



UTM
UNIVERSITI TEKNOLOGI MALAYSIA

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SESSION 2023/2024 SEMESTER 1

SECD2523
DATABASE

LAB EXERCISE : SQL1 DDL

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SECTION
10

PART 1 :

1. How many tables have been created using the CREATE TABLE statement ?

10 tables have been created.

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 statement.

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

Foreign key : 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?

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?

Lowest : 00000.00, Highest : 99999.99

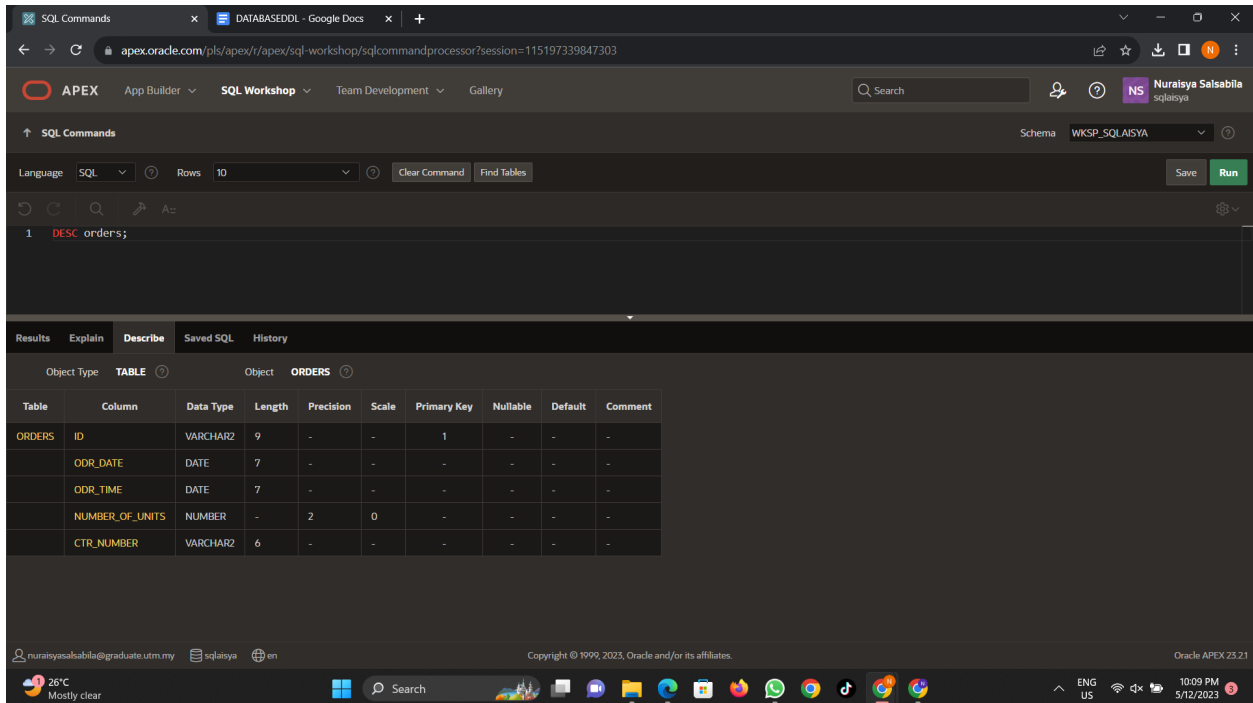
7. What are the 3 columns that make up the primary key for the price_history table?

