UTM UNIVERSITI TEKNOLOGI MALAYSIA

FACULTY OF COMPUTING
UTM Johor Bahru

SECD2523-DATABASE

Lab 2: DML 1 -Part 1

LECTURER: Dr Noor Hidayah binti Zakaria

NAME: Yaseen Mohamed

MATRIC: A22EC4016

Section: 08

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 bepopulated 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.
    - *inventory_list* • *items*
    - *price_history*
    - *sales_representatives*
    - *sales_rep_addresses*
    - *teams*
    - *customers*
    - *customers_addresses*
    - *Orders*
    - *ordered_items*

```sql
CREATE TABLE inventory_list (
    id       VARCHAR2(11) NOT NULL,
    cost     NUMBER(7,2) NOT NULL,
    units    NUMBER(4) NOT NULL,
    CONSTRAINT inventory_list_pk PRIMARY KEY ( id )
);
```

Results | Explain | Describe | Saved SQL | History

```
Table created.
```

0.08 seconds

```sql
CREATE TABLE items (
    itm_number    VARCHAR2(10) NOT NULL,
    name          VARCHAR2(20) NOT NULL,
    description   VARCHAR2(50) NOT NULL,
    category      VARCHAR2(25) NOT NULL,
    color         VARCHAR2(15),
    "Size"        CHAR(1),
    ilt_id        VARCHAR2(11) NOT NULL,
    CONSTRAINT item_pk PRIMARY KEY ( itm_number )
);
```

Results | Explain | Describe | Saved SQL | History

Table created.

0.05 seconds

```sql
CREATE TABLE price_history (
    start_date   DATE NOT NULL,
    start_time   DATE NOT NULL,
    price        NUMBER(7,2) NOT NULL,
    end_date     DATE,
    end_time     DATE,
    itm_number   VARCHAR2(10) NOT NULL,
    CONSTRAINT price_history_pk PRIMARY KEY ( itm_number, start_date, start_time ),
    CONSTRAINT price_history_items_fk FOREIGN KEY ( itm_number ) REFERENCES items ( itm_number )

);
```

Results | Explain | Describe | Saved SQL | History

Table created.

0.06 seconds

```sql
CREATE TABLE sales_representatives (
    id               VARCHAR2(4) NOT NULL,
    email            VARCHAR2(50) NOT NULL,
    first_name       VARCHAR2(20) NOT NULL,
    last_name        VARCHAR2(30) NOT NULL,
    phone_number     VARCHAR2(11) NOT NULL,
    commission_rate   NUMBER(2) NOT NULL,
    supervisor_id    VARCHAR2(4) NOT NULL,
    CONSTRAINT sales_representative_pk PRIMARY KEY ( id ),
    CONSTRAINT sre_email_uk UNIQUE (email)
);
```

Results | Explain | Describe | Saved SQL | History

Table created.

0.06 seconds

```sql
CREATE TABLE sales_rep_addresses (
    id              VARCHAR2(4) NOT NULL,
    address_line_1  VARCHAR2(30) NOT NULL,
    address_line_2  VARCHAR2(30),
    city            VARCHAR2(15) NOT NULL,
    zip_code        VARCHAR2(7) NOT NULL,
    CONSTRAINT sales_rep_address_pk PRIMARY KEY ( id )
);
```

