

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

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

6

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 the 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

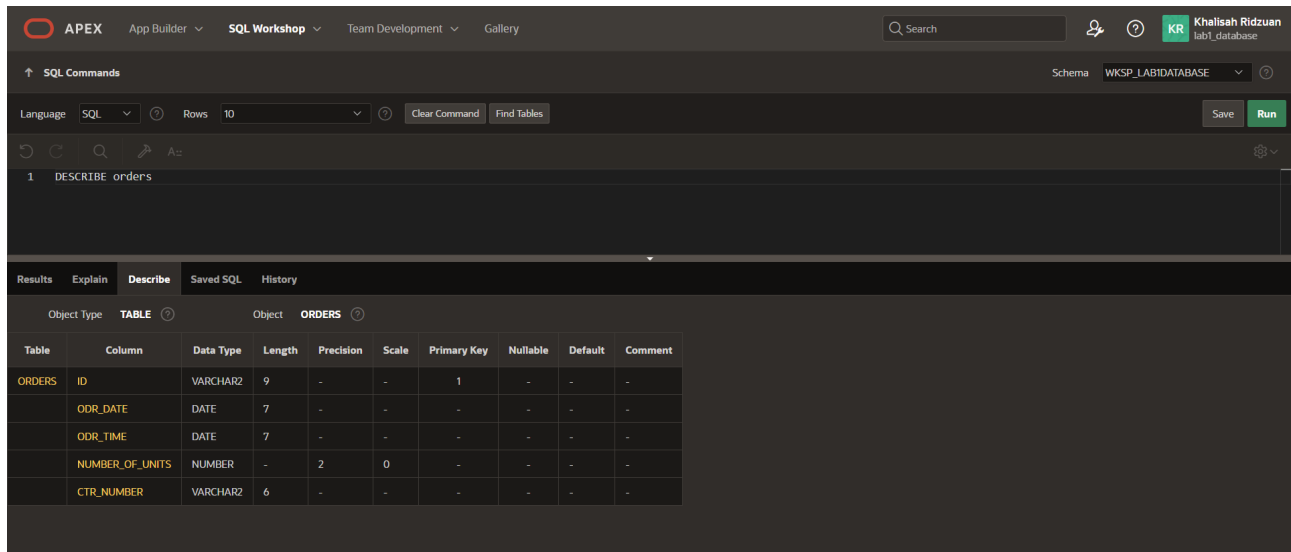
start_time

Part 2: Updating Constraints

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

Modifying a column

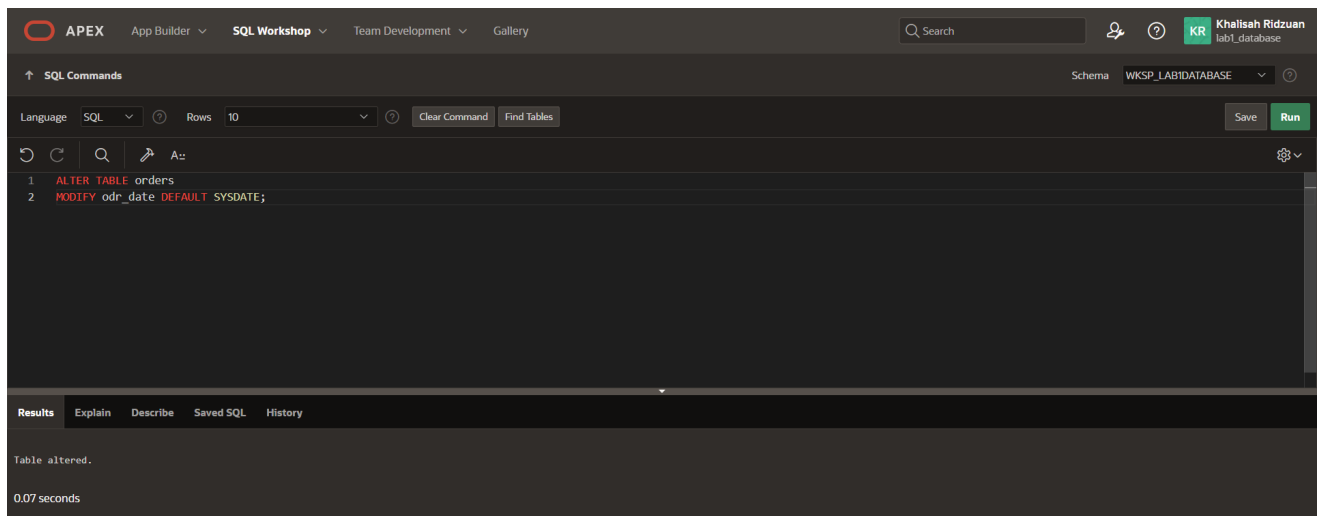
1. Run the DESCRIBE command on the orders table to view its structure.



