EXAMPLE - Conditional Calculations 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	Valleyville	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	Valleyville	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	Valleyville	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	Valleyville	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	Valleyville	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	Valleyville	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	Valleyville	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