Spreadsheet

Definition

Spreadsheet Form Element allow users to perform many actions in an excel-like environment, depending on the use cases. A few examples of uses of spreadsheets are:

- Database editing
- Configuration controlling
- Data merging
- Workforce planning
- Sales reporting
- Financial analysis

New Feature

This is a new feature in Joget Workflow v6.

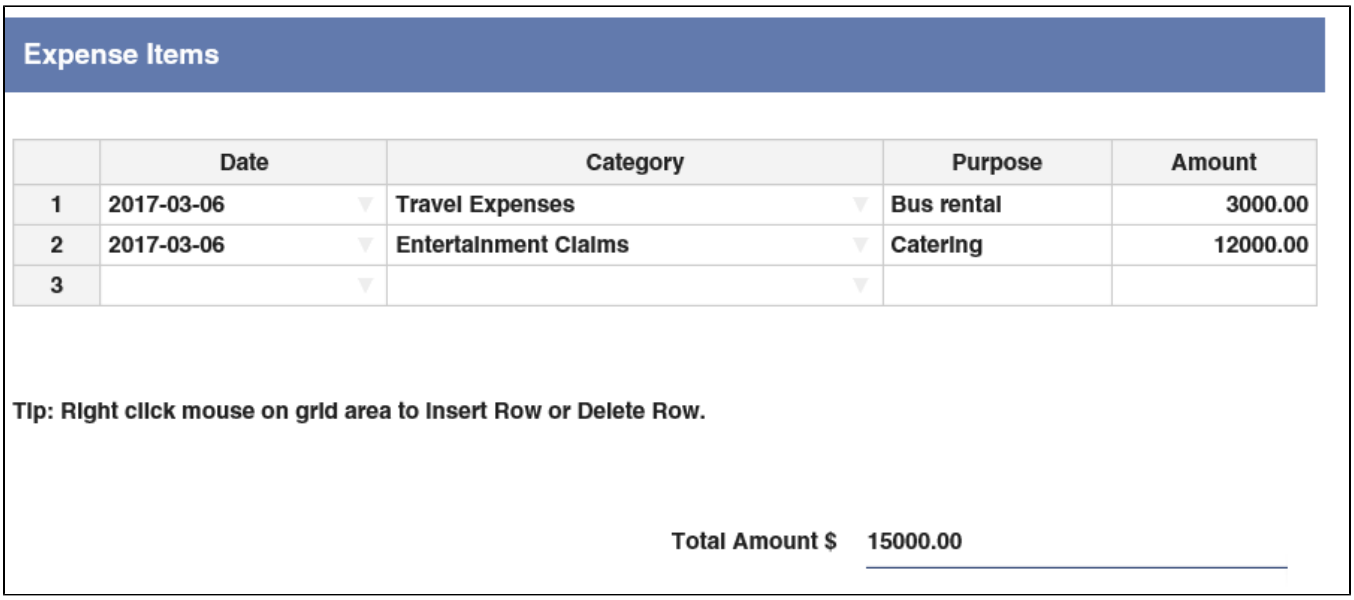


Figure 1 : Sample Spreadsheet Form Element in the Userview

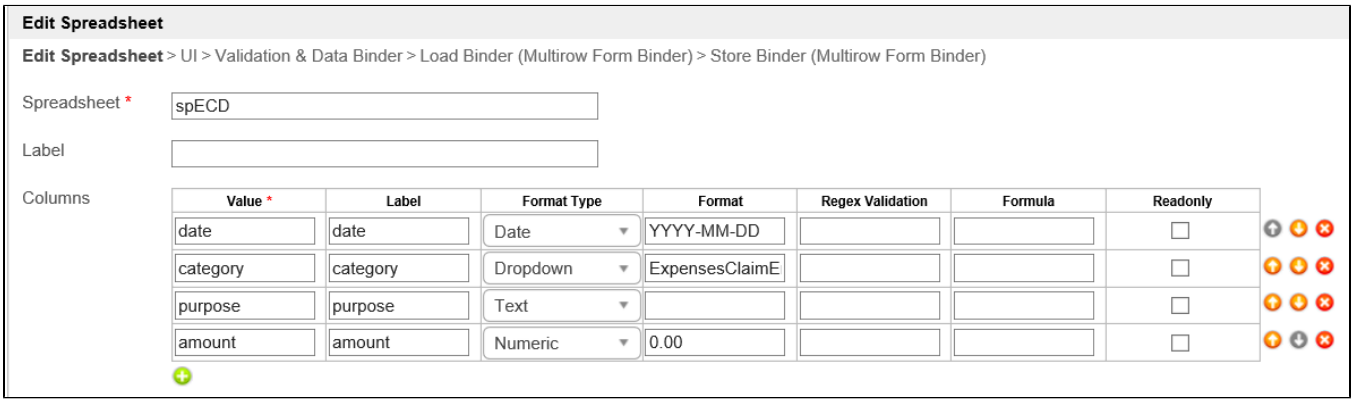


Figure 2 : Spreadsheet Form Element Properties

Name	Description
Spreadsheet	Element ID of the form element.

<table>
<tr><td>Label</td><td>Spreadsheet label/title.</td></tr>
<tr><td>Columns</td><td>The spreadsheet column(s) is defined here.

<table>
<tr><th>Sub-element</th><th>Description</th></tr>
<tr><td>Value</td><td>Field ID of the column.</td></tr>
<tr><td>Label</td><td>Column header title/label.

You can also include a tooltip that shows up when someone hovers over the column label.

  Sample

Example label:

Column Label A</td></tr>
<tr><td>Format Type</td><td>Defines the type of input to store.

Default format type is Text.

<u>Available Data Types:</u>

• Text - format the value as text
• Numeric - accepts a numeric value (See Format documentation)