The screenshot shows the APEX SQL Workshop interface. The top navigation bar includes 'APEX', 'App Builder', 'SQL Workshop', 'Team Development', and 'Gallery'. A search bar and user profile 'Khalisah Ridzuan lab1_database' are on the right. The 'SQL Commands' tab is active, showing a command editor with 'DESCRIBE orders' entered. Below the editor, the 'Describe' tab displays 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' tab active. The command editor contains two lines of SQL code:

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

Below the editor, the 'Results' tab shows the output: 'Table altered.' and '0.07 seconds'.

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

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 and user profile 'Khalisah Ridzuan lab1_database' are on the right. The 'SQL Commands' section shows a command 'DESCRIBE orders' entered. The 'Results' tab is active, displaying a table with 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	-	-	-	-	SYSDATE	-
	ODR_TIME	DATE	7	-	-	-	-	-	-
	NUMBER_OF_UNITS	NUMBER	-	2	0	-	-	-	-
	CTR_NUMBER	VARCHAR2	6	-	-	-	-	-	-

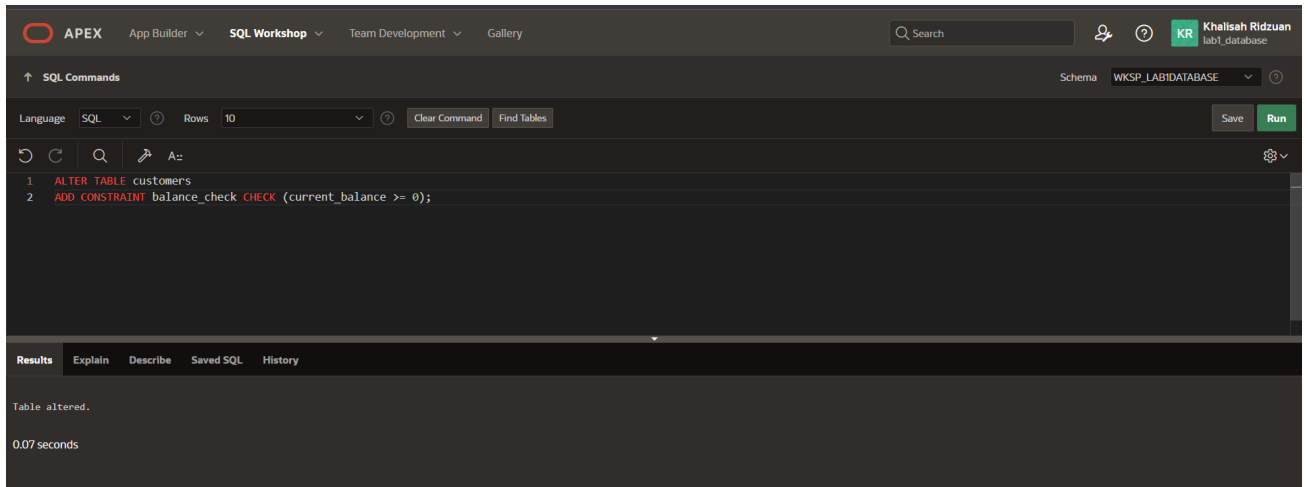
Adding a check constraint

