



**UTM**  
UNIVERSITI TEKNOLOGI MALAYSIA

## **Lab 1- DDL**

**SECD2523 - 08 Database**

SEMESTER I, SESSION 2023/2024

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## **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” 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?

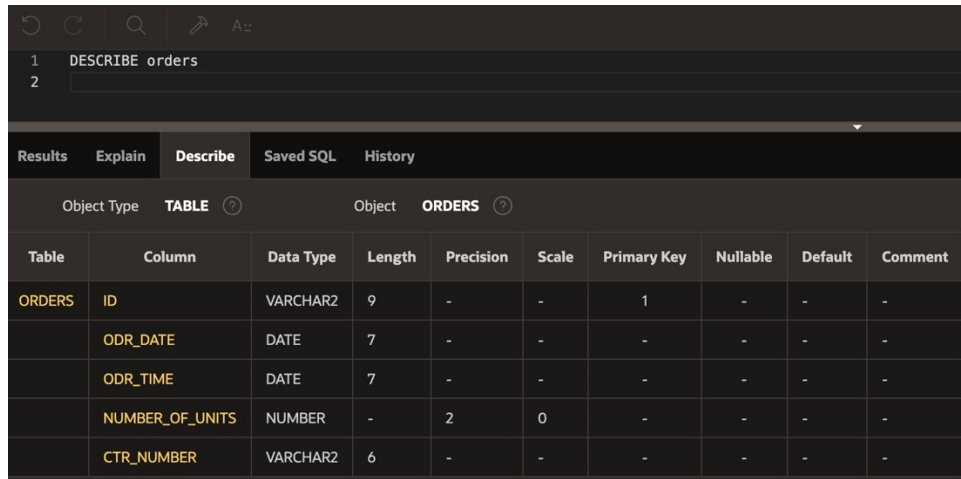
itm\_number, start\_date, start\_time

## Part 2 : Updating Constraints

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

### Modifying a column

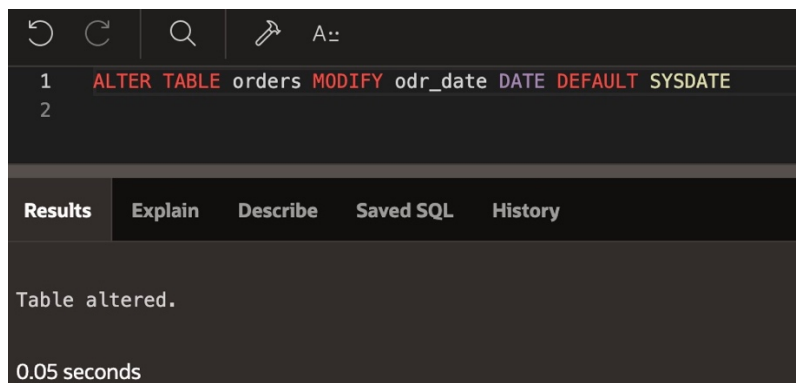
1. Run the DESCRIBE command on the orders table to view its structure.



The screenshot shows the APEX SQL environment with the command `DESCRIBE orders` entered. The results tab is active, 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	-	-	-	-	-	-

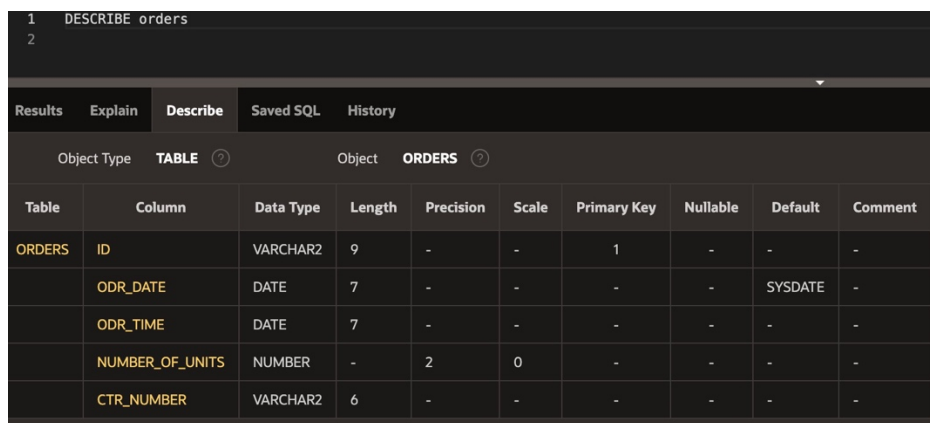
2. Task: Add a default constraint that will use today's date to assign a value to the `odr_date` column of the orders table if no date is provided.



