# Guided Lab 304.4.1

# ORDER BY Clause

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**Introduction**

When you use the **SELECT** statement to query data from a table, the order of rows in the result set is unspecified. To sort the rows in the result set, add the **ORDER BY** clause to the **SELECT** statement.

**Learning Objectives**

This lab will demonstrate how to sort the rows in a result set using the **ORDER BY** clause. By the end of this lab, learners will be able to use the **ORDER BY** clause in SQL.

**Prerequisites**

For this lab, you must have the “**classicmodels”** database. If you do not have the **classicmodels** database setup, [**click here to download the database script file**.](https://drive.google.com/file/d/1JoT6N-kNhJ048ahXvvSgWNE0737NAdbb/view?usp=sharing)

**Instructions**

## Example 1: Sort a result set by an expression.

See the following **orderdetails** table from the sample database:

| **orderdetails** |
| --- |
| \* orderNumber \* productCode quantityOrdered priceEach orderLineNumber |

The following query selects the order line items from the **orderdetails** table. It calculates the subtotal for each line item, and sorts the result based on the subtotal.

SELECT orderNumber, orderlinenumber, quantityOrdered \* priceEach

FROM orderdetails

ORDER BY quantityOrdered \* priceEach DESC;



**Output**

| **orderNumber** | **orderLineNumber** | **quantityOrdered \* priceEach** |
| --- | --- | --- |
| 10403 | 9 | 11503.14 |
| 10405 | 5 | 11170.52 |
| 10407 | 2 | 10723.60 |
| 10404 | 3 | 10460.16 |
| 10312 | 3 | 10286.40 |

To make the query more readable, you can assign an **alias** to a column in the **SELECT** statement and use that column alias in the **ORDER BY** clause:

SELECT

orderNumber,

orderLineNumber,

quantityOrdered \* priceEach AS **subtotal**

FROM orderdetails

ORDER BY subtotal DESC;

In this example, we use **subtotal** as the [column alias](https://www.mysqltutorial.org/mysql-alias/) for the expression **quantityOrdered \* priceEach*,*** and sort the result set by the **subtotal** alias.

**Output**

| **orderNumber** | **orderLineNumber** | **subtotal** |
| --- | --- | --- |
| 10403 | 9 | 11503.14 |
| 10405 | 5 | 11170.52 |
| 10407 | 2 | 10723.60 |
| 10404 | 3 | 10460.16 |
| 10312 | 3 | 10286.40 |

## Example 2: MySQL ORDER BY and NULL Values

In SQL, **NULL** comes before non-**NULL** values. Therefore, when you use the **ORDER BY** clause with the **ASC** option, **NULLs** appear first in the result set.

For example, the following query uses the **ORDER BY** clause to sort employees by values in the **reportsTo** column:

SELECT firstName, lastName, reportsTo

FROM employees

ORDER BY reportsTo;

**Output**

| **firstName** | **lastName** | **reportsTo** |
| --- | --- | --- |
| Diane | Murphy | NULL |
| Mary | Patterson | 1002 |
| Jeff | Firrelli | 1002 |
| William | Patterson | 1056 |
| Gerard | Bondur | 1056 |

However, if you use the **ORDER BY** clause with the **DESC** option, **NULL**s will appear last in the result set. For example:

SELECT firstName, lastName, reportsTo

FROM employees

ORDER BY reportsTo DESC;

The result of this is included on the following page.

**Output**

| **firstName** | **lastName** | **reportsTo** |
| --- | --- | --- |
| ... | data included before | ... |
| Mami | Nishi | 1056 |
| Mary | Patterson | 1002 |
| Jeff | Firrelli | 1002 |
| Diane | Murphy | NULL |

## Summary

* Use the **ORDER BY** clause to sort the result set by one or more columns.
* Use the **ASC** option to sort the result set in ascending order, and the **DESC** option to sort the result set in descending order.
* The **ORDER BY** clause is evaluated after the **FROM** and **SELECT** clauses.
* In MySQL, **NULL** is lower than non-**NULL** values.

**Submission**

Please include the following deliverables in your Canvas submission:

* All queries, which should be written and submitted in a single SQL script file.
  + Example: **<your\_name\_labname>.sql**.
  + **Do not add the questions in your SQL script file.**

Submit your SQL script file using the **Start** **Assignment** button on the assignment page in Canvas.