FACULTY OF COMPUTING
UTM Johor Bahru

OA Lab Exercise

<DFo 6.6.1 Project>

SECD2523 - Database

SEMESTER I, SESSION 2023/2024

Lecturer: Dr. Noor Hidayah Zakaria

Name	CHUA ERN QI
Matric Number	A22EC0044
Section	08

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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.

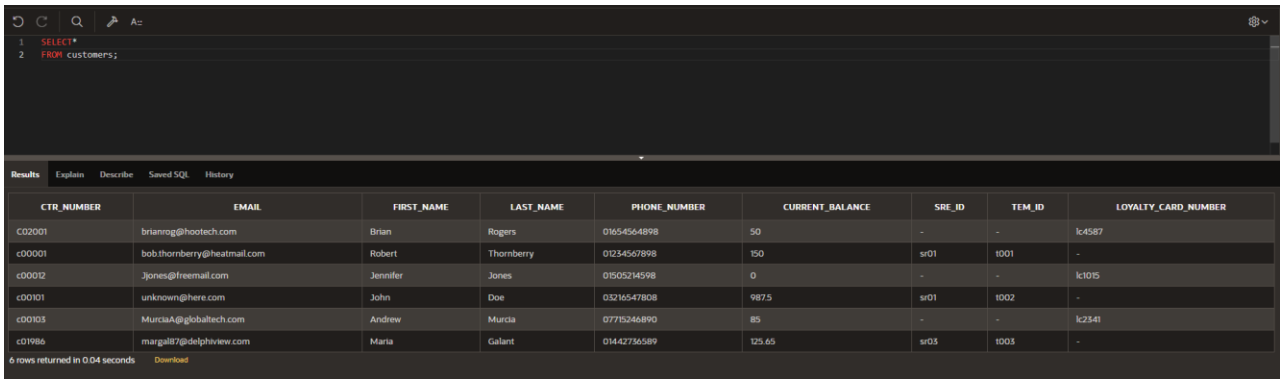
Part 1: Retrieving all columns from a table.

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

1. customers.

   SELECT*

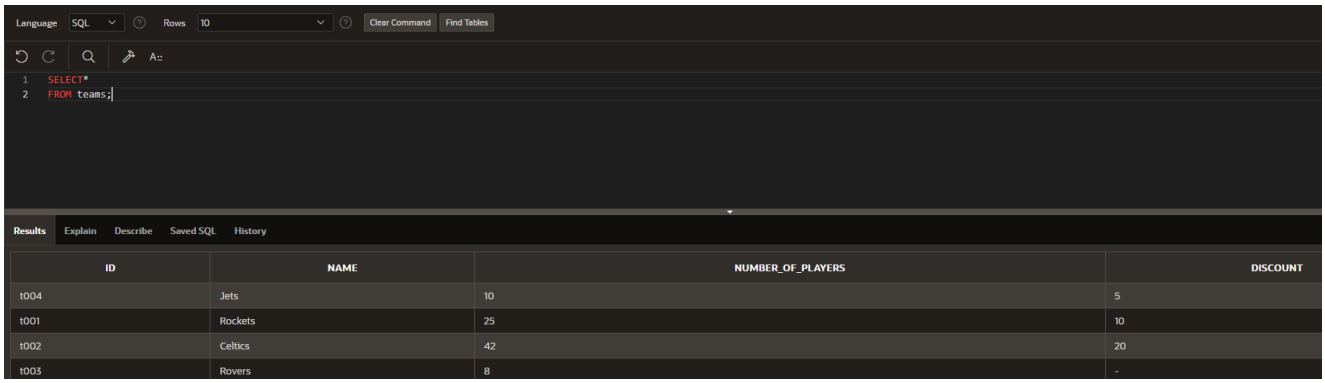
   FROM customers;



2. teams.

   SELECT*

   FROM teams;

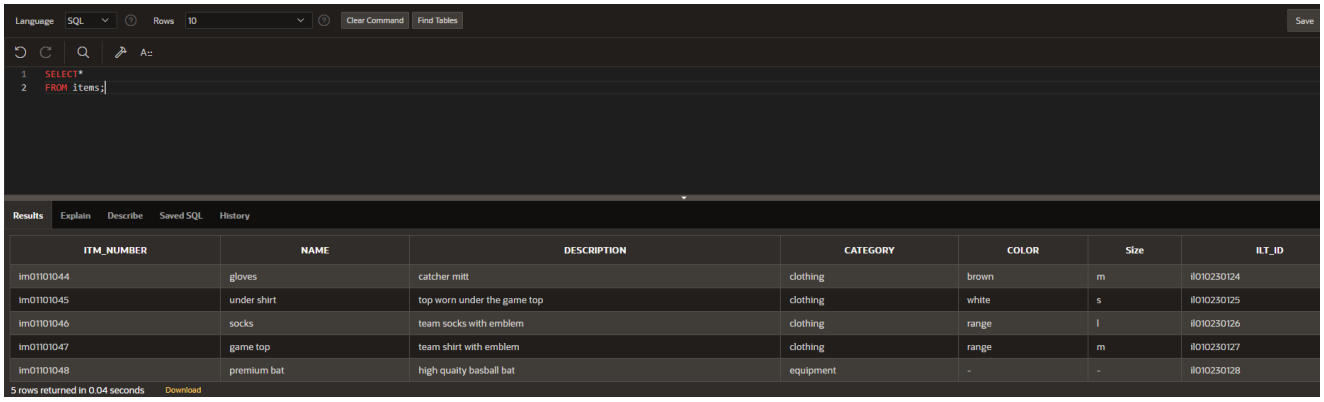


ID	NAME	NUMBER_OF_PLAYERS	DISCOUNT
t004	Jets	10	5
t001	Rockets	25	10
t002	Celtics	42	20
t003	Rovers	8	-

3. items

SELECT*

FROM items;



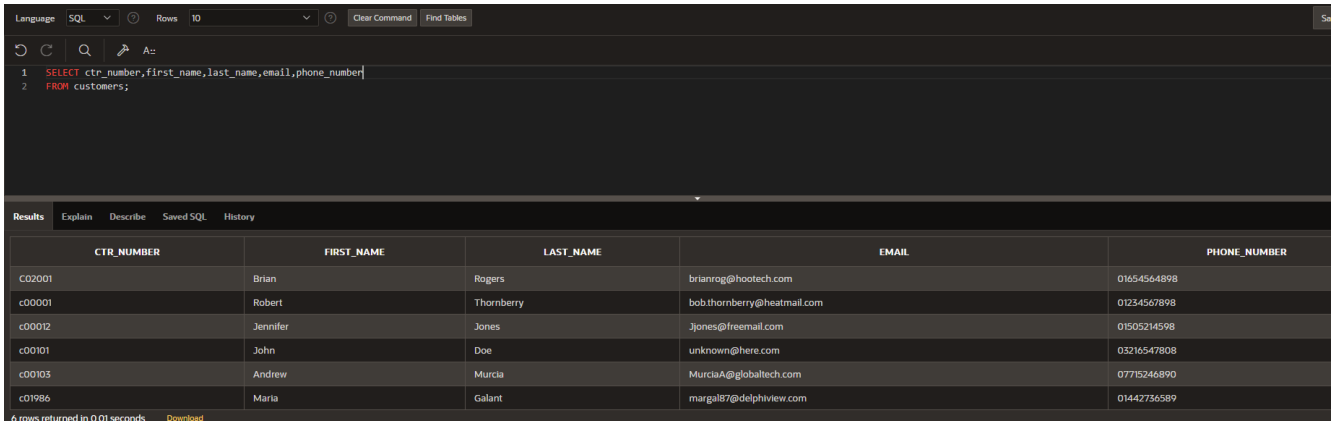
ITM_NUMBER	NAME	DESCRIPTION	CATEGORY	COLOR	Size	ILT_ID
im01101044	gloves	catcher mitt	clothing	brown	m	il010230124
im01101045	under shirt	top worn under the game top	clothing	white	s	il010230125
im01101046	socks	team socks with emblem	clothing	range	l	il010230126
im01101047	game top	team shirt with emblem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

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

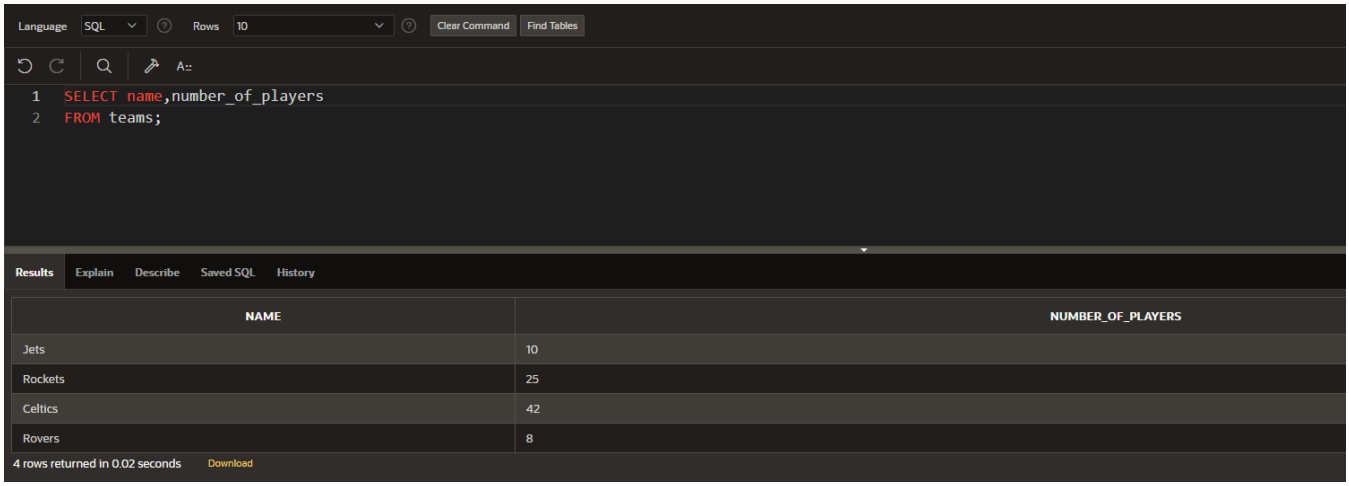
FROM customers;



