UTM
UNIVERSITI TEKNOLOGI MALAYSIA

FACULTY OF COMPUTING
UTM Johor Bahru

SECD 2523 –DATABASE

Lab 2: Data Manipulation Language (DML) 2

Subject Name:	**Database**
Subject Code:	**SECD2523**
Semester:	**1 - 2023/24**
Lab Title:	**Data Manipulation Language(DML)**
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Matric Number:	**A22EC0279**
Date of Submission:	**17 December 2023**
Lecturer Name:	**Dr Noor Hidayah Binti Zakaria**

s.

DML 2 Part 1

Section 6 Lesson 6 Exercise 1: Retrieving Data Using SELECT

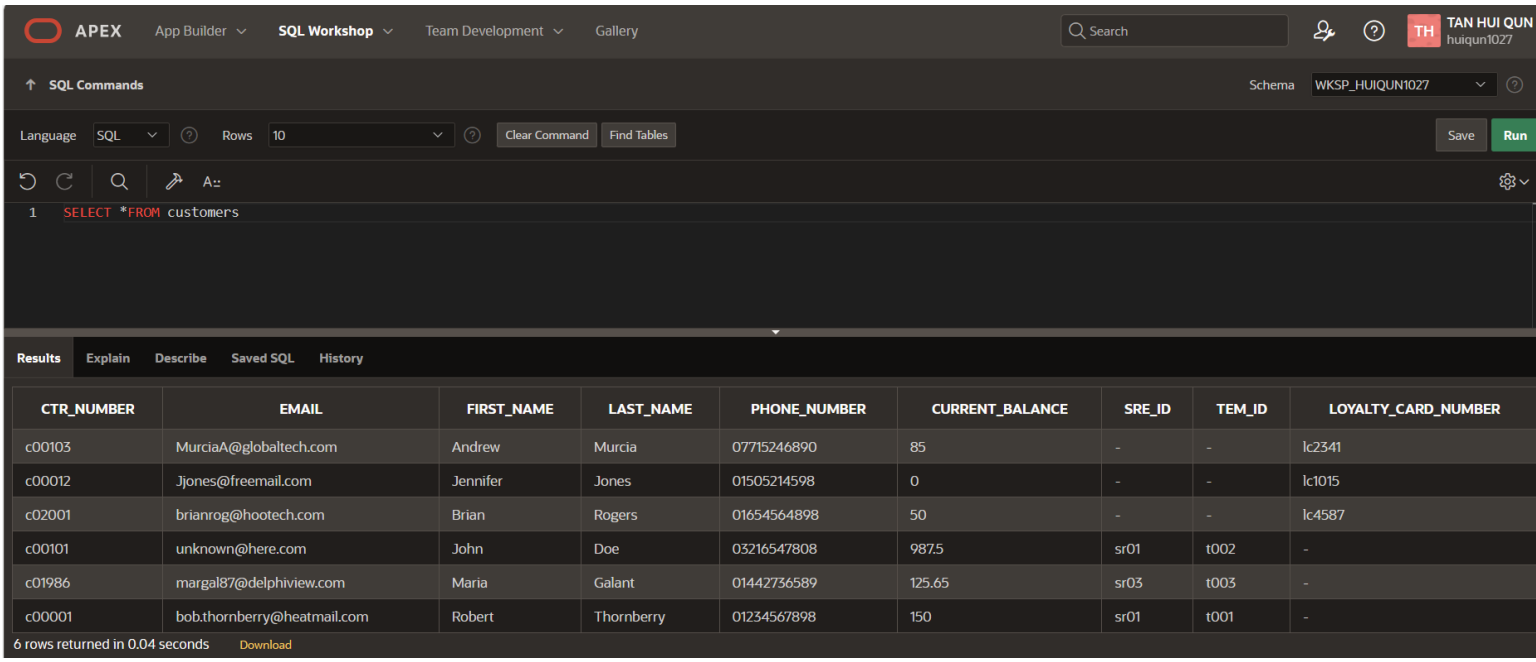
Write and Execute SELECT statements (S6L6 Objective 2)

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:

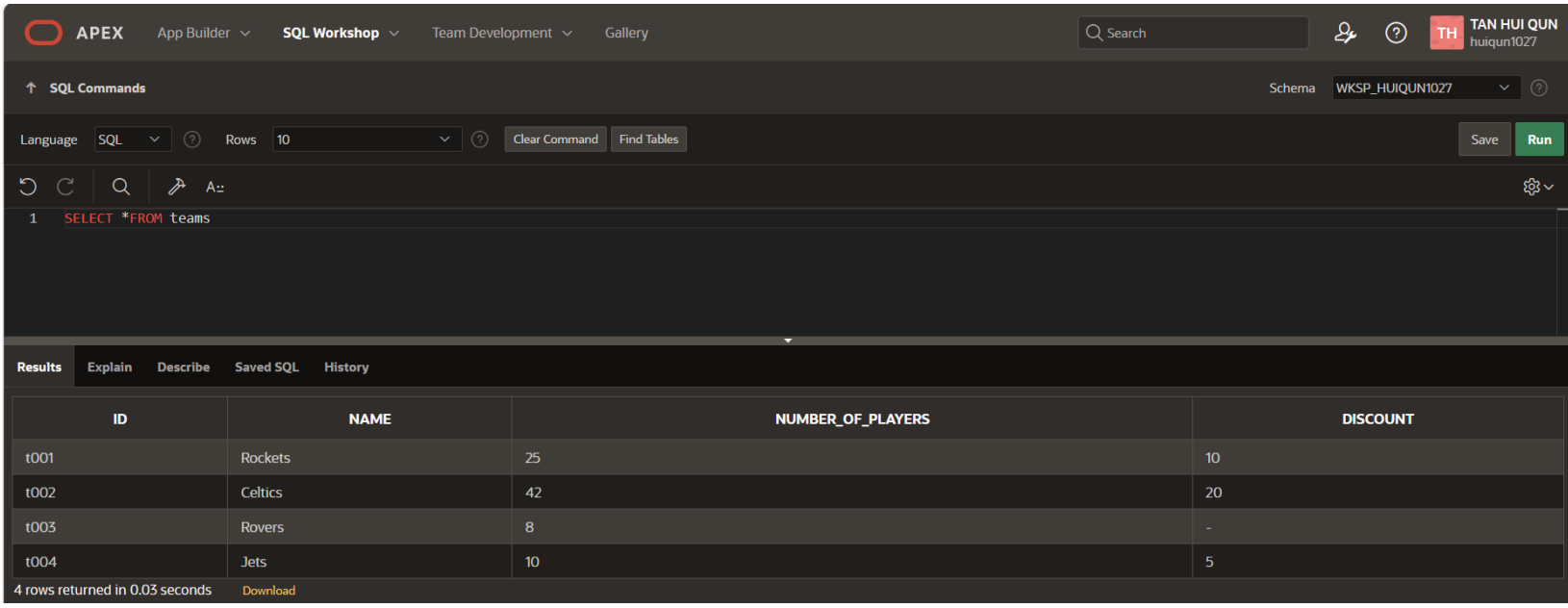
1. customers.



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	85	-	-	lc2341
c00012	Jjones@freemail.com	Jennifer	Jones	01505214598	0	-	-	lc1015
c02001	brianrog@hootech.com	Brian	Rogers	01654564898	50	-	-	lc4587
c00101	unknown@here.com	John	Doe	03216547808	987.5	sr01	t002	-
c01986	margal87@delphiview.com	Maria	Galant	01442736589	125.65	sr03	t003	-
c00001	bob.thornberry@heatmail.com	Robert	Thornberry	01234567898	150	sr01	t001	-

6 rows returned in 0.04 seconds Download

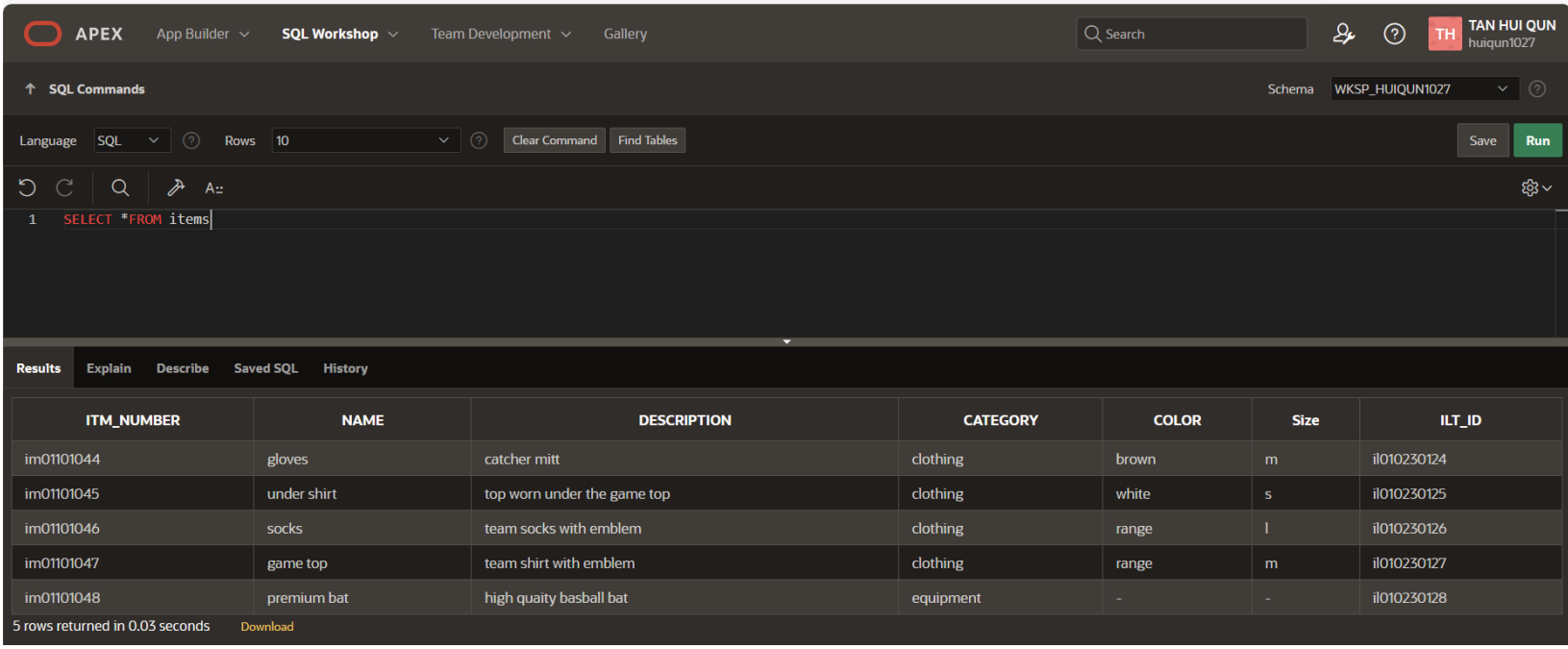
2. teams.



