

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 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?

lowest values : -99

highest values: 99

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

lowest value : -99999.99

highest value: 99999.99

7. What are the 3 columns that make up the primary key for the price_history table?

itm_number, start_date and 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 Oracle APEX SQL Workshop interface. The command entered is `DESC orders`. The results are displayed in a table format, showing the structure of the `ORDERS` table.

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	-	-	-	-	-	-
	NUMBER_OF_UNITS	NUMBER	-	2	0	-	-	-	-
	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 Oracle APEX SQL Workshop interface. The SQL Commands pane contains the following command:

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

The Results pane shows the message "Table altered." and the execution time "0.06 seconds".

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

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

```
1 DESCRIBE orders
```

The Results pane shows the table structure for the ORDERS table:

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

Adding a check constraint

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' tab is active, and the 'DESCRIBE' command has been executed on the 'customers' table. The results are displayed in a table format.

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 Oracle APEX SQL Workshop interface. The 'SQL Commands' tab is active, and the following SQL command has been executed:

```
ALTER TABLE customers  
ADD CONSTRAINT current_balance_check CHECK (current_balance >= 0);
```

The results section shows the message: "Table altered." and the execution time: "0.05 seconds".

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

The screenshot shows the Oracle APEX SQL Workshop interface. The command entered is `DESC customers`. The results are displayed in a table format under the 'Describe' tab.

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	-	-	-	✓	-	-

The interface also shows the 'Results' tab with the command `DESC customers` and the 'Explain' tab. The 'Describe' tab is currently selected, showing the table structure.

- A check constraint is not shown in the results of a describe command.

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

The screenshot shows the Oracle APEX Object Browser interface. The left sidebar lists various database objects, with 'CUSTOMERS' selected under the 'Tables' category. The main area displays the 'CONSTRAINTS' tab for the 'CUSTOMERS' table. The table lists several constraints, including check constraints for 'current_balance', 'CTR_NUMBER', 'EMAIL', 'FIRST_NAME', 'LAST_NAME', 'PHONE_NUMBER', and 'CURRENT_BALANCE', as well as a primary key constraint 'CUSTOMER_PK' and two unique constraints 'CTR_EMAIL_UK' and 'CTR_LCN_UK'.

Constraint	Type	Search Condition	Related Constraint	Columns	Delete Rule	Status
CURRENT_BALANCE_CHECK	Check	current_balance >= 0				ENABL
SYS_C00148957119	Check	"CTR_NUMBER" IS NOT NULL				ENABL
SYS_C00148957120	Check	"EMAIL" IS NOT NULL				ENABL
SYS_C00148957121	Check	"FIRST_NAME" IS NOT NULL				ENABL
SYS_C00148957122	Check	"LAST_NAME" IS NOT NULL				ENABL
SYS_C00148957123	Check	"PHONE_NUMBER" IS NOT NULL				ENABL
SYS_C00148957124	Check	"CURRENT_BALANCE" IS NOT NULL				ENABL
CUSTOMER_PK	Primary			CTR_NUMBER		ENABL
CTR_EMAIL_UK	Unique			EMAIL		ENABL
CTR_LCN_UK	Unique			LOYALTY_CARD_NUMBER		ENABL

1 cells selected

1 - 10 of 10

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.

apex oracle - Yahoo Malaysia S...

Object Browser

+

apex.oracle.com/pls/apex/r/apex/sql-workshop/ob?session=7119025349976

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App Builder

SQL Workshop

Team Development

Gallery

Search

SR sudashan rao
rao#man0702

Object Browser

Schema WKSP_RAOMAN0702

Type to filter...

