

## **Lab 1 :**

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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

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” statement

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: -99999.99

Highest value: 99999.99

7. What are the 3 columns that make up the primary key for the price\_history table?

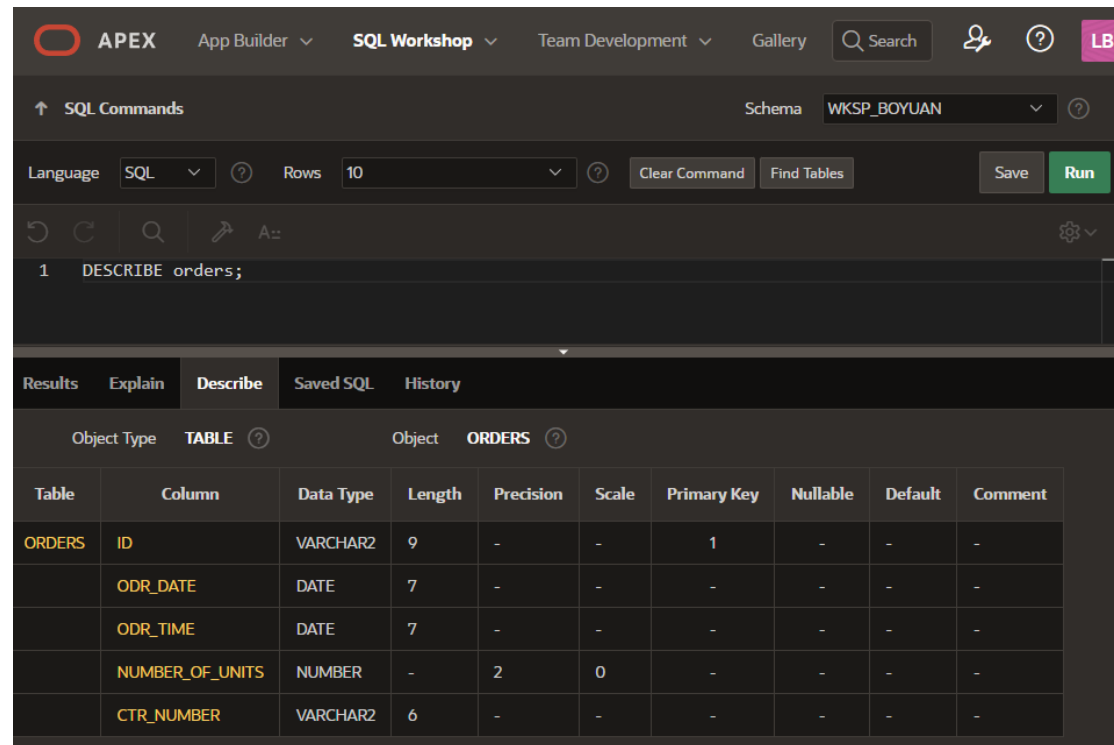
itm\_number, start\_date, start\_time

## Part 2 : Updating Constraints

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

### Modifying a column

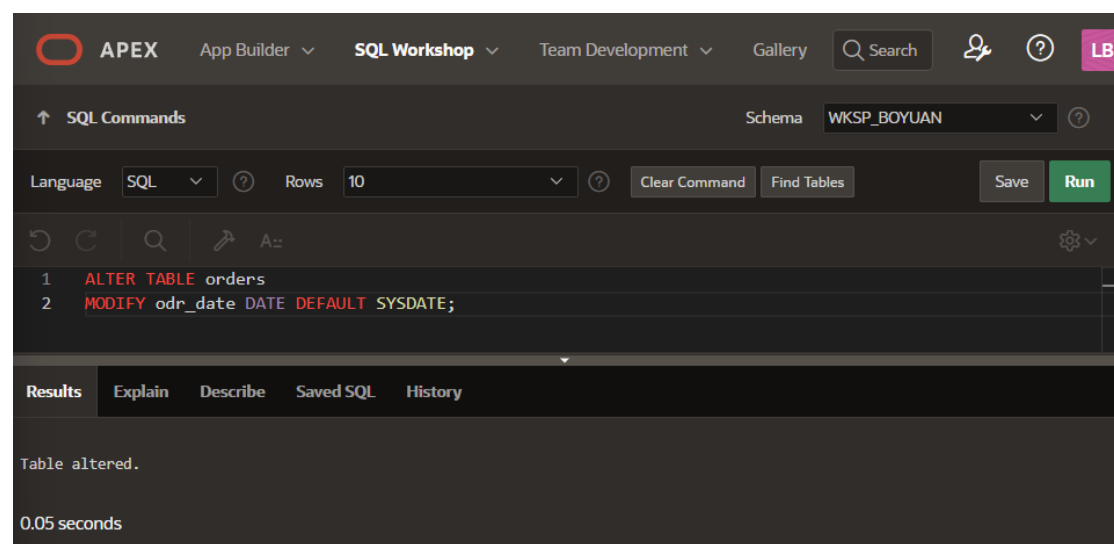
1. Run the DESCRIBE command on the orders table to view its structure.



