

Group 6 (Query Kings):

Muhammad Haziq Bin Rozaidi (B23CS0010)

Muhammad Syahmi Syazwan Bin Shuhairam (B23CS0011)

Fadhil Raihan Gunawan (A22EC4031)

Tegar Insan Tohaga (A22EC4043)

Section 6 Lesson 3 Exercise : Data Definition Language

Part 1: Reading information from a script

1. How many tables have been created using the CREATE TABLE statement?
Ten tables. inventory_list, items, price_history, sales_representatives, sales_rep_addresses, teams, customers, customers_addresses, orders, ordered_items.
2. How many columns are created for the price history table?
Six columns. start_date, start_time, price, end_date, end_time, itm_number.
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?
The highest value is 99 and the lowest value is -99.
6. What are the lowest and highest values that can be stored in the price column for the price_history table?
The highest value is 99999.99 and the lowest value is -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.

Name	Null?	Type
-----	-----	-----
ID	NOT NULL	VARCHAR2(9)
ODR_DATE	NOT NULL	DATE
ODR_TIME	NOT NULL	DATE
NUMBER_OF_UNITS	NOT NULL	NUMBER(2)
CTR_NUMBER	NOT NULL	VARCHAR2(6)

	❖ COLUMN_NAME	❖ DATA_TYPE	❖ NULLABLE	DATA_DEFAULT	❖ COLUMN_ID	❖ COMMENTS
1	ID	VARCHAR2(9 BYTE)	No	(null)	1	(null)
2	ODR_DATE	DATE	No	(null)	2	(null)
3	ODR_TIME	DATE	No	(null)	3	(null)
4	NUMBER_OF_UNITS	NUMBER(2,0)	No	(null)	4	(null)
5	CTR_NUMBER	VARCHAR2(6 BYTE)	No	(null)	5	(null)

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.

```
ALTER TABLE ORDERS  
MODIFY (ODR_DATE DATE DEFAULT SYSDATE);
```

```
Table ORDERS altered.
```

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

Name	Null?	Type
-----	-----	-----
ID	NOT NULL	VARCHAR2 (9)
ODR_DATE	NOT NULL	DATE
ODR_TIME	NOT NULL	DATE
NUMBER_OF_UNITS	NOT NULL	NUMBER (2)
CTR_NUMBER	NOT NULL	VARCHAR2 (6)

	⚡ COLUMN_NAME	⚡ DATA_TYPE	⚡ NULLABLE	DATA_DEFAULT	⚡ COLUMN_ID	⚡ COMMENTS
1	ID	VARCHAR2 (9 BYTE)	No	(null)	1	(null)
2	ODR_DATE	DATE	No	SYSDATE	2	(null)
3	ODR_TIME	DATE	No	(null)	3	(null)
4	NUMBER_OF_UNITS	NUMBER (2, 0)	No	(null)	4	(null)
5	CTR_NUMBER	VARCHAR2 (6 BYTE)	No	(null)	5	(null)

Adding a check constraint

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

Name	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)

	❖ COLUMN_NAME	❖ DATA_TYPE	❖ NULLABLE	DATA_DEFAULT	❖ COLUMN_ID	❖ COMMENTS
1	CTR_NUMBER	VARCHAR2(6 BYTE)	No	(null)	1	(null)
2	EMAIL	VARCHAR2(50 BYTE)	No	(null)	2	(null)
3	FIRST_NAME	VARCHAR2(20 BYTE)	No	(null)	3	(null)
4	LAST_NAME	VARCHAR2(30 BYTE)	No	(null)	4	(null)
5	PHONE_NUMBER	VARCHAR2(11 BYTE)	No	(null)	5	(null)
6	CURRENT_BALANCE	NUMBER(6,2)	No	(null)	6	(null)
7	SRE_ID	VARCHAR2(4 BYTE)	Yes	(null)	7	(null)
8	TEM_ID	VARCHAR2(4 BYTE)	Yes	(null)	8	(null)
9	LOYALTY_CARD_NUMBER	VARCHAR2(6 BYTE)	Yes	(null)	9	(null)

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

ALTER TABLE CUSTOMERS

ADD CONSTRAINT current_balance_check CHECK (CURRENT_BALANCE >= 0);

Table CUSTOMERS altered.

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

Name	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)

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.

