6. How to Join two tables

In this article we are going to learn how to join two tables using INNER JOIN, LEFT JOIN, RIGHT JOIN, FULL JOIN in SQL with examples which support both SQL Server and MySQL.

Refer below tables for the following examples.

Denormalized Data

Table: EmployeeData table

Id	Code	DepartmentId	DepartmentName
1	0001	1	Producing
2	0002	2	HR
3	0003	1	Producing
4	0004	NULL	NULL
5	0005	3	Marketing
6	0006	NULL	NULL

Table: Employees

Id	Code	DepartmentId
1	0001	1
2	0002	2
3	0003	1
4	0004	NULL
5	0005	3
6	0006	NULL

Sample data for employees

Table: Departments

Id	Name
1	Producing
2	HR
3	Marketing
4	IT
5	Accounting

Sample data for departments

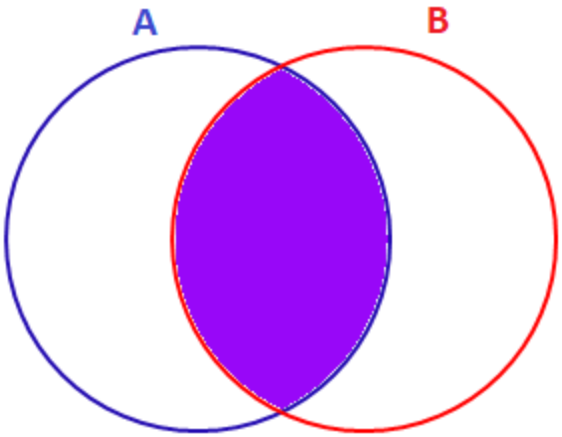
Use SQL Server or MySQL to run the following query to create sample tables for given examples.

```
CREATE TABLE Departments(
    Id int PRIMARY KEY,
    Name varchar(10) NOT NULL
);

CREATE TABLE Employees(
    Id int PRIMARY KEY,
    Code varchar(10) NOT NULL,
    DepartmentId INT NULL,
    FOREIGN KEY (DepartmentId) REFERENCES Departments(Id)
);

INSERT Departments VALUES (1, 'Production'), (2, 'HR'), (3, 'Marketing')
, (4, 'IT'), (5, 'Accounting');

INSERT Employees VALUES (1, '0001', 1), (3, '0003', 1), (4, '0004', NULL)
, (5, '0005', 3), (6, '0001', NULL);
```

Query to create tables with sample data

INNER JOIN

INNER JOIN selects all matching rows from both tables.



INNER JOIN

Example #1: INNER JOIN

The following SQL statement shows how to create an INNER JOIN using two tables.

SQL Statement / Example(s)

```
SELECT Employees.Id, Employees.Code, Departments.Name AS Department
FROM Employees
INNER JOIN Departments
ON Employees.DepartmentId = Departments.Id
```

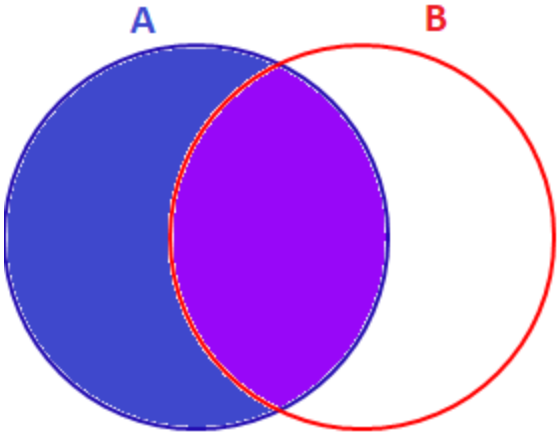
INNER JOIN in SQL

Id	Code	Department
1	0001	Production
2	0002	HR
3	0003	Production
5	0005	Marketing

Query Result

LEFT JOIN

LEFT JOIN selects all matching rows from the left table.



LEFT JOIN

Example #2: LEFT JOIN

The following SQL statement shows how to create an LEFT JOIN using two tables.

