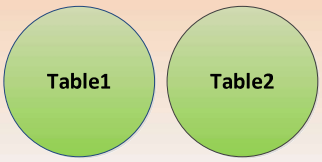
# TSQL JOIN TYPES

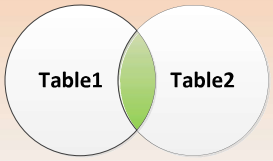
Created by Steve Stedman




SELECT from two tables

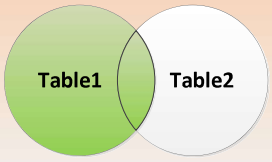
```
SELECT *
  FROM Table1;

SELECT *
  FROM Table2;
```



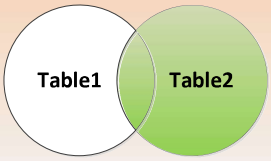

INNER JOIN

```
SELECT *
  FROM Table1 t1
 INNER JOIN Table2 t2
    ON t1.fk = t2.id;
```



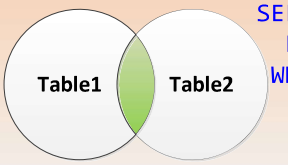

LEFT OUTER JOIN

```
SELECT *
  FROM Table1 t1
 LEFT OUTER JOIN Table2 t2
    ON t1.fk = t2.id;
```



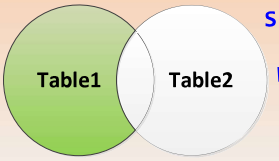

RIGHT OUTER JOIN

```
SELECT *
  FROM Table1 t1
RIGHT OUTER JOIN Table2 t2
    ON t1.fk = t2.id;
```



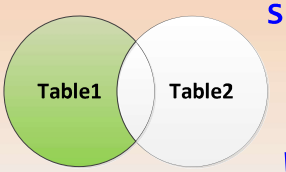

SEMI JOIN

```
SELECT *
  FROM Table1 t1
 WHERE EXISTS (SELECT 1
                 FROM Table2 t2
                WHERE t1.fk = t2.id
               );
```



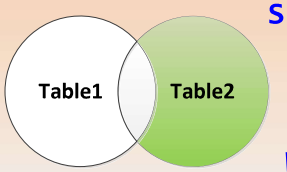

ANTI SEMI JOIN

```
SELECT *
  FROM Table1 t1
 WHERE NOT EXISTS (SELECT 1
                     FROM Table2 t2
                    WHERE t1.fk = t2.id
                   );
```



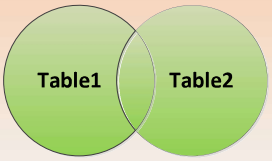

LEFT OUTER JOIN with exclusion
– replacement for a NOT IN

```
SELECT *
  FROM Table1 t1
 LEFT OUTER JOIN Table2 t2
    ON t1.fk = t2.id
 WHERE t2.id IS NULL;
```



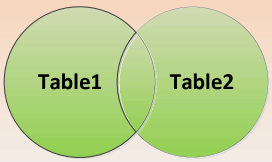

RIGHT OUTER JOIN with exclusion
– replacement for a NOT IN

```
SELECT *
  FROM Table1 t1
 RIGHT OUTER JOIN Table2 t2
    ON t1.fk = t2.id
 WHERE t1.fk IS NULL;
```



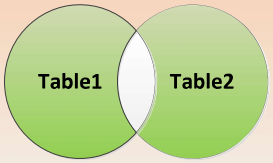

FULL OUTER JOIN

```
SELECT *
  FROM Table1 t1
 FULL OUTER JOIN Table2 t2
    ON t1.fk = t2.id;
```



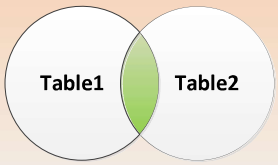

CROSS JOIN, the Cartesian product

```
SELECT *
  FROM Table1 t1
 CROSS JOIN Table2 t2;
```




FULL OUTER JOIN with exclusion

```
SELECT *
  FROM Table1 t1
 FULL OUTER JOIN Table2 t2
    ON t1.fk = t2.id
 WHERE t1.fk IS NULL
    OR t2.id IS NULL;
```




NON-EQUI INNER JOIN

```
SELECT *
  FROM Table1 t1
 INNER JOIN Table2 t2
    ON t1.fk >= t2.id;
```

**Created By Steve Stedman** **http://SteveStedman.com**
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# TSQL JOIN TYPES

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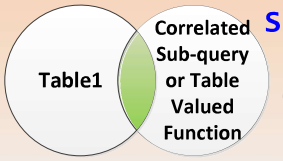
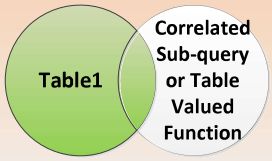


