



UTM
UNIVERSITI TEKNOLOGI MALAYSIA

SECD2523 DATABASE

LAB 1 DDL

SECTION: 1

COURSE: BACHELOR OF COMPUTER SCIENCE - BIOINFORMATICS

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GROUP: 4

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DATE OF SUBMISSION: 5th NOVEMBER 2023

PART 1

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 customer addresses tables?

[customer_address_fk](#)

5. What are the lowest and highest values that can be stored in the price column for the commission_rate column for the sales_representatives table?

[-99 \(lowest \), 99 \(maximum \)](#)

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

[-99999.99 \(lowest \), 99999.99 \(maximum \)](#)

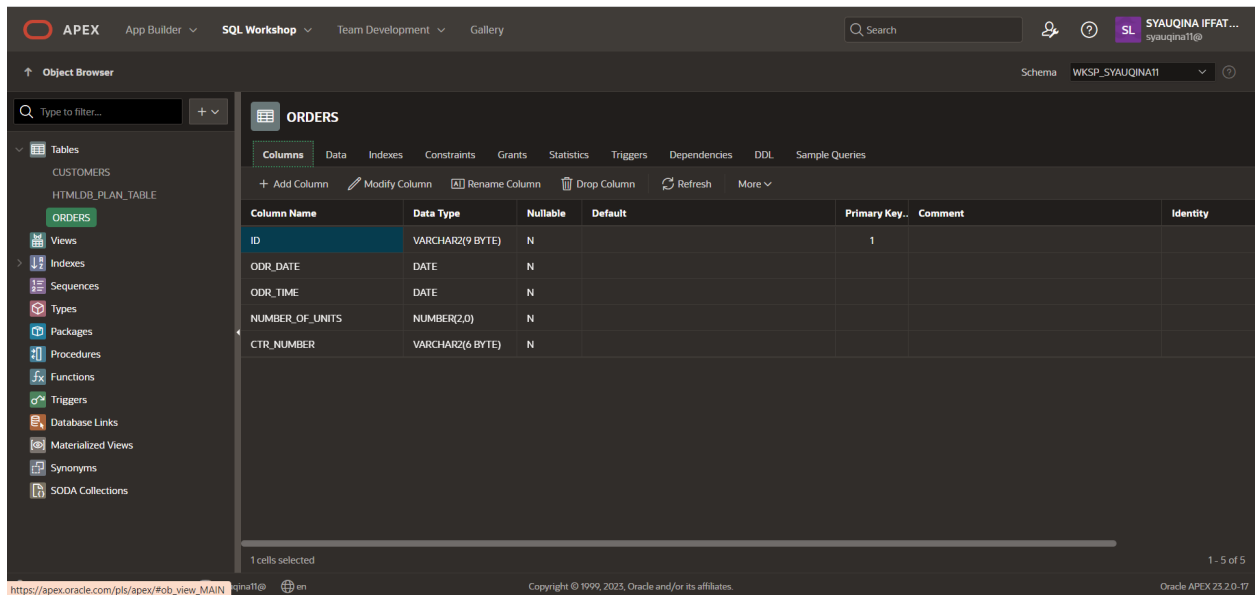
7. What are the 3 columns that make up the primary key for the price_history table?

[start_date, start_time, itm_number](#)

PART 2

Modifying a column:

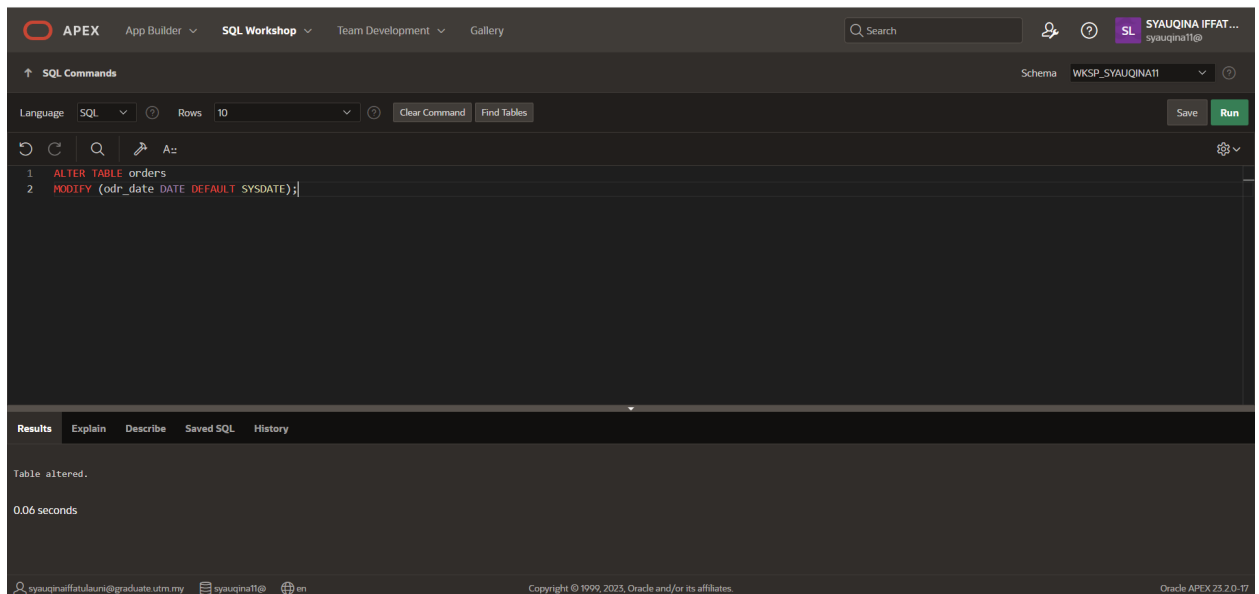
1. Run the DESCRIBE command on the orders table to view its structure



The screenshot shows the Oracle APEX SQL Workshop interface. The 'Object Browser' on the left lists the 'ORDERS' table under the 'CUSTOMERS' schema. The main panel displays the 'ORDERS' table structure with the following columns:

Column Name	Data Type	Nullable	Default	Primary Key..	Comment	Identity
ID	VARCHAR(9 BYTE)	N		1		
ODR_DATE	DATE	N				
ODR_TIME	DATE	N				
NUMBER_OF_UNITS	NUMBER(2,0)	N				
CTR_NUMBER	VARCHAR(6 BYTE)	N				

2. **Task:** Add default constraint that will use today's date to assign a value to the odr_date column of the orders table if no data is provided

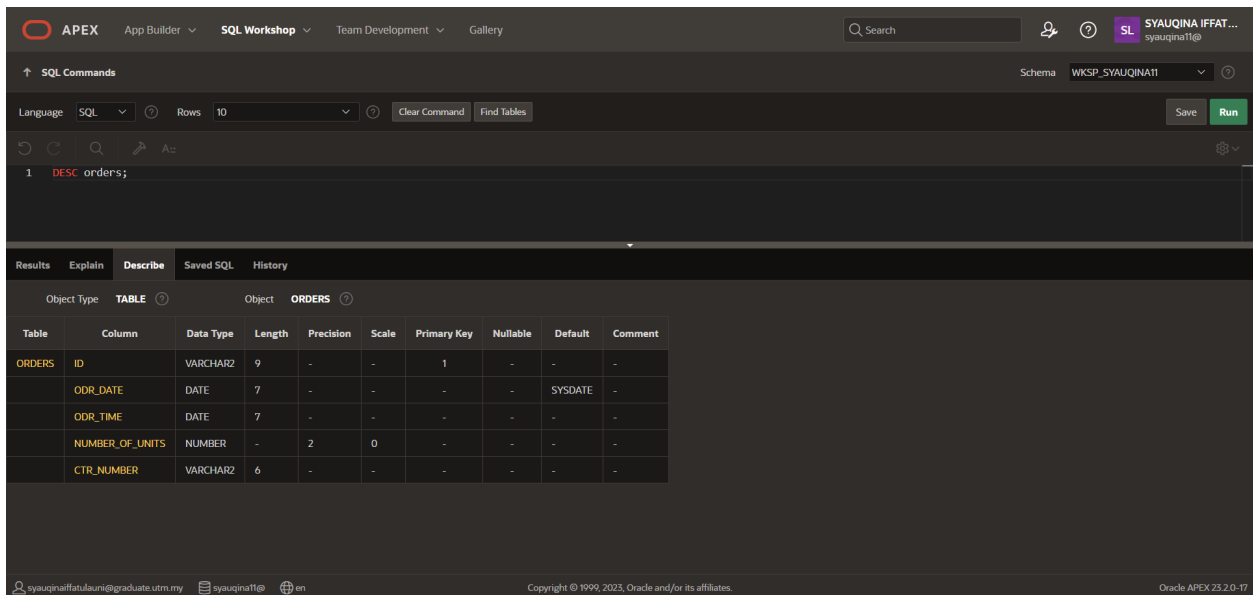


The screenshot shows the Oracle APEX SQL Workshop interface with the 'SQL Commands' panel. The command entered is:

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

The 'Results' panel shows the message: 'Table altered.' and the execution time: '0.06 seconds'.

