Database Design Project

Oracle Baseball League Store Database

Project Scenario:

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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 6 Exercise 1: Retrieving Data Using SELECT

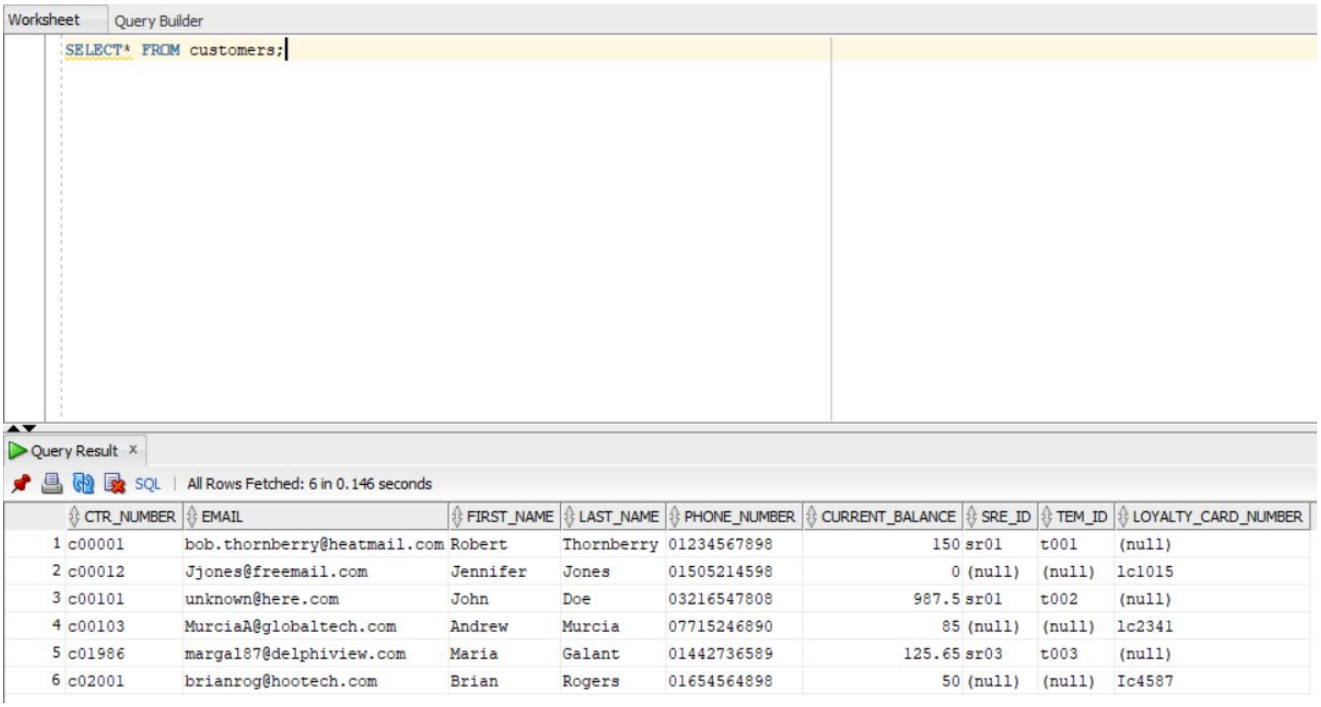
Write and Execute SELECT statements (S6L6 Objective 2)

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.

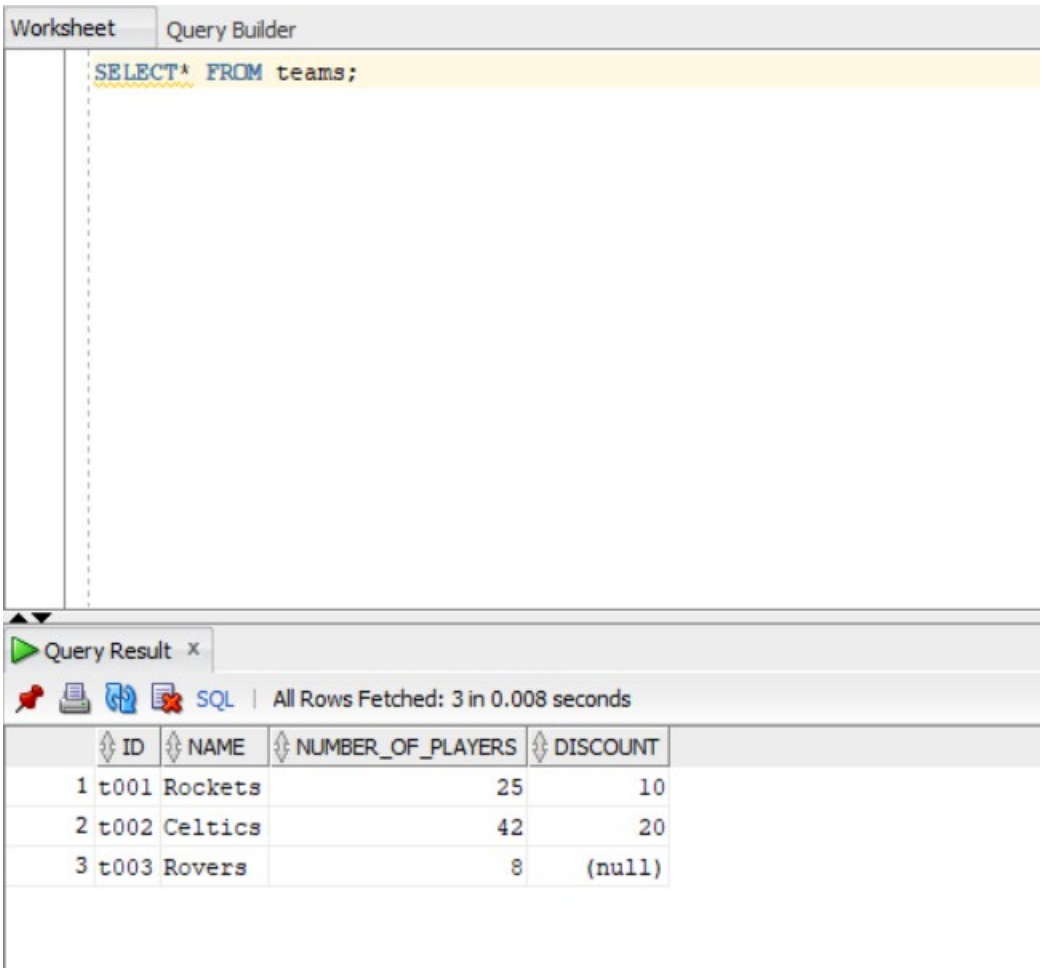
Using the SELECT * statement show all data stored in the following tables:

1. customers.



