



**UTM**  
UNIVERSITI TEKNOLOGI MALAYSIA

**FACULTY OF COMPUTING**  
UTM Johor Bahru

## **SECD 2523 –DATABASE**

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### **Lab 2: Data Manipulation Language (DML) 1**

<b>Subject Name:</b>	<b>Database</b>
<b>Subject Code:</b>	<b>SECD2523</b>
<b>Semester:</b>	<b>1 - 2023/24</b>
<b>Lab Title:</b>	<b>Data Manipulation Language(DML)</b>
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<b>Matric Number:</b>	<b>A22EC0279</b>
<b>Date of Submission:</b>	<b>16 December 2023</b>
<b>Lecturer Name:</b>	<b>Dr Noor Hidayah Binti Zakaria</b>

## DML Part 1

### Section 6 Lesson 4 Exercise 1: Data Manipulation Language

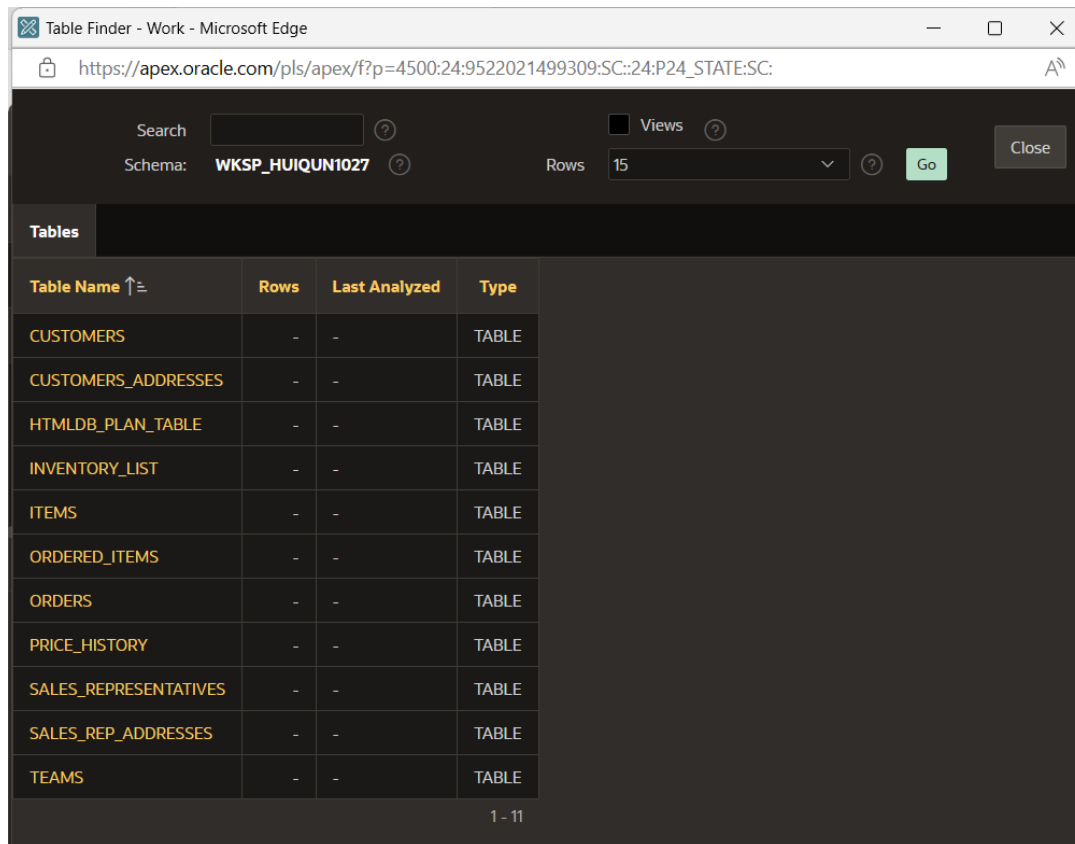
#### Use DML operations to manage database tables (S6L4 Objective 2)

In this exercise you will populate and work with the data that is stored in the database system tables.

