

MySQL - WITH (C

Common Table Expressions

A common table expression in MySQL is confined to a single statement. You can use it in the statement.

The WITH clause in MySQL is used. The WITH clause can have one or more common



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Syntax

Following is the syntax of the WITH clause –

```
WITH  
name_for_summary_data AS (SELECT Statement)  
SELECT columns  
FROM name_for_summary_data  
WHERE conditions <=> (  
    SELECT column  
    FROM name_for_summary_data  
) [ORDER BY columns]
```

Example

Assume we have created a table named data and populated it as shown below –

```
CREATE TABLE data(  
    ID INT,  
    NAME CHAR(20),  
    AGE INT,  
    SALARY INT  
);
```

Let's insert some records into the data table –

```
INSERT INTO data values  
(101, 'Raja', 25, 55452),
```

```
(102, 'Roja', 29, 66458),  
(103, 'Roja', 35, 36944);
```

Following query demonstrates the usage of the WITH clause –

```
WITH CTE  
AS (SELECT ID, NAME, AGE, SALARY FROM data)  
SELECT * From CTE;
```

Output

Following is the output of the above query –

ID	NAME	AGE	SALARY
101	Raja	25	55452
102	Roja	29	66458
103	Roja	35	36944

CTE from multiples tables

You can also create a Common Table Expression from multiple tables.

Example

Suppose we have created a table with name EMPLOYEE and populated data into it as shown below –

```
CREATE TABLE EMPLOYEE(  
  ID INT NOT NULL,  
  FIRST_NAME CHAR(20) NOT NULL,  
  LAST_NAME CHAR(20),  
  AGE INT,  
  SEX CHAR(1),  
  INCOME FLOAT,  
  CONTACT INT  
);
```

Now, let's insert two records into the Employee table –

```
INSERT INTO Employee VALUES
(101, 'Ramya', 'Rama Priya', 27, 'F', 9000, 101),
(102, 'Vinay', 'Bhattacharya', 20, 'M', 6000, 102);
```

And, if we have created another table and populated it as –

```
CREATE TABLE CONTACT(
  ID INT NOT NULL,
  EMAIL CHAR(20) NOT NULL,
  PHONE LONG,
  CITY CHAR(20)
);
```

Now, let us insert some records into the CONTACT table –

```
INSERT INTO CONTACT (ID, EMAIL, CITY) VALUES
(101, 'ramya@mymail.com', 'Hyderabad'),
(102, 'vinay@mymail.com', 'Vishakhapatnam');
```

Following query create a Common Table Expression from the above two tables –

```
WITH
exp1 AS (SELECT ID, FIRST_NAME, LAST_NAME FROM EMPLOYEE),
exp2 AS (SELECT EMAIL, PHONE FROM CONTACT)
SELECT * FROM exp1 JOIN exp2;
```

Output

The above query produces the following output –

ID	FIRST_NAME	LAST_NAME	EMAIL	PHONE
102	Vinay	Bhattacharya	ramya@mymail.com	NULL
101	Ramya	Rama Priya	ramya@mymail.com	NULL
102	Vinay	Bhattacharya	vinay@mymail.com	NULL
101	Ramya	Rama Priya	vinay@mymail.com	NULL

Recursive WITH

Recursive WITH or Hierarchical queries, is a form of CTE where a CTE can reference to itself, i.e., a WITH query can refer to its own output, hence the name recursive.

Example

Following query demonstrates the usage of the Recursive WITH statement –

```
WITH RECURSIVE t AS (  
    SELECT SALARY FROM data  
    UNION ALL  
    SELECT SALARY FROM data WHERE SALARY < 50000  
)  
SELECT * FROM t;
```

Output

Following is the output of the above mysql query –

SALARY
55452
66458
36944
36944