

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.

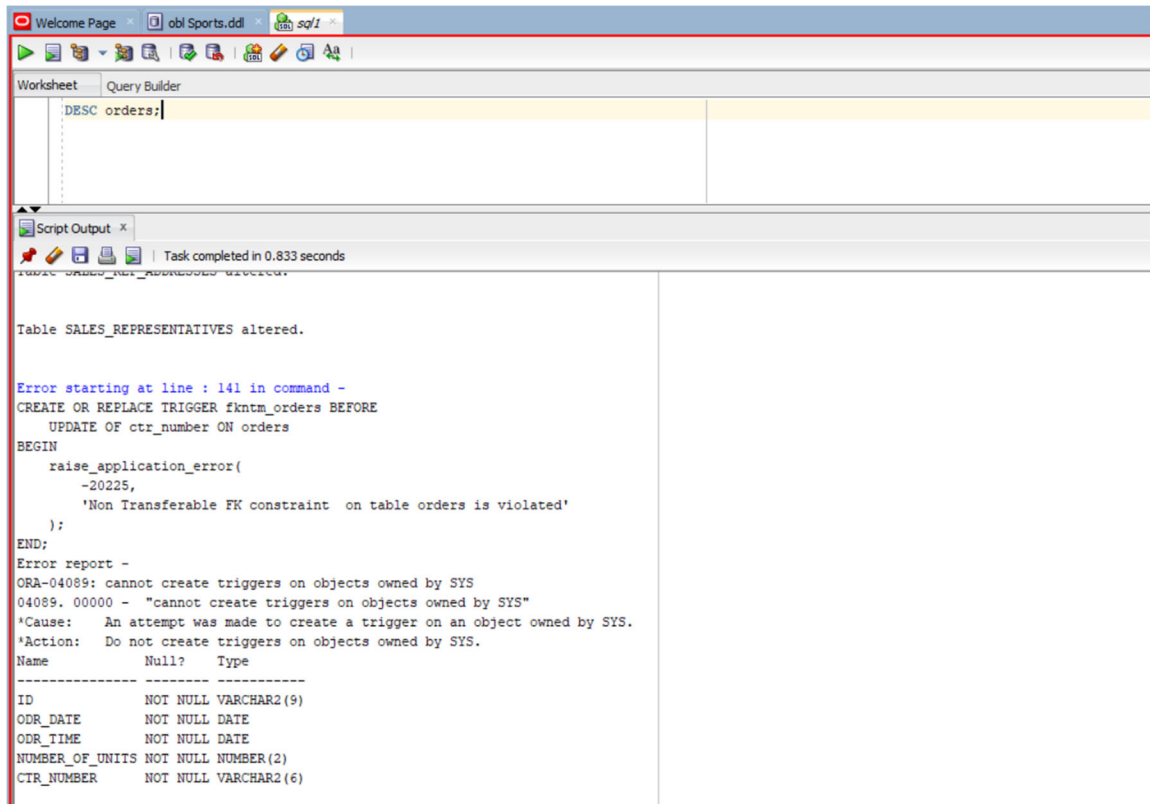
1. How many tables have been created using the CREATE TABLE statement?
10 tables have been created.
2. How many columns are created for the price history table?
6 columns have been created.
3. What statement is used to enforce the constraint that the category column of the items table must have a value?
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?
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?
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 APEX SQL command environment. The top pane displays the command `DESC orders;`. The bottom pane shows the output of the command, which includes a table structure for the `orders` table. The output also shows an error message: `ORA-04089: cannot create triggers on objects owned by SYS`. The error message is followed by a table structure for the `orders` table.

```
Table SALES_REPRESENTATIVES altered.