itm_number, start_date, start_time

PART 2 : UPDATING CONSTRAINTS

Modifying a column

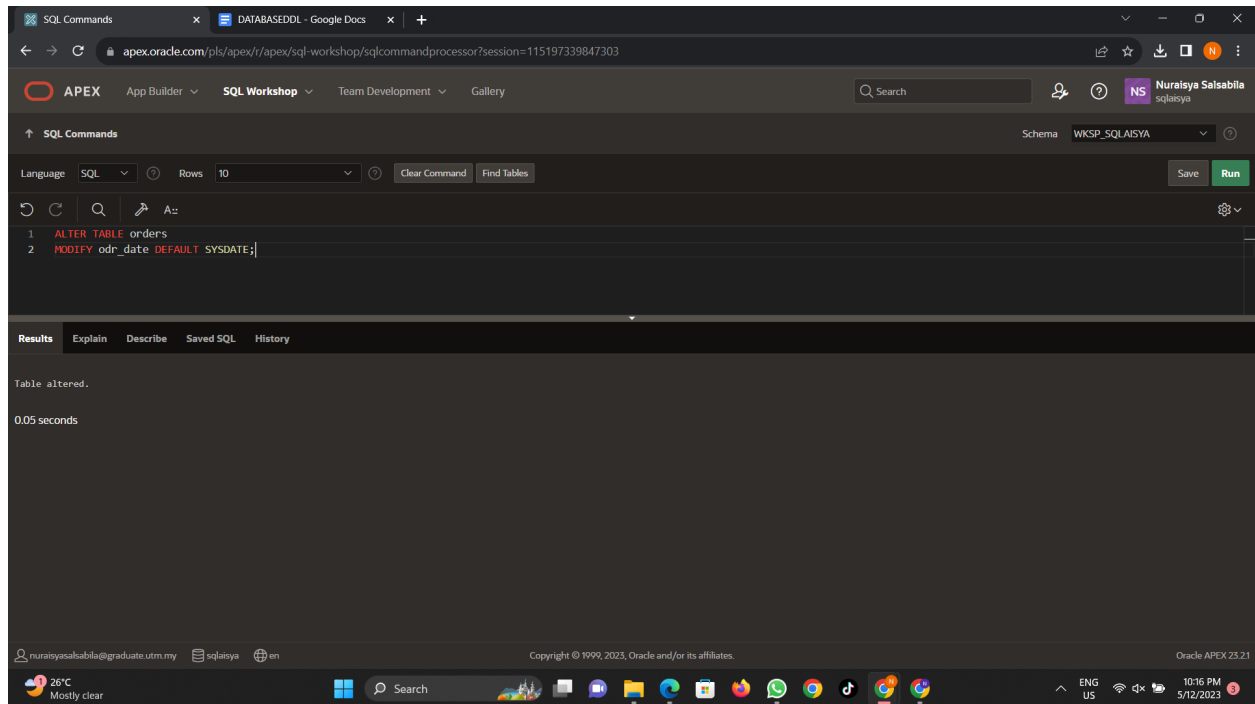
1. Run the DESCRIBE command on the orders table to view its structure.



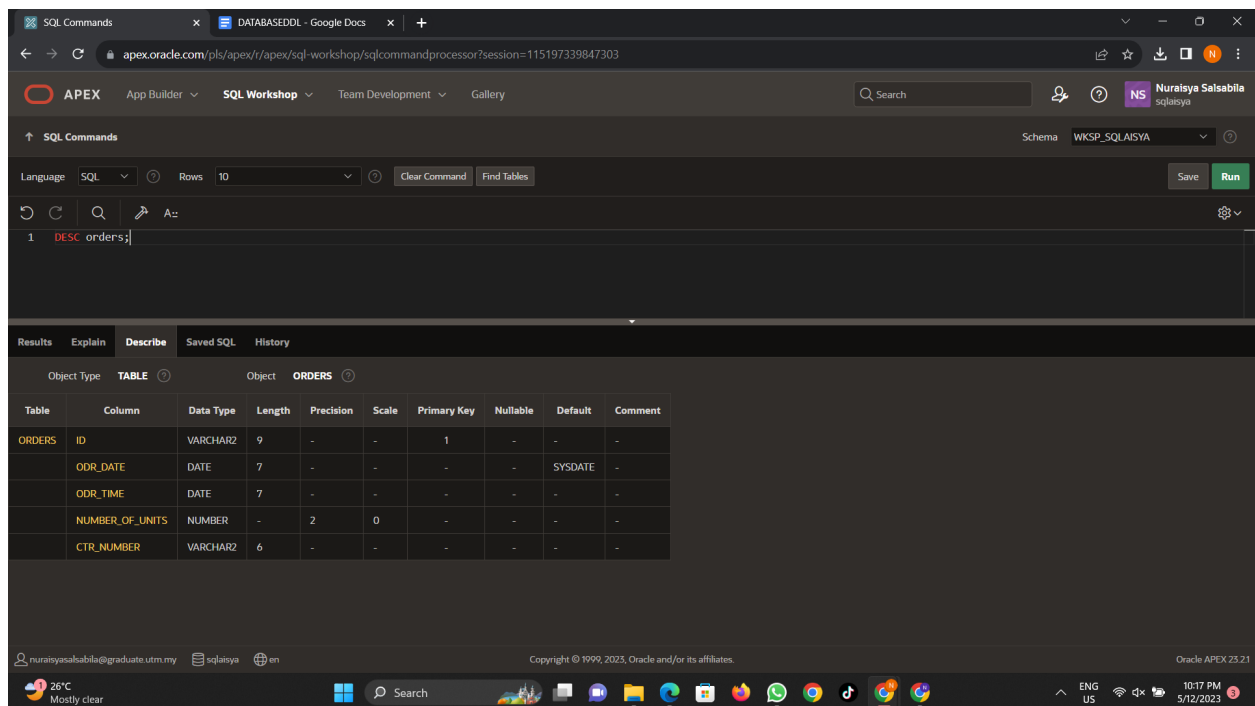
The screenshot shows the Oracle APEX SQL Workshop interface. The SQL Command area contains the command `DESC orders;`. The Results tab is active, displaying the structure of the `ORDERS` table. The table has five columns: `ID` (VARCHAR2, 9, Primary Key), `ODR_DATE` (DATE, 7), `ODR_TIME` (DATE, 7), `NUMBER_OF_UNITS` (NUMBER, 2, 0), and `CTR_NUMBER` (VARCHAR2, 6).