#### Part 1 : Running a script to populate the tables.

You have to consider the order of the tables when populating them. A table that has a foreign key field cannot be populated before the related table with the primary key.

1. Use the table mapping document and list the order that you would use to populate the tables.



The screenshot shows the Oracle APEX Table Finder interface in a Microsoft Edge browser. The URL is [https://apex.oracle.com/pls/apex/f?p=4500:24:9522021499309:SC::24:P24\\_STATE:SC:](https://apex.oracle.com/pls/apex/f?p=4500:24:9522021499309:SC::24:P24_STATE:SC:). The interface includes a search bar, a schema dropdown set to 'WKSP\_HUIQUN1027', a rows dropdown set to '15', and a 'Go' button. Below the search bar, there is a 'Tables' tab and a table listing the database tables. The table has columns for 'Table Name', 'Rows', 'Last Analyzed', and 'Type'. The tables listed are: CUSTOMERS, CUSTOMERS\_ADDRESSES, HTMLDB\_PLAN\_TABLE, INVENTORY\_LIST, ITEMS, ORDERED\_ITEMS, ORDERS, PRICE\_HISTORY, SALES\_REPRESENTATIVES, SALES\_REP\_ADDRESSES, and TEAMS. All tables are of type 'TABLE' and have '-' in the 'Rows' and 'Last Analyzed' columns. The page number '1 - 11' is displayed at the bottom right of the table.

Table Name	Rows	Last Analyzed	Type
CUSTOMERS	-	-	TABLE
CUSTOMERS_ADDRESSES	-	-	TABLE
HTMLDB_PLAN_TABLE	-	-	TABLE
INVENTORY_LIST	-	-	TABLE
ITEMS	-	-	TABLE
ORDERED_ITEMS	-	-	TABLE
ORDERS	-	-	TABLE
PRICE_HISTORY	-	-	TABLE
SALES_REPRESENTATIVES	-	-	TABLE
SALES_REP_ADDRESSES	-	-	TABLE
TEAMS	-	-	TABLE

2. Open the “sports data.sql” and look at the order the data is being added there, does your list match? This file can be found in the Section 6 Lesson 4 interaction (sports data.zip) and must first be extracted.

#### Match

3. Run the “sports data.sql” script in APEX to populate your tables
4. Check that no errors occurred when you ran the script.

Part 2- Inserting rows to the system

- 1. Add a new team to the system

id	name	Number_of_players	discount
t004	Jets	10	5

APEX

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SQL Commands

Schema WKSP\_HUIQUN1027

Language SQL

Rows 10

Clear Command

Find Tables

Save

Run

1 INSERT INTO teams (id,name, number\_of\_players, discount)

2 VALUES ('t004','Jets',10,5)

Results

Explain

Describe

Saved SQL

History

1 row(s) inserted.

0.05 seconds

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Object Browser

Schema WKSP\_HUIQUN1027

TEAMS

Columns

Data

Indexes

Constraints

Grants

Statistics

Triggers

Dependencies

DDL

Sample Queries

+ Insert Row

Columns...

Filter...

Count Rows

Load Data

Download

Refresh

ID

NAME

NUMBER\_OF\_PLAYERS

DISCOUNT

t004

Jets

10

5

- 2. Add a new Customer with the following details to the system

ctr number	email	First name	Last name	Phone number	Current balance	Loyalty card number	tem id	sre id
c02001	brianrog@hootech.com	Brian	Rogers	01654564898	-5	lc4587		

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SQL Commands Schema WKSP\_HUIQUN1027

Language SQL Rows 10 Clear Command Find Tables Save Run

```
1 INSERT INTO customers (ctr_number, email, first_name, last_name, phone_number, current_balance, loyalty_card_number)
2 VALUES('c02001', 'brianrog@hoootech.com', 'Brian', 'Rogers', '01654564898', -5, 'lc4587');
```

Results Explain Describe Saved SQL History

ORA-02290: check constraint (WKSP\_HUIQUN1027.CUST\_BAL\_CKECK) violated

0.00 seconds

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3. This information violates the check constraint that the current balance must not be less than zero. Change the current balance to 50 and rerun the query.

