



**UTM**  
UNIVERSITI TEKNOLOGI MALAYSIA

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Systems

**UNIVERSITI TEKNOLOGI MALAYSIA, JOHOR BAHRU**

**FACULTY OF COMPUTING**

**SECD2523-08 DATABASE**

**Lab 3: Data Manipulation Language (DML) 2**

| <i>Name</i>                 | <i>Matric Number</i> |
|-----------------------------|----------------------|
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## **Section 6 Lesson 6 Exercise 1: Retrieving Data Using SELECT**

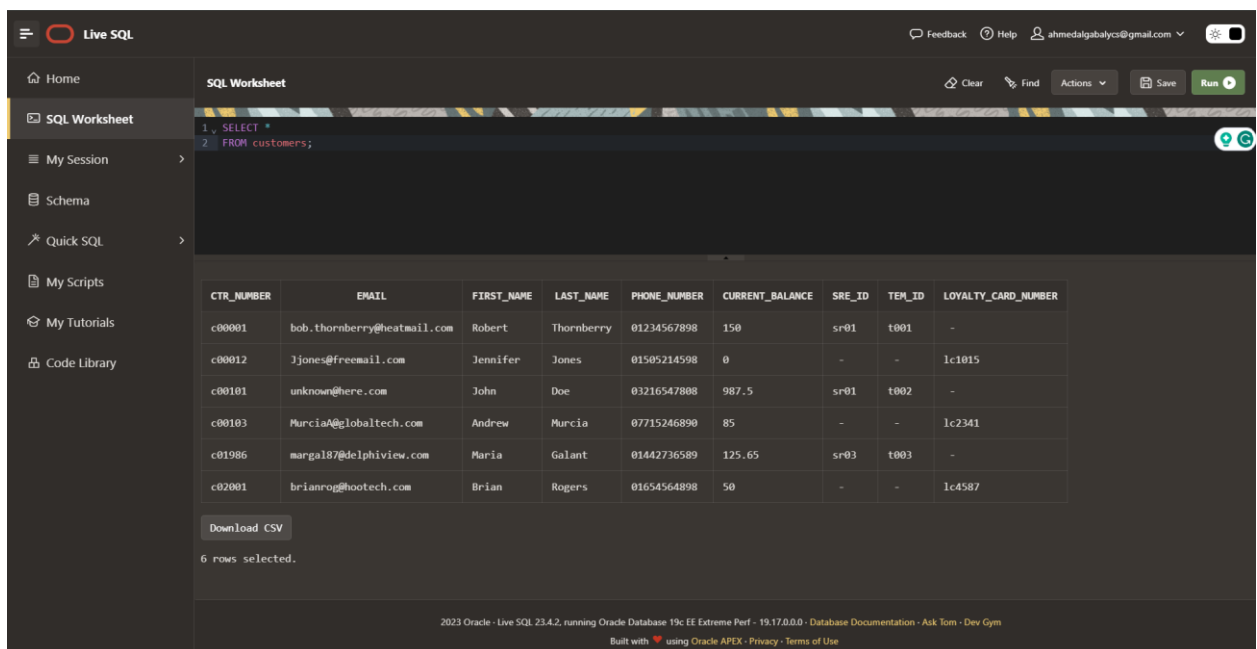
Write and Execute SELECT statements (S6L6 Objective 2)

In this exercise you will retrieve data that is stored in the database system by using a SELECT statement.

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

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

#### **1. customers.**



The screenshot shows the Live SQL interface. The SQL Worksheet contains the following code:

```
1, SELECT *
2 FROM customers;
```

Below the code, a table displays the results of the query. The table has 9 columns: CTR\_NUMBER, EMAIL, FIRST\_NAME, LAST\_NAME, PHONE\_NUMBER, CURRENT\_BALANCE, SRE\_ID, TEN\_ID, and LOYALTY\_CARD\_NUMBER. There are 6 rows of data.

| CTR_NUMBER | EMAIL                       | FIRST_NAME | LAST_NAME  | PHONE_NUMBER | CURRENT_BALANCE | SRE_ID | TEN_ID | LOYALTY_CARD_NUMBER |
|------------|-----------------------------|------------|------------|--------------|-----------------|--------|--------|---------------------|
| c00001     | bob.thornberry@heatmail.com | Robert     | Thornberry | 01234567898  | 150             | sr01   | t001   | -                   |
| c00012     | JJones@freemail.com         | Jennifer   | Jones      | 01505214598  | 0               | -      | -      | 1c1015              |
| c00101     | unknown@here.com            | John       | Doe        | 03216547808  | 987.5           | sr01   | t002   | -                   |
| c00103     | MurciaA@globaltech.com      | Andrew     | Murcia     | 07715246890  | 85              | -      | -      | 1c2341              |
| c01986     | margal87@delphiview.com     | Maria      | Galant     | 01442736589  | 125.65          | sr03   | t003   | -                   |
| c02001     | brianrog@hoootech.com       | Brian      | Rogers     | 01654564898  | 50              | -      | -      | 1c4587              |

Below the table, there is a "Download CSV" button and the text "6 rows selected." At the bottom of the interface, there is a footer with the following text: "2023 Oracle - Live SQL 23.4.2, running Oracle Database 19c EE Extreme Perf - 19.17.0.0.0 - Database Documentation - Ask Tom - Dev Gym. Built with using Oracle APEX - Privacy - Terms of Use".