• Date - accepts a date type value
• Time - accepts a time type value
• Checkbox - appears as a checkbox to check
• Dropdown - appears as a dropdown menu to select options
• Autocomplete - autocompletes any known phrases
• Password - obscures any alphanumerical value into a password
• File - Accept file upload and render a file download link
• Image - Accept image file upload and render a thumbnail
• URL - Convert value to an URL
• Hidden - Hidden column for storing formular value
• Custom - Use custom setting to configure the column. Examples: Spreadsheet Custom Formats</td></tr>
<tr><td>Format</td><td>Defines the format to show data on the spreadsheet based on the chosen format type.

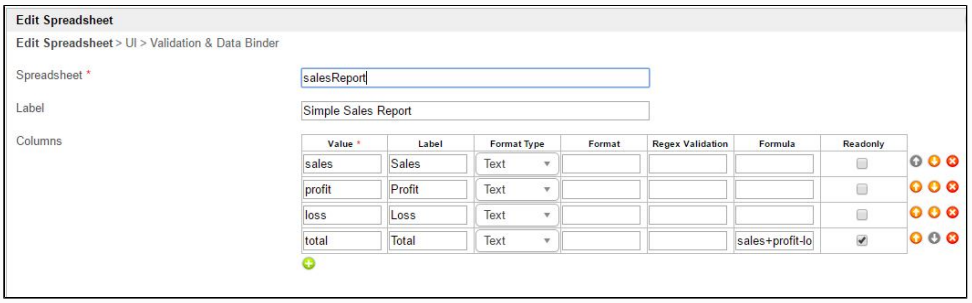
• Numeric - Key in format accepted by numbrojs library. (For example, 0.00 is to create 2 decimal places)
• Date - Key in format accepted by moment.js library. (Default value: DD/MM/YYYY)
• Time - Key in format accepted by moment.js library.(Default value: h:mm:ss a)
• Dropdown - Key in the Form ID that contains the equivalent dropdown element.

  Dynamic Cascading Select Box

Dynamic Cascading Select Box is supported when the target select box is making use of Options Binder and with the attribute "Use AJAX for cascade options?" is checked.

