



SECD2523 – DATABASE

SEMESTER 1/20232024

SECTION 08

LAB 1: DDL

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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 has been created using the create table statement.

2. How many columns are created for the price history table?

There are 6 columns created for the price_history table.

3. What statement is used to enforce the constraint that the category column of the items table must have a value?

The constraint that used to enforce the category column of the items table to have a value is NOT NULL

4. What is the name of the foreign key constraint between the customers and customer addresses tables?

The name of the foreign key constraint between the customers and customer addresses tables is 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?

The lowest value the can be stored is -99 and The highest value that can be stored is 99 .

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

The lowest value that can be stored is -99999.99 and the highest value is 99999.99.

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

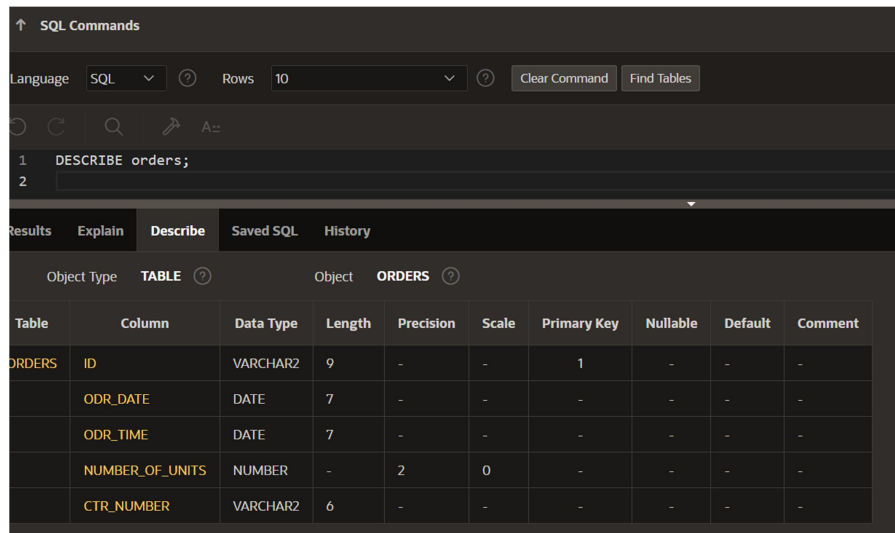
The three column that make up the primary key for the price_history table are (itm_number, start_date, start_time)

Part 2 : Updating Constraints

Log-in to APEX and go to the SQL commands environment

Modifying a column

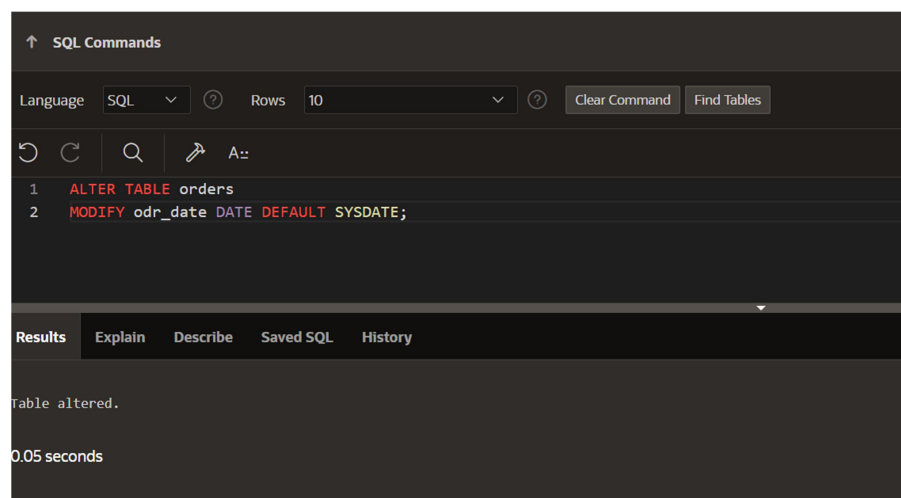
1. Run the DESCRIBE command on the orders table to view its structure.



The screenshot shows the SQL Commands interface with the command `DESCRIBE orders;` entered. The results tab is active, displaying the table structure for the `ORDERS` table.

