UTM

UNIVERSITI TEKNOLOGI MALAYSIA

SECD2523 - DATABASE

SECTION 10

SQL 4 : DML 3 PART 1

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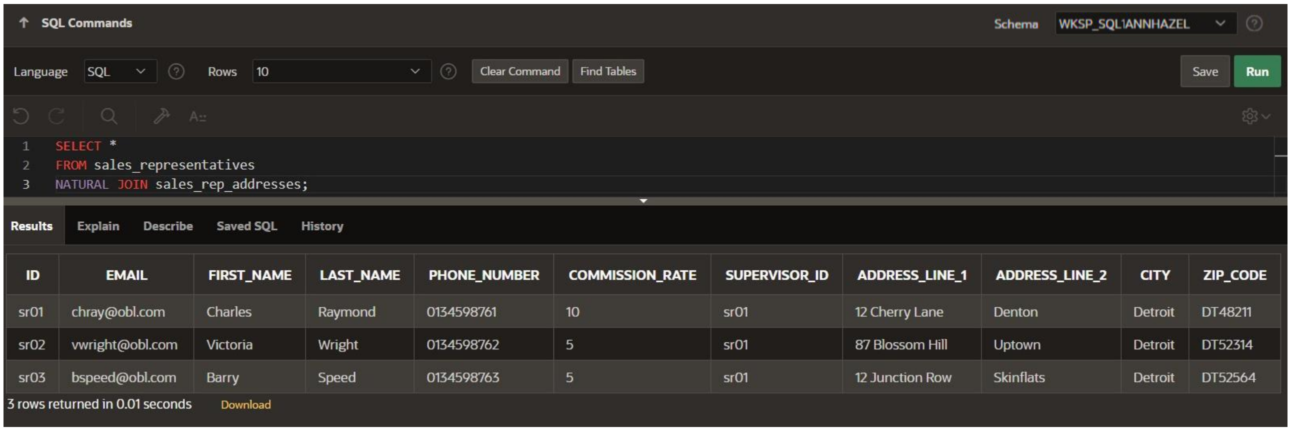
Section 6 Lesson 9 Exercise 1: Joining Tables Using JOIN

Write SELECT Statements Using Data From Multiple Tables Using Equijoins and Non-Equijoins (S6L9 Objective 1)

In this exercise you will write SELECT statements to access data from more than one table.

Part 1: Creating Natural Joins.

1. Display all of the information about sales representatives and their addresses using a natural join.

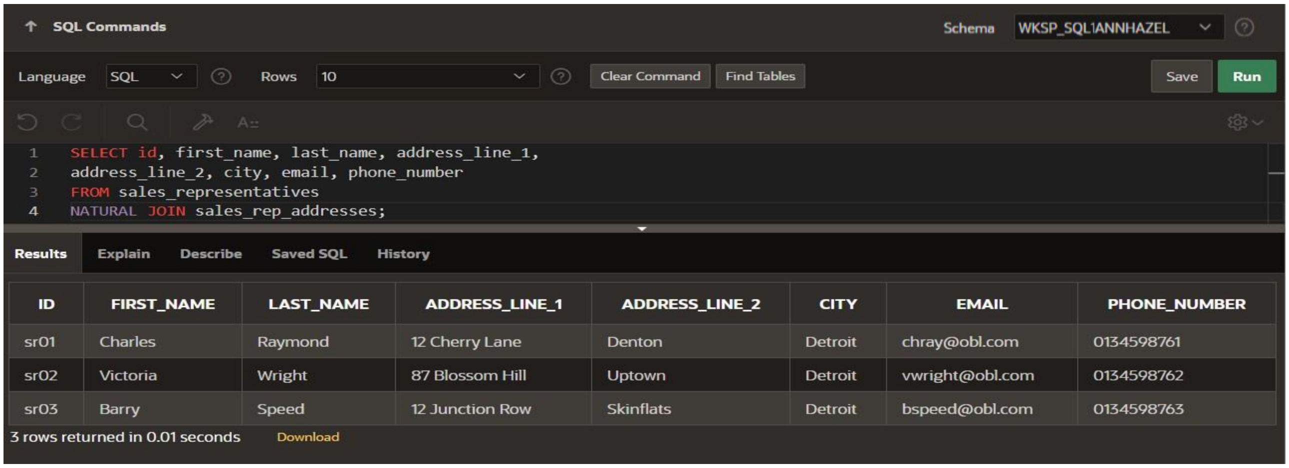


```
SELECT *
FROM sales_representatives
NATURAL JOIN sales_rep_addresses;
```

