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UNIVERSITI TEKNOLOGI MALAYSIA

FACULTY OF COMPUTING
UTM Johor Bahru

SECD2523 - DATABASE

SECTION: 08

LECTURER: DR NOOR HIDAYAH ZAKARIA

LAB 1- DDL

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Database Design Project

Oracle Baseball League Store Database

Project Scenario:

You are a small consulting company specializing in database development. You have just been awarded the contract to develop a data model for a database application system for a small retail store called Oracle Baseball League (OBL).

The Oracle Baseball League store serves the entire surrounding community selling baseball kit. The OBL has two types of customer, there are individuals who purchase items like balls, cleats, gloves, shirts, screen printed t-shirts, and shorts. Additionally customers can represent a team when they purchase uniforms and equipment on behalf of the team.

Teams and individual customers are free to purchase any item from the inventory list, but teams get a discount on the list price depending on the number of players. When a customer places an order we record the order items for that order in our database.

OBL has a team of three sales representatives that officially only call on teams but have been known to handle individual customer complaints.

Section 6 Lesson 3 Exercise : Data Definition Language

Use DDL to build and maintain database tables (S6L3 Objective 3)

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
2. How many columns are created for the price history table?
6
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?
Lowest value is -99, highest value is 99.
6. What are the lowest and highest values that can be stored in the price column for the price_history table?
Lowest value is -99999.99, highest 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

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.

The screenshot shows the APEX SQL Workshop interface. The 'SQL Commands' tab is active, and the command 'desc orders' has been executed. The results are displayed in a table format under the 'Describe' tab.

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
ORDERS	ID	VARCHAR2	9	-	-	1	-	-	-
ORDERS	ODR_DATE	DATE	7	-	-	-	-	-	-
ORDERS	ODR_TIME	DATE	7	-	-	-	-	-	-
ORDERS	NUMBER_OF_UNITS	NUMBER	-	2	0	-	-	-	-
ORDERS	CTR_NUMBER	VARCHAR2	6	-	-	-	-	-	-

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.

The screenshot shows the APEX SQL Workshop interface. The 'SQL Commands' tab is active, and the command 'ALTER TABLE orders MODIFY odr_time DATE DEFAULT SYSDATE;' has been executed. The results are displayed in a text area under the 'Results' tab.

```
1 ALTER TABLE orders
2 MODIFY odr_time DATE DEFAULT SYSDATE;
```

Table altered.
0.05 seconds

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

APEX App Builder SQL Workshop Team Development Gallery

Search

Schema WKSP_CHONGSIEWZHEN

Language SQL Rows 10 Clear Command Find Tables Save Run

```

1 desc orders
2

```

Results Explain Describe Saved SQL History

Object Type TABLE Object ORDERS

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
ORDERS	ID	VARCHAR2	9	-	-	1	-	-	-
	ODR_DATE	DATE	7	-	-	-	-	-	-
	ODR_TIME	DATE	7	-	-	-	-	SYSDATE	-
	NUMBER_OF_UNITS	NUMBER	-	2	0	-	-	-	-
	CTR_NUMBER	VARCHAR2	6	-	-	-	-	-	-

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Schema WKSP_CHONGSIEWZHEN

Language SQL Rows 10 Clear Command Find Tables Save Run

```

1 DESCRIBE orders;
2

```

Results Explain Describe Saved SQL History

Object Type TABLE Object ORDERS

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
ORDERS	ID	VARCHAR2	9	-	-	1	-	-	-
	ODR_DATE	DATE	7	-	-	-	-	-	-
	ODR_TIME	DATE	7	-	-	-	-	SYSDATE	-
	NUMBER_OF_UNITS	NUMBER	-	2	0	-	-	-	-
	CTR_NUMBER	VARCHAR2	6	-	-	-	-	-	-

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Adding a check constraint

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

The screenshot shows the APEX SQL Workshop interface. The 'SQL Commands' tab is active, displaying the command `desc customers`. The 'Describe' tab is selected, showing the structure of the `CUSTOMERS` table. The table has the following columns:

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CUSTOMERS	CTR_NUMBER	VARCHAR2	6	-	-	1	-	-	-
	EMAIL	VARCHAR2	50	-	-	-	-	-	-
	FIRST_NAME	VARCHAR2	20	-	-	-	-	-	-
	LAST_NAME	VARCHAR2	30	-	-	-	-	-	-
	PHONE_NUMBER	VARCHAR2	11	-	-	-	-	-	-
	CURRENT_BALANCE	NUMBER	-	6	2	-	-	-	-
	SRE_ID	VARCHAR2	4	-	-	-	✓	-	-
	TEM_ID	VARCHAR2	4	-	-	-	✓	-	-
	LOYALTY_CARD_NUMBER	VARCHAR2	6	-	-	-	✓	-	-