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

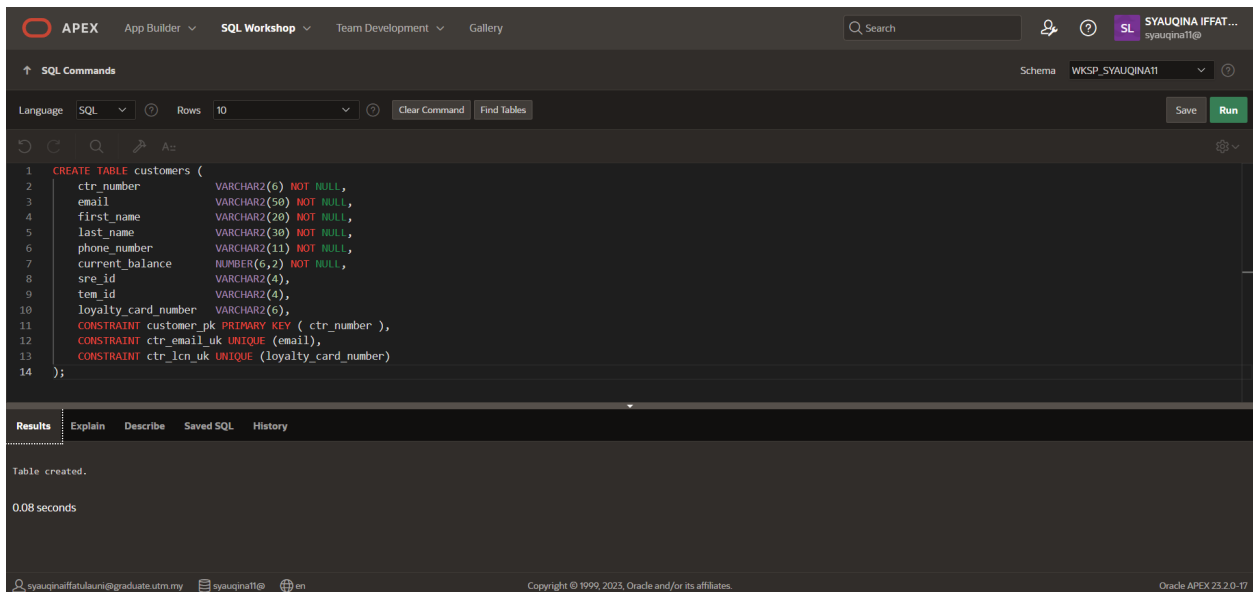


The screenshot shows the APEX SQL Workshop interface. The SQL Commands tab is active, displaying the command `DESC orders;`. The Results tab is selected, showing the structure of the `ORDERS` table. The table has five columns: `ID` (VARCHAR2, 9, Primary Key), `ODR_DATE` (DATE, 7, Default SYSDATE), `ODR_TIME` (DATE, 7), `NUMBER_OF_UNITS` (NUMBER, 2, 0), and `CTR_NUMBER` (VARCHAR2, 6).

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 orders table to view its structure