ID	EMAIL	FIRST_NAME	LAST_NAME	PHONE_NUMBER	COMMISSION_RATE	SUPERVISOR_ID	ADDRESS_LINE_1	ADDRESS_LINE_2	CITY	ZIP_CODE
sr01	chray@obl.com	Charles	Raymond	0134598761	10	sr01	12 Cherry Lane	Denton	Detroit	DT48211
sr02	vwright@obl.com	Victoria	Wright	0134598762	5	sr01	87 Blossom Hill	Uptown	Detroit	DT52314
sr03	bspeed@obl.com	Barry	Speed	0134598763	5	sr01	12 Junction Row	Skinflats	Detroit	DT52564

3 rows returned in 0.01 seconds

2. Adapt the query from the previous question to only show the id, first name, last name, address line 1, address line 2, city, email and phone_number for the sales representatives.



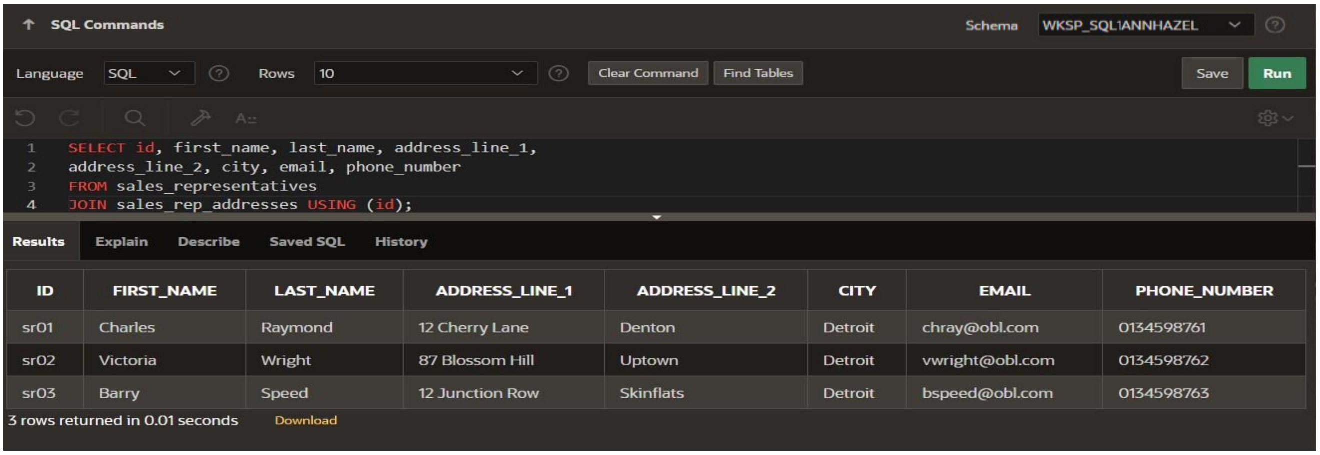
```
SELECT id, first_name, last_name, address_line_1,
address_line_2, city, email, phone_number
FROM sales_representatives
NATURAL JOIN sales_rep_addresses;
```

ID	FIRST_NAME	LAST_NAME	ADDRESS_LINE_1	ADDRESS_LINE_2	CITY	EMAIL	PHONE_NUMBER
sr01	Charles	Raymond	12 Cherry Lane	Denton	Detroit	chray@obl.com	0134598761
sr02	Victoria	Wright	87 Blossom Hill	Uptown	Detroit	vwright@obl.com	0134598762
sr03	Barry	Speed	12 Junction Row	Skinflats	Detroit	bspeed@obl.com	0134598763

