



UTM
UNIVERSITI TEKNOLOGI MALAYSIA

Lab 1 - DDL
SECD2523 - DATABASE

SEMESTER I, SESSION 2023/2024

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Section 08

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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

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 tables?

customer_address_fk

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

Lowest value: -99 , Highest value: 99

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

Lowest value: -99999.99 , Highest value: 99999.99

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

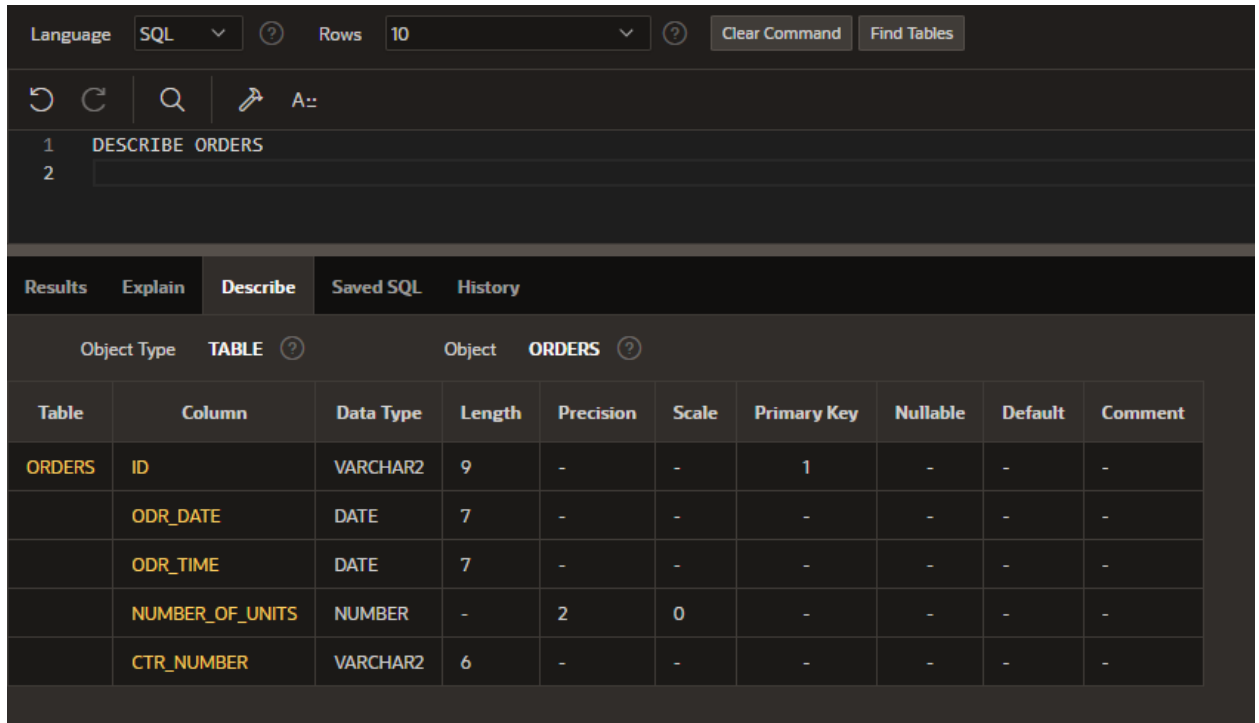
itm_number, start_date, start_time

Part 2: Updating Constraints

Log-in to APEX and go to the SQL commands environment

Modifying a column

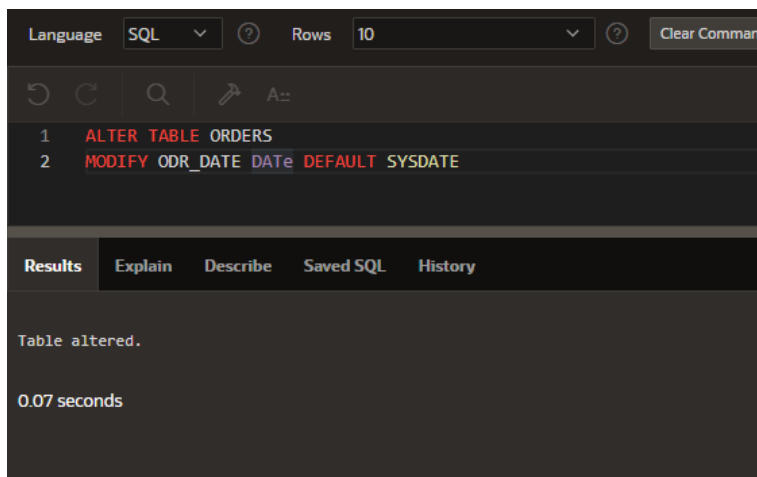
1. Run the DESCRIBE command on the orders table to view its structure.



The screenshot shows the APEX SQL environment interface. At the top, there's a header with 'Language' set to 'SQL', 'Rows' set to '10', and buttons for 'Clear Command' and 'Find Tables'. Below this is a command input area with line numbers 1 and 2, containing the command 'DESCRIBE ORDERS'. The main area displays the results of the command in a table format. The table has columns: Table, Column, Data Type, Length, Precision, Scale, Primary Key, Nullable, Default, and Comment. The data shows the structure of the ORDERS table, including columns ID, ODR_DATE, ODR_TIME, NUMBER_OF_UNITS, and CTR_NUMBER.

