

# **Video-18**

# **Topics to cover:**

- Common Table Expression(CTE) in SQL

## # Common Table Expression(CTE)

- A CTE is like a temporary table that you can reference within a query using the **WITH** clause.
- CTEs are not stored permanently; they only exist during query execution.
- It can be used in SELECT, INSERT, UPDATE, or DELETE statements.
- It makes complex queries easier to read, maintain, and reuse.
- The WITH clause can include one or more CTEs separated by commas.
- MySQL introduced CTEs starting from version 8.0.

### Syntax:

```
WITH cte_name AS (
    SELECT column1, column2
    FROM table_name
)
SELECT * FROM cte_name;
```

A CTE is defined using the WITH keyword, followed by the CTE name and a query. The CTE can then be referred to by its name elsewhere in the query.

## # Create sample table to understand CTE

```
CREATE TABLE employees (
    id INT PRIMARY KEY AUTO_INCREMENT,
    name VARCHAR(50),
    department VARCHAR(50),
    salary DECIMAL(10,2)
);
```

-- Insert sample data

```
INSERT INTO employees (name, department, salary) VALUES
('Alice', 'HR', 50000),
('Bob', 'IT', 60000),
('Charlie', 'Finance', 55000),
('David', 'IT', 70000),
('Eva', 'HR', 48000);
```

```
select * from employees;
```

-- Example-1 : Let's find employees earning above the average salary.

```
WITH avg_salary AS (
    SELECT AVG(salary) AS avg_sal
    FROM employees
)
SELECT e.name, e.department, e.salary
FROM employees e, avg_salary a
WHERE e.salary > a.avg_sal;
```

-- Example-2 : Find Department wise salary and department wise max salary

```
/* another example with multiple CTE for first we have to use WITH clause
for 2nd we do not need to use WITH clause as we have used comma for separation */
```

```
with dept_wise_salary as ( select department, sum(salary) as total_salary
                           from employees group by department),
      dept_wise_max_salary as ( select department , max(salary) as max_salary
                               from employees group by department)
```

```
SELECT * FROM dept_wise_max_salary;
SELECT * FROM dept_wise_salary;
```