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SQL Commands Schema WKSP\_HUIQUN1027

Language SQL Rows 10 Clear Command Find Tables Save Run

```
1 INSERT INTO customers (ctr_number, email, first_name, last_name, phone_number, current_balance, loyalty_card_number)
2 VALUES('c02001', 'brianrog@hoootech.com', 'Brian', 'Rogers', '01654564898', 50, 'lc4587');
```

Results Explain Describe Saved SQL History

1 row(s) inserted.

0.01 seconds

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Object Browser

SchemaWKSP\_HUIQUN1027

CUSTOMERS

ColumnsDataIndexesConstraintsGrantsStatisticsTriggersDependenciesDDLSample Queries

+ Insert RowColumns...Filter...Count RowsLoad DataDownloadRefresh

	CTR_NUMBER	EMAIL	FIRST_NAME	LAST_NAME	PHONE_NUMBER	CURRENT_BALANCE	SRE_ID	TEM_ID	LOYALTY_CARD_NUMBER.
	c02001	brianrog@hootech.com	Brian	Rogers	01654564898	50			lc4587

DML Part 2

Section 6 Lesson 4 Exercise 2: Data Manipulation Language

Use DML operations to manage database tables (S6L4 Objective 2)

In this exercise you will populate and work with the data that is stored in the database system.

Part 1- Updating rows to the system

- 1. Run the following query to view the content of the price\_history table:

```
SELECT start_date, TO_CHAR (start_time, 'HH24:MI:SS'), price, end_date, TO_CHAR
(end_time, 'HH24:MI')
FROM price_history;
```

APEX

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Search

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SQL Commands

SchemaWKSP\_HUIQUN1027

LanguageSQLRows10Clear CommandFind TablesSaveRun

1SELECT start\_date, TO\_CHAR (start\_time, 'HH24:MI:SS'), price, end\_date, TO\_CHAR (end\_time, 'HH24:MI')

2FROM price\_history;

3

ResultsExplainDescribeSaved SQLHistory

START_DATE	TO_CHAR(START_TIME,'HH24:MI:SS')	PRICE	END_DATE	TO_CHAR(END_TIME,'HH24:MI')
01/25/2017	17:01:00	8.99	01/25/2017	19:00
06/17/2017	09:00:00	4.99	-	-
04/25/2017	10:10:10	24.99	-	-
11/25/2016	09:00:00	14.99	01/25/2017	17:00
01/26/2017	09:00:00	15.99	-	-
02/12/2017	12:30:00	7.99	-	-
05/31/2017	16:35:30	14.9	-	-

7 rows returned in 0.02 secondsDownload

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Oracle APEX 23.21

- Obl is going to update the price of the premium bat so you will need to write a query that will close off the current price by adding the system date values to the end\_date and end\_time fields. To run this query you will need to both match the item number and identify that the end date is null. This ensures that you are updating the latest price.

The screenshot shows the APEX SQL Workshop interface. The top navigation bar includes 'APEX', 'App Builder', 'SQL Workshop', 'Team Development', and 'Gallery'. A search bar and user profile 'TAN HUI QUN' are on the right. The 'SQL Commands' panel is active, showing a query to update the 'price\_history' table. The query sets 'end\_date' and 'end\_time' to 'SYSDATE' for the row where 'itm\_number' is 'im01101045' and 'end\_date' is null. The 'Results' tab shows '1 row(s) updated.' and '0.01seconds'.

```
1 UPDATE price_history
2 SET end_date = SYSDATE, end_time = SYSDATE
3 WHERE itm_number = 'im01101045' AND end_date is null
```

Results: 1 row(s) updated.  
0.01seconds

- Rerun the select statement on the price\_history table to ensure that the statement has been executed.