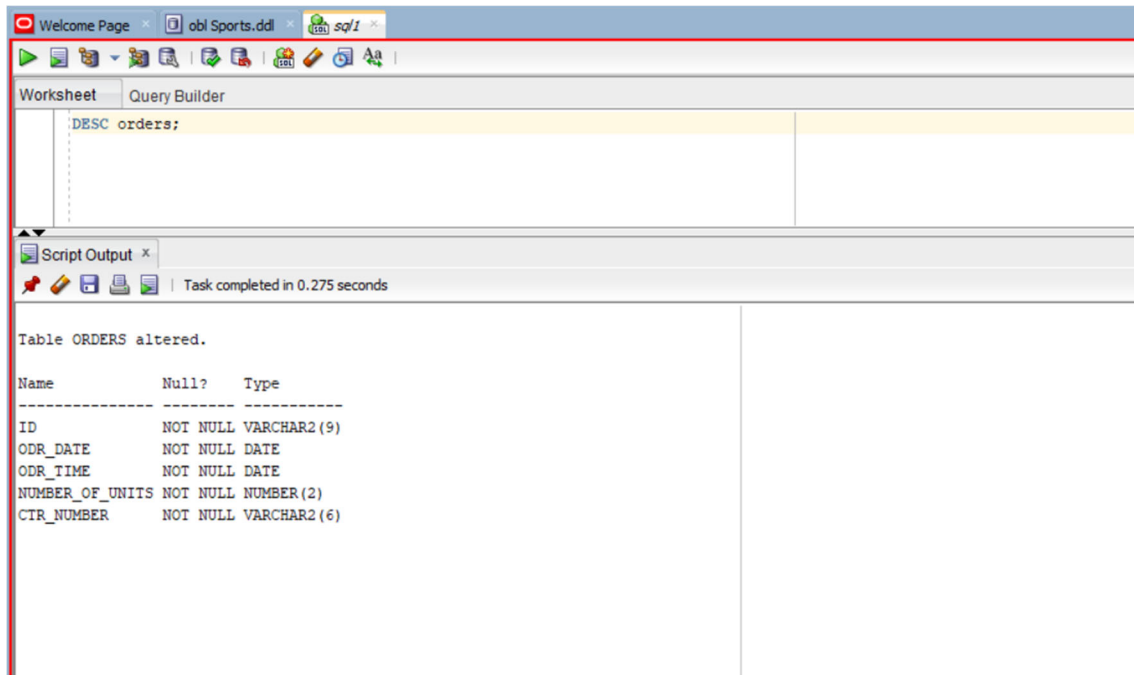
Error starting at line : 141 in command -
CREATE OR REPLACE TRIGGER fknkm_orders BEFORE
UPDATE OF ctr_number ON orders
BEGIN
    raise_application_error(
        -20225,
        'Non Transferable FK constraint on table orders is violated'
    );
END;
Error report -
ORA-04089: cannot create triggers on objects owned by SYS
04089. 00000 - "cannot create triggers on objects owned by SYS"
*Cause:      An attempt was made to create a trigger on an object owned by SYS.
*Action:     Do not create triggers on objects owned by SYS.
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.