• Autocomplete - See handsontable for samples.
• File - Key in Form Def ID that contains File Upload form element.
• Image - Key in Form Def ID that contains Image Upload form element.
• URL - Provide an URL syntax. Example: http://www.joget.org?id={id}&name={name}
• Hidden - Key in default value to be saved.
• Custom - See handsontable for samples. Please put the setting json in {{ and }}. Example: {{"editor":"text"}}

Please note that any string within {{ and }} will be treat as setting json and used to configure the column.</td></tr>
<tr><td>Regex Validation</td><td>Validates input value to match the defined Regular Expression pattern.</td></tr>
</table>
</td></tr>
</table>

Formula	Defines a formula to perform processing. **Sample** Example: sales + profit-loss  Please refer to formula.
Readonly	Defines if the column is editable.

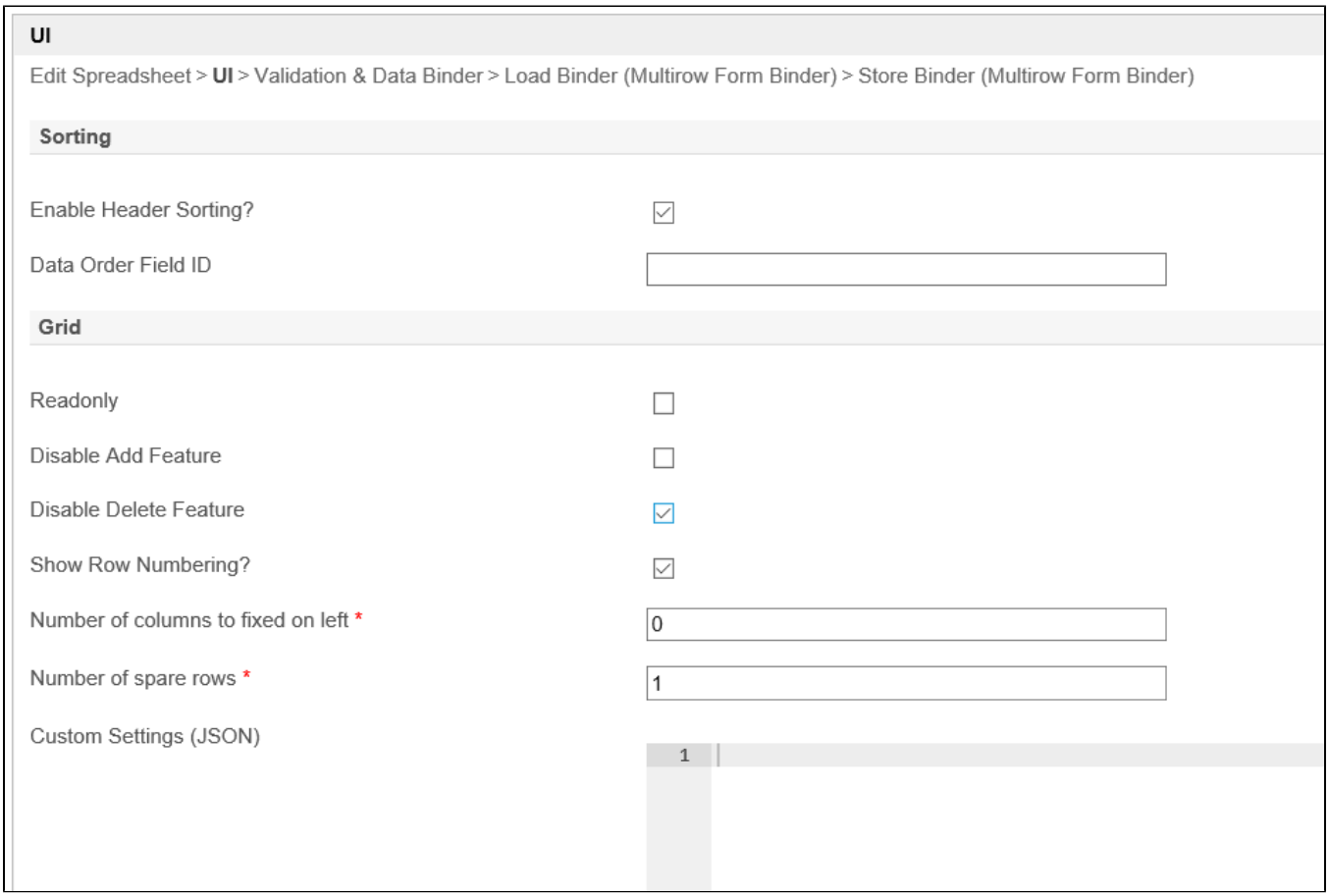


Figure 3 : Spreadsheet Form Element Properties - UI

Name	Description
Enable Header Sorting?	Determines if users can sort spreadsheet data by column in ascending or descending order.