	CTR_NUMBER	EMAIL	FIRST_NAME	LAST_NAME	PHONE_NUMBER	CURRENT_BALANCE	SRE_ID	TEM_ID	LOYALTY_CARD_NUMBER
1	c00001	bob.thornberry@heatmail.com	Robert	Thornberry	01234567898	150	sr01	t001	(null)
2	c00012	Jjones@freemail.com	Jennifer	Jones	01505214598	0	(null)	(null)	lc1015
3	c00101	unknown@here.com	John	Doe	03216547808	987.5	sr01	t002	(null)
4	c00103	MurciaA@globaltech.com	Andrew	Murcia	07715246890	85	(null)	(null)	lc2341
5	c01986	margal87@delphiview.com	Maria	Galant	01442736589	125.65	sr03	t003	(null)
6	c02001	brianrog@hootech.com	Brian	Rogers	01654564898	50	(null)	(null)	Ic4587

2. teams.


Worksheet
Query Builder
SELECT* FROM teams;
Query Result
SQL | All Rows Fetched: 3 in 0.008 seconds
ID NAME NUMBER_OF_PLAYERS DISCOUNT
1 t001 Rockets 25 10
2 t002 Celtics 42 20
3 t003 Rovers 8 (null)

3. items

```
SELECT* FROM items;
```

Query Result

SQL | All Rows Fetched: 5 in 0.006 seconds

	ITM_NUMBER	NAME	DESCRIPTION	CATEGORY	COLOR	Size	ILT_ID
1	im01101044	gloves	catcher mitt	clothing	brown	m	i1010230124
2	im01101045	under shirt	top worn under the game top	clothing	white	s	i1010230125
3	im01101046	socks	team socks with emblem	clothing	range	l	i1010230126
4	im01101047	game top	team shirt with emblem	clothing	range	m	i1010230127
5	im01101048	premium bat	high quaity basball bat	equipment	(null)	(null)	i1010230128

Part 2: Selecting Specific Columns

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

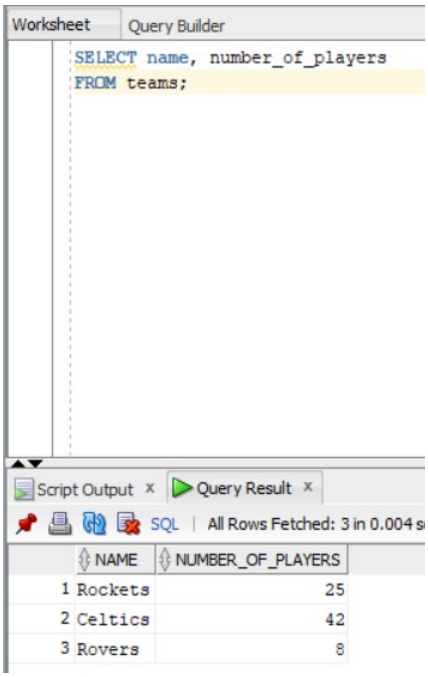
```
SELECT ctr_number, first_name, last_name, email, phone_number
FROM customers;
```

Script Output | Query Result

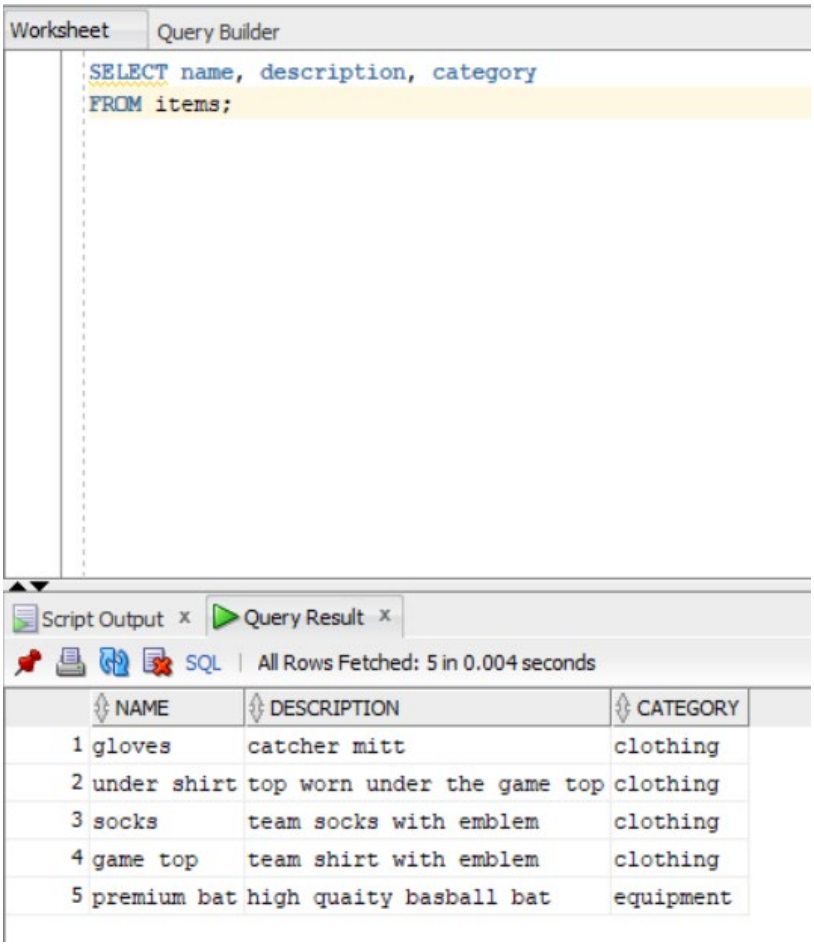
SQL | All Rows Fetched: 6 in 0.003 seconds