#### **2. teams.**

The screenshot shows the Oracle Live SQL web interface. The left sidebar contains navigation links: Home, SQL Worksheet (selected), My Session, Schema, Quick SQL, My Scripts, My Tutorials, and Code Library. The main area is titled 'SQL Worksheet' and contains a SQL query editor with the following code:

```
1, SELECT *
2 FROM teams;
```

Below the editor, the query results are displayed in a table with 4 rows selected:

| ID   | NAME    | NUMBER_OF_PLAYERS | DISCOUNT |
|------|---------|-------------------|----------|
| t004 | Jets    | 10                | 5        |
| t001 | Rockets | 25                | 10       |
| t002 | Celtics | 42                | 20       |
| t003 | Rovers  | 8                 | -        |

Below the table, there is a 'Download CSV' button and the text '4 rows selected.' The footer of the interface indicates: '2023 Oracle - Live SQL 23.4.2, running Oracle Database 19c EE Extreme Perf - 19.17.0.0.0 - Database Documentation - Ask Tom - Dev Gym. Built with using Oracle APEX - Privacy - Terms of Use'.

### 3. items

The screenshot shows the Oracle Live SQL web interface with the same sidebar as the previous image. The SQL Worksheet now contains a query on the 'items' table:

```
1, SELECT *
2 FROM items;
```

The query results are displayed in a table with 5 rows selected:

| ITM_NUMBER | NAME        | DESCRIPTION                 | CATEGORY  | COLOR | Size | ILT_ID      |
|------------|-------------|-----------------------------|-----------|-------|------|-------------|
| im01101044 | gloves      | catcher mitt                | clothing  | brown | m    | il010230124 |
| im01101045 | under shirt | top worn under the game top | clothing  | white | s    | il010230125 |
| im01101046 | socks       | team socks with emblem      | clothing  | range | l    | il010230126 |
| im01101047 | game top    | team shirt with emblem      | clothing  | range | m    | il010230127 |
| im01101048 | premium bat | high quality baseball bat   | equipment | -     | -    | il010230128 |

Below the table, there is a 'Download CSV' button and the text '5 rows selected.' The footer of the interface is the same as the previous image.

## Part 2: Selecting Specific Columns

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

Live SQL

SQL Worksheet

```
1, SELECT ctr_number, first_name, last_name, email, phone_number
2 FROM customers;
```

| CTR_NUMBER | FIRST_NAME | LAST_NAME  | EMAIL                       | PHONE_NUMBER |
|------------|------------|------------|-----------------------------|--------------|
| c00001     | Robert     | Thornberry | bob.thornberry@heatmail.com | 01234567898  |
| c00012     | Jennifer   | Jones      | jjones@freemail.com         | 01505214598  |
| c00101     | John       | Doe        | unknown@here.com            | 03216547808  |
| c00103     | Andrew     | Murcia     | MurciaA@globaltech.com      | 07715246890  |
| c01986     | Maria      | Galant     | margal87@delphiview.com     | 01442736589  |
| c02001     | Brian      | Rogers     | brianrog@hoootech.com       | 01654564898  |

Download CSV

6 rows selected.

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

Live SQL

SQL Worksheet

```
1, SELECT name, number_of_players
2 FROM teams;
```

| NAME    | NUMBER_OF_PLAYERS |
|---------|-------------------|
| Jets    | 10                |
| Rockets | 25                |
| Celtics | 42                |
| Rovers  | 8                 |

Download CSV

4 rows selected.

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

The screenshot shows the 'Live SQL' web application interface. On the left is a sidebar with navigation links: Home, SQL Worksheet (selected), My Session, Schema, Quick SQL, My Scripts, My Tutorials, and Code Library. The main area is titled 'SQL Worksheet' and contains a text editor with the following SQL code:

```
1, SELECT name, description, category
2 FROM items;
```

Below the editor, the results of the query are displayed in a table:

| NAME        | DESCRIPTION                 | CATEGORY  |
|-------------|-----------------------------|-----------|
| gloves      | catcher mitt                | clothing  |
| under shirt | top worn under the game top | clothing  |
| socks       | team socks with emblem      | clothing  |
| game top    | team shirt with emblem      | clothing  |
| premium bat | high quality baseball bat   | equipment |

Below the table, there is a 'Download CSV' button and a status message: '5 rows selected.' At the bottom of the interface, a footer line reads: '2023 Oracle - Live SQL 23.4.2, running Oracle Database 19c EE Extreme Perf - 19.17.0.0.0 - Database Documentation - Ask Tom - Dev Gym. Built with using Oracle APEX - Privacy - Terms of Use'.