Results | Explain | Describe | Saved SQL | History

```
Table created.
```

0.05 seconds

```sql
CREATE TABLE teams (
    id                  VARCHAR2(4) NOT NULL,
    name                VARCHAR2(20) NOT NULL,
    number_of_players   NUMBER(2) NOT NULL,
    discount            NUMBER(2),
    CONSTRAINT team_pk PRIMARY KEY ( id )
);
```

```sql
CREATE TABLE customers (
    ctr_number          VARCHAR2(6) NOT NULL,
    email               VARCHAR2(50) NOT NULL,
    first_name          VARCHAR2(20) NOT NULL,
    last_name           VARCHAR2(30) NOT NULL,
    phone_number        VARCHAR2(11) NOT NULL,
    current_balance     NUMBER(6,2) NOT NULL,
    sre_id              VARCHAR2(4),
    tem_id              VARCHAR2(4),
    loyalty_card_number VARCHAR2(6),
    CONSTRAINT customer_pk PRIMARY KEY ( ctr_number ),
    CONSTRAINT ctr_email_uk UNIQUE (email),
    CONSTRAINT ctr_lcn_uk UNIQUE (loyalty_card_number)
);
```

```sql
CREATE TABLE customers_addresses (
    id              VARCHAR2(8) NOT NULL,
    address_line_1  VARCHAR2(30) NOT NULL,
    address_line_2  VARCHAR2(30),
    city            VARCHAR2(15) NOT NULL,
    zip_code        VARCHAR2(7) NOT NULL,
    ctr_number      VARCHAR2(6) NOT NULL,
    CONSTRAINT customer_address_pk PRIMARY KEY ( id )
);
```

```sql
CREATE TABLE orders (
    id               VARCHAR2(9) NOT NULL,
    odr_date         DATE NOT NULL,
    odr_time         DATE NOT NULL,
    number_of_units  NUMBER(2) NOT NULL,
    ctr_number       VARCHAR2(6) NOT NULL,
    CONSTRAINT orders_pk PRIMARY KEY ( id )
);
```

Results | Explain | Describe | Saved SQL | History

```
Table created.

0.06 seconds
```

```sql
CREATE TABLE ordered_items (
    quantity_ordered   NUMBER(3) NOT NULL,
    quantity_shipped   NUMBER(3) NOT NULL,
    itm_number         VARCHAR2(10) NOT NULL,
    odr_id             VARCHAR2(9) NOT NULL,
    CONSTRAINT ordered_item_pk PRIMARY KEY ( itm_number,odr_id )
);
```

```sql
ALTER TABLE customers_addresses ADD CONSTRAINT customer_address_customer_fk FOREIGN KEY ( ctr_number )
    REFERENCES customers ( ctr_number );
```

```sql
ALTER TABLE customers ADD CONSTRAINT customer_sales_rep_fk FOREIGN KEY ( sre_id )
    REFERENCES sales_representatives ( id );
```

```sql
ALTER TABLE customers ADD CONSTRAINT customer_team_fk FOREIGN KEY ( tem_id )
    REFERENCES teams ( id );
```

```sql
ALTER TABLE items ADD CONSTRAINT item_inventory_list_fk FOREIGN KEY ( ilt_id )
    REFERENCES inventory_list ( id );
```

Results | Explain | Describe | Saved SQL | History

```
Table altered.
```

0.06 seconds

```sql
ALTER TABLE orders ADD CONSTRAINT order_customer_fk FOREIGN KEY ( ctr_number )
    REFERENCES customers ( ctr_number );
```

```sql
ALTER TABLE ordered_items ADD CONSTRAINT ordered_item_item_fk FOREIGN KEY ( itm_number )
    REFERENCES items ( itm_number );
```

```sql
ALTER TABLE ordered_items ADD CONSTRAINT ordered_item_order_fk FOREIGN KEY ( odr_id )
    REFERENCES orders ( id );
```

Results | Explain | Describe | Saved SQL | History

```
Table altered.
```

0.05 seconds

```sql
ALTER TABLE sales_rep_addresses ADD CONSTRAINT sales_rep_add_sales_rep_fk FOREIGN KEY ( id )
    REFERENCES sales_representatives ( id );
```

```sql
ALTER TABLE sales_representatives ADD CONSTRAINT sales_rep_sales_rep_fk FOREIGN KEY ( supervisor_id ) REFERENCES sales_representatives ( id );
```

```sql
CREATE OR REPLACE TRIGGER fkntm_orders BEFORE
    UPDATE OF ctr_number ON orders
BEGIN
    raise_application_error(
        -20225,
        'Non Transferable FK constraint  on table orders is violated'
    );
END;
```

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.