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

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



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



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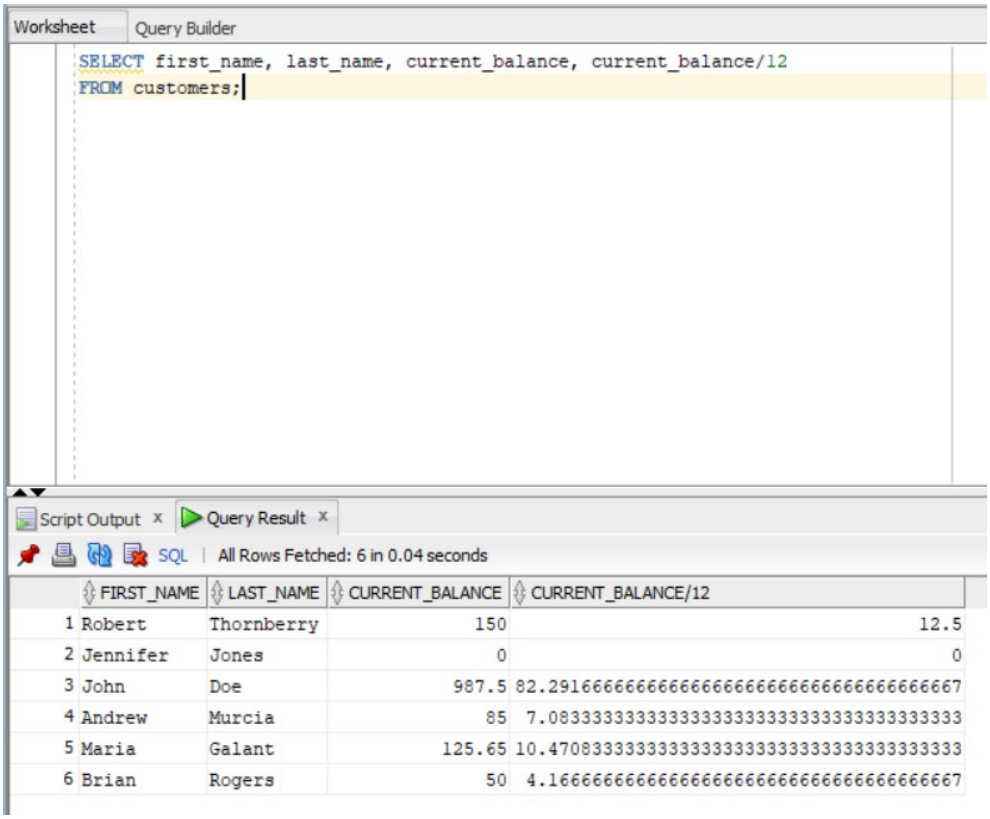
Section 6 Lesson 6 Exercise 2: Retrieving Data Using SELECT

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

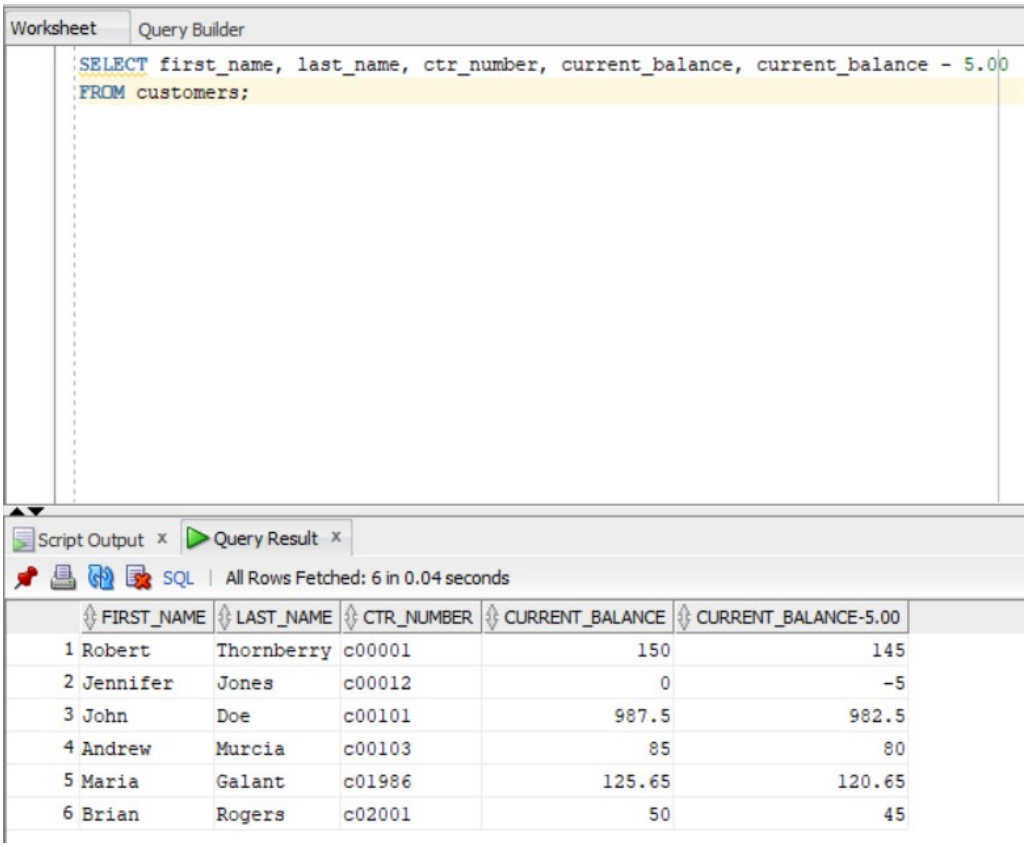
1. Every customer has been told they can pay off their current balance over a 12 month period. Display the customer's first name, last name, current balance and monthly payment.



	FIRST_NAME	LAST_NAME	CURRENT_BALANCE	CURRENT_BALANCE/12
1	Robert	Thornberry	150	12.5
2	Jennifer	Jones	0	0
3	John	Doe	987.5	82.29166666666666666666666666666666666666667
4	Andrew	Murcia	85	7.08333333333333333333333333333333333333
5	Maria	Galant	125.65	10.47083333333333333333333333333333333333
6	Brian	Rogers	50	4.16666666666666666666666666666666666666667

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 - 5.00
FROM customers;
```



	FIRST_NAME	LAST_NAME	CTR_NUMBER	CURRENT_BALANCE	CURRENT_BALANCE-5.00
1	Robert	Thornberry	c00001	150	145
2	Jennifer	Jones	c00012	0	-5
3	John	Doe	c00101	987.5	982.5
4	Andrew	Murcia	c00103	85	80
5	Maria	Galant	c01986	125.65	120.65
6	Brian	Rogers	c02001	50	45

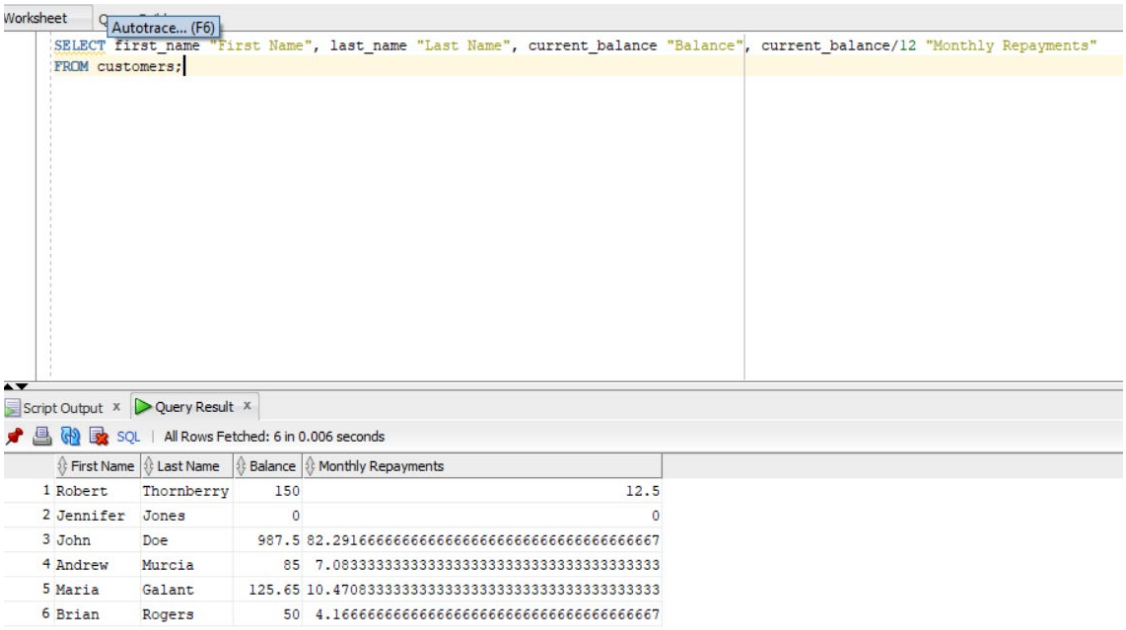
3. What would be the problem with implementing this scheme?

   Customers who have current balance of RM0 shows a negative value after implementing this scheme which is inaccurate. The current balance should remain 0.

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;
```



