Perfect 👏 — “**CASE statements and IF-ELSE logic in SQL**” are essential for adding **conditional logic** inside your queries.

Let’s go step-by-step with **syntax, examples, and differences**.

**🧩 Example Table**

We’ll use the same Employee table:

| **EmpID** | **Name** | **Salary** | **Commission** | **Dept** |
| --- | --- | --- | --- | --- |
| 1 | Raj | 50000 | 2000 | Sales |
| 2 | Priya | 60000 | NULL | HR |
| 3 | Kiran | NULL | 1000 | IT |
| 4 | Meena | 45000 | NULL | Sales |
| 5 | Arjun | NULL | NULL | HR |

**🔹 1️⃣ CASE Statement – SQL’s version of IF–ELSE logic**

**Syntax 1 – Simple CASE**

CASE expression

WHEN value1 THEN result1

WHEN value2 THEN result2

ELSE default\_result

END

**Syntax 2 – Searched CASE**

CASE

WHEN condition1 THEN result1

WHEN condition2 THEN result2

ELSE default\_result

END

**✅ Example 1: Simple CASE**

Classify employees by **Department**

SELECT Name, Dept,

CASE Dept

WHEN 'Sales' THEN 'Revenue Department'

WHEN 'HR' THEN 'Support Department'

ELSE 'Technical Department'

END AS DeptType

FROM Employee;

**Output:**

| **Name** | **Dept** | **DeptType** |
| --- | --- | --- |
| Raj | Sales | Revenue Department |
| Priya | HR | Support Department |
| Kiran | IT | Technical Department |
| Meena | Sales | Revenue Department |
| Arjun | HR | Support Department |

**✅ Example 2: Searched CASE (with conditions)**

Calculate **Salary Grade**

SELECT Name, Salary,

CASE

WHEN Salary >= 60000 THEN 'High'

WHEN Salary >= 45000 THEN 'Medium'

WHEN Salary IS NULL THEN 'Not Assigned'

ELSE 'Low'

END AS SalaryGrade

FROM Employee;

**Output:**

| **Name** | **Salary** | **SalaryGrade** |
| --- | --- | --- |
| Raj | 50000 | Medium |
| Priya | 60000 | High |
| Kiran | NULL | Not Assigned |
| Meena | 45000 | Medium |
| Arjun | NULL | Not Assigned |

**✅ Example 3: Using CASE inside Aggregates**

Show **count** of employees by category:

SELECT

SUM(CASE WHEN Salary >= 50000 THEN 1 ELSE 0 END) AS HighSalaryCount,

SUM(CASE WHEN Salary < 50000 THEN 1 ELSE 0 END) AS LowSalaryCount,

SUM(CASE WHEN Salary IS NULL THEN 1 ELSE 0 END) AS NoSalaryCount

FROM Employee;

**Output:**

| **HighSalaryCount** | **LowSalaryCount** | **NoSalaryCount** |
| --- | --- | --- |
| 2 | 1 | 2 |

**🔹 2️⃣ IF() Function (MySQL only)**

MySQL provides a simpler form of CASE — the IF() function.

**Syntax:**

IF(condition, value\_if\_true, value\_if\_false)

**Example:**

SELECT Name,

IF(Salary IS NULL, 'Not Assigned', 'Assigned') AS SalaryStatus

FROM Employee;

**Output:**

| **Name** | **SalaryStatus** |
| --- | --- |
| Raj | Assigned |
| Priya | Assigned |
| Kiran | Not Assigned |
| Meena | Assigned |
| Arjun | Not Assigned |

**🔹 3️⃣ Nested IF / CASE (IF–ELSE IF logic)**

You can **nest** multiple CASE or IF conditions.

SELECT Name,

CASE

WHEN Salary >= 60000 THEN 'Excellent'

WHEN Salary >= 50000 THEN 'Good'

WHEN Salary >= 40000 THEN 'Average'

ELSE 'Needs Review'

END AS Performance

FROM Employee;

**🔹 4️⃣ Using CASE in ORDER BY**

You can even order results conditionally:

SELECT Name, Dept, Salary

FROM Employee

ORDER BY

CASE

WHEN Dept = 'HR' THEN 1

WHEN Dept = 'Sales' THEN 2

ELSE 3

END;

👉 This puts HR employees first, Sales next, IT last.

**🔹 5️⃣ Difference: CASE vs IF()**

| **Feature** | **CASE** | **IF()** |
| --- | --- | --- |
| **Standard SQL** | ✅ Works in all databases | ❌ MySQL only |
| **Multiple conditions** | ✅ Supports many conditions | ⚠️ Supports limited nesting |
| **Syntax** | More readable for complex logic | Simpler for short conditions |
| **Usage in** | SELECT, ORDER BY, WHERE | SELECT only |

**🔹 6️⃣ CASE inside WHERE clause (advanced)**

SELECT \* FROM Employee

WHERE

CASE

WHEN Dept='HR' THEN Salary > 50000

WHEN Dept='Sales' THEN Commission > 1000

ELSE 1=1

END;

👉 Filters employees conditionally based on their department.

**🔸 Summary**

| **Use Case** | **SQL Example** | **Purpose** |
| --- | --- | --- |
| **Simple CASE** | CASE Dept WHEN 'HR' THEN ... | Compare single column |
| **Searched CASE** | CASE WHEN Salary>50000 THEN ... | Multiple conditions |
| **IF()** | IF(Salary IS NULL,'No','Yes') | MySQL shortcut |
| **Nested CASE** | CASE WHEN … THEN CASE … END | IF–ELSE–IF logic |
| **CASE in ORDER BY** | ORDER BY CASE WHEN Dept='HR' THEN 1 ... END | Custom sort order |