

# LAB 3 DATA MANIPULATION LANGUAGE (DML 2)

SECD2523-Database SEMESTER I, SESSION 2023/2024

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Section: 0

## Part 1: Retrieving all columns from a table.

Using the SELECT \* statement show all data stored in the following tables:

## 1. customers.

## SELECT \* FROM customers;

Results Explain Desc	Results Explain Describe Saved SQL History							
CTR_NUMBER	EMAIL	FIRST_NAME	LAST_NAME	PHONE_NUMBER	CURRENT_BALANCE	SRE_ID	TEM_ID	LOYALTY_CARD_NUMBER
c00103	MurciaA@globaltech.com	Andrew	Murcia	07715246890				lc2341
c01986	margal87@delphiview.com	Maria	Galant	01442736589	125.65	sr03	t003	-
c00012	Jjones@freemail.com	Jennifer	Jones	01505214598				lc1015
c00001	bob.thornberry@heatmail.com	Robert	Thornberry	01234567898	150	sr01	t001	-
c00101	unknown@here.com	John	Doe	03216547808	987.5	sr01	t002	-
c02001	brianrog@hootech.com	Brian	Rogers	01654564898				lc4587
6 rows returned in 0.01 seco	onds Download							

## 2. teams.

## SELECT \* FROM teams;

Results Explain Describe Sa	Results Explain Describe Saved SQL History					
ID	NAME	NUMBER_OF_PLAYERS	DISCOUNT			
t003	Rovers		-			
t004	Jets	10	5			
t001	Rockets	25	10			
t002	Celtics	42	20			
4 rows returned in 0.02 seconds Download						

## 3. items

## SELECT \* FROM items;

Results Explain Describe Saved SQL History											
ITM_NUMBER	NAME	DESCRIPTION	CATEGORY	COLOR	Size	ILT_ID					
im01101044	gloves	catcher mitt	clothing	brown		il010230124					
im01101045	under shirt	top worn under the game top	clothing	white		il010230125					
im01101047	game top	team shirt with emblem	clothing	range		il010230127					
im01101048	premium bat	high quaity basball bat	equipment			il010230128					
im01101046	socks	team socks with emblem	clothing	range		il010230126					
5 rows returned in 0.02 seconds Downlo	ad			rows returned in 0.02 seconds Download							

#### Part 2: Selecting Specific Columns

1. Display the customer number, first name, last name, email and phone number of the customers.

SELECT ctr\_number, first\_name, last\_name, email, phone\_number FROM customers;



2. Display the name and number of players for each team.

SELECT name, number\_of\_players FROM teams;

Results Explain Describe Saved SQL History	
NAME	NUMBER_OF_PLAYERS
Rovers	8
Jets	10
Rockets	25
Celtics	42
4 rows returned in 0.00 seconds Download	

3. Display the name, description and category for every item in the table.

SELECT name, description, category FROM items;



#### **Part 1: Using Arithmetic Operators**

1. Every customer has been told they can pay off their current balance over a 12 month period. Display the customer's first name, last name, current balance and monthly payment.

SELECT first\_name, last\_name, current\_balance, current\_balance/12 FROM customers;

Results Explain Describe Sa	lts Explain Describe Saved SQL History						
FIRST_NAME	LAST_NAME	CURRENT_BALANCE	CURRENT_BALANCE/12				
Andrew	Murcia	85	7.08333333333333333333333333333333333333				
Maria	Galant	125.65	10.4708333333333333333333333333333333333333				
Jennifer	Jones		0				
Robert	Thornberry	150	12.5				
John	Doe	987.5	82.2916666666666666666666666666666666				
Brian Rogers		50	4.1666666666666666666666666666666666666				
6 rows returned in 0.01 seconds	ownload						

2. Obl is considering giving a gift card to all its customers of 5.00 that can be used to reduce their current balance. Write a query that will show the customers first name, last name, customer number, current balance and the value of their balance minus the gift value.