Part 3: Using Literal Character Strings

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

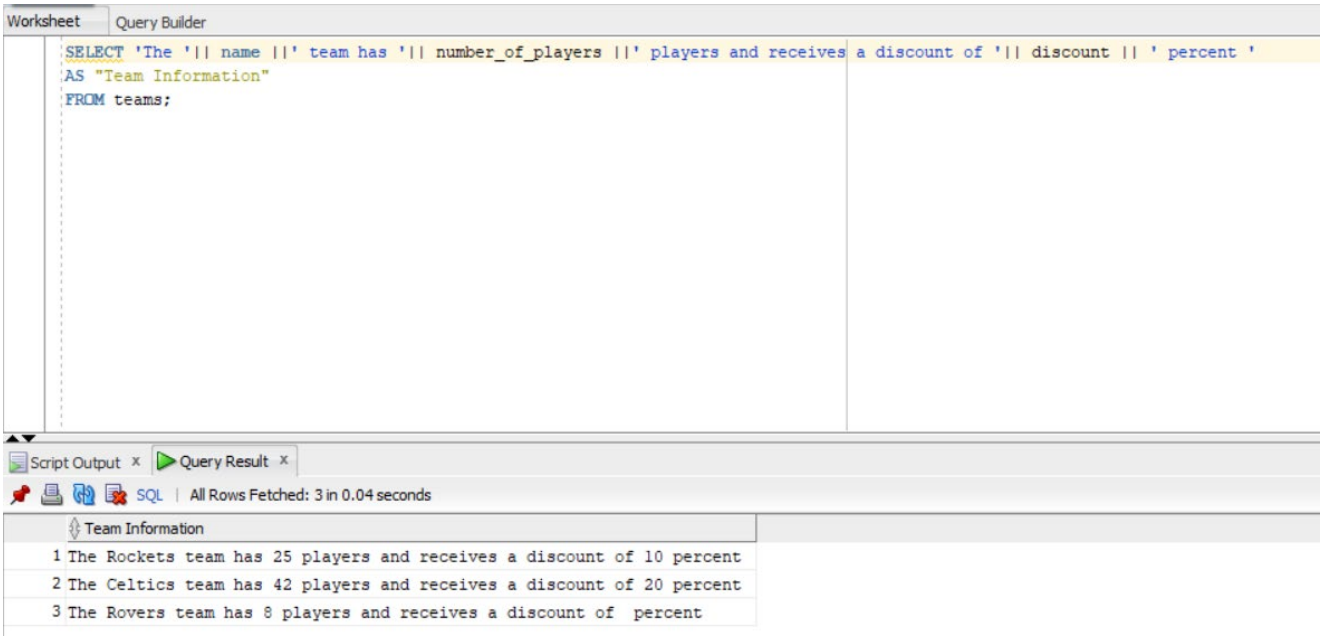
   The Rockets team has 25 players and receives a discount of 10 percent.

   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 discount is a null value.

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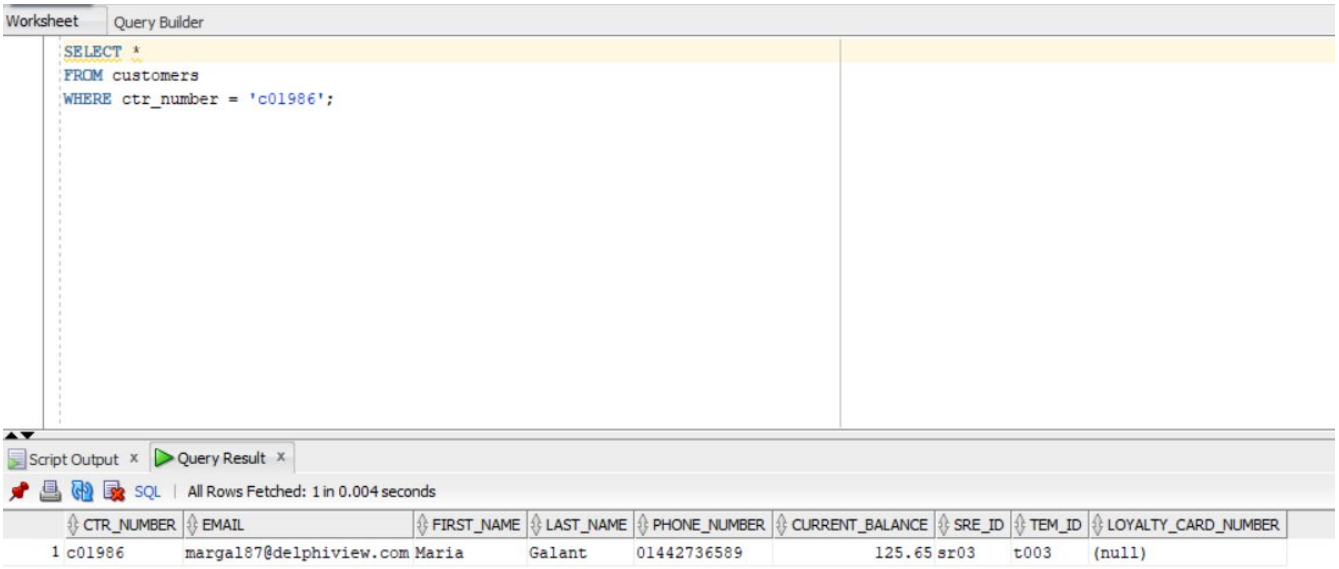
Section 6 Lesson 7 Exercise 1: Restricting Data Using WHERE

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.