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

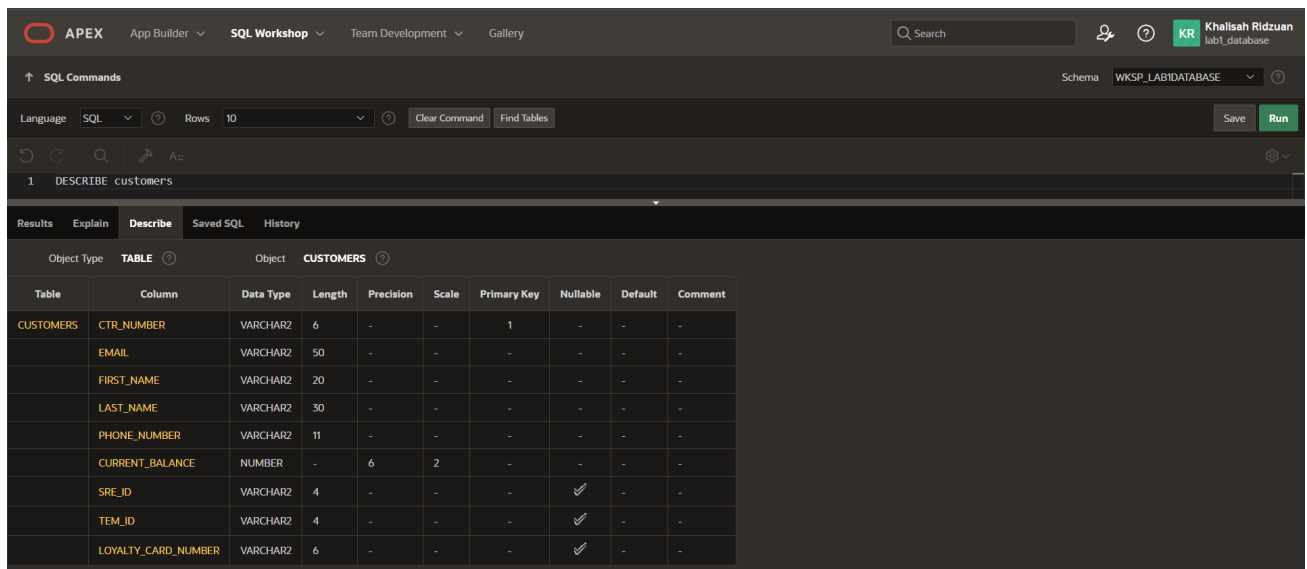
The screenshot shows the APEX SQL Workshop interface. The top navigation bar includes 'APEX', 'App Builder', 'SQL Workshop', 'Team Development', and 'Gallery'. A search bar and user profile 'Khalisah Ridzuan lab1_database' are on the right. The 'SQL Commands' section shows a command 'DESCRIBE customers' entered. The 'Results' tab is active, displaying a table with 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.



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

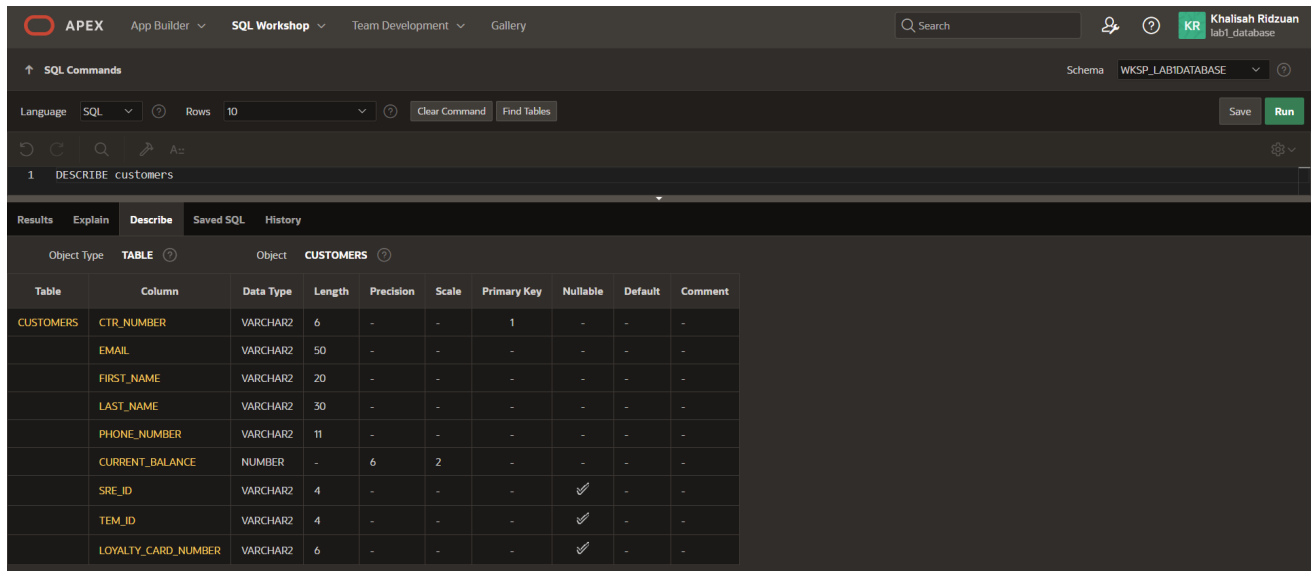
The screenshot shows the APEX SQL Workshop interface. The top navigation bar includes 'APEX', 'App Builder', 'SQL Workshop', 'Team Development', and 'Gallery'. A search bar and user profile 'Khalisah Ridzuan lab1_database' are on the right. The 'Object Browser' pane on the left shows a tree view with 'Tables' expanded, listing 'CUSTOMERS', 'HTMLDB_PLAN_TABLE', and 'ORDERS'. The main pane displays the 'CUSTOMERS' table with the 'Constraints' tab selected. Below the tab are buttons for '+ Create', 'Drop', 'Enable', 'Disable', and 'Refresh'. A table lists the constraints for the 'CUSTOMERS' table.

