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Inner and outer joins SQL examples and the Join block

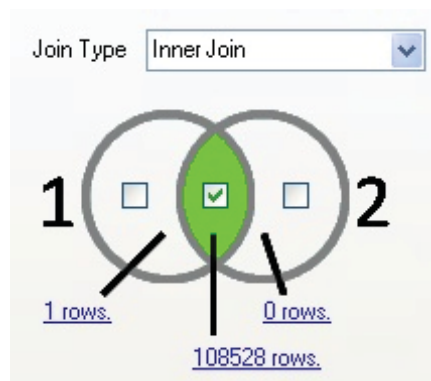
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Inner and outer joins SQL examples and the Join block

Posted by [James Standen](#) on 2/10/10 • Categorized as [Datamartist Tool](#), [ETL](#), [SQL Code](#)



In this post I'll show you how to do all the main types of Joins with clear SQL examples. The examples are written for Microsoft SQL Server, but very similar syntax is used in Oracle, MySQL and other databases.

If you are tired of writing SQL and want to try a visual tool, **you should give Datamartist a try**. The diagrams with the SQL examples are actually right from the tool- you just have to pick what parts of the Venn diagram you

want, and the data is joined for you- no code.

Joins can be said to be INNER or OUTER joins, and the two tables involved are referred to as LEFT and RIGHT. By combining these two concepts you get all the various types of joins in join land: Inner, left outer, right outer, and the full outer join.

Tables used for SQL Examples

Students

Student_ID	Student_Name	Advisor_ID
1	Student_1	1
2	Student_2	8
4	Student_4	2
5	Student_5	3
7	Student_7	3
9	Student_9	1
10	Student_10	3

Advisors

Advisor_ID	Advisor_Name
1	Advisor 1
3	Advisor 3
5	Advisor 5

In the screen shots I've configured Datamartist to only show the name columns to save space. The SQL code shown is "Select *" so it

will return all the columns. You can see that in the [Datamartist tool](#) the type of join is selected by just checking the parts of the venn diagram that contain the rows you want.

1) Inner Join SQL Example

```
select * from dbo.Students S INNER JOIN dbo.Advisors A ON
S.Advisor_ID=A.Advisor_ID
```

Block Name: Join Block 2

Join Type: Inner Join

Block output (Inner Join) 5 rows.

Student_Name	Advisor_Name
Student_1	Advisor 1
Student_5	Advisor 3
Student_7	Advisor 3
Student_9	Advisor 1
Student_10	Advisor 3

2) Left Outer Join SQL Example

```
select * from
dbo.Students S
LEFT OUTER JOIN
dbo.Advisors A
ON
```

```
S.Advisor_ID=A.Advisor_ID
```


4) Full Outer Join SQL Example

```
select * from dbo.Students S FULL OUTER JOIN dbo.Advisors A ON
S.Advisor_ID=A.Advisor_ID
```

5) SQL example for just getting the rows that

Block Name Join Block

Join Type

1  **2**

2 rows. 5 rows. 1 rows.

[Show Output](#) Block output (Outer Join on Input 1) 7 rows.

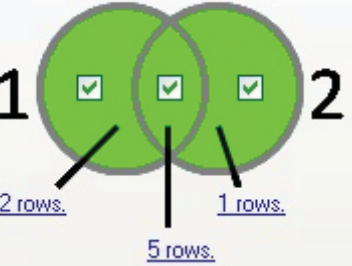
Student_Name	Advisor_Name
Student_2	_null_
Student_4	_null_
Student_1	Advisor 1
Student_5	Advisor 3
Student_7	Advisor 3
Student_9	Advisor 1
Student_10	Advisor 3

don't join

```
select *
from
```

Block Name Join Block

Join Type

1  **2**

2 rows. 5 rows. 1 rows.

[Show Output](#) Block output (Full Outer Join) 8 rows.

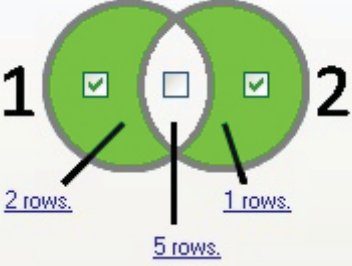
Student_Name	Advisor_Name
Student_2	_null_
Student_4	_null_
Student_1	Advisor 1
Student_5	Advisor 3
Student_7	Advisor 3
Student_9	Advisor 1
Student_10	Advisor 3
null	Advisor 5

```
dbo.Students S
FULL OUTER
JOIN
dbo.Advisors A
ON
```

S.Advisor_ID=A.Advisor_ID where A.Advisor_ID is null or S.Student_ID is null

Block Name Join Block

Join Type

1  **2**

2 rows. 5 rows. 1 rows.

[Show Output](#) Block output (Exclusive Input 1 and 2) 3 rows.

Student_Name	Advisor_Name
Student_2	_null_
Student_4	_null_
null	Advisor 5

6) SQL

example for just rows from one table that don't join

```
select * from dbo.Students S FULL OUTER JOIN dbo.Advisors A ON
```

S.Advisor_ID=A.Advisor_ID where A.Advisor_ID is null

The screenshot shows the 'Join Block' configuration in the Datamartist tool. The 'Block Name' is 'Join Block 2'. The 'Join Type' is set to 'Exclusive to Input 1'. A Venn diagram on the left shows two overlapping circles, labeled 1 and 2. Circle 1 has a green fill and a checkmark, with '2 rows.' below it. Circle 2 has a white fill and a checkmark, with '1 rows.' below it. The intersection of the two circles is labeled '5 rows.' Below the Venn diagram is a 'Show Output' button. To the right, the 'Block output (Exclusive to Input 1) 2 rows.' is displayed in a table:

Student_Name
Student_2
Student_4

**But
what
about
the**

duplicate row thing?

Now, since in this case we had a simple one to one relationship, the number of rows that were returned made the venn diagrams make sense, and add up pretty normally with table one and two.

What happens if the data in the tables are not a simple one to one relationship? What happens if we add one duplicate advisor with the same ID, but a different name?

Advisors with duplicate

Advisor_ID	123	Advisor_Name	abc
1		Advisor 1	
3		Advisor 3	
5		Advisor 5	
3		Advisor 3 duplicate	

A join will create a row for every combination of rows that join together. So if there are two advisors with the same key, for every student record that has that key, you will have two rows in the inner part of the join. The advisor duplicate makes duplicate student records for every student

with that advisor.

You can see how this could add up to a lot of extra rows. The number of rows is the product of the two sets of joining rows. If the tables get big, just a few duplicates will cause the results of a join to be much larger than the total number of rows in the input tables- this is something you have to watch very carefully when joining- check your row counts.

So there you have it. If you want to try joining tables with the Datamartist tool- **give it a try**. It's a super fast install, and you'll be joining like a pro in no time.

Tagged as: **Datamartist Tool**, **Joining data**, **SQL**

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