Worksheet | Query Builder

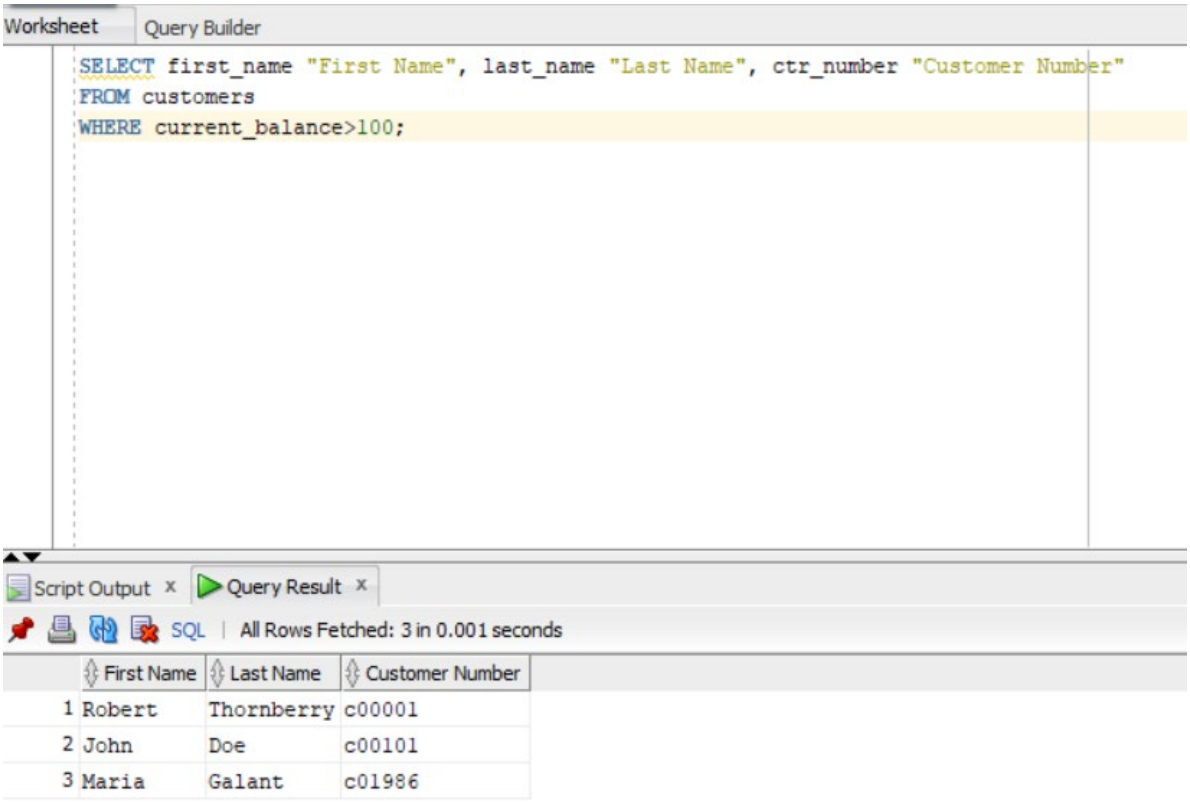
```
SELECT *
FROM customers
WHERE ctr_number = 'c01986';
```

Script Output | Query Result

SQL | All Rows Fetched: 1 in 0.004 seconds

	CTR_NUMBER	EMAIL	FIRST_NAME	LAST_NAME	PHONE_NUMBER	CURRENT_BALANCE	SRE_ID	TEM_ID	LOYALTY_CARD_NUMBER
1	c01986	margal87@delphiview.com	Maria	Galant	01442736589	125.65	sr03	t003	(null)

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.



Worksheet | Query Builder

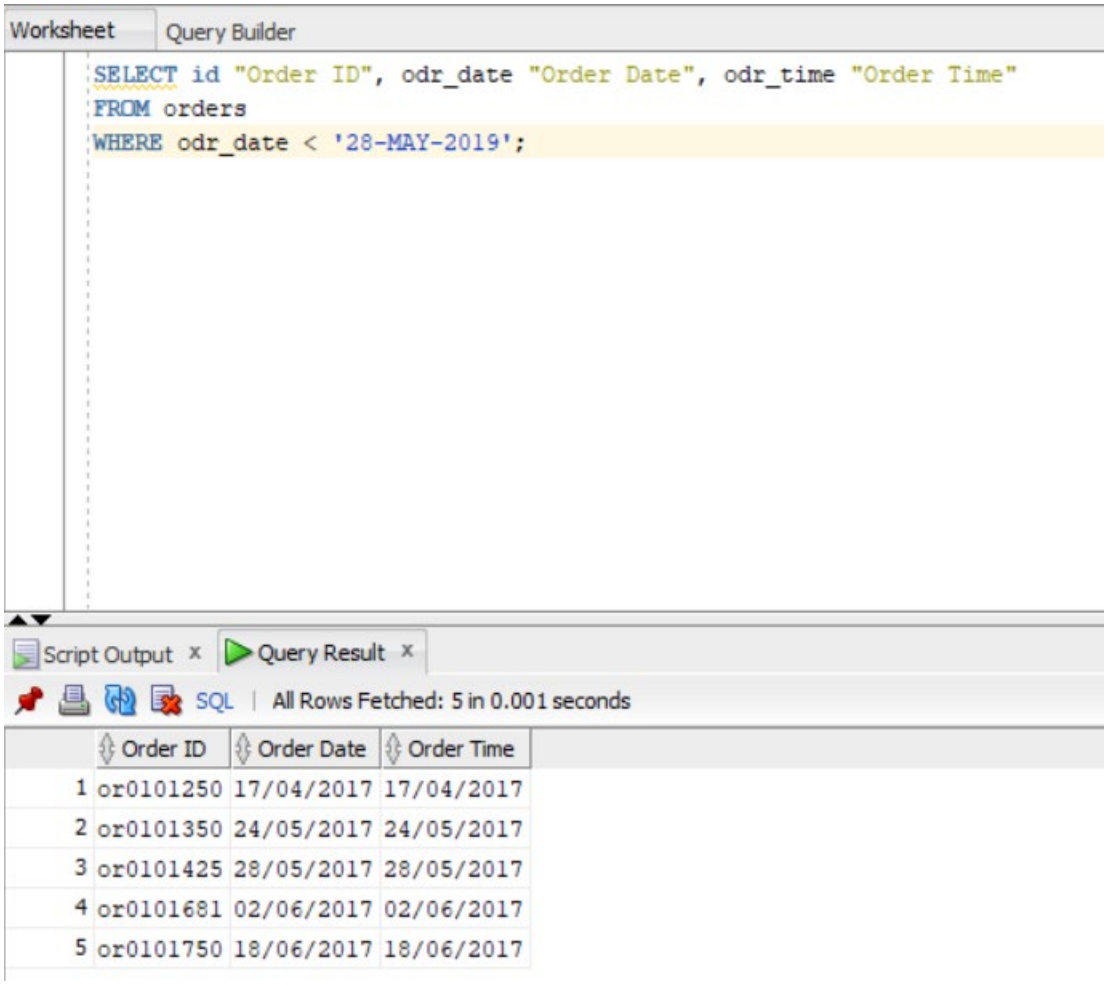
```
SELECT first_name "First Name", last_name "Last Name", ctr_number "Customer Number"
FROM customers
WHERE current_balance>100;
```