Constraint	Type	Search Condition	Related Constraint	Columns	Delete Rule	Status
BALANCE_CHECK	Check	current_balance >= 0				ENABLED
SYS_C00148981626	Check	"CTR_NUMBER" IS NOT NULL				ENABLED
SYS_C00148981627	Check	"EMAIL" IS NOT NULL				ENABLED
SYS_C00148981628	Check	"FIRST_NAME" IS NOT NULL				ENABLED
SYS_C00148981629	Check	"LAST_NAME" IS NOT NULL				ENABLED
SYS_C00148981630	Check	"PHONE_NUMBER" IS NOT NULL				ENABLED
SYS_C00148981631	Check	"CURRENT_BALANCE" IS NOT NULL				ENABLED
CUSTOMER_PK	Primary			CTR_NUMBER		ENABLED
CTR_EMAIL_UK	Unique			EMAIL		ENABLED
CTR_LCN_UK	Unique			LOYALTY_CARD_NUMBER		ENABLED

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.

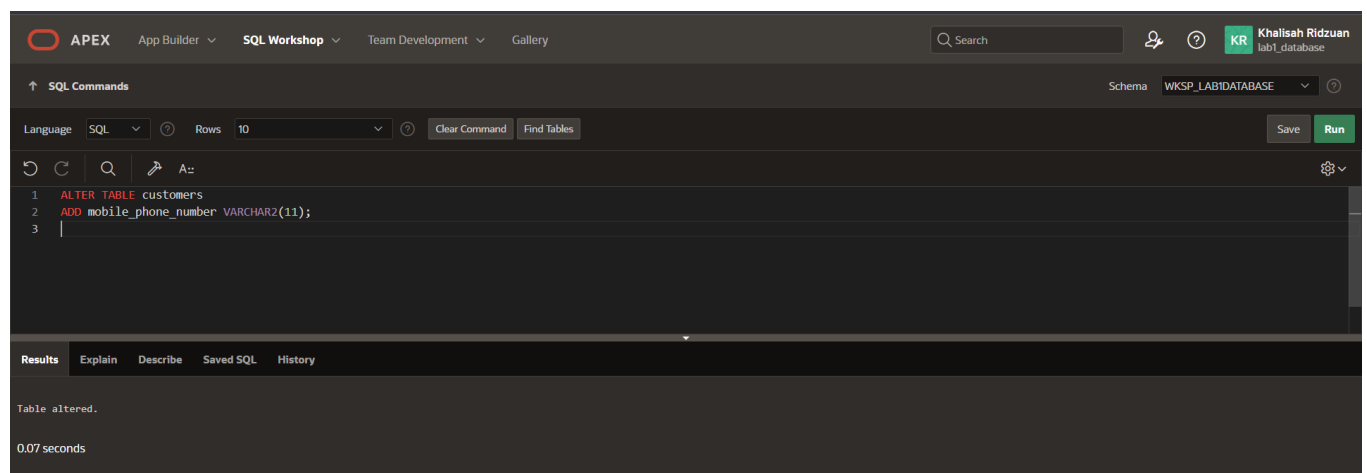
1. Run the DESCRIBE command on the customers table to view its structure.



The screenshot shows the APEX SQL Workshop interface. The SQL Commands panel has the command `DESCRIBE customers` entered. The Results tab is active, displaying the structure of the `CUSTOMERS` table. The table has 10 columns: `CTR_NUMBER`, `EMAIL`, `FIRST_NAME`, `LAST_NAME`, `PHONE_NUMBER`, `CURRENT_BALANCE`, `SRE_ID`, `TEM_ID`, and `LOYALTY_CARD_NUMBER`. The `PHONE_NUMBER` column is highlighted in yellow, indicating it is the focus of the task.

