



UTM
UNIVERSITI TEKNOLOGI MALAYSIA

UNIVERSITI TEKNOLOGI MALAYSIA
SEMESTER 1, SESSION 2023/2024

EXERCISE 1

SECD2523 : DATABASE
SECTION 10

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Marks :

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_customer_fk

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

= -99 to 99

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

= -99999.99 to 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
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.

```
1 v CREATE TABLE orders (  
2     id          VARCHAR2(9) NOT NULL,  
3     odr_date     DATE NOT NULL,  
4     odr_time     DATE NOT NULL,  
5     number_of_units NUMBER(2) NOT NULL,  
6     ctr_number   VARCHAR2(6) NOT NULL,  
7     CONSTRAINT orders_pk PRIMARY KEY ( id )  
8 );
```

Table created.

```
1 v ALTER TABLE orders  
2     MODIFY(odr_date DATE DEFAULT SYSDATE);  
3
```

Table altered.

```
10 DESCRIBE orders;
```

TABLE ORDERS

Column	Null?	Type
ID	NOT NULL	VARCHAR2(9)
ODR_DATE	NOT NULL	DATE
ODR_TIME	NOT NULL	DATE
NUMBER_OF_UNITS	NOT NULL	NUMBER(2,0)
CTR_NUMBER	NOT NULL	VARCHAR2(6)

Adding a check constraint

1. Run the DESCRIBE command on the customers table to view its structure
2. Task: Add a check constraint that will not allow the customers current balance to go below zero.
3. Run the DESCRIBE command again to verify the command was successful.
4. A check constraint is not shown in the results of a describe command.

```
SQL Worksheet

1 CREATE TABLE customers (
2     ctr_number      VARCHAR2(6) NOT NULL,
3     email           VARCHAR2(50) NOT NULL,
4     first_name      VARCHAR2(20) NOT NULL,
5     last_name       VARCHAR2(30) NOT NULL,
6     phone_number    VARCHAR2(11) NOT NULL,
7     current_balance  NUMBER(6,2) NOT NULL,
8     sre_id          VARCHAR2(4),
9     tem_id          VARCHAR2(4),
10    loyalty_card_number VARCHAR2(6),
11    CONSTRAINT customer_pk PRIMARY KEY ( ctr_number ),
12    CONSTRAINT ctr_email_uk UNIQUE (email),
13    CONSTRAINT ctr_lcn_uk UNIQUE (loyalty_card_number)
14 );

Table created.
```

```
1 ALTER TABLE customers
2     ADD CONSTRAINT cust_bal_check
3     CHECK(current_balance >= 0);
4

Table altered.
```

```
4
5 DESCRIBE customers;
```

Column	Null?	Type
CTR_NUMBER	NOT NULL	VARCHAR2(6)
EMAIL	NOT NULL	VARCHAR2(50)
FIRST_NAME	NOT NULL	VARCHAR2(20)
LAST_NAME	NOT NULL	VARCHAR2(30)
PHONE_NUMBER	NOT NULL	VARCHAR2(11)
CURRENT_BALANCE	NOT NULL	NUMBER(6,2)
SRE_ID	-	VARCHAR2(4)
TEM_ID	-	VARCHAR2(4)
LOYALTY_CARD_NUMBER	-	VARCHAR2(6)

Constraints									
Constraint	Type	Condition	Related Constraint	Related Table	Constraint Columns	On Delete	Status	Last Change	Invalid?
CUST_BAL_CHECK	Check	current_balance >= 0	-	-	-	-	ENABLED	4 minutes ago	-
SYS_C00143283911	Check	"CTR_NUMBER" IS NOT NULL	-	-	-	-	ENABLED	6 minutes ago	-
SYS_C00143283912	Check	"EMAIL" IS NOT NULL	-	-	-	-	ENABLED	6 minutes ago	-
SYS_C00143283913	Check	"FIRST_NAME" IS NOT NULL	-	-	-	-	ENABLED	6 minutes ago	-
SYS_C00143283914	Check	"LAST_NAME" IS NOT NULL	-	-	-	-	ENABLED	6 minutes ago	-
SYS_C00143283915	Check	"PHONE_NUMBER" IS NOT NULL	-	-	-	-	ENABLED	6 minutes ago	-
SYS_C00143283916	Check	"CURRENT_BALANCE" IS NOT NULL	-	-	-	-	ENABLED	6 minutes ago	-
CUSTOMER_PK	Primary Key	-	-	-	CUSTOMER_ID	-	ENABLED	6 minutes ago	-
CTR_EMAIL_UK	Unique Key	-	-	-	EMAIL	-	ENABLED	6 minutes ago	-
CTR_LCN_UK	Unique Key	-	-	-	LOYALTY_CARD_NUMBER	-	ENABLED	6 minutes ago	-

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.