The screenshot shows the APEX SQL Workshop interface. The top navigation bar includes 'APEX', 'App Builder', 'SQL Workshop', 'Team Development', 'Gallery', a search bar, and user icons. The 'SQL Commands' section is active, showing the command 'DESCRIBE orders;' in the editor. The 'Schema' is set to 'WKSP\_BOYUAN'. The 'Language' is 'SQL' and 'Rows' is '10'. The 'Run' button is highlighted. Below the editor, the 'Describe' tab is selected, displaying the structure of 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 APEX SQL Workshop interface with the 'SQL Commands' section. The command editor contains the following SQL commands:

```
1 ALTER TABLE orders
2 MODIFY odr_date DATE DEFAULT SYSDATE;
```

The 'Run' button is highlighted. Below the editor, the 'Results' tab is selected, displaying the message 'Table altered.' and the execution time '0.05 seconds'.

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

APEX

App Builder

SQL Workshop

Team Development

Gallery

Search

LB

SQL Commands

SchemaWKSP\_BOYUAN

LanguageSQL

Rows10

Clear Command

Find Tables

Save

Run

A::

1DESCRIBE orders;

Results

Explain

Describe

Saved SQL

History

Object TypeTABLE

ObjectORDERS

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 APEX SQL Workshop interface. The top navigation bar includes the APEX logo, App Builder, SQL Workshop, Team Development, Gallery, Search, and user profile. The main area is titled 'SQL Commands' with a schema dropdown set to 'WKSP\_BOYUAN'. The command 'describe customers;' is entered in the SQL editor. Below the editor, the 'Describe' tab is active, 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 APEX SQL Workshop interface with the SQL editor containing the following commands:

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

The 'Results' tab is active, displaying the message 'Table altered.' and the execution time '0.06 seconds'.

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

The screenshot shows the APEX SQL Workshop interface. At the top, there's a navigation bar with 'APEX', 'App Builder', 'SQL Workshop', 'Team Development', and 'Gallery'. Below this, the 'SQL Commands' section is active, showing the schema 'WKSP\_BOYUAN'. The command 'DESCRIBE customers;' is entered in the SQL editor. The 'Run' button is highlighted. Below the editor, the 'Describe' tab is selected, displaying the table structure for '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	-	-	-	✓	-	-

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.

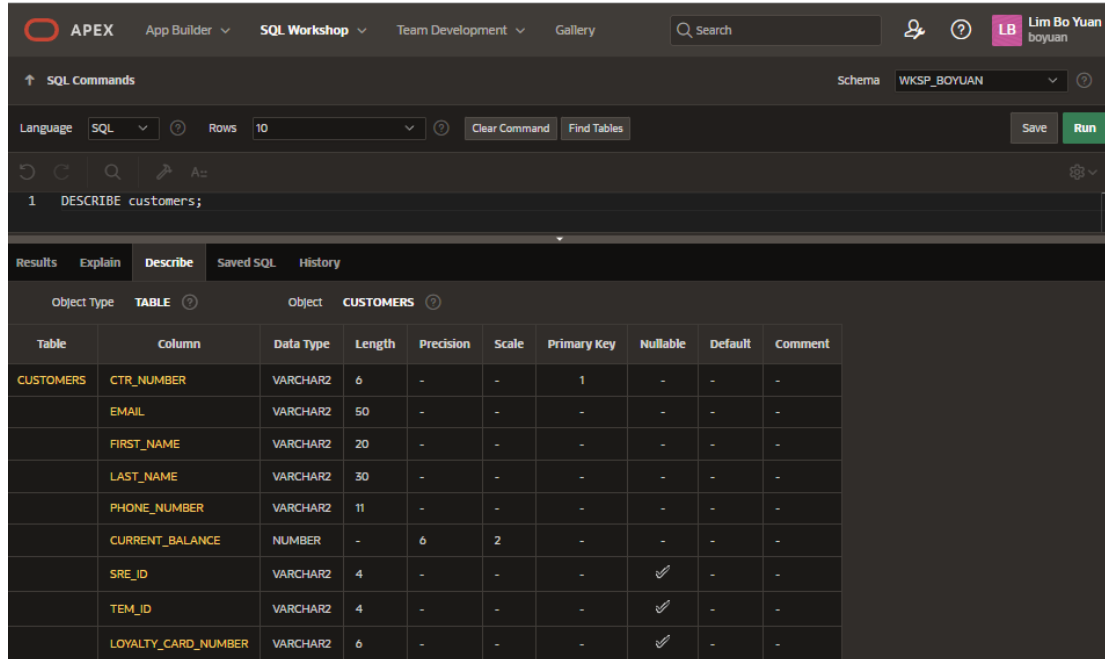
The screenshot shows the APEX Object Browser interface for the 'CUSTOMERS' table. The 'Constraints' tab is selected, displaying a table of constraints. The 'MIN\_CURRENT\_BALANCE' constraint is highlighted, showing it is a 'Check' constraint with the search condition 'current\_balance >= 0'.

