



UTM
UNIVERSITI TEKNOLOGI MALAYSIA

SECD2523 – DATABASE

SEMESTER 1/20232024

SECTION 08

LAB 1: DDL

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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 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?

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

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

The name of the foreign key 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 values are **-99**. The highest values are **99**.

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

The lowest values are **-99999.99**. The highest values are **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 of the price_history table are **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.
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.
3. Run the DESCRIBE command again to verify the command was successful.

1. DESCRIBE orders

The screenshot shows the APEX SQL command environment. The command entered is `DESCRIBE orders`. 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
ORDERS	ID	VARCHAR2	9	-	-	1	-	-	-
	ODR_DATE	DATE	7	-	-	-	-	-	-
	ODR_TIME	DATE	7	-	-	-	-	-	-
	NUMBER_OF_UNITS	NUMBER	-	2	0	-	-	-	-
	CTR_NUMBER	VARCHAR2	6	-	-	-	-	-	-

2. ALTER TABLE orders MODIFY odr_date DATE DEFAULT SYSDATE;

The screenshot shows the APEX SQL command environment. The command entered is `ALTER TABLE orders MODIFY odr_date DATE DEFAULT SYSDATE;`. The results are displayed as `Table altered.` and the execution time is `0.05 seconds`.

Results	Explain	Describe	Saved SQL	History
Table altered.				
0.05 seconds				

3. DESCRIBE orders

Language
SQL
Rows
10
Clear Command
Find Tables

1
DESCRIBE orders

Results
Explain
Describe
Saved SQL
History

Object Type

TABLE

Object

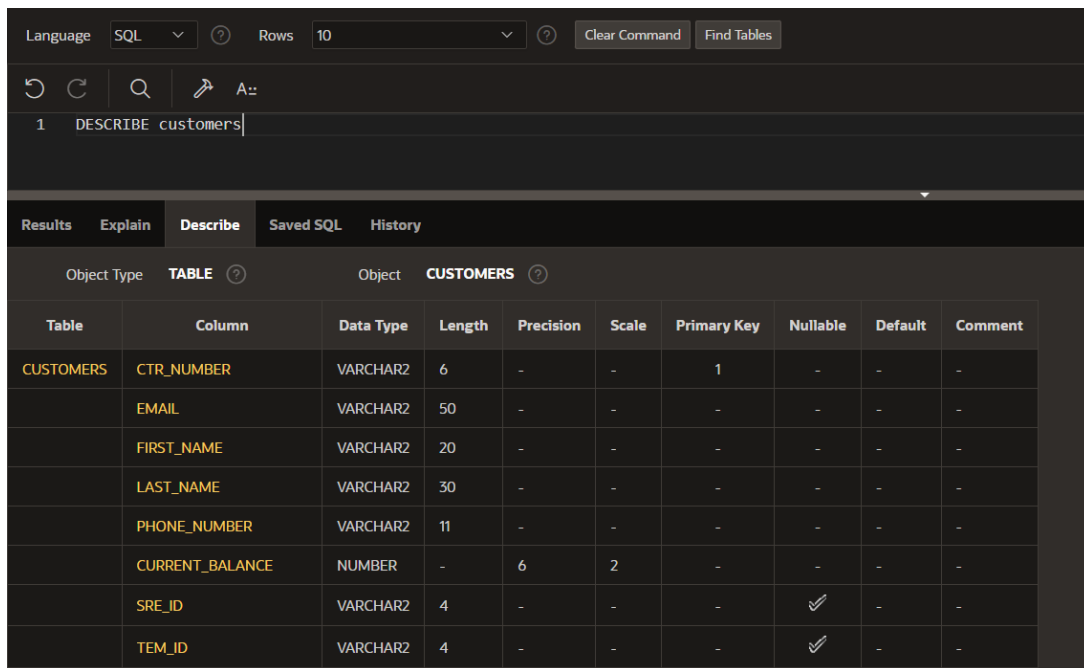
ORDERS

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.
2. **Task:** Add a check constraint that will not allow the customers current balance to go below zero.
3. Run the DESCRIBE command again to verify the command was successful.
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.

