and highest values that can be stored in the price column for the price_history table?
   Lowest value: -9999999.99
   Highest value: 9999999.99

7. What are the 3 columns that make up the primary key for the price_history table?
   itm_number, start_date, start_time

Part 2 : Updating Constraints

Log-in to APEX and go to the SQL commands environment

Modifying a column

1. Run the DESCRIBE command on the orders table to view its structure.

```
DESCRIBE orders
```

Script Output | Task completed in 2.238 seconds

```
ORA-02275: such a referential constraint al
02275. 00000 -  "such a referential constra
*Cause:    Self-evident.
*Action:   Remove the extra constraint.

Trigger FKNTM_ORDERS compiled

Name            Null?    Type
--------------- -------- -----------
ID              NOT NULL VARCHAR2(9)
ODR_DATE        NOT NULL DATE
ODR_TIME        NOT NULL DATE
NUMBER_OF_UNITS NOT NULL NUMBER(2)
CTR_NUMBER      NOT NULL VARCHAR2(6)
```

2. **Task**: Add a default constraint that will use todays date to assign a value to the odr_date column of the orders table if no date is provided.

```
DESCRIBE orders
ALTER TABLE orders
MODIFY odr_date DATE DEFAULT SYSDATE;
```

Script Output | Task completed in 0.426 seconds

```
*Action:   Remove the extra constraint.

Trigger FKNTM_ORDERS compiled

Name            Null?    Type
--------------- -------- -----------
ID              NOT NULL VARCHAR2(9)
ODR_DATE        NOT NULL DATE
ODR_TIME        NOT NULL DATE
NUMBER_OF_UNITS NOT NULL NUMBER(2)
CTR_NUMBER      NOT NULL VARCHAR2(6)

Table ORDERS altered.
```

3. Run the DESCRIBE command again to verify the command was successful.

```
DESCRIBE orders
ALTER TABLE orders
MODIFY odr_date DATE DEFAULT SYSDATE;
DESCRIBE orders
```

Script Output | Task completed in 0.165 seconds

```
ODR_DATE         NOT NULL DATE
ODR_TIME         NOT NULL DATE
NUMBER_OF_UNITS NOT NULL NUMBER(2)
CTR_NUMBER       NOT NULL VARCHAR2(6)

Table ORDERS altered.

Name             Null?    Type
---------------- -------- -----------
ID               NOT NULL VARCHAR2(9)
ODR_DATE         NOT NULL DATE
ODR_TIME         NOT NULL DATE
NUMBER_OF_UNITS NOT NULL NUMBER(2)
CTR_NUMBER       NOT NULL VARCHAR2(6)
```

Adding a check constraint

1. Run the DESCRIBE command on the customers table to view its structure.

```
DESCRIBE customers
```

Script Output | Task completed in 0.307 seconds

```
Name             Null?    Type
---------------- -------- -----------
ID               NOT NULL VARCHAR2(9)
ODR_DATE         NOT NULL DATE
ODR_TIME         NOT NULL DATE
NUMBER_OF_UNITS NOT NULL NUMBER(2)
CTR_NUMBER       NOT NULL VARCHAR2(6)
Name                  Null?    Type
--------------------- -------- ------------
CTR_NUMBER            NOT NULL VARCHAR2(6)
EMAIL                 NOT NULL VARCHAR2(50)
FIRST_NAME            NOT NULL VARCHAR2(20)
LAST_NAME             NOT NULL VARCHAR2(30)
PHONE_NUMBER          NOT NULL VARCHAR2(11)
CURRENT_BALANCE       NOT NULL NUMBER(6,2)
SRE_ID                         VARCHAR2(4)
TEM_ID                         VARCHAR2(4)
LOYALTY_CARD_NUMBER            VARCHAR2(6)
```

2. **Task**: Add a check constraint that will not allow the customers current balance to go below zero.

```
DESCRIBE customers
ALTER TABLE customers
ADD CONSTRAINT balance_check CHECK (current_balance >= 0);
```

