UTM
UNIVERSITI TEKNOLOGI MALAYSIA

FACULTY OF COMPUTING
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LAB 1

DATA DEFINITION LANGUAGE (DDL)

SECD2523-Database

SEMESTER I, SESSION 2023/2024

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Section: 08

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?

There are 10 tables that have been created using the CREATE TABLE statement .

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

6 columns are created for the price history table .

3. What statement is used to enforce the constraint that the category column of the items table must have a value?

The statement is used to enforce the constraint that the category column of the items table must have a value that is NOT NULL .

4. What is the name of the foreign key constraint between the customers and customer addresses tables?

The name of the foreign key constraint between the customers and customer addresses tables is 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?

The lowest value that can be stored in the commission_rate column for the sales_representatives table is -99 . The highest value that can be stored in the commission_rate column for the sales_representatives table is 99 .

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

The lowest value that can be stored in the price column for the price_history table is -99999.99. The highest value that can be stored in the price column for the price_history table is 99999.99 .

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

The 3 columns that make up the primary key for the price_history table are itm_number, start_date and 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.

DESCRIBE orders;

Results | Explain | Describe | Saved SQL | History

Object Type **TABLE** Object **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 todays 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 DATE DEFAULT SYSDATE;

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

```
DESCRIBE orders;
```

Results | Explain | Describe | Saved SQL | History

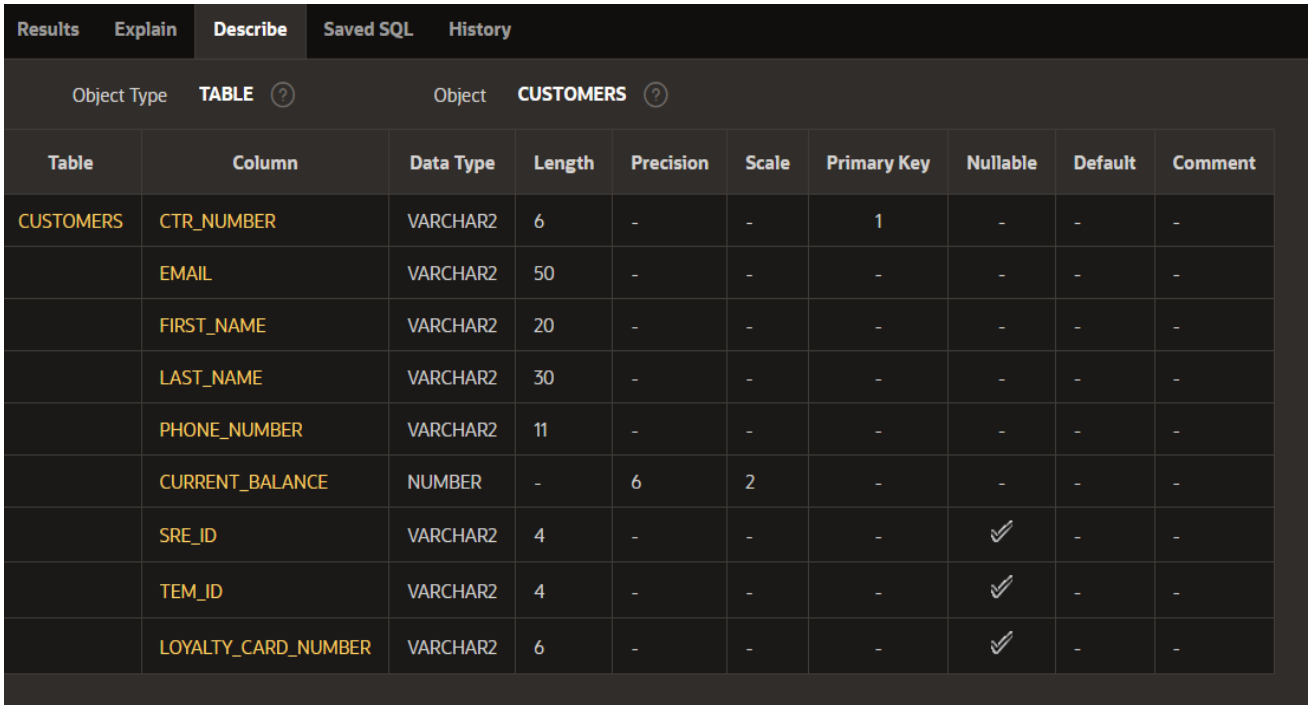
Object Type **TABLE** Object **ORDERS**

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.

```
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	-	-	-	✓	-	-

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.

