Practices for Lesson 7: Displaying Data from Multiple Tables Using Joins

Chapter 7

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Practices for Lesson 7: Overview

Practice Overview

This practice covers the following topics:

- Joining tables using an equijoin
- Performing outer and self-joins
- Adding conditions

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Practice 7-1: Displaying Data from Multiple Tables by Using Joins

Overview

In this practice, you extract data from multiple tables using SQL:1999–compliant joins.

Tasks

1. Write a query for the HR department to produce the addresses of all the departments. Use the `LOCATIONS` and `COUNTRIES` tables. Show the location ID, street address, city, state or province, and country in the output. Use a `NATURAL JOIN` to produce the results.

	LOCATION_ID	STREET_ADDRESS	CITY	STATE_PROVINCE	COUNTRY_NAME
1	1400	2014 Jabberwocky Rd	Southlake	Texas	United States of America
2	1500	2011 Interiors Blvd	South San Francisco	California	United States of America
3	1700	2012 Charade Rd	Seattle	Washington	United States of America
4	1800	460 Bloor St. W.	Toronto	Ontario	Canada
5	2500	Magdalen Centre, The Oxford Science Park	Oxford	Oxford	United Kingdom

2. The HR department needs a report of all employees with corresponding departments. Write a query to display the last name, department number, and department name for these employees.

	LAST_NAME	DEPARTMENT_ID	DEPARTMENT_NAME
1	Whalen	10	Administration
2	Hartstein	20	Marketing
3	Fay	20	Marketing
4	Davies	50	Shipping
5	Vargas	50	Shipping
6	Rajs	50	Shipping
7	Mourgos	50	Shipping
8	Matos	50	Shipping
9	Hunold	60	IT
10	Ernst	60	IT
11	Lorentz	60	IT
12	Taylor	80	Sales
13	Zlotkey	80	Sales
14	Abel	80	Sales
15	De Haan	90	Executive
16	King	90	Executive
17	Kochhar	90	Executive
18	Higgins	110	Accounting
19	Gietz	110	Accounting

3. The HR department needs a report of employees in Toronto. Display the last name, job, department number, and the department name for all employees who work in Toronto.

	LAST_NAME	JOB_ID	DEPARTMENT_ID	DEPARTMENT_NAME
1	Hartstein	MK_MAN	20	Marketing
2	Fay	MK_REP	20	Marketing

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4. Create a report to display employees' last names and employee numbers along with their managers' last names and manager numbers. Label the columns `Employee`, `Emp#`, `Manager`, and `Mgr#`, respectively. Save your SQL statement as `lab_07_04.sql`. Run the query.

	Employee	Emp#	Manager	Mgr#
1	Hunold	103	De Haan	102
2	Fay	202	Hartstein	201
3	Gietz	206	Higgins	205
4	Ernst	104	Hunold	103
5	Lorentz	107	Hunold	103
6	Kochhar	101	King	100
7	De Haan	102	King	100
8	Mourgos	124	King	100
9	Zlotkey	149	King	100
10	Hartstein	201	King	100
11	Whalen	200	Kochhar	101
12	Higgins	205	Kochhar	101
13	Rajs	141	Mourgos	124
14	Davies	142	Mourgos	124
15	Matos	143	Mourgos	124
16	Vargas	144	Mourgos	124
17	Abel	174	Zlotkey	149
18	Taylor	176	Zlotkey	149
19	Grant	178	Zlotkey	149

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5. Modify `lab_07_04.sql` to display all employees, including King, who has no manager. Order the results by employee number. Save your SQL statement as `lab_07_05.sql`. Run the query in `lab_07_05.sql`.