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

4 rows returned in 0.03 seconds Download

3. items

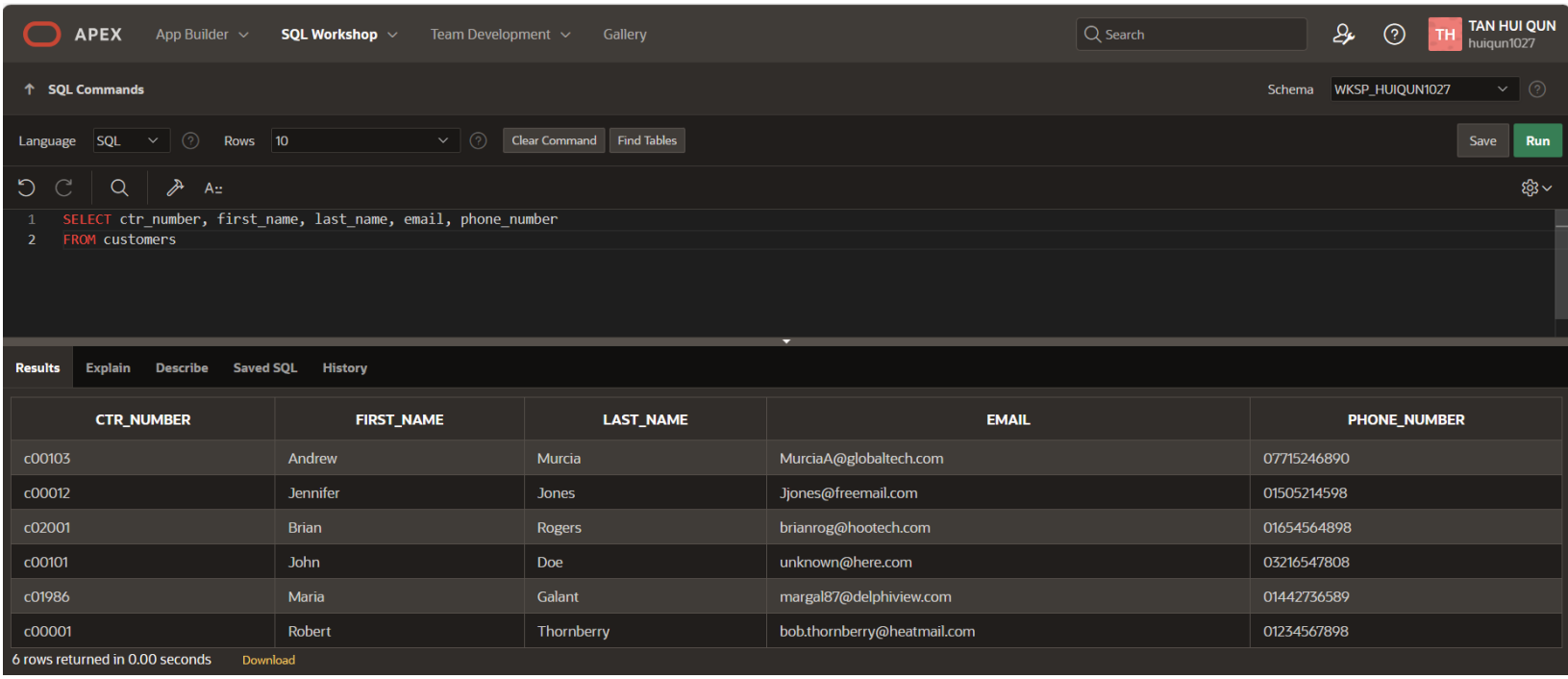


ITM_NUMBER	NAME	DESCRIPTION	CATEGORY	COLOR	Size	ILT_ID
im01101044	gloves	catcher mitt	clothing	brown	m	il010230124
im01101045	under shirt	top worn under the game top	clothing	white	s	il010230125
im01101046	socks	team socks with emblem	clothing	range	l	il010230126
im01101047	game top	team shirt with emblem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

5 rows returned in 0.03 seconds Download

Part 2: Selecting Specific Columns

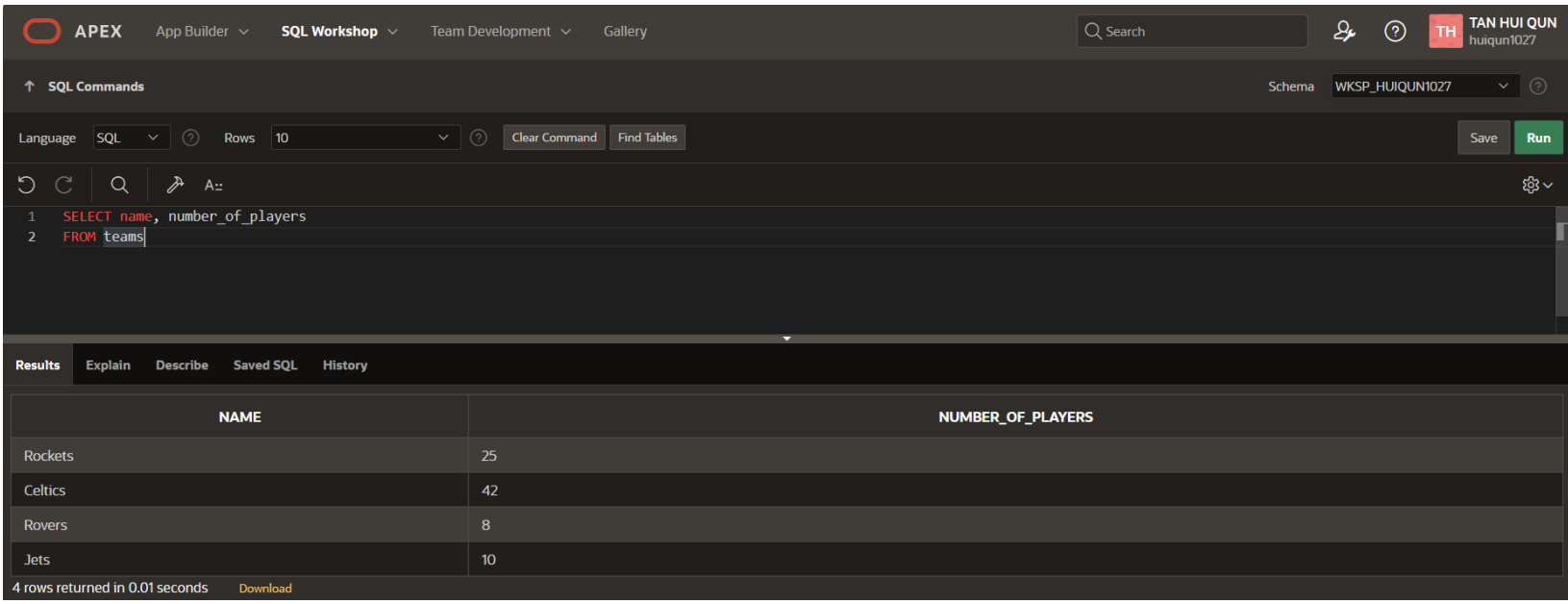
1. Display the customer number, first name, last name, email and phone number of the customers.



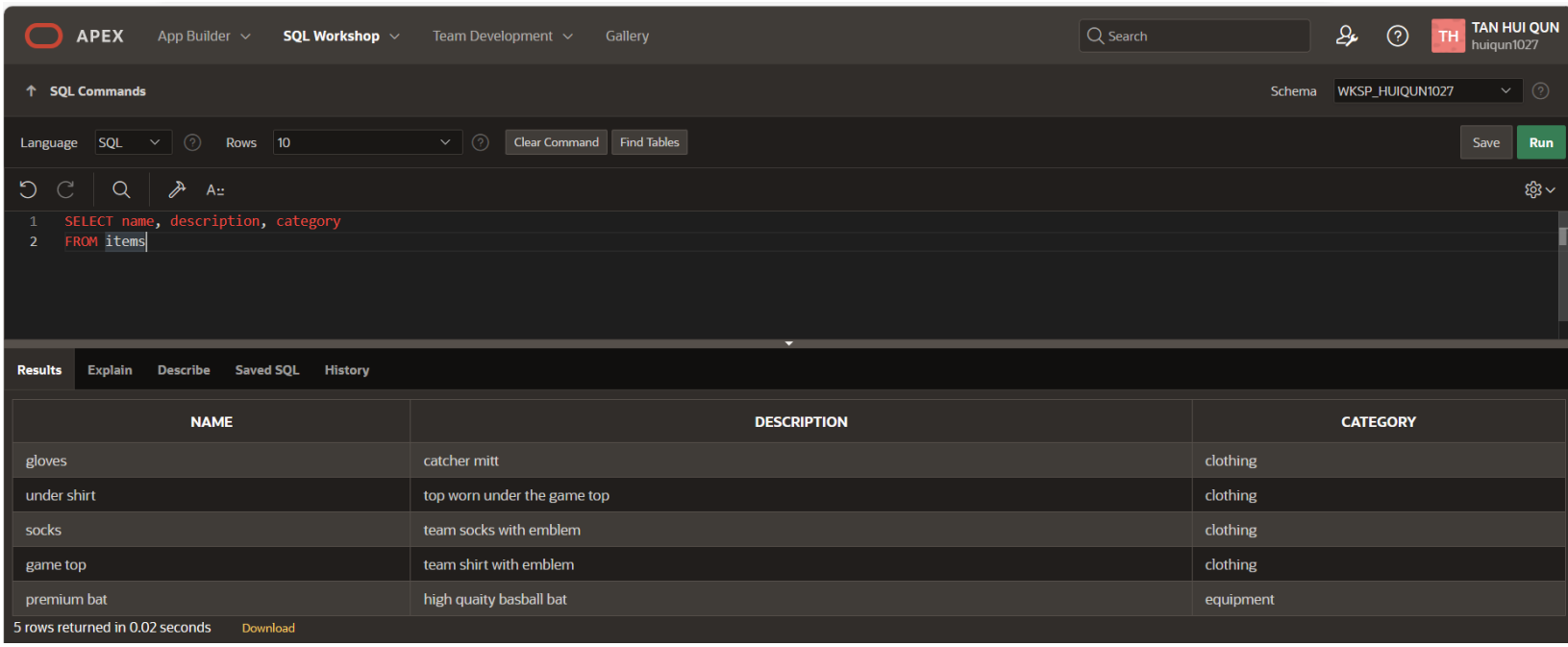
CTR_NUMBER	FIRST_NAME	LAST_NAME	EMAIL	PHONE_NUMBER
c00103	Andrew	Murcia	MurciaA@globaltech.com	07715246890
c00012	Jennifer	Jones	Jjones@freemail.com	01505214598
c02001	Brian	Rogers	brianrog@hootech.com	01654564898
c00101	John	Doe	unknown@here.com	03216547808
c01986	Maria	Galant	margal87@delphiview.com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