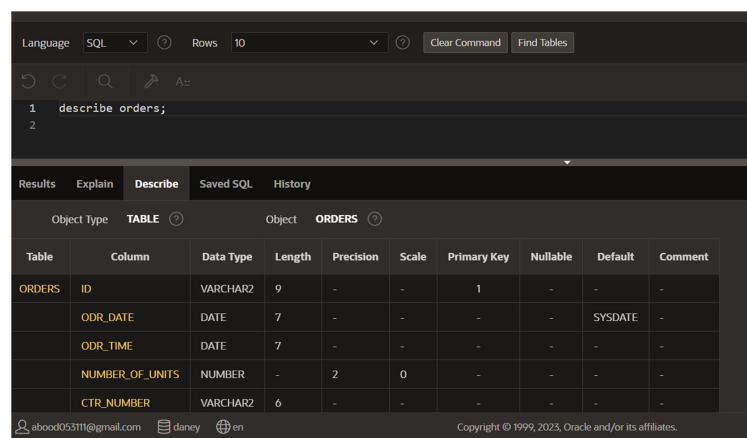
Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
ORDERS	ID	VARCHAR2	9	-	-	1	-	-	-
	ODR_DATE	DATE	7	-	-	-	-	-	-
	ODR_TIME	DATE	7	-	-	-	-	-	-
	NUMBER_OF_UNITS	NUMBER	-	2	0	-	-	-	-
	CTR_NUMBER	VARCHAR2	6	-	-	-	-	-	-

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 Commands interface with the command `ALTER TABLE orders MODIFY odr_date DATE DEFAULT SYSDATE;` entered. The results tab is active, displaying the message "Table altered." and the execution time "0.05 seconds".

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

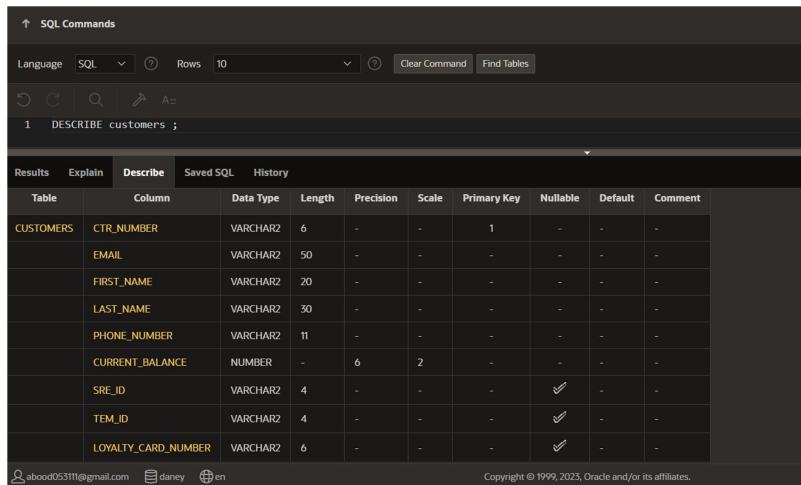


The screenshot shows the SQL Commands interface with the command `describe orders;` entered. The results tab is active, displaying the table structure for the `ORDERS` table, which now includes the default constraint on the `ODR_DATE` column.

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
ORDERS	ID	VARCHAR2	9	-	-	1	-	-	-
	ODR_DATE	DATE	7	-	-	-	-	SYSDATE	-
	ODR_TIME	DATE	7	-	-	-	-	-	-
	NUMBER_OF_UNITS	NUMBER	-	2	0	-	-	-	-
	CTR_NUMBER	VARCHAR2	6	-	-	-	-	-	-

Adding a check constraint

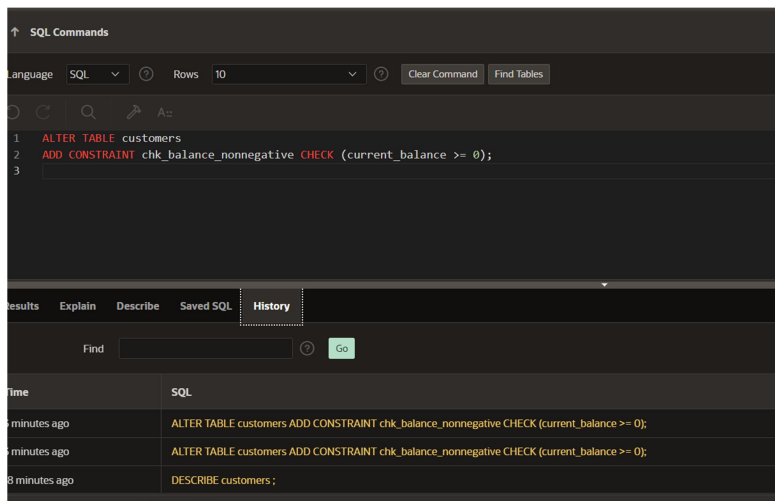
1. Run the DESCRIBE command on the customers table to view its structure.