   Yes

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

SQL Scripts \ Results

Script: sports data.sql Status: Complete

View: Detail Summary Rows 15 Go Create App Edit Script

Number	Elapsed	Statement	Feedback	Rows
1	0.03	INSERT INTO inventory_list (id, cost, units) VALUES('il01023	1 row(s) inserted.	1
2	0.00	INSERT INTO inventory_list (id, cost, units) VALUES('il01023	1 row(s) inserted.	1
3	0.01	INSERT INTO inventory_list (id, cost, units) VALUES('il01023	1 row(s) inserted.	1
4	0.00	INSERT INTO inventory_list (id, cost, units) VALUES('il01023	1 row(s) inserted.	1
5	0.00	INSERT INTO inventory_list (id, cost, units) VALUES('il01023	1 row(s) inserted.	1
6	0.02	INSERT INTO items (itm_number, name, description, category,	1 row(s) inserted.	1
7	0.00	INSERT INTO items (itm_number, name, description, category,	1 row(s) inserted.	1
8	0.00	INSERT INTO items (itm_number, name, description, category,	1 row(s) inserted.	1
9	0.00	INSERT INTO items (itm_number, name, description, category,	1 row(s) inserted.	1
10	0.00	INSERT INTO items (itm_number, name, description, category,	1 row(s) inserted.	1
11	0.02	INSERT INTO price_history (start_date, start_time, price, it	1 row(s) inserted.	1
12	0.00	INSERT INTO price_history (start_date, start_time, price, en	1 row(s) inserted.	1
13	0.01	INSERT INTO price_history (start_date, start_time, price, en	1 row(s) inserted.	1
14	0.00	INSERT INTO price_history (start_date, start_time, price, it	1 row(s) inserted.	1
15	0.00	INSERT INTO price_history (start_date, start_time, price, it	1 row(s) inserted.	1

Download

row(s) 1 - 15 of 47 Next ▶

47	47	0
Statements Processed	Successful	With Errors

Part 2- Inserting rows to the system

1. Add a new team to the system

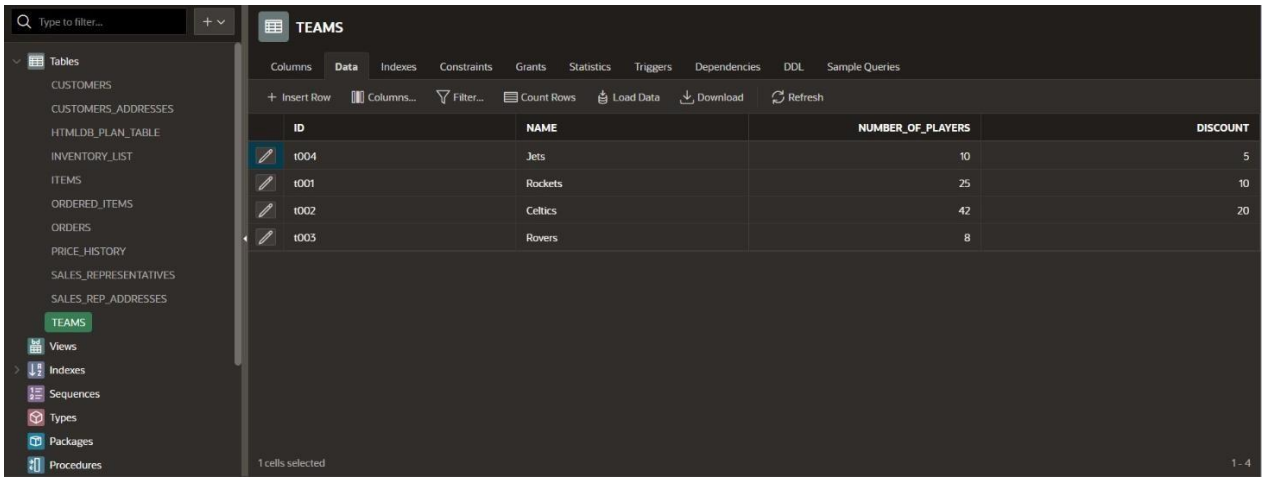
id	name	Number_of_players	discount
t004	Jets	10	5

```sql
INSERT INTO teams(id, name, Number_of_players, discount)
VALUES ('t004', 'Jets', '10', '5')
```