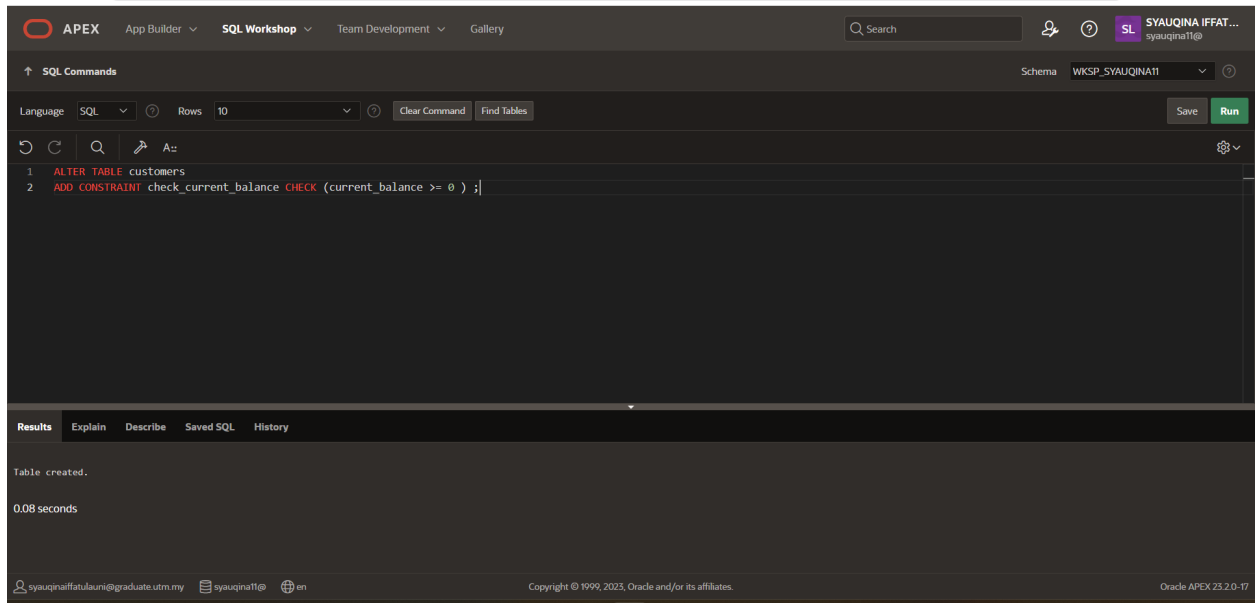


The screenshot shows the APEX SQL Workshop interface. The SQL Commands tab is active, displaying the command `CREATE TABLE customers (`. The Results tab is selected, showing the message "Table created." and the execution time "0.08 seconds".

```
CREATE TABLE customers (  
  ctr_number VARCHAR2(6) NOT NULL,  
  email VARCHAR2(50) NOT NULL,  
  first_name VARCHAR2(20) NOT NULL,  
  last_name VARCHAR2(30) NOT NULL,  
  phone_number VARCHAR2(11) NOT NULL,  
  current_balance NUMBER(6,2) NOT NULL,  
  sre_id VARCHAR2(4),  
  tem_id VARCHAR2(4),  
  loyalty_card_number VARCHAR2(6),  
  CONSTRAINT customer_pk PRIMARY KEY ( ctr_number ),  
  CONSTRAINT ctr_email_uk UNIQUE (email),  
  CONSTRAINT ctr_lcn_uk UNIQUE (loyalty_card_number)  
);
```

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



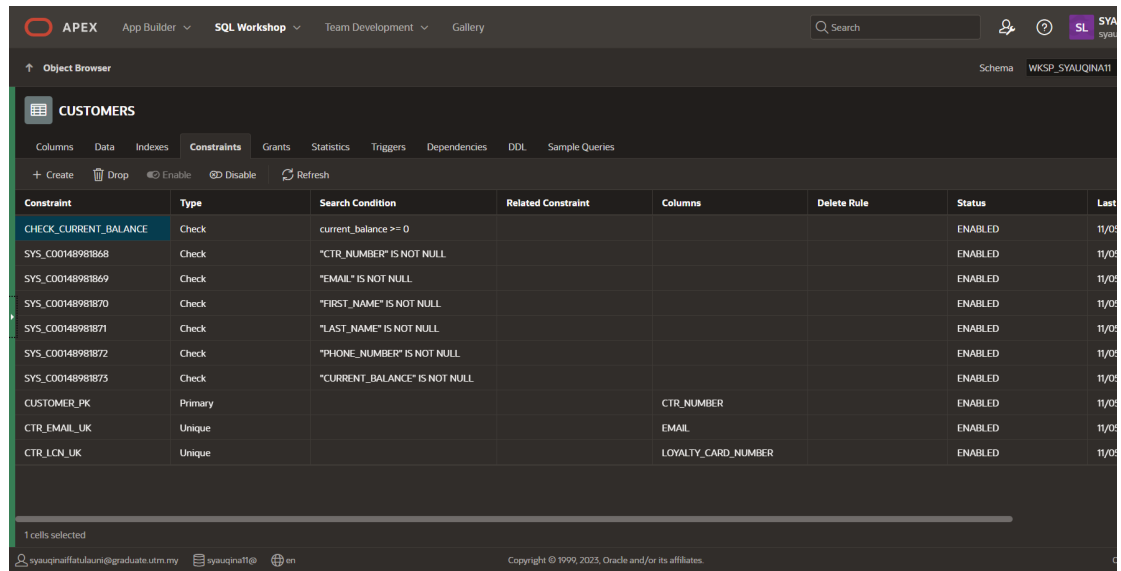
4. A check constraint is not shown in the results of a describe command

The screenshot shows the APEX SQL Workshop interface with the CUSTOMERS table selected. The Constraints tab is active, displaying a list of constraints for the table.

