



UTM

UNIVERSITI TEKNOLOGI MALAYSIA

**BACHELOR OF COMPUTER SCIENCE(GRAPHIC AND MULTIMEDIA
SOFTWARE)**

SECD2523 - DATABASE

SEMESTER 20232024 – 1

SECTION 10

LAB DDL

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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 CREATE TABLES STATEMENTS

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?

```
ALTER TABLE items  
MODIFY category VARCHAR2(50) NOT NULL;
```

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.

-99- Lowest, 99-highest

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

-9999999.99-Lowest, 9999999.99-highest

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;

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;

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

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;

Object Type		Object							
TABLE		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	-	-	-	✓	-	-

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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.

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default
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.

- a. Go to the Object Browser
- b. Select the customers table.

- c. Click on the CONSTRAINTS tab.
- d. You will see your constraint here.

Constraint	Type	Search Condition	Related Constraint	Columns
CHECK_BALANCE	Check	current_balance >= 0		
SYS_C00150720161	Check	"CTR_NUMBER" IS NOT NULL		
SYS_C00150720162	Check	"EMAIL" IS NOT NULL		
SYS_C00150720163	Check	"FIRST_NAME" IS NOT NULL		
SYS_C00150720164	Check	"LAST_NAME" IS NOT NULL		
SYS_C00150720165	Check	"PHONE_NUMBER" IS NOT NULL		
SYS_C00150720166	Check	"CURRENT_BALANCE" IS NOT NULL		
CUSTOMER_PK	Primary			CTR_NUMBER
CTR_EMAIL_UK	Unique			EMAIL
CTR_LCN_UK	Unique			LOYALTY_CARD_NUMBER

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.

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

```
ALTER TABLE customers
ADD mobile_phone_number VARCHAR2(11);
```

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

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.

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.

ALTER TABLE customers

DROP COLUMN mobile_phone_number;

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

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	-	-	-	✓	-	-