Data Order Field ID	Field to keep the ordering sequence. Must correspond with a field id in the target form.
Readonly	Defines if the entire spreadsheet is editable.
Disable Add Feature	Determines if a new row can be added.
Disable Delete Feature	Determines if a row can be removed.
Show Row Numbering?	Show additional column on the leftmost to denote numbering. **Sample** Row numbering checked. 
Number of columns to fixed on left	Allows to specify the number of fixed (or frozen) columns on the left of the table. Default Value: 0
Number of spare rows	Number of spare row to be added automatically after lines with values. **Sample** 1 spare row 
Custom Settings (JSON)	Refer to plugins and APIs from https://handsontable.com/docs/6.2.2/tutorial-introduction.html for more customizations. Example: `{ selectionMode: 'single' }`

	Date	Category	Purpose	Amount
1	2017-03-06	Travel Expenses	Bus rental	3000.00
2	2017-03-06	Entertainment Claims	Catering	12000.00
3				

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1	2017-03-06	Travel Expenses	Bus rental	3000.00
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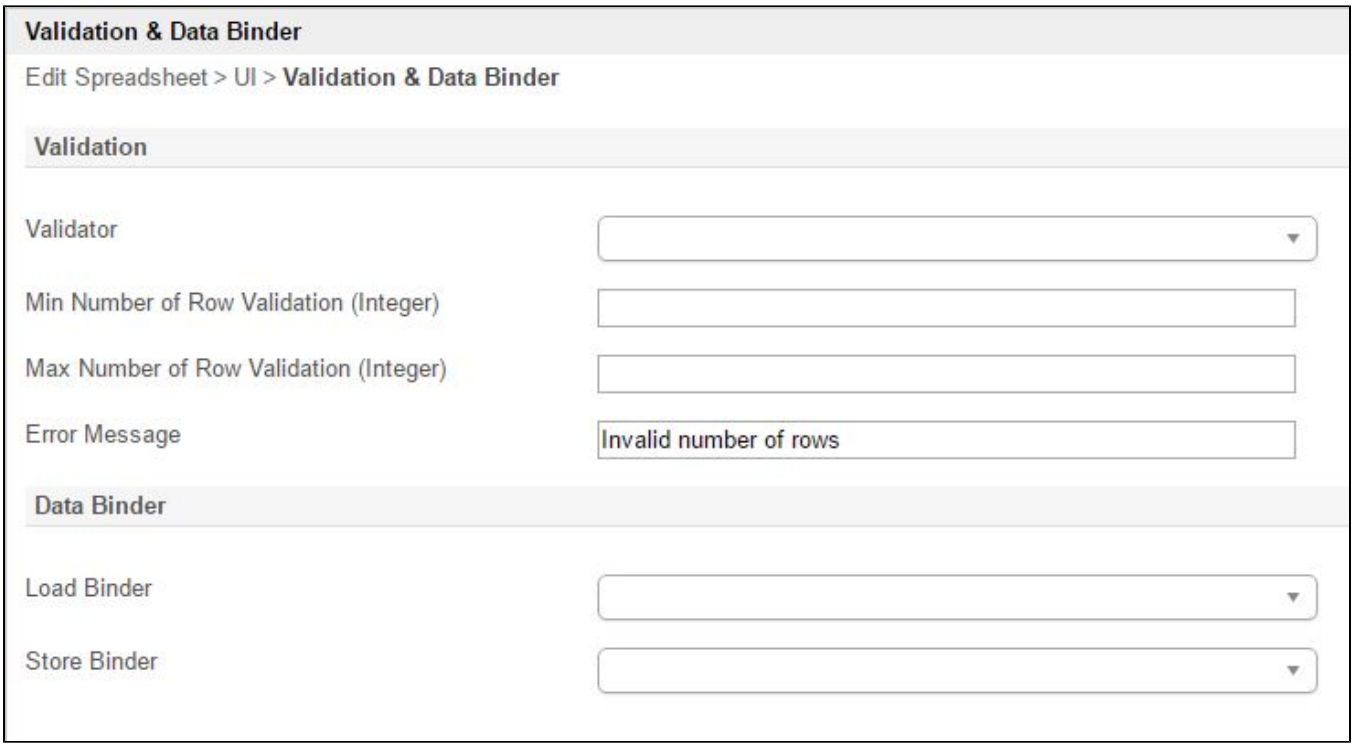