`ALTER TABLE orders`

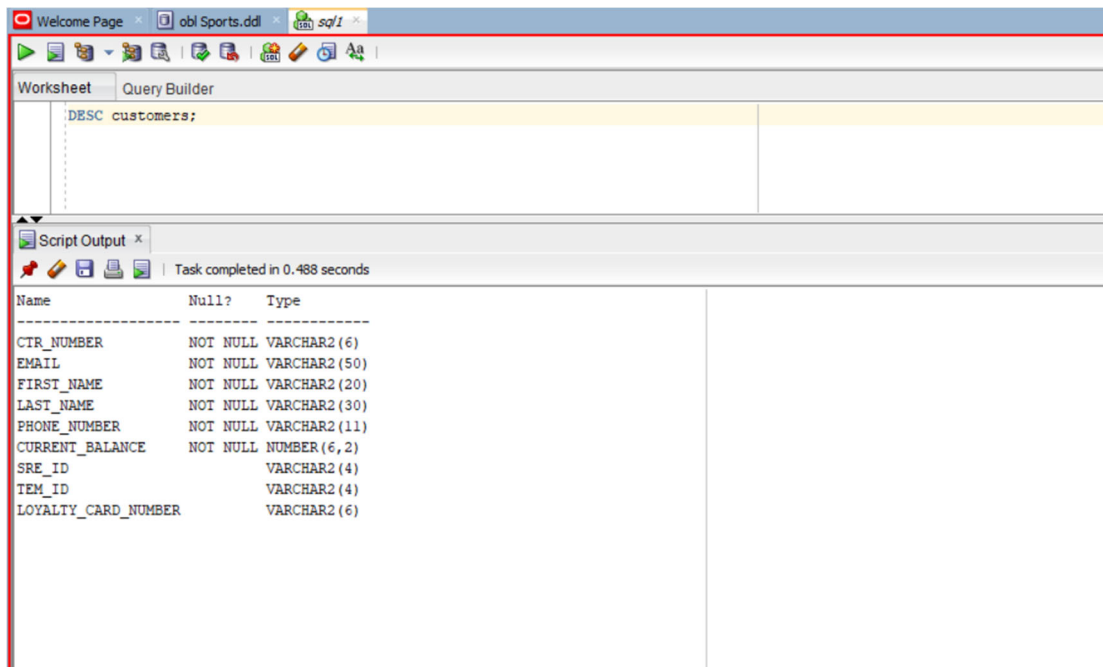
`MODIFY odr_date DEFAULT SYSDATE;`

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



Adding a check constraint

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

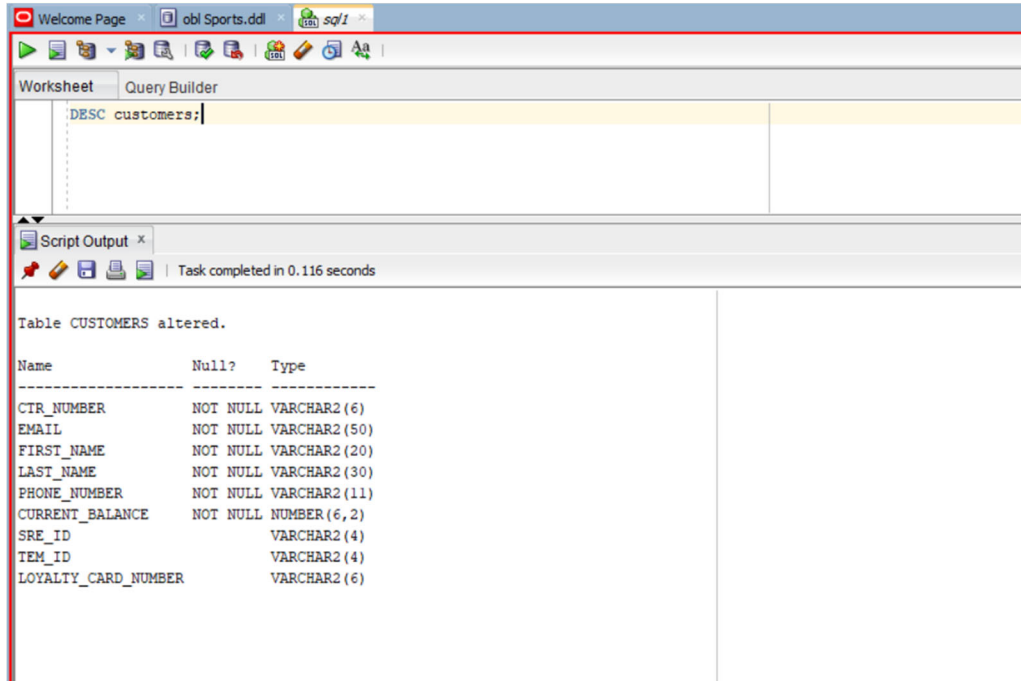


2. **Task:** Add a check constraint that will not allow the customers current balance to go below zero.

`ALTER TABLE customers`

`MODIFY current_balance CHECK (current_balance >= 0);`

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.