CTR_NUMBER	FIRST_NAME	LAST_NAME	EMAIL	PHONE_NUMBER
c02001	Brian	Rogers	brianrog@hootech.com	01654564898
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

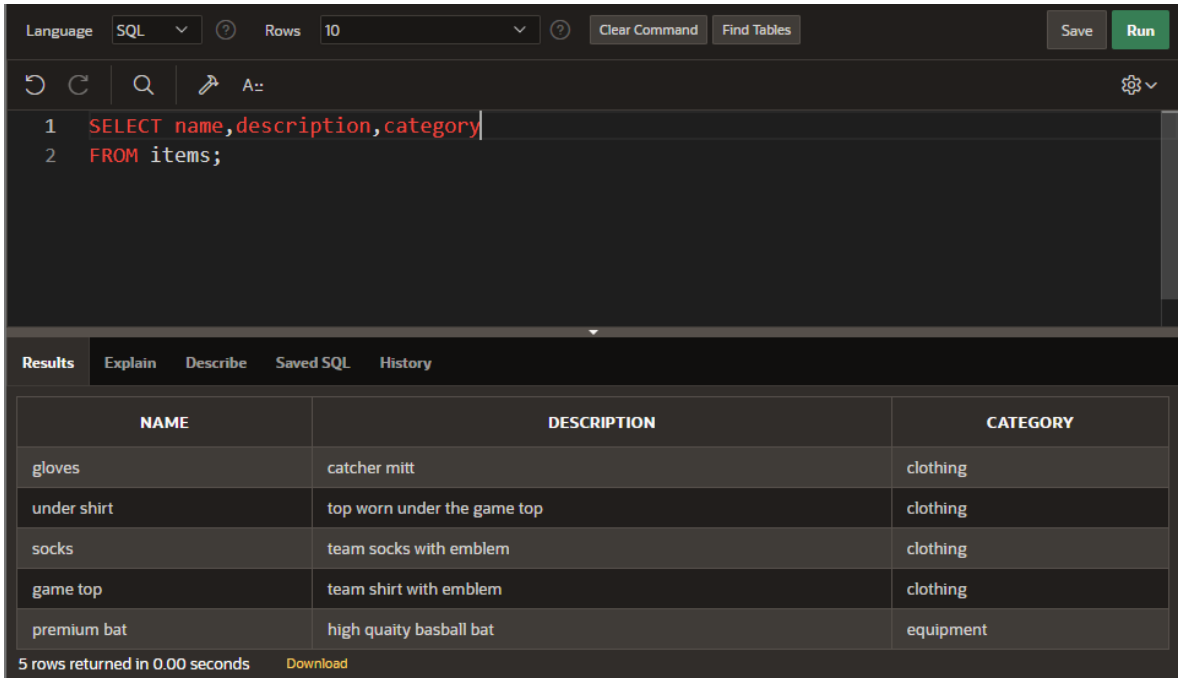
2. Display the name and number of players for each team.

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



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

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



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SECD2523 - Database

SEMESTER I, SESSION 2023/2024

Lecturer: Dr. Noor Hidayah Zakaria

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Section 6 Lesson 6 Exercise 2: Retrieving Data Using SELECT

Write and Execute SELECT statements (S6L6 Objective 2)

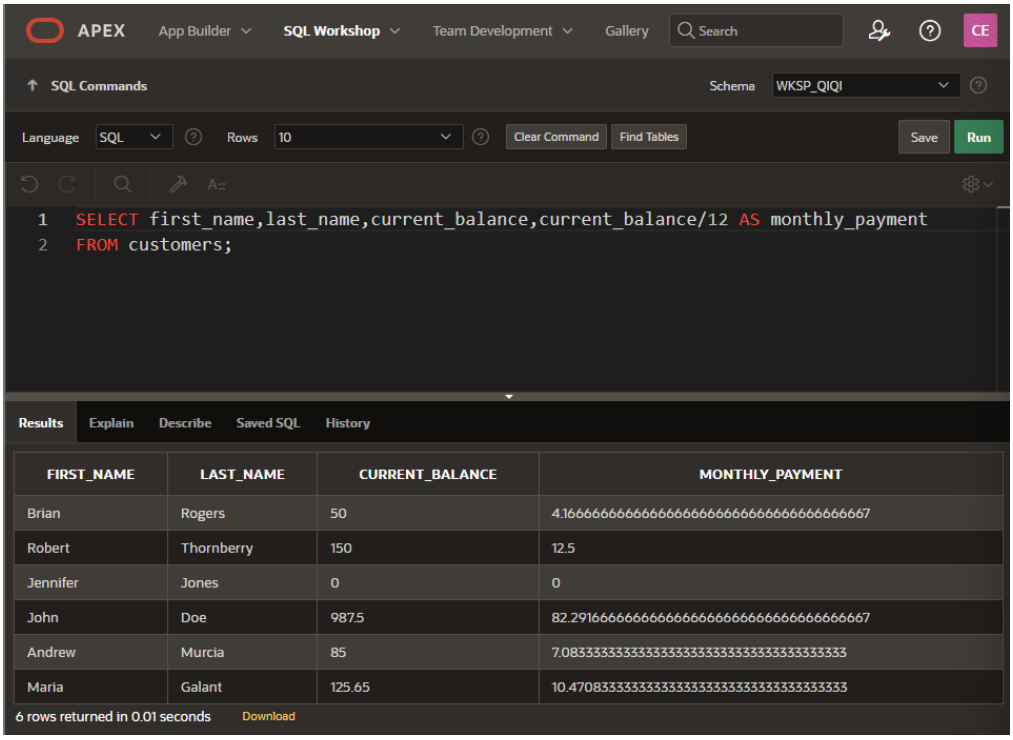
In this exercise you will retrieve data that is stored in the database system by using a SELECT statement.

Part 1: Using Arithmetic Operators

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

   SELECT first_name,last_name,current_balance,current_balance/12 AS monthly_payment

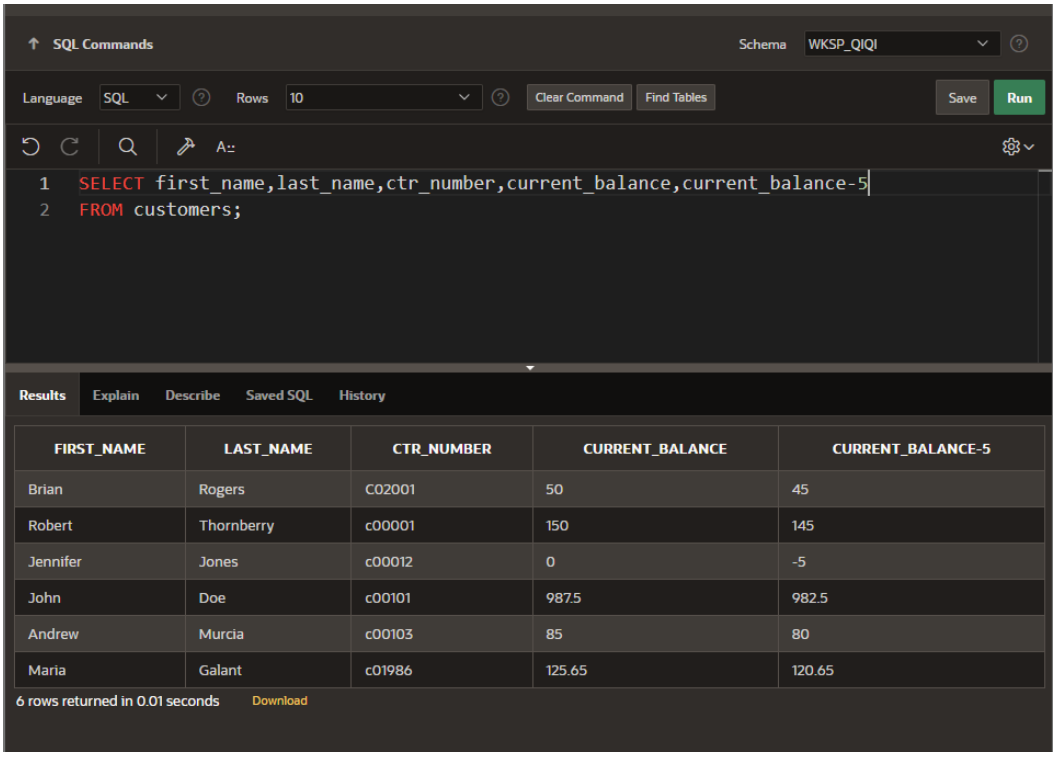
   FROM customers;



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;



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

   The current balance value after minus gift value will appear as negative value if the original value is less than 5 and it seems confused and inaccurate.

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 columnaliases. The aliases are to be shown exactly as described (case sensitive).