Figure 4 : Spreadsheet Form Element Properties - Validation & Data Binder

Name	Description
Validator	Attach a Validator plugin to validate the input value. Please see Form Validator. **When will validation takes place?** Validation will takes place whenever form is submitted except when it is submitted as "Save as Draft".
Min Number of Row Validation (Integer)	Defines the minimum number of rows required for input.
Max Number of Row Validation (Integer)	Defines the maximum number of rows possible for input.
Error Message	Error message to be shown when row requirements set above is not met.
Load Binder	Option by default. Grid data will be saved/loaded in JSON format in its defined database cell.
Store Binder	Option by default. Grid data will be saved/loaded in JSON format in its defined database cell.

Supported Formula Functions

The Spreadsheet element implemented partial of Excel formula functions as follows. For detail usage, please refer to Excel Formula Functions .

ABS(number)
ACOS(number)
ACOSH(number)
ACOT(number)
ACOTH(number)
ADD(num1, num2)
AGGREGATE(function_num, options, ref1, ref2)
AND(logical1, [logical2], ...)
ARABIC(text)
ARGS2ARRAY(arg1, [arg1], ...)
ASIN(number)

ASINH(number)
ATAN(number)
ATAN2(number_x, number_y)
ATANH(number)
AVEDEV(number1, [number2], ...)
AVERAGE(number1, [number2], ...)
AVERAGEA(number1, [number2], ...)
BASE(number, radix, min_length)
BESSELI(x, n)
BESSELJ(x, n)
BESSELK(x, n)
BESSELY(x, n)
BETA.DIST(x, alpha, beta, cumulative, A, B)
BETA.INV(probability, alpha, beta, A, B)
BETADIST(x, alpha, beta, cumulative, A, B)
BETAINV(probability, alpha, beta, A, B)
BIN2DEC(number)
BIN2HEX(number, places)
BIN2OCT(number, places)
BINOM.DIST(successes, trials, probability, cumulative)
BINOM.DIST.RANGE(trials, probability, successes, successes2)
BINOM.INV(trials, probability, alpha)
BINOMDIST(successes, trials, probability, cumulative)
BITAND(number1, number2)
BITLSHIFT(number, shift)
BITOR(number1, number2)
BITRSHIFT(number, shift)
BITXOR(number1, number2)
CEILING(number, significance, mode)
CEILINGMATH(number, significance, mode)
CEILINGPRECISE(number, significance, mode)
CHAR(number)
CHISQ.DIST(x, k, cumulative)
CHISQ.DIST.RT(x, k)
CHISQ.INV(probability, k)
CHISQ.INV.RT(p, k)
CHOOSE(index_num, value1, [value2], ...)
CLEAN(text)
CODE(text)
COMBIN(number, number_chosen)
COMBINA(number, number_chosen)
COMPLEX(real, imaginary, suffix)
CONCATENATE(arg1, [arg1], ...)
CONFIDENCE(alpha, standard_dev, size)
CONFIDENCE.NORM(lpha, standard_dev, size)
CONFIDENCE.T(lpha, standard_dev, size)
CONVERT(number, from_unit, to_unit)
CORREL(array1, array2)
COS(number)
COSH(number)
COT(number)
COTH(number)
COUNT(arg1, [arg1], ...)
COUNTA(arg1, [arg1], ...)
COUNTBLANK(arg1, [arg1], ...)
COUNTUNIQUE(arg1, [arg1], ...)
COVARIANCE.P(array1, array2)
COVARIANCE.S(array1, array2)
CSC(number)
CSCH(number)
CUMIPMT(rate, periods, value, start, end, type)
CUMPRINC(rate, periods, value, start, end, type)
DATE(year, month, day)
DATEVALUE(date_text)
DAY(serial_number)
DAYS(end_date, start_date)
DAYS360(start_date, end_date, method)
DB(cost, salvage, life, period, month)
DDB(cost, salvage, life, period, factor)
DEC2BIN(number, places)
DEC2HEX(number, places)
DEC2OCT(number, places)
DECIMAL(number, radix)