3 rows returned in 0.01 seconds

Part 2: Creating Joins with the USING Clause

1. Adapt the previous query answer to use the USING clause instead of a natural join.

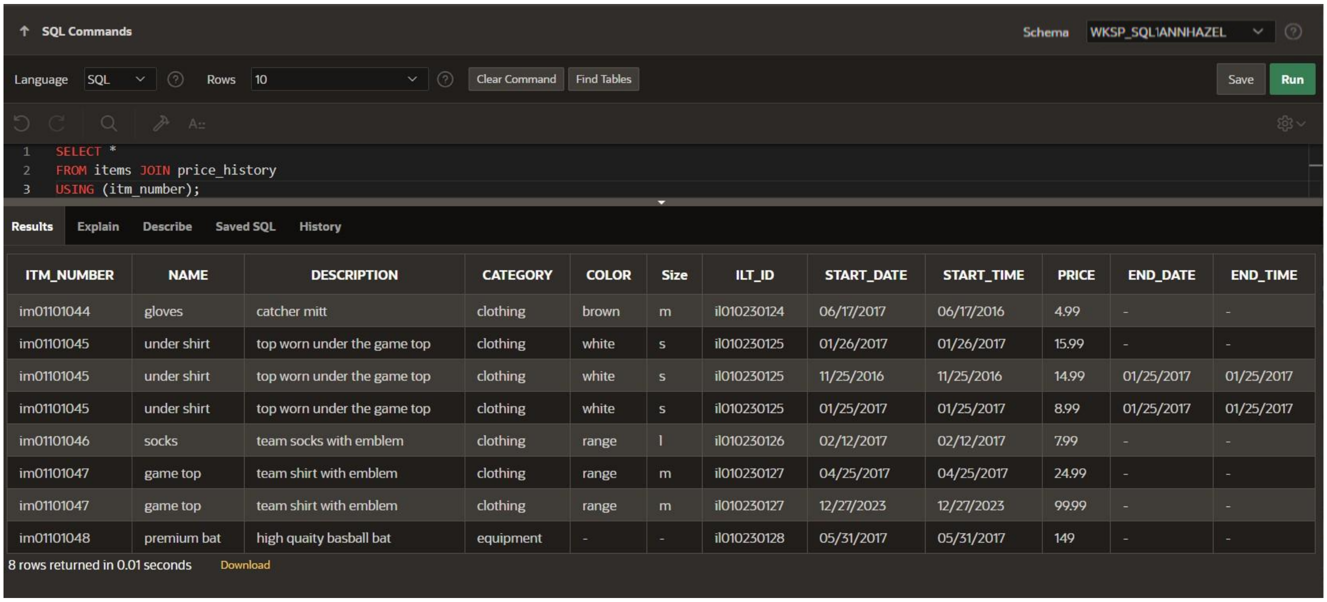


```
SELECT id, first_name, last_name, address_line_1,
address_line_2, city, email, phone_number
FROM sales_representatives
JOIN sales_rep_addresses USING (id);
```

ID	FIRST_NAME	LAST_NAME	ADDRESS_LINE_1	ADDRESS_LINE_2	CITY	EMAIL	PHONE_NUMBER
sr01	Charles	Raymond	12 Cherry Lane	Denton	Detroit	chray@obl.com	0134598761
sr02	Victoria	Wright	87 Blossom Hill	Uptown	Detroit	vwright@obl.com	0134598762
sr03	Barry	Speed	12 Junction Row	Skinflats	Detroit	bspeed@obl.com	0134598763

3 rows returned in 0.01 seconds

2. Display all of the information about items and their price history by joining the items and price_history tables.



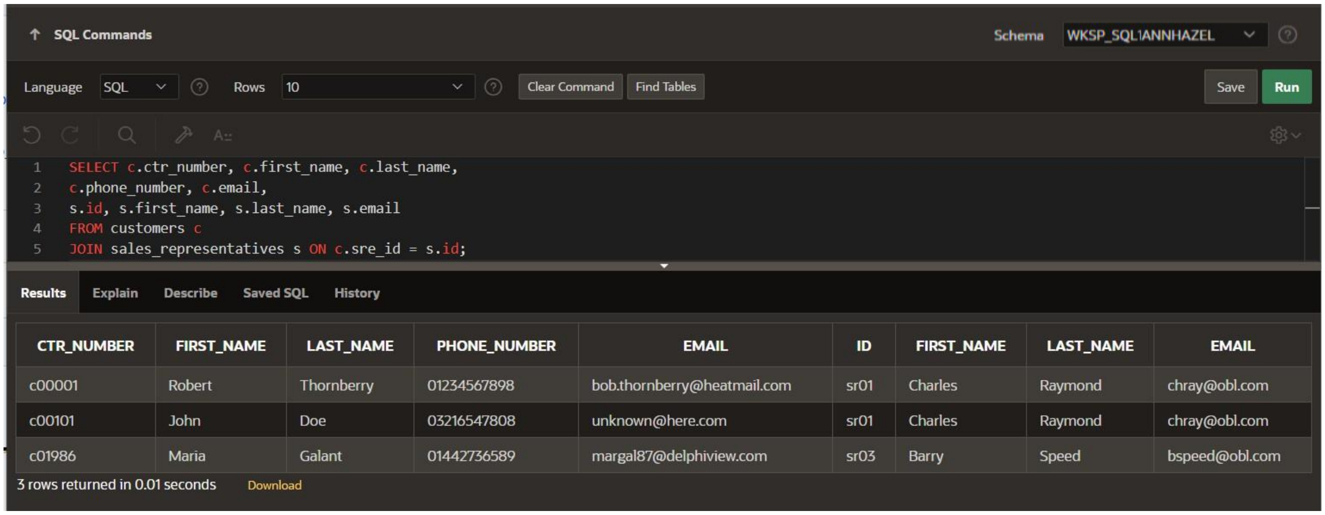
```
SELECT *
FROM items JOIN price_history
USING (itm_number);
```

