

7. How to Join three tables

In this article, we are going to learn how to join three tables using INNER JOIN, LEFT JOIN, RIGHT JOIN, and FULL JOIN in SQL with examples. All examples in this article can be executed in both [SQL Server](#) and [MySQL](#).

Refer below tables for the following examples.

Employee Table:

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

Table 1. Employee Data

Departments Table:

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

Table 2. Department Data

Jobs Table:

Id	Description
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1	Management
2	Executive
3	Non-Executive
4	Training

Table 3. Job Data

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

Sample Data Script:

```
CREATE TABLE Departments(
    Id INT PRIMARY KEY,
    Name VARCHAR (50) NOT NULL
);

CREATE TABLE Jobs(
    Id INT PRIMARY KEY,
    Description VARCHAR (100) NOT NULL
);

CREATE TABLE Employees(
    Id INT PRIMARY KEY,
    Code VARCHAR (10) NOT NULL,
    DepartmentId INT NULL,
    JobId INT NULL,
    FOREIGN KEY (DepartmentId) REFERENCES Departments(Id),
    FOREIGN KEY (JobId) REFERENCES Jobs(Id),
);

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

INSERT Jobs(Id, Description) VALUES (1, 'Management'), (2, 'Executive')
, (3, 'Non-Executive'), (4, 'Training');

INSERT Employees(Id, Code, DepartmentId, JobId) VALUES (1, '0001', 1, 1)
, (2, '0002', 2, 1), (3, '0003', 1, 2), (4, '0004', NULL, 4)
, (5, '0005', 3, NULL), (6, '0006', NULL, NULL);
```

Script 1. Sample Data Script

INNER JOIN

INNER JOIN selects matching rows from all tables. Figure 1 shows an INNER JOIN with tables A, B, and C. Colored area shows the matching area for the INNER JOIN.

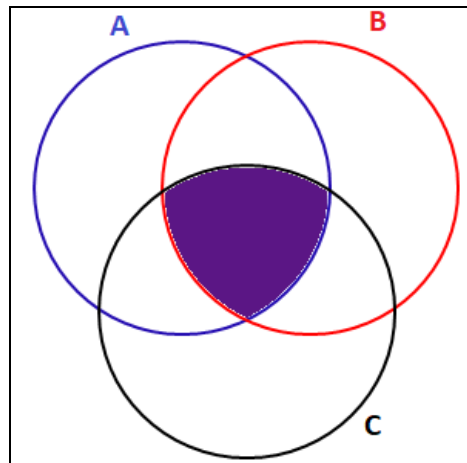


Figure 1. INNER JOIN

Example 1. INNER JOIN

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

SQL Script:

```
SELECT Employees.Id, Employees.Code, Departments.Name AS Department
, Jobs.Description AS Job
FROM Employees
INNER JOIN Departments ON Employees.DepartmentId = Departments.Id
INNER JOIN Jobs ON Employees.JobId = Jobs.Id;
```

Script 2. INNER JOIN

The query will filter matching records from Employees, Departments , and Jobs.

Result:

Id	Code	Department	Job
1	0001	Production	Management
2	0002	HR	Management
3	0003	Production	Executive

Table 4. Filtered Data for INNER JOIN

LEFT JOIN

LEFT JOIN selects all rows from the left table. Figure 2 shows a LEFT JOIN with tables A, B, and C. A is the left table. The colored area shows the area for the LEFT JOIN.

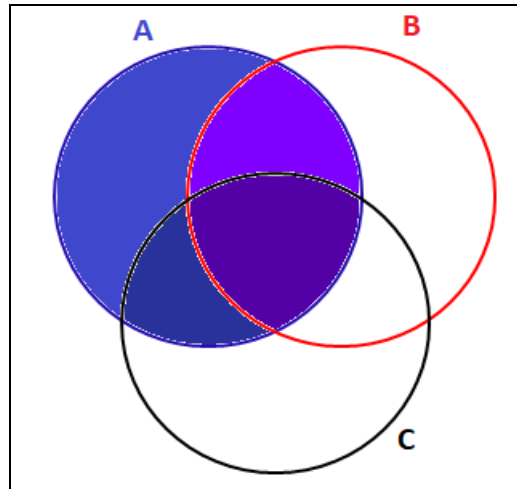


Figure 2. LEFT JOIN

Example 2. LEFT JOIN

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

SQL Script:

```
SELECT Employees.Id, Employees.Code, Departments.Name AS Department
, Jobs.Description AS Job
FROM Employees
LEFT JOIN Departments ON Employees.DepartmentId = Departments.Id
LEFT JOIN Jobs ON Employees.JobId = Jobs.Id;
```