Results | Explain | Describe | Saved SQL | History

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

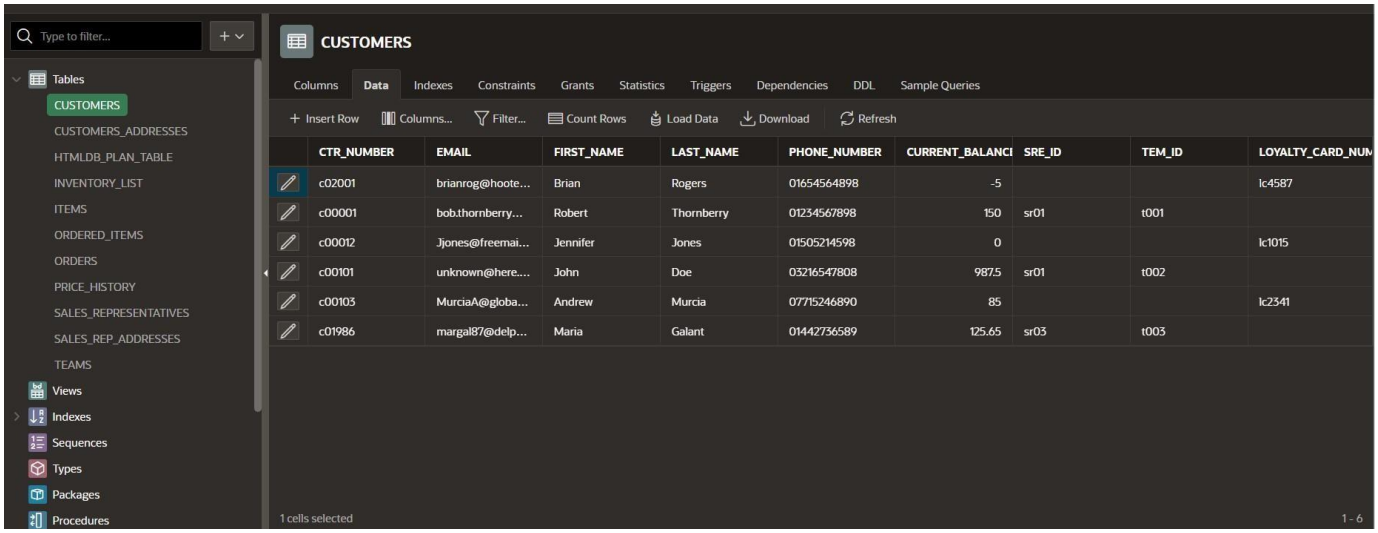
0.02 seconds



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	team id	sre id
c02001	brianrog@hootech.com	Brian	Rogers	01654564898	-5	lc4587		

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



CTR_NUMBER	EMAIL	FIRST_NAME	LAST_NAME	PHONE_NUMBER	CURRENT_BALANCI	SRE_ID	TEM_ID	LOYALTY_CARD_NUM
c02001	brianrog@hoote...	Brian	Rogers	01654564898	-5			lc4587
c00001	bob.thornberry...	Robert	Thornberry	01234567898	150	sr01	t001	
c00012	Jjones@freemai...	Jennifer	Jones	01505214598	0			lc1015
c00101	unknown@here....	John	Doe	03216547808	987.5	sr01	t002	
c00103	MurciaA@globa...	Andrew	Murcia	07715246890	85			lc2341
c01986	margal87@delp...	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 thecurrent balance to 50 and rerun the query.

```
ALTER TABLE customers
ADD CHECK (CURRENT_BALANCE >= 0)
```

