

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.

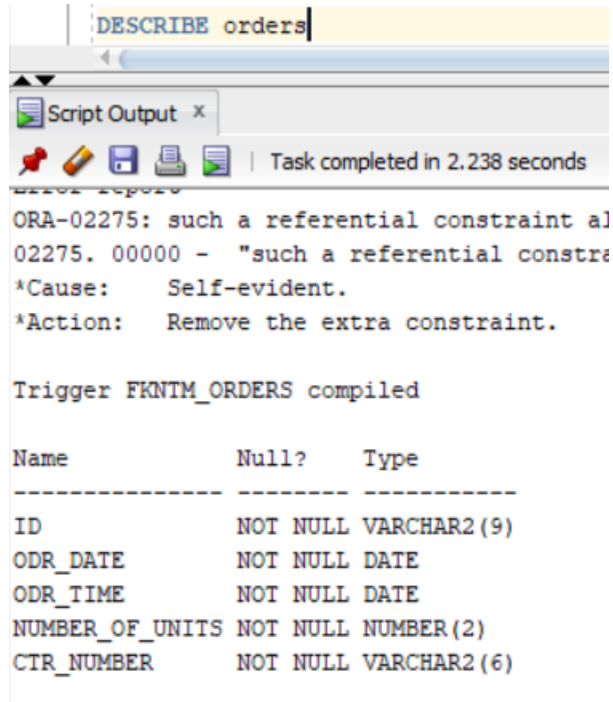
1. How many tables have been created using the CREATE TABLE statement?
10 tables
2. How many columns are created for the price history table?
6 columns
3. What statement is used to enforce the constraint that the category column of the items table must have a value?
NOT NULL
4. What is the name of the 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: -99999999.99
Highest value: 99999999.99
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.



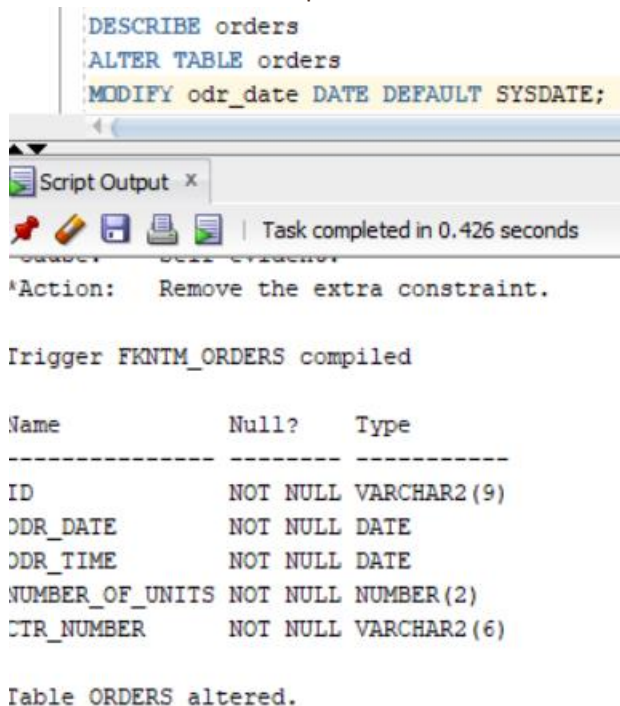
The screenshot shows the SQL Developer interface with the command `DESCRIBE orders` entered in the SQL command window. Below the command window, the 'Script Output' pane displays the following text:

```
ORA-02275: such a referential constraint already exists.
ORA-02275. 00000 - "such a referential constraint already exists."
*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 today's date to assign a value to the odr_date column of the orders table if no date is provided.



The screenshot shows the SQL Developer interface with the following commands entered in the SQL command window:

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

Below the command window, the 'Script Output' pane displays the following text:

```
ORA-02275: such a referential constraint already exists.
ORA-02275. 00000 - "such a referential constraint already exists."
*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)

Table ORDERS altered.

- 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 x

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

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

```
DESCRIBE customers
```

Script Output x

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 x

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 x

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)

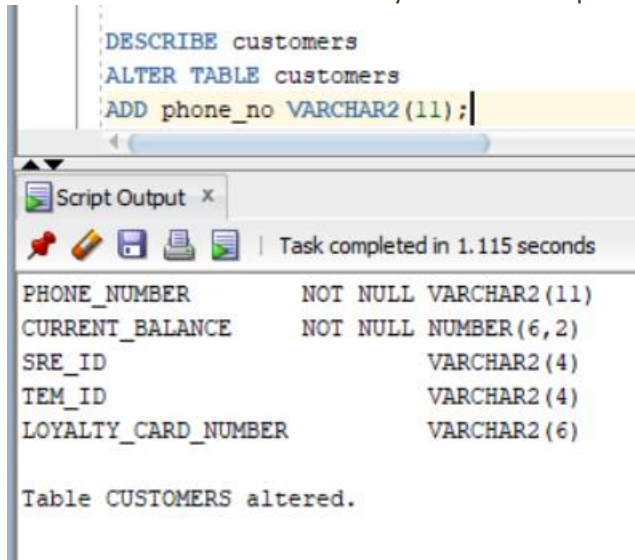
4. A check constraint is not shown in the results of a describe command.
- Go to the Object Browser
 - Select the customers table.
 - Click on the CONSTRAINTS tab.
 - You will see your constraint here