```
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	-	-	-	✓	-	-

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	Delete Rule	Status	Last Change	Index
CHECK_BALANCE	Check	current_balance >= 0				ENABLED	12/15/2023	
SYS_C00151681345	Check	"CTR_NUMBER" IS NOT NULL				ENABLED	12/15/2023	
SYS_C00151681346	Check	"EMAIL" IS NOT NULL				ENABLED	12/15/2023	
SYS_C00151681347	Check	"FIRST_NAME" IS NOT NULL				ENABLED	12/15/2023	
SYS_C00151681348	Check	"LAST_NAME" IS NOT NULL				ENABLED	12/15/2023	
SYS_C00151681349	Check	"PHONE_NUMBER" IS NOT NULL				ENABLED	12/15/2023	
SYS_C00151681350	Check	"CURRENT_BALANCE" IS NOT NULL				ENABLED	12/15/2023	
CUSTOMER_SALES_REP_FK	Foreign		SALES_REPRESENTATIVE_PK (...	SRE_ID	NO ACTION	ENABLED	12/15/2023	
CUSTOMER_TEAM_FK	Foreign		TEAM_PK (WKSP_XINHUI.TEAMS)	TEM_ID	NO ACTION	ENABLED	12/15/2023	
CUSTOMER_PK	Primary			CTR_NUMBER		ENABLED	12/15/2023	CUSTOMER_PK
CTR_EMAIL_UK	Unique			EMAIL		ENABLED	12/15/2023	CTR_EMAIL_UK
CTR_LCN_UK	Unique			LOYALTY_CARD_NUMBER		ENABLED	12/15/2023	CTR_LCN_UK

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.

```
DESCRIBE customers;
```

Results | Explain | **Describe** | Saved SQL | History

Object Type **TABLE** Object **CUSTOMERS**

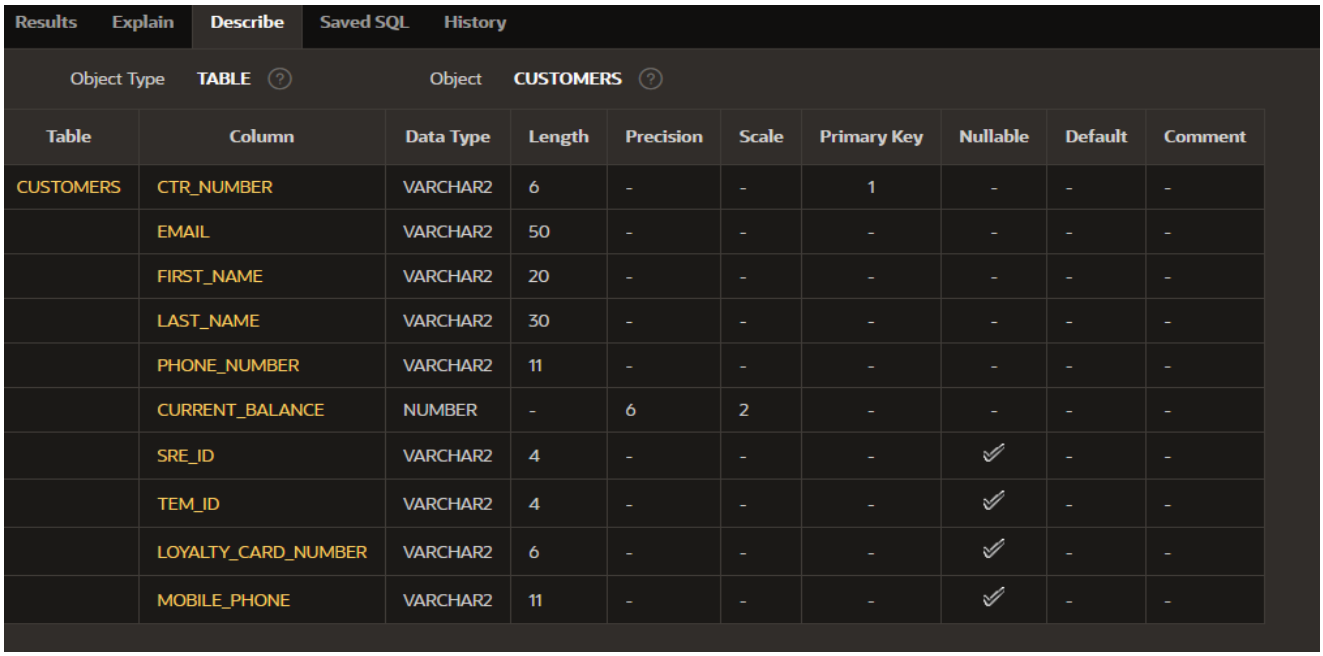
Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CUSTOMERS	CTR_NUMBER	VARCHAR2	6	-	-	1	-	-	-
	EMAIL	VARCHAR2	50	-	-	-	-	-	-
	FIRST_NAME	VARCHAR2	20	-	-	-	-	-	-
	LAST_NAME	VARCHAR2	30	-	-	-	-	-	-
	PHONE_NUMBER	VARCHAR2	11	-	-	-	-	-	-
	CURRENT_BALANCE	NUMBER	-	6	2	-	-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

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

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

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

```
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	-	-	-	✓	-	-
	MOBILE_PHONE	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.

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	-	-	-	✓	-	-
	MOBILE_PHONE	VARCHAR2	11	-	-	-	✓	-	-

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

ALTER TABLE customers

DROP (mobile_phone);

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

```
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	-	-	-	✓	-	-