## **Section 6 Lesson 6 Exercise 2: Retrieving Data Using SELECT**

### ***Write and Execute SELECT statements (S6L6 Objective 2)***

**In this exercise you will retrieve data that is stored in the database system by using a SELECT statement.**

### **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.**

[illegible]

≡

Live SQL

Feedback

Help

ahmedgabalayci@gmail.com

⚙️

Home

SQL Worksheet

My Session

Schema

Quick SQL

My Scripts

My Tutorials

Code Library

SQL Worksheet

1. SELECT first\_name, last\_name, ctr\_number, current\_balance, current\_balance-5

2. FROM customers;

| FIRST_NAME | LAST_NAME  | CTR_NUMBER | CURRENT_BALANCE | CURRENT_BALANCE-5 |
|------------|------------|------------|-----------------|-------------------|
| Robert     | Thornberry | c00001     | 150             | 145               |
| Jennifer   | Jones      | c00012     | 0               | -5                |
| John       | Doe        | c00101     | 987.5           | 982.5             |
| Andrew     | Murcia     | c00103     | 85              | 80                |
| Maria      | Galant     | c01986     | 125.65          | 120.65            |
| Brian      | Rogers     | c02001     | 50              | 45                |

Download CSV

6 rows selected.

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The Current Balance can't have the value of Zero.

**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).**

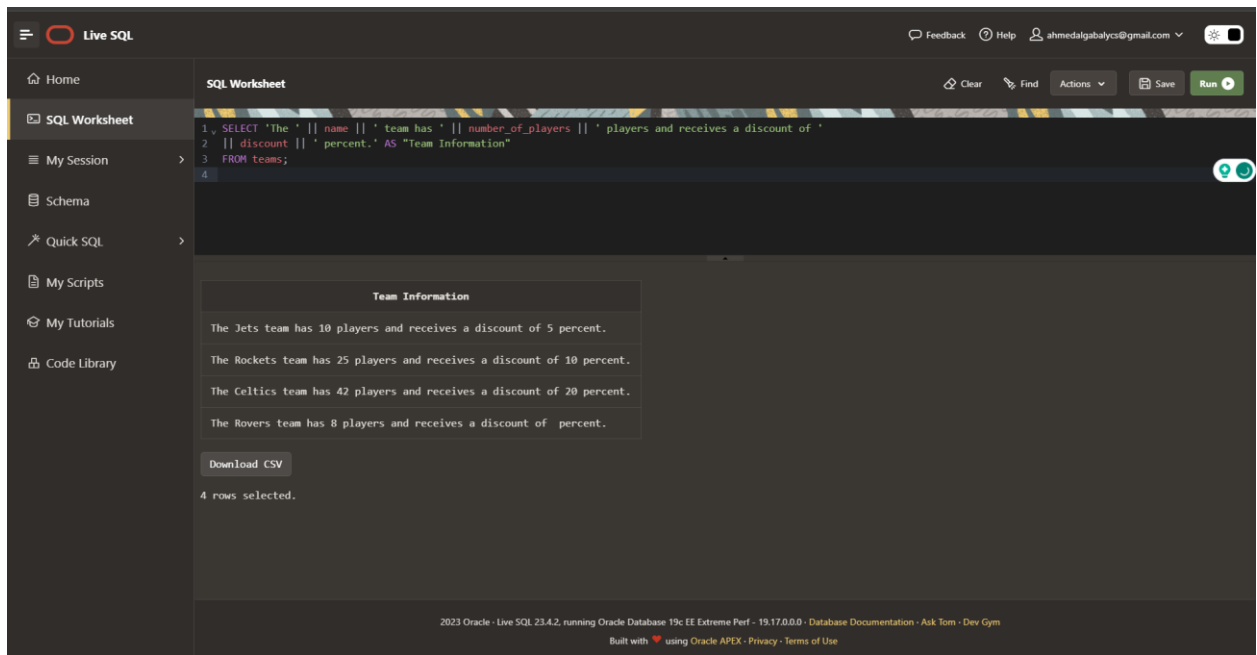
[illegible]

### **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.



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

Doesn't get any discounts because It has the value of Zero.

## Section 6 Lesson 7 Exercise 1: Restricting Data Using WHERE

### *Limit rows using WHERE (S6L7 Objective 1)*

In this exercise you will refine the data that is returned in your query by adding a WHERE clause to your SELECT statement.