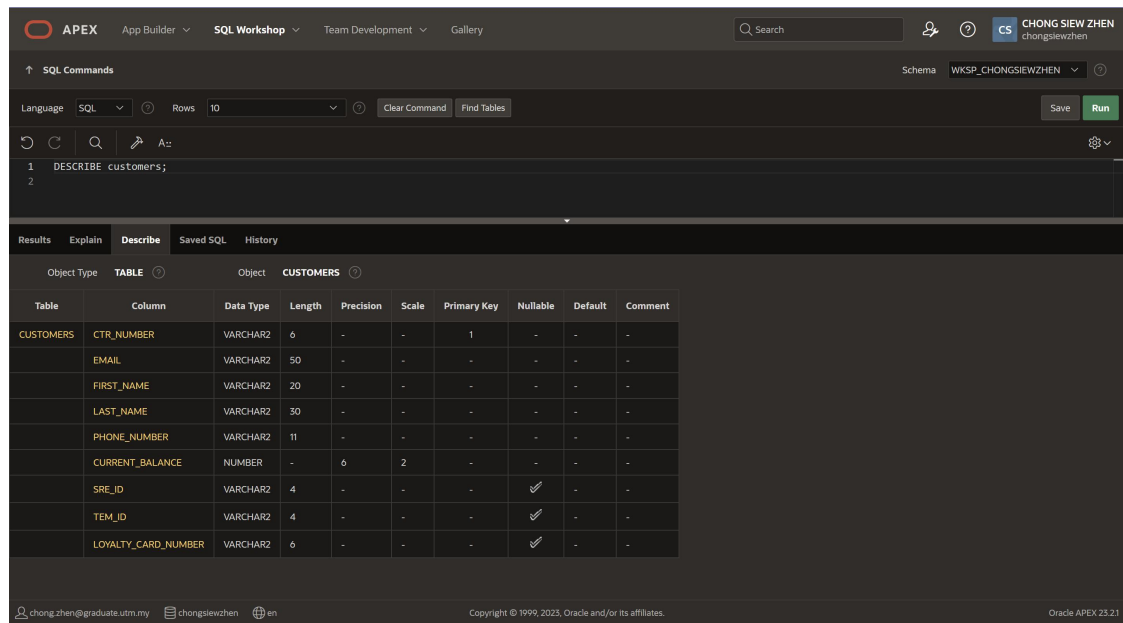
2. **Task:** Add a check constraint that will not allow the customers current balance to go below zero.

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

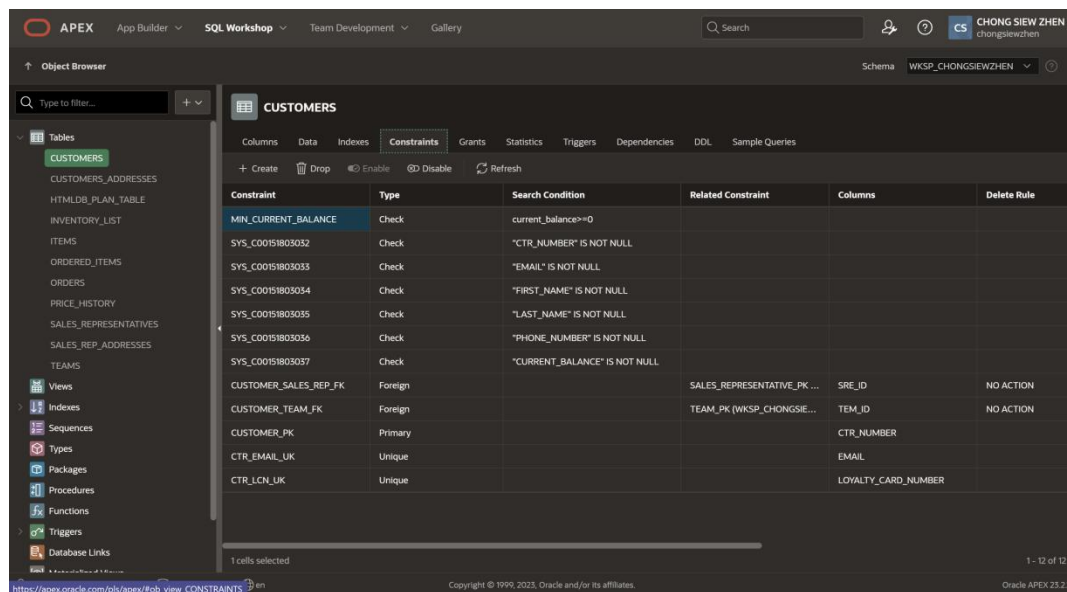
```
1 ALTER TABLE customers
2 ADD CONSTRAINT min_current_balance CHECK (current_balance >= 0);
3
```

The 'Results' tab is selected, showing the message 'Table altered.' and the execution time '0.05 seconds'.

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.
 - a. Go to the Object Browser
 - b. Select the customers table.
 - c. Click on the CONSTRAINTS tab.
 - d. You will see your constraint here.



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.

The screenshot shows the Oracle APEX SQL Workshop interface. The SQL Commands pane contains the command `DESCRIBE customers;`. The Results pane shows the table structure for the `CUSTOMERS` table.