CONSTRAINT_NAME	CONSTRAINT_TYPE	SEARCH_CONDITION	R_OWNER	R_TABLE_NAME	R_CONSTRAINT_NAME	DELETE_RULE	STATUS
1 CTR_EMAIL_UK	Unique	(null)	(null)	(null)	(null)	(null)	ENABLED NC
2 CTR_LCN_UK	Unique	(null)	(null)	(null)	(null)	(null)	ENABLED NC
3 CUSTOMER_PK	Primary_Key	(null)	(null)	(null)	(null)	(null)	ENABLED NC
4 CUSTOMER_SALES_REP_FK	Foreign_Key	(null)	SYS	SALES_REPRESENTATIVES	SALES_REPRESENTATIVE_PK	NO ACTION	ENABLED NC
5 CUSTOMER_TEAM_FK	Foreign_Key	(null)	SYS	TEAMS	TEAM_FK	NO ACTION	ENABLED NC
6 SYS_C008348	Check	"CTR_NUMBER" IS NOT NULL	(null)	(null)	(null)	(null)	ENABLED NC
7 SYS_C008349	Check	"EMAIL" IS NOT NULL	(null)	(null)	(null)	(null)	ENABLED NC
8 SYS_C008350	Check	"FIRST_NAME" IS NOT NULL	(null)	(null)	(null)	(null)	ENABLED NC
9 SYS_C008351	Check	"LAST_NAME" IS NOT NULL	(null)	(null)	(null)	(null)	ENABLED NC
10 SYS_C008352	Check	"PHONE_NUMBER" IS NOT NULL	(null)	(null)	(null)	(null)	ENABLED NC
11 SYS_C008353	Check	"CURRENT_BALANCE" IS NOT NULL	(null)	(null)	(null)	(null)	ENABLED NC
12 SYS_C008383	Check	current_balance > 0	(null)	(null)	(null)	(null)	ENABLED NC

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.

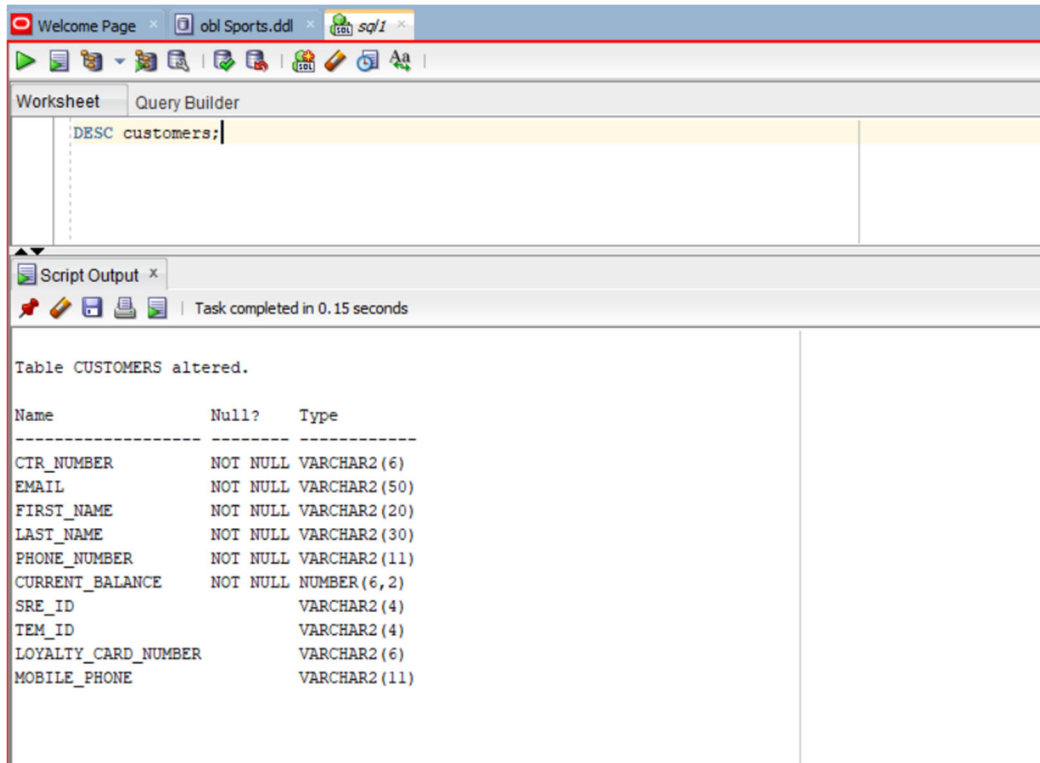
Table CUSTOMERS altered.		