### Part 1: Using the WHERE Clause.

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



The screenshot shows the Oracle Live SQL interface. The SQL Worksheet contains the following query:

```
1, SELECT *
2 FROM customers
3 WHERE ctr_number = 'c01986';
```

The results are displayed in a table with the following columns: CTR\_NUMBER, EMAIL, FIRST\_NAME, LAST\_NAME, PHONE\_NUMBER, CURRENT\_BALANCE, SRE\_ID, TEM\_ID, LOYALTY\_CARD\_NUMBER.

| CTR_NUMBER | EMAIL                   | FIRST_NAME | LAST_NAME | PHONE_NUMBER | CURRENT_BALANCE | SRE_ID | TEM_ID | LOYALTY_CARD_NUMBER |
|------------|-------------------------|------------|-----------|--------------|-----------------|--------|--------|---------------------|
| c01986     | margal87@dolphiview.com | Maria      | Galant    | 01442736589  | 125.65          | sr03   | t003   | -                   |

Below the table is a "Download CSV" button. The footer indicates: 2023 Oracle - Live SQL 23.4.2, running Oracle Database 19c EE Extreme Perf - 19.17.0.0.0 - Database Documentation - Ask Tom - Dev Gym. Built with using Oracle APEX - Privacy - Terms of Use.

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.

The screenshot shows the Oracle Live SQL interface. The SQL Worksheet contains the following query:

```
1, SELECT first_name AS "First Name", last_name AS "Last Name", current_balance AS "Balance"
2 FROM customers
3 WHERE current_balance > 100;
```

The results are displayed in a table with the following columns: First Name, Last Name, Balance.

| First Name | Last Name  | Balance |
|------------|------------|---------|
| Robert     | Thornberry | 150     |
| John       | Doe        | 987.5   |
| Maria      | Galant     | 125.65  |

Below the table is a "Download CSV" button and the text "3 rows selected.". The footer indicates: 2023 Oracle - Live SQL 23.4.2, running Oracle Database 19c EE Extreme Perf - 19.17.0.0.0 - Database Documentation - Ask Tom - Dev Gym. Built with using Oracle APEX - Privacy - Terms of Use.

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

The screenshot shows the Live SQL interface with a SQL Worksheet. The query is as follows:

```

1. SELECT id AS "Order ID",
2.   odr_date AS "Date",
3.   TO_CHAR(odr_time, 'HH24:MI:SS') AS "Order Time"
4. FROM orders
5. WHERE odr_date < TO_DATE('2019-05-28', 'YYYY-MM-DD');

```

The results are displayed in a table with 5 rows selected:

| Order ID  | Date      | Order Time |
|-----------|-----------|------------|
| or0101250 | 17-APR-17 | 08:32:30   |
| or0101350 | 24-MAY-17 | 10:30:35   |
| or0101425 | 28-MAY-17 | 12:30:00   |
| or0101681 | 02-JUN-17 | 14:55:30   |
| or0101750 | 18-JUN-17 | 09:05:00   |

Download CSV  
5 rows selected.

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## **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.

The screenshot shows the Live SQL interface with a SQL Worksheet. The query is as follows:

```

1. SELECT id AS "Inventory ID",
2.   cost,
3.   units AS "Number of units"
4. FROM inventory_list
5. WHERE cost BETWEEN 3.00 AND 15.00;

```

The results are displayed in a table with 2 rows selected:

| Inventory ID | COST | Number of units |
|--------------|------|-----------------|
| i1010230125  | 7.99 | 250             |
| i1010230126  | 5.24 | 87              |

Download CSV  
2 rows selected.

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## **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.

The screenshot shows the Live SQL interface with a sidebar on the left containing links to Home, SQL Worksheet, My Session, Schema, Quick SQL, My Scripts, My Tutorials, and Code Library. The main area is titled 'SQL Worksheet' and contains the following SQL query:

```
1, SELECT id AS "Inventory ID",
2 cost,
3 units AS "Number of units"
4 FROM inventory_list
5 WHERE units IN (50,100,150,200)
```

Below the query, the results are displayed in a table:

| Inventory ID | COST | Number of units |
|--------------|------|-----------------|
| i1010230124  | 2.5  | 100             |

A 'Download CSV' button is located below the table. At the bottom of the interface, a footer indicates: '2023 Oracle - Live SQL 23.4.2, running Oracle Database 19c EE Extreme Perf - 19.17.0.0.0 - Database Documentation - Ask Tom - Dev Gym. Built with using Oracle APEX - Privacy - Terms of Use'.

#### **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.

The screenshot shows the Live SQL interface with the same sidebar as the previous image. The SQL query in the main area is:

```
1, SELECT id AS "Inventory ID", cost, units AS "Number of units"
2 FROM inventory_list
3 WHERE units NOT IN (50,100,150,200)
```

The results table shows four rows:

| Inventory ID | COST  | Number of units |
|--------------|-------|-----------------|
| i1010230125  | 7.99  | 250             |
| i1010230126  | 5.24  | 87              |
| i1010230127  | 18.95 | 65              |
| i1010230128  | 97.46 | 8               |

A 'Download CSV' button is present, and the text '4 rows selected.' is displayed below it. The footer at the bottom remains the same as in the previous screenshot.