6 rows returned in 0.00 seconds Download

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



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



DML 2 Part 2

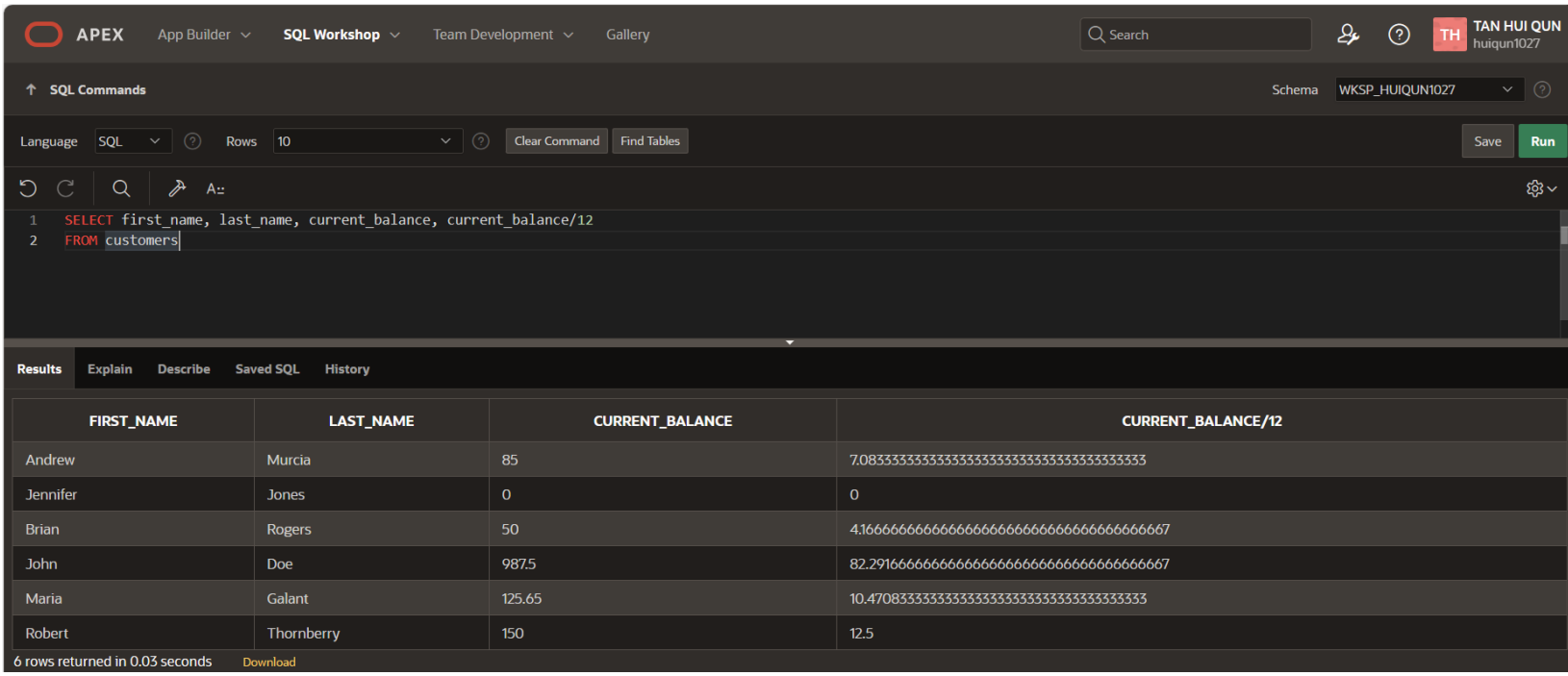
Section 6 Lesson 6 Exercise 2: Retrieving Data Using SELECT

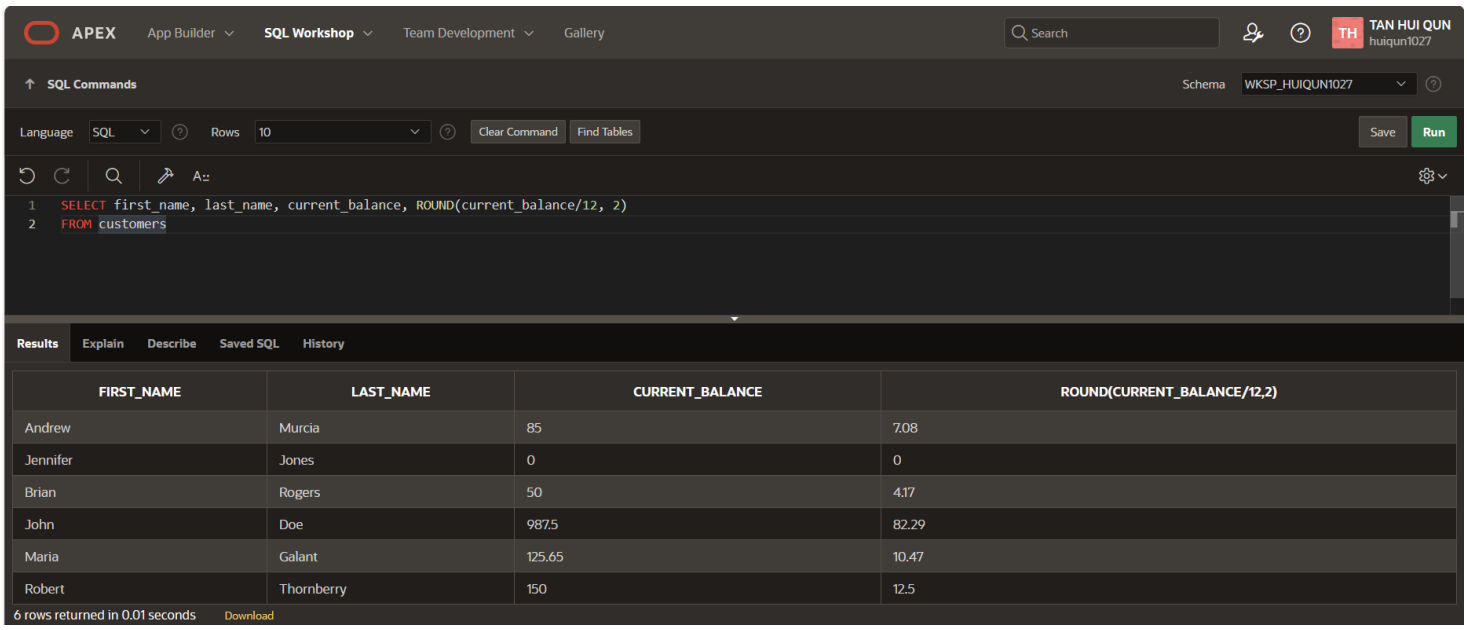
Write and Execute SELECT statements (S6L6 Objective 2)

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

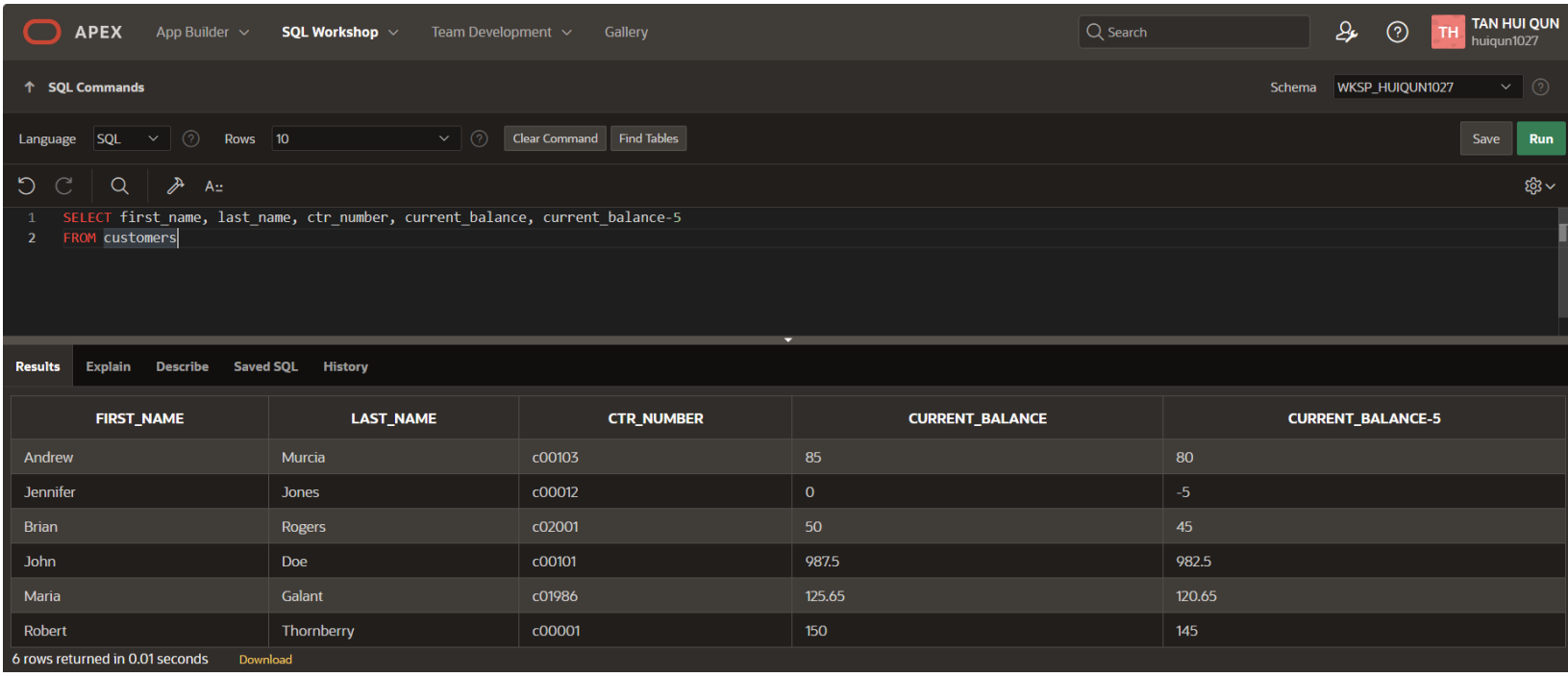
Part 1: Using Arithmetic Operators

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.





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.