DEGREES(number)
DELTA(number1, number2)
DEVSQ(number1, [number2], ...)
DIVIDE(dividend, divisor)
DOLLAR(number, decimals)
DOLLARDE(dollar, fraction)
DOLLARFR(dollar, fraction)
E()
EDATE(start_date, months)
EFFECT(rate, periods)
EOMONTH(start_date, months)
EQ(value1, value2)
ERF(lower_bound, upper_bound)
ERFC(x)
EVEN(number)
EXACT(text1, text2)
EXPON.DIST(x, lambda, cumulative)
EXPONDIST(x, lambda, cumulative)
F.DIST(x, d1, d2, cumulative)
F.DIST.RT(x, d1, d2)
F.INV(probability, d1, d2)
F.INV.RT(p, d1, d2)
FACT(number)
FACTDOUBLE(number)
FALSE()
FDIST(x, d1, d2, cumulative)
FDISTRT(x, d1, d2)
FIND(find_text, within_text, position)
FINV(probability, d1, d2)
FINVRT(p, d1, d2)
FISHER(x)
FISHERINV(y)
FIXED(number, decimals, no_commas)
FLOOR(number, significance)
FORECAST(x, data_y, data_x)
FREQUENCY(data, bins)
FV(rate, periods, payment, value, type)
FVSCHEDULE(principal, schedule)
GAMMA(number)
GAMMA.DIST(value, alpha, beta, cumulative)
GAMMA.INV(probability, alpha, beta)
GAMMADIST(value, alpha, beta, cumulative)
GAMMAINV(probability, alpha, beta)
GAMMALN(number)
GAMMALN.PRECISE(x)
GAUSS(z)
GCD(GCD)
GEOMEAN(number1, [number2], ...)
GESTEP(number, step)
GROWTH(known_y, known_x, new_x, use_const)
GTE(num1, num2)
HARMEAN(number1, [number2], ...)
HEX2BIN(number, places)
HEX2DEC(number)
HEX2OCT(number, places)
HOUR(serial_number)
HTML2TEXT(value)
HYPGEOM.DIST(x, n, M, N, cumulative)
HYPGEOMDIST(x, n, M, N, cumulative)
IF(test, then_value, otherwise_value)
IMABS(inumber)
IMAGINARY(inumber)
IMARGUMENT(inumber)
IMCONJUGATE(inumber)
IMCOS(inumber)
IMCOSH(inumber)
IMCOT(inumber)
IMCSC(inumber)
IMCSCH(inumber)
IMDIV(inumber1, inumber2)
IMEXP(inumber)
IMLN(inumber)
IMLOG10(inumber)