SELECT first\_name, last\_name, ctr\_number, current\_balance, current\_balance - 5 FROM customers;

Results Explain Describe Saved	S Explain Describe Saved SQL History						
FIRST_NAME	LAST_NAME	CTR_NUMBER	CURRENT_BALANCE	CURRENT_BALANCE-5			
Andrew	Murcia	c00103		80			
Maria	Galant	c01986	125.65	120.65			
Jennifer	Jones	c00012					
Robert	Thornberry	c00001	150	145			
John	Doe	c00101	987.5	982.5			
Brian	Rogers	c02001	50	45			
6 rows returned in 0.01 seconds Down	nload						

3. What would be the problem with implementing this scheme?

The current balance cannot go below to zero. If the current balance is smaller than the gift value being subtracted, the output of the calculated column will indeed be negative.

## **Part 2: Using Column Aliases**

1. You previously wrote a query that display the customer's first name, last name, current balance and monthly payment. Rewrite the query to use First Name, Last Name, Balance and Monthly Repayments as the column aliases. The aliases are to be shown exactly as described (case sensitive).

SELECT first\_name "First Name", last\_name "Last Name", current\_balance "Balance", current\_balance/12 "Monthly Repayments" FROM customers;

Results Explain Describe Sav	esults Explain Describe Saved SQL History						
First Name	Last Name	Balance	Monthly Repayments				
Andrew	Murcia	85	7.08333333333333333333333333333333333333				
Maria	Galant	125.65	10.470833333333333333333333333333333333333				
Jennifer	Jones	0	0				
Robert	Thornberry	150	12.5				
John	Doe	987.5	82.29166666666666666666666666666666666				
Brian	Rogers	50	4.1666666666666666666666666666666666666				
6 rows returned in 0.01 seconds Download							

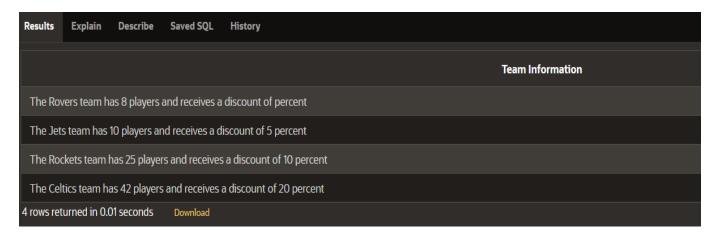
#### **Part 3: Using Literal Character Strings**

1. Write a query that will display the team information in the following format:

The Rockets team has 25 players and receives a discount of 10 percent.

Use **Team Information** as the column alias.

SELECT 'The '|| name || ' team has '|| number\_of\_players || ' players and receives a discount of '|| discount || ' percent' AS "Team Information" FROM teams;



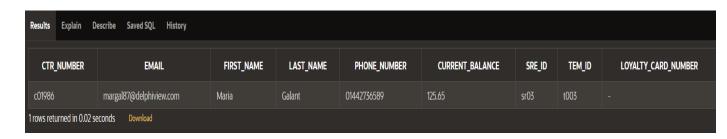
2. Why does the last team not show a discount?

The discount values inserted into the teams table where name = 'Rovers' are indeed NULL, hence that specific team does not show a discount due to the absence of a defined discount value for that particular team.

#### Part 1: Using the WHERE Clause.

1. Using the unique customer number in the where clause display all columns for Maria Galant.

SELECT \*
FROM customers
WHERE ctr number = 'c01986';



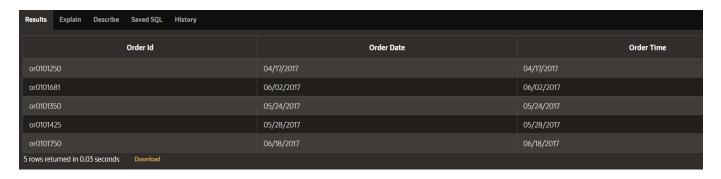
2. Display the first name, last name and customer number for all customers who have a current balance of greater than 100. Use an appropriate alias for your column headings.

SELECT first\_name "First Name", last\_name "Last Name", ctr\_number "Customer Number" FROM customers WHERE current balance > 100;



3. Display the order id, date and time of all orders that were placed before the 28<sup>th</sup> of May 2019. Use an appropriate alias for your column headings.