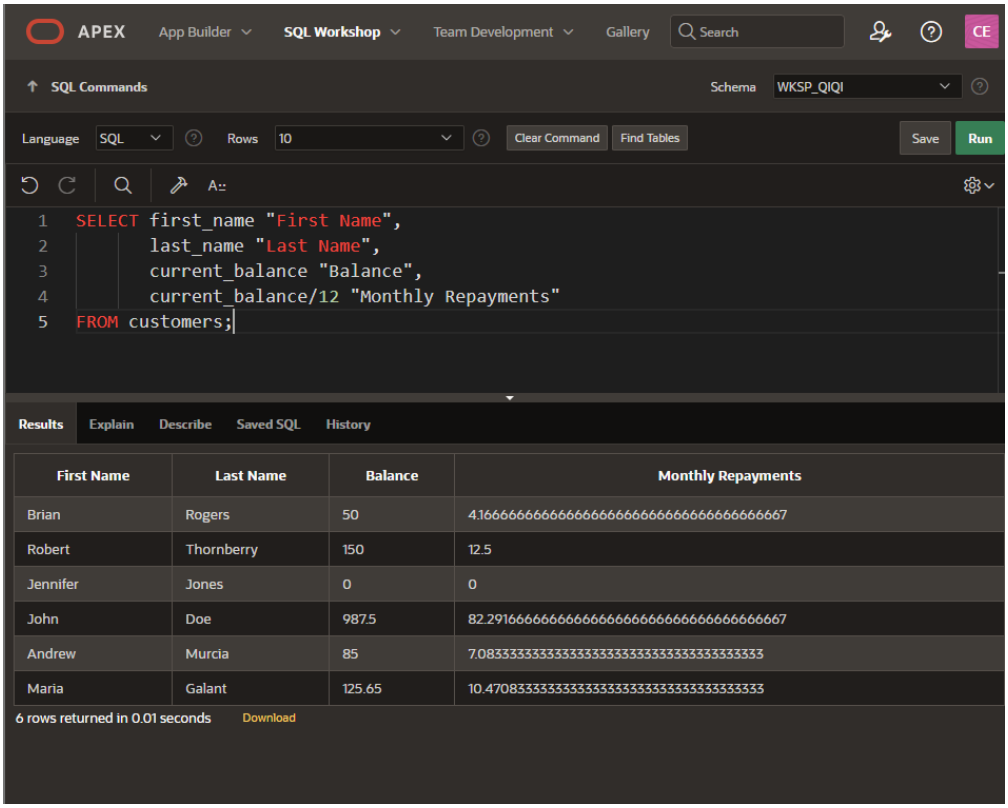
   SELECT first_name "First Name",

   last_name "Last Name",

   current_balance "Balance",

   current_balance/12 "Monthly Repayments"

   FROM customers;



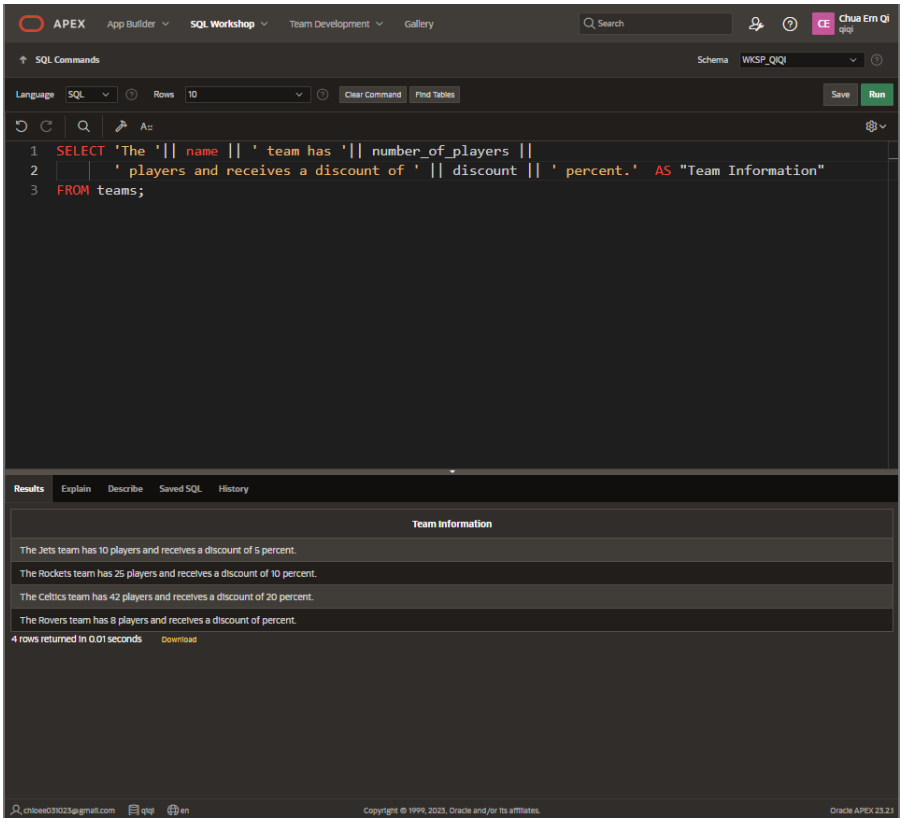
Part 3: Using Literal Character Strings

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 last team has a NULL value for the discount column. It will concatenate a NULL with a character resulting in a character string.

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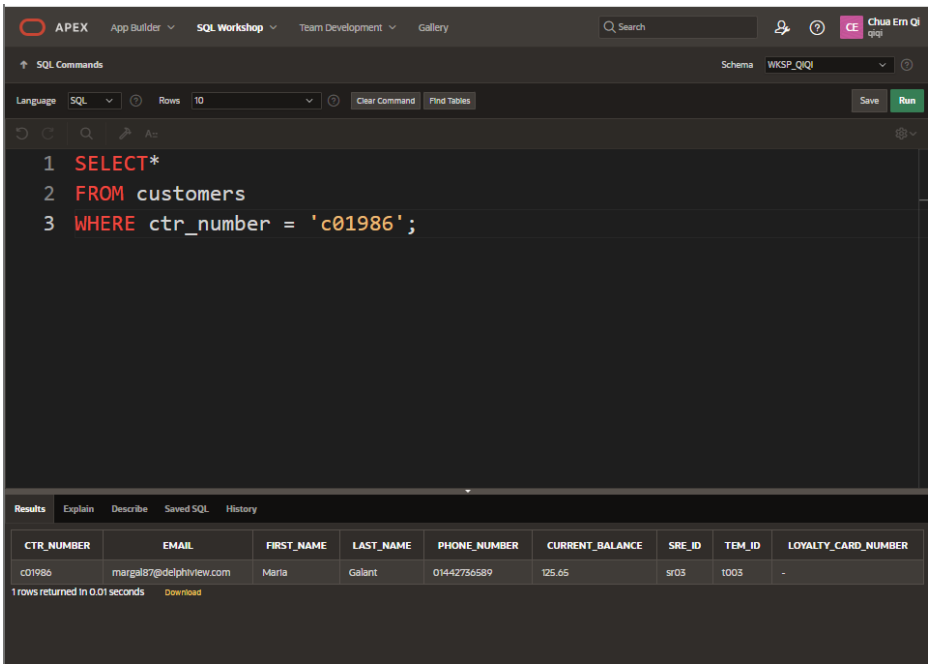
Part 1: Using the WHERE Clause.

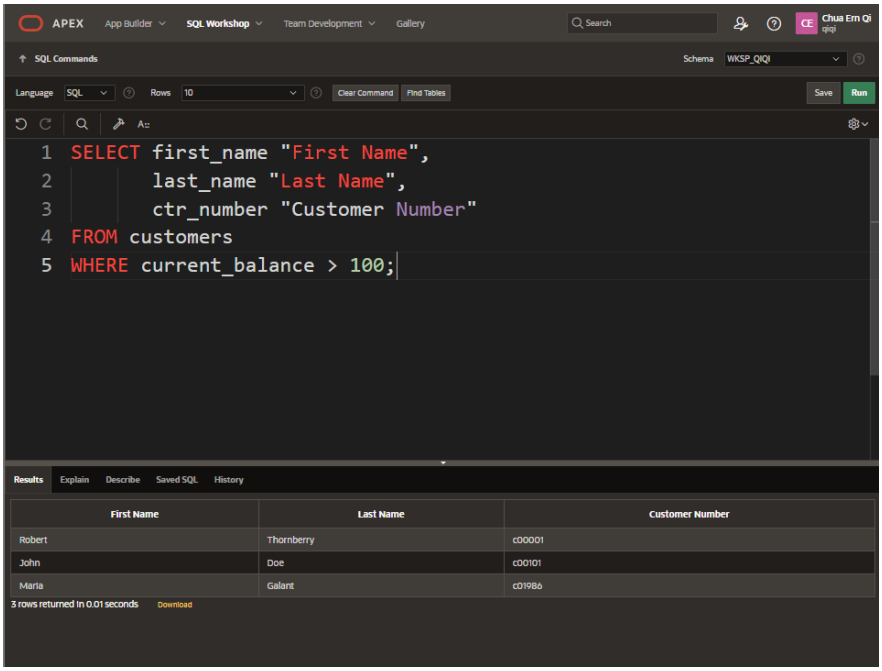
1. Using the unique customer number in the where clause display all columns for Maria Galant.

```
SELECT*
FROM customers
WHERE ctr_number = 'c01986';
```