2. Task: Add column that will satisfy the clients requirements

= Solution :

```
ALTER TABLE customers
```

```
ADD customers_mobile_number NUMBER (11);
```

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

```
SQL Worksheet

1 CREATE TABLE customers (
2   ctr_number      VARCHAR2(6) NOT NULL,
3   email           VARCHAR2(50) NOT NULL,
4   first_name      VARCHAR2(20) NOT NULL,
5   last_name       VARCHAR2(30) NOT NULL,
6   phone_number    VARCHAR2(11) NOT NULL,
7   current_balance NUMBER(6,2) NOT NULL,
8   sre_id          VARCHAR2(4),
9   tem_id          VARCHAR2(4),
10  loyalty_card_number VARCHAR2(6),
11  CONSTRAINT customer_pk PRIMARY KEY ( ctr_number ),
12  CONSTRAINT ctr_email_uk UNIQUE (email),
13  CONSTRAINT ctr_lcn_uk UNIQUE (loyalty_card_number)
14 );

Table created.
```

```
4
5 DESCRIBE customers;
```

TABLE CUSTOMERS

Column	Null?	Type
CTR_NUMBER	NOT NULL	VARCHAR2(6)
EMAIL	NOT NULL	VARCHAR2(50)
FIRST_NAME	NOT NULL	VARCHAR2(20)
LAST_NAME	NOT NULL	VARCHAR2(30)
PHONE_NUMBER	NOT NULL	VARCHAR2(11)
CURRENT_BALANCE	NOT NULL	NUMBER(6,2)
SRE_ID	-	VARCHAR2(4)
TEM_ID	-	VARCHAR2(4)
LOYALTY_CARD_NUMBER	-	VARCHAR2(6)

```
18 ALTER TABLE customers;
19 ADD customers_mobile_number NUMBER (11);
20
```

```
16 DESCRIBE customers;
```

		--	
CTR_NUMBER	NOT NULL	VARCHAR2(6)	
EMAIL	NOT NULL	VARCHAR2(50)	
FIRST_NAME	NOT NULL	VARCHAR2(20)	
LAST_NAME	NOT NULL	VARCHAR2(30)	
PHONE_NUMBER	NOT NULL	VARCHAR2(11)	
CURRENT_BALANCE	NOT NULL	NUMBER(6,2)	
SRE_ID	-	VARCHAR2(4)	
TEM_ID	-	VARCHAR2(4)	
LOYALTY_CARD_NUMBER	-	VARCHAR2(6)	
CUSTOMERS_MOBILE_NUMBER	-	NUMBER(11,0)	

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

= Solution :

```
ALTER TABLE customers
```

```
DROP COLUMN customers_mobile_number;
```

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

```
16 DESCRIBE customers;
```

Column	Null?	Type
CTR_NUMBER	NOT NULL	VARCHAR2(6)
EMAIL	NOT NULL	VARCHAR2(50)
FIRST_NAME	NOT NULL	VARCHAR2(20)
LAST_NAME	NOT NULL	VARCHAR2(30)
PHONE_NUMBER	NOT NULL	VARCHAR2(11)
CURRENT_BALANCE	NOT NULL	NUMBER(6,2)
SRE_ID	-	VARCHAR2(4)
TEM_ID	-	VARCHAR2(4)
LOYALTY_CARD_NUMBER	-	VARCHAR2(6)
CUSTOMERS_MOBILE_NUMBER	-	NUMBER(11,0)

```
18 ALTER TABLE customers;  
19 DROP COLUMN customers_mobile_number;
```

```
16 DESCRIBE customers;  
17
```

Column	Null?	Type
CTR_NUMBER	NOT NULL	VARCHAR2(6)
EMAIL	NOT NULL	VARCHAR2(50)
FIRST_NAME	NOT NULL	VARCHAR2(20)
LAST_NAME	NOT NULL	VARCHAR2(30)
PHONE_NUMBER	NOT NULL	VARCHAR2(11)
CURRENT_BALANCE	NOT NULL	NUMBER(6,2)
SRE_ID	-	VARCHAR2(4)
TEM_ID	-	VARCHAR2(4)
LOYALTY_CARD_NUMBER	-	VARCHAR2(6)