

Database Design Project

Oracle Baseball League Store Database

Project Scenario:

You are a small consulting company specializing in database development. You have just been awarded the contract to develop a data model for a database application system for a small retail store called Oracle Baseball League (OBL).

The Oracle Baseball League store serves the entire surrounding community selling baseball kit. The OBL has two types of customer, there are individuals who purchase items like balls, cleats, gloves, shirts, screen printed t-shirts, and shorts. Additionally customers can represent a team when they purchase uniforms and equipment on behalf of the team.

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 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.
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.

Part 2: Creating Joins with the USING Clause

1. Adapt the previous query answer to use the USING clause instead of a natural join.
2. Display all of the information about items and their price history by joining the items and price_history tables.

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.

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.

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.

Part 6: Retrieving Records with Nonequijoins

1. Write a query that will display 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

Part 1

1) `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
1 sr01	chray@obl.com	Charles	Raymond	0134598761		10 sr01	12 Cherry Lane	Denton	Detroit	DT48211
2 sr02	vwright@obl.com	Victoria	Wright	0134598762		5 sr01	87 Blossom Hill Uptown		Detroit	DT52314
3 sr03	bspeed@obl.com	Barry	Speed	0134598763		5 sr01	12 Junction Row Skinflats		Detroit	DT52564

2) `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
1 sr01	Charles	Raymond	12 Cherry Lane	Denton	Detroit	chray@obl.com	0134598761
2 sr02	Victoria	Wright	87 Blossom Hill Uptown		Detroit	vwright@obl.com	0134598762
3 sr03	Barry	Speed	12 Junction Row Skinflats		Detroit	bspeed@obl.com	0134598763

Part 2

1) `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
1 sr01	Charles	Raymond	12 Cherry Lane	Denton	Detroit	chray@obl.com	0134598761
2 sr02	Victoria	Wright	87 Blossom Hill Uptown		Detroit	vwright@obl.com	0134598762
3 sr03	Barry	Speed	12 Junction Row Skinflats		Detroit	bspeed@obl.com	0134598763

2) `SELECT * FROM items
JOIN price-history
USING (item-number)`

ITM_NUMBER	NAME	DESCRIPTION	CATEGORY	COLOR	Size	ILT_ID	START_DATE	START_TIME	PRICE	END_DATE	END_TIME
1 im01101044	gloves	catcher mitt	clothing	brown	m	i1010230124	17-JUN-17	17-JUN-16	4.99	(null)	(null)
2 im01101045	under shirt top	worn under the game top	clothing	white	s	i1010230125	25-NOV-16	25-NOV-16	14.99	25-JAN-17	25-JAN-17
3 im01101045	under shirt top	worn under the game top	clothing	white	s	i1010230125	25-JAN-17	25-JAN-17	8.99	25-JAN-17	25-JAN-17
4 im01101045	under shirt top	worn under the game top	clothing	white	s	i1010230125	26-JAN-17	26-JAN-17	15.99	(null)	(null)
5 im01101046	socks	team socks with emblem	clothing	range	1	i1010230126	12-FEB-17	12-FEB-17	7.99	(null)	(null)
6 im01101047	game top	team shirt with emblem	clothing	range	m	i1010230127	25-APR-17	25-APR-17	24.99	(null)	(null)
7 im01101048	premium bat	high quality baseball bat	equipment	(null)	(null)	i1010230128	31-MAY-17	31-MAY-17	149	(null)	(null)
8 im01101048	premium bat	high quality baseball bat	equipment	(null)	(null)	i1010230128	09-NOV-23	09-NOV-23	99.99	(null)	(null)

Part 3

1) SELECT C.customer_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",
 R.id "Sales representatives ID",
 R.first_name "Sales representatives first name",
 R.last_name "Sales representatives last name",
 R.email "Sales representatives email"
 FROM customers C
 JOIN sales_representatives R
 ON C.c.re_id = R.id)