SELECT id "Order Id", odr\_date "Order Date", odr\_time "Order Time" FROM orders
WHERE odr date < TO DATE('28-May-2019', 'DD-MM-YYYY');



## Part 2: Range Conditions: BETWEEN Operator

1. Display the inventory id, cost and number of units using appropriate aliases for all items that have a trade cost of between 3.00 and 15.00.

SELECT id "Inventory Id", cost "Cost", units "Number of Units" FROM inventory\_list
WHERE cost BETWEEN 3 AND 15;



#### Part 3: Membership Conditions: IN Operator

1. Display the inventory id, cost and number of units using appropriate aliases for all items that have 50, 100, 150 or 200 units in stock.

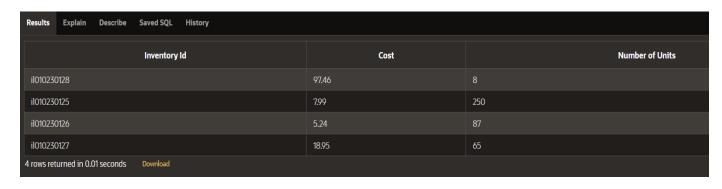
SELECT id "Inventory Id", cost "Cost", units "Number of Units" FROM inventory\_list WHERE units IN (50, 100, 150, 200);



### Part 4: Membership Conditions: NOT IN Operator

1. Display the inventory id, cost and number of units using appropriate aliases for all items that do not have 50, 100, 150 or 200 units in stock.

SELECT id "Inventory Id", cost "Cost", units "Number of Units" FROM inventory\_list WHERE units NOT IN (50, 100, 150, 200);



#### Part 5: Pattern Matching: LIKE Operator

1. Display item number and name of all items that have a name that begins with g. Use an appropriate alias for your column headings.

SELECT itm\_number "Item Number", name "Item Name" FROM items
WHERE name LIKE 'g%';



### Part 6: Pattern Matching: Combining Wildcard Characters with the LIKE Operator

1. Display item number and name of all items that have a name that contain a lowercase o. Use an appropriate alias for your column headings.

SELECT itm\_number "Item Number", name "Item Name" FROM items
WHERE name LIKE '\_o%';



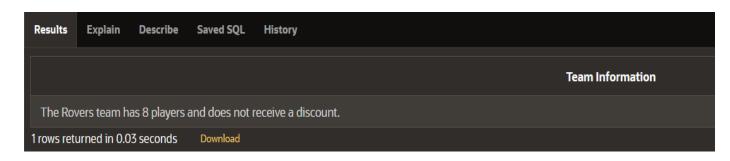
#### Part 1: Using the NULL Conditions

1. Write a query that will display information for teams that don't receive a discount in the following format: The Rovers team has 25 players and does not receive a discount. Use **Team Information** as the column alias.

SELECT 'The ' | | name | | ' team has ' | | number\_of\_players | | ' players and does not receive a discount.' AS "Team Information"

FROM teams

WHERE discount IS NULL;



2. Write a query that will display information for only teams that receive a discount in the following format: The Rockets team has 25 players and receives a discount of 10 percent. Use **Team Information** as the column alias.

SELECT 'The '|| name ||' team has '|| number\_of\_players ||' players and receives a discount of '|| discount ||' percent.' AS "Team Information" FROM teams
WHERE discount IS NOT NULL;



#### Part 2: Logical Operators: AND

1. Write a query that will display the customer number, address line 1 and postal code for customers that live in the starford area of Liverpool. Use Customer Number, Street Address and Postal Code as the column aliases.

SELECT ctr\_number "Customer Number", Address\_line\_1 "Street Address", zip\_code "Postal Code" FROM customers\_addresses

WHERE city = 'Liverpool' AND address line 2 = 'Starford';

Results	Explain	Describe	Saved SQL History		
			Customer Number	Street Address	Postal Code
c00001				17 Gartsquare Road	LP89JHK
1 rows ret	urned in 0.0	3 seconds	Download		

## Part 3: Logical Operators: OR

1. Write a query that will display the customer number, address line 1 and postal code for customers that live in either starford or Liverpool in general. Use Customer Number, Street Address and Postal Code as the column aliases.

