



UTM
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LAB 1 DDL

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SUBJECT/CODE:DATABASE/SECD2523

SECTION:01

Answer:

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?

Minimum:1

Maximum:2

6. What are the lowest and highest values that can be stored in the price column for the price_history table?

Significant value(M)=7

Exponent value (D)=2

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

itm_number, start_date, start_time

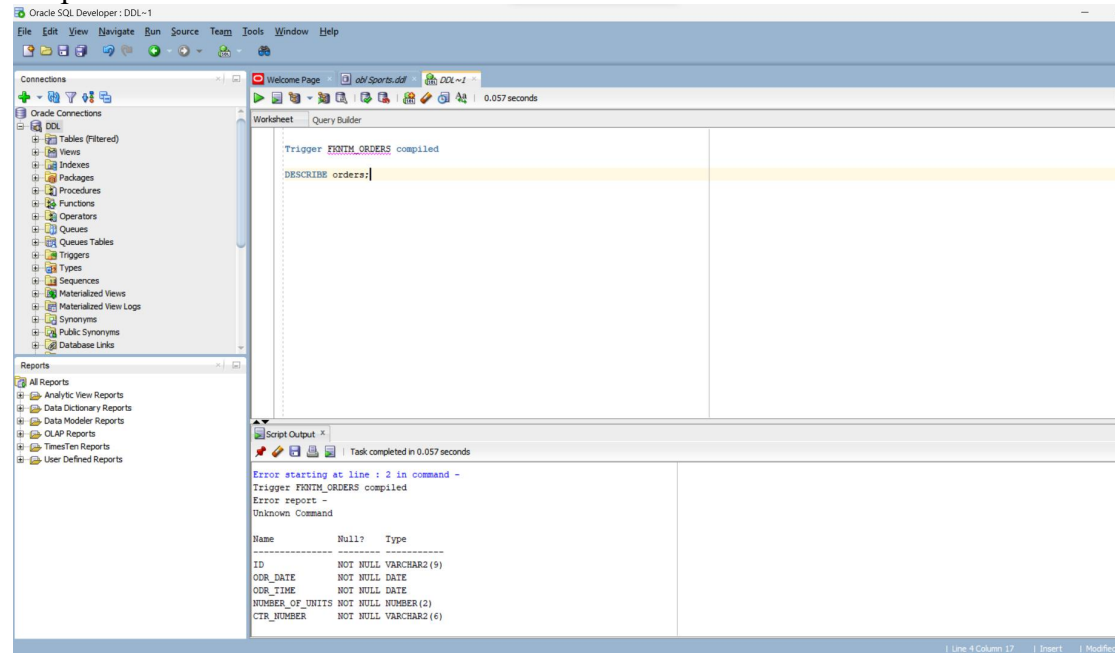
Part 2:

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.

Command:**DESCRIBE orders;**

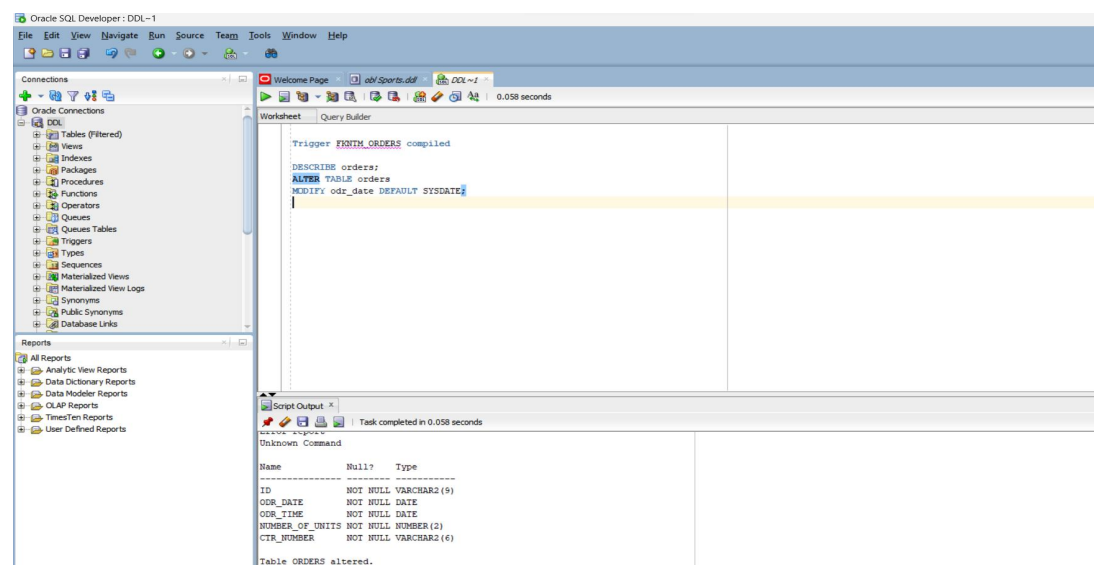
Output:



