

Understanding Rounding Functions in SQL Server: ROUND, FLOOR, and CEILING

When working with numerical data in SQL, knowing how to round values is crucial for accurate reporting and analysis. Below is an explanation of the **ROUND**, **FLOOR**, and **CEILING** functions:

- ROUND (value, decimal_places):** Rounds the value to the specified number of decimal places. If the next digit is 5 or greater, it rounds up; otherwise, it rounds down.
- FLOOR (value):** Rounds the value **down** to the **largest integer** that is less than or equal to the given value. It always moves towards the lower side of the number line.
- CEILING (value):** Rounds the value **up** to the **next integer** that is greater than or equal to the given value. It always moves towards the higher side of the number line.

Example

Declare @val float, @val2 float
set @val = 10.45
set @val2 = 10.99

Select round (@val, 0) [Rounds the nearest Integer: 10.45 Nearest Integer is 10]
Select round(@val2,0) [Rounds the nearest Integer: 10.99 Nearest Integer is 11]

Select floor(@val) [Floor Function Rounds the value down to the largest Integer less than or equal to it. 10.45 Largest Integer is 10]
Select floor(@val2) [Floor Function Rounds the value down to the largest Integer less than or equal to it. 10.99 Largest Integer ss 10]

Select ceiling(@val) [Returns the smallest integer greater than or equal to the given value. 10.45 Smallest Integer is 11]
Select ceiling(@val2) [Returns the smallest integer greater than or equal to the given value. 10.99 Smallest Integer is 11]

Declare @val float,@val2 float,@val3 float	Output:
set @val = 10.45	Round of 10.45 is 10
set @val2 = 10.99	-----
	10.0
	Round of 10.99 is 11

	11.0
SELECT ROUND(@val, 0) [Round of 10.45 is 10]	Floor of 10.45 is 10
Select round(@val2,0) [Round of 10.99 is 11]	-----
Select floor(@val) [Floor of 10.45 is 10]	10.0
Select floor(@val2) [Floor of 10.99 is 10]	Floor of 10.99 is 10
Select ceiling(@val) [Ceiling of 10.45 is 11]	-----
Select ceiling(@val2) [Ceiling of 10.99 is 11]	10.0
	Ceiling of 10.45 is 11

	11.0
	Ceiling of 10.99 is 11

	11.0