ORACLE
Academy

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? Ctr_number

5. What are the lowest and highest values that can be stored in the commission rate column for the sales representatives table? Highest: +99   Lowest: -99

6. What are the lowest and highest values that can be stored in the price column for the price_history table? Highest: +99999.99   Lowest: -99999.99

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.
2. **Task**: Add a default constraint that will use today's date to assign a value to the odr_date column of the orderstable if no date is provided.
3. Run the DESCRIBE command again to verify the command was successful.

```
1   CREATE TABLE orders (
2       id                  VARCHAR2(9) NOT NULL,
3       odr_date            DATE NOT NULL,
4       odr_time            DATE NOT NULL,
5       number_of_units     NUMBER(2) NOT NULL,
6       ctr_number          VARCHAR2(6) NOT NULL,
7       CONSTRAINT orders_pk PRIMARY KEY ( id )
8   );
9
10  ALTER TABLE orders
11  MODIFY ord_date DATE DEFAULT SYSDATE;
12
13  DESCRIBE orders;
```

TABLE ORDERS

Column	Null?	Type
ID	NOT NULL	VARCHAR2(9)
ODR_DATE	NOT NULL	DATE
ODR_TIME	NOT NULL	DATE
NUMBER_OF_UNITS	NOT NULL	NUMBER(2,0)
CTR_NUMBER	NOT NULL	VARCHAR2(6)

Adding a check constraint

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

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

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

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.

```sql
1   CREATE TABLE customers (
2       ctr_number            VARCHAR2(6) NOT NULL,
3       email                 VARCHAR2(50) NOT NULL,
4       first_name            VARCHAR2(20) NOT NULL,
5       last_name             VARCHAR2(30) NOT NULL,
6       phone_number          VARCHAR2(11) NOT NULL,
7       current_balance       NUMBER(6,2) NOT NULL,
8       sre_id                VARCHAR2(4),
9       tem_id                VARCHAR2(4),
10      loyalty_card_number   VARCHAR2(6),
11      CONSTRAINT customer_pk PRIMARY KEY ( ctr_number ),
12      CONSTRAINT ctr_email_uk UNIQUE (email),
13      CONSTRAINT ctr_lcn_uk UNIQUE (loyalty_card_number)
14  );
15
16  ALTER TABLE customer
17  ADD CONSTRAINT current_balance_min CHECK (current_balance > 0);
```

TABLE CUSTOMERS

Column	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)

Columns   ⧉ Copy Query

#	Column	Type	Length	Precision	Scale	Nullable	Semantics	Comment
1	CTR_NUMBER	VARCHAR2	6			No	Byte	
2	EMAIL	VARCHAR2	50			No	Byte	
3	FIRST_NAME	VARCHAR2	20			No	Byte	
4	LAST_NAME	VARCHAR2	30			No	Byte	
5	PHONE_NUMBER	VARCHAR2	11			No	Byte	
6	CURRENT_BALANCE	NUMBER	22	6	2	No		
7	SRE_ID	VARCHAR2	4			Yes	Byte	
8	TEM_ID	VARCHAR2	4			Yes	Byte	
9	LOYALTY_CARD_NUMBER	VARCHAR2	6			Yes	Byte	

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

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

Column	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)

```
 4      first_name          VARCHAR2(20) NOT NULL,
 5      last_name           VARCHAR2(30) NOT NULL,
 6      phone_number        VARCHAR2(11) NOT NULL,
 7      current_balance     NUMBER(6,2) NOT NULL,
 8      sre_id              VARCHAR2(4),
 9      tem_id              VARCHAR2(4),
10      loyalty_card_number VARCHAR2(6),
11      CONSTRAINT customer_pk PRIMARY KEY ( ctr_number ),
12      CONSTRAINT ctr_email_uk UNIQUE (email),
13      CONSTRAINT ctr_lcn_uk UNIQUE (loyalty_card_number)
14  );
15
16  ALTER TABLE customer
17  ADD CONSTRAINT current_balance_min CHECK (current_balance > 0);
18
19  ALTER TABLE customers
20  ADD mobile_phone_number    NUMBER(11);
21
22  DESCRIBE customers;
```

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)
MOBILE_PHONE_NUMBER	-	NUMBER(11,0)

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.

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

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)
MOBILE_PHONE_NUMBER	-	NUMBER(11,0)

```
10        loyalty_card_number    VARCHAR2(6),
11        CONSTRAINT customer_pk PRIMARY KEY ( ctr_number ),
12        CONSTRAINT ctr_email_uk UNIQUE (email),
13        CONSTRAINT ctr_lcn_uk UNIQUE (loyalty_card_number)
14   );
15
16 v ALTER TABLE customers
17   ADD CONSTRAINT current_balance_min CHECK (current_balance > 0);
18
19 v ALTER TABLE customers
20   ADD mobile_phone_number    NUMBER(11);
21
22 v ALTER TABLE customers
23   DROP (mobile_phone_number);
24
25   DESCRIBE customers;
```

Column	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)