IMLOG2(inumber)
IMPOWER(inumber, number)
IMPRODUCT(inumber1, inumber2, ...)
IMREAL(inumber)
IMSEC(inumber)
IMSECH(inumber)
IMSIN(inumber)
IMSINH(inumber)
IMSQRT(inumber)
IMSUB(inumber1, inumber2)
IMSUM(inumber1, inumber2, ...)
IMTAN(inumber)
INT(number)
INTERCEPT(known_y, known_x)
INTERVAL(second)
IPMT(rate, period, periods, present, future, type)
IRR(values, guess)
ISBINARY(number)
ISBLANK(value)
ISEVEN(number)
ISLOGICAL(ISNONTEXT)
ISNONTEXT(ISNONTEXT)
ISNUMBER(value)
ISODD(number)
ISOWEEKNUM(date)
ISPMT(rate, period, periods, value)
ISTEXT(value)
JOIN(array, separator)
KURT(number1, [number2], ...)
LCM(number1, [number2], ...)
LEFT(text, number)
LEN(text)
LINEST(data_y, data_x)
LN(number)
LOG(number, base)
LOG10(number)
LOGEST(data_y, data_x)
LOGNORM.DIST(x, mean, sd, cumulative)
LOGNORM.INV(probability, mean, sd)
LOGNORMDIST(x, mean, sd, cumulative)
LOGNORMINV(probability, mean, sd)
LOWER(text)
LT(num1, num2)
LTE(num1, num2)
MATCH(lookupValue, lookupArray, matchType)
MAX(number1, [number2], ...)
MAXA(number1, [number2], ...)
MEDIAN(number1, [number2], ...)
MID(text, start, number)
MIN(number1, [number2], ...)
MINA(number1, [number2], ...)
MINUS(num1, num2)
MINUTE(serial_number)
MIRR(values, finance_rate, reinvest_rate)
MOD(dividend, divisor)
MODE.MULT(number1, [number2], ...)
MODE.SNGL(number1, [number2], ...)
MODEMULT(number1, [number2], ...)
MODESNGL(number1, [number2], ...)
MONTH(serial_number)
MROUND(number, multiple)
MULTINOMIAL(number1, [number2], ...)
MULTIPLY(factor1, factor2)
NE(value1, value2)
NEGBINOM.DIST(k, r, p, cumulative)
NEGBINOMDIST(k, r, p, cumulative)
NETWORKDAYS(start_date, end_date, holidays)
NOMINAL(rate, periods)
NORM.DIST(x, mean, sd, cumulative)
NORM.INV(probability, mean, sd)
NORM.S.DIST(z, cumulative)
NORM.S.INV(probability)
NORMDIST(x, mean, sd, cumulative)

NORMINV(probability, mean, sd)
NORMSDIST(x, mean, sd, cumulative)
NORMSINV(probability)
NOT(logical)
NOW()
NPER(rate, payment, present, future, type)
NPV(arg1, [arg2], ...)
NUMBERS(arg1, [arg2], ...)
NUMERAL(number, format)
OCT2BIN(number, places)
OCT2DEC(number)
OCT2HEX(number, places)
ODD(number)
OR(logical1, [logical2], ...)
PDURATION(rate, present, future)
PEARSON(data_x, data_y)
PERMUT(number, number_chosen)
PERMUTATIONA(number, number_chosen)
PHI(x)
PI()
PMT(rate, periods, present, future, type)
POISSON.DIST(x, mean, cumulative)
POISSONDIST(x, mean, cumulative)
POW(base, exponent)
POWER(number, power)
PPMT(rate, period, periods, present, future, type)
PRODUCT(number1, [number2], ...)
PROPER(text)
PV(rate, periods, payment, future, type)
QUOTIENT(numerator, denominator)
RADIANS(number)
RAND()
RANDBETWEEN(bottom, top)
RATE(periods, payment, present, future, type, guess)
REFERENCE(context, reference)
REGEXEXTRACT(text, regular_expression)
REGEXMATCH(text, regular_expression, full)
REGEXREPLACE(text, regular_expression, replacement)
REPLACE(text, position, length, new_text)
REPT(text, number)
RIGHT(text, number)
ROMAN(number)
ROUND(number, digits)
ROUNDDOWN(number, digits)
ROUNDUP(number, digits)
RRI(periods, present, future)
RSQ(data_x, data_y)
SEARCH(find_text, within_text, position)
SEC(number)
SECH(number)
SECOND(serial_number)
SERIESSUM(x, n, m, coefficients)
SIGN(number)
SIN(number)
SINH(number)
SKEW(number1, [number2], ...)
SKEW.P(number1, [number2], ...)
SKEWP(number1, [number2], ...)
SLN(cost, salvage, life)
SLOPE(data_y, data_x)
SPLIT(text, separator)
SQRT(number)
SQRTPI(number)
STANDARDIZE(x, mean, sd)
STDEV.P(number1, [number2], ...)
STDEV.S(number1, [number2], ...)
STDEVA(number1, [number2], ...)
STDEVP(number1, [number2], ...)
STDEVPA(number1, [number2], ...)
STDEVS(number1, [number2], ...)
STEYX(data_y, data_x)
SUBSTITUTE(text, old_text, new_text, occurrence)
SUBTOTAL(function_code, ref1)