Constraint	Type	Search Condition	Related Constraint	Columns	Delete Rule	Status
CHECK_CURRENT_BALANCE	Check	current_balance >= 0				ENABLED
SYS_C00148981868	Check	"CTR_NUMBER" IS NOT NULL				ENABLED
SYS_C00148981869	Check	"EMAIL" IS NOT NULL				ENABLED
SYS_C00148981870	Check	"FIRST_NAME" IS NOT NULL				ENABLED
SYS_C00148981871	Check	"LAST_NAME" IS NOT NULL				ENABLED
SYS_C00148981872	Check	"PHONE_NUMBER" IS NOT NULL				ENABLED
SYS_C00148981873	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 Column

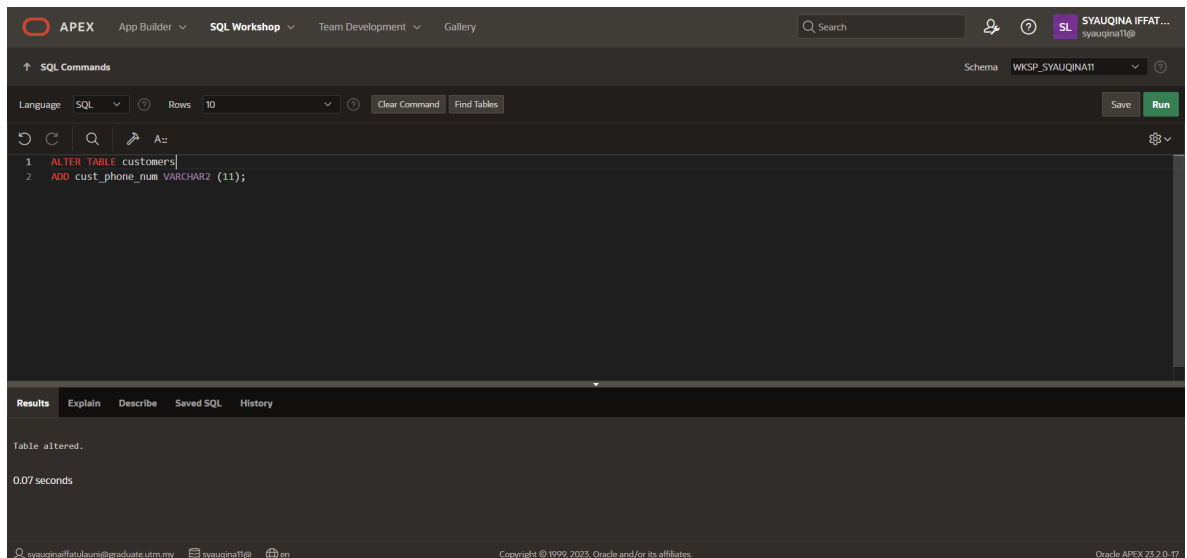
1. Run the DESCRIBE command on the orders table to view its structure



The screenshot shows the APEX SQL Workshop interface. The 'Object Browser' pane on the left shows the 'CUSTOMERS' table under the 'WKSP_SYAUQINATI' schema. The 'Constraints' tab is selected, displaying a table of constraints for the CUSTOMERS table.

Constraint	Type	Search Condition	Related Constraint	Columns	Delete Rule	Status	Last
CHECK_CURRENT_BALANCE	Check	current_balance >= 0				ENABLED	11/03
SYS_C00148981868	Check	"CTR_NUMBER" IS NOT NULL				ENABLED	11/03
SYS_C00148981869	Check	"EMAIL" IS NOT NULL				ENABLED	11/03
SYS_C00148981870	Check	"FIRST_NAME" IS NOT NULL				ENABLED	11/03
SYS_C00148981871	Check	"LAST_NAME" IS NOT NULL				ENABLED	11/03
SYS_C00148981872	Check	"PHONE_NUMBER" IS NOT NULL				ENABLED	11/03
SYS_C00148981873	Check	"CURRENT_BALANCE" IS NOT NULL				ENABLED	11/03
CUSTOMER_PK	Primary			CTR_NUMBER		ENABLED	11/03
CTR_EMAIL_UK	Unique			EMAIL		ENABLED	11/03
CTR_LCN_UK	Unique			LOYALTY_CARD_NUMBER		ENABLED	11/03