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CUSTOMERS	CTR_NUMBER	VARCHAR2	6	-	-	1	-	-	-
	EMAIL	VARCHAR2	50	-	-	-	-	-	-
	FIRST_NAME	VARCHAR2	20	-	-	-	-	-	-
	LAST_NAME	VARCHAR2	30	-	-	-	-	-	-
	PHONE_NUMBER	VARCHAR2	11	-	-	-	-	-	-
	CURRENT_BALANCE	NUMBER	-	6	2	-	-	-	-
	SRE_ID	VARCHAR2	4	-	-	-	-	-	-
	TEM_ID	VARCHAR2	4	-	-	-	-	-	-
	LOYALTY_CARD_NUMBER	VARCHAR2	6	-	-	-	-	-	-

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

The screenshot shows the Oracle APEX SQL Workshop interface. The SQL Commands pane contains the command `ALTER TABLE customers ADD cust_phone_number VARCHAR2(11);`. The Results pane shows the message "Table altered." and the execution time "0.06 seconds".

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

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SQL Commands

Schema
WKSP_CHONGSIEWZHEN

Language
SQL
Rows
10
Clear Command
Find Tables
Save
Run

```
1 DESCRIBE customers;
```

Results
Explain
Describe
Saved SQL
History

Object Type
TABLE
Object
CUSTOMERS

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CUSTOMERS	CTR_NUMBER	VARCHAR2	6	-	-	1	-	-	-
	EMAIL	VARCHAR2	50	-	-	-	-	-	-
	FIRST_NAME	VARCHAR2	20	-	-	-	-	-	-
	LAST_NAME	VARCHAR2	30	-	-	-	-	-	-
	PHONE_NUMBER	VARCHAR2	11	-	-	-	-	-	-
	CURRENT_BALANCE	NUMBER	-	6	2	-	-	-	-
	SRE_ID	VARCHAR2	4	-	-	-		-	-
	TEM_ID	VARCHAR2	4	-	-	-		-	-
	LOYALTY_CARD_NUMBER	VARCHAR2	6	-	-	-		-	-
	CUST_PHONE_NUMBER	VARCHAR2	11	-	-	-		-	-

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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.

The screenshot shows the APEX SQL Workshop interface. The 'SQL Commands' tab is active, displaying the command `DESCRIBE customers;`. The 'Results' tab is selected, showing the structure of the `CUSTOMERS` table. The table has 10 columns: `CTR_NUMBER`, `EMAIL`, `FIRST_NAME`, `LAST_NAME`, `PHONE_NUMBER`, `CURRENT_BALANCE`, `SRE_ID`, `TEM_ID`, `LOYALTY_CARD_NUMBER`, and `CUST_PHONE_NUMBER`. The `CTR_NUMBER` column is the primary key. The `CUST_PHONE_NUMBER` column is highlighted in orange.

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CUSTOMERS	CTR_NUMBER	VARCHAR2	6	-	-	1	-	-	-
	EMAIL	VARCHAR2	50	-	-	-	-	-	-
	FIRST_NAME	VARCHAR2	20	-	-	-	-	-	-
	LAST_NAME	VARCHAR2	30	-	-	-	-	-	-
	PHONE_NUMBER	VARCHAR2	11	-	-	-	-	-	-
	CURRENT_BALANCE	NUMBER	-	6	2	-	-	-	-
	SRE_ID	VARCHAR2	4	-	-	-	✓	-	-
	TEM_ID	VARCHAR2	4	-	-	-	✓	-	-
	LOYALTY_CARD_NUMBER	VARCHAR2	6	-	-	-	✓	-	-
	CUST_PHONE_NUMBER	VARCHAR2	11	-	-	-	✓	-	-

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

The screenshot shows the APEX SQL Workshop interface. The 'SQL Commands' tab is active, displaying the command `ALTER TABLE customers DROP (cust_phone_number);`. The 'Results' tab is selected, showing the message 'Table altered.' and the execution time '0.07 seconds'.

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

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SQL Commands

Schema WKSP_CHONGSIEWZHEN

Language SQL

Rows 10

Clear Command

Find Tables

Save

Run

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A=

1 DESCRIBE customers;

Results

Explain

Describe

Saved SQL

History

Object Type TABLE

Object CUSTOMERS

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CUSTOMERS	CTR_NUMBER	VARCHAR2	6	-	-	1	-	-	-
	EMAIL	VARCHAR2	50	-	-	-	-	-	-
	FIRST_NAME	VARCHAR2	20	-	-	-	-	-	-
	LAST_NAME	VARCHAR2	30	-	-	-	-	-	-
	PHONE_NUMBER	VARCHAR2	11	-	-	-	-	-	-
	CURRENT_BALANCE	NUMBER	-	6	2	-	-	-	-
	SRE_ID	VARCHAR2	4	-	-	-	🔗	-	-
	TEM_ID	VARCHAR2	4	-	-	-	🔗	-	-
	LOYALTY_CARD_NUMBER	VARCHAR2	6	-	-	-	🔗	-	-

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