What's the difference between INNER JOIN, LEFT JOIN, RIGHT JOIN and FULL JOIN? [duplicate]

Asked 13 years, 10 months ago   Modified 3 years, 6 months ago   Viewed 2.2m times

2201

This question already has answers here:

[What is the difference between "INNER JOIN" and "OUTER JOIN"?](#) (26 answers)

Closed 9 years ago.

What's the difference between `INNER JOIN`, `LEFT JOIN`, `RIGHT JOIN` and `FULL JOIN` in *MySQL*?
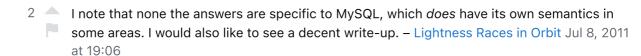
mysql   sql   join   inner-join   outer-join

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edited Mar 26, 2018 at 6:18   asked Apr 18, 2011 at 17:15
DineshDB   Lion King
6,193 8 36 53   **33.8k** 26 89 156

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2 ▲ I note that none the answers are specific to MySQL, which *does* have its own semantics in
   ⚑ some areas. I would also like to see a decent write-up. – Lightness Races in Orbit Jul 8, 2011
      at 19:06

2 Answers

Sorted by: Highest score (default) ⇕

1218

An SQL JOIN clause is used to combine rows from two or more tables, based on a common field between them.

There are different types of joins available in SQL:

INNER JOIN: returns rows when there is a match in both tables.

LEFT JOIN: returns all rows from the left table, even if there are no matches in the right table.

RIGHT JOIN: returns all rows from the right table, even if there are no matches in the left table.

FULL JOIN: combines the results of both left and right outer joins.

The joined table will contain all records from both the tables and fill in NULLs for missing matches on either side.

SELF JOIN: joins a table to itself as if the table were two tables, temporarily renaming at least one table in the SQL statement.

CARTESIAN JOIN: returns the Cartesian product of the sets of records from the two or more joined tables.

We can take each first four joins in Details :

We have two tables with the following values.

TableA

```
id  firstName              lastName
..................................
1   arun                   prasanth
2   ann                    antony
3   sruthy                 abc
6   new                    abc
```

TableB

```
id2 age Place
...............
1   24  kerala
2   24  usa
3   25  ekm
5   24  chennai
```

```
...............................................................
```

INNER JOIN

Note : gives the intersection of the two tables, i.e. rows TableA and TableB have in common.

Syntax

```
SELECT table1.column1, table2.column2...
  FROM table1
 INNER JOIN table2
    ON table1.common_field = table2.common_field;
```

Apply it in our sample table :

```
SELECT TableA.firstName,TableA.lastName,TableB.age,TableB.Place
  FROM TableA
 INNER JOIN TableB
    ON TableA.id = TableB.id2;
```

Result

```
firstName          lastName          age  Place
...........................................
arun               prasanth           24  kerala
ann                antony             24  usa
sruthy             abc                25  ekm
```

LEFT JOIN

Note : gives all selected rows in TableA, plus any common selected rows in TableB.

Syntax

```
SELECT table1.column1, table2.column2...
  FROM table1
  LEFT JOIN table2
    ON table1.common_field = table2.common_field;
```

Apply it in our sample table :

```
SELECT TableA.firstName,TableA.lastName,TableB.age,TableB.Place
  FROM TableA
  LEFT JOIN TableB
    ON TableA.id = TableB.id2;
```

Result

```
firstName                    lastName                    age  Place
.......................................................................
arun                         prasanth                     24  kerala
ann                          antony                       24  usa
sruthy                       abc                          25  ekm
new                          abc                        NULL  NULL
```

RIGHT JOIN

Note : gives all selected rows in TableB, plus any common selected rows in TableA.

Syntax

```
SELECT table1.column1, table2.column2...
  FROM table1
 RIGHT JOIN table2
    ON table1.common_field = table2.common_field;
```

Apply it in our sample table :

```
SELECT TableA.firstName,TableA.lastName,TableB.age,TableB.Place
  FROM TableA
 RIGHT JOIN TableB
    ON TableA.id = TableB.id2;
```

Result

```
firstName               lastName                 age      Place
.......................................................................
arun                    prasanth                 24       kerala
ann                     antony                   24       usa
sruthy                  abc                      25       ekm
NULL                    NULL                     24       chennai
```

FULL JOIN

Note : returns all selected values from both tables.

Syntax

```
SELECT table1.column1, table2.column2...
  FROM table1
  FULL JOIN table2
    ON table1.common_field = table2.common_field;
```

Apply it in our sample table :

```
SELECT TableA.firstName,TableA.lastName,TableB.age,TableB.Place
  FROM TableA
  FULL JOIN TableB
    ON TableA.id = TableB.id2;
```

Result

```
firstName               lastName                 age      Place
.......................................................................
arun                    prasanth                 24       kerala
ann                     antony                   24       usa
sruthy                  abc                      25       ekm
new                     abc                      NULL     NULL
NULL                    NULL                     24       chennai
```

Interesting Fact

- For INNER joins the order doesn't matter.

- For (LEFT, RIGHT or FULL) OUTER joins, the order matters.

Better to go check this **Link** it will give you interesting details about join order.

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edited Aug 26, 2021 at 10:10   answered Feb 25, 2015 at 12:40

Denny   Arunprasanth K V
28   5   **21.9k**   8   50   78

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17 ▲   `full join` is not the same thing as a `union` . See stackoverflow.com/questions/905379/...
     and social.msdn.microsoft.com/Forums/sqlserver/en-US/... – John Smith Dec 16, 2016 at
     17:36 ✎

It should be said, that INNER join can be written in simpler way SELECT * FROM firstTable f, secondTable s WHERE f.id = s.id More info here: stackoverflow.com/questions/121631/inner-join-vs-where – TomoMiha Dec 5, 2024 at 9:11

794

INNER JOIN gets all records that are common between both tables based on the supplied ON clause.

LEFT JOIN gets all records from the LEFT linked and the related record from the right table ,but if you have selected some columns from the RIGHT table, if there is no related records, these columns will contain NULL.

RIGHT JOIN is like the above but gets all records in the RIGHT table.

FULL JOIN gets all records from both tables and puts NULL in the columns where related records do not exist in the opposite table.

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edited Dec 19, 2019 at 9:45   answered Apr 18, 2011 at 20:28
M.achaibou   Brian Leeming
101   3   15   **11.7k**   8   33   52