+

Tables

CUSTOMERS

HTMLDB_PLAN_TABLE

INVENTORY_LIST

ORDERS

Views

Indexes

Sequences

Types

Packages

Procedures

Functions

Triggers

Database Links

Materialized Views

Synonyms

SODA Collections

CUSTOMERS

Columns

Data

Indexes

Constraints

Grants

Statistics

Triggers

Dependencies

DDL

Sample Queries

+ Create

Drop

Enable

Disable

Refresh

Constraint	Type	Search Condition	Related Constraint	Columns	Delete Rule	Status
CURRENT_BALANCE_CHECK	Check	current_balance >= 0				ENABL
SYS_C00148957119	Check	"CTR_NUMBER" IS NOT NULL				ENABL
SYS_C00148957120	Check	"EMAIL" IS NOT NULL				ENABL
SYS_C00148957121	Check	"FIRST_NAME" IS NOT NULL				ENABL
SYS_C00148957122	Check	"LAST_NAME" IS NOT NULL				ENABL
SYS_C00148957123	Check	"PHONE_NUMBER" IS NOT NULL				ENABL
SYS_C00148957124	Check	"CURRENT_BALANCE" IS NOT NULL				ENABL
CUSTOMER_PK	Primary			CTR_NUMBER		ENABL
CTR_EMAIL_UK	Unique			EMAIL		ENABL
CTR_LCN_UK	Unique			LOYALTY_CARD_NUMBER		ENABL

