

The `ORDER BY` clause in MS SQL (Microsoft SQL Server) is used to sort the result set of a query based on one or more columns, either in ascending (`ASC`) or descending (`DESC`) order.

DESC

The `ORDER BY` keyword sorts the records in ascending order by default. To sort the records in descending order, use the `DESC` keyword.

sql

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```
SELECT column1, column2, ...  
FROM table_name  
ORDER BY column_name [ASC | DESC];
```

Example 1: Sorting in Ascending Order (Default)

sql

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```
SELECT FirstName, LastName, Age  
FROM Employees  
ORDER BY Age;
```

- This query sorts the employees by `Age` in ascending order (smallest to largest).

Example 2: Sorting in Descending Order

sql

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```
SELECT FirstName, LastName, Age  
FROM Employees  
ORDER BY Age DESC;
```

- This query sorts the employees by `Age` in descending order (largest to smallest).

Example 3: Sorting by Multiple Columns

sql

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```
SELECT FirstName, LastName, Age  
FROM Employees  
ORDER BY Age DESC, LastName ASC;
```

- First, it sorts the results by `Age` in descending order.
- If multiple employees have the same `Age`, it sorts them by `LastName` in ascending order.

Example 4: Sorting by an Expression

sql

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```
SELECT FirstName, LastName, Salary, Bonus
FROM Employees
ORDER BY (Salary + Bonus) DESC;
```

- This query sorts employees based on their total earnings (`Salary + Bonus`) in descending order.

1. What is the purpose of the `ORDER BY` clause in SQL?

✓ **Answer:**

The `ORDER BY` clause is used to sort query results in ascending (`ASC`) or descending (`DESC`) order based on one or more columns. By default, sorting is in ascending order.

2. How do you sort query results by multiple columns?

✓ **Example:**

sql

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```
SELECT FirstName, LastName, Age
FROM Employees
ORDER BY Age DESC, LastName ASC;
```

✓ **Explanation:**

- First, results are sorted by `Age` in descending order.
- If multiple rows have the same `Age`, they are sorted by `LastName` in ascending order.

4. What happens if you use `ORDER BY` on a column with `NULL` values?

✓ Answer:

- By default, `NULL` values appear **first** in ascending order (`ASC`) and **last** in descending order (`DESC`).

✓ Example:

sql

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```
SELECT Name, Salary
FROM Employees
ORDER BY Salary ASC;
```

- To force `NULL` values last in ascending order:

6. Can you use `ORDER BY` with an alias?

✓ Answer: Yes, you can order results using a column alias.

✓ Example:

sql

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```
SELECT FirstName, LastName, Salary AS TotalSalary
FROM Employees
ORDER BY TotalSalary DESC;
```

8. What is the difference between `ORDER BY` and `GROUP BY`?

✓ Answer:

Feature	ORDER BY	GROUP BY
Purpose	Sorts query results	Groups rows based on a column
Use With Aggregate Functions?	No	Yes (<code>SUM()</code> , <code>COUNT()</code> , etc.)
Example	<code>ORDER BY Salary DESC</code>	<code>GROUP BY Department</code>