



UTM
UNIVERSITI TEKNOLOGI MALAYSIA

**DATABASE
SECD2523 (SECTION 1)
SEMESTER 1- 2023/2024**

**LAB DML-1
DFo_6_4_1_Project**

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

Answer :

1. inventory_list
2. item
3. price_history
4. sales_representatives
5. sales_representatives_addresses
6. teams
7. customers
8. customer_addressses
9. orders
10. ordered_items

Number ↑	Elapsed	Statement	Feedback	Rows
16	0.01	INSERT INTO price_history (start_date, start_time, price, it	1 row(s) inserted.	1
17	0.00	INSERT INTO price_history (start_date, start_time, price, it	1 row(s) inserted.	1
18	0.04	INSERT INTO sales_representatives (id, email, first_name, la	1 row(s) inserted.	1
19	0.00	INSERT INTO sales_representatives (id, email, first_name, la	1 row(s) inserted.	1
20	0.00	INSERT INTO sales_representatives (id, email, first_name, la	1 row(s) inserted.	1
21	0.03	INSERT INTO sales_rep_addresses (id, address_line_1, address	1 row(s) inserted.	1
22	0.00	INSERT INTO sales_rep_addresses (id, address_line_1, address	1 row(s) inserted.	1
23	0.00	INSERT INTO sales_rep_addresses (id, address_line_1, address	1 row(s) inserted.	1
24	0.02	INSERT INTO teams (id, name, number_of_players, discount) VA	1 row(s) inserted.	1
25	0.00	INSERT INTO teams (id, name, number_of_players, discount) VA	1 row(s) inserted.	1
26	0.01	INSERT INTO teams (id, name, number_of_players, discount) VA	1 row(s) inserted.	1
27	0.05	INSERT INTO customers (ctr_number, email, first_name, last_n	1 row(s) inserted.	1
28	0.00	INSERT INTO customers (ctr_number, email, first_name, last_n	1 row(s) inserted.	1
29	0.00	INSERT INTO customers (ctr_number, email, first_name, last_n	1 row(s) inserted.	1
30	0.01	INSERT INTO customers (ctr_number, email, first_name, last_n	1 row(s) inserted.	1
Download				
◀ Previous row(s) 16 - 30 of 47 Next ▶				
47		47		0
Statements Processed		Successful		With Errors
amaliayasmin@graduate.utm.my amalia@yasmin23 en Copyright © 1999, 2023, Oracle and/or its affiliates. Oracle APEX 23.2.0-17				

Part 2 - Inserting rows to the system

1. Add a new team to the system.

```
INSERT INTO TEAM (id, name, number_of_players, discount)
VALUES('t004', 'Jets', 10, 5);
```

The screenshot shows the APEX SQL Workshop interface. The 'SQL Commands' tab is active, displaying a list of SQL statements. The statement on line 80, `INSERT INTO teams (id, name, number_of_players, discount) VALUES('t004', 'Jets', 10, 5);`, is highlighted. Below the editor, the 'Results' tab shows '1 row(s) inserted.' and '0.00 seconds'.

```
71 INSERT INTO teams (id, name, number_of_players, discount)
72 VALUES('t001', 'Rockets', 25, 10);
73
74 INSERT INTO teams (id, name, number_of_players, discount)
75 VALUES('t002', 'Celtics', 42, 20);
76
77 INSERT INTO teams (id, name, number_of_players, discount)
78 VALUES('t003', 'Rovers', 8, null);
79
80 INSERT INTO teams (id, name, number_of_players, discount)
81 VALUES('t004', 'Jets', 10, 5);
82
83 INSERT INTO customers (ctr_number, email, first_name, last_name, phone_number, current_balance, sre_id, tem_id, loyalty_card_number)
84 VALUES('c00001', 'bob.thornberry@heatmail.com', 'Robert', 'Thornberry', '01234567898', 150.00, 'sr01', 't001', null);
85
86 INSERT INTO customers (ctr_number, email, first_name, last_name, phone_number, current_balance, loyalty_card_number)
87 VALUES('c00012', 'jjones@freemail.com', 'Jennifer', 'Jones', '01505214598', 0.00, 'lc1015');
```