The screenshot shows the SQL Developer interface with the command `DESCRIBE customers ;` entered in the SQL Commands window. The Results tab is selected, displaying the structure of the CUSTOMERS table.

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CUSTOMERS	CTR_NUMBER	VARCHAR2	6	-	-	1	-	-	-
	EMAIL	VARCHAR2	50	-	-	-	-	-	-
	FIRST_NAME	VARCHAR2	20	-	-	-	-	-	-
	LAST_NAME	VARCHAR2	30	-	-	-	-	-	-
	PHONE_NUMBER	VARCHAR2	11	-	-	-	-	-	-
	CURRENT_BALANCE	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.



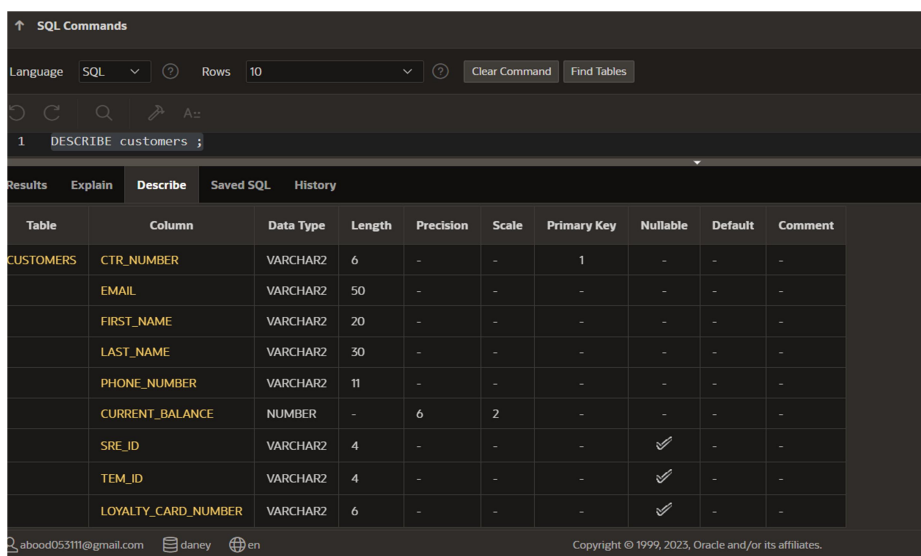
The screenshot shows the SQL Developer interface with the following SQL command entered:

```
1 ALTER TABLE customers
2 ADD CONSTRAINT chk_balance_nonnegative CHECK (current_balance >= 0);
3
```

The History tab is selected, showing the command was executed successfully.

Time	SQL
5 minutes ago	ALTER TABLE customers ADD CONSTRAINT chk_balance_nonnegative CHECK (current_balance >= 0);
5 minutes ago	ALTER TABLE customers ADD CONSTRAINT chk_balance_nonnegative CHECK (current_balance >= 0);
8 minutes ago	DESCRIBE customers ;

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



The screenshot shows the SQL Developer interface with the command `DESCRIBE customers ;` entered. The Results tab is selected, displaying the structure of the CUSTOMERS table, which now includes the `CURRENT_BALANCE` column with a check constraint.