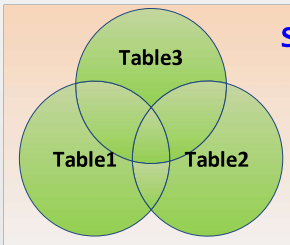

CROSS APPLY

```
SELECT *
  FROM Table1 t1
CROSS APPLY
      [dbo].[someTVF](t1.fk)
      AS t;
```



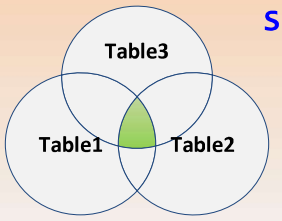

OUTER APPLY

```
SELECT *
  FROM Table1 t1
OUTER APPLY
      [dbo].[someTVF](t1.fk)
       AS t;
```



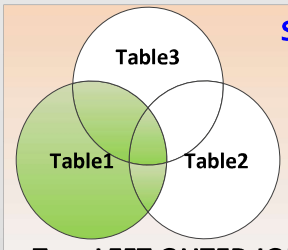

Two FULL OUTER JOINS

```
SELECT *
  FROM Table1 t1
  FULL OUTER JOIN Table2 t2
    ON t1.fk = t2.id
  FULL OUTER JOIN Table3 t3
    ON t1.fk_table3 = t3.id;
```



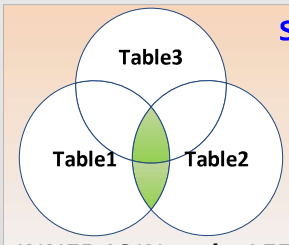

Two INNER JOINs

```
SELECT *
  FROM Table1 t1
 INNER JOIN Table2 t2
    ON t1.fk = t2.id
 INNER JOIN Table3 t3
    ON t1.fk_table3 = t3.id;
```



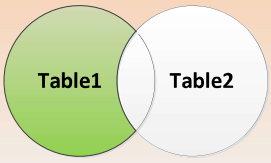

Two LEFT OUTER JOINS

```
SELECT *
  FROM Table1 t1
  LEFT OUTER JOIN Table2 t2
    ON t1.fk = t2.id
  LEFT OUTER JOIN Table3 t3
    ON t1.fk_table3 = t3.id;
```



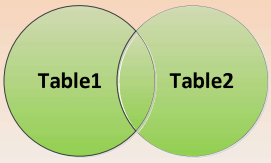

INNER JOIN and a LEFT OUTER JOIN

```
SELECT *
  FROM Table1 t1
 INNER JOIN Table2 t2
    ON t1.fk = t2.id
  LEFT OUTER JOIN Table3 t3
    ON t1.fk_table3 = t3.id;
```



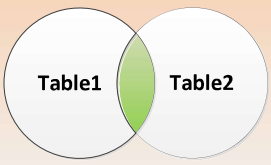

EXCEPT

```
SELECT fk as id
  FROM Table1
EXCEPT
SELECT ID
  FROM Table2;
```




UNION

```
SELECT fk as id
  FROM Table1
UNION
SELECT ID
  FROM Table2;
```




INTERSECT

```
SELECT fk as id
  FROM Table1
INTERSECT
SELECT ID
  FROM Table2;
```

## Sample Schema

**Table 1 (People)**

| | id | Name | fk | fk_table3 |
|---|---|---|---|---|
| 1 | 1 | Steve | 1 | NULL |
| 2 | 2 | Aaron | 3 | NULL |
| 3 | 3 | Mary | 2 | NULL |
| 4 | 4 | Fred | 1 | NULL |
| 5 | 5 | Anne | 5 | NULL |
| 6 | 6 | Beth | 8 | 1 |
| 7 | 7 | Johnny | NULL | 1 |
| 8 | 8 | Karen | NULL | 2 |

**Table 2 (Favorite Colors)**

| | id | FavoriteColor |
|---|---|---|
| 1 | 1 | red |
| 2 | 2 | green |
| 3 | 3 | blue |
| 4 | 4 | pink |
| 5 | 5 | purple |
| 6 | 6 | mauve |
| 7 | 7 | orange |
| 8 | 8 | yellow |
| 9 | 1 | indigo |

**Table 3 (Favorite Foods)**

| | id | dataValue |
|---|---|---|
| 1 | 1 | Pizza |
| 2 | 2 | Burger |
| 3 | 3 | Sushi |

Note: Column names are very generic to simplify the sample queries.
Foreign keys are
Table1.fk -> Table2.id
Table2.fk_table3 -> Table3.id

**Created By Steve Stedman http://SteveStedman.com**
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# TSQL JOIN TYPES

Created by Steve Stedman

Enjoying my free JOIN Types poster. Take a look at another freebie available at http://DatabaseHealth.com . A free SQL Server performance monitoring tool that I have made available to the SQL Server Community.


Free download, free to use, no strings attached. Enjoy!

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