EXCEL ‹‹‹‹‹‹

By Bill Jelen

Adjusting Yearly Formulas

At a recent seminar in southwestern Florida, an IMA® member asked me about an easy way to adjust a spreadsheet to collect data for a new year. As 2014 approaches, this will be a familiar task for many Excel users.

Let's consider a workbook that tracks annual sales for several line items. Passed along in the accounting department for years, the years stretch across columns D:M, with the most recent year on the left. Only the last five years, in columns D:H, are visible. Columns I:M are hidden, and column O contains a variety of formulas that calculate statistics for the most recent five years. (See Figure 1.)

A problem arises when a new year is inserted. If you insert a new column D to hold data for 2014, all of the formulas that track the last five years will automatically adjust and start reflecting columns E:I instead of columns D:H. Because each product line has statistics for average, largest, smallest, and so on, the formulas in the column aren't all the same. Currently, updating the formulas for the 200+ product lines is a tedious process.

Turn Formulas into Text

One solution is to temporarily change the formulas in column O so that Excel considers them text. This will keep them from being updated automatically when the new column is inserted for 2014. Then it's just a matter of changing them back into formulas. This solution is quick to implement and will have the worksheet ready in a couple of minutes. Follow these steps:

1. Select the column containing the formulas.
2. Open the Find and Replace dialog window (CTRL+H).
3. Type an equals sign (=) in the Find what: field.
4. Type a carat and equals sign (^=) in the Replace with: field.
5. Click Replace All. All of the formulas in column O are converted to text. For example, =AVERAGE(D3:H3) becomes ^=AVERAGE(D3:H3). Since it doesn't begin with the equals sign, Excel treats it as text instead.
6. Insert a new column D for year 2014.
7. Hide column I, which now contains the sixth year of data.

Figure 1

	A	B	C	D	E	F	G	H	N	O
	O3			fx	=AVERAGE(D3:H3)					
1	Division	Product	Store #	2013	2012	2011	2010	2009		Statistics
2	Section heading									
3	Widgets	W1023	#0145	1196	1852	1067	1944	1699	Average	1551.6
4									Best	1944
5									Worst	1067
6	Explanatory Note									
7										
8	Gadgets	G0043	#1243	1435	1564	1247	1035	1743	Average	1404.8
9									Best	1743
10									Worst	1035
11										
12	Gadgets	G9437	#0132	1268	1119	1956	1236	1663	Average	1448.4

8. Enter the sales data for the new year.
9. Select the column containing formulas. In the example workbook, it will now be column P.
10. Repeat the process from steps 2-5, this time switching the values for the Find what: and Replace with: fields (i.e., replacing all occurrences of ^= with = instead).

The result will be a newly inserted column for 2014 while the formulas in the Statistics column will continue to average columns D:H, as shown in Figure 2.

The OFFSET function

In the case of the example worksheet, someone had created the worksheet several years ago. If you needed to build the workbook from scratch today, however, there are other ways to solve the problem that will require less maintenance in future years. One such function is the versatile OFFSET function. You can use the OFFSET function to tell Excel where to begin its calculations without actually referencing the actual cells. That way, when a new column is inserted, there are no refer-

Figure 2

	A	B	C	D	E	F	G	H	O	P
									P3	=AVERAGE(D3:H3)
1	Division	Product	Store #	2014	2013	2012	2011	2010		Statistics
2	Section heading									
3	Widgets	W1023	#0145		2102	1196	1852	1067	1944	Average	1632.2
4										Best	2102
5										Worst	1067

ences that will get updated.

Let's say that you want to average the five cells that appear to the right of the Store # in cell C3, i.e., cells D3:H3. Using OFFSET (C3,0,1,1,5) would tell Excel to start at cell C3, go 0 rows down and 1 column right to get to the starting cell of the range. The last two arguments indicate the range is 1 row tall by 5 columns wide. This function will return five cells, but we want it to be used in a calculation, so it needs to be wrapped in another function, such as AVERAGE, MAX, or MIN. The formula for P3 in Figure 2 would be =AVERAGE(OFFSET(C3,0,1,1,5)).

This formula essentially points to D3:H3 without ever referencing the cells, which means you can safely insert a new column D each year while the formula

always points to cells D3:H3.

If you have hundreds or thousands of OFFSET functions, however, the worksheet can start experiencing slow recalculation times. The OFFSET function is considered a volatile function, so every formula containing OFFSET will be recalculated after each worksheet change. A similar formula without OFFSET will only be calculated when its dependent cells change.

Either of these methods will be significantly easier than manually adjusting each formula in the statistics column. **SF**

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