`

SECD2523 - DATABASE

SEMESTER 1 2023/2024

SQL Lab 1

<<NAME>>

SOO WEN CHUN

<<MATRIC NO>>

A22EC0105

<<SECTION>>

Section 10

<<LECTURER>>

Dr. ROZILAWATI BINTI DOLLAH

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?

Ans: 10

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

Ans: 6

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

Ans: NOT NULL

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

Ans: ctr_number

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

Ans:

Lowest = 0

Highest = 99

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

Ans:

Lowest = 0

Highest = 99999.99

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

Ans:

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

```
1  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.

```
1  ALTER TABLE orders
2  MODIFY odr_date DEFAULT SYSDATE;
```

Results | Explain | Describe | Saved SQL | History

```
Table altered.

0.04 seconds
```

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

```
1  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.

```
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	-	-	-	✓	-	-

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

```
1  ALTER TABLE customers
2  ADD CONSTRAINT Check_customers_current_balance CHECK (current_balance >= 0);
```

Results | Explain | Describe | Saved SQL | History

```
Table altered.

0.06 seconds
```

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

```
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	-	-	-	✓	-	-

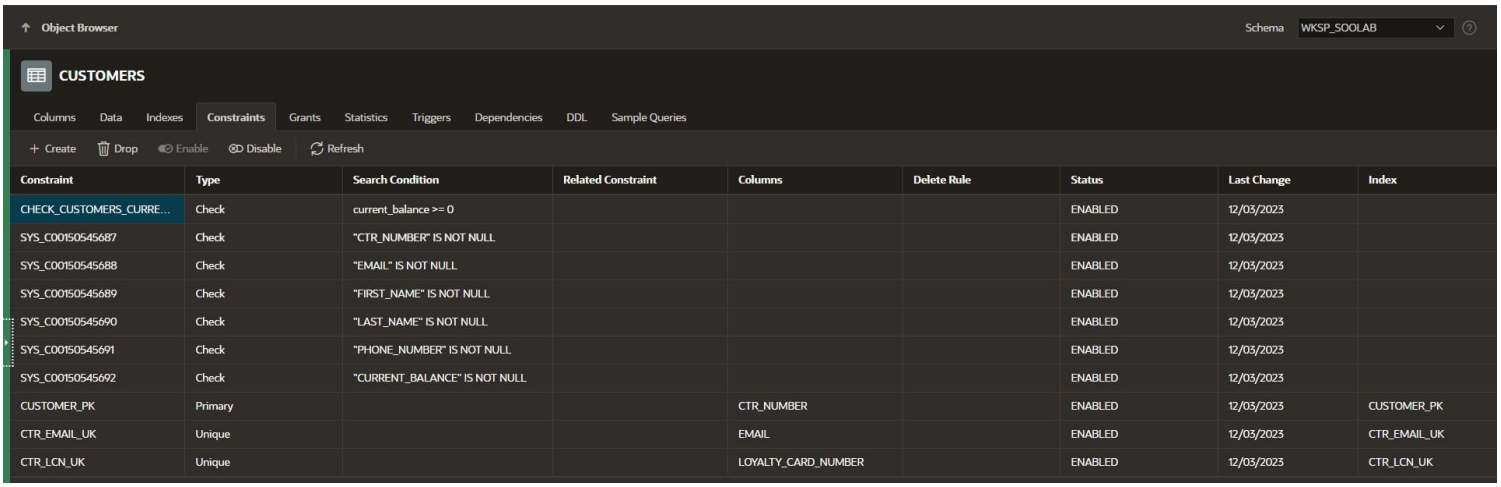
4. A check constraint is not shown in the results of a describe command.

a. Go to the Object Browser

b. Select the customer's 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_CUSTOMERS_CURRE...	Check	current_balance >= 0				ENABLED	12/03/2023	
SYS_C00150545687	Check	"CTR_NUMBER" IS NOT NULL				ENABLED	12/03/2023	
SYS_C00150545688	Check	"EMAIL" IS NOT NULL				ENABLED	12/03/2023	
SYS_C00150545689	Check	"FIRST_NAME" IS NOT NULL				ENABLED	12/03/2023	
SYS_C00150545690	Check	"LAST_NAME" IS NOT NULL				ENABLED	12/03/2023	
SYS_C00150545691	Check	"PHONE_NUMBER" IS NOT NULL				ENABLED	12/03/2023	
SYS_C00150545692	Check	"CURRENT_BALANCE" IS NOT NULL				ENABLED	12/03/2023	
CUSTOMER_PK	Primary			CTR_NUMBER		ENABLED	12/03/2023	CUSTOMER_PK
CTR_EMAIL_UK	Unique			EMAIL		ENABLED	12/03/2023	CTR_EMAIL_UK
CTR_LCN_UK	Unique			LOYALTY_CARD_NUMBER		ENABLED	12/03/2023	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