#### **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.

The screenshot shows the Live SQL interface with the following SQL query in the worksheet:

```
1, SELECT itm_number AS "Item Number", name
2 FROM items
3 WHERE name LIKE 'g%';
```

The results table displays two rows:

| Item Number | NAME     |
|-------------|----------|
| im01101044  | gloves   |
| im01101047  | game top |

Below the table, it says "2 rows selected." and there is a "Download CSV" button.

## **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.

The screenshot shows the Live SQL interface with the following SQL query in the worksheet:

```
1, SELECT itm_number AS "Item Number", name
2 FROM items
3 WHERE name LIKE '_o%';
```

The results table displays one row:

| Item Number | NAME  |
|-------------|-------|
| im01101046  | socks |

Below the table, there is a "Download CSV" button.

## **Section 6 Lesson 7 Exercise 2: Restricting Data Using WHERE**

***Limit rows using WHERE (S6L7 Objective 1)***

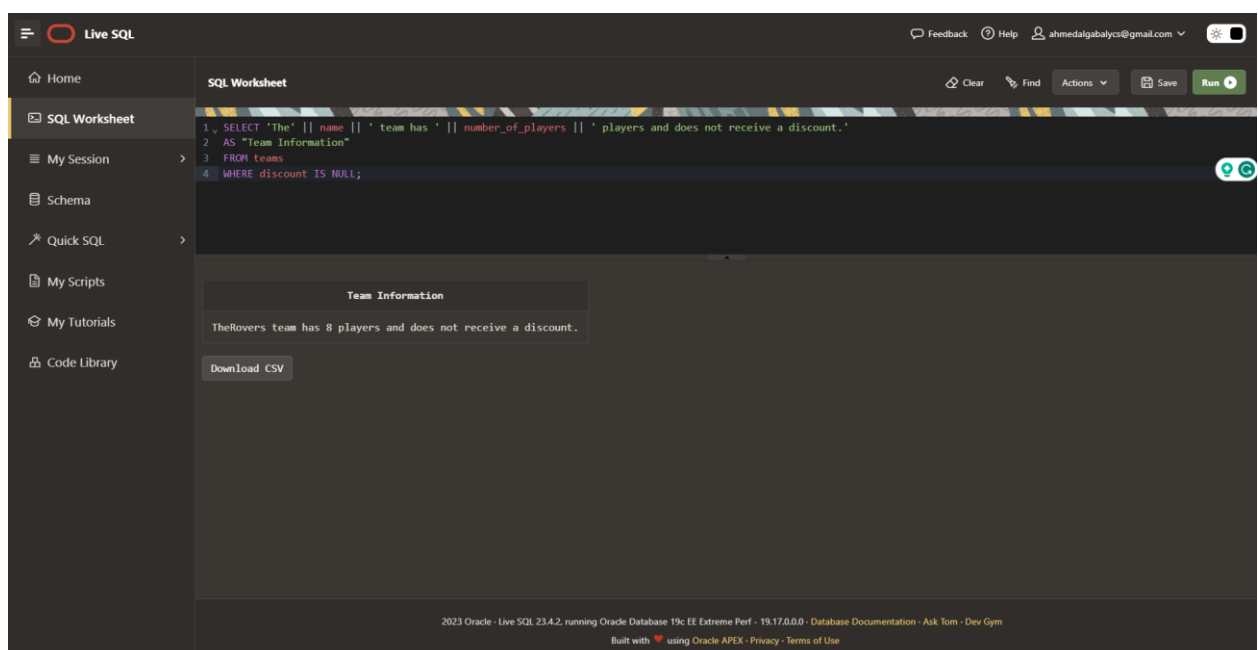
In this exercise you will refine the data that is returned in your query by adding a WHERE clause to your SELECT statement.

### **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.



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.

The screenshot shows the Oracle Live SQL interface. The left sidebar contains navigation links: Home, SQL Worksheet (selected), My Session, Schema, Quick SQL, My Scripts, My Tutorials, and Code Library. The main area is titled "SQL Worksheet" and contains the following SQL query:

```
1, SELECT 'The ' || name || ' team has ' || number_of_players || ' players and receives a discount of 10
2 percent.' AS "Team Information"
3 FROM teams
4 WHERE discount IS NOT NULL;
```

Below the query, the results are displayed in a table titled "Team Information":

|  |
|--|
| The Jets team has 10 players and receives a discount of 10 percent.    |
| The Rockets team has 25 players and receives a discount of 10 percent. |
| The Celtics team has 42 players and receives a discount of 10 percent. |

Below the table, there is a "Download CSV" button and a message "3 rows selected." At the bottom of the interface, it says "2023 Oracle - Live SQL 23.4.2, running Oracle Database 19c EE Extreme Perf - 19.17.0.0.0 - Database Documentation - Ask Tom - Dev Gym" and "Built with using Oracle APEX - Privacy - Terms of Use".