	CONSTRAINT_NAME	CONSTRAINT_TYPE	SEARCH_CONDITION	
1	BALANCE_CHECK	Check	current_balance >= 0	(1

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);
```

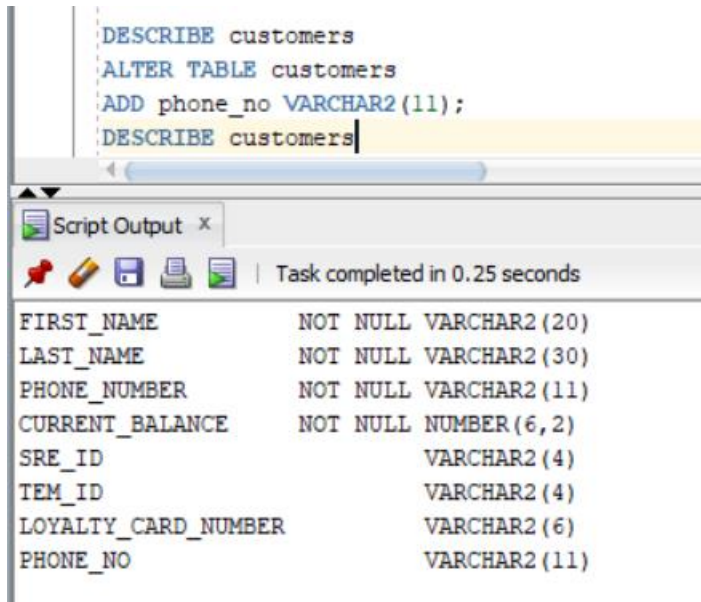
Script Output x

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 x

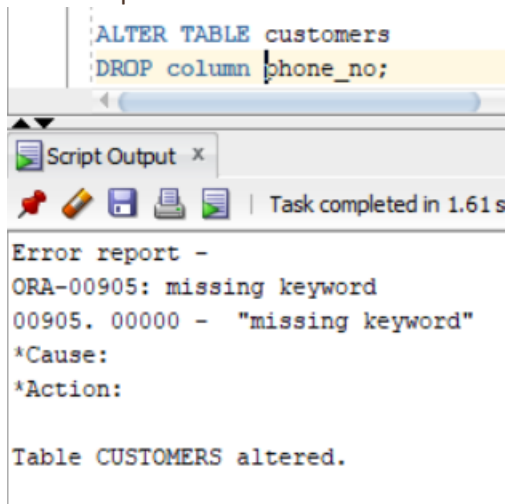
Task completed in 0.25 seconds

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.



The screenshot shows a SQL script window with the following text:

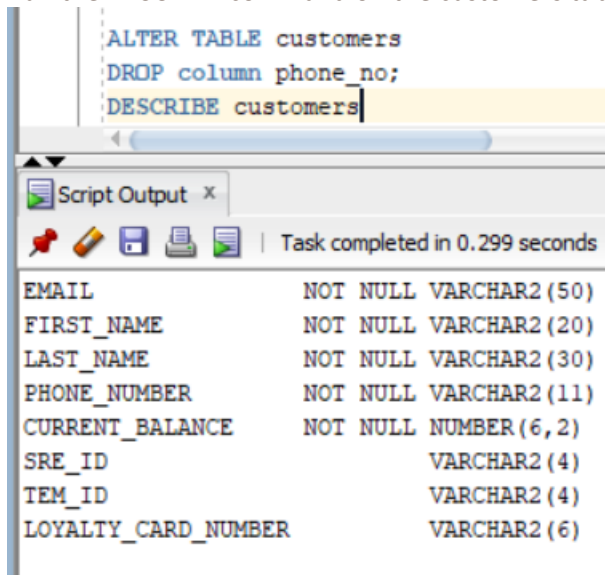
```
ALTER TABLE customers
DROP column phone_no;
```

Below the script window is a 'Script Output' window. It shows a status bar indicating 'Task completed in 1.61 s'. Below that, an 'Error report -' section displays the following message:

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

At the bottom of the error report, it says 'Table CUSTOMERS altered.'

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



The screenshot shows a SQL script window with the following text:

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

Below the script window is a 'Script Output' window. It shows a status bar indicating 'Task completed in 0.299 seconds'. Below that, the output of the DESCRIBE command is displayed as follows:

Column Name	Data Type
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)