Script Output | Task completed in 0.858 seconds

```
Error report -
ORA-00936: missing expression
00936. 00000 -  "missing expression"
*Cause:
*Action:

Table CUSTOMERS altered.
```

3. Run the DESCRIBE command again to verify the command was successful.

```
DESCRIBE customers
ALTER TABLE customers
ADD CONSTRAINT balance_check CHECK (current_balance >= 0);
DESCRIBE customers
```

Script Output | Task completed in 0.413 seconds

```
EMAIL                NOT NULL VARCHAR2(50)
FIRST_NAME           NOT NULL VARCHAR2(20)
LAST_NAME            NOT NULL VARCHAR2(30)
PHONE_NUMBER         NOT NULL VARCHAR2(11)
CURRENT_BALANCE      NOT NULL NUMBER(6,2)
SRE_ID                        VARCHAR2(4)
TEM_ID                        VARCHAR2(4)
LOYALTY_CARD_NUMBER           VARCHAR2(6)
```

4. A check constraint is not shown in the results of a describe command.
    a. Go to the Object Browser
    b. Select the customers table.
    c. Click on the CONSTRAINTS tab.
    d. You will see your constraint here

	CONSTRAINT_NAME	CONSTRAINT_TYPE	SEARCH_CONDITION
1	BALANCE_CHECK	Check	current_balance >= 0

Adding a column

The client has decided that they would like a separate column for the customer's mobile phone number. This is an optional column that will be required to store 11 digits.

1. Run the DESCRIBE command on the customers table to view its structure.
2. **Task**: Add column that will satisfy the clients requirements

```
DESCRIBE customers
ALTER TABLE customers
ADD phone_no VARCHAR2(11);
```

Script Output | Task completed in 1.115 seconds

```
PHONE_NUMBER         NOT NULL VARCHAR2(11)
CURRENT_BALANCE      NOT NULL NUMBER(6,2)
SRE_ID                        VARCHAR2(4)
TEM_ID                        VARCHAR2(4)
LOYALTY_CARD_NUMBER           VARCHAR2(6)

Table CUSTOMERS altered.
```

3. Run the DESCRIBE command on the customers table to view its structure.

```
DESCRIBE customers
ALTER TABLE customers
ADD phone_no VARCHAR2(11);
DESCRIBE customers
```

Script Output | Task completed in 0.25 seconds

```
FIRST_NAME           NOT NULL VARCHAR2(20)
LAST_NAME            NOT NULL VARCHAR2(30)
PHONE_NUMBER         NOT NULL VARCHAR2(11)
CURRENT_BALANCE      NOT NULL NUMBER(6,2)
SRE_ID                        VARCHAR2(4)
TEM_ID                        VARCHAR2(4)
LOYALTY_CARD_NUMBER           VARCHAR2(6)
PHONE_NO                      VARCHAR2(11)
```

Dropping a column

The client has decided that they don't need the mobile number column as most customers only provide a single contact number and that is already catered for with the existing phone_number column.

1. Run the DESCRIBE command on the customers table to view its structure.
2. **Task**: Drop the column that was created to store the mobile phone number.

```
ALTER TABLE customers
DROP column phone_no;
```

Script Output | Task completed in 1.61 s

```
Error report -
ORA-00905: missing keyword
00905. 00000 -  "missing keyword"
*Cause:
*Action:

Table CUSTOMERS altered.
```

3. Run the DESCRIBE command on the customers table to view its structure.

```
ALTER TABLE customers
DROP column phone_no;
DESCRIBE customers
```

Script Output | Task completed in 0.299 seconds

```
EMAIL                NOT NULL VARCHAR2(50)
FIRST_NAME           NOT NULL VARCHAR2(20)
LAST_NAME            NOT NULL VARCHAR2(30)
PHONE_NUMBER         NOT NULL VARCHAR2(11)
CURRENT_BALANCE      NOT NULL NUMBER(6,2)
SRE_ID                        VARCHAR2(4)
TEM_ID                        VARCHAR2(4)
LOYALTY_CARD_NUMBER           VARCHAR2(6)
```