Constraint	Type	Search Condition
MIN_CURRENT_BALANCE	Check	current_balance >= 0

## 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.

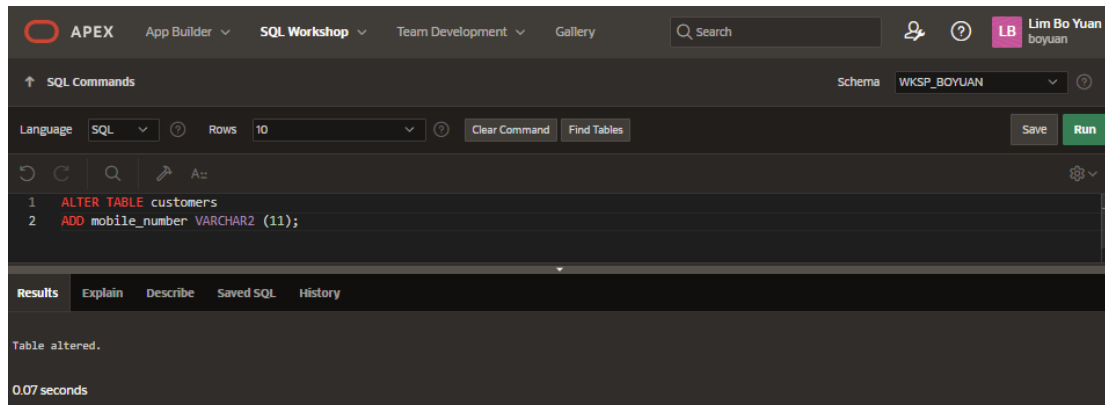
1. Run the DESCRIBE command on the customers table to view its structure.



The screenshot shows the APEX SQL Workshop interface. The SQL Commands panel contains the command `DESCRIBE customers;`. The Results panel displays the table structure for 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 column that will satisfy the clients requirements



The screenshot shows the APEX SQL Workshop interface. The SQL Commands panel contains the command `ALTER TABLE customers ADD mobile_number VARCHAR2 (11);`. The Results panel displays the message "Table altered." and the execution time "0.07 seconds".

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

APEX

App Builder

SQL Workshop

Team Development

Gallery

Search

LB

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boyuan

SQL Commands

SchemaWKSP\_BOYUAN

LanguageSQL

Rows10

Clear Command

Find Tables

Save

Run

A:

1DESCRIBE customers;