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CUSTOMERS	CTR_NUMBER	VARCHAR2	6	-	-	1	-	-	-
	EMAIL	VARCHAR2	50	-	-	-	-	-	-
	FIRST_NAME	VARCHAR2	20	-	-	-	-	-	-
	LAST_NAME	VARCHAR2	30	-	-	-	-	-	-
	PHONE_NUMBER	VARCHAR2	11	-	-	-	-	-	-
	CURRENT_BALANCE	NUMBER	-	6	2	-	-	-	-
	SRE_ID	VARCHAR2	4	-	-	-	✓	-	-
	TEM_ID	VARCHAR2	4	-	-	-	✓	-	-
	LOYALTY_CARD_NUMBER	VARCHAR2	6	-	-	-	✓	-	-

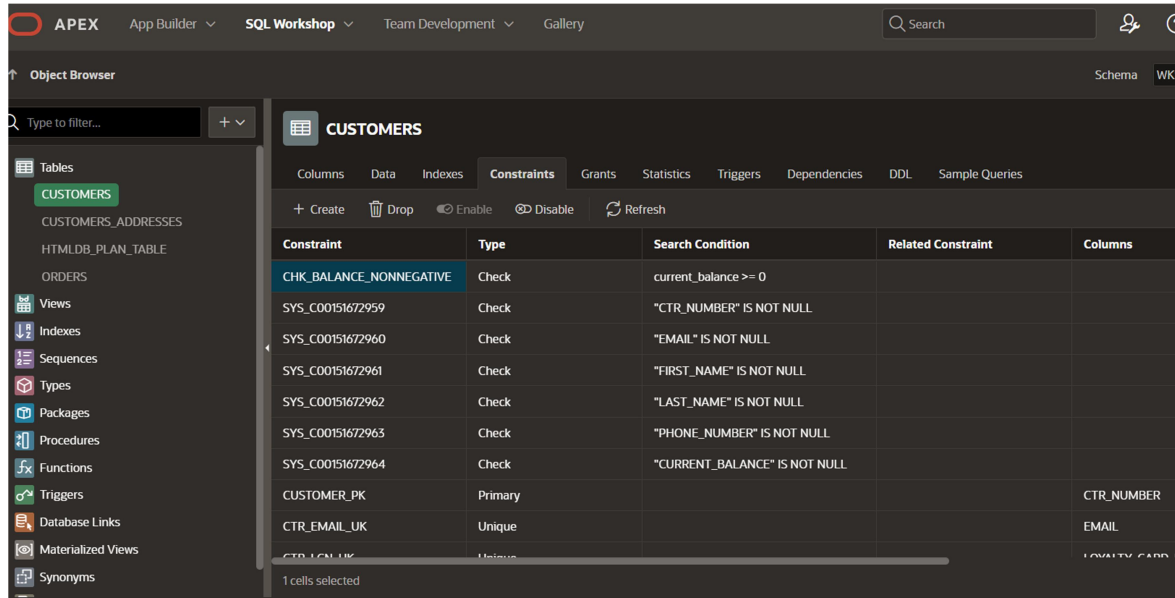
4. A check constraint is not shown in the results of a describe command.

a. Go to the Object Browser

b. Select the customers table.

c. Click on the CONSTRAINTS tab.

d. You will see your constraint here.



The screenshot shows the APEX SQL Workshop interface. The top navigation bar includes 'APEX', 'App Builder', 'SQL Workshop', 'Team Development', and 'Gallery'. A search bar is on the right. The 'Object Browser' pane on the left shows a tree view with 'Tables' expanded, listing 'CUSTOMERS', 'CUSTOMERS_ADDRESSES', 'HTMLDB_PLAN_TABLE', and 'ORDERS'. The 'CUSTOMERS' table is selected. The main pane shows the 'CONSTRAINTS' tab for the 'CUSTOMERS' table. The table has columns: 'Constraint', 'Type', 'Search Condition', 'Related Constraint', and 'Columns'. The constraints listed are:

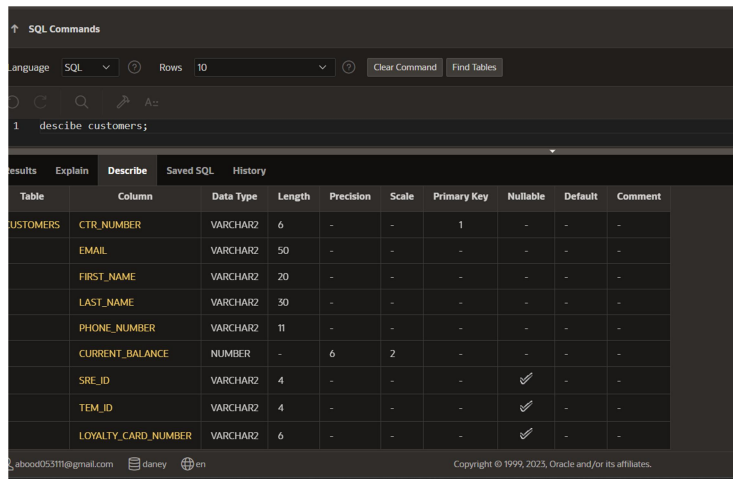
Constraint	Type	Search Condition	Related Constraint	Columns
CHK_BALANCE_NONNEGATIVE	Check	current_balance >= 0		
SYS_C00151672959	Check	"CTR_NUMBER" IS NOT NULL		
SYS_C00151672960	Check	"EMAIL" IS NOT NULL		
SYS_C00151672961	Check	"FIRST_NAME" IS NOT NULL		
SYS_C00151672962	Check	"LAST_NAME" IS NOT NULL		
SYS_C00151672963	Check	"PHONE_NUMBER" IS NOT NULL		
SYS_C00151672964	Check	"CURRENT_BALANCE" IS NOT NULL		
CUSTOMER_PK	Primary			CTR_NUMBER
CTR_EMAIL_UK	Unique			EMAIL
CTR_LCU_UK	Unique			LOCALITY_CODE

At the bottom, it says '1 cells selected'.

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.

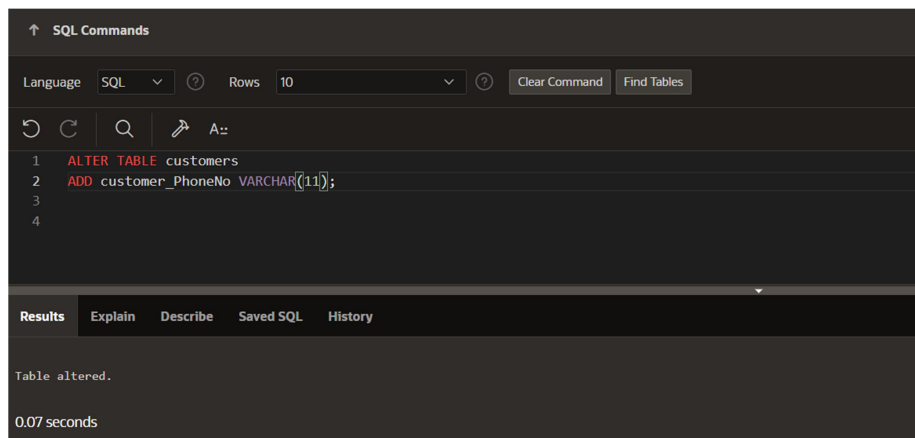
1. Run the DESCRIBE command on the customers table to view its structure



The screenshot shows the SQL Developer interface with the command `describe customers;` entered in the SQL Commands window. The results are displayed in a table with the following structure:

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CUSTOMERS	CTR_NUMBER	VARCHAR2	6	-	-	1	-	-	-
	EMAIL	VARCHAR2	50	-	-	-	-	-	-
	FIRST_NAME	VARCHAR2	20	-	-	-	-	-	-
	LAST_NAME	VARCHAR2	30	-	-	-	-	-	-
	PHONE_NUMBER	VARCHAR2	11	-	-	-	-	-	-
	CURRENT_BALANCE	NUMBER	-	6	2	-	-	-	-
	SRE_ID	VARCHAR2	4	-	-	-	✓	-	-
	TEM_ID	VARCHAR2	4	-	-	-	✓	-	-
	LOYALTY_CARD_NUMBER	VARCHAR2	6	-	-	-	✓	-	-