SQL Statement / Example(s)

```
SELECT Employees.Id, Employees.Code, Departments.Name AS Department
FROM Employees
LEFT JOIN Departments
ON Employees.DepartmentId = Departments.Id
```

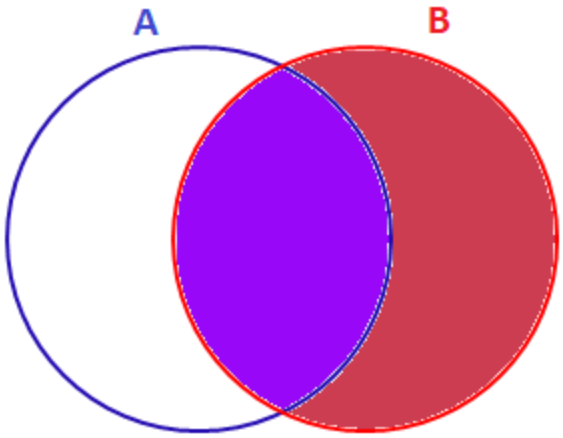
LEFT JOIN in SQL

Id	Code	Department
1	0001	Production
2	0002	HR
3	0003	Production
4	0004	*NULL*
5	0005	Marketing
6	0006	*NULL*

Query Result

RIGHT JOIN

RIGHT JOIN select all matching rows from the right table.



RIGHT JOIN

Example #3: RIGHT JOIN

The following SQL statement shows how to create an RIGHT JOIN using two tables.

SQL Statement / Example(s)

```
SELECT Employees.Id, Employees.Code, Departments.Name AS Department,
Departments.Id AS DepartmentId
FROM Employees
RIGHT JOIN Departments
ON Employees.DepartmentId = Departments.Id;
```

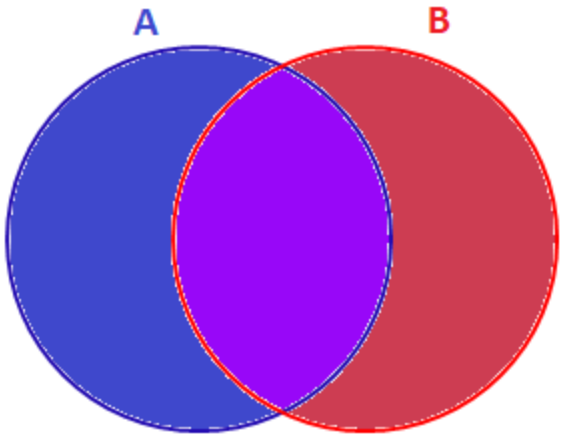
RIGHT JOIN in SQL

Id	Code	Department	DepartmentId
1	0001	Production	1
3	0003	Production	1
2	0002	HR	2
5	0005	Marketing	3
NULL	*NULL*	IT	4
NULL	*NULL*	Accounting	5

Query Result

FULL JOIN

FULL JOIN select all rows from both tables.



FULL JOIN

Example #4: FULL JOIN

The following SQL statement shows how to create a FULL JOIN using two tables.

SQL Statement / Example(s)

```
SELECT Employees.Id, Employees.Code, Departments.Name AS Department
FROM Employees
FULL JOIN Departments
ON Employees.DepartmentId = Departments.Id;
```

FULL JOIN in SQL Server

SQL Statement / Example(s)

```
SELECT Employees.Id, Employees.Code, Departments.Name AS Department
FROM Employees
LEFT JOIN Departments
ON Employees.DepartmentId = Departments.Id

UNION

SELECT Employees.Id, Employees.Code, Departments.Name AS Department
FROM Employees
RIGHT JOIN Departments
ON Employees.DepartmentId = Departments.Id;
```

FULL JOIN in MySQL

Id	Code	Department
1	0001	Production
2	0002	HR
3	0003	Production
4	0004	*NULL*
5	0005	Marketing
6	0006	*NULL*
NULL	*NULL*	IT
NULL	*NULL*	Accounting

Query Result

Notes:

LEFT JOIN = LEFT OUTER JOIN

LEFT JOIN and LEFT OUTER JOIN results are same

RIGHT JOIN = RIGHT OUTER JOIN

RIGHT JOIN and RIGHT OUTER JOIN results are same

INNER JOIN = JOIN

INNER JOIN and JOIN results are same