## **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.

The screenshot shows the Oracle Live SQL interface. The left sidebar contains navigation links: Home, SQL Worksheet (selected), My Session, Schema, Quick SQL, My Scripts, My Tutorials, and Code Library. The main area is titled "SQL Worksheet" and contains the following SQL query:

```
1, SELECT ctr_number AS "Customer Number", Address_line_1 AS "Street Address", zip_code AS "Postal Code"
2 FROM customers_addresses
3 WHERE city = 'Liverpool' AND address_line_2 = 'Starford';
```

Below the query, the results are displayed in a table:

| Customer Number | Street Address     | Postal Code |
|-----------------|--------------------|-------------|
| c00001          | 17 Gartsquare Road | LP89JHK     |

Below the table, there is a "Download CSV" button. At the bottom of the interface, it says "2023 Oracle - Live SQL 23.4.2, running Oracle Database 19c EE Extreme Perf - 19.17.0.0.0 - Database Documentation - Ask Tom - Dev Gym" and "Built with using Oracle APEX - Privacy - Terms of Use".

## **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.

The screenshot shows the Live SQL interface with a query executed. The query is:

```
1, SELECT ctr_number AS "Customer Number", Address_line_1 AS "Street Address", zip_code AS "Postal Code"
2 FROM customers_addresses
3 WHERE city = 'Liverpool' OR address_line_2 = 'Starford';
```

The result is displayed in a table with 3 columns: Customer Number, Street Address, and Postal Code. There are 2 rows selected.

| Customer Number | Street Address     | Postal Code |
|-----------------|--------------------|-------------|
| c00001          | 17 Gartsquare Road | LP89JHK     |
| c00001          | 63 Acacia Drive    | LP83JHR     |

Download CSV  
2 rows selected.

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#### **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.

The screenshot shows the Live SQL interface with a query executed. The query is:

```
1, SELECT ctr_number AS "Customer Number", Address_line_1 AS "Street Address", zip_code AS "Postal Code"
2 FROM customers_addresses
3 WHERE city NOT IN ('Liverpool');
```

The result is displayed in a table with 3 columns: Customer Number, Street Address, and Postal Code. There are 2 rows selected.

| Customer Number | Street Address     | Postal Code |
|-----------------|--------------------|-------------|
| c00001          | 17 Gartsquare Road | LP89JHK     |
| c00001          | 63 Acacia Drive    | LP83JHR     |

Download CSV  
2 rows selected.

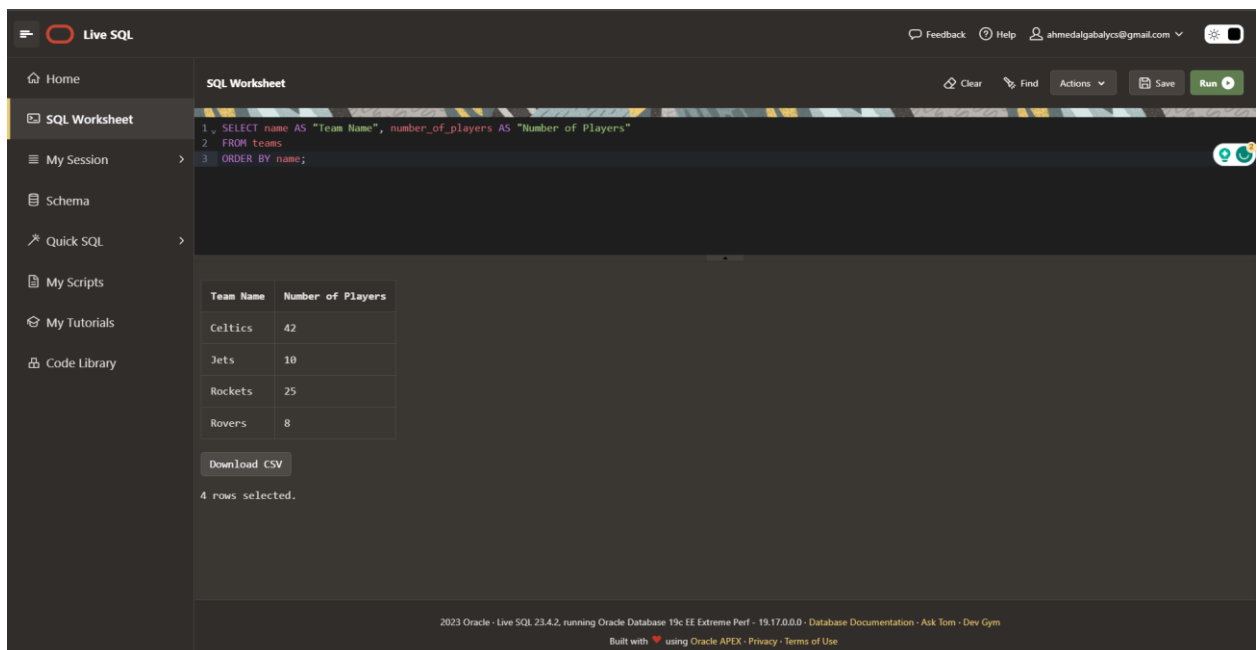
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## **Section 6 Lesson 8 Exercise 1: Sorting Data Using ORDER BY**