The screenshot shows the APEX SQL environment 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".

Results	Explain	Describe	Saved SQL	History
Table altered.				
0.05 seconds				

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

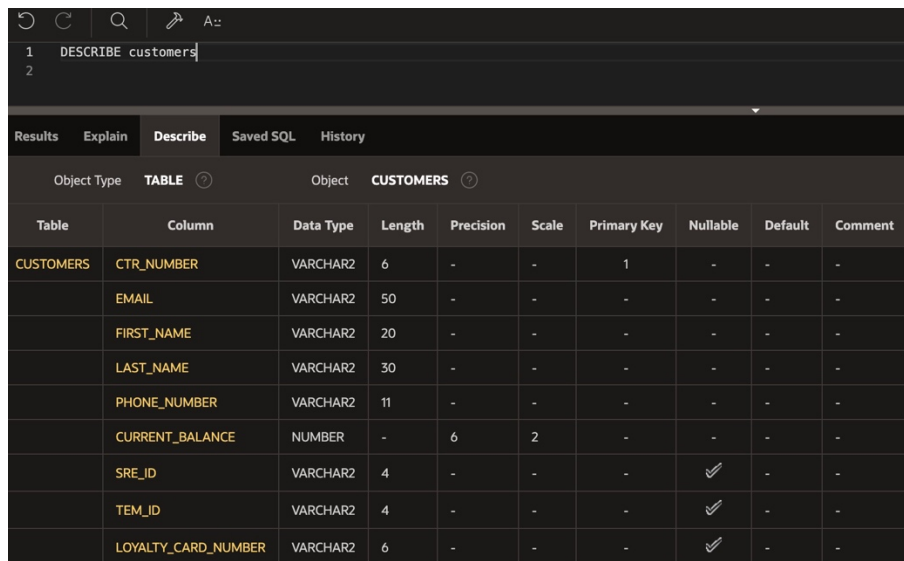


The screenshot shows the APEX SQL environment with the command `DESCRIBE orders` entered. The results tab is active, displaying the updated structure of the `ORDERS` table.

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

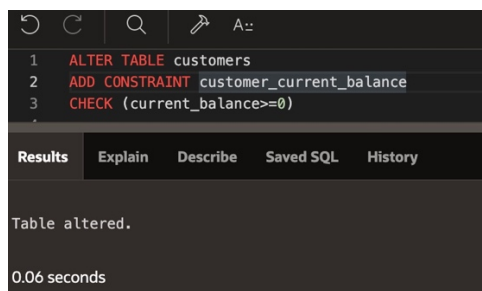
1. Run the DESCRIBE command on the customers table to view its structure.