ITM_NUMBER	NAME	DESCRIPTION	CATEGORY	COLOR	Size	ILT_ID	START_DATE	START_TIME	PRICE	END_DATE	END_TIME
im01101044	gloves	catcher mitt	clothing	brown	m	il010230124	06/17/2017	06/17/2016	4.99	-	-
im01101045	under shirt	top worn under the game top	clothing	white	s	il010230125	01/26/2017	01/26/2017	15.99	-	-
im01101045	under shirt	top worn under the game top	clothing	white	s	il010230125	11/25/2016	11/25/2016	14.99	01/25/2017	01/25/2017
im01101045	under shirt	top worn under the game top	clothing	white	s	il010230125	01/25/2017	01/25/2017	8.99	01/25/2017	01/25/2017
im01101046	socks	team socks with emblem	clothing	range	l	il010230126	02/12/2017	02/12/2017	7.99	-	-
im01101047	game top	team shirt with emblem	clothing	range	m	il010230127	04/25/2017	04/25/2017	24.99	-	-
im01101047	game top	team shirt with emblem	clothing	range	m	il010230127	12/27/2023	12/27/2023	99.99	-	-
im01101048	premium bat	high quaity basball bat	equipment	-	-	il010230128	05/31/2017	05/31/2017	149	-	-

8 rows returned in 0.01 seconds

Part 3: Creating Joins with the ON Clause

1. Use an ON clause to join the customer and sales representative table so that you display the customer number, customer first name, customer last name, customer phone number, customer email, sales representative id, sales representative first name, sales representative last name and sales representative email. You will need to use a table alias in your answer as both tables have columns with the same name.



Schema WKSP_SQL1ANNHAZEL

Language SQL

Rows 10

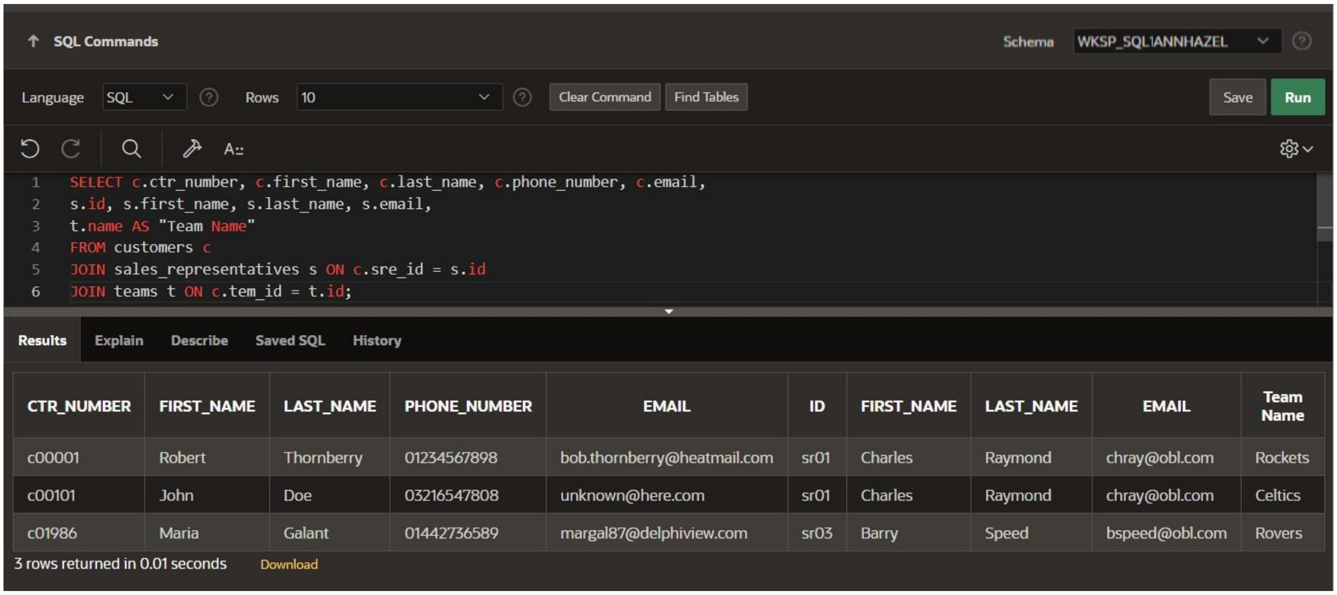
```
SELECT c.ctr_number, c.first_name, c.last_name,
c.phone_number, c.email,
s.id, s.first_name, s.last_name, s.email
FROM customers c
JOIN sales_representatives s ON c.sre_id = s.id;
```