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.



The screenshot shows the APEX SQL environment interface. At the top, there's a header with 'Language' set to 'SQL', 'Rows' set to '10', and a 'Clear Command' button. Below this is a command input area with line numbers 1 and 2, containing the command 'ALTER TABLE ORDERS MODIFY ODR_DATE DATE DEFAULT SYSDATE'. The main area displays the results of the command in a table format. The table has columns: Results, Explain, Describe, Saved SQL, and History. The data shows the command was executed successfully, with the message 'Table altered.' and a duration of '0.07 seconds'.

Results	Explain	Describe	Saved SQL	History
Table altered.				
0.07 seconds				

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

1 DESCRIBE ORDERS

2

ResultsExplainDescribeSaved SQLHistory

Object TypeTABLE ?ObjectORDERS ?

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

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

Language SQL Rows 10 Clear Command Find Tables

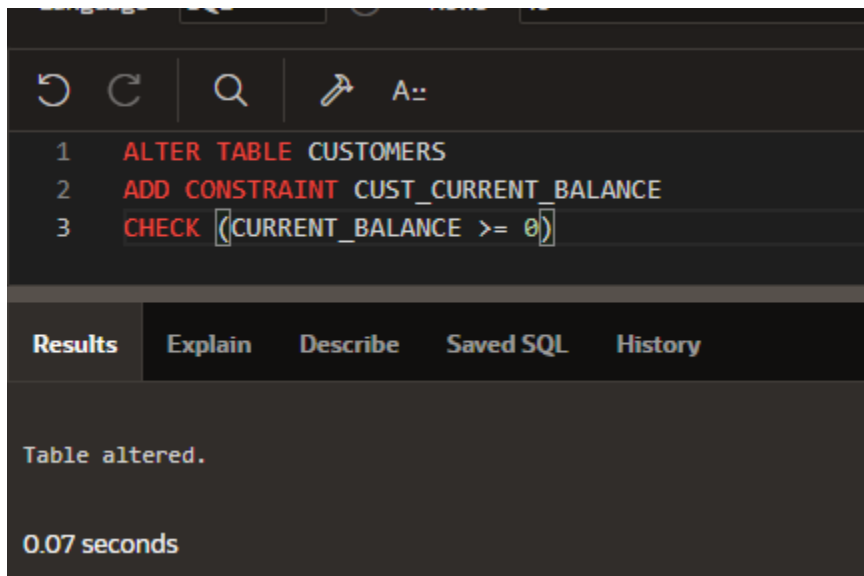
1 DESCRIBE CUSTOMERS
2

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	-	-	-	✓	-	-

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



```
1 ALTER TABLE CUSTOMERS
2 ADD CONSTRAINT CUST_CURRENT_BALANCE
3 CHECK ((CURRENT_BALANCE >= 0))
```

Results Explain Describe Saved SQL History

Table altered.

0.07 seconds

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

1

2

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.

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	Last Change	Index
CUST_CURRENT_BALANCE	Check	CURRENT_BALANCE >= 0				ENABLED	12/19/2023	
SYS_C00151886165	Check	"CTR_NUMBER" IS NOT NULL				ENABLED	12/19/2023	
SYS_C00151886166	Check	"EMAIL" IS NOT NULL				ENABLED	12/19/2023	
SYS_C00151886167	Check	"FIRST_NAME" IS NOT NULL				ENABLED	12/19/2023	
SYS_C00151886168	Check	"LAST_NAME" IS NOT NULL				ENABLED	12/19/2023	
SYS_C00151886169	Check	"PHONE_NUMBER" IS NOT NULL				ENABLED	12/19/2023	
SYS_C00151886170	Check	"CURRENT_BALANCE" IS NOT NULL				ENABLED	12/19/2023	
CUSTOMER_SALES_REP_FK	Foreign		SALES_REPRESENTATIVE_PK ...	SRE_ID	NO ACTION	ENABLED	12/19/2023	
CUSTOMER_TEAM_FK	Foreign		TEAM_PK (WKSP_LAIDATABA...	TEM_ID	NO ACTION	ENABLED	12/19/2023	
CUSTOMER_PK	Primary			CTR_NUMBER		ENABLED	12/19/2023	CUSTOMER_PK
CTR_EMAIL_UK	Unique			EMAIL		ENABLED	12/19/2023	CTR_EMAIL_UK
CTR_LCN_UK	Unique			LOYALTY_CARD_NUMBER		ENABLED	12/19/2023	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

```
1 ALTER TABLE CUSTOMERS
2 ADD MOBILE_NO VARCHAR(11)
```

Results Explain Describe Saved SQL History

Table altered.

0.06 seconds

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

1

2

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_NO	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.

1DESCRIBE CUSTOMERS2

ResultsExplainDescribeSaved SQLHistory

Object TypeTABLE ?ObjectCUSTOMERS ?

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_NO	VARCHAR2	11	-	-	-	✓	-	-

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



```
1 ALTER TABLE CUSTOMERS
2 DROP (MOBILE_NO)
3
```

Results	Explain	Describe	Saved SQL
Table altered.			
0.09 seconds			

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

1

DESCRIBE CUSTOMERS

2

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	-	-	-	✓	-	-