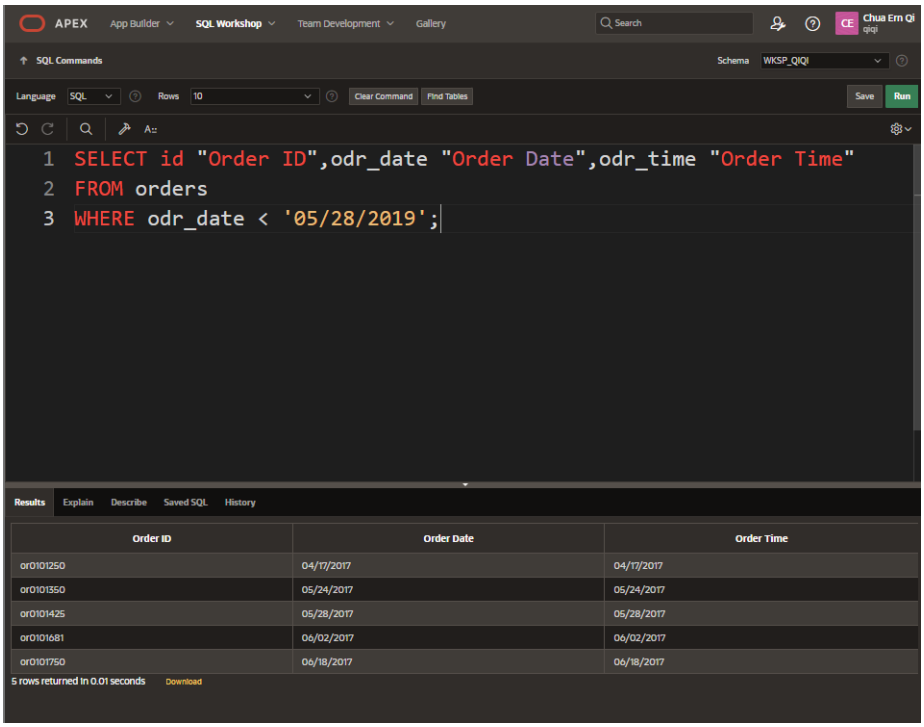
2. Display the first name, last name and customer number for all customers who have a current balance of greaterthan 100. Use an appropriate alias for your column headings.

```
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 28th of May 2019. Use anappropriate alias for your column headings.

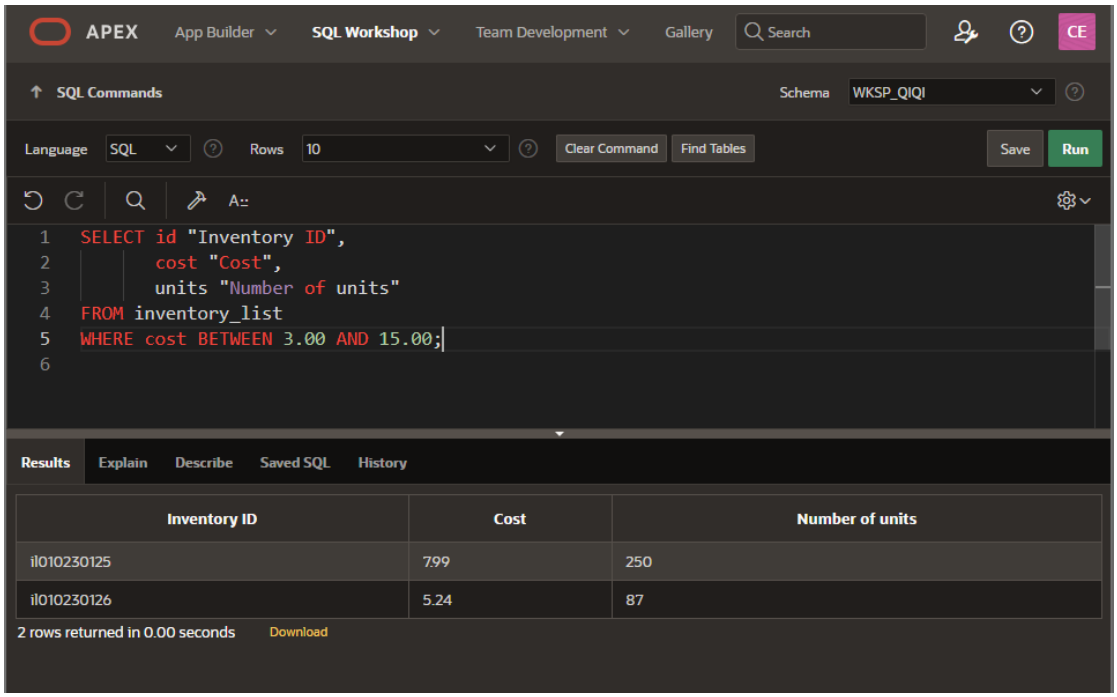
```
SELECT id "Order ID",odr_date "Order Date",odr_time "Order Time"
FROM orders
    WHERE odr_date < '05/28/2019';
```



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 ofbetween 3.00 and 15.00.

