Inner versus Outer Joins

What Will I Learn?
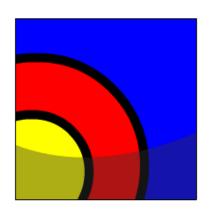
In this lesson, you will learn to:

- Compare and contrast an inner and an outer join

- Construct and execute a query to use a left outer join

- Construct and execute a query to use a right outer join

- Construct and execute a query to use a full outer join

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💡 **Why Learn It?**

Up to now, all of the joins returned data that matched the join condition. Sometimes, however, we want not only to retrieve data that meets the join condition, but also to retrieve data that doesn't meet a join condition. This should sound familiar!

The outer joins in ANSI-99 SQL allow this functionality.

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INNER AND OUTER JOINS

In ANSI-99 SQL, a join of two or more tables that return only matched rows is called an inner join.

When a join returns the unmatched rows as well as matched rows, it is called an outer join.

Outer join syntax uses the terms "left, full, and right." These names are associated with the order of the table names in the FROM clause of the SELECT statement.

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LEFT AND RIGHT OUTER JOINS

In the example shown of a left outer join, note that the table name listed to the left of the words "left outer join" is referred to as the "left table."

This query will return all matched rows as well as all employee last names even if they aren't assigned to a department.

```
SELECT e.last_name, d.department_id, d.department_name
FROM employees e
LEFT OUTER JOIN departments d
ON (e.department_id = d.department_id);
```

LAST_NAME	DEPT_ID	DEPT_NAME
King	90	Executive
Kochhar	90	Executive
…		
Whalen	10	Administration
Hartstein	20	Marketing
Fay	20	Marketing
Higgins	110	Accounting
Gietz	110	Accounting
Grant		

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LEFT AND RIGHT OUTER JOINS

This right outer join would return all department IDs and department names even if no employees were assigned to them.

```
SELECT e.last_name, d.department_id, d.department_name
FROM employees e
RIGHT OUTER JOIN departments d
ON (e.department_id = d.department_id);
```

LAST_NAME	DEPT_ID	DEPT_NAME
King	90	Executive
Kochhar	90	Executive
…		
Whalen	10	Administration
Hartstein	20	Marketing
Fay	20	Marketing
Higgins	110	Accounting
Gietz	110	Accounting
	190	Contracting

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FULL OUTER JOIN

It is possible to create a join condition to retrieve all matching rows and all unmatched rows from both tables in a join.

Recall the Oracle proprietary outer join syntax that used the (+) to indicate the column with missing data. Remember, in this form of an outer join, it was not possible to put a (+) on both sides of the WHERE clause.

Using a full outer join solves this problem. The results set of a full outer join includes all rows in both tables even if there is no match in the other table.

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FULL OUTER JOIN

The example shown is a full outer join.

```
SELECT e.last_name, d.department_id, d.department_name
FROM employees e
FULL OUTER JOIN departments d
ON (e.department_id = d.department_id);
```

LAST_NAME	DEPT_ID	DEPT_NAME
Whalen	10	Administration
Fay	20	Marketing
…		
De Haan	90	Executive
Kochhar	90	Executive
King	90	Executive
Gietz	110	Accounting
Higgins	110	Accounting
Grant		
	190	Contracting

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Construct a join to display a list of Global Fast Foods customers and their orders. Include all customers whether or not they have placed an order.

SELECT c.first_name, c.last_name, o.order_number, o.order_date, o.order_total

FROM   f_customers c

LEFT OUTER JOIN f_orders o

ON   (c.id = o.cust_id);

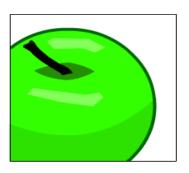| FIRST_NAME	LAST_NAME	ORDER_NUMBER	ORDER_DATE	ORDER_TOTAL
Cole	Bee	5678	10-DEC-02	103.02
Zoe	Twee	(null)	(null)	(null)

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Terminology

Key terms used in this lesson include:

FULL OUTER JOIN

Inner join

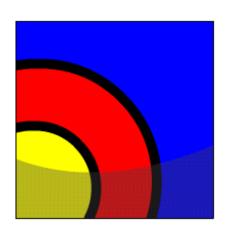LEFT OUTER JOIN

Outer join

RIGHT OUTER JOIN

⊚ **Summary**

In this lesson you have learned to:

- Compare and contrast an inner and an outer join

- Construct and execute a query to use a left outer join

- Construct and execute a query to use a right outer join

- Construct and execute a query to use a full outer join

Summary

Practice Guide

The link for the lesson practice guide can be found in the course resources in Section 0.