

## 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?  
VARCHAR2(25) 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 = -99
  - Highest = 99
6. What are the lowest and highest values that can be stored in the price column for the price\_history table?
  - Lowest = -99999.99
  - Highest = 99999.99
7. What are the 3 columns that make up the primary key for the price\_history table?
  - start\_date
  - start\_time
  - itm\_number

## 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 orders table if no date is provided.
3. Run the DESCRIBE command again to verify the command was successful.

#### SQL Worksheet

```
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 odr_date DEFAULT sysdate;
```

Table created.

Table altered.

## 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 Worksheet

```
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  DESCRIBE customers;
17  ALTER TABLE customers
18  ADD CHECK (current_balance >= 0);
```

Table created.

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)

[Download CSV](#)  
9 rows selected.

Table altered.

Schema \

## CUSTOMERS

Syntax Help

Actions

View All Objects

Show All Table Attributes Columns Indexes Triggers **Constraints**

### Constraints

Constraint	Type	Condition	On Delete	Status	Last Change	Invalid?
SYS_C00104377491	Check	"CTR_NUMBER" IS NOT NULL	-	ENABLED	78 seconds ago	-
SYS_C00104377492	Check	"EMAIL" IS NOT NULL	-	ENABLED	78 seconds ago	-
SYS_C00104377493	Check	"FIRST_NAME" IS NOT NULL	-	ENABLED	78 seconds ago	-
SYS_C00104377494	Check	"LAST_NAME" IS NOT NULL	-	ENABLED	78 seconds ago	-
SYS_C00104377495	Check	"PHONE_NUMBER" IS NOT NULL	-	ENABLED	78 seconds ago	-
SYS_C00104377496	Check	"CURRENT_BALANCE" IS NOT NULL	-	ENABLED	78 seconds ago	-
SYS_C00104377500	Check	current_balance >= 0	-	ENABLED	78 seconds ago	-
CUSTOMER_PK	Primary Key	-	-	ENABLED	78 seconds ago	-
CTR_EMAIL_UK	Unique Key	-	-	ENABLED	78 seconds ago	-
CTR_LCN_UK	Unique Key	-	-	ENABLED	78 seconds ago	-

## 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.

```
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
```

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)

```

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 DESCRIBE customers;
16 ALTER TABLE customers
17 ADD customer_mobile NUMBER(11);

```

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)
CUSTOMER_MOBILE	-	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.

## SQL Worksheet

```
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     DESCRIBE customers;  
16     ALTER TABLE customers  
17     ADD customer_mobile NUMBER(11);  
18  
19     ALTER TABLE customers  
20     DROP COLUMN customer_mobile;
```

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)