CTR_NUMBER	FIRST_NAME	LAST_NAME	PHONE_NUMBER	EMAIL	ID	FIRST_NAME	LAST_NAME	EMAIL
c00001	Robert	Thornberry	01234567898	bob.thornberry@heatmail.com	sr01	Charles	Raymond	chray@obl.com
c00101	John	Doe	03216547808	unknown@here.com	sr01	Charles	Raymond	chray@obl.com
c01986	Maria	Galant	01442736589	margal87@delphiview.com	sr03	Barry	Speed	bspeed@obl.com

3 rows returned in 0.01 seconds

Part 4- Creating Three-Way Joins with the ON Clause

1. Using the answer to Task 3 add a join that will allow the team name that the customer represents to be included in the results.



Schema WKSP_SQL1ANNHAZEL

Language SQL

Rows 10

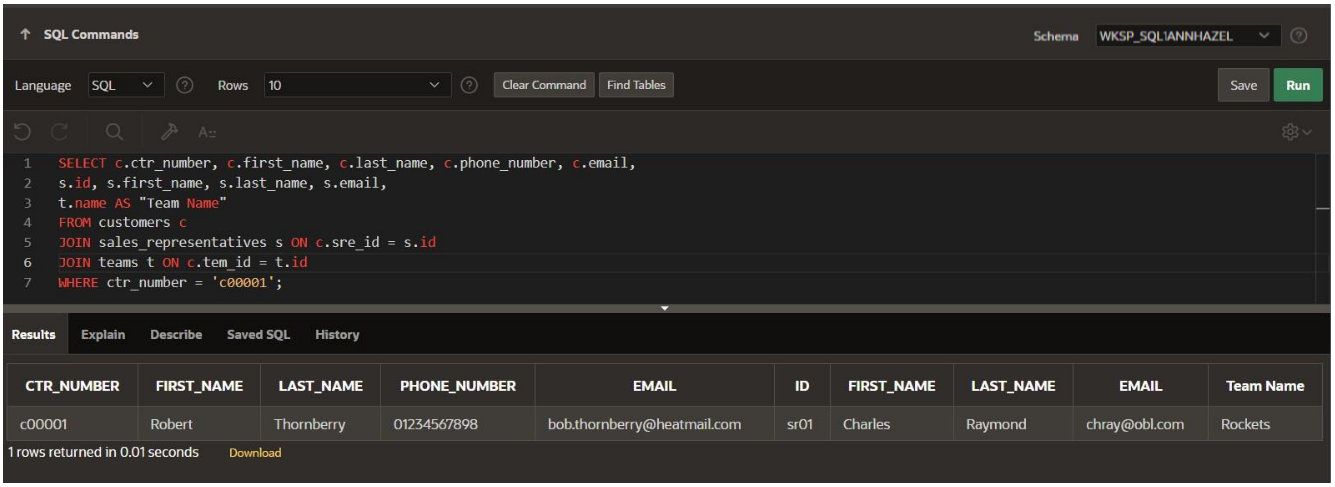
```
SELECT c.ctr_number, c.first_name, c.last_name, c.phone_number, c.email,
s.id, s.first_name, s.last_name, s.email,
t.name AS "Team Name"
FROM customers c
JOIN sales_representatives s ON c.sre_id = s.id
JOIN teams t ON c.tem_id = t.id;
```

CTR_NUMBER	FIRST_NAME	LAST_NAME	PHONE_NUMBER	EMAIL	ID	FIRST_NAME	LAST_NAME	EMAIL	Team Name
c00001	Robert	Thornberry	01234567898	bob.thornberry@heatmail.com	sr01	Charles	Raymond	chray@obl.com	Rockets
c00101	John	Doe	03216547808	unknown@here.com	sr01	Charles	Raymond	chray@obl.com	Celtics
c01986	Maria	Galant	01442736589	margal87@delphiview.com	sr03	Barry	Speed	bspeed@obl.com	Rovers

3 rows returned in 0.01 seconds

Part 5: Applying Additional Conditions to a Join

1. Using the answer to Task 4 add an additional condition to only show the results for the customer that has the number - c00001.