The screenshot shows the SQL Developer interface. The command window contains the SQL command `DESCRIBE customers`. The Results tab is selected, 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 data types, lengths, and other attributes 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	-	-	-	✓	-	-

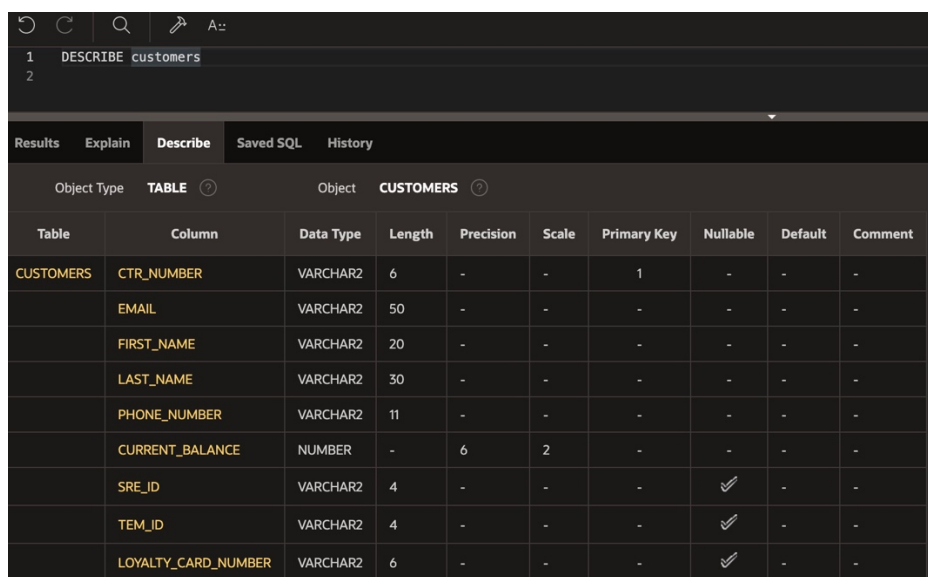
2. Task: Add a check constraint that will not allow the customers current balance to go below zero.



The screenshot shows the SQL Developer interface. The command window contains the SQL command `ALTER TABLE customers ADD CONSTRAINT customer_current_balance CHECK (current_balance >= 0)`. The Results tab is selected, displaying the message "Table altered." and the execution time "0.06 seconds".

Results	Explain	Describe	Saved SQL	History
Table altered.				
0.06 seconds				

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



The screenshot shows the SQL Developer interface. The command window contains the SQL command `DESCRIBE customers`. The Results tab is selected, 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 data types, lengths, and other attributes are listed for each column.

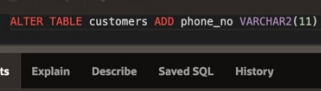
Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CUSTOMERS	CTR_NUMBER	VARCHAR2	6	-	-	1	-	-	-
	EMAIL	VARCHAR2	50	-	-	-	-	-	-
	FIRST_NAME	VARCHAR2	20	-	-	-	-	-	-
	LAST_NAME	VARCHAR2	30	-	-	-	-	-	-
	PHONE_NUMBER	VARCHAR2	11	-	-	-	-	-	-
	CURRENT_BALANCE	NUMBER	-	6	2	-	-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

- Go to the Object Browser
- Select the customers table.
- Click on the CONSTRAINTS tab.
- You will see your constraint here.

## Adding a column

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

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



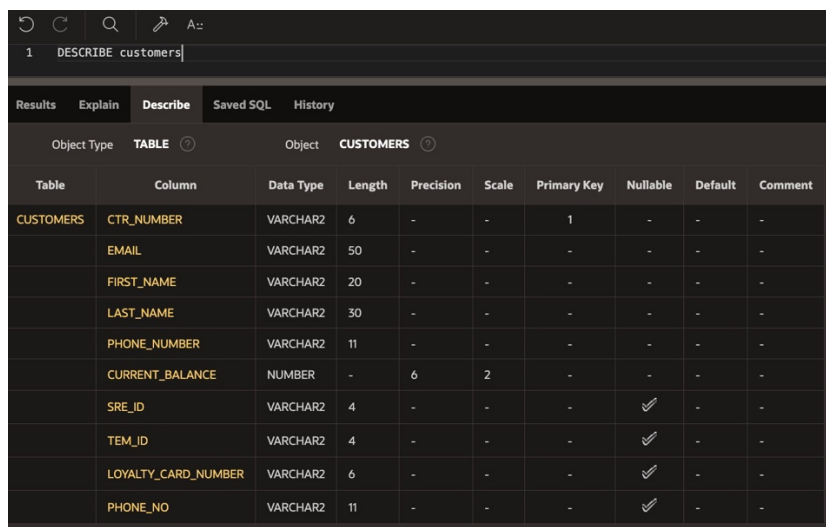
```
1 ALTER TABLE customers ADD phone_no VARCHAR2(11);
```

**Results** Explain Describe Saved SQL History

Table altered.