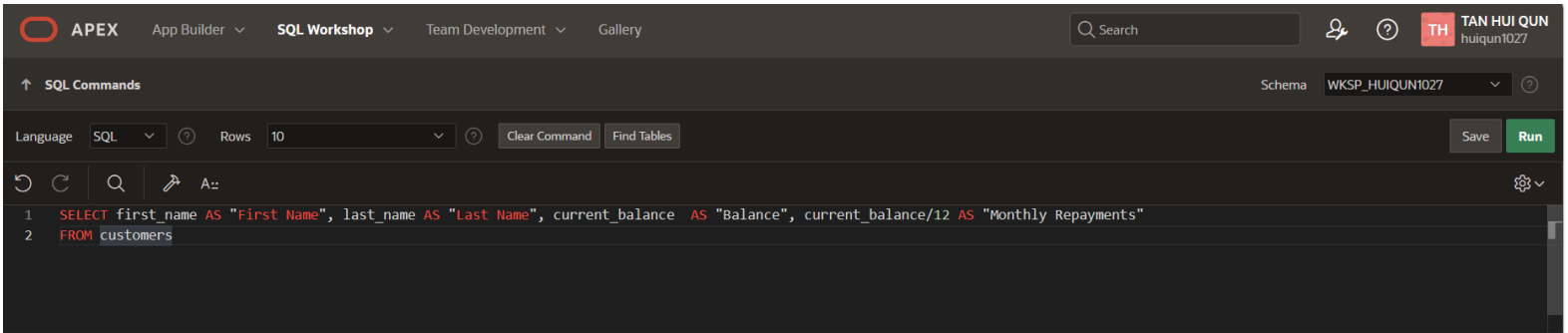
FIRST_NAME	LAST_NAME	CTR_NUMBER	CURRENT_BALANCE	CURRENT_BALANCE-5
Andrew	Murcia	c00103	85	80
Jennifer	Jones	c00012	0	-5
Brian	Rogers	c02001	50	45
John	Doe	c00101	987.5	982.5
Maria	Galant	c01986	125.65	120.65
Robert	Thornberry	c00001	150	145

6 rows returned in 0.01 seconds Download

3. What would be the problem with implementing this scheme?
The current balance cannot be below zero.

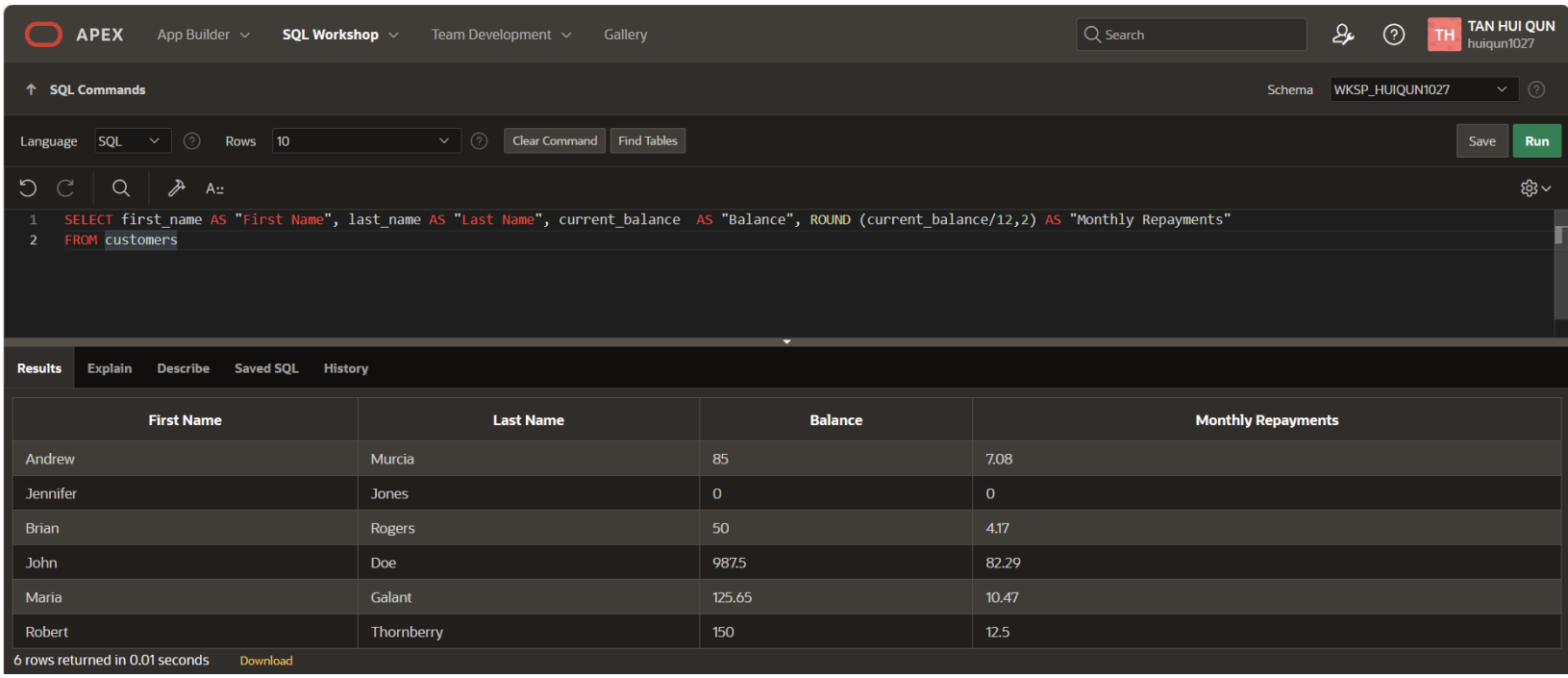
Part 2 : Using Column Aliases

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).



First Name	Last Name	Balance	Monthly Repayments
Andrew	Murcia	85	7.083333333333333333333333333333333333
Jennifer	Jones	0	0
Brian	Rogers	50	4.166666666666666666666666666666666667
John	Doe	987.5	82.291666666666666666666666666666666667
Maria	Galant	125.65	10.470833333333333333333333333333333333
Robert	Thornberry	150	12.5

6 rows returned in 0.00 seconds Download

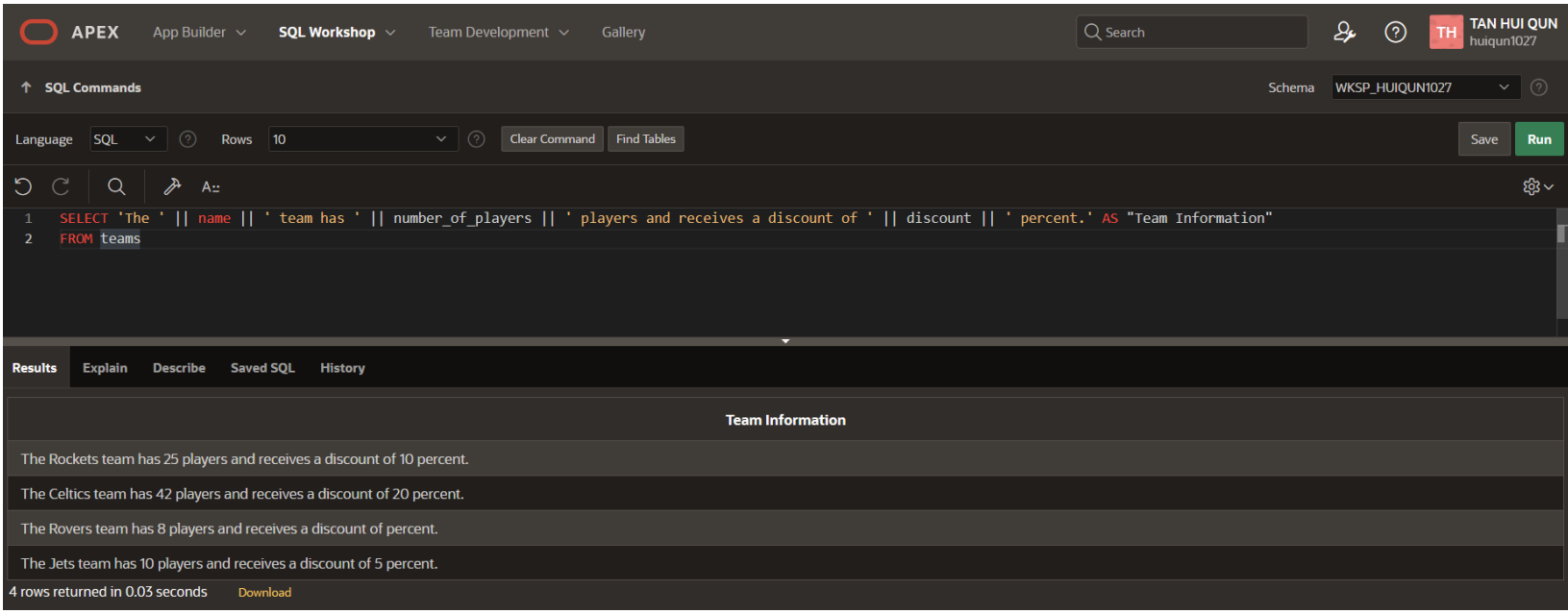


Part 3: Using Literal Character Strings

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.



2. Why does the last team not show a discount?
   It contains a null value that is not the same as zero.

DML 2 Part 3

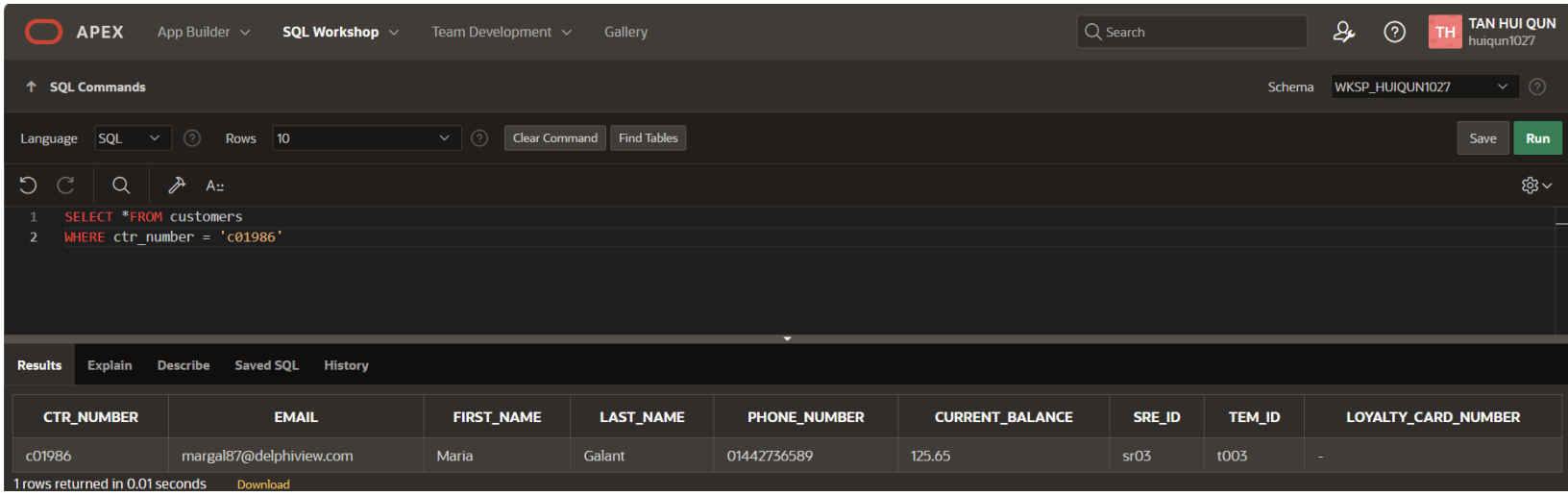
Section 6 Lesson 7 Exercise 1: Restricting Data Using WHERE

Limit rows using WHERE (S6L7 Objective 1)