```
SELECT id "Inventory ID",
    cost "Cost",
    units "Number of units"
FROM inventory_list
WHERE cost BETWEEN 3.00 AND 15.00;
```



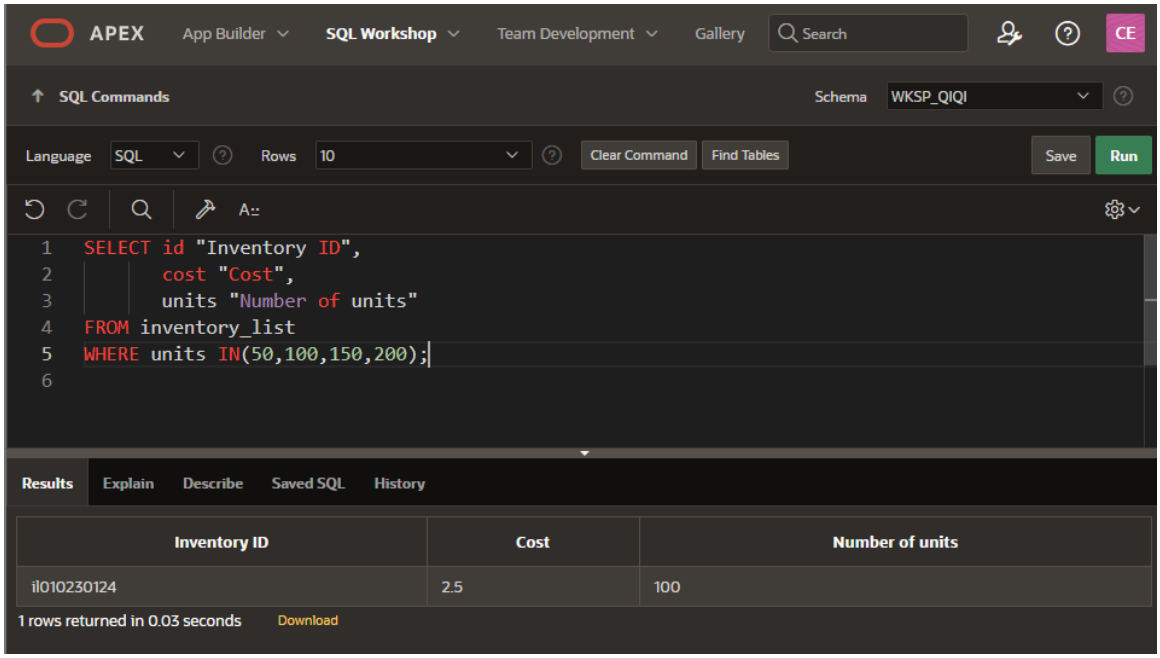
Part 3: Membership Conditions: IN Operator

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

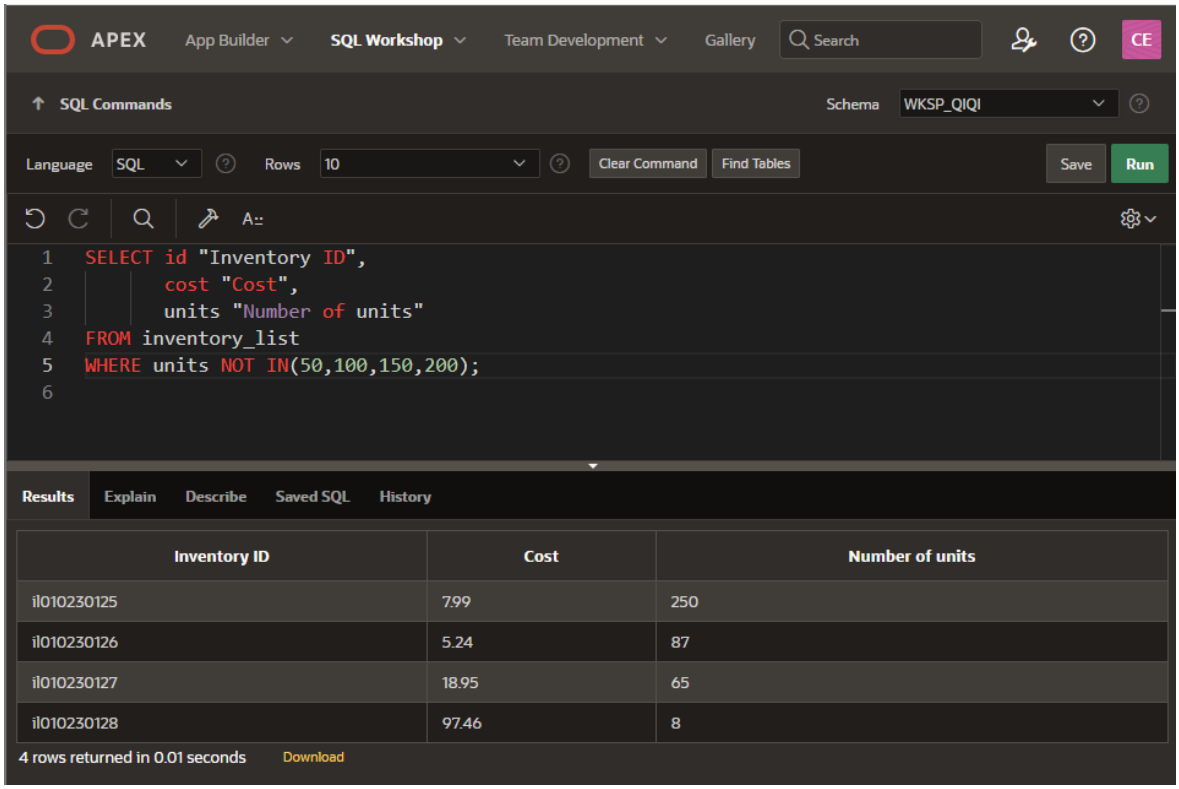
SELECT id "Inventory ID",

cost "Cost",

units "Number of units"

FROM inventory_list

WHERE units NOT IN(50,100,150,200);



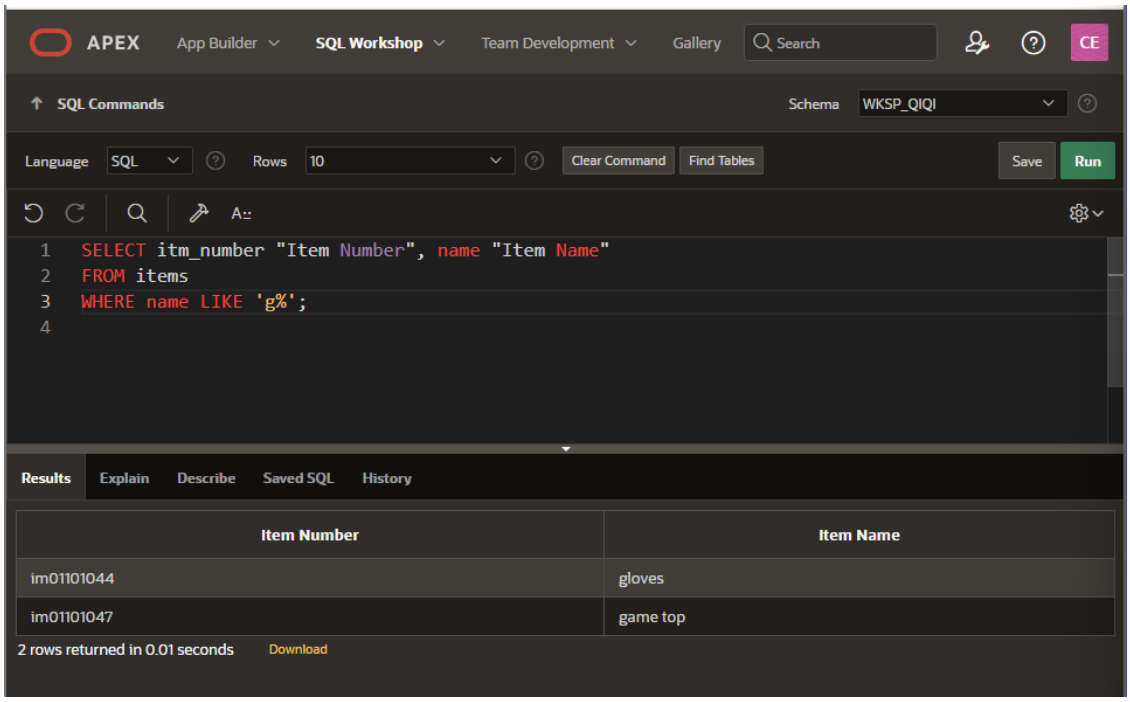
Part 5: Pattern Matching: LIKE Operator

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

   SELECT itm_number "Item Number", name "Item Name"

   FROM items

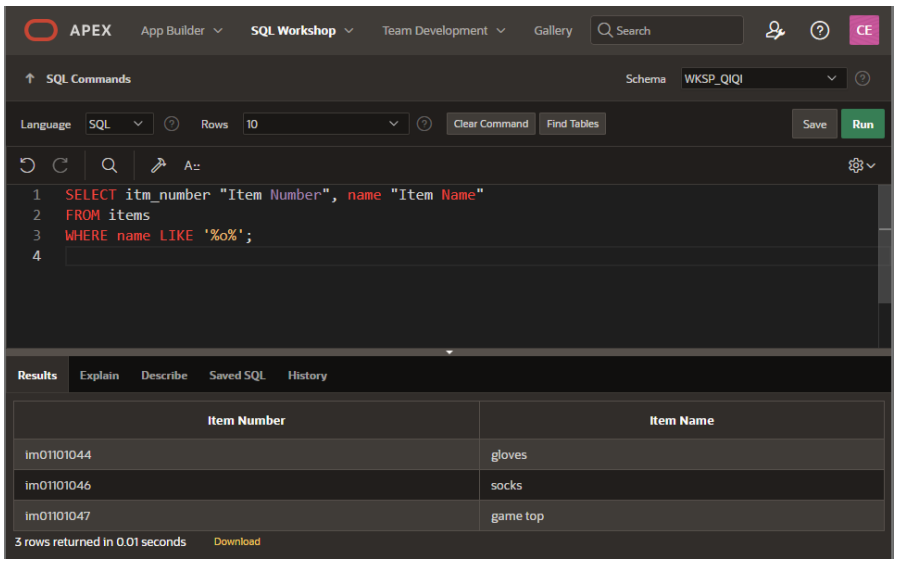
   WHERE name LIKE 'g%';



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 appropriatealias for your column headings.

```
SELECT itm_number "Item Number", name "Item Name"
FROM items
WHERE name LIKE '%o%';
```



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SEMESTER I, SESSION 2023/2024

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Name	CHUA ERN QI
Matric Number	A22EC0044
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Section 6 Lesson 7 Exercise 2: Restricting Data Using WHERE

Limit rows using WHERE (S6L7 Objective 1)

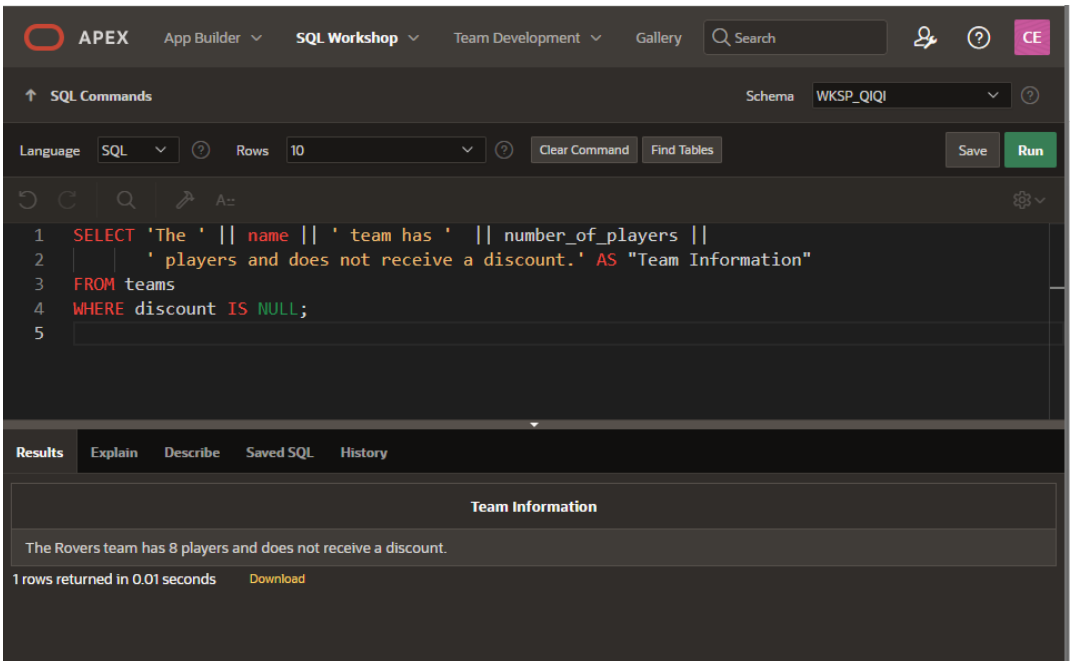
In this exercise you will refine the data that is returned in your query by adding a WHERE clause to your SELECTstatement.

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;
```