1. DESCRIBE customers

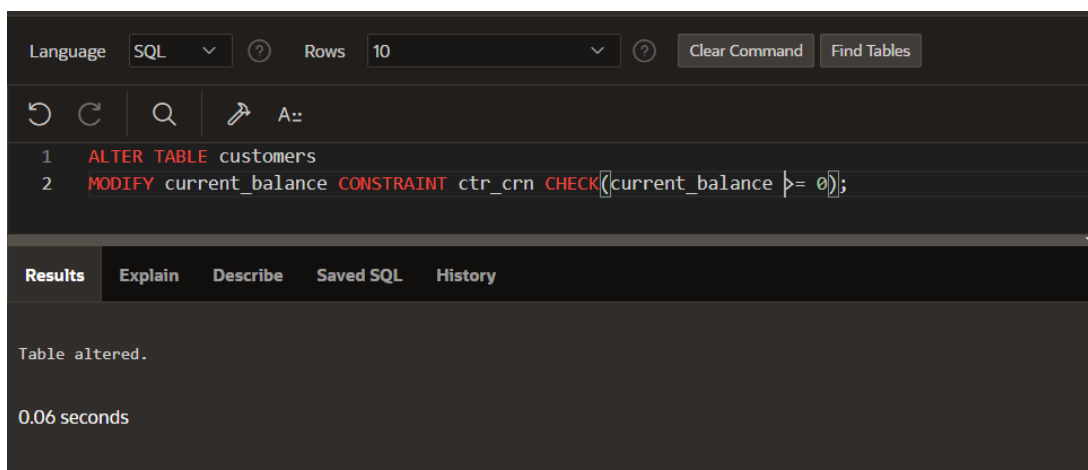


The screenshot shows the SQL Developer interface with the command `DESCRIBE customers` entered in the command window. The results pane displays the table structure for the **CUSTOMERS** table.

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	-	-	-	✓	-	-

2. ALTER TABLE customers

`MODIFY current_balance CONSTRAINT ctr_crn CHECK (current_balance >= 0);`



The screenshot shows the SQL Developer interface with the command `ALTER TABLE customers MODIFY current_balance CONSTRAINT ctr_crn CHECK (current_balance >= 0);` entered in the command window. The results pane displays the message "Table altered." and the execution time "0.06 seconds".

Results	Explain	Describe	Saved SQL	History
Table altered.				
0.06 seconds				

3. DESCRIBE customers

Language SQL ? Rows 10 ? Clear Command Find Tables

↶ ↷ 🔍 🔗 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	-	-	-	✓	-	-

4.

 CUSTOMERS

Columns Data Indexes Constraints Grants Statistics Triggers Dependencies DDL Sample Queries

+ Create 🗑 Drop 🔍 Enable 🔍 Disable 🔄 Refresh

Constraint	Type	Search Condition	Related Constraint	Columns
CTR_CRN	Check	current_balance >= 0		
SYS_C00149311023	Check	"CTR_NUMBER" IS NOT NULL		
SYS_C00149311024	Check	"EMAIL" IS NOT NULL		
SYS_C00149311025	Check	"FIRST_NAME" IS NOT NULL		
SYS_C00149311026	Check	"LAST_NAME" IS NOT NULL		
SYS_C00149311027	Check	"PHONE_NUMBER" IS NOT NULL		
SYS_C00149311028	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.
2. **Task:** Add column that will satisfy the clients requirements
3. Run the DESCRIBE command on the customers table to view its structure.

1. DESCRIBE customers

Language SQL ? Rows 10 ? Clear Command Find Tables

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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. ALTER TABLE customers ADD mobile_phone_number VARCHAR(11);

Language SQL ? Rows 10 ? Clear Command Find Tables

↶ ↷ 🔍 🔗 A::

1 ALTER TABLE customers
2 ADD mobile_phone_number VARCHAR(11);
3

Results Explain Describe Saved SQL History

Table altered.

0.08 seconds

3. DESCRIBE customers

LanguageSQL ? Rows10 ? Clear Command Find Tables

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1 DESCRIBE customers

2

Results Explain Describe Saved SQL History

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_NUMBER	VARCHAR2	1	-	-	-	✓	-	-

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.
2. **Task:** Drop the column that was created to store the mobile phone number.
3. Run the DESCRIBE command on the customers table to view its structure.

1. DESCRIBE customers

Language SQL ? Rows 10 ? Clear Command Find Tables

↶ ↷ 🔍 🔗 A::

1 DESCRIBE customers
2

Results Explain Describe Saved SQL History

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_NUMBER	VARCHAR2	1	-	-	-	✓	-	-

2. ALTER TABLE customers DROP COLUMN mobile_phone_number;

Language SQL ? Rows 10 ? Clear Command Find Tables

↶ ↷ 🔍 🔗 A::

1 ALTER TABLE customers
2 DROP COLUMN mobile_phone_number;
3

Results Explain Describe Saved SQL History

Table altered.

0.06 seconds

3. DESCRIBE customers

LanguageSQLRows10Clear CommandFind Tables

↶↷🔍🔗A::

1DESCRIBE customers

2

ResultsExplainDescribeSaved SQLHistory

Object TypeTABLEObjectCUSTOMERS

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	-	-	-	✓	-	-