

# 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;
```