1 cells selected

1 - 10 of 10

sudashanrao0702@gmail.com

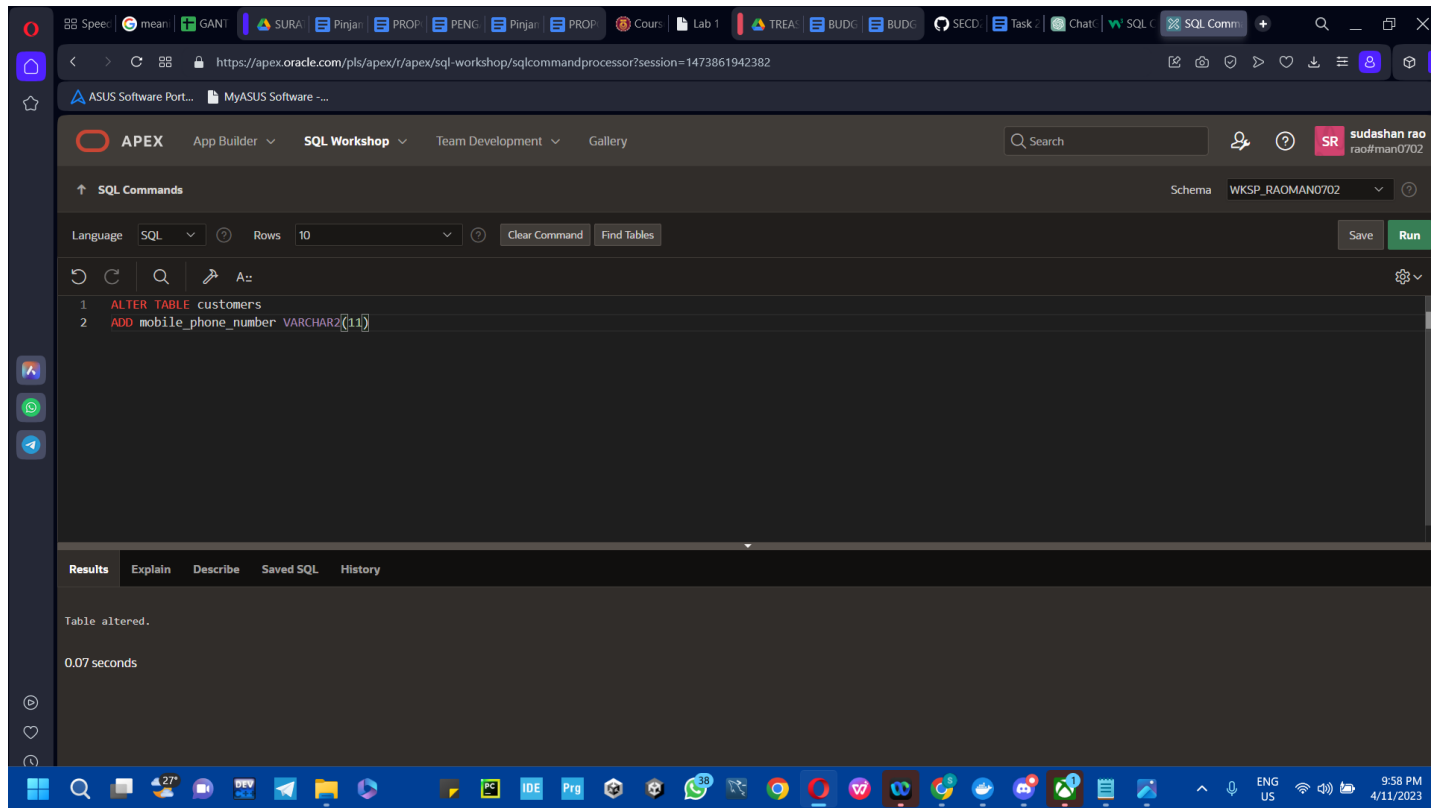
rao#man0702

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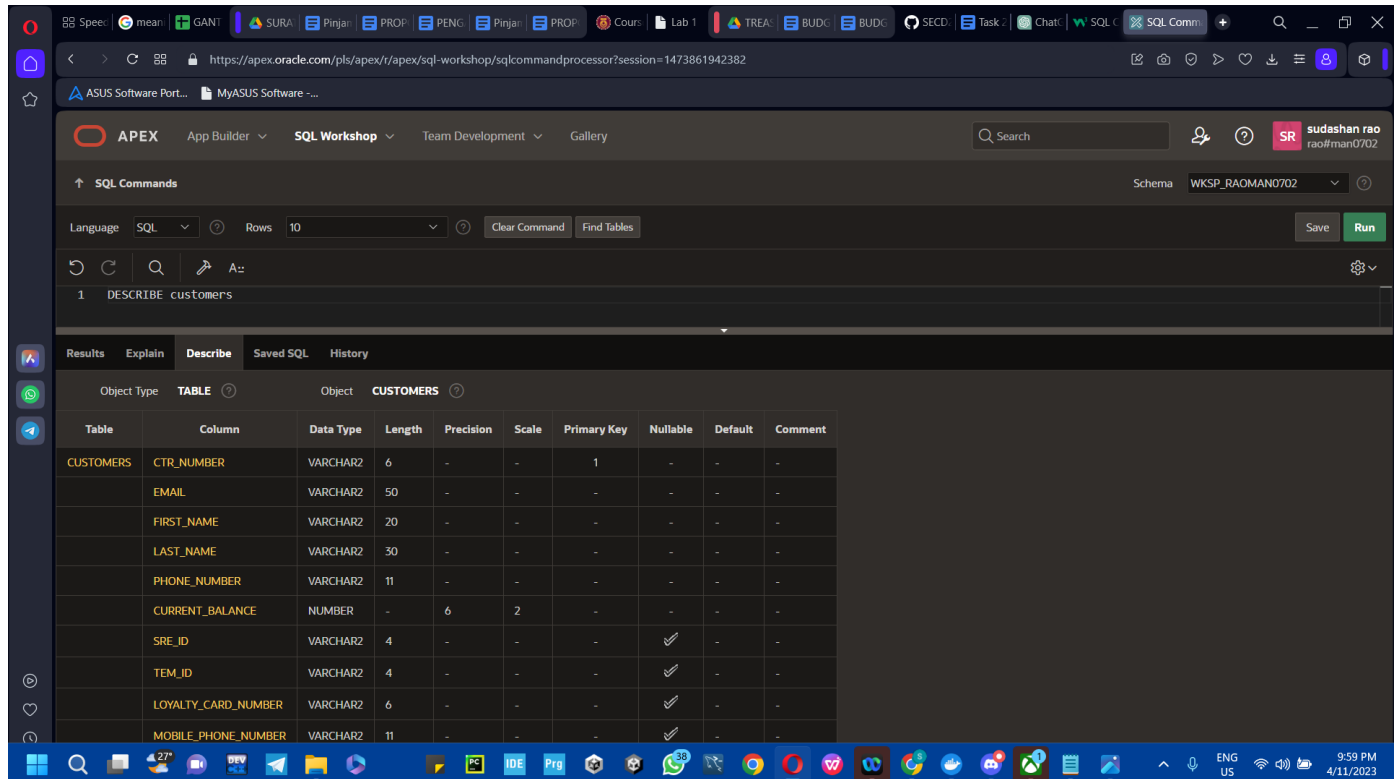
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Oracle APEX 23.2.0-17

