Multiple Table Part II

Lesson Agenda

- Self-join
- OUTER join:
 - LEFT OUTER join
 - RIGHT OUTER join
 - FULL OUTER join

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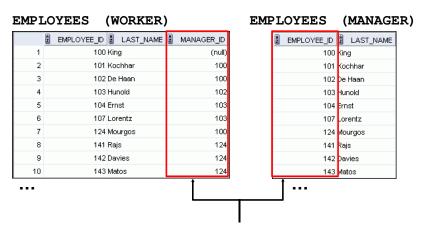
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Joining a Table to Itself

- Sometimes you need to join a table to itself. To find the name of each employee's manager, you need to join the EMPLOYEES table to itself, or perform a self-join. For example, to find the name of Lorentz's manager, you need to:
 - Find Lorentz in the EMPLOYEES table by looking at the LAST NAME column
 - Find the manager number for Lorentz by looking at the MANAGER_ID column. Lorentz's manager number is 103.
 - Find the name of the manager with EMPLOYEE_ID 103 by looking at the LAST_NAME column. Hunold's employee number is 103, so Hunold is Lorentz's manager.

Joining a Table to Itself



MANAGER_ID in the WORKER table is equal to EMPLOYEE_ID in the MANAGER table.

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Self-Joins Using the ON Clause



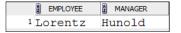
The example shown is a self-join of the EMPLOYEES table, based on the EMPLOYEE_ID and MANAGER_ID column.

SELECT worker.last_name emp, manager.last_name mgr FROM employees worker JOIN employees manager

Self-Joins Using the ON Clause

Practice:

Find the name of **Lorentz's** manager.



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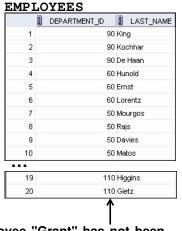
INNER Versus OUTER Joins

- In SQL:1999, the join of two tables returning only matched rows is called an inner join.
- A join between two tables that returns the results of the inner join as well as the unmatched rows from the left (or right) table is called a left (or right) outer join.
- A join between two tables that returns the results of an inner join as well as the results of a left and right join is a full outer join.
- There are three types of outer joins:
 - LEFT OUTER
 - RIGHT OUTER
 - FULL OUTER

Returning Records with No Direct Match with Outer Joins



There are no employees in department 190.



Employee "Grant" has not been assigned a department ID.

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LEFT OUTER Join

This query retrieves all rows in the EMPLOYEES table, which is the left table, even if there is no match in the DEPARTMENTS table.

	LAST_NAME	DEPARTMENT_ID	DEPARTMENT_NAME
77	Taylor	80	Sales
78	Livingston	80	Sales
79	Grant	(null)	(null)
80	Johnson	80	Sales
81	Taylor	50	Shipping
82	Fleaur	50	Shipping
83	Sullivan	50	Shipping
84	Geoni	50	Shipping

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FULL OUTER Join

This query retrieves all rows in the EMPLOYEES table, even if there is no match in the DEPARTMENTS table. It also retrieves all rows in the DEPARTMENTS table, even if there is no match in the EMPLOYEES table.

	LAST_NAME	DEPARTMENT_ID DEPARTMENT_NAME
76	Hutton	80 Sales
77	Taylor	80 Sales
78	Livingston	80 Sales
79	Grant	(null) (null)
80	Johnson	80 Sales
105	Baer	70 Public Relat
106	Higgins	110 Accounting
107	Gietz	110 Accounting
108	(null)	120 Treasury
109	(null)	130 Corporate Tax
110	(mul1)	140 Control And

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RIGHT OUTER Join

This query retrieves all rows in the DEPARTMENTS table, which is the right table, even if there is no match in the EMPLOYEES table.

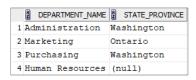
	LAST_NAME	DEPARTMENT_ID	DEPARTMENT_NAME
101	Chen	100	Finance
102	Sciarra	100	Finance
103	Urman	100	Finance
104	Popp	100	Finance
105	Higgins	110	Accounting
106	Gietz	110	Accounting
107	(null)	120	Treasury
108	(null)	130	Corporate Tax
109	(null)	140	Control And

Practice

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Create a report to display department name, state province for department which have no state province and department number in 10,20,30 or 40

Applying OUTER Join



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Summary

In this lesson, you should have learned how to use joins to display data from multiple tables by using:

- Equijoins
- INNER joins
- Self joins
- Natural joins
- Full(or two-sided) OUTER joins
- Table Aliases
- Table aliases speed up database access.
- Table aliases can help SQL code smaller by conserving memory.
- · Table aliases are sometimes mandatory to avoid column ambiguity.

Practice

จงแสดงข้อมูลรหัสพนักงาน ชื่อ-สกุล รหัสงาน เงินเดือนขั้นต่ำ โดยแสดงเฉพาะ job_title ที่ไม่ได้ขึ้นต้นด้วย A และ P มีเงินเดือนขั้นต่ำเท่ากับ 4000

	A	EMPLOYEE_ID	FULLNAME	A	JOB_ID	A	MIN_SALARY
1		202	Pat Fay	MK	REP		4000
2		203	Susan Mavris	HR	REP		4000

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