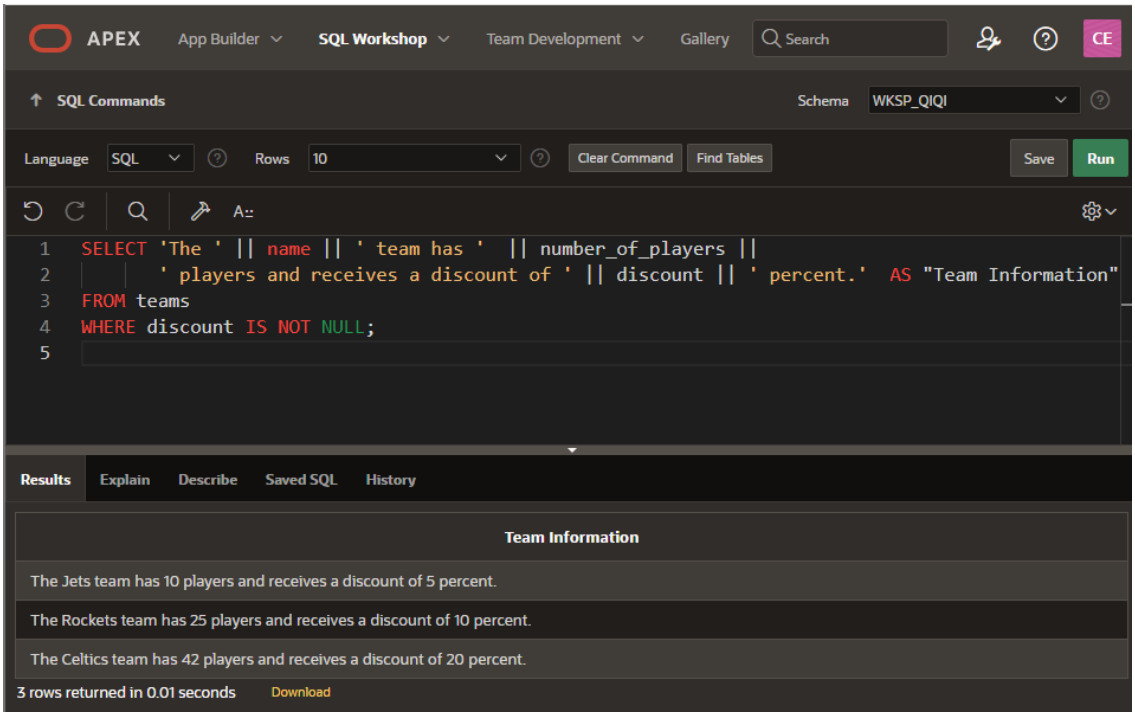


2. Write a query that will display information for only teams that receive a discount in the following format:The Rockets team has 25 players and receives a discount of 10 percent.

   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"
```

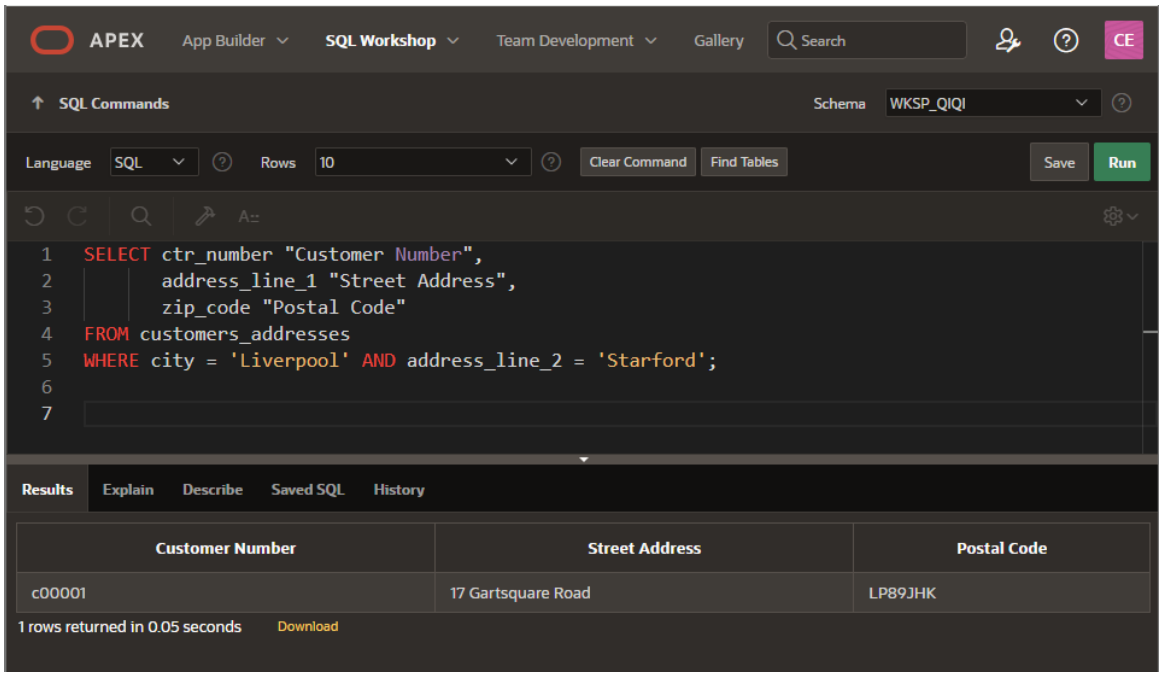
```
FROM teams
WHERE discount IS NOT NULL;
```



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 thestarford area of Liverpool. Use Customer Number, Street Address and Postal Code as the column aliases.

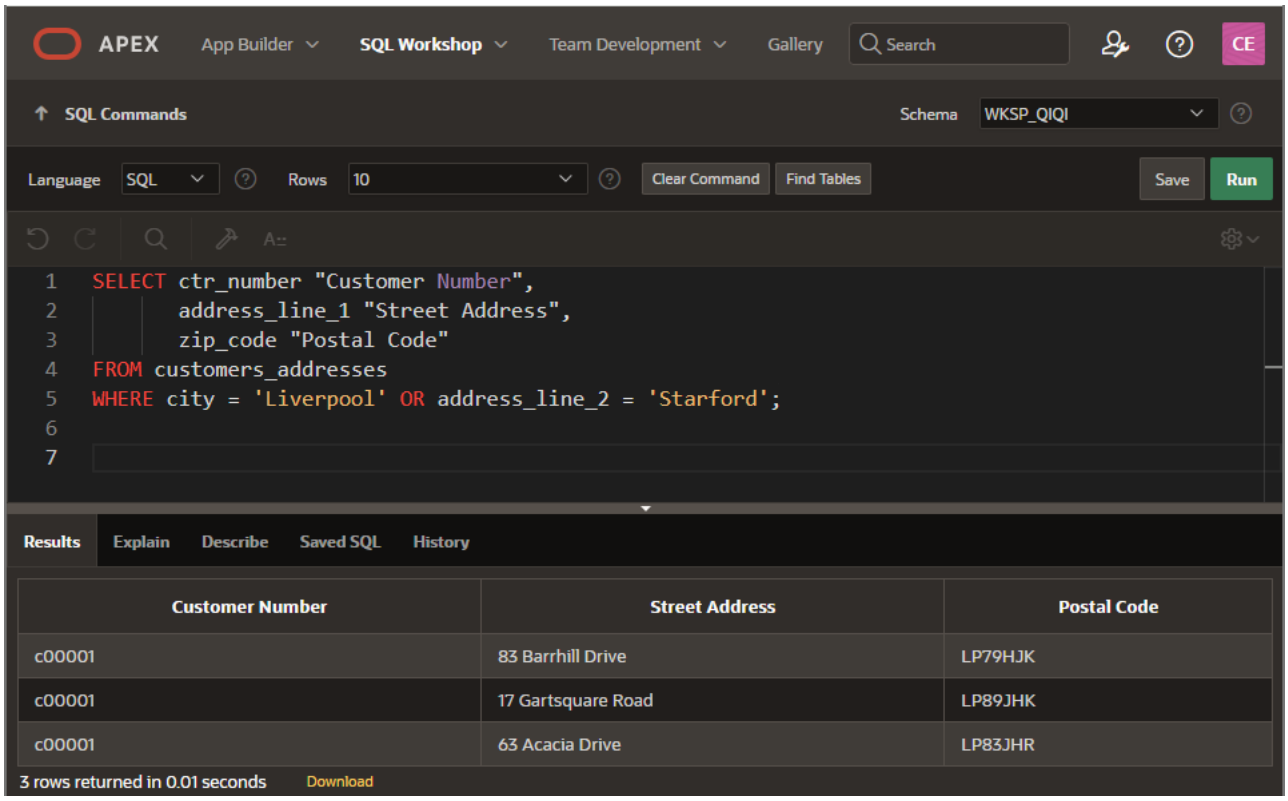
```
SELECT ctr_number "Customer Number",
    address_line_1 "Street Address",
    zip_code "Postal Code"
FROM customers_addresses
WHERE city = 'Liverpool' AND address_line_2 = 'Starford';
```



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 columnaliases.

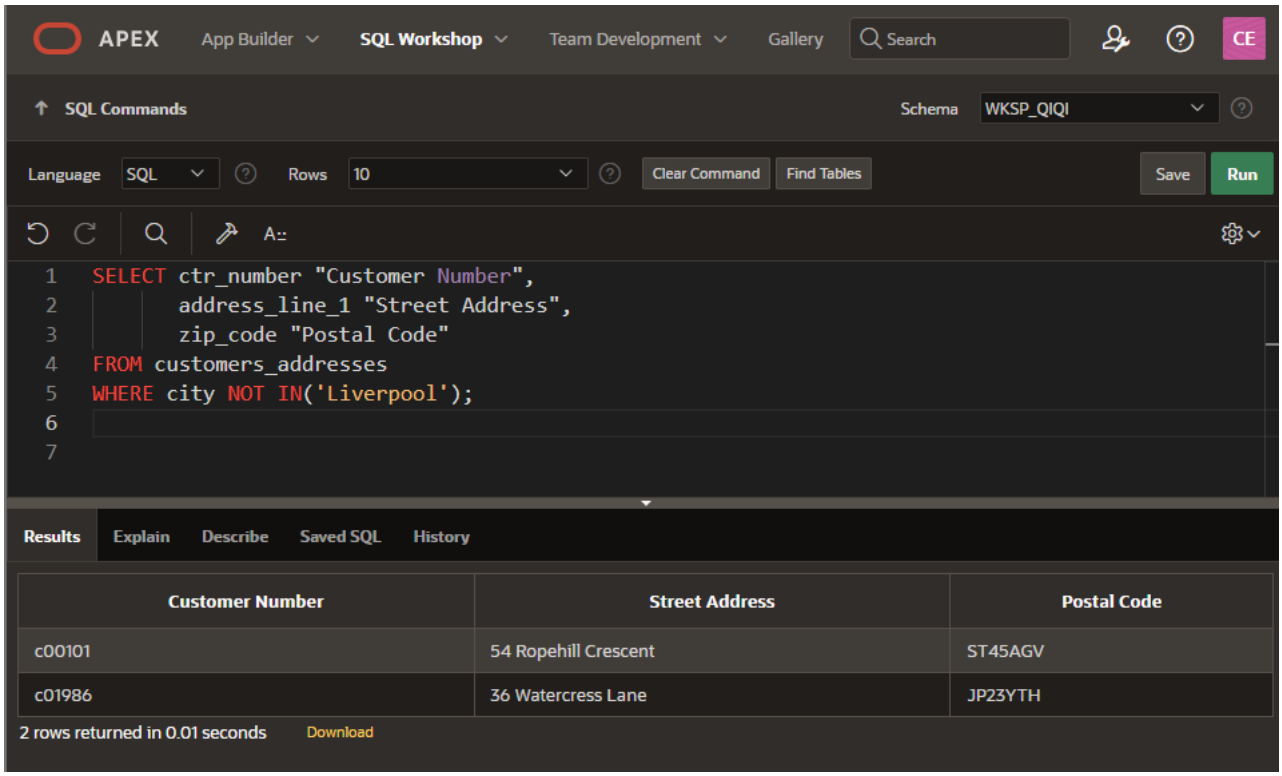
```
SELECT ctr_number "Customer Number",
    address_line_1 "Street Address",
    zip_code "Postal Code"
FROM customers_addresses
WHERE city = 'Liverpool' OR address_line_2 = 'Starford';
```



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');
```