Results

Explain

Describe

Saved SQL

History

Object TypeTABLE

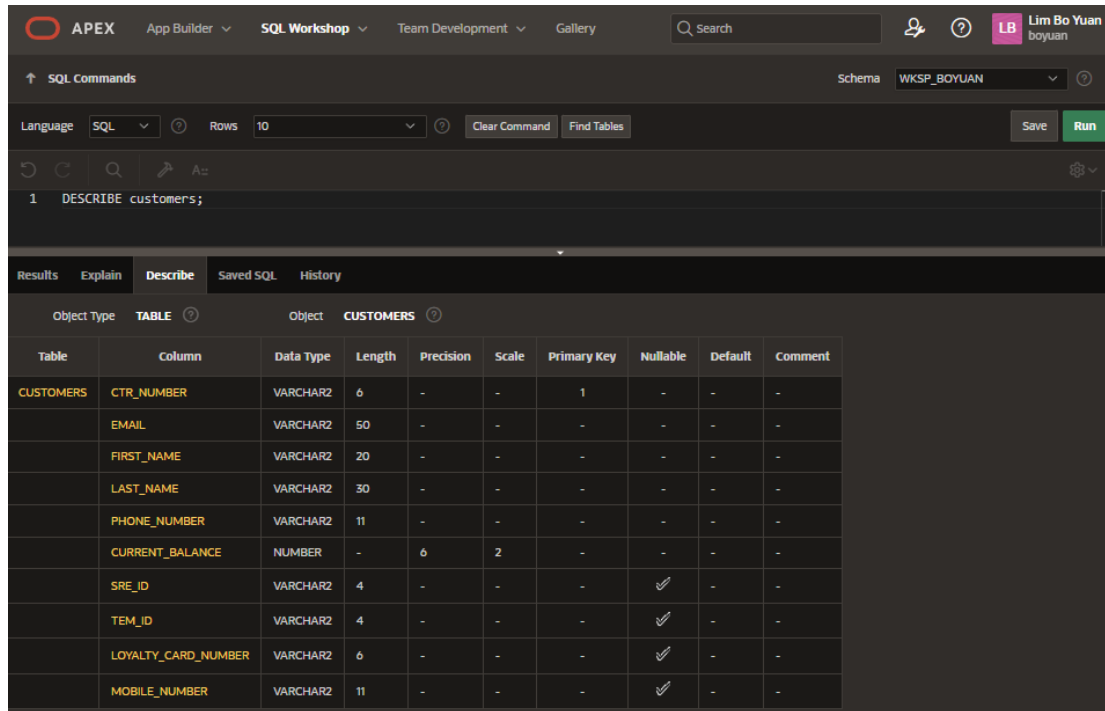
ObjectCUSTOMERS

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	-	-	-		-	-
	MOBILE_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.

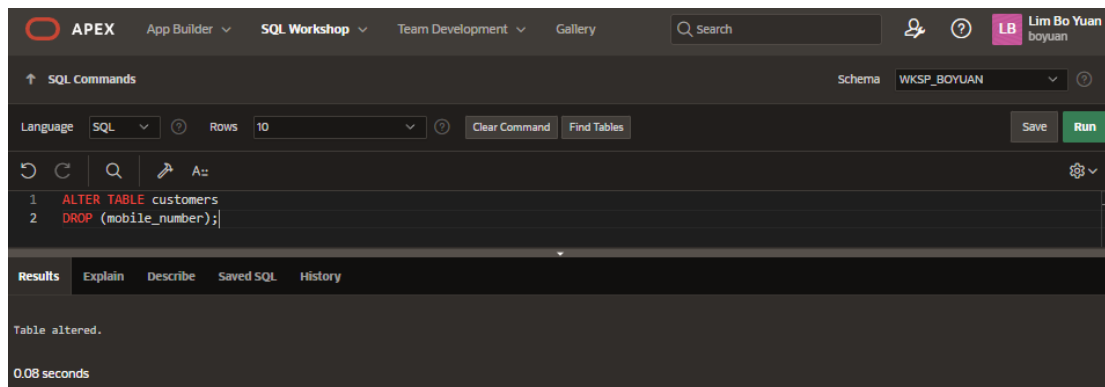
1. Run the DESCRIBE command on the customers table to view its structure.



The screenshot shows the APEX SQL Workshop interface. The SQL Commands tab is active, displaying the command `DESCRIBE customers;`. The Results tab is selected, showing the table structure for the `CUSTOMERS` table. The table has 10 columns: `CTR_NUMBER`, `EMAIL`, `FIRST_NAME`, `LAST_NAME`, `PHONE_NUMBER`, `CURRENT_BALANCE`, `SRE_ID`, `TEM_ID`, `LOYALTY_CARD_NUMBER`, and `MOBILE_NUMBER`. The `CTR_NUMBER` column is the primary key. The `MOBILE_NUMBER` column is highlighted in yellow.

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	-	-	-	✓	-	-
	MOBILE_NUMBER	VARCHAR2	11	-	-	-	✓	-	-

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



The screenshot shows the APEX SQL Workshop interface. The SQL Commands tab is active, displaying the command `ALTER TABLE customers DROP (mobile_number);`. The Results tab is selected, showing the message "Table altered." and the execution time "0.08 seconds".

```
1 ALTER TABLE customers
2 DROP (mobile_number);
```

Table altered.  
0.08 seconds



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

APEX

App Builder

SQL Workshop

Team Development

Gallery

Search

LB

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boyuan

SQL Commands

SchemaWKSP\_BOYUAN

LanguageSQL

Rows10

Clear Command

Find Tables

Save

Run

A:

1DESCRIBE customers;

Results

Explain

Describe

Saved SQL

History

Object TypeTABLE

ObjectCUSTOMERS

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	-	-	-		-	-