Script Output | Query Result

SQL | All Rows Fetched: 3 in 0.001 seconds

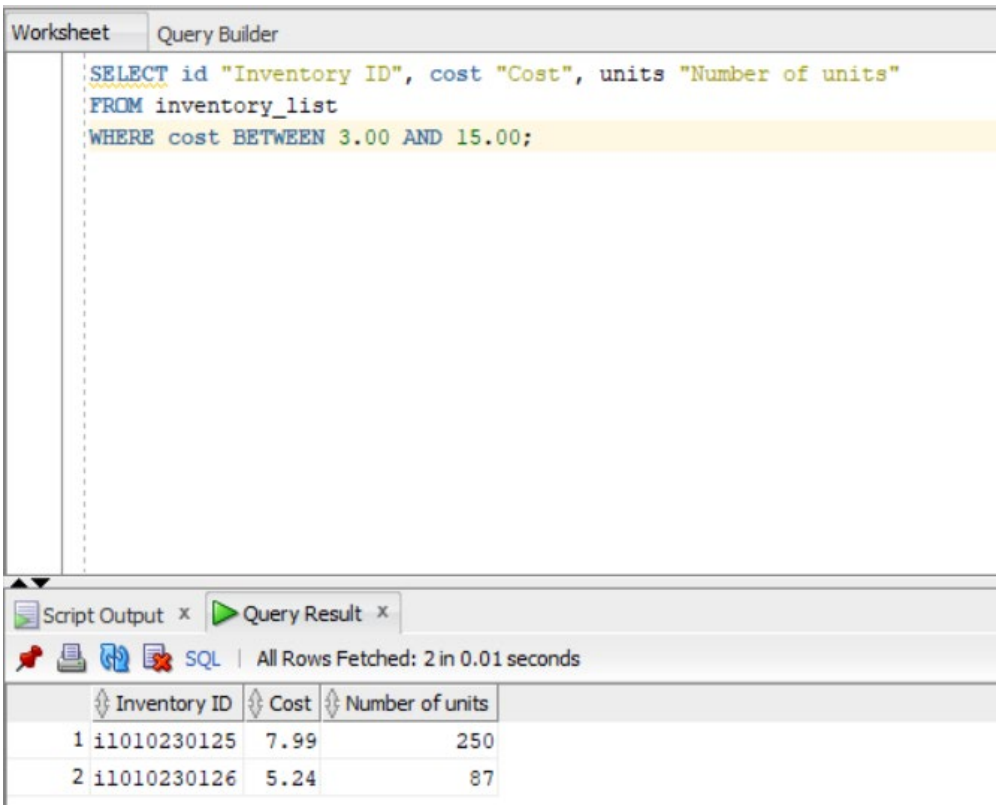
	First Name	Last Name	Customer Number
1	Robert	Thornberry	c00001
2	John	Doe	c00101
3	Maria	Galant	c01986

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.



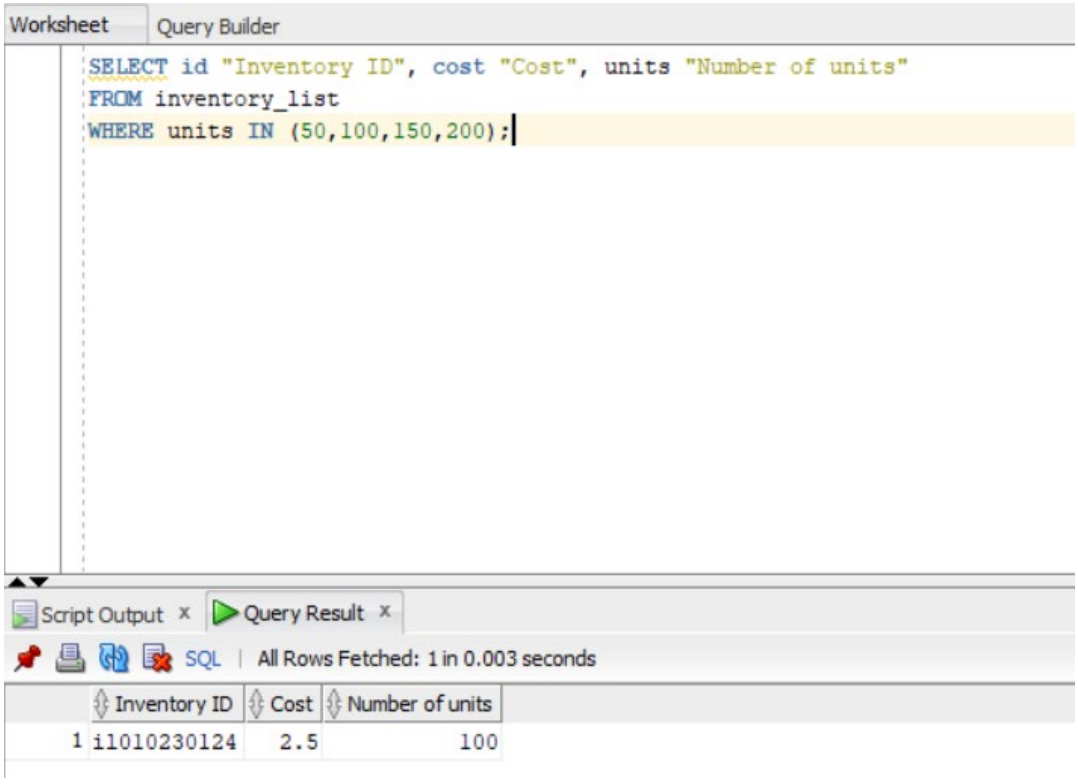
Part 2: Range Conditions: BETWEEN Operator

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.



