



UTM
UNIVERSITI TEKNOLOGI MALAYSIA

**SECD2523
DATABASE**

SECTION 10

SQL LAB 1 - DDL

PREPARED FOR:

MADAM ROZILAWATI BINTI DOLLAH @ MD ZAIN

PREPARED BY:

BATRIESYA IRDINA BINTI KHAIRUL HEZAL	A22EC0141
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Section 6 Lesson 3 Exercise: Data Definition Language

Use DDL to build and maintain a 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.

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
4. What is the name of the foreign key constraint between the customers and customer addresses table?
customer_address_customer_fk
5. What are the lowest and highest values that can be stored in the comission_rate column for the sales_representatives table?
0 - 99
6. What are the lowest and highest values that can be stored in the price column for the price_history table?
000000.00 - 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.
 - **DESC orders;**

The screenshot shows the APEX SQL Workshop interface. The top navigation bar includes 'APEX', 'App Builder', 'SQL Workshop', 'Team Development', and 'Gallery'. The user is logged in as 'BATRIESYA IRDINA' with the role 'sql1-ddl'. The 'SQL Commands' tab is active, and the 'Schema' is set to 'WKSP_SQL1DDL'. The command entered is 'DESC orders;'. The results are displayed in a table format.

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.
 - **ALTER TABLE orders**
MODIFY odr_date DEFAULT SYSDATE;

The screenshot shows the APEX SQL Workshop interface with the 'SQL Commands' tab active. The command entered is 'ALTER TABLE orders MODIFY odr_date DEFAULT SYSDATE;'. The results are displayed as 'Table altered.' and '0.06 seconds'.

3. Run the DESCRIBE command again to verify the command was successful.
- **DESC orders;**

The screenshot shows the Oracle APEX SQL Workshop interface. At the top, the navigation bar includes 'APEX', 'App Builder', 'SQL Workshop', 'Team Development', and 'Gallery'. A search bar and user profile 'BATRIESYA IRDINA' are also present. The 'SQL Commands' section shows the command 'DESC orders;' entered in the editor. The 'Find Tables' button is highlighted with a green dashed box. Below the editor, the 'Describe' tab is active, displaying a table with the following columns: Table, Column, Data Type, Length, Precision, Scale, Primary Key, Nullable, Default, and Comment. The table lists the columns of the 'ORDERS' table: 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 customers table to view its structure.
 - **DESC customers;**

The screenshot shows the APEX SQL Workshop interface. The command `DESC customers;` has been executed. The results are displayed in a table with columns: Table, Column, Data Type, Length, Precision, Scale, Primary Key, Nullable, Default, and Comment.

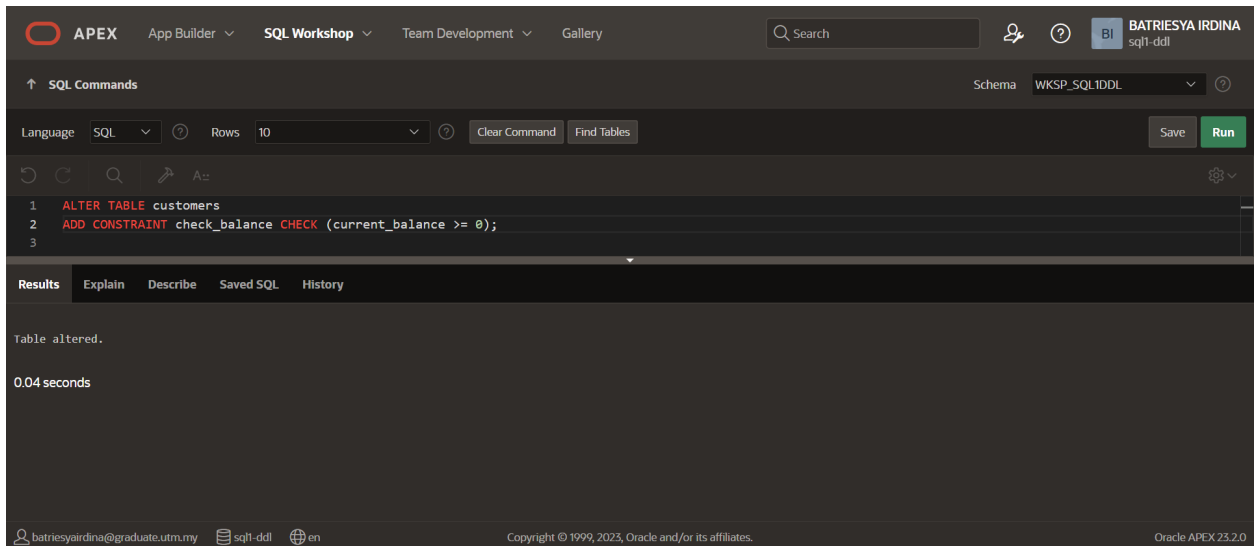
Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CUSTOMERS	CTR_NUMBER	VARCHAR2	6	-	-	1	-	-	-
	EMAIL	VARCHAR2	50	-	-	-	-	-	-
	FIRST_NAME	VARCHAR2	20	-	-	-	-	-	-
	LAST_NAME	VARCHAR2	30	-	-	-	-	-	-
	PHONE_NUMBER	VARCHAR2	11	-	-	-	-	-	-

