

20 Excel Functions to Know and Use Before you Die...

Statistical Functions

Continuing our series of '20 Functions to Know and Use before You Die', this time it's the turn of a few statistical functions.

If you are into Fisher's test, chi-square, Pearson's correlation, Cox proportional hazard regression or t-tests then read no further.

If you are new to Excel, or have problems using functions, or spend your time totalling values and dividing them by the number of cells in your data then this is for you!

Statistical analysis is huge topic in itself and the variety of models and tests is quite bewildering and by and large you will never need to know what these test do let alone know how to make them work (*in fact...to be honest I have no idea whatsoever what Cox proportional hazard regression is!*). For that reason, I am limiting this article to the following 5 functions;

- AVERAGE
- MIN
- MAX
- MEDIAN
- MODE

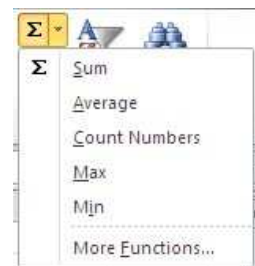
AVERAGE:

This is the mathematical mean or average of a data set. In other words it adds up all the values and divides by the number of values e.g. 2,4,5,8 would be $2+4+5+8$ divided by 4 to give us an average value of 4.75

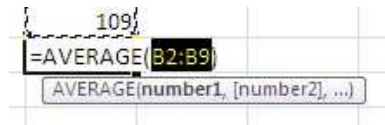
B
August
269
141
206
12
344
70
213
109

Using Excel, this is easy to do....click in an empty cell either below or to the right of the data you want to calculate the average of. Click on the arrow to the right of the **AUTOSUM** button and select **AVERAGE**. Rather conveniently, Excel has a number of functions, including most of those we are covering here, hiding alongside the **AUTOSUM** button to make using these 'popular' functions easily accessible.

Excel will put in the equals sign for you, the function name and automatically select the data. In most cases it will get it right, but if the incorrect data is selected you can manually enter the cell references or click and drag the drag handles surrounding the data. Press enter to complete the formula. In this example using the data to the left, it



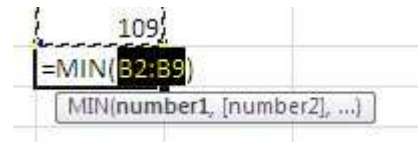
has worked out the range and gives us the answer 170.5



MIN:

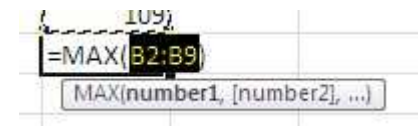
This finds the lowest value within our data set. If you have never seen this function you probably sort your data in ascending order and read off the top cell...but no need.

Follow the same steps as above but this time, select the **MIN** function to return the lowest cell value in your data. This will return the value 12.



MAX:

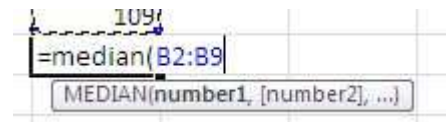
This finds the highest value within your data set. As above, no need to sort your data to find out which is the highest value...let the functions do the work for you!



Follow the same steps as for **AVERAGE** and **MIN**...hopefully you are detecting a pattern by now...press enter and there you have your highest value - 344.

MEDIAN:

MEDIAN along with **MODE** unfortunately don't appear in the list of 'popular' functions alongside the **AUTOSUM** button, so we have to either type these in manually or use the function wizard to build them i.e =MEDIAN(B2:B9)

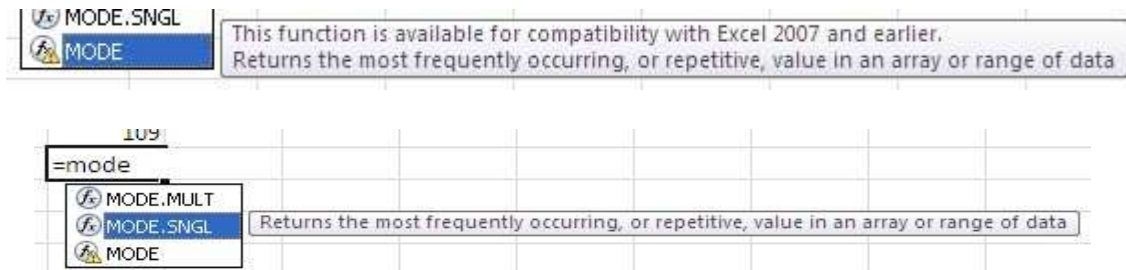


MEDIAN finds the 'middle' value in a data set. Take for example the following numbers: 3,7,2,9,11,5 To find the middle or **MEDIAN** value manually we would need to re-arrange the numbers in ascending order to give us 2,3,5,7,9,11 and pick the 'middle' value. Using Excel, we don't need to sort our values as it works this out for you. As we have an even number of values there is no one value that is 'in the middle', so Excel picks a value that is mid-way between those 2 'middle' values (5 and 7). In this example Excel would give us the answer **6**. If you have an odd number of values then it will pick the 'middle' value from the list.

MODE:

MODE picks out the most frequently occurring value in a data set. If we had a range of numbers: 1,3,5,1,2,6,2,8,1,5 the most frequently occurring value would 1 (appearing 3 times). Where problems start is when you have multiple values having the same number of occurrences. If this is the case, Excel will return the first /lowest value (think of Excel sorting the data again in ascending order in the background and picking the first one it comes across in the list).

Note that **MODE** will work in all versions of Excel but looks like it will eventually disappear to be replaced with **MODE.SNGL** which now appears in 2010.



So there you have some basic statistical functions. Not earth shattering but for many people a vast improvement on doing these sorts of calculations etc manually.

So now we are almost at the half way mark. In our series of '20 functions to know and use before you die' we have seen;

AUTOSUM, SUBTOTAL, VLOOKUP, IF, and today's 5 statistical functions, AVERAGE, MIN, MAX, MEDIAN and MODE.

Next time around it will all be about counting....

These Excel Top Tips were written by Richard Harker, Business Systems Consultant and Microsoft Excel expert. If you have any other questions about Microsoft Excel, why not tweet Richard with your query at <http://twitter.com/#!/excelmate>.