

MAXIF Function

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Generates the maximum value of rows in each group that meet a specific condition. Inputs can be Integer, Decimal, or Datetime.

NOTE: When added to a transformation, this function is applied to the current sample. If you change your sample or run the job, the computed values for this function are updated. Transformations that change the number of rows in subsequent recipe steps do not affect the values computed for this step.

To calculate the maximum value of rows without conditionals, use the `MAX` function. See *MAX 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

```
maxif(testScores, testCount >= 3)
```

Output: Returns the maximum of the `testScores` column when the `testCount` is greater than or equal to 3.

Syntax and Arguments

```
maxif(col_ref, test_expression) [group:group_col_ref] [limit:limit_count]
```

| Argument | Required? | Data Type | Description |
|------------------------------|-----------|-----------|---|
| <code>col_ref</code> | Y | string | Reference to the column you wish to evaluate. |
| <code>test_expression</code> | Y | string | Expression that is evaluated. Must resolve to <code>true</code> or <code>false</code> |

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

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

`col_ref`

Name of the column whose values you wish to use in the calculation. 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*.

Usage Notes:

| Required? | Data Type | Example Value |
|-----------|---|---------------|
| Yes | String that corresponds to the name of the column | myValues |

test_expression

This parameter contains the expression to evaluate. This expression must resolve to a Boolean (`true` or `false`) value.

Usage Notes:

| Required? | Data Type | Example Value |
|-----------|---|--|
| Yes | String expression that evaluates to <code>true</code> or <code>false</code> | (LastName == 'Mouse' && FirstName == 'Mickey') |

Examples

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

Example - Conditional Calculation Functions

This example illustrates how you can use the following conditional calculation functions to analyze weather data:

- **AVERAGEIF** - Average of a set of values by group that meet a specified condition. See *AVERAGEIF Function*.
- **MINIF** - Minimum of a set of values by group that meet a specified condition. See *MINIF Function*.
- **MAXIF** - Maximum of a set of values by group that meet a specified condition. See *MAXIF Function*.
- **VARIF** - Variance of a set of values by group that meet a specified condition. See *VARIF Function*.
- **STDEVIF** - Standard deviation of a set of values by group that meet a specified condition. See *STDEVIF Function*.

Source:

Here is some example weather data:

| date | city | rain | temp | wind |
|---------|----------------|------|------|------|
| 1/23/17 | Valleyville | 0.00 | 12.8 | 6.7 |
| 1/23/17 | Center Town | 0.31 | 9.4 | 5.3 |
| 1/23/17 | Magic Mountain | 0.00 | 0.0 | 7.3 |
| 1/24/17 | Valleyville | 0.25 | 17.2 | 3.3 |
| 1/24/17 | Center Town | 0.54 | 1.1 | 7.6 |
| 1/24/17 | Magic Mountain | 0.32 | 5.0 | 8.8 |
| 1/25/17 | Valleyville | 0.02 | 3.3 | 6.8 |

| | | | | |
|---------|----------------|------|------|-----|
| 1/25/17 | Center Town | 0.83 | 3.3 | 5.1 |
| 1/25/17 | Magic Mountain | 0.59 | -1.7 | 6.4 |
| 1/26/17 | Valleyville | 1.08 | 15.0 | 4.2 |
| 1/26/17 | Center Town | 0.96 | 6.1 | 7.6 |
| 1/26/17 | Magic Mountain | 0.77 | -3.9 | 3.0 |
| 1/27/17 | Valleyville | 1.00 | 7.2 | 2.8 |
| 1/27/17 | Center Town | 1.32 | 20.0 | 0.2 |
| 1/27/17 | Magic Mountain | 0.77 | 5.6 | 5.2 |
| 1/28/17 | Valleyville | 0.12 | -6.1 | 5.1 |
| 1/28/17 | Center Town | 0.14 | 5.0 | 4.9 |
| 1/28/17 | Magic Mountain | 1.50 | 1.1 | 0.4 |
| 1/29/17 | Valleyville | 0.36 | 13.3 | 7.3 |
| 1/29/17 | Center Town | 0.75 | 6.1 | 9.0 |
| 1/29/17 | Magic Mountain | 0.60 | 3.3 | 6.0 |

Transformation:

The following computes average temperature for rainy days by city:

| | |
|-----------------------------------|---------------------------|
| Transformation Name | New formula |
| Parameter: Formula type | Single row formula |
| Parameter: Formula | AVERAGEIF(temp, rain > 0) |
| Parameter: Group rows by | city |
| Parameter: New column name | 'avgTempWRain' |

The following computes maximum wind for sub-zero days by city:

| | |
|-----------------------------------|----------------------|
| Transformation Name | New formula |
| Parameter: Formula type | Single row formula |
| Parameter: Formula | MAXIF(wind,temp < 0) |
| Parameter: Group rows by | city |
| Parameter: New column name | 'maxWindSubZero' |

This step calculates the minimum temp when the wind is less than 5 mph by city:

| | |
|---------------------------------|--------------------|
| Transformation Name | New formula |
| Parameter: Formula type | Single row formula |
| Parameter: Formula | MINIF(temp,wind<5) |
| Parameter: Group rows by | city |

| | |
|-----------------------------------|----------------|
| Parameter: New column name | 'minTempWind5' |
|-----------------------------------|----------------|