The screenshot shows the APEX SQL Workshop interface. The command `DESC customers;` has been executed. The results are displayed in a table with columns: Table, Column, Data Type, Length, Precision, Scale, Primary Key, Nullable, Default, and Comment. The table includes constraints for SRE_ID, TEM_ID, and LOYALTY_CARD_NUMBER.

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	-	-	-	✓	-	-	

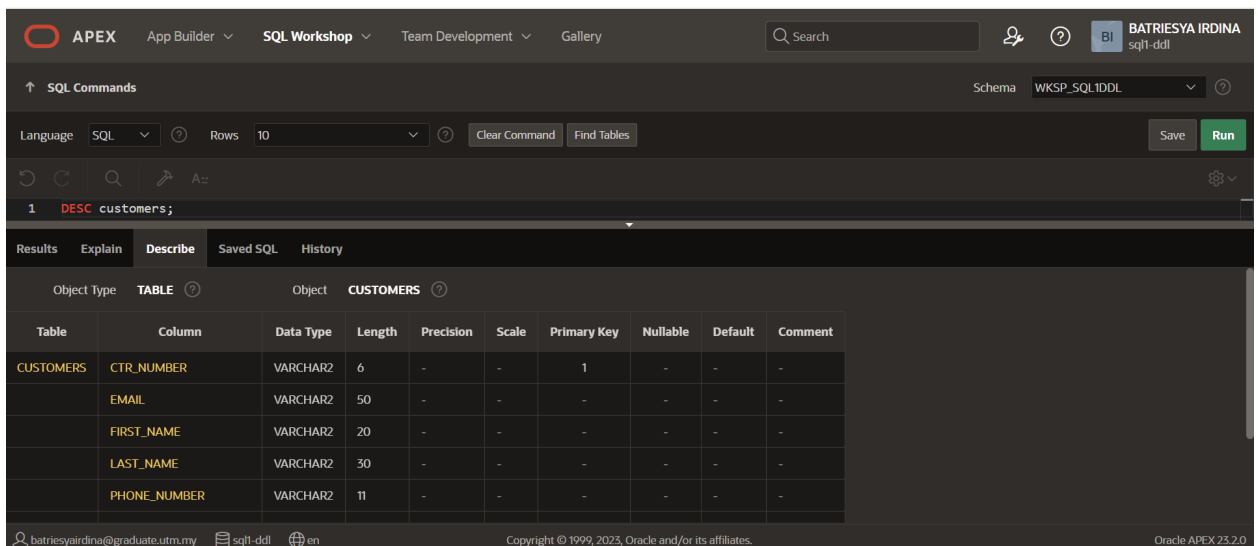
2. Task: Add a check constraint that will not allow the customers current balance to go below zero.