### ***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.**



The screenshot shows the 'Live SQL' web application interface. On the left is a sidebar with navigation links: Home, SQL Worksheet (selected), My Session, Schema, Quick SQL, My Scripts, My Tutorials, and Code Library. The main area is titled 'SQL Worksheet' and contains a text editor with the following SQL query:

```
1, SELECT name AS "Team Name", number_of_players AS "Number of Players"
2 FROM teams
3 ORDER BY name;
```

Below the editor, the query results are displayed in a table:

| Team Name | Number of Players |
|-----------|-------------------|
| Celtics   | 42                |
| Jets      | 10                |
| Rockets   | 25                |
| Rovers    | 8                 |

Below the table, there is a 'Download CSV' button and the text '4 rows selected.'. At the bottom of the interface, a footer contains the text: '2023 Oracle - Live SQL 23.4.2, running Oracle Database 19c EE Extreme Perf - 19.17.0.0.0 - Database Documentation - Ask Tom - Dev Gym. Built with using Oracle APEX - Privacy - Terms of Use'.

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



The screenshot shows the Live SQL interface with the following SQL query in the worksheet:

```
1, SELECT name AS "Team Name", number_of_players AS "Number of Players"
2 FROM teams
3 ORDER BY number_of_players DESC;
```

The results are displayed in a table below the query:

| Team Name | Number of Players |
|-----------|-------------------|
| Celtics   | 42                |
| Rockets   | 25                |
| Jets      | 10                |
| Rovers    | 8                 |

Below the table, there is a "Download CSV" button and a message "4 rows selected.".

**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.**

The screenshot shows the Live SQL interface with the following modified SQL query in the worksheet:

```
1, SELECT name AS "Team Name", number_of_players AS "Number of Players"
2 FROM teams
3 ORDER BY "Team Name" DESC;
```

The results are displayed in a table below the query:

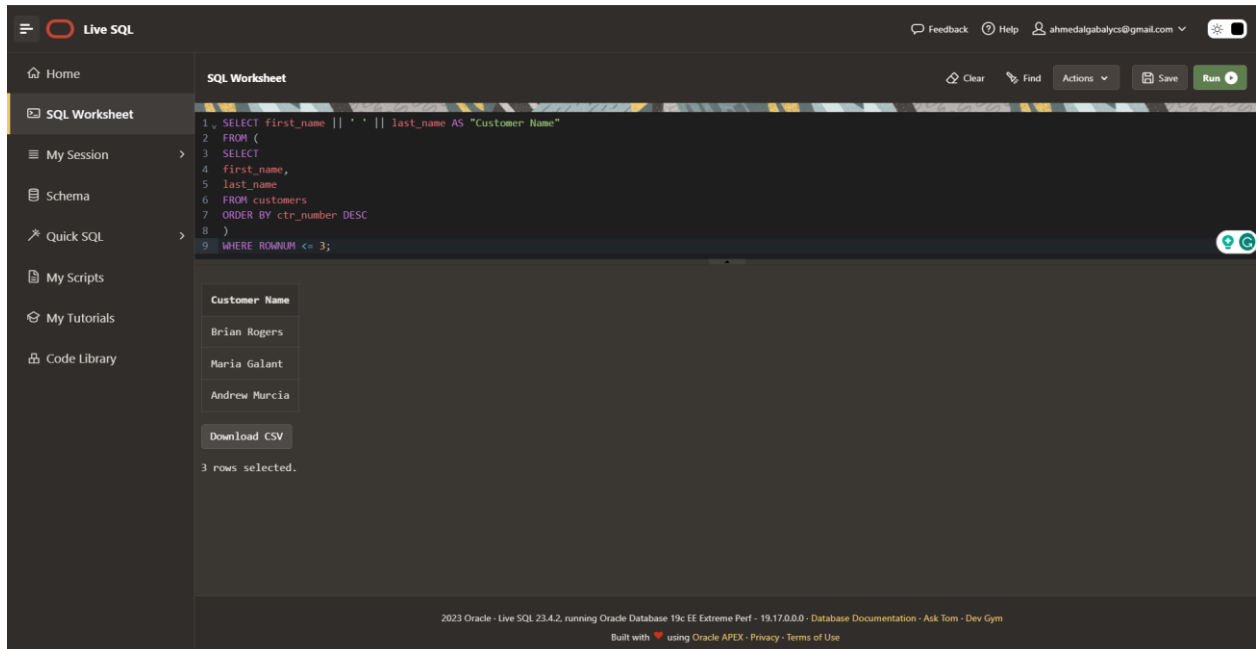
| Team Name | Number of Players |
|-----------|-------------------|
| Rovers    | 8                 |
| Rockets   | 25                |
| Jets      | 10                |
| Celtics   | 42                |

Below the table, there is a "Download CSV" button and a message "4 rows selected.".