SUM(number1, [number2], ...)
SUMPRODUCT(array1, [array2], [array3], ...)
SUMSQ(number1, [number2], ...)
SUMX2MY2(array_x, array_y)
SUMX2PY2(array_x, array_y)
SUMXMY2(array_x, array_y)
SWITCH(expression, value1, result1, [value2, result2], [value3, result3], ..., [default])
SYD(cost, salvage, life, period)
T(value)
T.DIST(x, df, cumulative)
T.DIST.2T(x, df)
T.DIST.RT(x, df)
T.INV(probability, df)
T.INV.2T(probability, df)
TAN(number)
TANH(number)
TBILLEQ(settlement, maturity, discount)
TBILLPRICE(settlement, maturity, discount)
TBILLYIELD(settlement, maturity, price)
TDIST(x, df, cumulative)
TDIST2T(x, df)
TDISTRT(x, df)
TEXT(value, format)
TIME(hour, minute, second)
TIMEVALUE(time_text)
TINV(probability, df)
TINV2T(probability, df)
TODAY()
TRANSPOSE(matrix)
TREND(data_y, data_x, new_data_x)
TRIM(text)
TRUE()
TRUNC(number, digits)
UNICHAR(number)
UNICODE(text)
UNIQUE(arg1, [arg2], ...)
UPPER(text)
VALUE(text)
VAR.P(number1, [number2], ...)
VAR.S(number1, [number2], ...)
VARA(number1, [number2], ...)
VARP(number1, [number2], ...)
VARPA(number1, [number2], ...)
VARS(number1, [number2], ...)
WEEKDAY(serial_number, return_type)
WEEKNUM(serial_number, return_type)
WEIBULL.DIST(x, alpha, beta, cumulative)
WEIBULLDIST(x, alpha, beta, cumulative)
WORKDAY(start_date, days, holidays)
XNPV(rate, values, dates)
XOR(logical1, [logical2], ...)
YEAR(serial_number)
YEARFRAC(start_date, end_date, basis)

Special Function

FORMDATA(formDefId, primaryKey, fieldName) in Spreadsheet "Formula" column.

where:

- formDefId: The form id of the source form containing the setup data to 'pull' from.
- primaryKey: The dependent pulldown field id in your spreadsheet design, that provides the WHERE condition to search the data to populate.
- fieldName: The field id of the source form to populate in this spreadsheet column based on the above 'primaryKey' value.

Use this function to 'pull' and populate a spreadsheet cell based on available data in other forms.

For example, to make spreadsheet pull and display the population value after the user picks the city name (pulldown menu), use FORMDATA("city_formId",select_city,"population") where 'select_city' is the first field id in your spreadsheet.

Below is a sample app to demonstrate the use of Spreadsheet form element:

- Example app using Spreadsheet in Form APP_spreadsheet app.jwa.