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

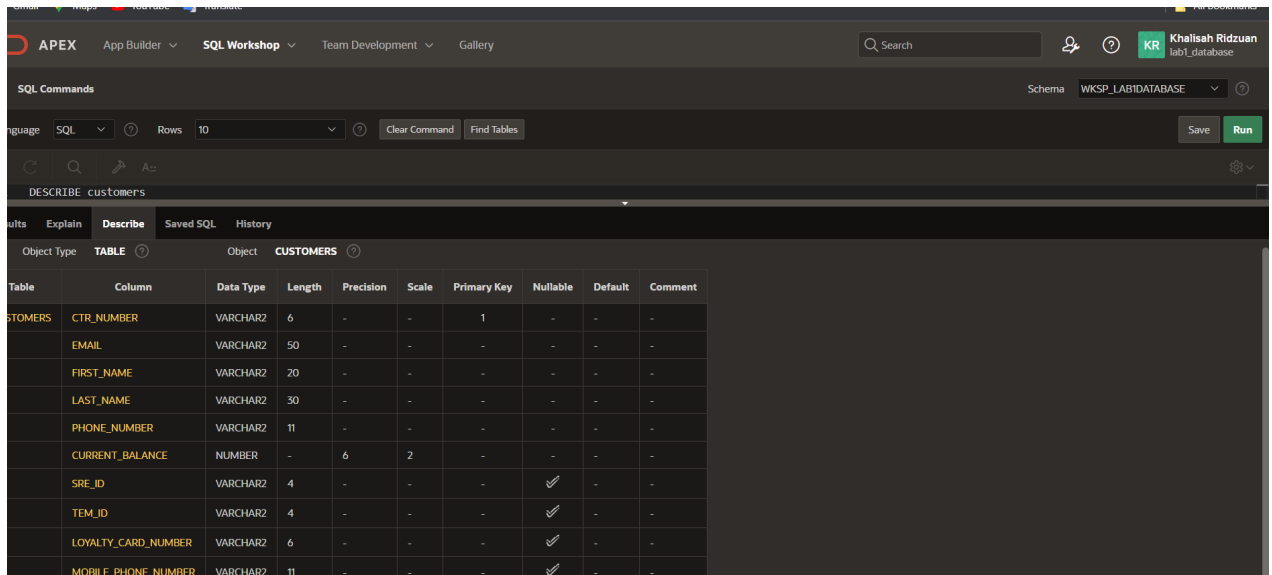


The screenshot shows the APEX SQL Workshop interface. The SQL Commands panel has the command `ALTER TABLE customers ADD mobile_phone_number VARCHAR2(11);` entered. The Results tab is active, displaying the message "Table altered." and the execution time "0.07 seconds".

```
1 ALTER TABLE customers
2 ADD mobile_phone_number VARCHAR2(11);
3
```

Table altered.
0.07 seconds

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



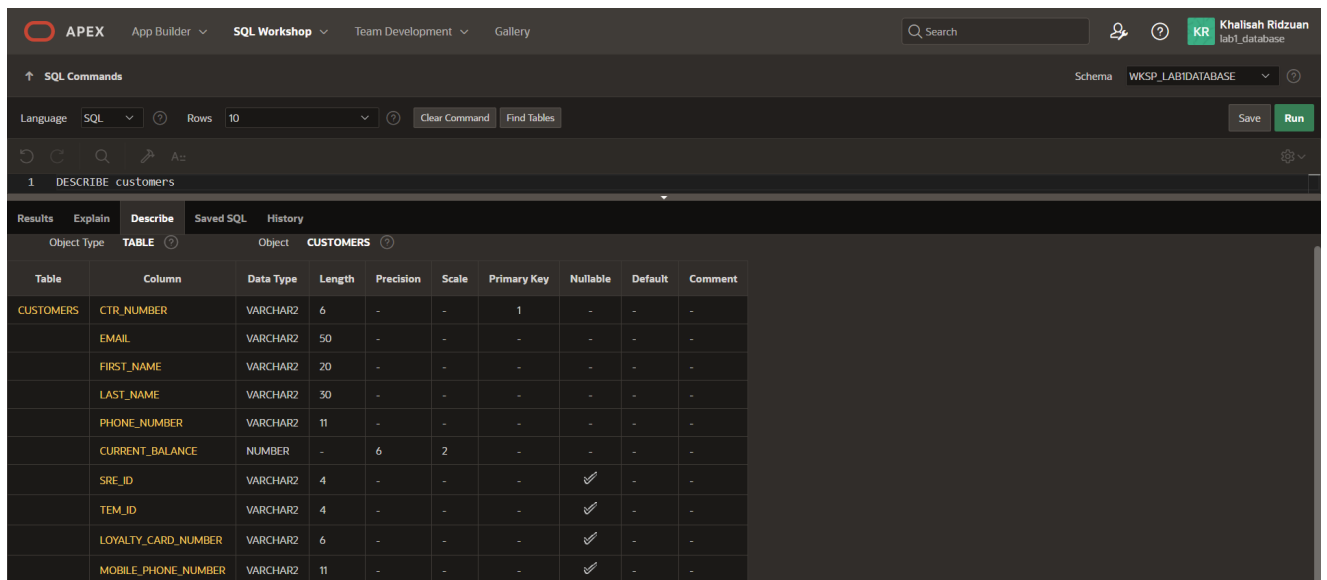
The screenshot shows the APEX SQL Workshop interface. The top navigation bar includes 'APEX', 'App Builder', 'SQL Workshop', 'Team Development', and 'Gallery'. A search bar and user profile 'Khalisah Ridzuan lab1_database' are on the right. The 'SQL Commands' section shows the command 'DESCRIBE customers' entered. Below the command bar, tabs for 'Results', 'Explain', 'Describe', 'Saved SQL', and 'History' are visible, with 'Describe' selected. The 'Object Type' is 'TABLE' and the 'Object' is 'CUSTOMERS'. The main area displays a table with 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	-	-	-	✓	-	-
	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.