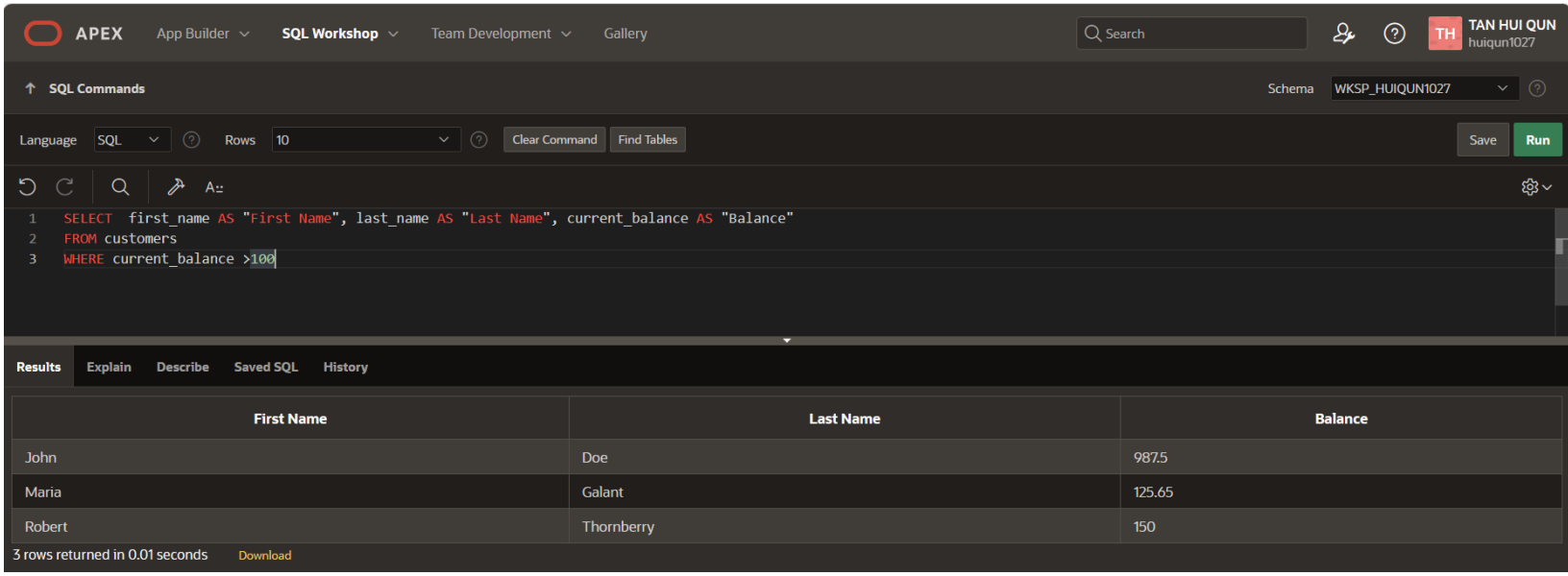
In this exercise you will refine the data that is returned in your query by adding a WHERE clause to your SELECT statement.

Part 1: Using the WHERE Clause.

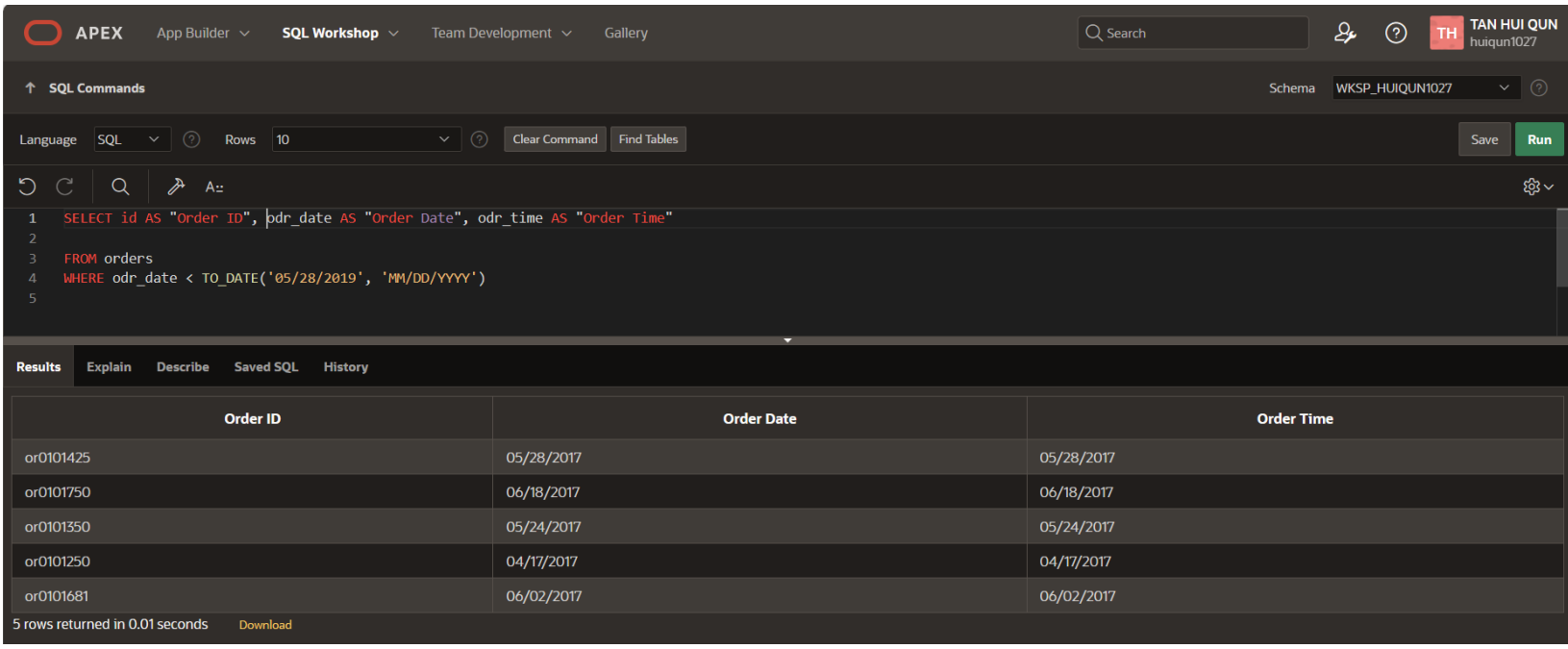
1. Using the unique customer number in the where clause display all columns for Maria Galant.



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.

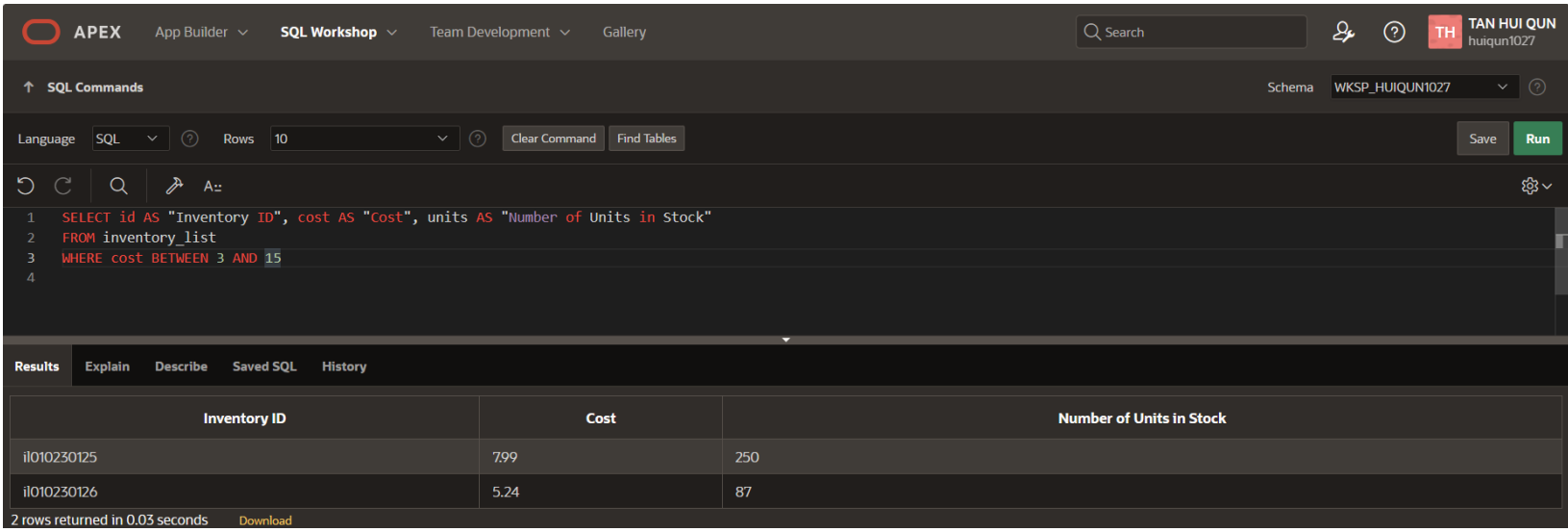


3. Display the order id, date and time of all orders that were placed before the 28th of May 2019. Use an appropriate alias for your column headings.



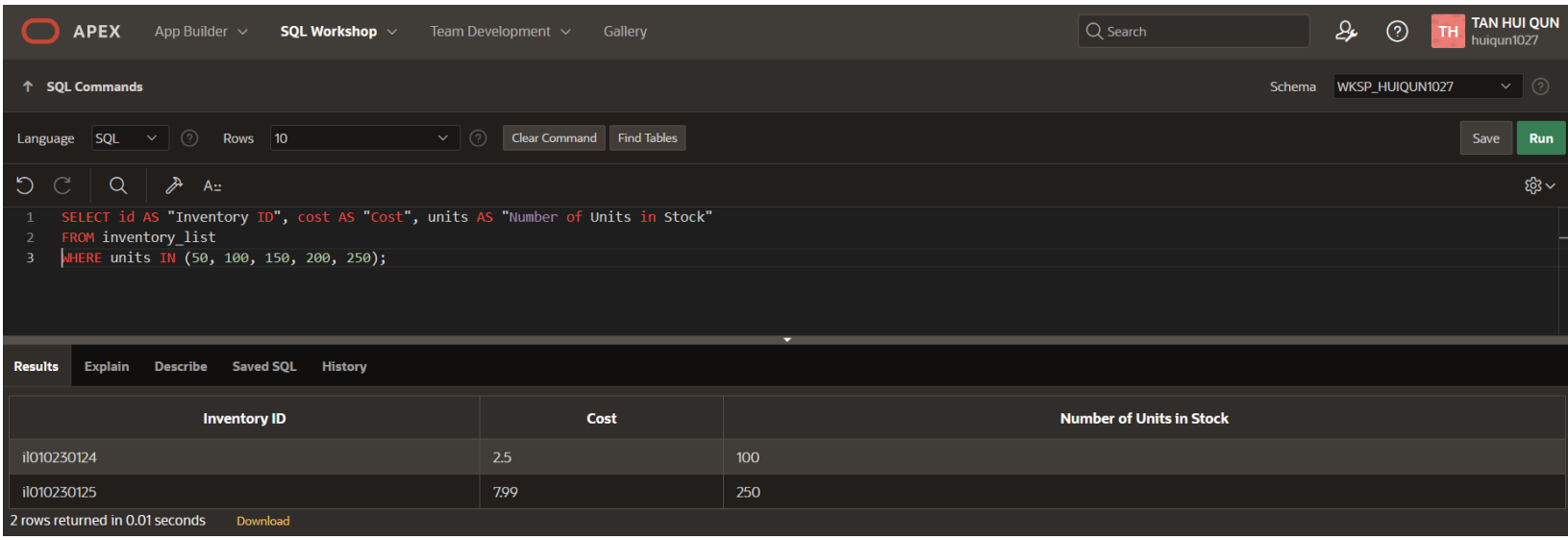
Part 2: Range Conditions: BETWEEN Operator

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.



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.