Name	Null?	Type
CTR_NUMBER	NOT NULL	VARCHAR2(6)
EMAIL	NOT NULL	VARCHAR2(50)
FIRST_NAME	NOT NULL	VARCHAR2(20)
LAST_NAME	NOT NULL	VARCHAR2(30)
PHONE_NUMBER	NOT NULL	VARCHAR2(11)
CURRENT_BALANCE	NOT NULL	NUMBER(6,2)
SRE_ID		VARCHAR2(4)
TEM_ID		VARCHAR2(4)
LOYALTY_CARD_NUMBER		VARCHAR2(6)

2. **Task:** Add column that will satisfy the clients requirements

`ALTER TABLE customers`

`ADD mobile_phone VARCHAR2(11);`

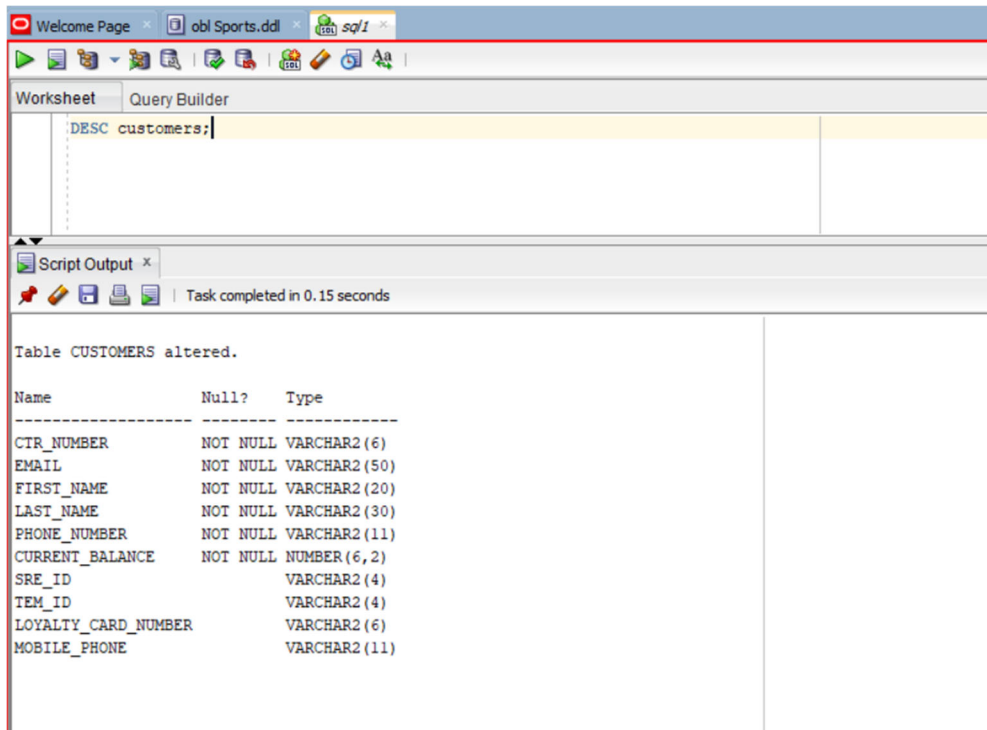
3. Run the DESCRIBE command on the customers table to view its structure.



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 (mobile_phone);`

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