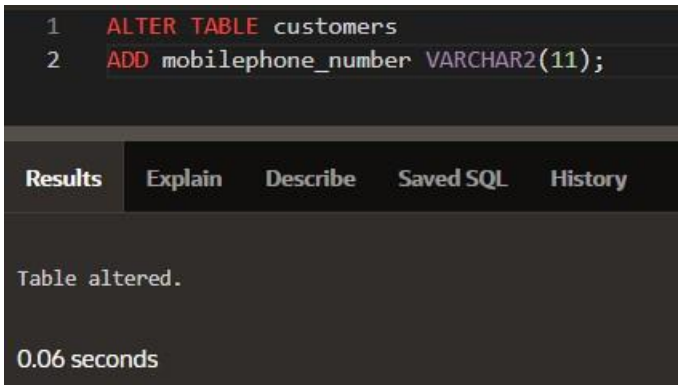
```
1  DESCRIBE customers;
```

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	-	-	-	✓	-	-

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



3. Run the DESCRIBE command on the customer's table to view its structure

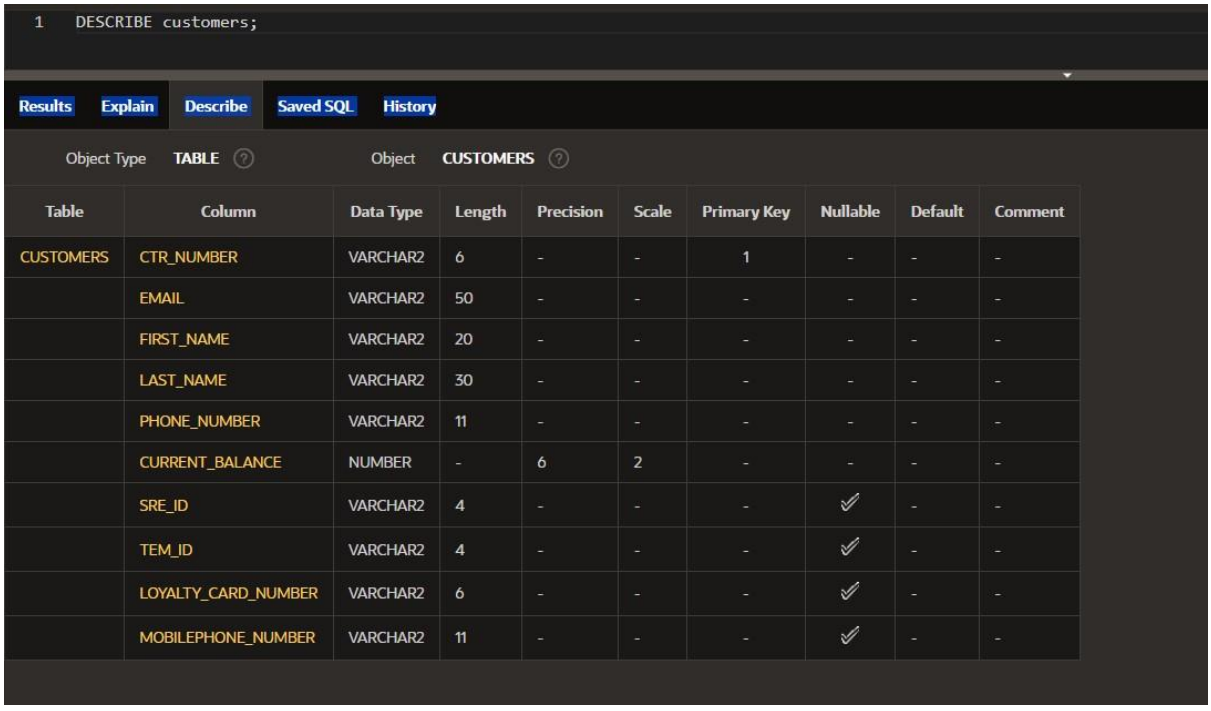


Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CUSTOMERS	CTR_NUMBER	VARCHAR2	6	-	-	1	-	-	-
	EMAIL	VARCHAR2	50	-	-	-	-	-	-
	FIRST_NAME	VARCHAR2	20	-	-	-	-	-	-
	LAST_NAME	VARCHAR2	30	-	-	-	-	-	-
	PHONE_NUMBER	VARCHAR2	11	-	-	-	-	-	-
	CURRENT_BALANCE	NUMBER	-	6	2	-	-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

```
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	-	-	-	✓	-	-
	MOBILEPHONE_NUMBER	VARCHAR2	11	-	-	-	✓	-	-

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

```
1  ALTER TABLE customers
2  DROP column mobilephone_number;
```

Results | Explain | Describe | Saved SQL | History

```
Table altered.

0.06 seconds
```

3. Run the DESCRIBE command on the customer's table to view its structure.

```
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	-	-	-	✓	-	-