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.



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



Adding a check constraint

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

The screenshot shows the APEX SQL Workshop interface. The 'SQL Commands' tab is active, and the 'DESCRIBE' command has been executed. The results are displayed in a table format, showing the structure of 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	-	-	-	✓	-	-
	LOYALTY_CARD_NUMBER	VARCHAR2	6	-	-	-	✓	-	-

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

The screenshot shows the APEX SQL Workshop interface. The 'SQL Commands' tab is active, and the following command has been executed:

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

The results section shows the message: "Table altered." and the execution time: "0.05 seconds".

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

SQL Commands

apex.oracle.com/pls/apex/f?p=apex/sql-workshop/sqlcommandprocessor:session=115197339847303

APEX App Builder SQL Workshop Team Development Gallery

Schema WKSP_SQLAISYA

Language SQL Rows 10 Clear Command Find Tables Save Run

1 DESC 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	-	-	-	✓	-	-

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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.

Object Browser

apex.oracle.com/pls/apex/f?p=4500:2000:115197339847303

APEX App Builder SQL Workshop Team Development Gallery

Schema WKSP_SQLAISYA

Object Browser

Search Type to filter...

Tables CUSTOMERS

ORDERS

Views

Indexes

Sequences

Types

Packages

Procedures

Functions

Triggers

Database Links

Materialized Views

Synonyms

SODA Collections

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
CURRENT_BALANCE	Check	current_balance=0				ENABL
SYS_C00150708305	Check	"CTR_NUMBER" IS NOT NULL				ENABL
SYS_C00150708306	Check	"EMAIL" IS NOT NULL				ENABL
SYS_C00150708307	Check	"FIRST_NAME" IS NOT NULL				ENABL
SYS_C00150708308	Check	"LAST_NAME" IS NOT NULL				ENABL
SYS_C00150708309	Check	"PHONE_NUMBER" IS NOT NULL				ENABL
SYS_C00150708310	Check	"CURRENT_BALANCE" IS NOT NULL				ENABL
CUSTOMER_PK	Primary			CTR_NUMBER		ENABL
CTR_EMAIL_UK	Unique			EMAIL		ENABL
CTR_LCN_UK	Unique			LOYALTY_CARD_NUMBER		ENABL

1 cells selected 1 - 10 of 10

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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.

The screenshot shows the Oracle APEX SQL Workshop interface. The SQL Commands tab is active, and the command `DESC customers;` has been executed. The results are displayed in a table format under the 'Describe' tab. The table shows the structure of the CUSTOMERS table, including columns, data types, lengths, and constraints.

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

The screenshot shows the Oracle APEX SQL Workshop interface. The SQL Commands tab is active, and the command `ALTER TABLE customers ADD mobilephone_number VARCHAR(11);` has been executed. The results are displayed in a table format under the 'Results' tab, showing that the table was altered successfully.

Results	Explain	Describe	Saved SQL	History
Table altered.				
0.06 seconds				

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

The screenshot shows the Oracle APEX SQL Workshop interface. The command entered is `DESC customers;`. The results are displayed in a table format under the 'Describe' tab.

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.

The screenshot shows the Oracle APEX SQL Workshop interface. The 'SQL Commands' tab is active, and the 'DESCRIBE' command has been executed on the 'CUSTOMERS' table. The results are displayed in a table format.

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.

The screenshot shows the Oracle APEX SQL Workshop interface. The 'SQL Commands' tab is active, and the following SQL commands have been entered and executed:

```

1 ALTER TABLE customers
2 DROP COLUMN mobilephone_number;

```

The results section shows the message 'Table altered.' and the execution time '0.04 seconds'.

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

SQL Commands

DATABASEDDL - Google Docs

apex.oracle.com/pls/apex/f/apex-sql-workshop/sqlcommandprocessor?session=115197339847303

APEX

App Builder

SQL Workshop

Team Development

Gallery

Search

NS

Nuraisyya Salsabila

sqlaisya

SQL Commands

Schema

WKSP_SQLAISYA

Language

SQL

Rows

10

Clear Command

Find Tables

Save

Run

1

DESC 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	-	-	-	✓	-	-

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sqlaisya

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