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.

Command:**ALTER TABLE orders MODIFY odr_date DEFAULT SYSDATE;**

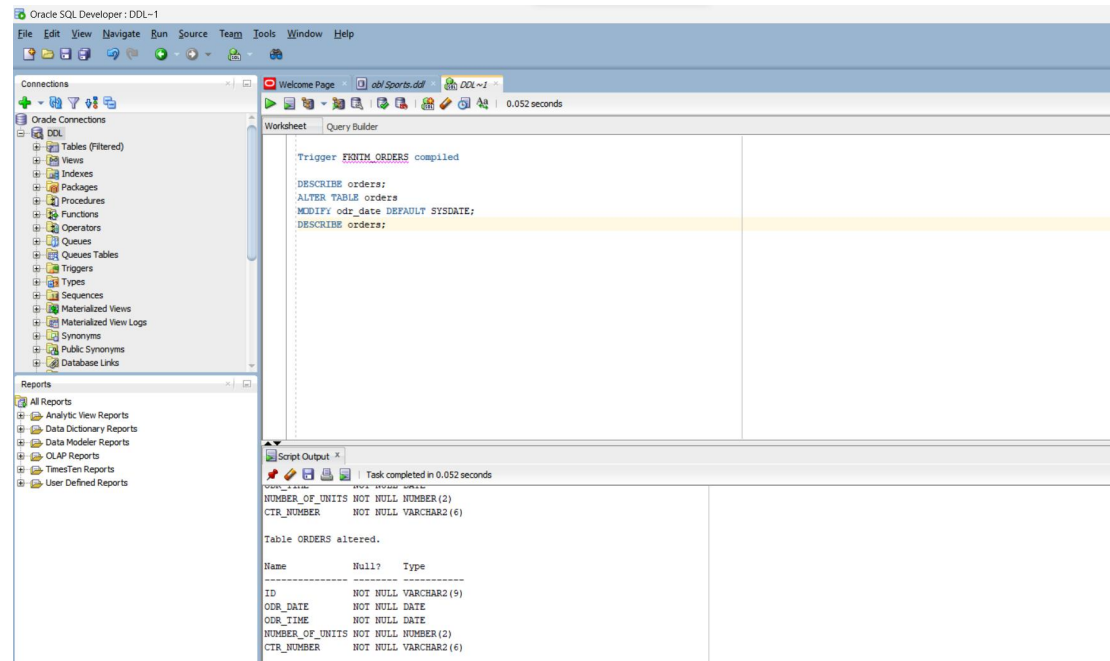
Output:



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

Command:**DESCRIBE orders;**

Output:

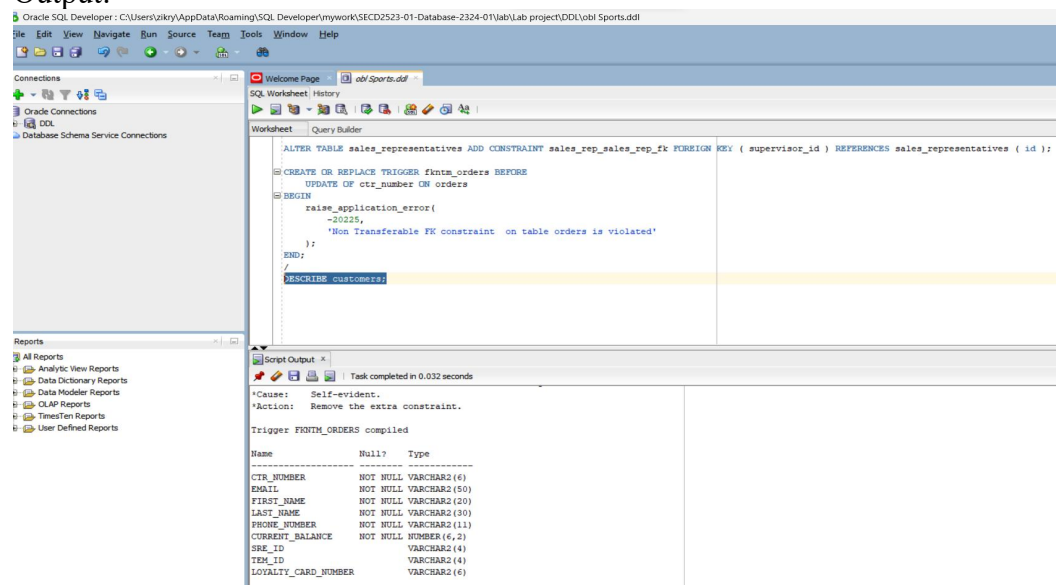


Adding a check constraint

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

Command:**DESCRIBE customers;**

Output:



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.

Command: ***ALTER TABLE customers ADD CONSTRAINT check_balance_non_negative CHECK (current_balance >= 0);***

Command: ***DESCRIBE customers;***

Output:

The screenshot shows the Oracle SQL Developer interface. The 'Query Builder' window contains the following SQL script:

```
CREATE OR REPLACE TRIGGER fktm_orders BEFORE
UPDATE OF ctr_number ON orders
BEGIN
    raise_application_error(
        -20225,
        'Non Transferable FK constraint on table orders is violated'
    );
END;
/
DESCRIBE customers;
ALTER TABLE customers
ADD CONSTRAINT chk_balance_non_negative CHECK (current_balance >= 0);
DESCRIBE customers;
```

The 'Script Output' window shows the following error report:

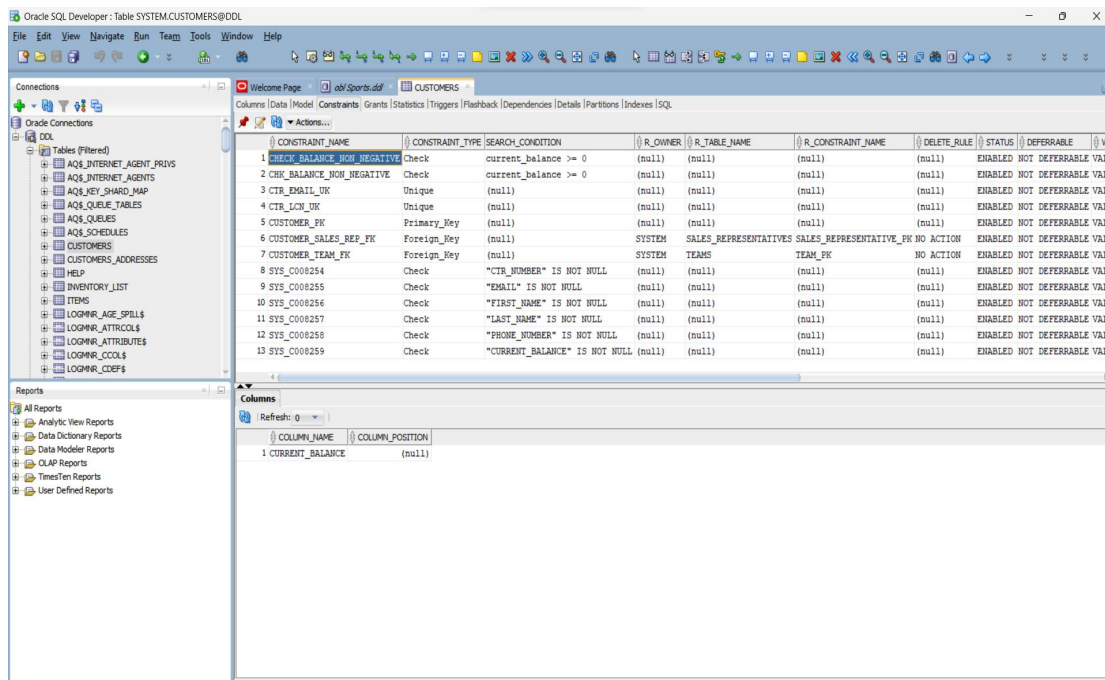
```
Error report -
ORA-02264: name already used by an existing constraint
02264. 00000 - "name already used by an existing constraint"
*Cause: The specified constraint name has to be unique.
*Action: Specify a unique constraint name for the constraint.
Name? Type
-----
CTR_NUMBER NOT NULL VARCHAR2(6)
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. A check constraint is not shown in the results of a describe command.
 - a. Go to the Object Browser
 - b. Select the customers table.

The screenshot shows the Oracle SQL Developer interface with the 'Object Browser' on the left. The 'customers' table is selected. The main window displays the table structure:

COLUMN_NAME	DATA_TYPE	NULLABLE	DATA_DEFAULT	COLUMN_ID	COMMENTS
CTR_NUMBER	VARCHAR2(6 BYTE)	No	(null)	1	(null)
EMAIL	VARCHAR2(50 BYTE)	No	(null)	2	(null)
FIRST_NAME	VARCHAR2(20 BYTE)	No	(null)	3	(null)
LAST_NAME	VARCHAR2(30 BYTE)	No	(null)	4	(null)
PHONE_NUMBER	VARCHAR2(11 BYTE)	No	(null)	5	(null)
CURRENT_BALANCE	NUMBER(6,2)	No	(null)	6	(null)
SRE_ID	VARCHAR2(4 BYTE)	Yes	(null)	7	(null)
