

Statement Components

SELECT <columns>

FROM <tables>

WHERE <conditions>
GROUP BY <columns>
HAVING <conditions>
ORDER BY <columns>

TRAINSIGNAL

Join Basics

Join Basics

Relational Concepts How Joins Work Join Syntax Best Practices and Coding Conventions

TRAINSIGNAL

Relational Concepts

Data is divided across multiple tables

- Storage space
- Flexibility in retrieving data
- Performance

Must combine tables to make data "human readable"

TRAINSIGNAL

How Joins Work

One column from each table to create "seam" Seam is used to match data from one table to the other Can join two or more tables

Customers	
CustomerID	Name
42	Christopher
43	Karin
44	Susan
45	Dave
46	Brian

Join Syntax -- ANSI Standard Joins SELECT <columns> FROM Schema.Table1 AS t1 INNER JOIN Schema.Table2 AS t2 ON t1.Column = t2.Column; -- WHERE line joins -- SQL will rewrite -- Not preferred method SELECT <columns> FROM Schema.Table1 AS t1 , Schema.Table4 AS t1 , Schema.Table5 AS t2 WHERE t1.Column = t2.Column;

Coding Best Practices and Conventions

Always alias table names
- Schema.Table AS t

Always use two part naming for columns

t.ColumnName

Place each join on separate line

FROM Schema.Table1 AS t1

INNER JOIN Schema.Table2 AS t2 ON t1.Column = t2.Column

Place tables in logical order

TRAINSIGNAL

Join Types

Join Types

Inner Joins Outer Joins Cross Joins Self Joins

TRAINSIGNAL

Inner Joins

Most common type of join Only rows that match are returned Find customers' orders

TRAINSIGNAL

Inner Joins

Cu	Customers		
CustomerID	Name		
42	Christopher		
43	Karin		
44	Susan		
45	Dave		
46	Brian		

Orders					
OrderID	CustomerID	OrderDate			
1	42	12/5/2012			
2	42	12/6/2012			
3	43	12/6/2012			
4	43	12/7/2012			
r	4.4	12/7/2012			

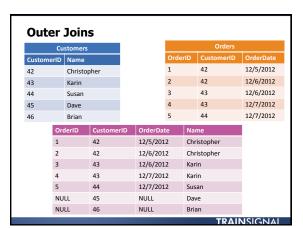
OrderID	CustomerID	OrderDate	Name
1	42	12/5/2012	Christopher
2	42	12/6/2012	Christopher
3	43	12/6/2012	Karin
4	43	12/7/2012	Karin
5	44	12/7/2012	Susan

Outer Joins

Rows from tables are returned even if they don't match Types:

- FULL
- · Returns rows from both tables even if they don't match the join statement
 - Find customers without orders and orphaned orders
- LEFT or RIGHT
 - No difference except in order of tables in FROM clause
 - Direction points at table to retrieve non-matching rows from
 - Find customers who haven't placed orders

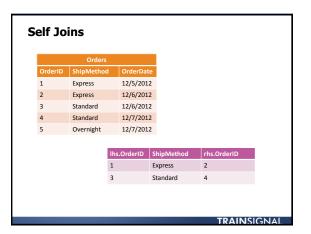
TRAINSIGNAL



Self Joins

Join a table to itself
Generally a sign of poor design and normalization
Notes

- Tables must be aliased
- Need to filter rows matching themselves
 - Typically done with a non-equi join



Cross Joins

All rows match from each table

- No ON statement

Also called a Cartesian Product

Uses

- Generating test data
- See what's "going on behind the scenes"

Ci	ustomers						Orders	
CustomerID	Name				Orde	rID	CustomerID	OrderDate
42	Christoph	er			1		42	12/5/2012
43	Karin				2		42	12/6/2012
44	Susan			3		43	12/6/2012	
	OrderID	Custom	erID	OrderDa	ate	Nar	ne	
	1	42		12/5/20	12	Chr	istopher	
	2	42		12/6/20	12	Chr	istopher	
	3	42		12/6/20	12	Chr	istopher	
	1	43		12/5/20	12	Kari	in	
	243343		12/6/2012	Karin				
				12/6/2012 Karin	in			
	1	44		12/5/20	12	Sus	an	
	2	44		12/6/20	12	Sus	an	
	3	44		12/6/20		Sus		