Results | Explain | Describe | Saved SQL | History

ORA-02293: cannot validate (WKSP_SC123.) - check constraint violated

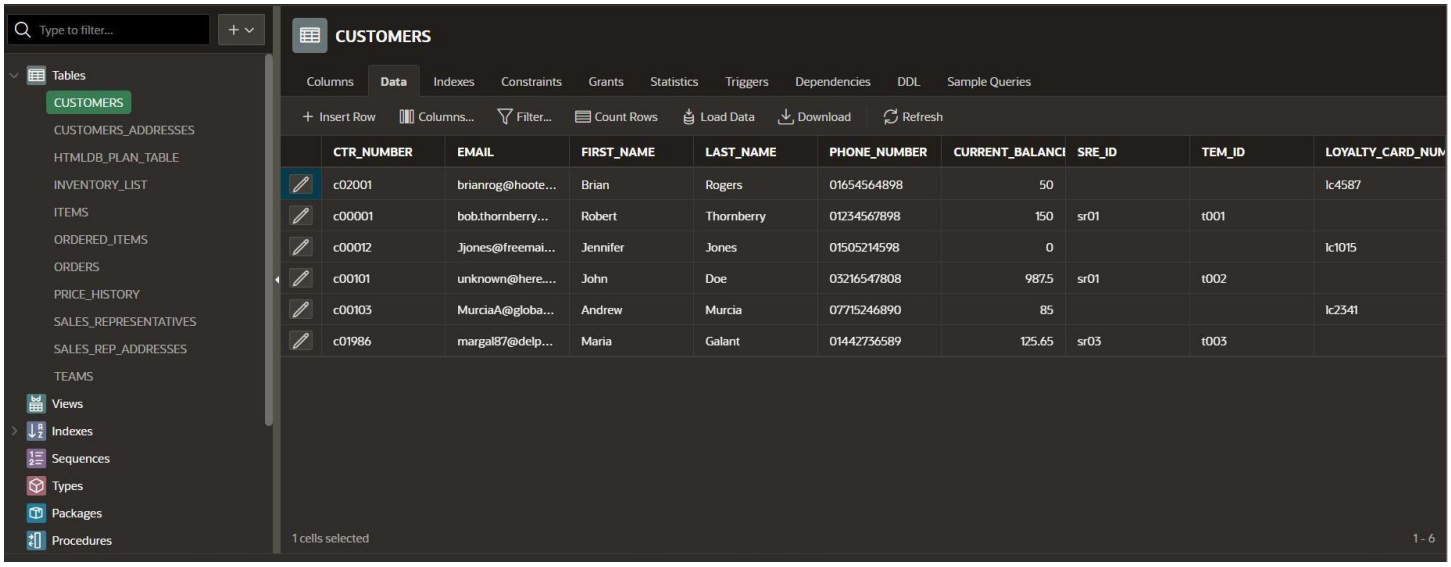
0.03 seconds

```
UPDATE customers
SET current_balance=50
WHERE ctr_number='c02001'
```

Results | Explain | Describe | Saved SQL | History

1 row(s) updated.