## **Section 6 Lesson 8 Exercise 2: Sorting Data Using ORDER BY**

### **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.



The screenshot shows the Live SQL interface with a SQL Worksheet. The query entered is:

```
1, SELECT first_name || ' ' || last_name AS "Customer Name"
2 FROM (
3 SELECT
4 first_name,
5 last_name,
6 FROM customers
7 ORDER BY ctr_number DESC
8 )
9 WHERE ROWNUM <= 3;
```

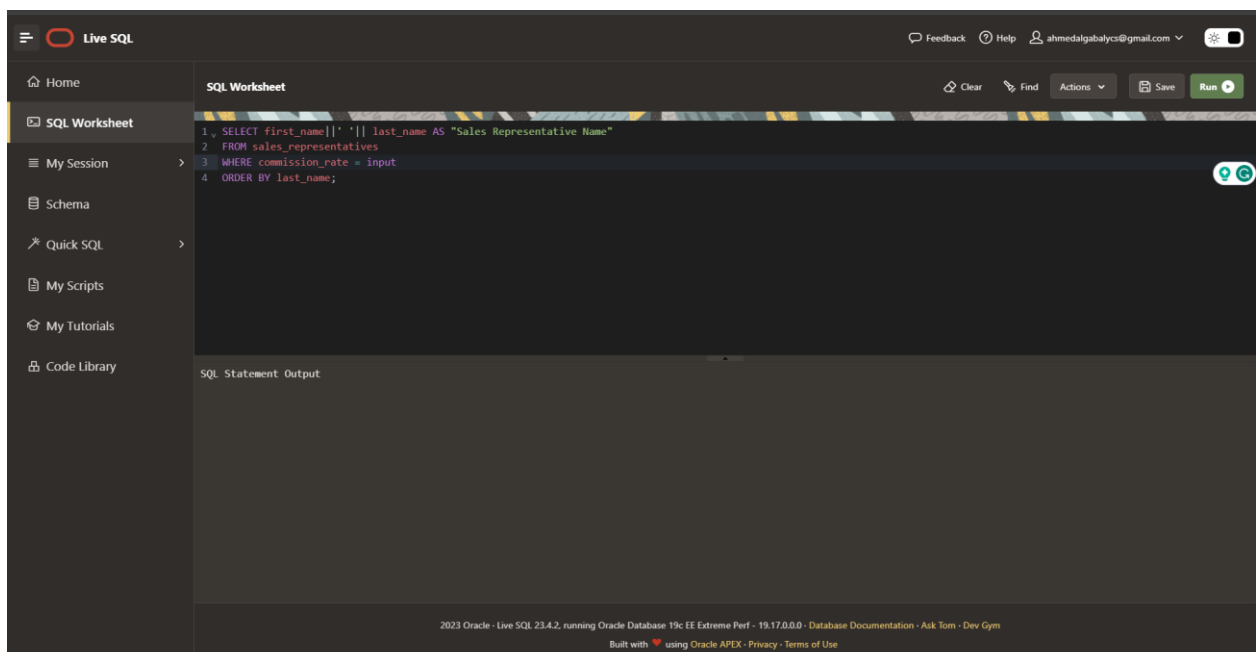
The results are displayed in a table with the column header "Customer Name":

| Customer Name |
|---------------|
| Brian Rogers  |
| Maria Galant  |
| Andrew Murcia |

Below the table, it says "3 rows selected." and there is a "Download CSV" button. The footer indicates "2023 Oracle - Live SQL 23.4.2, running Oracle Database 19c EE Extreme Perf - 19.17.0.0.0 - Database Documentation - Ask Tom - Dev Gym".

## 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.



The screenshot shows the Live SQL interface with a SQL Worksheet. The query entered is:

```
1, SELECT first_name || ' ' || last_name AS "Sales Representative Name"
2 FROM sales_representatives
3 WHERE commission_rate = input
4 ORDER BY last_name;
```

The results section is labeled "SQL Statement Output" and is currently empty, indicating that the query has not been executed yet. The footer indicates "2023 Oracle - Live SQL 23.4.2, running Oracle Database 19c EE Extreme Perf - 19.17.0.0.0 - Database Documentation - Ask Tom - Dev Gym".

**Assuming Input is 5: it should be {first\_name, last\_name, commission\_rate}**

**R1 = {'Barry', 'Speed', 5}**

**R2 = {'Victoria', 'Wright', 5}**