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



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



Dropping a column

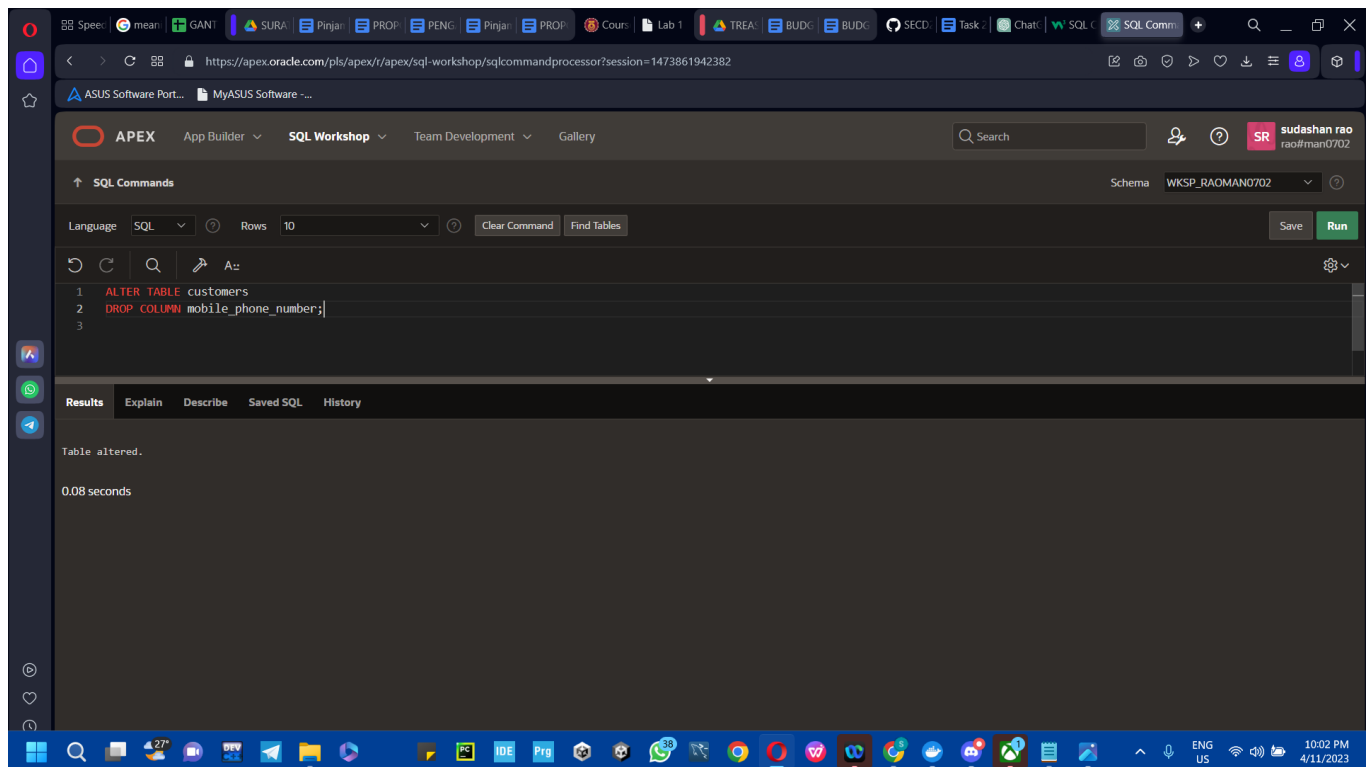
The client has decided that they don't need the mobile number column as most customers only provide a single contact number and that is already catered for with the existing phone_number column.

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

The screenshot shows the Oracle APEX SQL Workshop interface. The SQL Commands tab is active, displaying the command `DESCRIBE customers`. The Results tab shows the structure of 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	-	-	-	✓	-	-
	MOBILE_PHONE_NUMBER	VARCHAR2	11	-	-	-	✓	-	-

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



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

The screenshot shows the Oracle APEX SQL Workshop interface. The top navigation bar includes 'APEX', 'App Builder', 'SQL Workshop', 'Team Development', and 'Gallery'. The 'SQL Commands' section is active, showing a command editor with the text 'DESCRIBE customers'. Below the editor, the 'Describe' tab is selected, displaying the table structure for 'CUSTOMERS'. 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	-	-	-	✓	-	-

The interface also includes a sidebar with navigation options like 'Results', 'Explain', 'Describe', 'Saved SQL', and 'History'. The bottom of the screen shows a Windows taskbar with various application icons and the system clock indicating 10:02 PM on 4/11/2022.