SELECT ctr\_number "Customer Number", Address\_line\_1 "Street Address", zip\_code "Postal Code"

FROM customers\_addresses

WHERE city = 'Liverpool' OR address\_line\_2 = 'Starford';



## Part 4: Logical Operators: NOT Equal To

1. Write a query that will display the customer number, address line 1 and postal code for customers that do not live in Liverpool. Use Customer Number, Street Address and Postal Code as the column aliases.

SELECT ctr\_number "Customer Number", Address\_line\_1 "Street Address", zip\_code "Postal Code" FROM customers\_addresses
WHERE city NOT IN ('Liverpool');

Results	Explain	Describe	Saved SQL	History		
			Customer N	umber	Street Address	Postal Code
c01986					36 Watercress Lane	JP23YTH
c00101					54 Ropehill Crescent	ST45AGV
2 rows ret	turned in 0.03	3 seconds	Download			

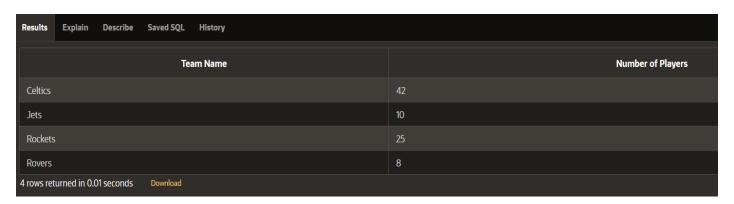
### Use the ORDER BY Clause to Sort SQL Results (S6L8 Objective 1)

In this exercise you will sort the order of the data that is returned in your query by adding an ORDER

BY clause to the end of your SELECT statement.

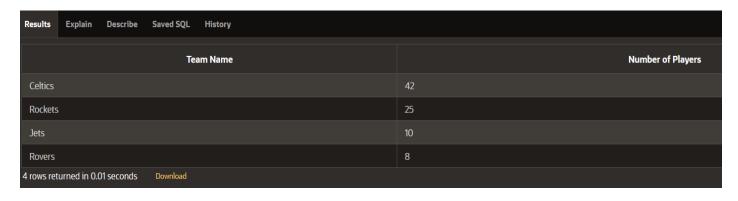
1. Display the team name and number of players alphabetically in order of team name. Use an appropriate alias for your column headings.

SELECT name "Team Name", number\_of\_players "Number of Players" FROM teams
ORDER BY name;



2. Display the team name and number of players in descending order of number of players. Use an appropriate alias for your column headings.

SELECT name "Team Name", number\_of\_players "Number of Players" FROM teams
ORDER BY number\_of\_players DESC;



3. Display the team name and number of players alphabetically in order of team name. Use Team Name for the name alias and Players for the number of players. Sort the output in descending order of name using the alias in the ORDER BY clause.

SELECT name "Team Name", number\_of\_players "Number of Players" FROM teams
ORDER BY "Team Name" DESC;

Results Explain Describe Saved SQL History	
Team Name	Number of Players
Rovers	8
Rockets	25
Jets	10
Celtics	42
4 rows returned in 0.01 seconds Download	

#### Part 1: TOP-N-ANALYSIS (S6L8 Objective 3)

1. The customers are numbered sequentially with each new customer being assigned a higher customer number.

Use TOP-N-ANALYSIS to only show the First and last name of the first three customers. Show the customers first and last name in the same column using Customer Name as the column alias.

SELECT ROWNUM AS "Order for Customers Numbers", first\_name ||''|| last\_name "Customer Name" FROM customers
WHERE ROWNUM<=3
ORDER BY ctr\_number;



## Part 2: Using a Substitution Variable (S6L8 Objective 4)

1. Use a substitution variable that will allow you to enter the commission rate for the sales representatives. The first and last names should be displayed to screen for any sales representatives that earn that commission rate and the output should be ordered by their last name. Use an appropriate alias for your column headings.

```
SELECT first_name | | ' ' | | last_name "Sales Representative Name"
FROM sales_representatives
WHERE commission_rate = :commission_rate
ORDER BY last_name
```



Results	Explain	Describe	Saved SQL	History
				Sales Representative Name
Dawn C	d			
Barry S	beed			
Victoria	Wright			
2 rows ret	urned in 0.0	)6 seconds	Download	