Results: 1 row(s) inserted.
0.00 seconds

The screenshot shows the APEX Object Browser interface. The 'TEAMS' table is selected, and the 'Data' tab is active. The table contains four rows of data:

ID	NAME	NUMBER_OF_PLAYERS	DISCOUNT
t004	Jets	10	5
t001	Rockets	25	10
t002	Celtics	42	20
t003	Rovers	8	

The interface also shows a sidebar with a list of database objects, including CUSTOMERS, INVENTORY_LIST, ORDERED_ITEMS, ORDERS, PRICE_HISTORY, SALES_REPRESENTATIVE, SALES_REP_ADDRESSES, TEAMS, Views, Indexes, Sequences, Types, Packages, Procedures, Functions, Triggers, and Database Links.

2. Add a new customer with the following details to the system

```
INSERT INTO customers (ctr_number, email, first_name, last_name, phone_number,  
current_balance, loyalty_card_number)  
VALUES('c00103', 'MurciaA@globaltech.com', 'Andrew', 'Murcia', '07715246890',  
85.00, 'lc2341');
```

The screenshot shows the Oracle APEX SQL Workshop interface. The 'SQL Commands' tab is active, displaying a series of SQL statements. The most recent statement, highlighted in blue, is an INSERT into the 'customers' table. The execution results show '1 row(s) inserted.' and a duration of '0.03 seconds'.

```
88  
89 INSERT INTO customers (ctr_number, email, first_name, last_name, phone_number, current_balance, loyalty_card_number)  
90 VALUES('c00103', 'MurciaA@globaltech.com', 'Andrew', 'Murcia', '07715246890', 85.00, 'lc2341');  
91  
92 INSERT INTO customers (ctr_number, email, first_name, last_name, phone_number, current_balance, sre_id, tem_id)  
93 VALUES('c01986', 'margal87@delphiview.com', 'Maria', 'Galant', '01442736589', 125.65  
94 , 'sr03', 't003');  
95  
96 INSERT INTO customers (ctr_number, email, first_name, last_name, phone_number, current_balance, loyalty_card_number)  
97 VALUES('c02001', 'brianrog@hootech.com', 'Brian', 'Rogers', '01654564898', -5, 'lc4587');  
98  
99 INSERT INTO customers_addresses (id, address_line_1, address_line_2, city, zip_code, ctr_number)  
100 VALUES('ca0101', '83 Barrhill Drive', null, 'Liverpool', 'LP79HJK', 'c00001');  
101  
102 INSERT INTO customers_addresses (id, address_line_1, address_line_2, city, zip_code, ctr_number)  
103 VALUES('ca0102', '17 Gartsquare Road', 'Starford', 'Liverpool', 'LP89JHK', 'c00001');  
104
```

Results: 1 row(s) inserted.
0.03 seconds

The screenshot shows the Oracle APEX Object Browser interface. The 'CUSTOMERS' table is selected, and the 'Data' tab is active. The table contains 6 rows of data. The first row is highlighted in blue.

	CTR_NUMBER	EMAIL	FIRST_NAME	LAST_NAME	PHONE_NUMBER	CURRENT_BALANCE	SRE_ID	TEM_ID	LOYALTY_CARD_NUMBER
	c02001	brianrog@hootec...	Brian	Rogers	01654564898	-5			lc4587
	c00001	bob.thornberry@...	Robert	Thornberry	01234567898	150	sr01	t001	
	c00012	Jjones@freemail...	Jennifer	Jones	01505214598	0			lc1015
	c00101	unknown@here.c...	John	Doe	03216547808	987.5	sr01	t002	
	c00103	MurciaA@globalt...	Andrew	Murcia	07715246890	85			lc2341
	c01986	margal87@delphi...	Maria	Galant	01442736589	125.65	sr03	t003	