Customer Number	Customer First Name	Customer Last Name	Customer Phone Number	Customer Email	Sales Representatives ID	Sales representatives First Name	Sales representatives Last Name	Sales representatives email
1 c00001	Robert	Thornberry	01234567898	bob.thornberry@heatmail.com	sr01	Charles	Raymond	chray@obl.com
2 c00101	John	Doe	03216547808	unknown@here.com	sr01	Charles	Raymond	chray@obl.com
3 c01986	Maria	Galant	01442736589	margal87@delphiview.com	sr03	Barry	Speed	bspeed@obl.com

Part 4

1) SELECT C.customer_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",
 R.id "Sales representatives ID",
 R.first_name "Sales representatives first name",
 R.last_name "Sales representatives last name",
 R.email "Sales representatives email",
 L.name "team name"
 FROM customers C
 JOIN sales_representatives R
 ON C.c.re_id = R.id
 JOIN teams L
 ON C.c.team_id = L.id)

Customer Number	Customer First Name	Customer Last Name	Customer Phone Number	Customer Email	Sales Representatives ID	Sales representatives First Name	Sales representatives Last Name	Sales representatives email	Team Name
1 c00001	Robert	Thornberry	01234567898	bob.thornberry@heatmail.com	sr01	Charles	Raymond	chray@obl.com	Rockets
2 c00101	John	Doe	03216547808	unknown@here.com	sr01	Charles	Raymond	chray@obl.com	Celtics
3 c01986	Maria	Galant	01442736589	margal87@delphiview.com	sr03	Barry	Speed	bspeed@obl.com	Rovers

Part 5

```

1) SELECT C.ctr-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",
       R.id "Sales representatives ID",
       R.first-name "Sales representatives first name",
       R.last-name "Sales representatives last name",
       R.email "Sales representatives email",
       L.name "team name"
  FROM customers C
 JOIN sales-representatives R
 ON C.cre-id = R.id
 JOIN teams L
 ON C.tem-id = L.id
 AND C.ctr-number = 'c00001'

```

Customer Number	Customer First Name	Customer Last Name	Customer Phone Number	Customer Email	Sales Representatives ID	Sales representatives First Name	Sales representatives Last Name	Sales representatives email	Team Name
1 c00001	Robert	Thornberry	01234567898	bob.thornberry@heatmail.com	sr01	Charles	Raymond	chray@obl.com	Rockets

Part 6

```

1) SELECT 'The cost of the ' || L.name ||
           ' On this day was ' || P.price
           ' Items and cost information'
  FROM items I
 JOIN price-history P
 ON I.item-number = P.item-number
 JOIN inventory-list L
 ON I.item-id = L.id
 WHERE I.item-number = 'IM 01101045'
 AND TO-DATE ('2016-12-12', 'YYYY-MM-DD')
 BETWEEN P.start-date and P.end-date

```

Items and Cost Information
1 The cost of the under shirt On this day was 14.99

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Section 6 Lesson 9 Exercise 2: Joining Tables Using JOIN

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

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.

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).

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

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

Part 1

1) SELECT s.first-name || ' ' || s.last-name "Rep",
 m.first-name || ' ' || m.last-name "Supervisor"
 FROM sales-representatives S
 JOIN sales-representatives M
 ON S.supervisor-id = M.id

Rep	Supervisor
1 Charles Raymond	Charles Raymond
2 Victoria Wright	Charles Raymond
3 Barry Speed	Charles Raymond

Part 2

1) SELECT *
 FROM teams L
 LEFT OUTER JOIN customers C
 ON (L.id = C.team-id)

ID	NAME	NUMBER_OF_PLAYERS	DISCOUNT	CTR_NUMBER	EMAIL	FIRST_NAME	LAST_NAME	PHONE_NUMBER	CURRENT_BALANCE	SRE_ID	TEM_ID	LOYALTY_CARD_NUMBER
1 t001	Rockets	25	10	c00001	bob.thornberry@heatmail.com	Robert	Thornberry	01234567898	150	sr01	t001	(null)
2 t002	Celtics	42	20	c00101	unknown@here.com	John	Doe	03216547808	987.5	sr01	t002	(null)
3 t003	Rovers	8	(null)	c01986	margal87@delphiview.com	Maria	Galant	01442736589	125.65	sr03	t003	(null)
4 t004	jets	10	5	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)