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

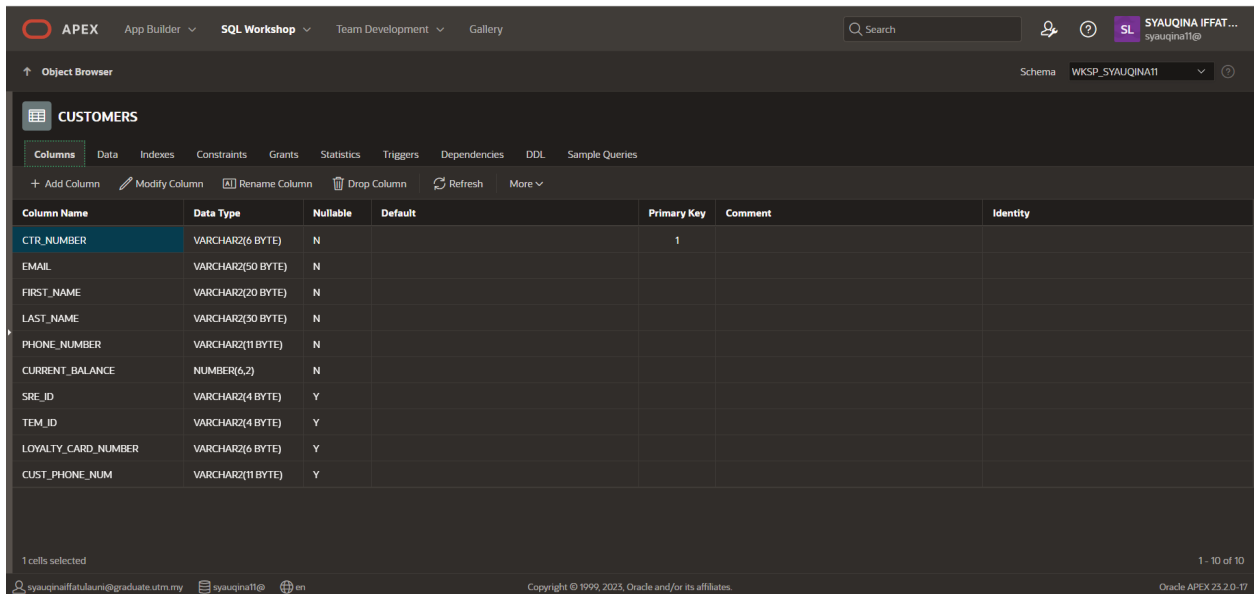


The screenshot shows the APEX SQL Workshop interface. The 'SQL Commands' pane is active, displaying the following SQL command:

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

The command has been executed successfully, as indicated by the 'Results' pane showing 'Table altered.' and '0.07 seconds'.

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



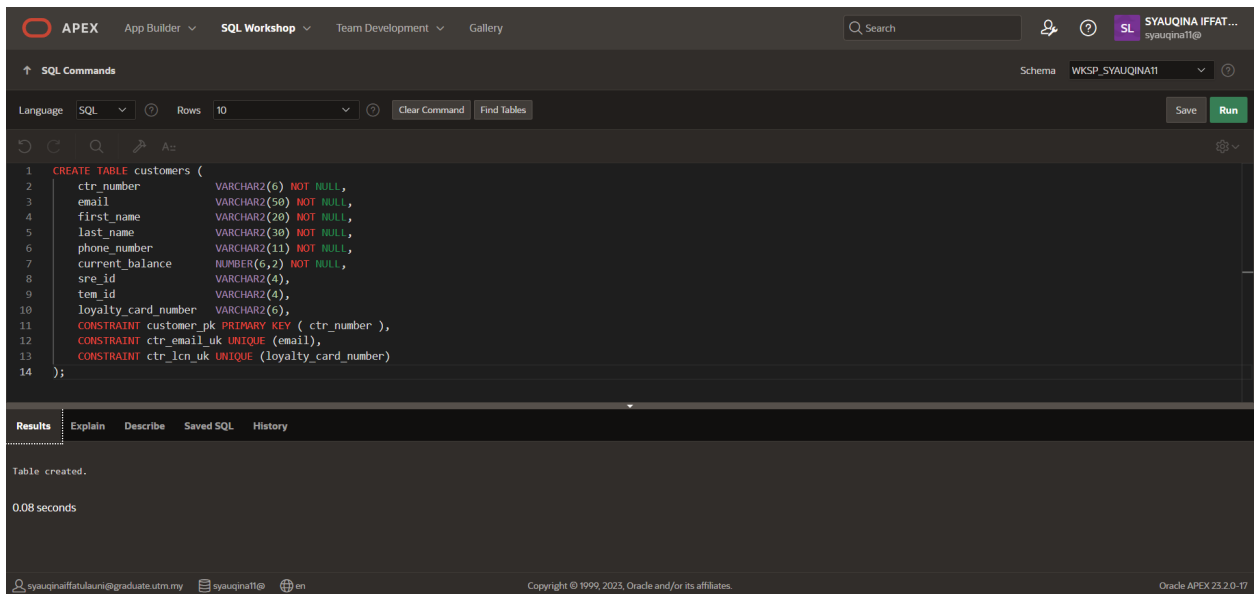
The screenshot shows the Oracle APEX SQL Workshop interface. The 'Object Browser' on the left shows the 'CUSTOMERS' table. The 'Columns' tab is selected, displaying a table with the following columns:

Column Name	Data Type	Nullable	Default	Primary Key	Comment	Identity
CTR_NUMBER	VARCHAR2(6 BYTE)	N		1		
EMAIL	VARCHAR2(50 BYTE)	N				
FIRST_NAME	VARCHAR2(20 BYTE)	N				
LAST_NAME	VARCHAR2(30 BYTE)	N				
PHONE_NUMBER	VARCHAR2(11 BYTE)	N				
CURRENT_BALANCE	NUMBER(6,2)	N				
SRE_ID	VARCHAR2(4 BYTE)	Y				
TEM_ID	VARCHAR2(4 BYTE)	Y				
LOYALTY_CARD_NUMBER	VARCHAR2(6 BYTE)	Y				
CUST_PHONE_NUM	VARCHAR2(11 BYTE)	Y				

1 cells selected 1 - 10 of 10

Dropping a column

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

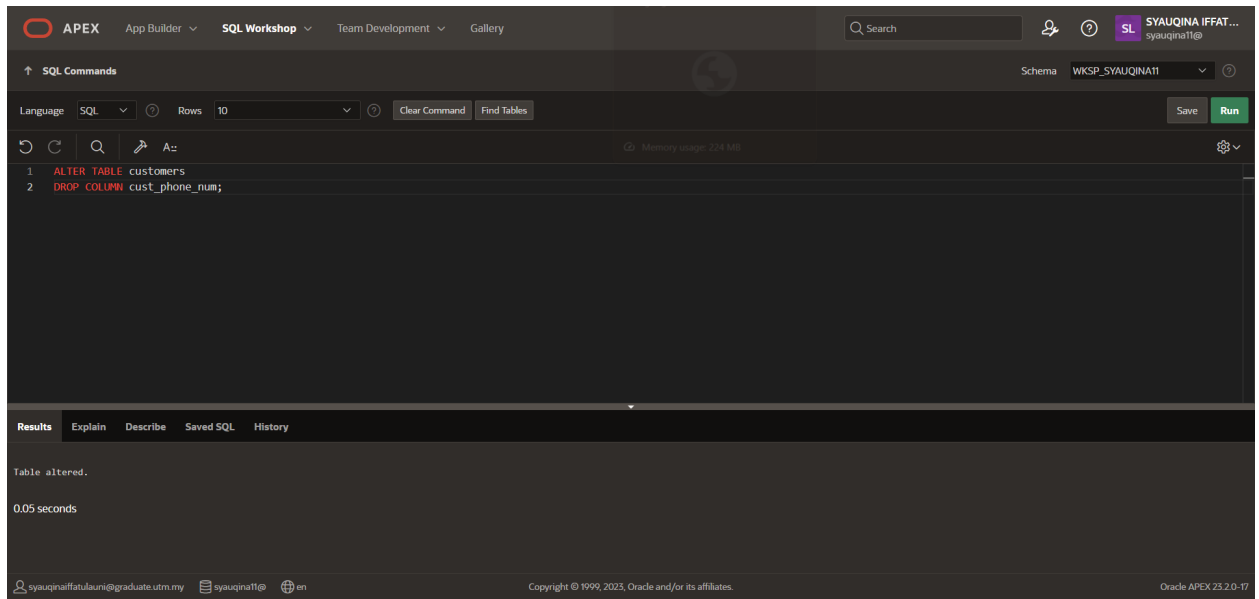


The screenshot shows the Oracle APEX SQL Workshop interface. The 'SQL Commands' window is open, displaying a SQL statement to create a table named 'customers'.

```
1 CREATE TABLE customers (
2   ctr_number      VARCHAR2(6) NOT NULL,
3   email           VARCHAR2(50) NOT NULL,
4   first_name      VARCHAR2(20) NOT NULL,
5   last_name       VARCHAR2(30) NOT NULL,
6   phone_number    VARCHAR2(11) NOT NULL,
7   current_balance NUMBER(6,2) NOT NULL,
8   sre_id          VARCHAR2(4),
9   tem_id          VARCHAR2(4),
10  loyalty_card_number VARCHAR2(6),
11  CONSTRAINT customer_pk PRIMARY KEY ( ctr_number ),
12  CONSTRAINT ctr_email_uk UNIQUE (email),
13  CONSTRAINT ctr_lcn_uk UNIQUE (loyalty_card_number)
14 );
```

The 'Results' tab is selected, showing the message 'Table created.' and the execution time '0.08 seconds'.

