How can I use the BYCOL function in Google Sheets?

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The BYCOL function in Google Sheets allows users to easily organize and manipulate data by columns. By using this function, users can quickly and efficiently perform calculations, sorting, and filtering on specific columns within a spreadsheet. This feature is particularly useful for managing large datasets and streamlining data analysis processes. By utilizing the BYCOL function, users can save time and enhance the accuracy of their data management in Google Sheets.

BYCOL function

This function groups an array by columns by application of a `LAMBDA` function to each column.

Sample Usage

```
BYCOL(A1:C3,LAMBDA(column,MAX(column)))
```

```
BYCOL(A1:C3,LAMBDA(column,SUM(column)))
```

Syntax

```
BYCOL(array_or_range,LAMBDA)
```

`array_or_range`: An array or range to be grouped by columns.`LAMBDA`: A `LAMBDA` that's applied to each column in the given array or range to obtain its grouped value.
Syntax:`LAMBDA(name,formula_expression)`**Requirements:**The `LAMBDA` must have exactly 1 `name` argument along with a `formula_expression` which uses that `name`. The `name` resolves to the current column being grouped when the `LAMBDA` is applied.

Notes

The passed `LAMBDA` should accept exactly 1 `name` argument, otherwise an `#N/A` error is returned. This argument corresponds to a column in the input array.Every column should be grouped to a single value. Array results for grouped values aren't supported.A `named function` can be passed for the `LAMBDA` parameter and behaves like a `LAMBDA` in this case. Learn more about named functions.
There should be exactly 1 argument placeholder defined for it.Parenthesis shouldn't follow the `named function`.

Examples

Returns a 1x3 row-array with max of each column

Example data:

	A	B	C
1	3	5	7
2	4	3	5
3	1	2	4

Example:`=BYCOL(A1:C3,LAMBDA(column,MAX(column)))`

Result:

4	5	7

Returns the name of the sales representative with average sales greater than or equal to 30

Example data:

	A	B	C	D
1		**Ally**	**Brian**	**Lily**
2	**2019**	20	10	20
3	**2020**	50	15	30
4	**2021**	30	30	15

Example:`=FILTER(B1:D1,BYCOL(B2:D4,LAMBDA(col,AVERAGE(col)>=30)))`

Result:

Ally

Returns a 1x3 array with the difference between max and min value of each column using a Named function as LAMBDA

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Example data:

	A	B	C
1	3	5	7
2	4	3	5
3	1	2	4

Example:`=BYCOL(A1:C3,MAX_MIN_DIFF)`

Named function: `MAX_MIN_DIFF` is a `named function` which outputs the difference between the maximum value and the minimum value.

Formula definition:`=MAX(col)-MIN(col)`, where `col` is an argument placeholder defined for `MAX_MIN_DIFF`.

Result:

3	3	3

Common Errors

The passed LAMBDA doesn't have exactly 1 name argument

If the passed `LAMBDA` doesn't have exactly 1 `name` argument, and 1 `formula expression` as an argument, this error occurs:

"Wrong number of arguments to LAMBDA. Expected 1 argument, but got 2 arguments."

Example: `=BYCOL(C1:C4,LAMBDA(a,b,a+b))`

In this example, LAMBDA was given 2 `name` arguments when it only needs 1.

The last parameter of BYCOL wasn't a LAMBDA

If the last parameter of `BYCOL` wasn't a `LAMBDA`, this error occurs:

"Argument must be a LAMBDA."

Example:`=BYCOL(C1:C4,4)`

The LAMBDA passed to BYCOL was incorrect

If 1 or more `name` arguments weren't valid, this error occurs:

"Argument 1 of function LAMBDA is not a valid name."

Example:`=BYCOL(C1:C4,LAMBDA(C1,C1+1))`

In this example, `C1` is an invalid `name` since it clashes with a range.

The application of LAMBDA on the input array doesn't group each column to a single value

If the application of `LAMBDA` on the input array doesn't group each column to a single value, this error occurs:

"Single value expected. Nested array results are not supported."

Example: `=BYCOL(C1:C3,LAMBDA(col,col))`

Related functions

LAMBDA function: This function lets you create and return a custom function with a set of `names` and a `formula_expression` that uses them.MAP function: This function maps each value in the given arrays to a new value.REDUCE function: This function reduces an array to an accumulated result.BYROW function: This function groups an array by rows.SCAN function: This function scans an array and produces intermediate values.MAKEARRAY function: This function creates a calculated array of specified dimensions.Create & use named functions: This function lets you create and store custom functions, similar to `LAMBDA`.