Part 3

1) SELECT * FROM customers, sales-representatives

CTR_NUMBER	EMAIL	FIRST_NAME	LAST_NAME	PHONE_NUMBER	CURRENT_BALANCE	SRE_ID	TEM_ID	LOYALTY_CARD_NUMBER	ID	EMAIL_1	FIRST_NAME_1	LAST_NAME_1	PHONE_NUMBER_1	COMMISSION_RATE	SUPERVISOR_ID
1 c00001	bob.thornberry@heatmail.com	Robert	Thornberry	01234567898	150	sr01	t001	(null)	sr01	chray@obl.com	Charles	Raymond	0134598761	10	sr01
2 c00012	Jjones@freemail.com	Jennifer	Jones	01505214598	0	(null)	lc1015	(null)	sr01	chray@obl.com	Charles	Raymond	0134598761	10	sr01
3 c00101	unknown@here.com	John	Doe	03216547808	987.5	sr01	t002	(null)	sr01	chray@obl.com	Charles	Raymond	0134598761	10	sr01
4 c00103	MurciaA@globaltech.com	Andrew	Murcia	07715246890	85	(null)	lc2341	(null)	sr01	chray@obl.com	Charles	Raymond	0134598761	10	sr01
5 c01986	margal87@delphiview.com	Maria	Galant	01442736589	125.65	sr03	t003	(null)	sr01	chray@obl.com	Charles	Raymond	0134598761	10	sr01
6 c02001	brianrog@hotech.com	Brian	Rogers	01654564898	50	(null)	lc4587	(null)	sr01	chray@obl.com	Charles	Raymond	0134598761	10	sr01
7 c00001	bob.thornberry@heatmail.com	Robert	Thornberry	01234567898	150	sr01	t001	(null)	sr02	wright@obl.com	Victoria	Wright	0134598762	5	sr01
8 c00012	Jjones@freemail.com	Jennifer	Jones	01505214598	0	(null)	lc1015	(null)	sr02	wright@obl.com	Victoria	Wright	0134598762	5	sr01
9 c00101	unknown@here.com	John	Doe	03216547808	987.5	sr01	t002	(null)	sr02	wright@obl.com	Victoria	Wright	0134598762	5	sr01
10 c00103	MurciaA@globaltech.com	Andrew	Murcia	07715246890	85	(null)	lc2341	(null)	sr02	wright@obl.com	Victoria	Wright	0134598762	5	sr01
11 c01986	margal87@delphiview.com	Maria	Galant	01442736589	125.65	sr03	t003	(null)	sr02	wright@obl.com	Victoria	Wright	0134598762	5	sr01
12 c02001	brianrog@hotech.com	Brian	Rogers	01654564898	50	(null)	lc4587	(null)	sr02	wright@obl.com	Victoria	Wright	0134598762	5	sr01
13 c00001	bob.thornberry@heatmail.com	Robert	Thornberry	01234567898	150	sr01	t001	(null)	sr03	bspeed@obl.com	Barry	Speed	0134598763	5	sr01
14 c00012	Jjones@freemail.com	Jennifer	Jones	01505214598	0	(null)	lc1015	(null)	sr03	bspeed@obl.com	Barry	Speed	0134598763	5	sr01
15 c00101	unknown@here.com	John	Doe	03216547808	987.5	sr01	t002	(null)	sr03	bspeed@obl.com	Barry	Speed	0134598763	5	sr01
16 c00103	MurciaA@globaltech.com	Andrew	Murcia	07715246890	85	(null)	lc2341	(null)	sr03	bspeed@obl.com	Barry	Speed	0134598763	5	sr01
17 c01986	margal87@delphiview.com	Maria	Galant	01442736589	125.65	sr03	t003	(null)	sr03	bspeed@obl.com	Barry	Speed	0134598763	5	sr01
18 c02001	brianrog@hotech.com	Brian	Rogers	01654564898	50	(null)	lc4587	(null)	sr03	bspeed@obl.com	Barry	Speed	0134598763	5	sr01