0.03 seconds



FACULTY OF COMPUTING
UTM Johor Bahru

SECD2523-DATABASE

Lab 2: DML 1 -Part 2

LECTURER: Dr Noor Hidayah binti Zakaria

NAME: Yaseen Mohamed

MATRIC: A22EC4016

Section: 08

Section 6 Lesson 4 Exercise 2: Data Manipulation Language

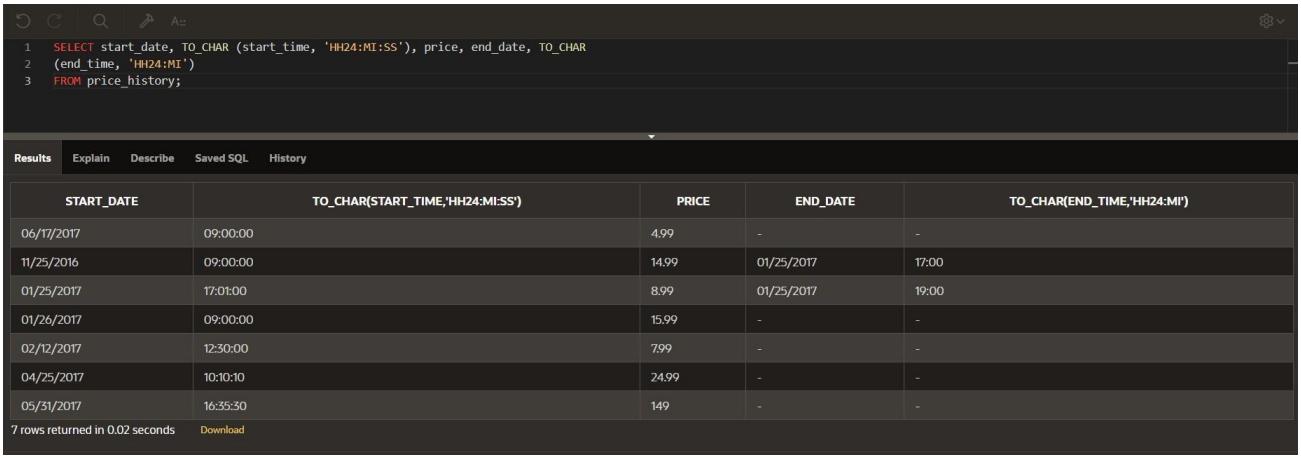
Use DML operations to manage database tables (S6L4 Objective 2)

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;
```



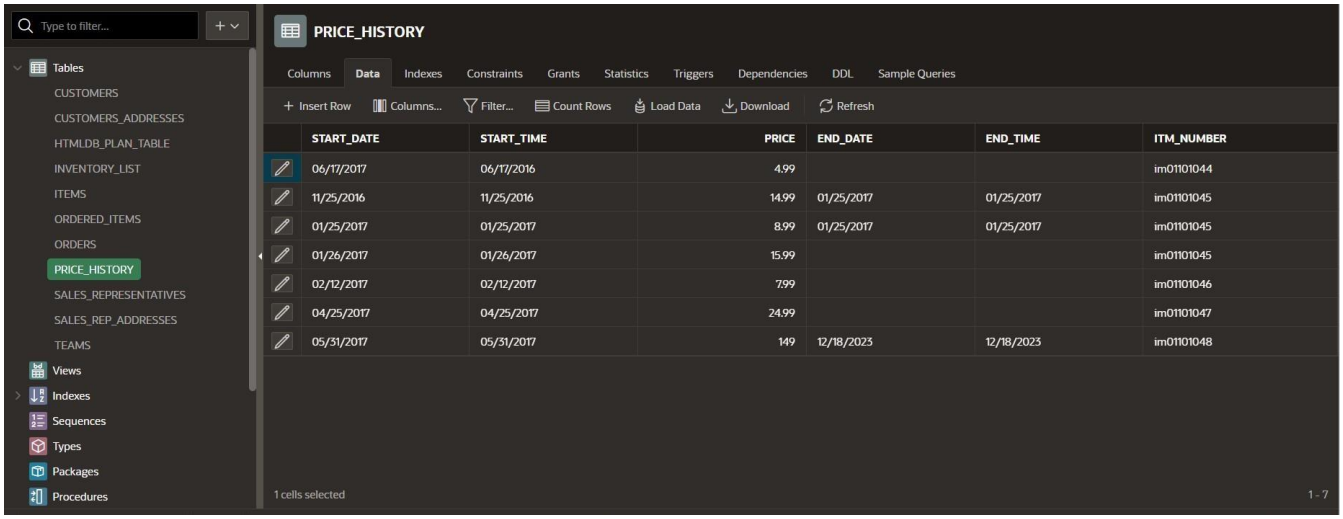
Results | Explain | Describe | Saved SQL | History

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 0.02 seconds Download

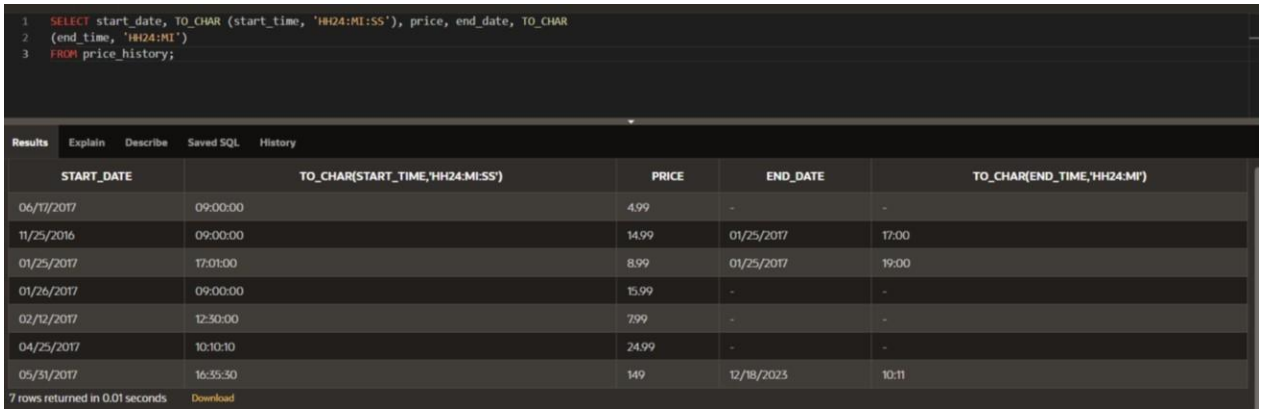
2. Obl is going to update the price of the premium bat so you will need to write a query that will close off the current price by adding the system date values to the end_date and end_time fields. To run this query you will need to both match the item number and identify that the end date is null. This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