	Employee	EMP#	Manager	Mgr#
1	King	100	(null)	(null)
2	Kochhar	101	King	100
3	De Haan	102	King	100
4	Hunold	103	De Haan	102
5	Ernst	104	Hunold	103
6	Lorentz	107	Hunold	103
7	Mourgos	124	King	100
8	Rajs	141	Mourgos	124
9	Davies	142	Mourgos	124
10	Matos	143	Mourgos	124
11	Vargas	144	Mourgos	124
12	Zlotkey	149	King	100
13	Abel	174	Zlotkey	149
14	Taylor	176	Zlotkey	149
15	Grant	178	Zlotkey	149
16	Whalen	200	Kochhar	101
17	Hartstein	201	King	100
18	Fay	202	Hartstein	201
19	Higgins	205	Kochhar	101
20	Gietz	206	Higgins	205

6. Create a report for the HR department that displays employee last names, department numbers, and all the employees who work in the same department as a given employee. Give each column an appropriate label. Save the script to a file named `lab_07_06.sql`.

	DEPARTMENT	EMPLOYEE	COLLEAGUE
1	20	Fay	Hartstein
2	20	Hartstein	Fay
3	50	Davies	Matos
4	50	Davies	Mourgos
5	50	Davies	Rajs

...

38	90	King	Kochhar
39	90	Kochhar	De Haan
40	90	Kochhar	King
41	110	Gietz	Higgins
42	110	Higgins	Gietz

7. The HR department needs a report on job grades and salaries. To familiarize yourself with the `JOB_GRADES` table, first show the structure of the `JOB_GRADES` table. Then create a query that displays the name, job, department name, salary, and grade for all employees.

```
DESC JOB_GRADES
Name         Null Type
------------ ---- -----------
GRADE_LEVEL       VARCHAR2(3)
LOWEST_SAL        NUMBER
HIGHEST_SAL       NUMBER
```

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	LAST_NAME	JOB_ID	DEPARTMENT_NAME	SALARY	GRADE_LEVEL
1	King	AD_PRES	Executive	24000	E
2	Kochhar	AD_VP	Executive	17000	E
3	De Haan	AD_VP	Executive	17000	E
4	Hartstein	MK_MAN	Marketing	13000	D
5	Higgins	AC_MGR	Accounting	12008	D
6	Abel	SA_REP	Sales	11000	D
7	Zlotkey	SA_MAN	Sales	10500	D
8	Hunold	IT_PROG	IT	9000	C
9	Taylor	SA_REP	Sales	8600	C
10	Gietz	AC_ACCOUNT	Accounting	8300	C
11	Ernst	IT_PROG	IT	6000	C
12	Fay	MK_REP	Marketing	6000	C
13	Mourgos	ST_MAN	Shipping	5800	B
14	Whalen	AD_ASST	Administration	4400	B
15	Lorentz	IT_PROG	IT	4200	B
16	Rajs	ST_CLERK	Shipping	3500	B
17	Davies	ST_CLERK	Shipping	3100	B
18	Matos	ST_CLERK	Shipping	2600	A
19	Vargas	ST_CLERK	Shipping	2500	A

If you want an extra challenge, complete the following exercises:

8. The HR department wants to determine the names of all employees who were hired after Davies. Create a query to display the name and hire date of any employee hired after employee Davies.

	LAST_NAME	HIRE_DATE
1	Hunold	03-JAN-14
2	Ernst	21-MAY-15
3	Lorentz	07-FEB-15
4	Mourgos	16-NOV-15
5	Matos	15-MAR-14
6	Vargas	09-JUL-14
7	Zlotkey	29-JAN-16
8	Taylor	24-MAR-14
9	Grant	24-MAY-15
10	Fay	17-AUG-13

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9. The HR department needs to find the names and hire dates of all employees who were hired before their managers, along with their managers' names and hire dates. Save the script to a file named `lab_07_09.sql`.

	LAST_NAME	HIRE_DATE	MANAGER	Manager_hire_date
1	Kochhar	21-SEP-09	King	17-JUN-11
2	De Haan	13-JAN-09	King	17-JUN-11
3	Rajs	17-OCT-11	Mourgos	16-NOV-15
4	Davies	29-JAN-13	Mourgos	16-NOV-15
5	Matos	15-MAR-14	Mourgos	16-NOV-15
6	Vargas	09-JUL-14	Mourgos	16-NOV-15
7	Abel	11-MAY-12	Zlotkey	29-JAN-16
8	Taylor	24-MAR-14	Zlotkey	29-JAN-16
9	Grant	24-MAY-15	Zlotkey	29-JAN-16

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