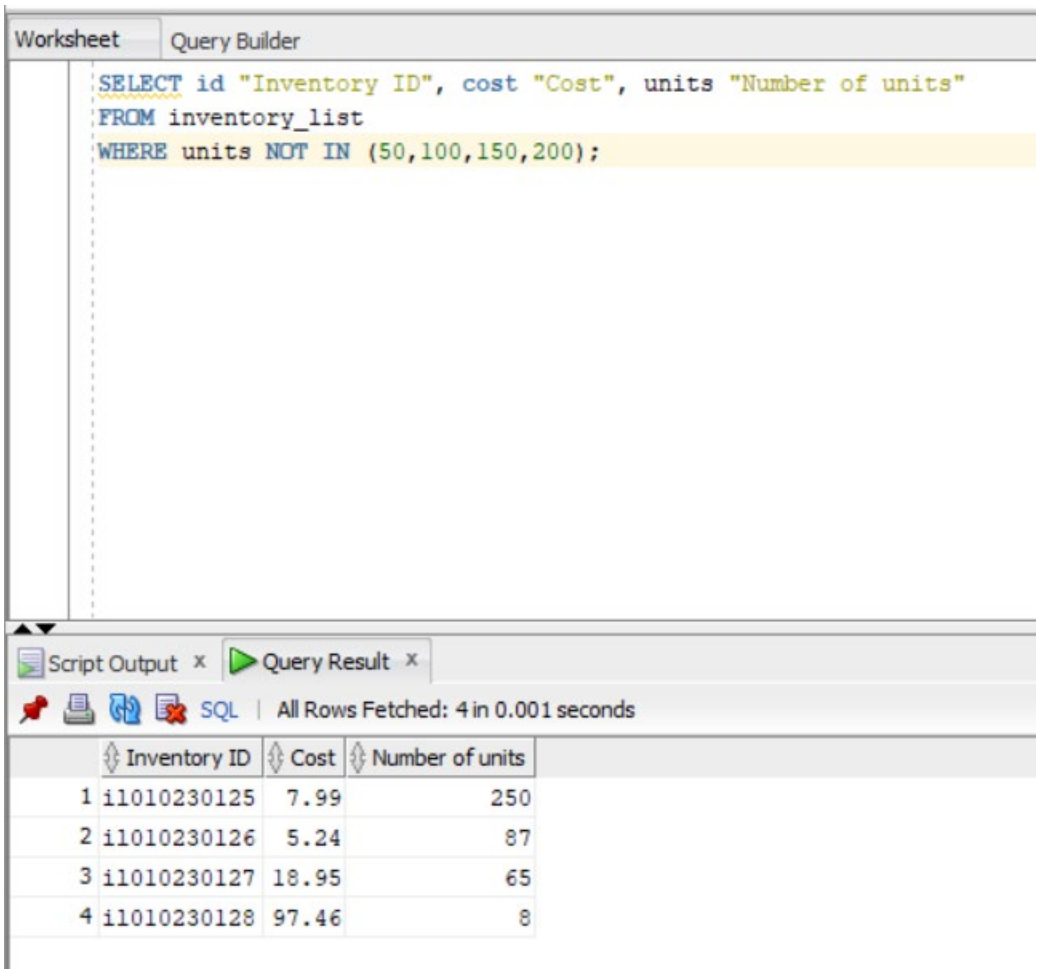
Part 3: Membership Conditions: IN Operator

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.



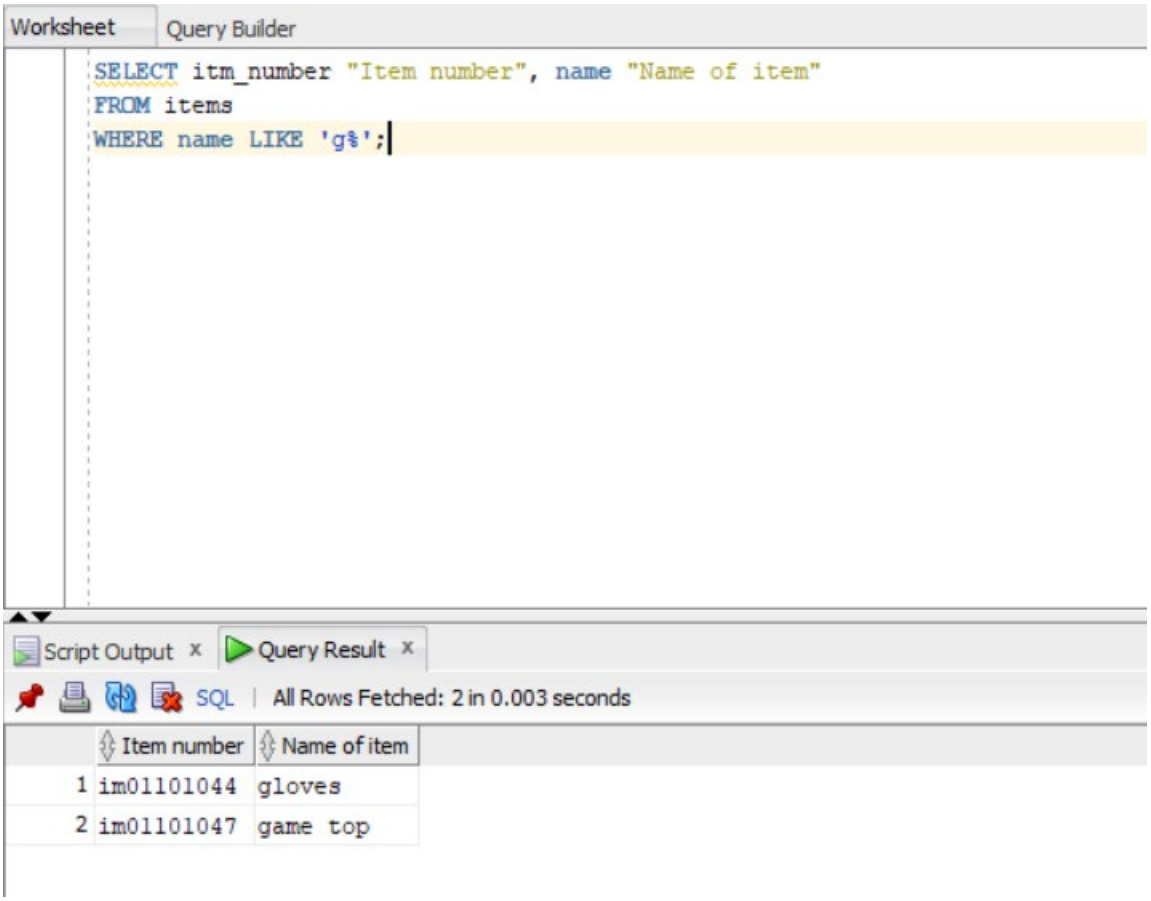
Part 4: Membership Conditions: NOT IN Operator

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.