```sql
UPDATE price_history
SET end_date = SYSDATE,
end_time = SYSDATE
WHERE itm_number = 'im01101048'
AND end_date IS NULL;
```



START_DATE	START_TIME	PRICE	END_DATE	END_TIME	ITM_NUMBER
06/17/2017	06/17/2016	4.99			im01101044
11/25/2016	11/25/2016	14.99	01/25/2017	01/25/2017	im01101045
01/25/2017	01/25/2017	8.99	01/25/2017	01/25/2017	im01101045
01/26/2017	01/26/2017	15.99			im01101045
02/12/2017	02/12/2017	7.99			im01101046
04/25/2017	04/25/2017	24.99			im01101047
05/31/2017	05/31/2017	149	12/18/2023	12/18/2023	im01101048

3. Rerun the select statement on the price_history table to ensure that the statement has been executed.



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

Results | Explain | Describe | Saved SQL | History

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	12/18/2023	10:11

7 rows returned in 0.01 seconds Download

4. 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.

```sql
INSERT INTO PRICE_HISTORY (START_DATE, START_TIME, PRICE, ITM_NUMBER)
VALUES (SYSDATE, CURRENT_TIMESTAMP, 99.99, 'im01101048');
```

5. Rerun the select statement on the price_history table to ensure that the statement has been executed.

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

Results | Explain | Describe | Saved SQL | History

START_DATE	TO_CHAR(START_TIME,'HH24:MI:SS')	PRICE	END_DATE	TO_CHAR(END_TIME,'HH24:MI')
12/18/2023	10:17:57	99.99	-	-
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	12/18/2023	10:11

8 rows returned in 0.01 seconds Download

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 canlonger receive parcels at this address. Write a SQL statement that will remove this address from the system.

```sql
DELETE FROM CUSTOMERS_ADDRESSES
WHERE ADDRESS_LINE_1 = '83 Barrhill Drive'
```

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

```
1  SELECT * FROM CUSTOMERS_ADDRESSES;
```

Results | Explain | Describe | Saved SQL | History

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

4 rows returned in 0.02 seconds Download