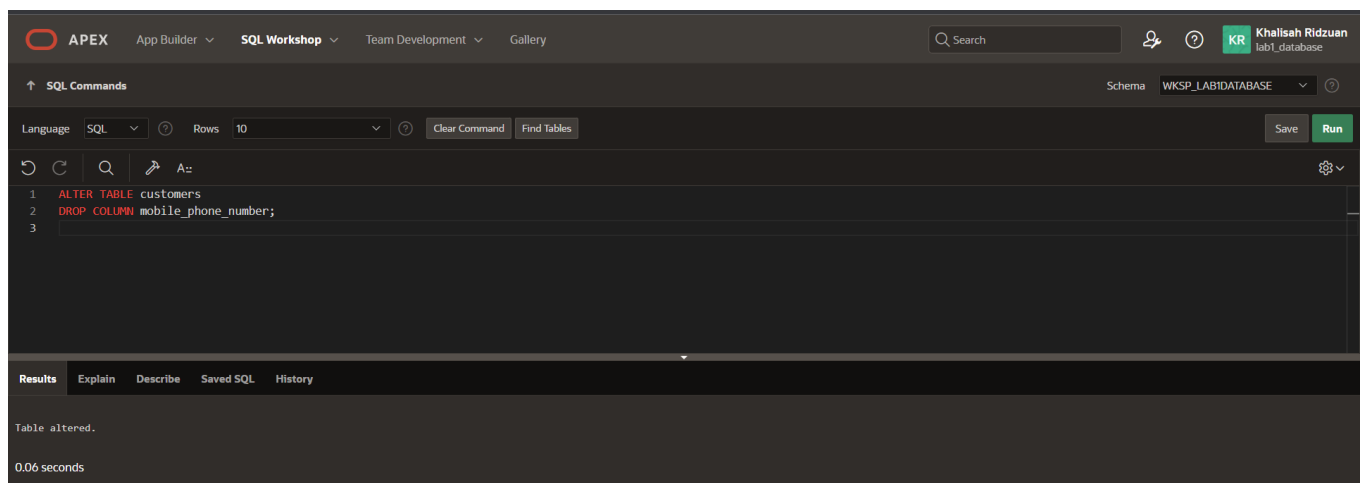
1. Run the DESCRIBE command on the customers table to view its structure.



The screenshot shows the APEX SQL Workshop interface. The 'SQL Commands' tab is active, displaying the command 'DESCRIBE customers'. The 'Describe' tab is selected in the results pane, showing the structure of 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_PHONE_NUMBER. The data types and lengths are listed for each column.

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_PHONE_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 COLUMN mobile_phone_number;'. The 'Results' tab is selected, showing the message 'Table altered.' and the execution time '0.06 seconds'.

```
1 ALTER TABLE customers
2 DROP COLUMN mobile_phone_number;
3
```

Table altered.
0.06 seconds

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

APEX App Builder SQL Workshop Team Development Gallery

Search

Khalisah Ridzuan lab1_database

SQL Commands Schema WKSP_LAB1DATABASE

Language SQL Rows 10 Clear Command Find Tables Save Run

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	-	-	-		-	-