This step computes the variance in temperature for rainy days by city:

| | |
|-----------------------------------|---------------------|
| Transformation Name | New formula |
| Parameter: Formula type | Single row formula |
| Parameter: Formula | VARIF(temp,rain >0) |
| Parameter: Group rows by | city |
| Parameter: New column name | 'varTempWRain' |

The following computes the standard deviation in rainfall for Center Town:

| | |
|-----------------------------------|-----------------------------------|
| Transformation Name | New formula |
| Parameter: Formula type | Single row formula |
| Parameter: Formula | STDEVIF(rain,city=='Center Town') |
| Parameter: Group rows by | city |
| Parameter: New column name | 'stDevRainCT' |

You can use the following transforms to format the generated output. Note the \$col placeholder value for the multi-column transforms:

| | |
|----------------------------|------------------------------------|
| Transformation Name | Edit column with formula |
| Parameter: Columns | stDevRainCenterTown,maxWindSubZero |
| Parameter: Formula | numformat(\$col,'##.##') |

Since the following rely on data that has only one significant digit, you should format them differently:

| | |
|----------------------------|--|
| Transformation Name | Edit column with formula |
| Parameter: Columns | varTempWRain,avgTempWRain,minTempWind5 |
| Parameter: Formula | numformat(\$col,'##.#') |

Results:

| date | city | rain | temp | wind | avgTempWRain | maxWindSubZero | minTempWind5 | varTempWRain | stDevRain |
|----------|----------------|------|------|------|--------------|----------------|--------------|--------------|-----------|
| 1/23 /17 | Valley ville | 0.00 | 12.8 | 6.7 | 8.3 | 5.1 | 7.2 | 63.8 | 0.37 |
| 1/23 /17 | Center Town | 0.31 | 9.4 | 5.3 | 7.3 | | 5 | 32.6 | 0.37 |
| 1/23 /17 | Magic Mountain | 0.00 | 0.0 | 7.3 | 1.6 | 6.43 | -3.9 | 12 | 0.37 |

| | | | | | | | | | |
|----------|----------------|------|------|-----|-----|------|------|------|------|
| 1/24 /17 | Valley ville | 0.25 | 17.2 | 3.3 | 8.3 | 5.1 | 7.2 | 63.8 | 0.37 |
| 1/24 /17 | Center Town | 0.54 | 1.1 | 7.6 | 7.3 | | 5 | 32.6 | 0.37 |
| 1/24 /17 | Magic Mountain | 0.32 | 5.0 | 8.8 | 1.6 | 6.43 | -3.9 | 12 | 0.37 |
| 1/25 /17 | Valley ville | 0.02 | 3.3 | 6.8 | 8.3 | 5.1 | 7.2 | 63.8 | 0.37 |
| 1/25 /17 | Center Town | 0.83 | 3.3 | 5.1 | 7.3 | | 5 | 32.6 | 0.37 |
| 1/25 /17 | Magic Mountain | 0.59 | -1.7 | 6.4 | 1.6 | 6.43 | -3.9 | 12 | 0.37 |
| 1/26 /17 | Valley ville | 1.08 | 15.0 | 4.2 | 8.3 | 5.1 | 7.2 | 63.8 | 0.37 |
| 1/26 /17 | Center Town | 0.96 | 6.1 | 7.6 | 7.3 | | 5 | 32.6 | 0.37 |
| 1/26 /17 | Magic Mountain | 0.77 | -3.9 | 3.0 | 1.6 | 6.43 | -3.9 | 12 | 0.37 |
| 1/27 /17 | Valley ville | 1.00 | 7.2 | 2.8 | 8.3 | 5.1 | 7.2 | 63.8 | 0.37 |
| 1/27 /17 | Center Town | 1.32 | 20.0 | 0.2 | 7.3 | | 5 | 32.6 | 0.37 |
| 1/27 /17 | Magic Mountain | 0.77 | 5.6 | 5.2 | 1.6 | 6.43 | -3.9 | 12 | 0.37 |
| 1/28 /17 | Valley ville | 0.12 | -6.1 | 5.1 | 8.3 | 5.1 | 7.2 | 63.8 | 0.37 |
| 1/28 /17 | Center Town | 0.14 | 5.0 | 4.9 | 7.3 | | 5 | 32.6 | 0.37 |
| 1/28 /17 | Magic Mountain | 1.50 | 1.1 | 0.4 | 1.6 | 6.43 | -3.9 | 12 | 0.37 |
| 1/29 /17 | Valley ville | 0.36 | 13.3 | 7.3 | 8.3 | 5.1 | 7.2 | 63.8 | 0.37 |
| 1/29 /17 | Center Town | 0.75 | 6.1 | 9.0 | 7.3 | | 5 | 32.6 | 0.37 |
| 1/29 /17 | Magic Mountain | 0.60 | 3.3 | 6.0 | 1.6 | 6.43 | -3.9 | 12 | 0.37 |