

Lab 4

Section 6 Lesson 9 Exercise 1: Joining Tables Using JOIN

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 0.00 seconds [Download](#)

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

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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 *
FROM sales_representatives JOIN sales_rep_addresses
USING (id);
```

```
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	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

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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 (item-number);
```

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

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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.

```
SELECT c.cust_number "Customer Number", c.first_name "Customer First Name", c.last_name "Customer Last Name",  
c.phone_number "Customer Phone Number", c.email "Customer Email", s.id "Sales Rep ID", s.first_name "Sales Rep  
First Name", s.last_name "Sales Rep Last Name", s.email "Sales Rep Email"  
FROM customers c JOIN sales_representatives s  
ON (c.sre_id = s.id);
```

Customer Number	Customer First Name	Customer Last Name	Customer Phone Number	Customer Email	Sales Rep ID	Sales Rep First Name	Sales Rep Last Name	Sales Rep Email
c00001	Robert	Thornberry	-	bob.thornberry@heatmail.com	sr01	Charles	Raymond	chray@obl.com
c00101	John	Doe	-	unknown@here.com	sr01	Charles	Raymond	chray@obl.com
c01986	Maria	Galant	-	margal87@delphiview.com	sr03	Barry	Speed	bspeed@obl.com

3 rows returned in 0.01 seconds [Download](#)

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.

```
SELECT c.cust_number "Customer Number", c.first_name "Customer First Name", c.last_name "Customer Last Name",  
c.phone_number "Customer Phone Number", c.email "Customer Email", s.id "Sales Rep ID", s.first_name "Sales Rep  
First Name", s.last_name "Sales Rep Last Name", s.email "Sales Rep Email", t.name "Team Name"  
FROM customers c JOIN sales_representatives s  
ON (c.sre_id = s.id)  
JOIN team t  
ON (c.team_id = t.id);
```

Customer Number	Customer First Name	Customer Last Name	Customer Phone Number	Customer Email	Sales Rep ID	Sales Rep First Name	Sales Rep Last Name	Sales Rep Email	Team Name
c00001	Robert	Thornberry	-	bob.thornberry@heatmail.com	sr01	Charles	Raymond	chray@obl.com	Rockets
c00101	John	Doe	-	unknown@here.com	sr01	Charles	Raymond	chray@obl.com	Celtics
c01986	Maria	Galant	-	margal87@delphiview.com	sr03	Barry	Speed	bspeed@obl.com	Rovers

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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.

```
SELECT c.cust_number "Customer Number", c.first_name "Customer First Name", c.last_name "Customer Last Name",  
c.phone_number "Customer Phone Number", c.email "Customer Email", s.id "Sales Rep ID", s.first_name "Sales Rep  
First Name", s.last_name "Sales Rep Last Name", s.email "Sales Rep Email", t.name "Team Name"  
FROM customers c JOIN sales-representatives s  
ON (c.sr_id = s.id)  
JOIN team t  
ON (c.team_id = t.id)  
WHERE c.cust_number = 'c00001';
```

Customer Number	Customer First Name	Customer Last Name	Customer Phone Number	Customer Email	Sales Rep ID	Sales Rep First Name	Sales Rep Last Name	Sales Rep Email	Team Name
c00001	Robert	Thornberry	-	bob.thornberry@heatmail.com	sr01	Charles	Raymond	chray@obl.com	Rockets

1 rows returned in 0.01 seconds [Download](#)

Part 6: Retrieving Records with Nonequi Joins

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

```
SELECT 'The cost of the ' || i.name || ' on this day was ' || h.price
FROM items i JOIN inventory-list l
ON (i.it_id = l.id)
JOIN price-history h
ON (i.item-number = h.item-number)
WHERE i.item-number = 'im01101045' AND h.start-date < 'Dec-12-2016' AND h.end-date > 'Dec-12-2016';
```

'THECOSTOFTHE' I.NAME 'ONTHISDAYWAS' H.PRICE	
The cost of the under shirt on this day was 14.99	
1 rows returned in 0.03 seconds Download	

Section 6 Lesson 9 Exercise 2: Joining Tables Using JOIN

Part 1 : Use a Self-Join to Join a Table to Itself (S6L9 Objective 2)

1. Write a query that will display who the supervisor is for each of the sales representatives. The information should be displayed in two columns, the first column will be the first name and last name of the sales representative and the second will be the first name and last name of the supervisor. The column aliases should be Rep and Supervisor.

