CATEGORY MANAGEMENT LEARNING FORUM

TOPIC: EXCEL ARRAY FORMULA

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When you create Excel spreadsheets, there are some powerful formulae called "array formulae". If you want to become a power user in Excel, you need to know how to use array formulae. Array formulae enable you to perform calculations that you can't do with the standard Excel functions. You can use array formulae to do the seemingly impossible, such as count the number of characters in a range of cells, sum numbers that meet certain criteria, and find unique descriptions within a range.

My favorite Excel array formula is one that finds unique values within a range. This is valuable if you have a large database and you want to find all of the items within a range (like brand, segment or item description). Refer to the example below (Diagram A), which is a small item rank report. I want to create a table that captures each unique brand description, and then sum together all of the items for each brand by dollar sales and dollar share. Here is the array formula that will help to find the unique values within a field:

=INDEX(RangeName,SMALL(IF(MATCH(RangeName,RangeName,0)=ROW(INDIRECT("1:"&ROWS(RangeName))),MATCH (RangeName,RangeName,0),""),ROW(INDIRECT("1:"&ROWS(RangeName)))))

I suggest you keep this formula handy somewhere in your files, because it's definitely not one that you are going to want to memorize. It's not as scary as it looks, and you don't really need to understand how it works. All you need to know is what to do with it.

- ***Step 1.*** Copy the array formula above to cell F5 (in the example below). Next, highlight the number of cells that you anticipate will be in the output – for example, I know that there are 5 brands in this database, so I need to highlight at least 5 cells, or cell F5 to F9.
- ***Step 2.*** With cells F5 to F9 highlighted, complete a, Find & Select, Replace, replace "rangename" with "brand", and press enter (I have a range name called "brand" for cells B4 to B23). To activate the formula and make it an array formula, press F2, and then Shift+Control+Enter, to activate the array formula. Now I can see all my brand descriptions.
- ***Step 3***. Now I want to take this analysis one step further, by summing together the items that are within a specific brand and segment, to get a "Total Dollars" and "Total Dollar Share" number. I can use a simple =sumif formula that will sum together the dollars and dollar share for each brand description.

A table like this can be more effective than a PivotTable when you are creating certain types of reports. You could take this example one step further, and create a dynamic named range for "Brand". If you database is a different size each month, the formulae will automatically adjust based on the number of rows in the database.

Array Formula for finding unique items in a range:

Item Description	(RangeName = "Brand")	Dollars	Dollar Share
Item 1	Brand A	$ 220	3.1
Item 2	Brand A	$ 380	5.3
Item 3	Brand A	$ 416	5.8
Item 4	Brand B	$ 112	1.6
Item 5	Brand B	$ 220	3.1
Item 6	Brand C	$ 636	8.9
Item 7	Brand C	$ 189	2.6
Item 8	Brand C	$ 462	6.4
Item 9	Brand C	$ 141	2.0
Item 10	Brand D	$ 868	12.1
Item 11	Brand D	$ 138	1.9
Item 12	Brand D	$ 121	1.7
Item 13	Brand D	$ 416	5.8
Item 14	Brand D	$ 318	4.4
Item 15	Brand E	$ 292	4.1
Item 16	Brand E	$ 867	12.1
Item 17	Brand E	$ 43	0.6
Item 18	Brand E	$ -	0.0
Item 19	Brand E	$ 862	12.0
Item 20	Brand E	$ 471	6.6

Formula #1 Formula #2 Formula #3

	Total Dollars	$ Share
Brand A	$ 1,016	14.2
Brand B	$ 332	4.6
Brand C	$ 1,428	19.9
Brand D	$ 1,861	25.9
Brand E	$ 2,535	35.3

Cells F5 to H9 are all formula driven (see the formulae below the table, which are color-coded for easy reference)

Formula #1

=INDEX(brand,SMALL(IF(MATCH(brand,brand,0)=ROW(INDIRECT("1:"&ROWS(brand))),MATCH(brand,brand,0),""),ROW(INDIRECT("1:"&ROWS(brand)))))

Formula #2

Total Dollars formula: =SUMIF(Brand,F7,Dollars)

Formula #3:

Total $ Share Formula: =SUMIF(Brand,F7,Dollar_Share)

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