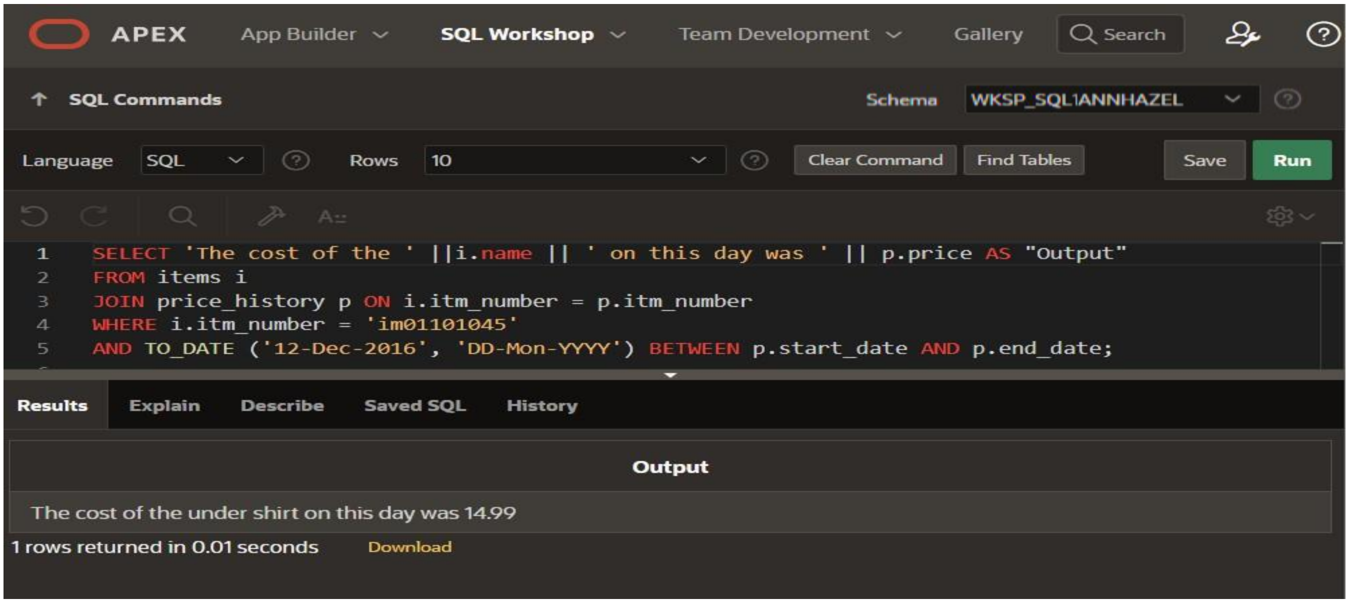
```sql
SELECT c.ctr_number, c.first_name, c.last_name, c.phone_number, c.email,
s.id, s.first_name, s.last_name, s.email,
t.name AS "Team Name"
FROM customers c
JOIN sales_representatives s ON c.sre_id = s.id
JOIN teams t ON c.tem_id = t.id
WHERE ctr_number = 'c00001';
```

CTR_NUMBER	FIRST_NAME	LAST_NAME	PHONE_NUMBER	EMAIL	ID	FIRST_NAME	LAST_NAME	EMAIL	Team Name
c00001	Robert	Thornberry	01234567898	bob.thornberry@heatmail.com	sr01	Charles	Raymond	chray@obl.com	Rockets

1 rows returned in 0.01 seconds

Part 6: Retrieving Records with Nonequijoins

1. Write a query that will display the name and cost of the item with the number im01101045 on the 12th of December 2016. The output of the query should look like this: The cost of the under shirt on this day was 14.99



```sql
SELECT 'The cost of the ' ||i.name || ' on this day was ' || p.price AS "Output"
FROM items i
JOIN price_history p ON i.itm_number = p.itm_number
WHERE i.itm_number = 'im01101045'
AND TO_DATE ('12-Dec-2016', 'DD-Mon-YYYY') BETWEEN p.start_date AND p.end_date;
```

Output
The cost of the under shirt on this day was 14.99

1 rows returned in 0.01 seconds