APEX
App Builder
SQL Workshop
Team Development
Gallery
Search
CE
SQL Commands
Schema
WKSP_QIQI
Language
SQL
Rows
10
Clear Command
Find Tables
Save
Run
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 Number
Street Address
Postal Code
c00101
54 Ropehill Crescent
ST45AGV
c01986
36 Watercress Lane
JP23YTH
2 rows returned in 0.01 seconds
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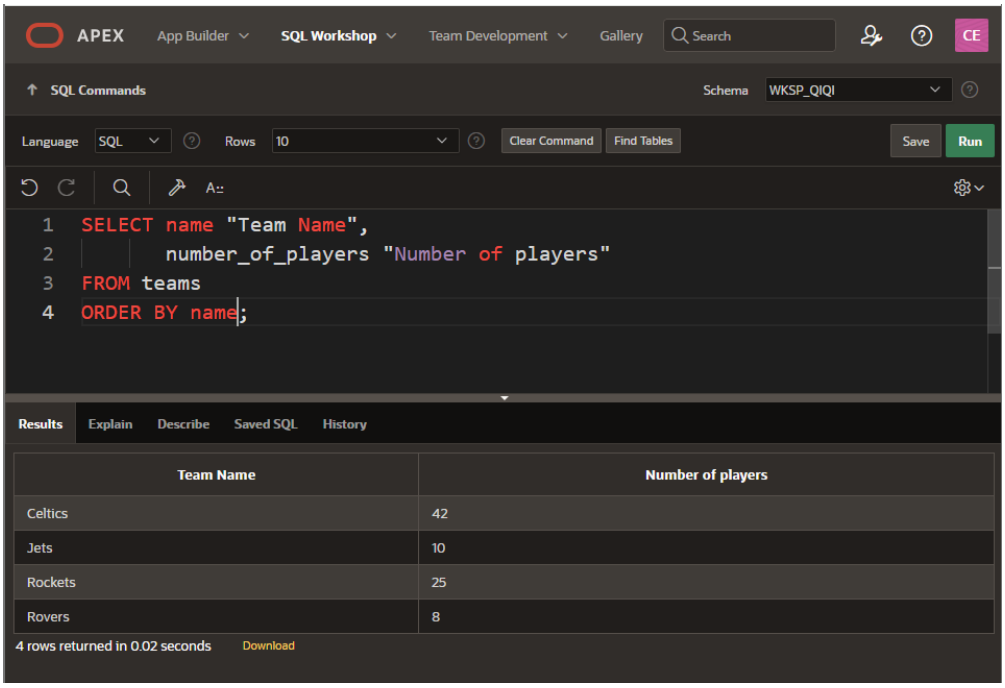
Section 6 Lesson 8 Exercise 1: Sorting Data Using ORDER BY

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 theend of your SELECT statement.

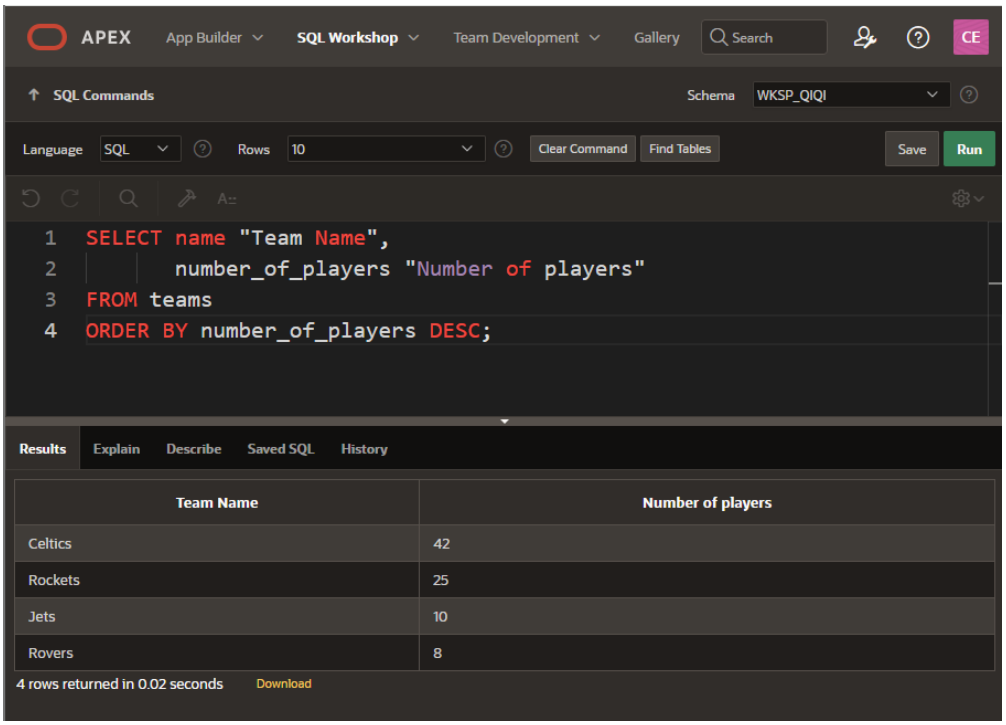
1. Display the team name and number of players alphabetically in order of team name. Use an appropriate alias foryour column headings.

```
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 appropriatealias for your column headings.