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.

```
UPDATE customers
SET current_balance = 50
WHERE current_balance < 0;
```

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

```
143 VALUES(10, 10, 'or0101681', 'im01101047');
144
145 INSERT INTO ordered_items (quantity_ordered, quantity_shipped, odr_id, itm_number)
146 VALUES(1, 1, 'or0101750', 'im01101048');
147
148 UPDATE customers
149 SET current_balance = 50
150 WHERE current_balance < 0;
151
```

The Results tab shows the execution outcome:

1 row(s) updated.
0.02 seconds

The screenshot shows the APEX Object Browser interface. The CUSTOMERS table is selected, and the Data tab is active, displaying the following data:

CTR_NUMBER	EMAIL	FIRST_NAME	LAST_NAME	PHONE_NUMBER	CURRENT_BALANCE	SRE_ID	TEM_ID	LOYALTY_CARD_NUMBER
c02001	brianrog@hootec...	Brian	Rogers	01654564898	50			lc4587
c00001	bob.thornberry@...	Robert	Thornberry	01234567898	150	sr01	1001	
c00012	ljones@freemail...	Jennifer	Jones	01505214598	0			lc1015
c00101	unknown@here.c...	John	Doe	03216547808	9875	sr01	1002	
c00103	MurciaA@globalt...	Andrew	Murcia	07715246890	85			lc2341
c01986	margal87@delphi...	Maria	Galant	01442736589	125.65	sr03	1003	

1 cells selected

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;
```

The screenshot shows the APEX SQL Workshop interface. The SQL Commands pane contains the following query:

```
VALUES(1, 1, 'or0101750', 'im01101048');  
SELECT start_date, TO_CHAR (start_time, 'HH24:MI:SS'), price, end_date, TO_CHAR  
(end_time, 'HH24:MI')  
FROM price_history;
```

The Results pane shows the following data:

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

7 rows returned in 0.03 seconds

2. 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.

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

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 'Amalia Yasmin' are on the right. The 'SQL Commands' tab is active, showing a list of commands. The command editor contains the following SQL code:

```
149 (end_time, 'HH24:MI')
150 FROM price_history;
151
152 UPDATE price_history
153 SET end_date = SYSDATE, end_time = SYSDATE
154 WHERE itm_number = 'im01101045' AND end_date IS null;
```

The 'Results' tab shows the execution outcome:

```
1 row(s) updated.
0.03 seconds
```

The footer includes the user email 'amaliayasmin@graduate.utm.my', the username 'amalia@yasmin123', and the Oracle APEX version '23.2.0-20'.

3. 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 the 'SQL Commands' tab active. The command editor contains the following SQL code:

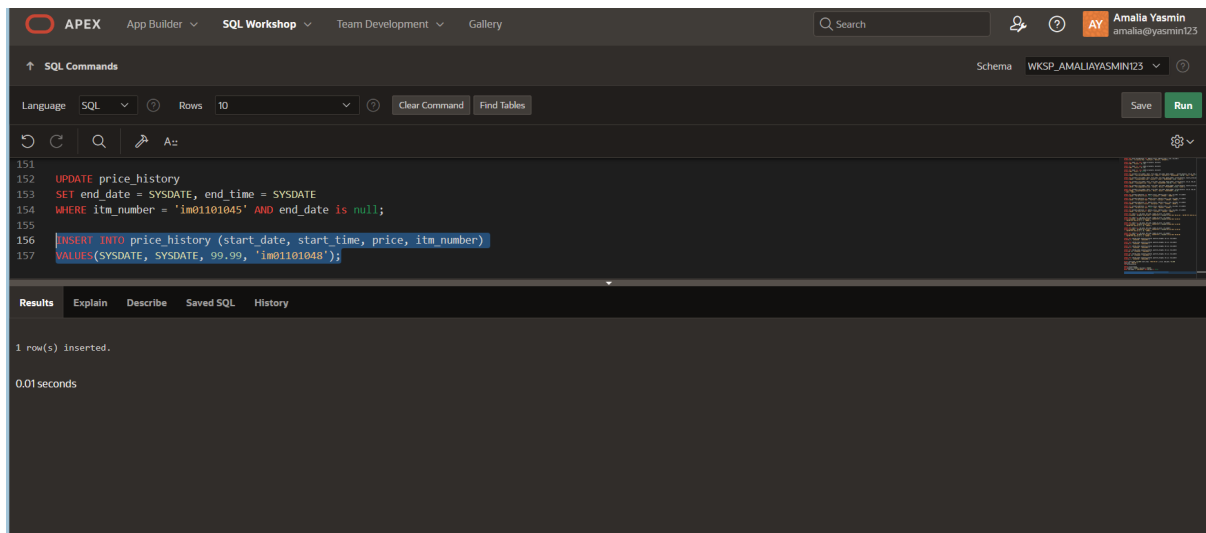
```
147
148 SELECT start_date, TO_CHAR(start_time, 'HH24:MI:SS'), price, end_date, TO_CHAR
149 (end_time, 'HH24:MI')
150 FROM price_history;
151
152 UPDATE price_history
153 SET end_date = SYSDATE, end_time = SYSDATE
154 WHERE itm_number = 'im01101045' AND end_date IS null;
```

The 'Results' tab displays the execution results in a table format:

START_DATE	TO_CHAR(START_TIME, 'HH24:MI:SS')	PRICE	END_DATE	TO_CHAR(END_TIME, 'HH24:MI')
06/11/2017	09:00:00	4.99	-	-
11/25/2016	09:00:00	14.99	01/25/2017	17:00
01/25/2017	17:01:00	8.99	01/25/2017	19:00
01/26/2017	09:00:00	15.99	11/09/2023	15:58
02/12/2017	12:30:00	7.99	-	-
04/25/2017	10:10:10	24.99	-	-
05/31/2017	16:35:30	14.99	-	-

Below the table, it states '7 rows returned in 0.00 seconds' and provides a 'Download' link. The footer includes the user email 'amaliayasmin@graduate.utm.my', the username 'amalia@yasmin123', and the Oracle APEX version '23.2.0-20'.

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

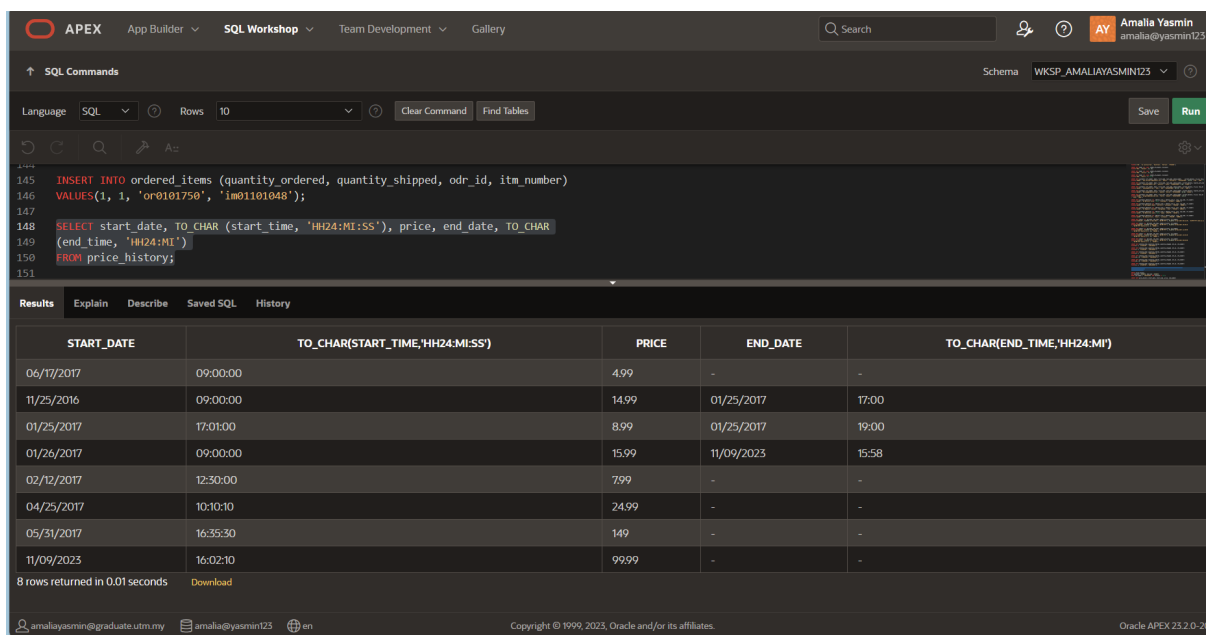


The screenshot shows the APEX SQL Workshop interface. The SQL Commands pane contains the following code:

```
151
152 UPDATE price_history
153 SET end_date = SYSDATE, end_time = SYSDATE
154 WHERE itm_number = 'im01101045' AND end_date is null;
155
156 INSERT INTO price_history (start_date, start_time, price, itm_number)
157 VALUES(SYSDATE, SYSDATE, 99.99, 'im01101048');
```

The Results pane shows: 1 row(s) inserted. 0.01 seconds.

5. 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 pane contains the following code:

```
145 INSERT INTO ordered_items (quantity_ordered, quantity_shipped, odr_id, itm_number)
146 VALUES(1, 1, 'or0101750', 'im01101048');
147
148 SELECT start_date, TO_CHAR(start_time, 'HH24:MI:SS'), price, end_date, TO_CHAR
149 (end_time, 'HH24:MI')
150 FROM price_history;
151
```

The Results pane shows a table with 8 rows returned in 0.01 seconds. The table has the following columns: START_DATE, TO_CHAR(START_TIME, HH24:MI:SS), PRICE, END_DATE, and TO_CHAR(END_TIME, HH24:MI').

START_DATE	TO_CHAR(START_TIME, HH24:MI:SS)	PRICE	END_DATE	TO_CHAR(END_TIME, HH24:MI')
06/11/2017	09:00:00	4.99	-	-
11/25/2016	09:00:00	14.99	01/25/2017	17:00
01/25/2017	17:01:00	8.99	01/25/2017	19:00
01/26/2017	09:00:00	15.99	11/09/2023	15:58
02/12/2017	12:30:00	7.99	-	-
04/25/2017	10:10:10	24.99	-	-
05/31/2017	16:35:30	149	-	-
11/09/2023	16:02:10	99.99	-	-

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 no longer receive parcels at this address. Write a SQL statement that will remove this address from the system.

```
DELETE FROM customers_addresses  
WHERE id = 'ca0101';
```

The screenshot shows the APEX SQL Workshop interface. The SQL Commands pane contains the following code:

```
157 VALUES(SYSDATE, SYSDATE, 99.99, 'im01101048');  
158  
159 DELETE FROM customers_addresses  
160 WHERE id = 'ca0101';
```

The Results pane shows the execution outcome:

```
1 row(s) deleted.  
0.03 seconds
```

2. Run a select statement on the customers_addresses table to ensure that the statement has been executed.

```
SELECT * FROM customers_addresses
```

The screenshot shows the APEX SQL Workshop interface. The SQL Commands pane contains the following code:

```
157 VALUES(SYSDATE, SYSDATE, 99.99, 'im01101048');  
158  
159 DELETE FROM customers_addresses  
160 WHERE id = 'ca0101';  
161  
162 SELECT * FROM customers_addresses
```

The Results pane shows the execution outcome:

```
4 rows returned in 0.02 seconds
```

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