```
SELECT r.first_name || ' ' || r.last_name "Rep", s.first_name || ' ' || s.last_name "Supervisor"
FROM sales_representatives r JOIN sales_representatives s
ON (r.supervisor_id = s.id);
```

Rep	Supervisor
Charles Raymond	Charles Raymond
Victoria Wright	Charles Raymond
Barry Speed	Charles Raymond

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Part 2 : Use OUTER joins (S6L9 Objective 3)

1. Write a query that will display all of the team and customer information even if there is no match with the table on the left (team).

```
SELECT *
FROM teams t LEFT OUTER JOIN customers c
ON (t.id = c.team_id);
```

ID	NAME	NUMBER_OF_PLAYERS	DISCOUNT	CTR_NUMBER	EMAIL	FIRST_NAME	LAST_NAME	CURRENT_BALANCE	SRE_ID	TEM_ID	LOYALTY_CARD_NUMBER	PHONE_NUMBER
t001	Rockets	25	10	c00001	bob.thornberry@heatmail.com	Robert	Thornberry	150	sr01	t001	-	-
t002	Celtics	42	20	c00101	unknown@here.com	John	Doe	9875	sr01	t002	-	-
t003	Rovers	8	-	c01986	margal87@delphiview.com	Maria	Galant	125.65	sr03	t003	-	-
t004	Jets	10	5	-	-	-	-	-	-	-	-	-

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Part 3 : Generating a Cartesian Product (S6L9 Objective 4)

1. Create a Cartesian product between the customer and sales representative tables.

```
SELECT *
FROM customers c, sales_representatives r;
```

CTR_NUMBER	EMAIL	FIRST_NAME	LAST_NAME	CURRENT_BALANCE	SRE_ID	TEM_ID	LOYALTY_CARD_NUMBER	PHONE_NUMBER	ID	EMAIL	FIRST_NAME	LAST_NAME	PHONE_NUMBER	COMMISSION_RATE	SUPERVISOR_ID
c00001	bob.thornberry@heatmail.com	Robert	Thornberry	150	sr01	t001	-	-	sr01	chray@obl.com	Charles	Raymond	0134598761	10	sr01
c00012	jones@freemail.com	Jennifer	Jones	0	-	-	lc1015	-	sr01	chray@obl.com	Charles	Raymond	0134598761	10	sr01
c00101	unknown@here.com	John	Doe	9875	sr01	t002	-	-	sr01	chray@obl.com	Charles	Raymond	0134598761	10	sr01
c00103	MurciaA@globaltech.com	Andrew	Murcia	85	-	-	lc2341	-	sr01	chray@obl.com	Charles	Raymond	0134598761	10	sr01
c01986	margal87@delphiview.com	Maria	Galant	125.65	sr03	t003	-	-	sr01	chray@obl.com	Charles	Raymond	0134598761	10	sr01
c02001	brianng@hootech.com	Brian	Rogers	50	-	-	lc4587	01654564898	sr01	chray@obl.com	Charles	Raymond	0134598761	10	sr01
c00001	bob.thornberry@heatmail.com	Robert	Thornberry	150	sr01	t001	-	-	sr02	vwright@obl.com	Victoria	Wright	0134598762	5	sr01
c00012	jones@freemail.com	Jennifer	Jones	0	-	-	lc1015	-	sr02	vwright@obl.com	Victoria	Wright	0134598762	5	sr01
c00101	unknown@here.com	John	Doe	9875	sr01	t002	-	-	sr02	vwright@obl.com	Victoria	Wright	0134598762	5	sr01
c00103	MurciaA@globaltech.com	Andrew	Murcia	85	-	-	lc2341	-	sr02	vwright@obl.com	Victoria	Wright	0134598762	5	sr01

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