0.04 seconds

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



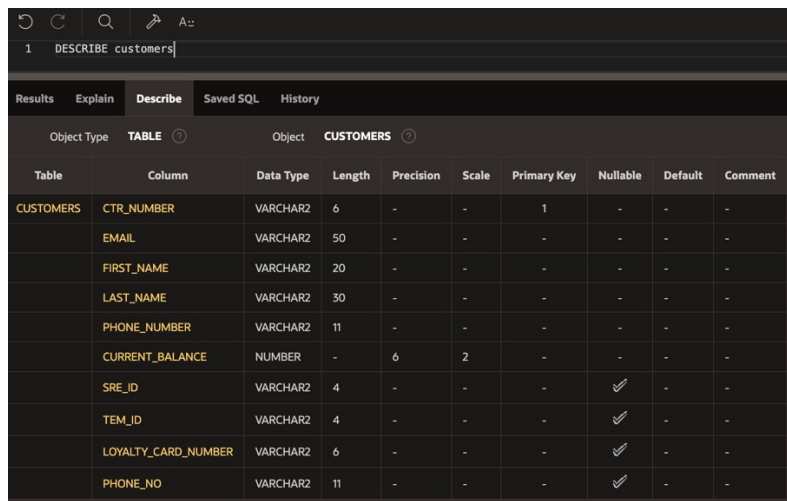
The screenshot shows a SQL IDE interface. The command bar contains the text "1 DESCRIBE customers". Below the command bar, there are tabs for "Results", "Explain", "Describe", "Saved SQL", and "History". The "Describe" tab is active, displaying the structure of the "CUSTOMERS" table. The table has 10 columns: CTR\_NUMBER, EMAIL, FIRST\_NAME, LAST\_NAME, PHONE\_NUMBER, CURRENT\_BALANCE, SRE\_ID, TEM\_ID, LOYALTY\_CARD\_NUMBER, and PHONE\_NO. The columns are listed in a table with headers: Table, Column, Data Type, Length, Precision, Scale, Primary Key, Nullable, Default, and Comment.

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	-	-	-	✓	-	-
	PHONE_NO	VARCHAR2	11	-	-	-	✓	-	-

## Dropping a column

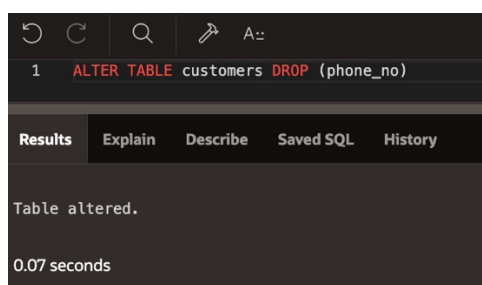
The client has decided that they don't need the mobile number column as most customers only provide a single contact number and that is already catered for with the existing phone\_number column.

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



This screenshot is identical to the one above, showing the SQL IDE interface with the "DESCRIBE customers" command and the "Describe" tab displaying the structure of the "CUSTOMERS" table.

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



The screenshot shows the SQL IDE interface with the command bar containing the text "1 ALTER TABLE customers DROP (phone\_no)". Below the command bar, there are tabs for "Results", "Explain", "Describe", "Saved SQL", and "History". The "Results" tab is active, displaying the message "Table altered." and the execution time "0.07 seconds".

Results	Explain	Describe	Saved SQL	History
Table altered.				
0.07 seconds				

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

A:

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	-	-	-	✓	-	-