The screenshot shows the APEX SQL Workshop interface with a SELECT query executed. The query selects 'start\_date', 'TO\_CHAR(start\_time, 'HH24:MI:SS')', 'price', 'end\_date', and 'TO\_CHAR(end\_time, 'HH24:MI')' from the 'price\_history' table. The 'Results' tab displays a table with 7 rows of data.

```
1 SELECT start_date, TO_CHAR (start_time, 'HH24:MI:SS'), price, end_date, TO_CHAR (end_time, 'HH24:MI')
2 FROM price_history;
```

START_DATE	TO_CHAR(START_TIME,'HH24:MI:SS')	PRICE	END_DATE	TO_CHAR(END_TIME,'HH24:MI')
01/25/2017	17:01:00	8.99	01/25/2017	19:00
06/17/2017	09:00:00	4.99	-	-
04/25/2017	10:10:10	24.99	-	-
11/25/2016	09:00:00	14.99	01/25/2017	17:00
01/26/2017	09:00:00	15.99	12/16/2023	08:01
02/12/2017	12:30:00	7.99	-	-
05/31/2017	16:35:30	149	-	-

7 rows returned in 0.01 seconds [Download](#)

- Insert a new row that will use the current date and time to set the new price of the premium bat to be 99.99.

The screenshot shows the APEX SQL Workshop interface. The 'SQL Commands' tab is active, displaying the following SQL statement:

```
1 INSERT INTO price_history (start_date, start_time, price, itm_number)
2 VALUES(SYSDATE, SYSDATE, 99.99, 'im01101048')
```

The 'Results' tab is selected, showing the execution output:

```
1 row(s) inserted.
0.00 seconds
```

- Rerun the select statement on the price\_history table to ensure that the statement has been executed.

The screenshot shows the APEX SQL Workshop interface. The 'SQL Commands' tab is active, displaying the following SQL statement:

```
1 SELECT start_date, TO_CHAR (start_time, 'HH24:MI:SS'), price, end_date, TO_CHAR (end_time, 'HH24:MI')
2 FROM price_history;
```

The 'Results' tab is selected, showing the execution output as a table with 8 rows:

START_DATE	TO_CHAR(START_TIME,'HH24:MI:SS')	PRICE	END_DATE	TO_CHAR(END_TIME,'HH24:MI')
01/25/2017	17:01:00	8.99	01/25/2017	19:00
06/17/2017	09:00:00	4.99	-	-
04/25/2017	10:10:10	24.99	-	-
11/25/2016	09:00:00	14.99	01/25/2017	17:00
01/26/2017	09:00:00	15.99	12/16/2023	08:01
02/12/2017	12:30:00	7.99	-	-
05/31/2017	16:35:30	149	-	-
12/16/2023	08:04:03	99.99	-	-

8 rows returned in 0.00 seconds



Part 2: Deleting rows from the system

- 1. Bob Thornberry has contacted Obl to ask that the 83 Barrhill Drive address be removed from the system as he can longer receive parcels at this address. Write a SQL statement that will remove this address from the system.

APEX

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Search

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SQL Commands

Schema

WKSP\_HUIQUN1027

Language

SQL

Rows

10

Clear Command

Find Tables

Save

Run

1

DELETE FROM customers\_addresses

2

WHERE id = 'ca0101'

Results

Explain

Describe

Saved SQL

History

1 row(s) deleted.

0.01seconds

- 2. Run a select statement on the customers\_addresses table to ensure that the statement has been executed.

APEX

App Builder

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Search

TAN HUI QUN

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SQL Commands

Schema

WKSP\_HUIQUN1027

Language

SQL

Rows

10

Clear Command

Find Tables

Save

Run

1

SELECT \* FROM customers\_addresses

Results

Explain

Describe

Saved SQL

History

ID	ADDRESS_LINE_1	ADDRESS_LINE_2	CITY	ZIP_CODE	CTR_NUMBER
ca0103	54 Ropehill Crescent	Georgetown	Star	ST45AGV	c00101
ca0102	17 Gartsquare Road	Starford	Liverpool	LP89JHK	c00001
ca0105	63 Acacia Drive	Skins	Liverpool	LP83JHR	c00001
ca0104	36 Watercress Lane	-	Jump	JP23YTH	c01986

4 rows returned in 0.02 seconds

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