```
SELECT name "Team Name",
      number_of_players "Number of players"
FROM teams
     ORDER BY number_of_players DESC;
```



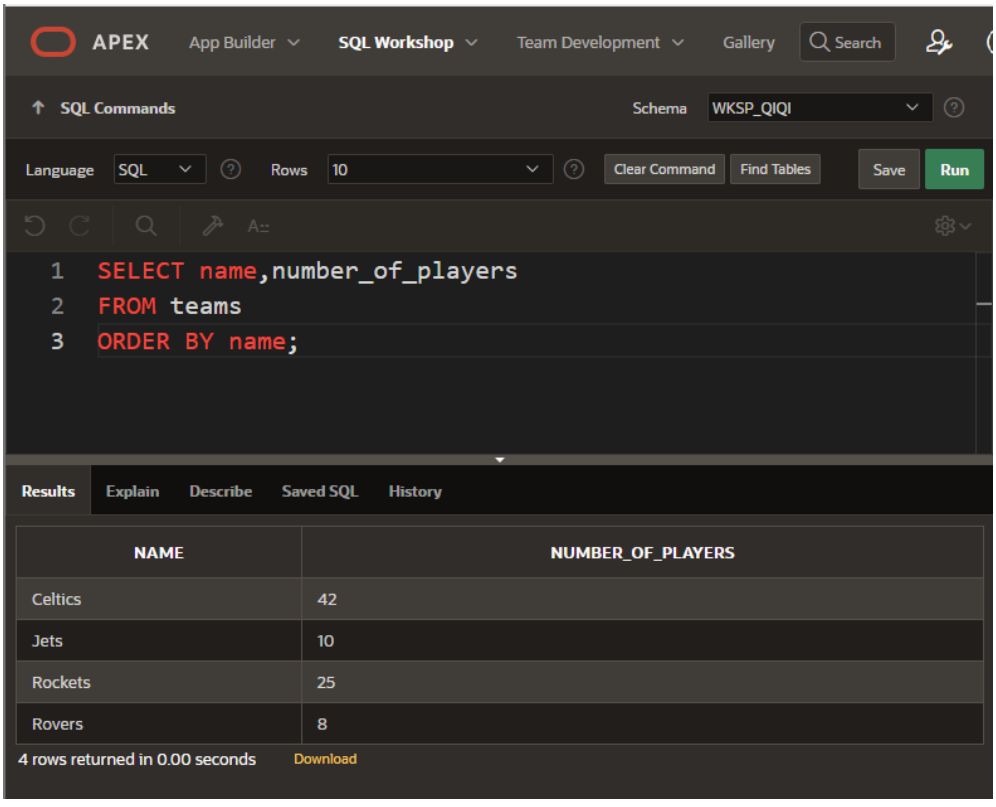
3. Display the team name and number of players alphabetically in order of team name. Use Team Name for the name alias and Players for the number of players. Sort the output in descending order of name using the alias inthe ORDER BY clause.

Alphabetically in order of team name:

SELECT name,number_of_players

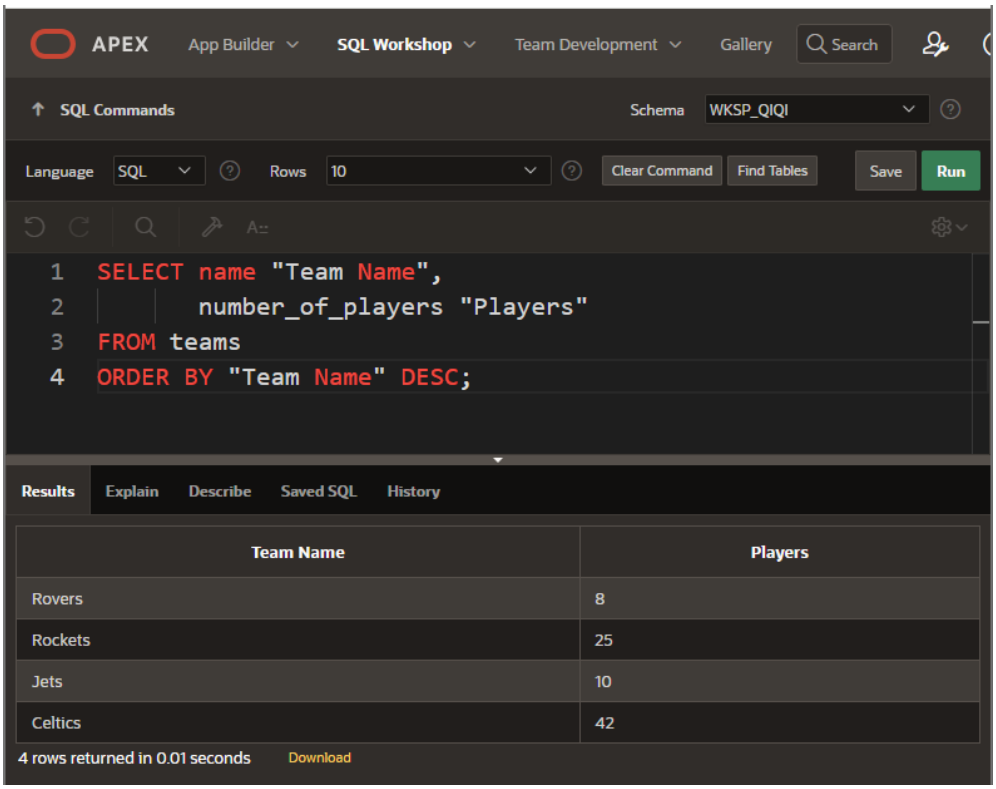
FROM teams

ORDER BY name;



Descending order of name using alias:

```
SELECT name "Team Name",
       number_of_players "Players"
FROM teams
ORDER BY "Team Name" DESC;
```



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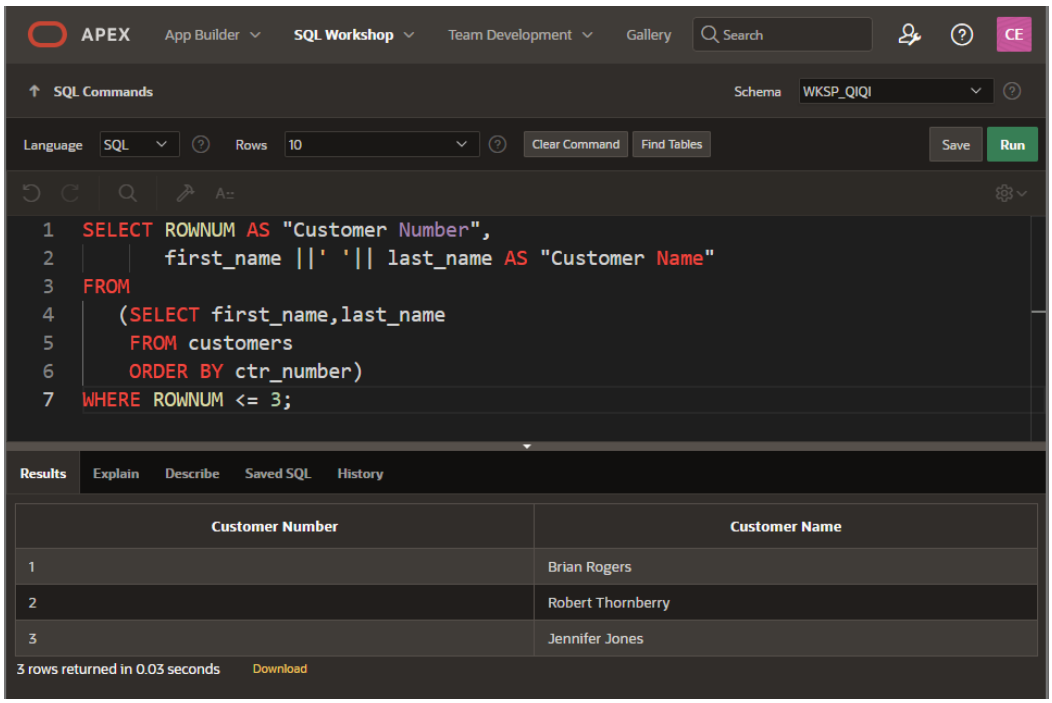
Section 6 Lesson 8 Exercise 2: Sorting Data Using ORDER BY

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

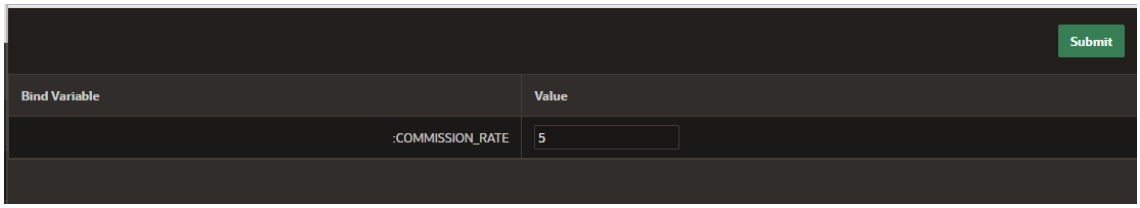
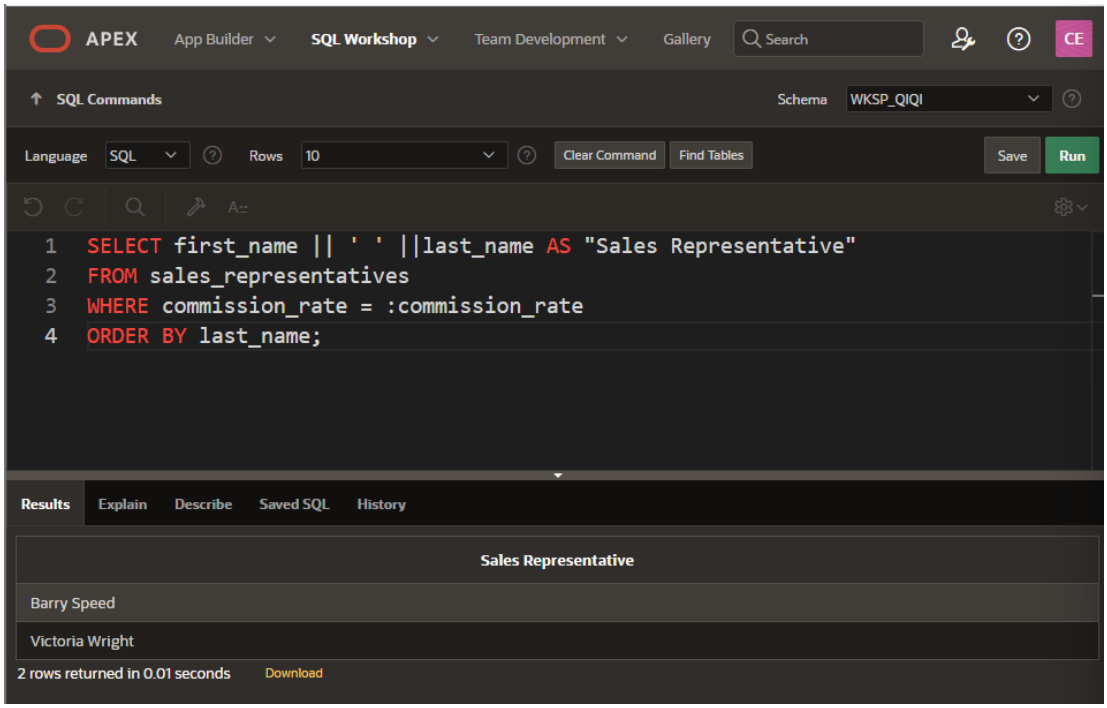
1. The customers are numbered sequentially with each new customer being assigned a higher customer number. Use TOP-N-ANALYSIS to only show the First and last name of the first three customers. Show the customers first and last name in the same column using Customer Name as the column alias.

```
SELECT ROWNUM AS "Customer Number",
      first_name ||' '|| last_name AS "Customer Name"
FROM
  (SELECT first_name,last_name
   FROM customers
   ORDER BY ctr_number)
WHERE ROWNUM <= 3;
```



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 AS "Sales Representative"
FROM sales_representatives
WHERE commission_rate = :commission_rate
ORDER BY last_name;
```