Script 3. LEFT JOIN

The query result is shown below. For some records in department and Job fields have NULL values as there are no matching fields.

Result:

Id	Code	Department	Job
1	0001	Production	Management
2	0002	HR	Management

3	0003	Production	Executive
4	0004	NULL	Training
5	0005	Marketing	NULL
6	0006	NULL	NULL

Table 5. Filtered for LEFT JOIN

RIGHT JOIN

RIGHT JOIN selects all rows from the right table. Figure 2 shows a RIGHT JOIN with tables A, B, and C. C is the right table. The colored area shows the area for the RIGHT JOIN.

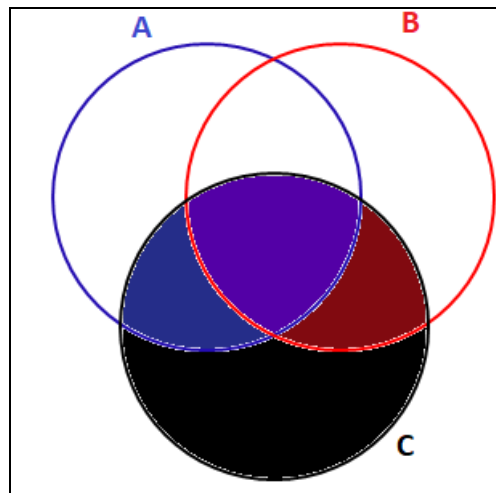


Figure 3. RIGHT JOIN

Example 3. RIGHT JOIN

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

SQL Script:

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

Script 4. RIGHT JOIN

The query result is shown below. For some records in employee and department fields have NULL values as there are no matching fields.

Result:

Id	Code	Department	JobId	Job
1	0001	Production	1	Management
2	0002	HR	1	Management
3	0003	Production	2	Executive
NULL	NULL	NULL	3	Non-Executive
NULL	NULL	NULL	4	Training

Table 6. Filtered Data for RIGHT JOIN

FULL JOIN

FULL JOIN select rows from all tables. Figure 4 shows a FULL JOIN with tables A, B , and C. Colored area shows the area for the FULL JOIN.

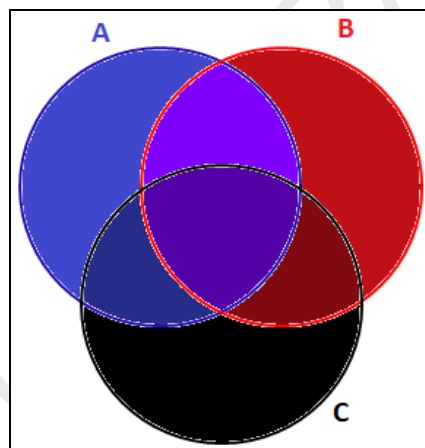


Figure 4. FULL JOIN

Example 4. FULL JOIN

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

SQL Script:

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

Script 5. FULL JOIN in SQL Server

SQL Script:

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

UNION

SELECT Employees.Id, Employees.Code, Departments.Name AS Department
, Jobs.Description AS Job
FROM Employees
RIGHT JOIN Departments ON Employees.DepartmentId = Departments.Id
RIGHT JOIN Jobs ON Employees.JobId = Jobs.Id

UNION

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

Script 5. FULL JOIN in MySQL

The query result is shown below. For some records in employee, department and Job fields have NULL values as there are no matching fields.

Result:

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

NULL	NULL	NULL	Non-Executive
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Table 7. Filtered Data for FULL JOIN

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