

Recursive JOIN In SQL

A recursive query is a powerful feature that allows us to query hierarchical data which are used in relational databases. They are a compound operation that helps in accumulating records every time until a repetition makes no change to the result.

Recursive queries are useful to build a hierarchy tree, best in working with hierarchical data such as org charts for the bill of materials traverse graphs or to generate arbitrary row sets. This involves joining a set with itself an arbitrary number of times. A recursive query is usually defined by the anchor part and the recursive part.

Recursive joins are sometimes also called “fixed-point joins”. They are used to obtain the parent-child data. In SQL Recursive joins are implemented with recursive common table expressions. Recursive common table expression (CTEs) is a way to reference a query over and over again.

Now we understand the Recursive Join in SQL by using an example.

Step 1 First we create a database of employees, Where Common Table Expression of the company for its Employee Id, Employee name, Employee age.

Query

```
CREATE TABLE employees (  
  id serial,  
  name varchar(20),  
  age int  
);
```

Step 2 In this step insert values into an employee table.

Query

```
INSERT INTO employees  
VALUES  
(1, 'Ankit', 32);  
INSERT INTO employees  
VALUES  
(2, 'Ayush', 31);  
INSERT INTO employees  
VALUES  
(3, 'Piyush', 42);  
INSERT INTO employees  
VALUES  
(4, 'Ramesh', 31);  
INSERT INTO employees  
VALUES  
(5, 'Rohan', 29);  
INSERT INTO employees
```

```
VALUES
(6, 'Harry', 28);
INSERT INTO employees
VALUES
(7, 'Rohit', 32);
INSERT INTO employees
VALUES
(8, 'Gogi', 32);
INSERT INTO employees
VALUES
(9, 'Tapu', 33);
INSERT INTO employees
VALUES
(10, 'Sonu', 40);
```

Step 3 A statement that gives all the reports that roll up into a certain organization within the company. A CTE is defined using a WITH statement, followed by a table expression definition. The AS command is used to rename a column or table with an alias. A recursive CTE must contain a UNION statement and be recursive.

Query

```
WITH RECURSIVE managertree AS (
  SELECT id, name, age
  FROM employees
  WHERE id = 1
  UNION ALL
  SELECT e.id, e.name, e.age
  FROM employees e
  INNER JOIN managertree mtree
  ON mtree.id = e.id
);
```

Step 4 To check the recursive join data we use the following query.

Query

```
SELECT *
FROM managertree;
```

Output

id	name	age
1	Ankit	32
2	Ayush	31
3	Piyush	42
4	Ramesh	31
5	Rohan	29
6	Harry	28
7	Rohit	32
8	Gogi	32
9	Tapu	33
10	Sonu	40