

# MAX Function

Computes the maximum value found in all row values in a column. Inputs can be Integer, Decimal, or Datetime.

- When used in a `pivot` transform, the function is computed for each instance of the value specified in the `group` parameter. See *Pivot Transform*.
- If a row contains a missing or null value, it is not factored into the calculation.
- If no numeric values are found in the source column, the function returns a null value.

For a version of this function computed over a rolling window of rows, see *ROLLINGMAX Function*.

Datetime inputs to this function return Unixtime values.

- These values can be wrapped in a `DATEFORMAT` function. See *DATEFORMAT Function*.
- For a date-native version of this function, see *MAXDATE Function*.

**Wrangle vs. SQL:** This function is part of Wrangle , a proprietary data transformation language. Wrangle is not SQL. For more information, see *Wrangle Language*.

## Basic Usage

```
max(myRating)
```

**Output:** Returns the maximum value of the `myRating` column.

## Syntax and Arguments

```
max(function_col_ref) [group:group_col_ref] [limit:limit_count]
```

Argument	Required?	Data Type	Description
<code>function_col_ref</code>	Y	string	Name of column to which to apply the function

For more information on the `group` and `limit` parameters, see *Pivot Transform*.

For more information on syntax standards, see *Language Documentation Syntax Notes*.

### `function_col_ref`

Name of the column the values of which you want to calculate the maximum. Inputs must be Integer, Decimal, or Datetime values.

**NOTE:** If the input is in Datetime type, the output is in unixtime format. You can wrap these outputs in the `DATEFORMAT` function to generate the results in the appropriate Datetime format. See *DATEFORMAT Function*.

- Literal values are not supported as inputs.
- Multiple columns and wildcards are not supported.

### Usage Notes:

Required?	Data Type	Example Value
Yes	String (column reference)	myValues

## Examples

**Tip:** For additional examples, see *Common Tasks*.

This example illustrates how you can apply statistical functions to your dataset. Calculations include average (mean), max, min, standard deviation, and variance.

### Source:

Students took a test and recorded the following scores. You want to perform some statistical analysis on them:

Student	Score
Anna	84
Ben	71
Caleb	76
Danielle	87
Evan	85
Faith	92
Gabe	85
Hannah	99
Ian	73
Jane	68

### Transformation:

You can use the following transformations to calculate the average (mean), minimum, and maximum scores:

<b>Transformation Name</b>	New formula
<b>Parameter: Formula type</b>	Single row formula
<b>Parameter: Formula</b>	AVERAGE(Score)
<b>Parameter: New column name</b>	'avgScore'

<b>Transformation Name</b>	New formula
<b>Parameter: Formula type</b>	Single row formula
<b>Parameter: Formula</b>	MIN(Score)
<b>Parameter: New column name</b>	'minScore'

<b>Transformation Name</b>	New formula
<b>Parameter: Formula type</b>	Single row formula
<b>Parameter: Formula</b>	MAX(Score)
<b>Parameter: New column name</b>	'maxScore'

To apply statistical functions to your data, you can use the VAR and STDEV functions, which can be used as the basis for other statistical calculations.

<b>Transformation Name</b>	New formula
<b>Parameter: Formula type</b>	Single row formula
<b>Parameter: Formula</b>	VAR(Score)
<b>Parameter: New column name</b>	var_Score

<b>Transformation Name</b>	New formula
<b>Parameter: Formula type</b>	Single row formula
<b>Parameter: Formula</b>	STDEV(Score)
<b>Parameter: New column name</b>	stdev_Score

For each score, you can now calculate the variation of each one from the average, using the following:

<b>Transformation Name</b>	New formula
<b>Parameter: Formula type</b>	Single row formula
<b>Parameter: Formula</b>	$((\text{Score} - \text{avg\_Score}) / \text{stdev\_Score})$
<b>Parameter: New column name</b>	'stDevs'

Now, you want to apply grades based on a formula:

Grade	standard deviations from avg (stDevs)
A	stDevs > 1
B	stDevs > 0.5
C	-1 <= stDevs <= 0.5
D	stDevs < -1
F	stDevs < -2

You can build the following transformation using the IF function to calculate grades.

<b>Transformation Name</b>	New formula
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<b>Parameter: Formula type</b>	Single row formula
<b>Parameter: Formula</b>	IF((stDevs > 1), 'A', IF((stDevs < -2), 'F', IF((stDevs < -1), 'D', IF((stDevs > 0.5), 'B', 'C'))))

For more information, see *IF Function*.

To clean up the content, you might want to apply some formatting to the score columns. The following reformats the stdev\_Score and stDevs columns to display two decimal places:

<b>Transformation Name</b>	Edit column with formula
<b>Parameter: Columns</b>	stdev_Score
<b>Parameter: Formula</b>	NUMFORMAT(stdev_Score, '##.00')

<b>Transformation Name</b>	Edit column with formula
<b>Parameter: Columns</b>	stDevs
<b>Parameter: Formula</b>	NUMFORMAT(stDevs, '##.00')

<b>Transformation Name</b>	New formula
<b>Parameter: Formula type</b>	Single row formula
<b>Parameter: Formula</b>	MODE(Score)
<b>Parameter: New column name</b>	'modeScore'

## Results:

Student	Score	modeScore	avgScore	minScore	maxScore	var_Score	stdev_Score	stDevs	Grade
Anna	84	85	82	68	99	87.00000000000001	9.33	0.21	C
Ben	71	85	82	68	99	87.00000000000001	9.33	-1.18	D
Caleb	76	85	82	68	99	87.00000000000001	9.33	-0.64	C
Danielle	87	85	82	68	99	87.00000000000001	9.33	0.54	B
Evan	85	85	82	68	99	87.00000000000001	9.33	0.32	C
Faith	92	85	82	68	99	87.00000000000001	9.33	1.07	A
Gabe	85	85	82	68	99	87.00000000000001	9.33	0.32	C
Hannah	99	85	82	68	99	87.00000000000001	9.33	1.82	A
Ian	73	85	82	68	99	87.00000000000001	9.33	-0.96	C
Jane	68	85	82	68	99	87.00000000000001	9.33	-1.50	D

