



**UTM**  
UNIVERSITI TEKNOLOGI MALAYSIA

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# **LAB 1 : DDL**

**SECD2523 : DATABASE**  
**SECTION 08**

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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 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\_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: -99
  - Highest Value: 99
6. What are the lowest and highest values that can be stored in the price column for the price\_history table?
  - Lowest Value: -9999999.99
  - Highest Value: 9999999.99
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.

1 DESCRIBE orders;									
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	-	-	-	-	-	-
	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.

```
1 ALTER TABLE orders
2 MODIFY odr_date DATE DEFAULT SYSDATE
```

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

1 DESCRIBE orders;									
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	-	-	-	-	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.

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	-	-	-	✓	-	-

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

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

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

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	-	-	-	✓	-	-

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.

CUSTOMERS				
Columns	Data	Indexes	Constraints	Grants
Statistics	Triggers	Dependencies	DDL	Sample Queries
+ Create    Drop    Enable    Disable    Refresh				
Constraint	Type	Search Condition	Related Constraint	Columns
CHECK_BALANCE	Check	current_balance >= 0		
SYS_C00154149326	Check	"CTR_NUMBER" IS NOT NULL		
SYS_C00154149327	Check	"EMAIL" IS NOT NULL		
SYS_C00154149328	Check	"FIRST_NAME" IS NOT NULL		
SYS_C00154149329	Check	"LAST_NAME" IS NOT NULL		
SYS_C00154149330	Check	"PHONE_NUMBER" IS NOT NULL		
SYS_C00154149331	Check	"CURRENT_BALANCE" IS NOT NULL		
CUSTOMER_SALES_REP_FK	Foreign		SALES_REPRESENTATIVE_PK (WKSP_PR...	SRE_ID
CUSTOMER_TEAM_FK	Foreign		TEAM_PK (WKSP_PROJECTDBDEGREE.T...	TEM_ID
CUSTOMER_PK	Primary			CTR_NUMBER
CTR_EMAIL_UK	Unique			EMAIL
CTR_LCN_UK	Unique			LOYALTY_CARD_NUMBER

## 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.

1 DESCRIBE customers;

ResultsExplainDescribeSaved SQLHistory

Object TypeTABLE ?

ObjectCUSTOMERS ?

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

```
1 ALTER TABLE customers
2 ADD mobile_number VARCHAR2(11);
```

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

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	-	-	-	✓	-	-
	MOBILE_NUMBER	VARCHAR2	11	-	-	-	✓	-	-

## 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.

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	-	-	-	✓	-	-
	MOBILE_NUMBER	VARCHAR2	11	-	-	-	✓	-	-

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

```
1 ALTER TABLE customers
2 DROP COLUMN mobile_number;
```

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

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	-	-	-	✓	-	-