- **ALTER TABLE customers**
ADD CONSTRAINT check_balance CHECK (current_balance >= 0);



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

- **DESC customers;**



APEX App Builder SQL Workshop Team Development Gallery

Search

Schema: WKSP_SQL1DDL

Language: SQL Rows: 10 Clear Command Find Tables Save Run

1 DESC customers;

Results	Explain	Describe	Saved SQL	History
		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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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.

APEX App Builder SQL Workshop Team Development Gallery

Search

Schema: WKSP_SQL1DDL

Object Browser

CUSTOMERS

Columns Data Indexes Constraints Grants Statistics Triggers Dependencies DDL Sample Queries

+ Create Drop Enable Disable Refresh

Constraint	Type	Search Condition	Related Constraint	Columns	Delete Rule	Status
CHECK_BALANCE	Check	current_balance >= 0				ENABLED
SYS_C00150520750	Check	"CTR_NUMBER" IS NOT NULL				ENABLED
SYS_C00150520751	Check	"EMAIL" IS NOT NULL				ENABLED
SYS_C00150520752	Check	"FIRST_NAME" IS NOT NULL				ENABLED
SYS_C00150520753	Check	"LAST_NAME" IS NOT NULL				ENABLED
SYS_C00150520754	Check	"PHONE_NUMBER" IS NOT NULL				ENABLED
SYS_C00150520755	Check	"CURRENT_BALANCE" IS NOT NULL				ENABLED

1 cells selected 1 - 10 of 10

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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 that will view its structure.
 - **DESC customers;**

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SQL Commands

Schema

WKSP_SQL1DDL

Language

SQL

Rows

10

Clear Command

Find Tables

Save

Run

1

DESC 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	-	-	-	-	-	-

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SQL Commands

Schema

WKSP_SQL1DDL

Language

SQL

Rows

10

Clear Command

Find Tables

Save

Run

1

DESC customers;

Results

Explain

Describe

Saved SQL

History

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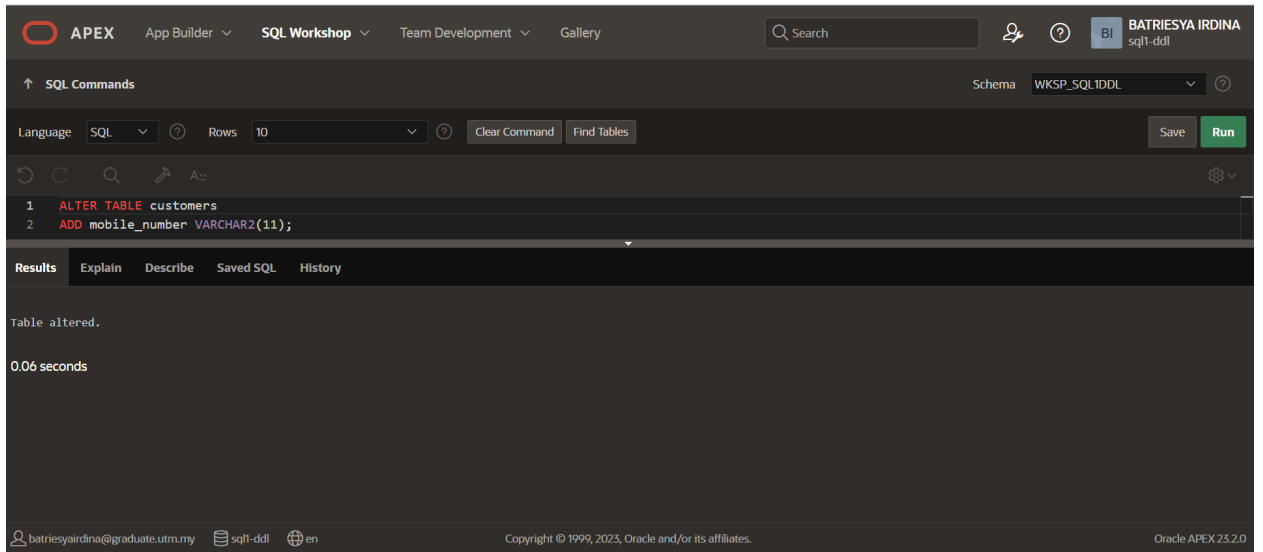
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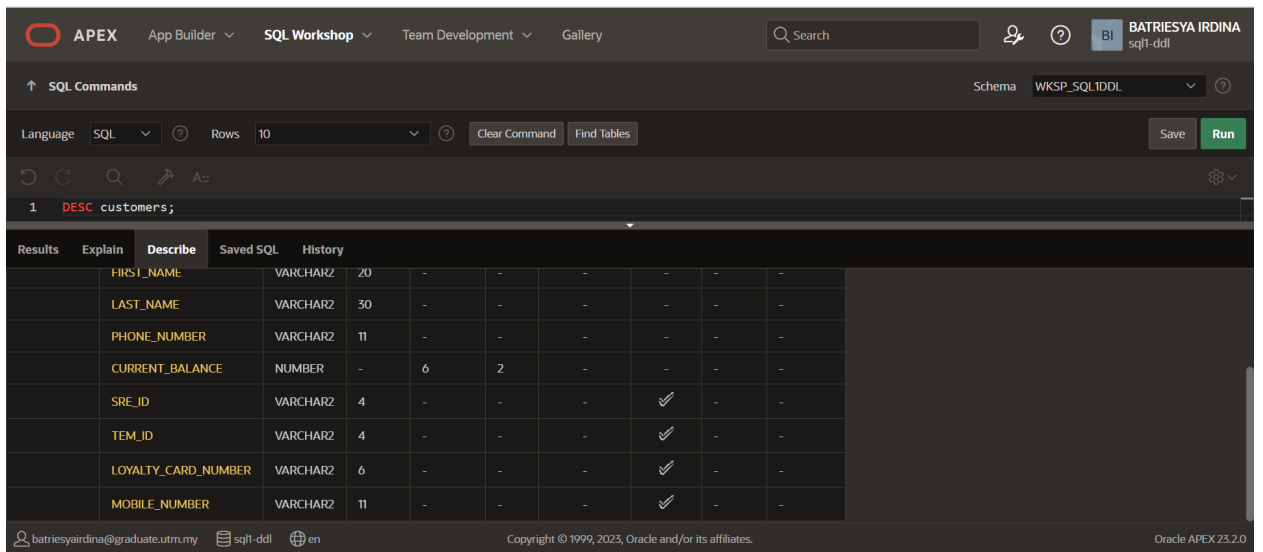
2. Task: Add the column that will satisfy the clients requirements.