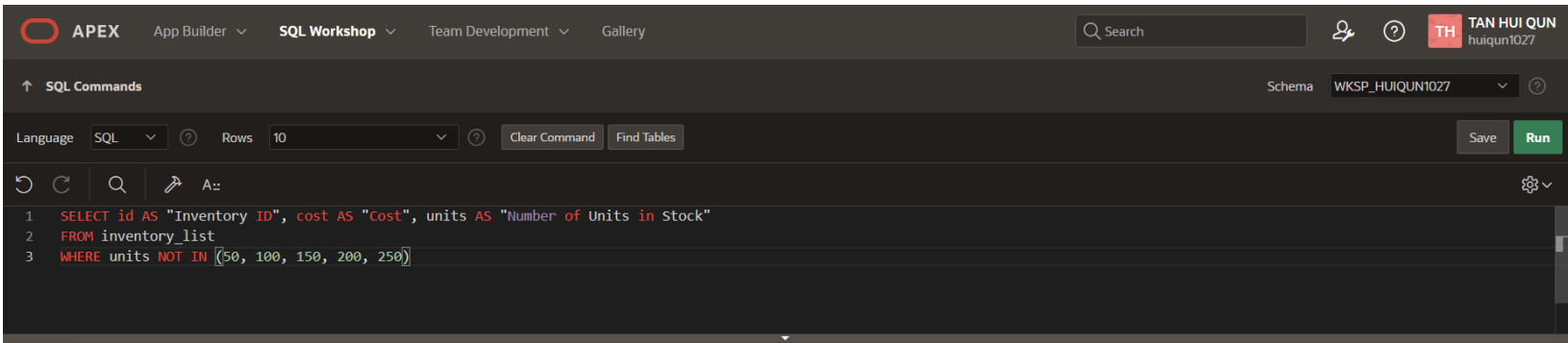
Results | Explain | Describe | Saved SQL | History

Inventory ID	Cost	Number of Units in Stock
il010230124	2.5	100
il010230125	7.99	250

2 rows returned in 0.01 seconds Download

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.



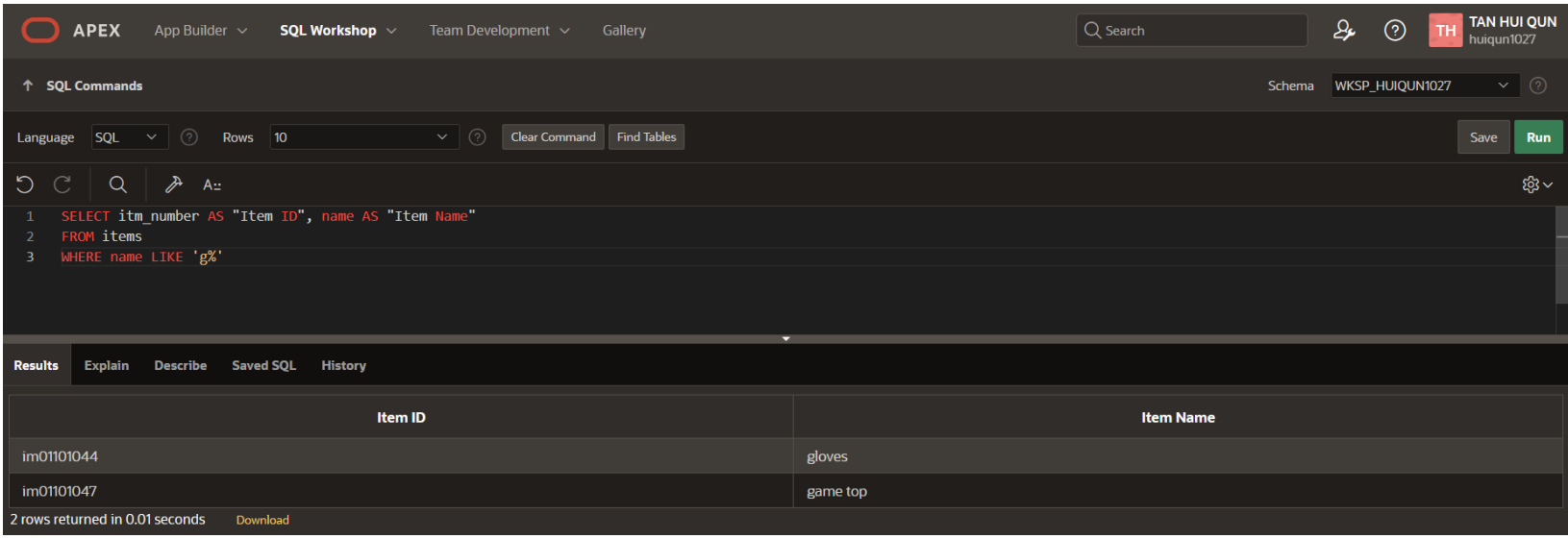
Results | Explain | Describe | Saved SQL | History

Inventory ID	Cost	Number of Units in Stock
il010230127	18.95	65
il010230126	5.24	87
il010230128	97.46	8

3 rows returned in 0.01 seconds Download

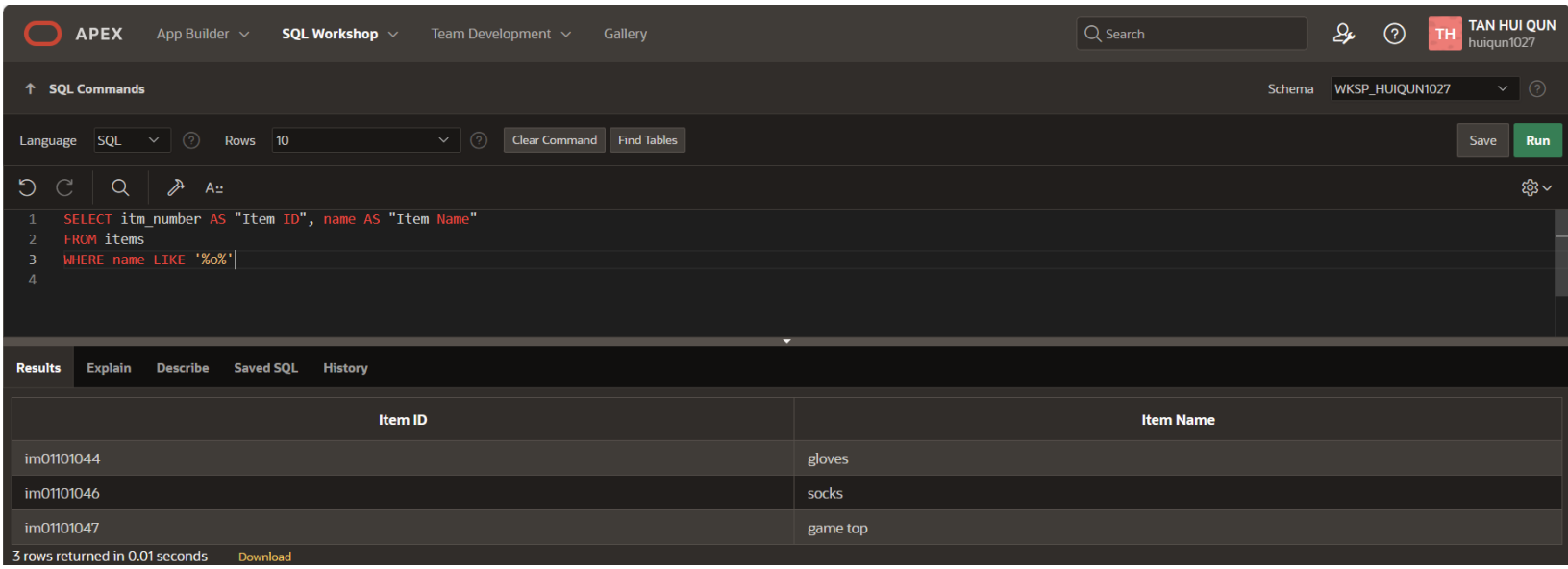
Part 5: Pattern Matching: LIKE Operator

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.



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.



DML 2 Part 4

Section 6 Lesson 7 Exercise 2: Restricting Data Using WHERE

Limit rows using WHERE (S6L7 Objective 1)

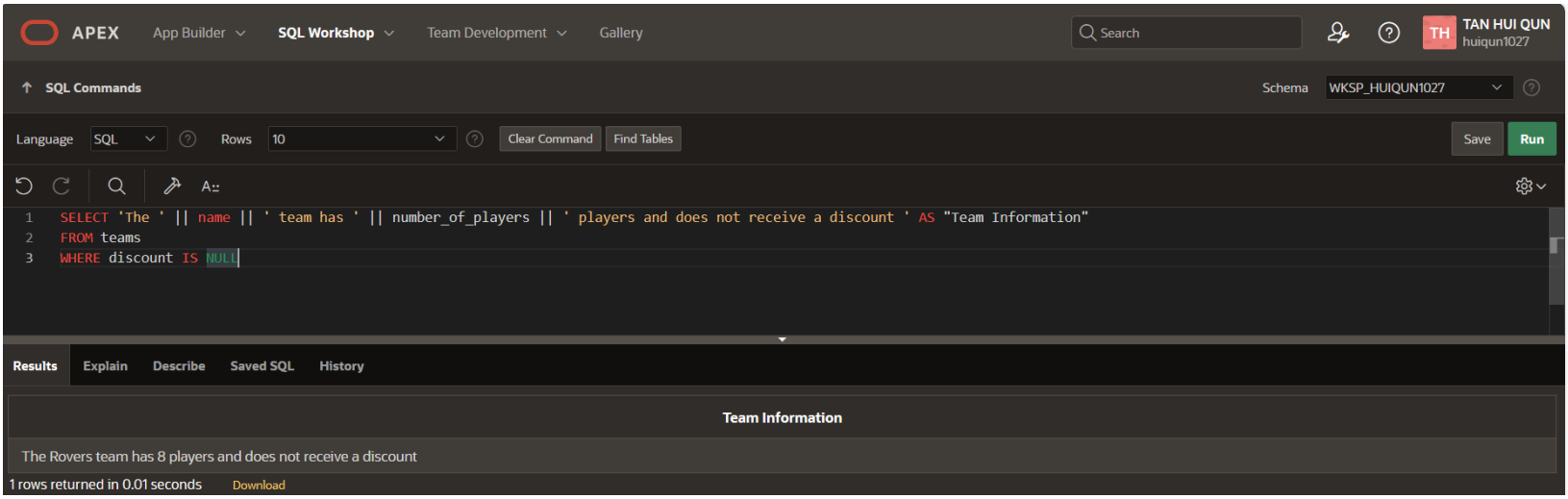
In this exercise you will refine the data that is returned in your query by adding a WHERE clause to your SELECT statement.

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.