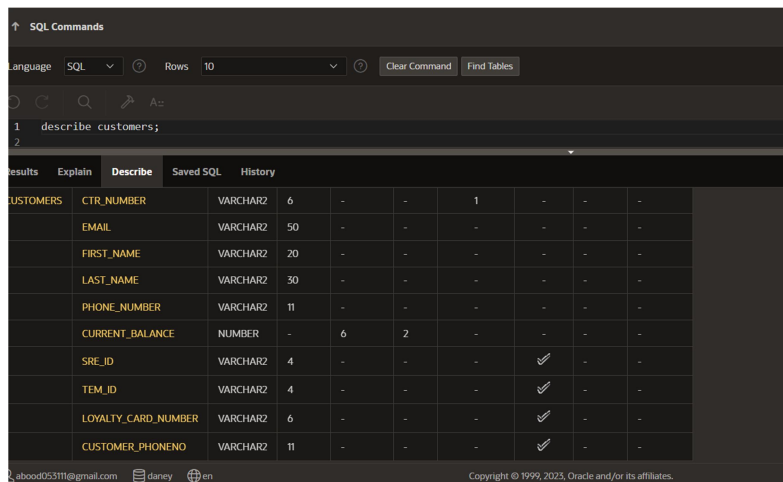
2. Task: Add column that will satisfy the clients requirements



The screenshot shows the SQL Developer interface with the command `ALTER TABLE customers ADD customer_PhoneNo VARCHAR2(11);` entered in the SQL Commands window. The results are displayed in a table with the following structure:

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CUSTOMERS	customer_PhoneNo	VARCHAR2	11	-	-	-	-	-	-

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



The screenshot shows the SQL Developer interface with the command `describe customers;` entered in the SQL Commands window. The results are displayed in a table with the following structure:

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CUSTOMERS	CTR_NUMBER	VARCHAR2	6	-	-	1	-	-	-
	EMAIL	VARCHAR2	50	-	-	-	-	-	-
	FIRST_NAME	VARCHAR2	20	-	-	-	-	-	-
	LAST_NAME	VARCHAR2	30	-	-	-	-	-	-
	PHONE_NUMBER	VARCHAR2	11	-	-	-	-	-	-
	CURRENT_BALANCE	NUMBER	-	6	2	-	-	-	-
	SRE_ID	VARCHAR2	4	-	-	-	✓	-	-
	TEM_ID	VARCHAR2	4	-	-	-	✓	-	-
	LOYALTY_CARD_NUMBER	VARCHAR2	6	-	-	-	✓	-	-
	CUSTOMER_PHONENO	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.

Language: SQL Rows: 10 Clear Command Find Tables

```
1 describe customers;
```

Results Explain Describe Saved SQL History

Object Type: TABLE Object: CUSTOMERS

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CUSTOMERS	CTR_NUMBER	VARCHAR2	6	-	-	1	-	-	-
	EMAIL	VARCHAR2	50	-	-	-	-	-	-
	FIRST_NAME	VARCHAR2	20	-	-	-	-	-	-
	LAST_NAME	VARCHAR2	30	-	-	-	-	-	-
	PHONE_NUMBER	VARCHAR2	11	-	-	-	-	-	-
	CURRENT_BALANCE	NUMBER	-	6	2	-	-	-	-
	SRE_ID	VARCHAR2	4	-	-	-	✓	-	-
	TEM_ID	VARCHAR2	4	-	-	-	✓	-	-
	LOYALTY_CARD_NUMBER	VARCHAR2	6	-	-	-	✓	-	-
	CUSTOMER_PHONENO	VARCHAR2	11	-	-	-	✓	-	-

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

Language: SQL Rows: 10 Clear Command Find Tables

```
1 ALTER TABLE customers
2 DROP COLUMN CUSTOMER_PHONENO;
```

Results Explain Describe Saved SQL History

Table altered.

0.06 seconds

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

Language: SQL Rows: 10 Clear Command Find Tables

```
1 DESCRIBE customers;
```

Results Explain Describe Saved SQL History

Object Type: TABLE Object: CUSTOMERS

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CUSTOMERS	CTR_NUMBER	VARCHAR2	6	-	-	1	-	-	-
	EMAIL	VARCHAR2	50	-	-	-	-	-	-
	FIRST_NAME	VARCHAR2	20	-	-	-	-	-	-
	LAST_NAME	VARCHAR2	30	-	-	-	-	-	-
	PHONE_NUMBER	VARCHAR2	11	-	-	-	-	-	-
	CURRENT_BALANCE	NUMBER	-	6	2	-	-	-	-
	SRE_ID	VARCHAR2	4	-	-	-	✓	-	-
	TEM_ID	VARCHAR2	4	-	-	-	✓	-	-
	LOYALTY_CARD_NUMBER	VARCHAR2	6	-	-	-	✓	-	-

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