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

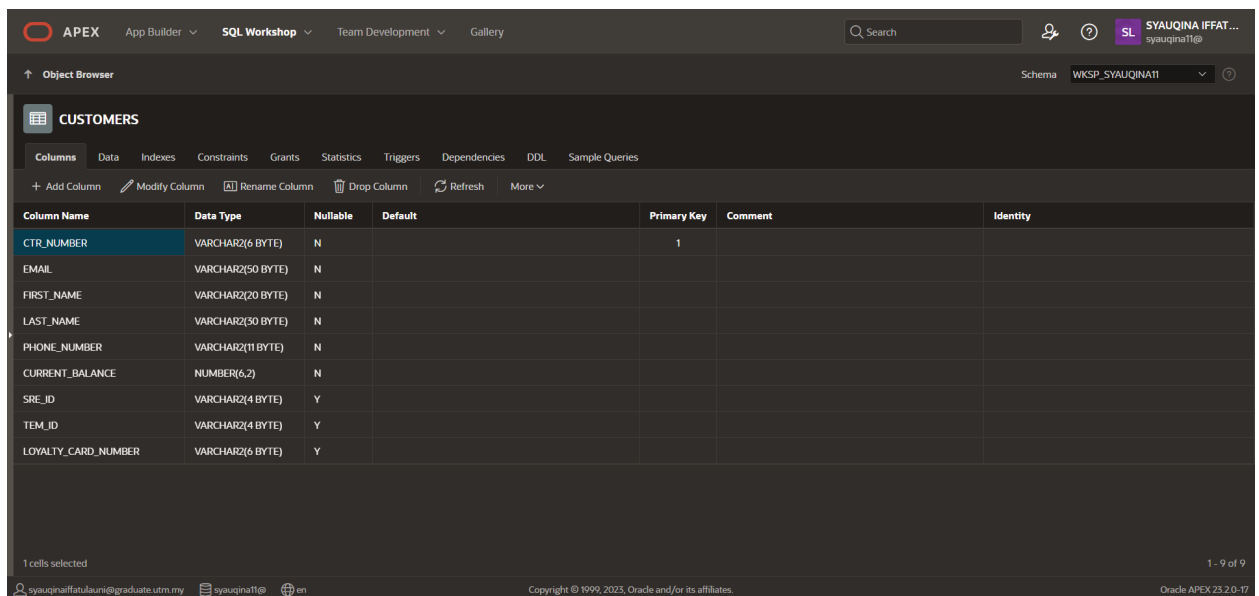


The screenshot shows the Oracle APEX SQL Workshop interface. The top navigation bar includes 'APEX', 'App Builder', 'SQL Workshop', 'Team Development', and 'Gallery'. A search bar and user profile 'SYAUQINA IFFAT...' are on the right. The 'SQL Commands' section is active, showing a command editor with the following SQL commands:

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

Below the editor, the 'Results' tab is selected, displaying the message 'Table altered.' and the execution time '0.05 seconds'. The bottom status bar shows the user 'syauqinaiffatulauni@graduate.utm.my' and the Oracle APEX version '23.2.0-17'.

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



The screenshot shows the Oracle APEX Object Browser interface. The 'Object Browser' section is active, displaying the 'CUSTOMERS' table. The 'Columns' tab is selected, showing the following table structure:

Column Name	Data Type	Nullable	Default	Primary Key	Comment	Identity
CTR_NUMBER	VARCHAR2(6 BYTE)	N		1		
EMAIL	VARCHAR2(50 BYTE)	N				
FIRST_NAME	VARCHAR2(20 BYTE)	N				
LAST_NAME	VARCHAR2(30 BYTE)	N				
PHONE_NUMBER	VARCHAR2(11 BYTE)	N				
CURRENT_BALANCE	NUMBER(6,2)	N				
SRE_ID	VARCHAR2(4 BYTE)	Y				
TEM_ID	VARCHAR2(4 BYTE)	Y				
LOYALTY_CARD_NUMBER	VARCHAR2(6 BYTE)	Y				

The bottom status bar shows '1 cells selected' and the Oracle APEX version '23.2.0-17'.