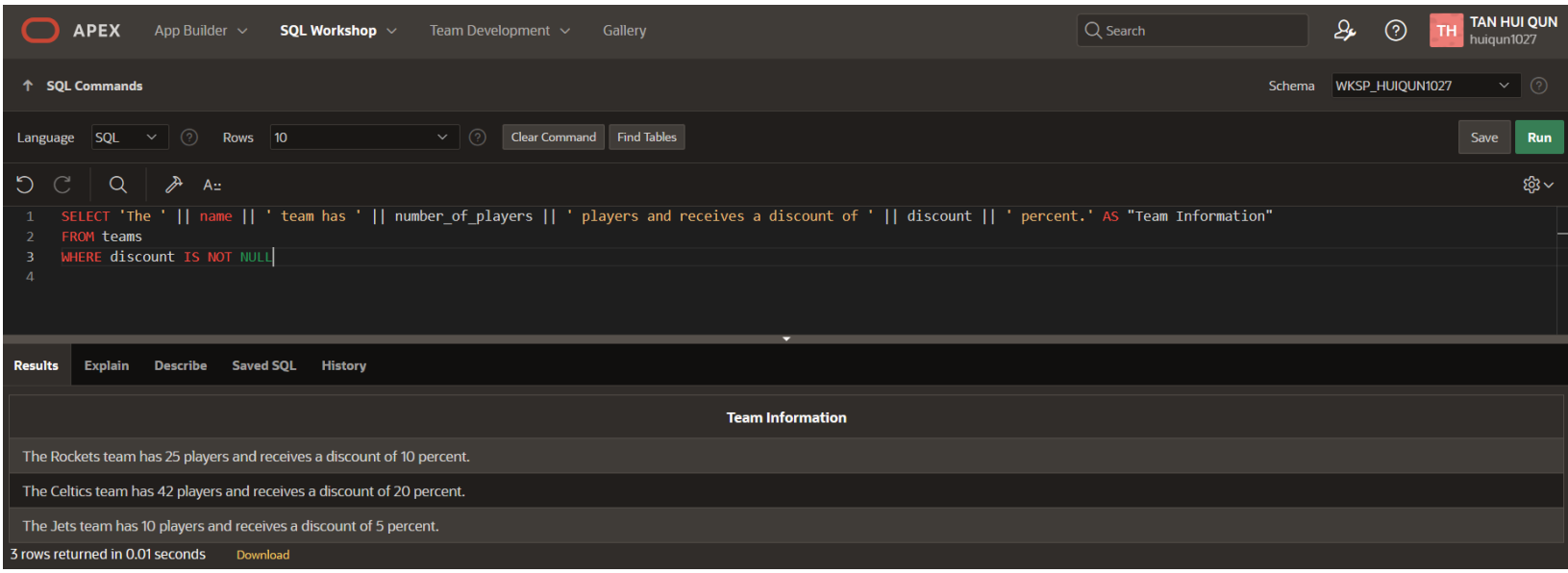
   Use **Team Information** as the column alias.



2. Write a query that will display information for only teams that receive a discount in the following format:

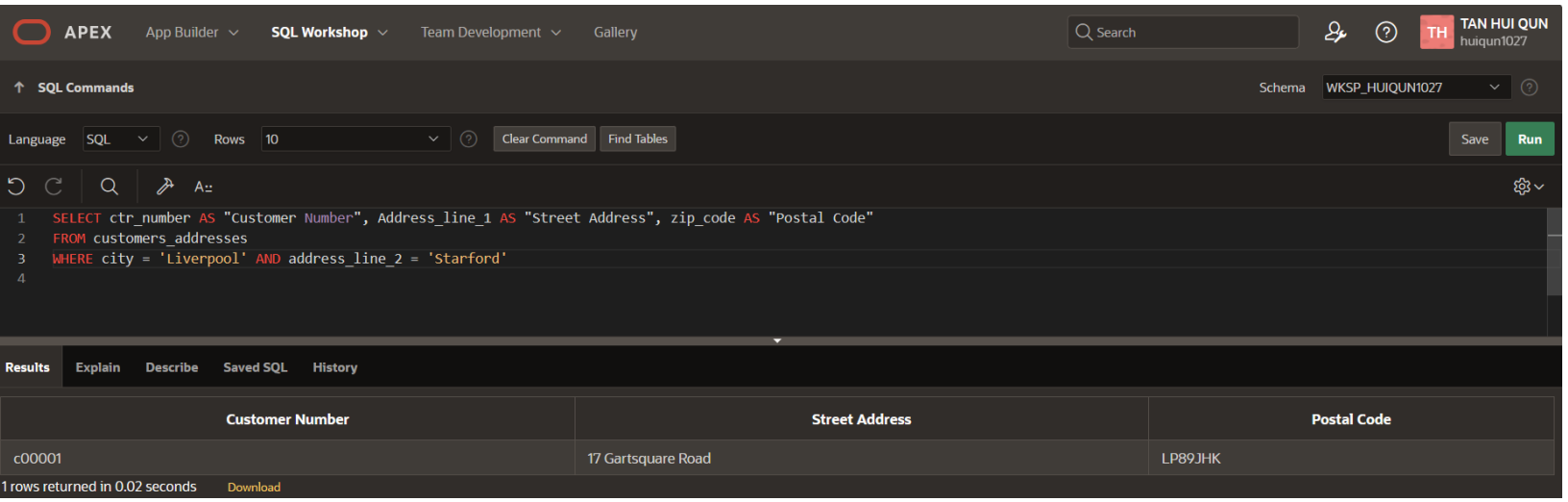
   The Rockets team has 25 players and receives a discount of 10 percent.

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



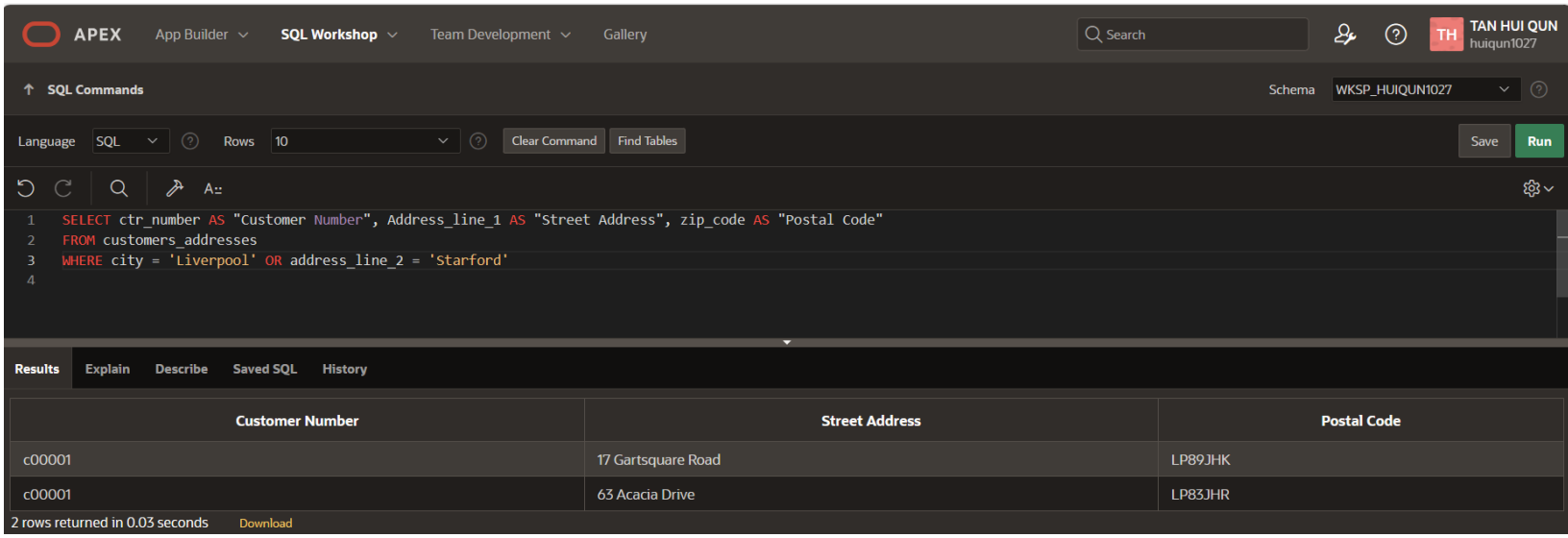
Part 2: Logical Operators: AND

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.



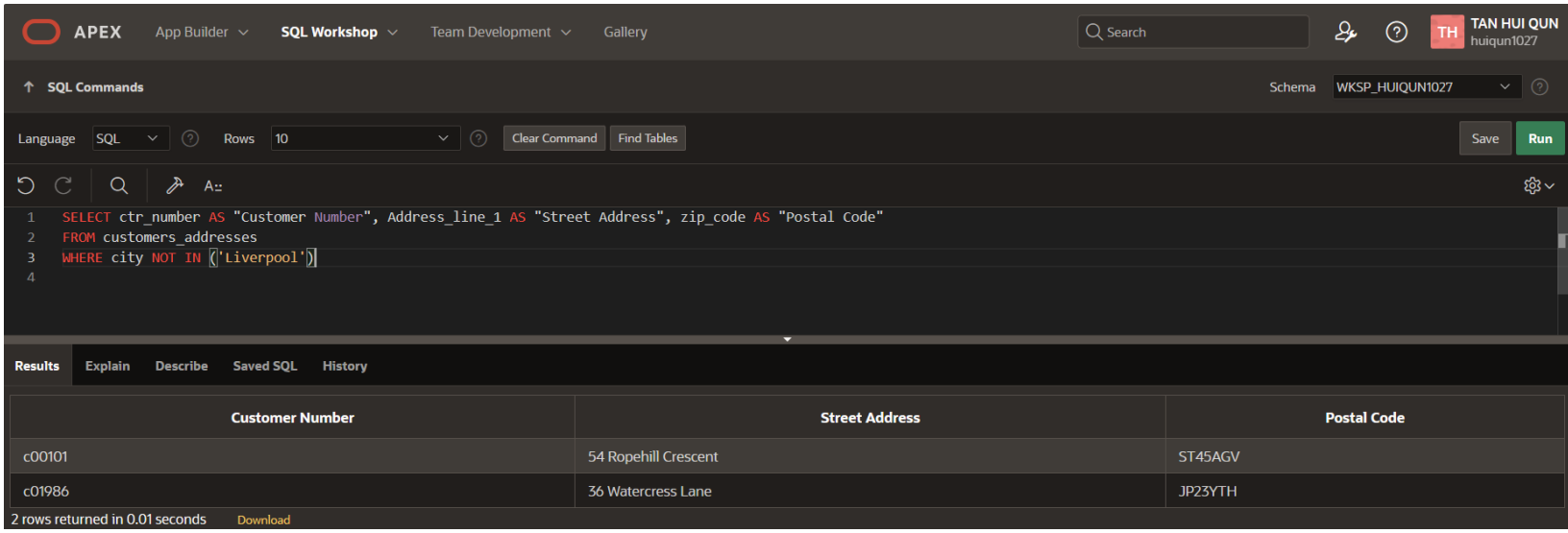
Part 3: Logical Operators: OR

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.



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.