TEM_ID	VARCHAR2(4 BYTE)	Yes	(null)	8	(null)
LOYALTY_CARD_NUMBER	VARCHAR2(6 BYTE)	Yes	(null)	9	(null)

- c. Click on the CONSTRAINTS tab.
- d. You will see your constraint here.



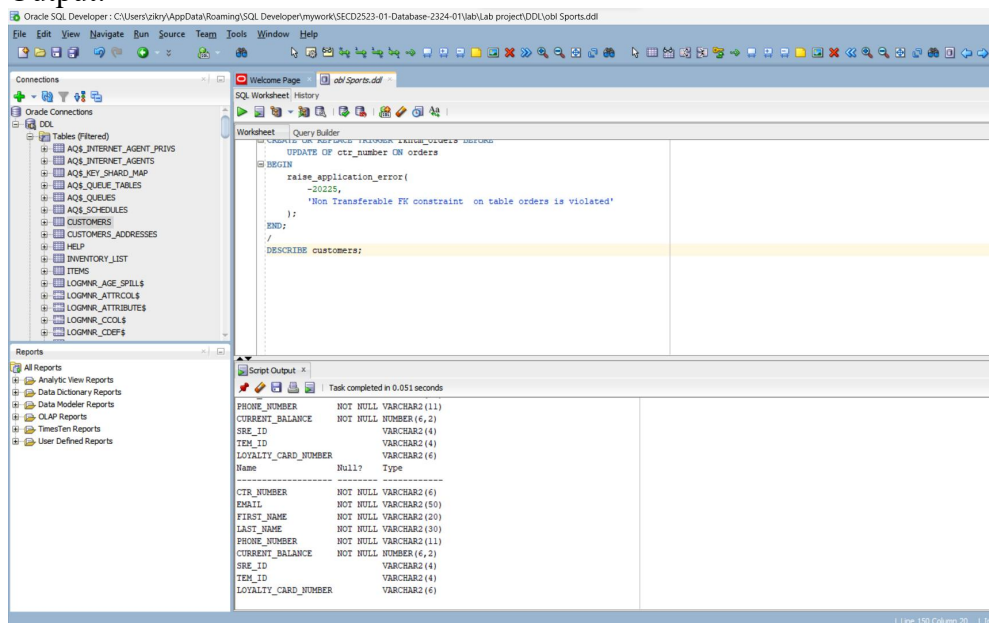
Adding a column

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.

Command: **DESCRIBE customers;**

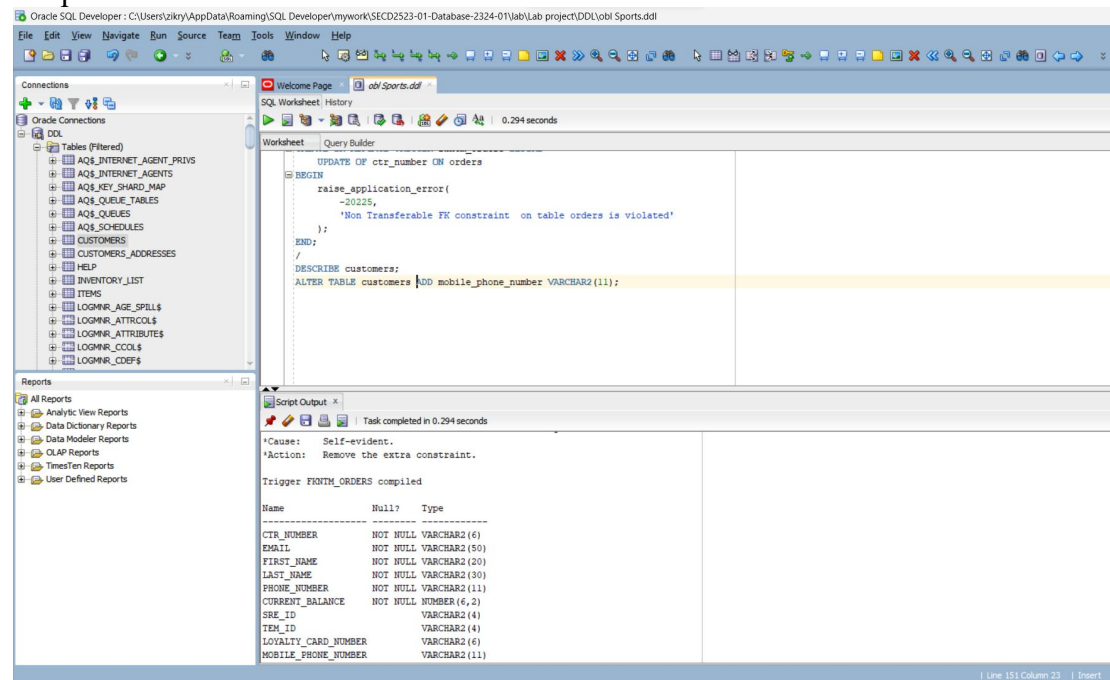
Output:



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

Command: ALTER TABLE customers ADD mobile_phone_number VARCHAR2(11);

Output:



The screenshot shows the Oracle SQL Developer interface. The 'Script Output' window displays the following message:

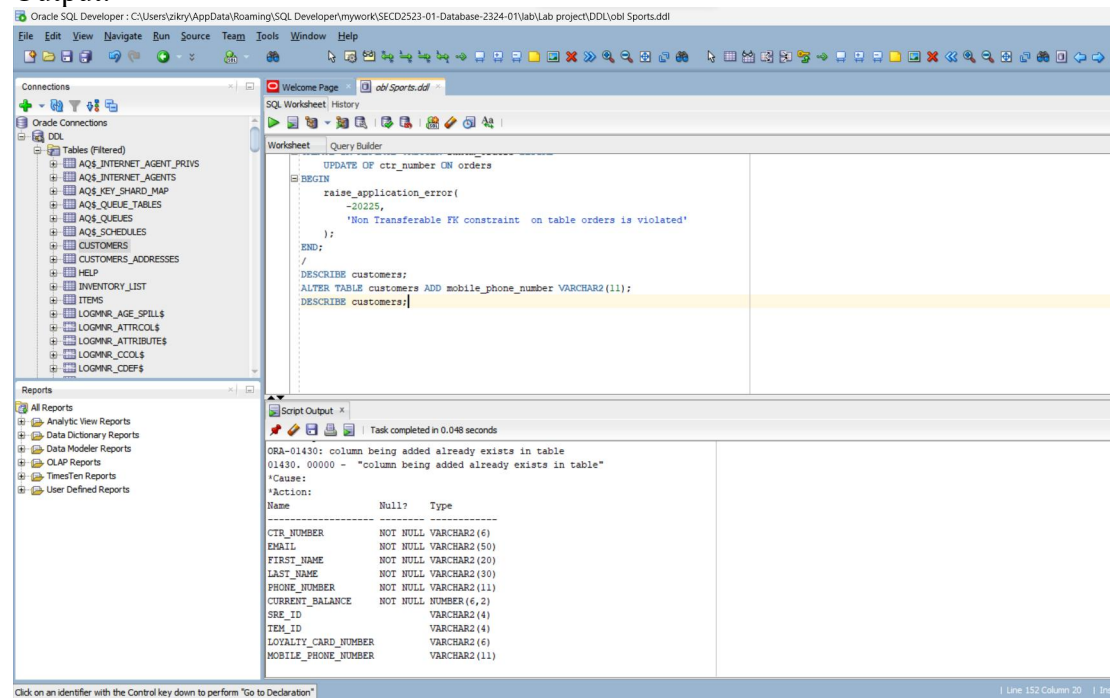
```
Task completed in 0.294 seconds
Cause: Self-evident.
Action: Remove the extra constraint.
Trigger FRMTH_ORDERS compiled
```

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)
MOBILE_PHONE_NUMBER		VARCHAR2(11)

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

Command: DESCRIBE customers;

Output:



The screenshot shows the Oracle SQL Developer interface. The 'Script Output' window displays the following message:

```
Task completed in 0.048 seconds
ORA-01430: column being added already exists in table
ORA-00000 - "column being added already exists in table"
Cause:
Action:
```

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)
MOBILE_PHONE_NUMBER		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.

Command: **DESCRIBE customers;**

Output:

The screenshot shows the Oracle SQL Developer interface. The 'Script Output' window displays the output of the DESCRIBE command for the customers table. The output is as follows:

Column Name	Null?	Type
SRE_ID		VARCHAR2(4)
TEM_ID		VARCHAR2(4)
LOYALTY_CARD_NUMBER		VARCHAR2(6)
MOBILE_PHONE_NUMBER		VARCHAR2(11)
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)
MOBILE_PHONE_NUMBER		VARCHAR2(11)

2. Task: Drop the column that was created to store the mobile phone number.

Command: **ALTER TABLE customers DROP COLUMN mobile_phone_number;**

Output:

The screenshot shows the Oracle SQL Developer interface. The 'Script Output' window displays the output of the ALTER TABLE command. The output is as follows:

*Cause: Self-evident.
*Action: Remove the extra constraint.

Trigger FKNTM_ORDERS compiled

Column 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)

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

Command: **DESCRIBE customers;**

Output:

The screenshot shows the Oracle SQL Developer interface. The 'Connections' pane on the left lists various database connections, including 'DDL'. The 'SQL Worksheet' pane in the center contains a SQL script. The 'Script Output' pane at the bottom displays the results of the script execution.

SQL Script:

```
UPDATE OF ctr_number ON orders
BEGIN
  raise_application_error(
    -20225,
    'Non Transferable FK constraint on table orders is violated'
  );
END;
/
DESCRIBE customers;
ALTER TABLE customers
DROP COLUMN mobile_phone_number;
DESCRIBE customers;
```

Script Output:

Task completed in 0.318 seconds

Error report -

ORA-00904: "MOBILE_PHONE_NUMBER": invalid identifier

00904. 00000 - "ks": invalid identifier

*Cause:

*Action:

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)