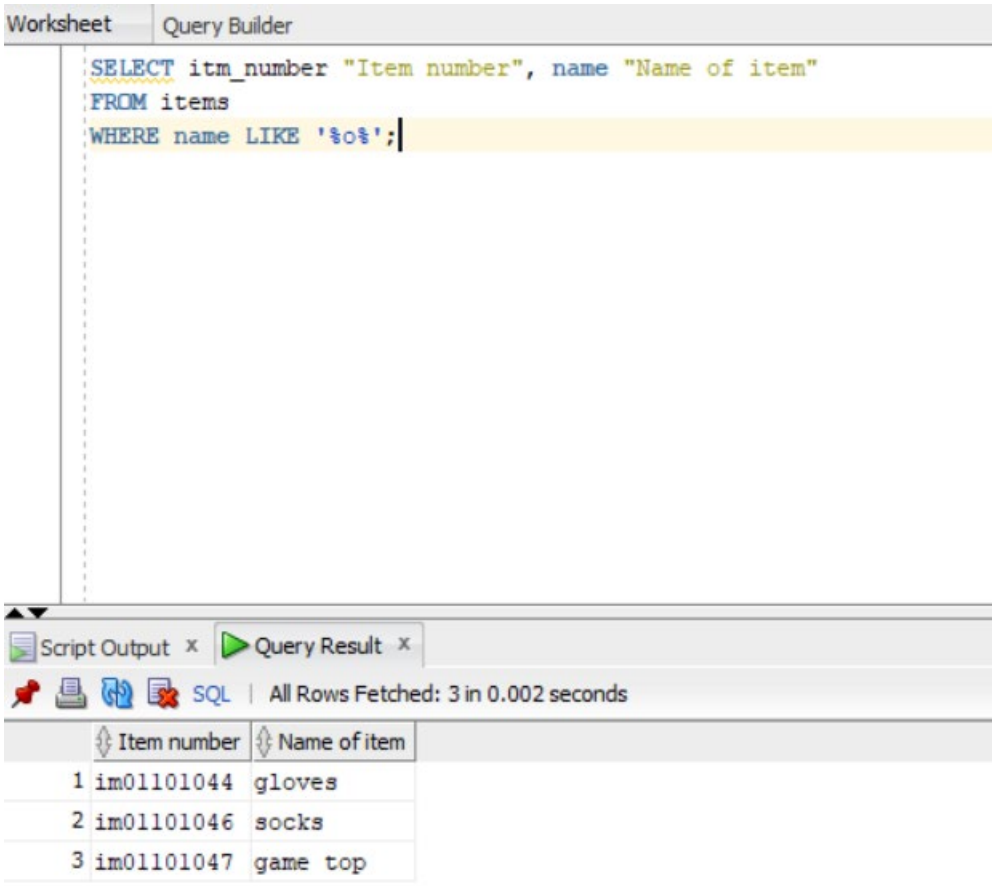
Part 5: Pattern Matching: LIKE Operator

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.



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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 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.

```
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 10
percent' AS "Team Information"
FROM teams
WHERE discount = '10';
```

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

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

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 id "Customer Number", address_line_1 "Street Address", zip_code "Postal Code"
FROM customers_addresses
WHERE city <> 'Liverpool';
```

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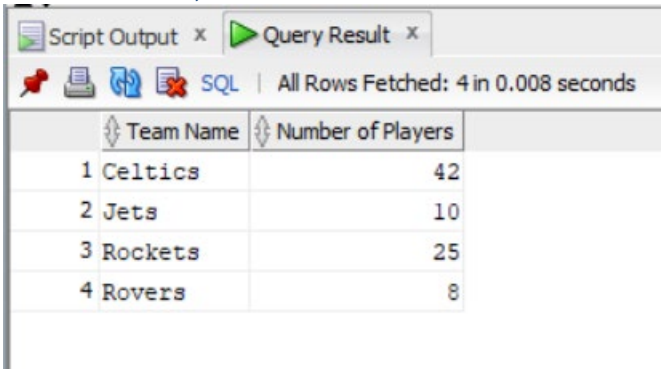
Section 6 Lesson 8 Exercise 1: Sorting Data Using ORDER BY

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.

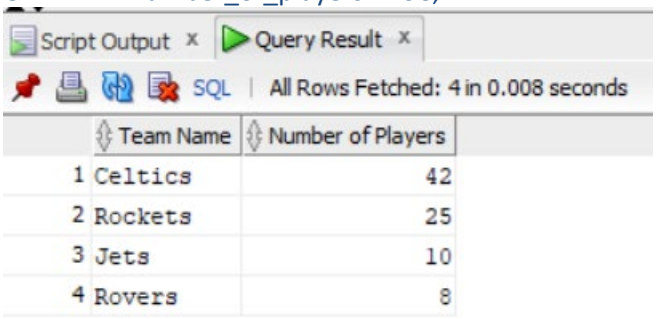
```
SELECT name "Team Name", number_of_players "Number of Players"
FROM teams
ORDER BY name;
```



	Team Name	Number of Players
1	Celtics	42
2	Jets	10
3	Rockets	25
4	Rovers	8

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

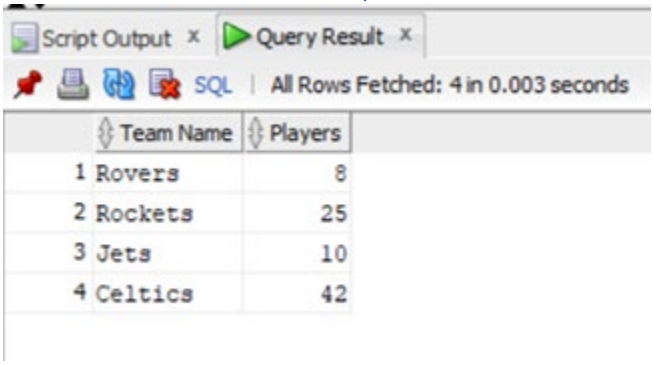
```
SELECT name "Team Name", number_of_players "Number of Players"
FROM teams
ORDER BY number_of_players DESC;
```



	Team Name	Number of Players
1	Celtics	42
2	Rockets	25
3	Jets	10
4	Rovers	8

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 "Players"
FROM teams
ORDER BY "Team Name" DESC;
```



	Team Name	Players
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3	Jets	10
4	Celtics	42

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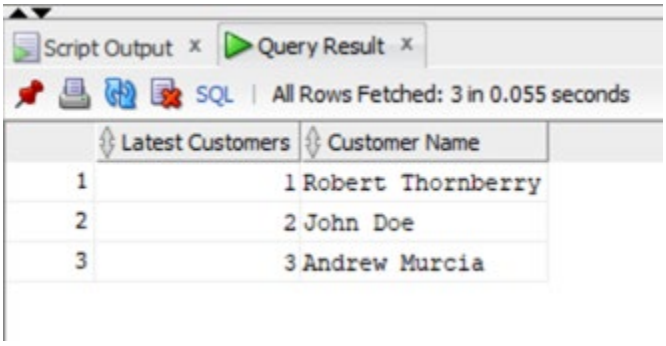
Section 6 Lesson 8 Exercise 2: Sorting Data Using ORDER BY

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 "Latest Customers", first_name ||' '|| last_name AS "Customer Name"
FROM (SELECT first_name, last_name
    FROM customers)
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 "First Name", last_name "Last Name"
FROM sales_representatives
WHERE commission_rate = :commission_rate
ORDER BY last_name;
```