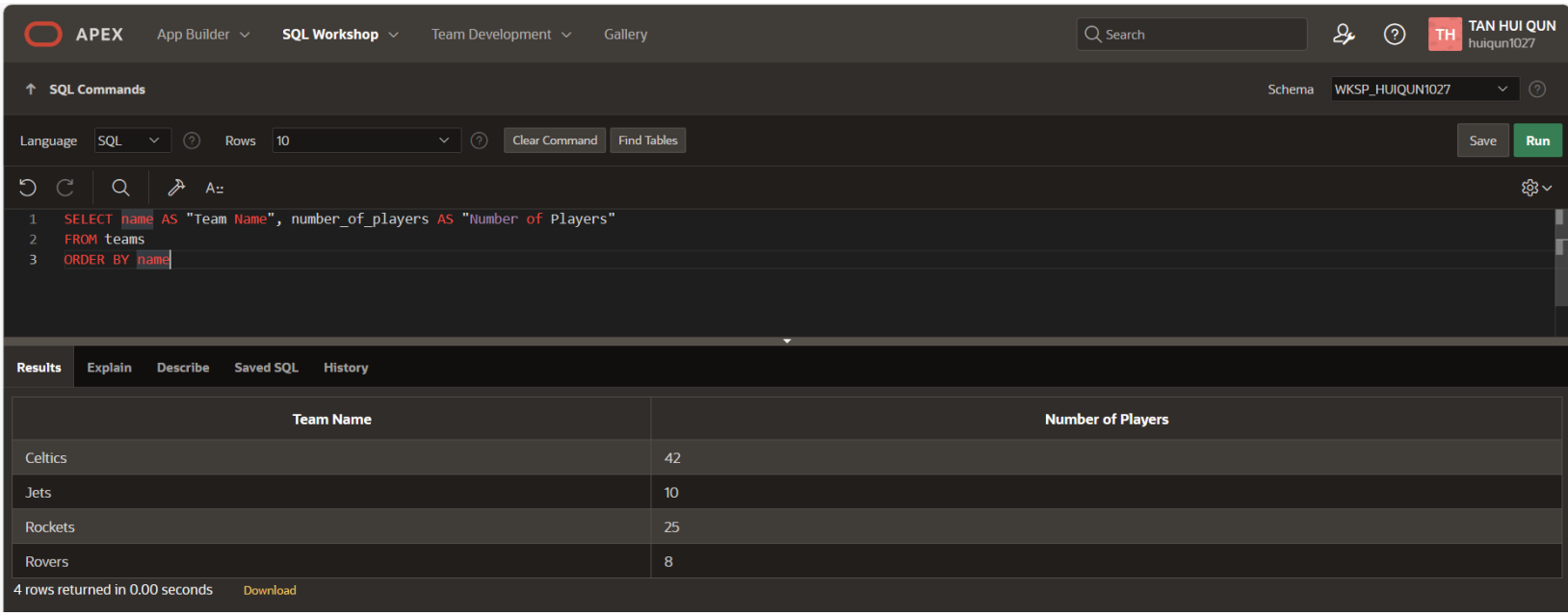
DML 2 Part 5

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

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

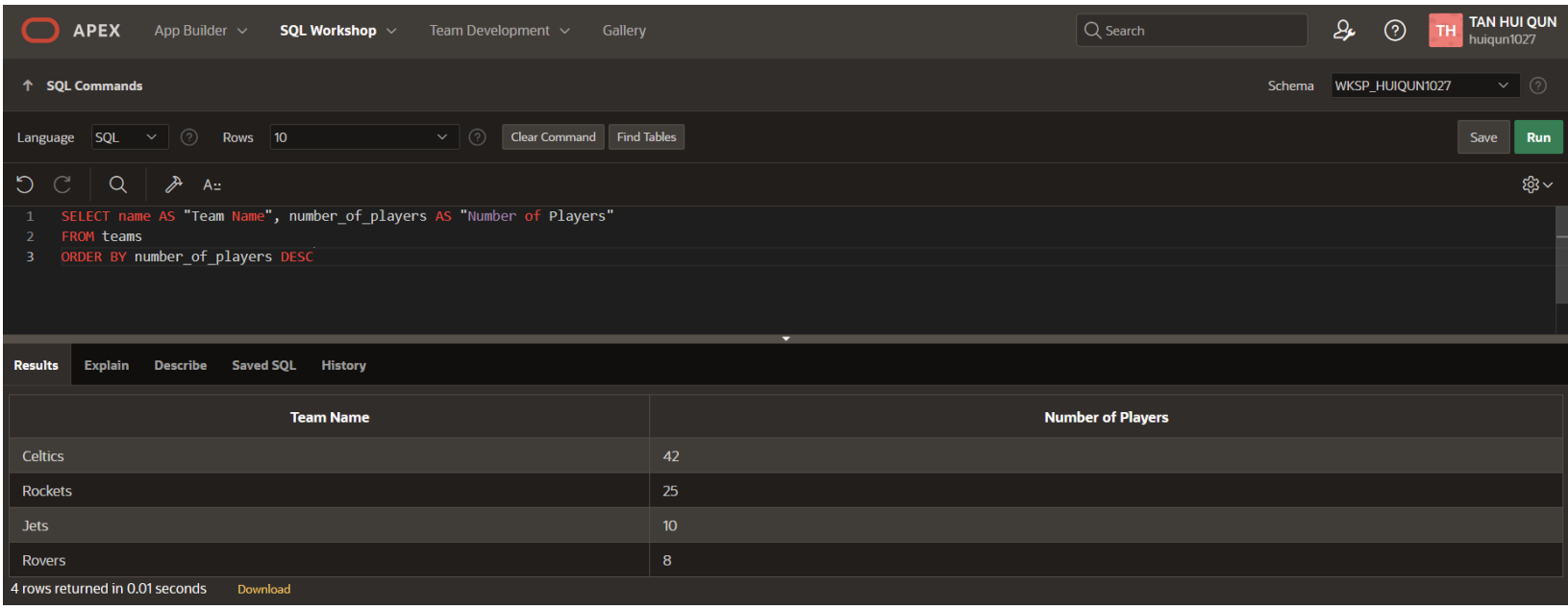
In this exercise you will sort the order of the data that is returned in your query by adding an ORDER BY clause to the end of your SELECT statement.

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

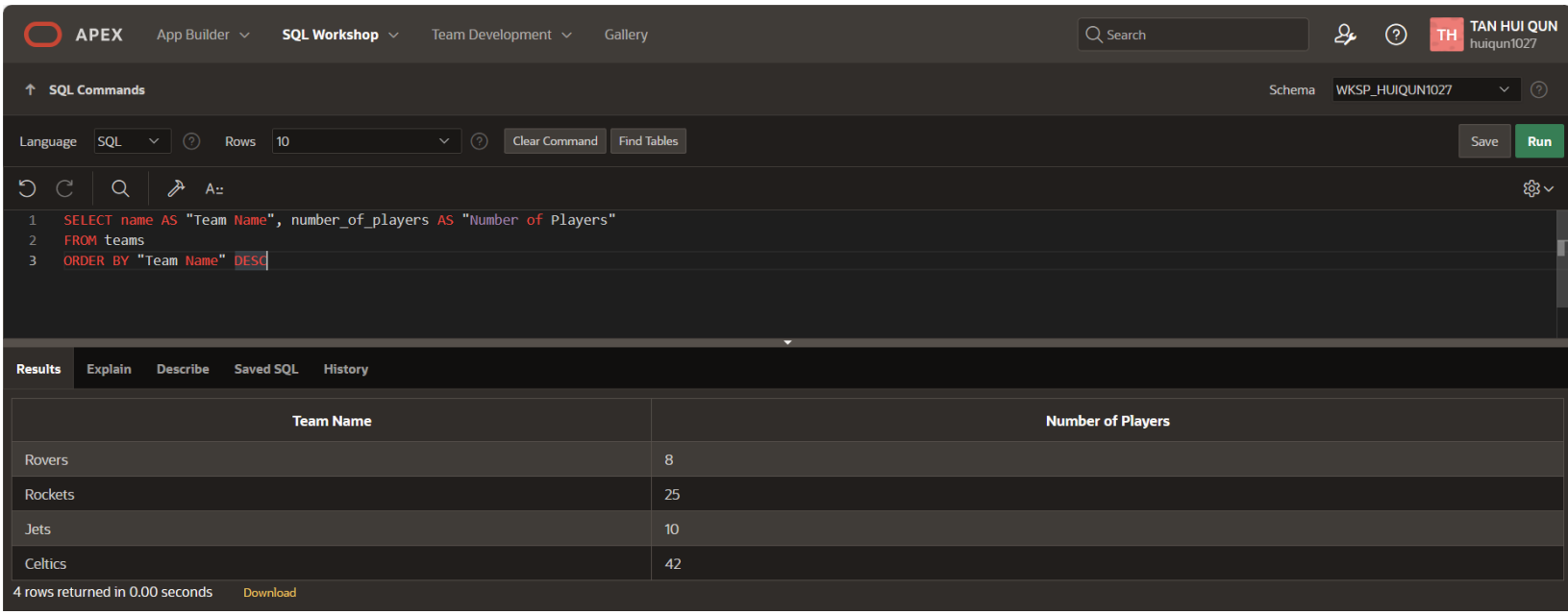


2. Display the team name and number of players in descending order of number of players. Use an appropriate

alias for your column headings.



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.



DML 2 Part 6

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.

APEX App Builder SQL Workshop Team Development Gallery Search TAN HUI QUN huiqun1027

SQL Commands Schema WKSP_HUIQUN1027

Language SQL Rows 10 Clear Command Find Tables Save Run

```
1  SELECT ROWNUM As "Order of Membership", first_name || ' ' ||last_name AS "Customer Name"
2  FROM customers
3  WHERE ROWNUM <=3
4  ORDER BY ctr_number
```

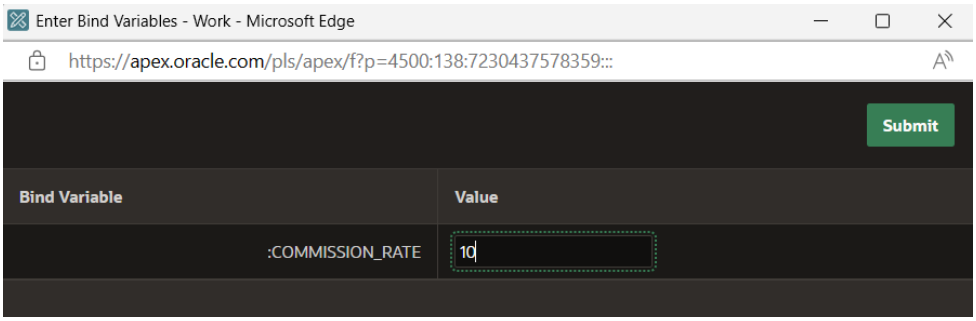
Results Explain Describe Saved SQL History

Order of Membership	Customer Name
2	Jennifer Jones
1	Andrew Murcia
3	Brian Rogers

3 rows returned in 0.01 seconds Download

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.



APEX App Builder SQL Workshop Team Development Gallery Search TAN huiqu

SQL Commands Schema WKSP_HUIQUN1027

Language SQL Rows 10 Clear Command Find Tables Save

```
1  SELECT first_name AS "First Name" , last_name AS "Last Name", commission_rate AS "Commission Rate"
2  FROM sales_representatives
3  WHERE commission_rate = :commission_rate
4  ORDER BY last_name
```

Results Explain Describe Saved SQL History

First Name	Last Name	Commission Rate
Charles	Raymond	10

1 rows returned in 0.00 seconds Download