- **ALTER TABLE customers**
ADD mobile_number VARCHAR2(11);



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

- **DESC customers;**



Dropping 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.
 - **DESC customers;**

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SQL Commands

Schema

WKSP_SQL1DDL

Language

SQL

Rows

10

Clear Command

Find Tables

Save

Run

1

DESC 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	-	-	-	-	-	-

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SQL Commands

Schema

WKSP_SQL1DDL

Language

SQL

Rows

10

Clear Command

Find Tables

Save

Run

1

DESC customers;

Results

Explain

Describe

Saved SQL

History

	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	-	-	-	✓	-	-

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2. Task: Drop the column that was created to store the mobile phone number.
- **ALTER TABLE customers**
DROP COLUMN mobile_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 'BATRIESYA IRDINA' are on the right. The 'SQL Commands' section is active, showing a schema dropdown set to 'WKSP_SQL1DDL'. The command editor contains two lines of SQL: '1 ALTER TABLE customers' and '2 DROP COLUMN mobile_number;'. 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 on the customers table to view its structure.
- **DESC customers;**

The screenshot shows the Oracle APEX SQL Workshop interface with the 'DESCRIBE' command executed. The command editor shows '1 DESCRIBE customers;'. The 'Describe' tab is active, displaying the table structure for 'CUSTOMERS'. The table has five columns: CTR_NUMBER, EMAIL, FIRST_NAME, LAST_NAME, and PHONE_NUMBER, all of type VARCHAR2. The CTR_NUMBER column is marked as the primary key.

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	-	-	-	-	-	-

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SQL Commands

Schema WKSP_SQL1DDL

Language SQLRows 10Clear CommandFind TablesSaveRun

DESC customers;

Results

Explain

Describe

Saved SQL

History

	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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