

Re: Looking for a function that will count the first instance of a

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Source:

<http://www.tech-archive.net/Archive/Excel/microsoft.public.excel.worksheet.functions/2007-08/msg00887.html>

- *From:* "T. Valko" <biffinpitt@xxxxxxxxxxx>
 - *Date:* Fri, 10 Aug 2007 13:43:32 -0400
-

Excellent explanation, Bob!

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Biff
Microsoft Excel MVP

"Bob Phillips" <bob.ngs@xxxxxxxxxxxxxxxx> wrote in message
news:uxm9TZy2HHA.1204@xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

Let's start with a list that is being counted in A1:A10.

Bob,John,Bob,Bob,John,John,Bob,Bill,Bill,Max

The basic formula to count unique items is

=SUMPRODUCT(1/COUNTIF(\$A\$1:\$A\$10,\$A\$1:\$A\$10))

The COUNTIF(\$A\$1:\$A\$10,\$A\$1:\$A\$10) part of the formula builds an array of the number of occurrences of each item, in this case {4;3;4;4;3;3;4;2;2;1}. As can be seen, each occurrence of the repeated value is counted, so there are four occurrences of Bob in the array. There will always be the same number of occurrences of value as the count of that value, unless two or more items are repeated the same number of times, in which case it will be some multiple of that count.

Thus the item that is repeated 4 times has 4 instances of that count, dividing 1 by the count of 4, gives 0.25 4 times. The full array of values is

{0.25;0.3333333333333333;0.25;0.25;0.3333333333333333;0.3333333333333333;0.25;0.5;0.5;1}.

The item that repeats 4 times sums to 1. The item that repeats 3 times also sums to 1. It should be clear from this that every value works in the same way and sums to 1. In other words, 1 is returned for every unique item.

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The sum of these values becomes the count of unique items.

As our test range is A1:A20, and some of the items in A1:A20 are blank, extending this formula to A1:A20 would return a #DIV/0! Error.

The reason for the error is blank cells in the full range A1:A20. Each blank cell returns a 0 value from the COUNTIF formula, which gives the #DIV/0! Error when divided into 1.

The solution to this is to force it to count the empty cells as well, and not return a zero. Adding &" " to the end of the COUNTIF formula forces a count of the blanks.

This addition on its own removes the #DIV/0! error, but will cause the blanks to be counted as a unique item. A further addition to the formula resolves this by testing for those blanks. Instead of dividing the array of counts into 1 each time, adding the test creates an array of TRUE/FALSE values to be divided by the equivalent element in the counts array. Each blank will resolve to FALSE in the dividend array, and the count of the blanks in the divisor array. The result of this will be 0, so the blanks do not get counted.

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HTH

Bob

(there's no email, no snail mail, but somewhere should be gmail in my addy)

"ibvalentine" <ibvalentine@xxxxxxxxxxxxxxxxxxxxxxxxxxxx> wrote in message news:5460CFE6-06B2-4B33-B7AE-5804925CBD09@xxxxxxxxxxxxxxxxxxxx

Thanks, Biff. It works, but I have no idea why. I will have to take a good look at it tomorrow. Can you give me a brief explanation of the formula?

"T. Valko" wrote:

What you want to do is count the unique items. Try this:

=SUMPRODUCT((A1:A100<>"")/COUNTIF(A1:A100,A1:A100&""))

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Biff
Microsoft Excel MVP

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"ibvalentine" <ibvalentine@xxxxxxxxxxxxxxxxxxxxxxxxxxxx>

wrote in message

news:5D73F497-87EE-4067-BEF5-9BC079EBACDC@xxxxxxxxxxxxxxxxxxxx

I have a column in a list that contains types of expenses. I want to count how many different types of expenses I have. In other words, if one of the expense types is "office" and there are several instances of "office", I just want to count "office" once. If "fees" is in the column several times, I just want to count fees once and so on.

The way I do it now is to use the Subtotal feature to group the expenses, and then click on the level 2 button. The level 2 subtotals will return just one instance of each type. I then copy them and use paste special to paste the values in cells off to the side. I can then use the count function to count each type of expense.

So I am wondering if there is a better way or if there is a function that will count just one instance of a group within a field.

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