	CONSTRAINT_NAME	CONSTRAINT_TYPE	SEARCH_CONDITION
1	CTR_EMAIL_UK	Unique	(null)
2	CTR_LCN_UK	Unique	(null)
3	CURRENT_BALANCE_CHECK	Check	CURRENT_BALANCE >= 0
4	CUSTOMER_PK	Primary_Key	(null)

Adding a column

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

Name	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)

	❖ COLUMN_NAME	❖ DATA_TYPE	❖ NULLABLE	DATA_DEFAULT	❖ COLUMN_ID	❖ COMMENTS
1	CTR_NUMBER	VARCHAR2(6 BYTE)	No	(null)	1	(null)
2	EMAIL	VARCHAR2(50 BYTE)	No	(null)	2	(null)
3	FIRST_NAME	VARCHAR2(20 BYTE)	No	(null)	3	(null)
4	LAST_NAME	VARCHAR2(30 BYTE)	No	(null)	4	(null)
5	PHONE_NUMBER	VARCHAR2(11 BYTE)	No	(null)	5	(null)
6	CURRENT_BALANCE	NUMBER(6,2)	No	(null)	6	(null)
7	SRE_ID	VARCHAR2(4 BYTE)	Yes	(null)	7	(null)
8	TEM_ID	VARCHAR2(4 BYTE)	Yes	(null)	8	(null)
9	LOYALTY_CARD_NUMBER	VARCHAR2(6 BYTE)	Yes	(null)	9	(null)

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

```
ALTER TABLE CUSTOMERS  
ADD MOBILE_NUMBER VARCHAR2(11);
```

```
Table CUSTOMERS altered.
```

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

```

Name                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)
MOBILE_NUMBER        VARCHAR2(11)

```

	🔗 COLUMN_NAME	🔗 DATA_TYPE	🔗 NULLABLE	DATA_DEFAULT	🔗 COLUMN_ID	🔗 COMMENTS
1	CTR_NUMBER	VARCHAR2(6 BYTE)	No	(null)	1	(null)
2	EMAIL	VARCHAR2(50 BYTE)	No	(null)	2	(null)
3	FIRST_NAME	VARCHAR2(20 BYTE)	No	(null)	3	(null)
4	LAST_NAME	VARCHAR2(30 BYTE)	No	(null)	4	(null)
5	PHONE_NUMBER	VARCHAR2(11 BYTE)	No	(null)	5	(null)
6	CURRENT_BALANCE	NUMBER(6,2)	No	(null)	6	(null)
7	SRE_ID	VARCHAR2(4 BYTE)	Yes	(null)	7	(null)
8	TEM_ID	VARCHAR2(4 BYTE)	Yes	(null)	8	(null)
9	LOYALTY_CARD_NUMBER	VARCHAR2(6 BYTE)	Yes	(null)	9	(null)
10	MOBILE_NUMBER	VARCHAR2(11 BYTE)	Yes	(null)	10	(null)

Dropping a column

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

Name	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)
MOBILE_NUMBER		VARCHAR2(11)

	❖ COLUMN_NAME	❖ DATA_TYPE	❖ NULLABLE	DATA_DEFAULT	❖ COLUMN_ID	❖ COMMENTS
1	CTR_NUMBER	VARCHAR2(6 BYTE)	No	(null)	1	(null)
2	EMAIL	VARCHAR2(50 BYTE)	No	(null)	2	(null)
3	FIRST_NAME	VARCHAR2(20 BYTE)	No	(null)	3	(null)
4	LAST_NAME	VARCHAR2(30 BYTE)	No	(null)	4	(null)
5	PHONE_NUMBER	VARCHAR2(11 BYTE)	No	(null)	5	(null)
6	CURRENT_BALANCE	NUMBER(6,2)	No	(null)	6	(null)
7	SRE_ID	VARCHAR2(4 BYTE)	Yes	(null)	7	(null)
8	TEM_ID	VARCHAR2(4 BYTE)	Yes	(null)	8	(null)
9	LOYALTY_CARD_NUMBER	VARCHAR2(6 BYTE)	Yes	(null)	9	(null)
10	MOBILE_NUMBER	VARCHAR2(11 BYTE)	Yes	(null)	10	(null)

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

```
ALTER TABLE CUSTOMERS  
DROP COLUMN MOBILE_NUMBER;
```

```
Table CUSTOMERS altered.
```

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

```
Name          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)
```

	❖ COLUMN_NAME	❖ DATA_TYPE	❖ NULLABLE	DATA_DEFAULT	❖ COLUMN_ID	❖ COMMENTS
1	CTR_NUMBER	VARCHAR2(6 BYTE)	No	(null)	1	(null)
2	EMAIL	VARCHAR2(50 BYTE)	No	(null)	2	(null)
3	FIRST_NAME	VARCHAR2(20 BYTE)	No	(null)	3	(null)
4	LAST_NAME	VARCHAR2(30 BYTE)	No	(null)	4	(null)
5	PHONE_NUMBER	VARCHAR2(11 BYTE)	No	(null)	5	(null)
6	CURRENT_BALANCE	NUMBER(6,2)	No	(null)	6	(null)
7	SRE_ID	VARCHAR2(4 BYTE)	Yes	(null)	7	(null)
8	TEM_ID	VARCHAR2(4 BYTE)	Yes	(null)	8	(null)
9	LOYALTY_CARD_NUMBER	VARCHAR2(6 BYTE)	Yes	(null)	9	(null)