Excel Yourself 2016

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Contents

Introduction

This session will cover some of my Excel Yourself articles that were first published in the INTHEBLACK magazine during 2016. We will examine 5 of the 11 articles in the hour allotted. This is my fifth webinar covering my INTHEBLACK articles. The other four webinar recordings and materials are available for free on my website.

The workings sheets for most of the articles have been included in the companion file for this session.

The companion Excel sheets are arranged in date order starting with the February article on the left and working to the right to end with the December article. The green sheet tabs are the ones to be covered during the session.

The content of this manual has been re-written and adapted from the original articles and includes some extra content.

Note: I record a companion video for each month's article that appears on the www.intheblack.com website each month.

VERSION WARNING:

Some of the content in this manual and the Excel file will only work with Excel 2013 and later versions.

Previous versions will NOT be able to use or replicate the results as per this manual for the March and December articles.

You will need Excel 2010 or later for the November article.

150th Excel Yourself

The July 16 article on PivotTables was my 150th Excel Yourself Article. I started way back in 2002.

March 2016 – Flash Fill

Flash Fill is a feature that was added in Excel 2013. It was created after a chance encounter between a businesswoman and a Microsoft researcher on a plane trip. The businesswoman asked the Microsoft researcher if Excel could combine a first name and a last name in a column. The researcher, who wasn't working on Excel, got thinking about the problem and the outcome was Flash Fill.

Flash Fill is basically a pattern matching algorithm that watches what you do and tries to anticipate other entries based on the entries you have already made.

Flash Fill does not use any formulas and the entries appear as entries in a column.

If you are trying to automate a process then Flash Fill will not provide a solution. But if you are working on an ad hoc reporting project, Flash Fill can save you a lot of effort.

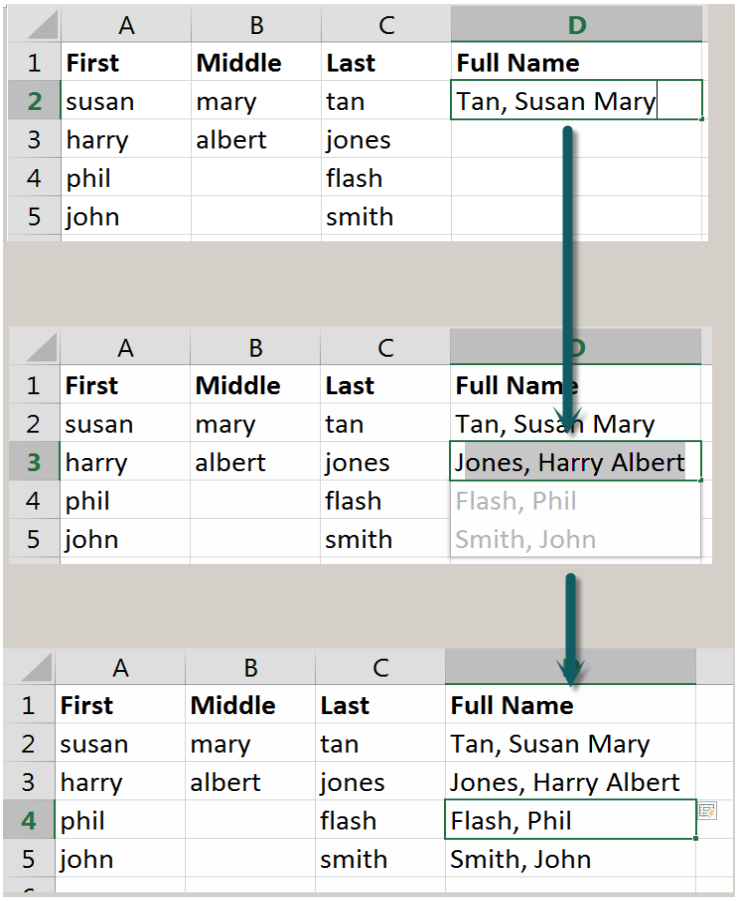
The Mar Names sheet has the example on the right.

If you type the naming structure you require in cell D2, note the sequence, capitalisation and the comma.

Then you press Enter and type a capital J in cell D3, Excel will guess and display the structure of the remaining names based on the structure you have used in cell D2.

You can press Enter and Excel will populate the other names in the list.

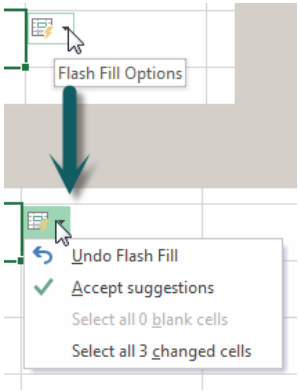
There is a small icon that is displayed in the cell below you can click that to see the Flash Fill options – see image below.



	A	B	C	D
1	**First**	**Middle**	**Last**	**Full Name**
2	susan	mary	tan	Tan, Susan Mary
3	harry	albert	jones	
4	phil		flash	
5	john		smith	

	A	B	C	D
1	**First**	**Middle**	**Last**	**Full Name**
2	susan	mary	tan	Tan, Susan Mary
3	harry	albert	jones	Jones, Harry Albert
4	phil		flash	Flash, Phil
5	john		smith	Smith, John

	A	B	C	
1	**First**	**Middle**	**Last**	**Full Name**
2	susan	mary	tan	Tan, Susan Mary
3	harry	albert	jones	Jones, Harry Albert
4	phil		flash	Flash, Phil
5	john		smith	Smith, John



You can use the Undo feature (ctrl + z) to remove entries from below the current cell after Flash Fill has run.

The solution in column D could be achieved using a formula. If you want to automate the process you would use a formula rather than Flash Fill.

Tips for using Flash Fill

- Use a table structure and use the bold format on the column headings.
- Don't have blank rows or blank columns in your table.
- Sometimes a single example will be enough to enable Flash Fill to populate the remaining cells. Other times you will need to enter two or more examples to get a more accurate final result.
- You can correct the entries after Flash Fill populates the entries and this will be included in subsequent Flash Fill entries.
- Work from left to right in your table when populating the entries. Having columns on the right of your target column can affect how Flash Fill works

Keyboard Shortcut

The Flash Fill keyboard shortcut is Ctrl + E. If Flash Fill doesn't automatically operate you can select the range involved and then press the keyboard shortcut to apply Flash Fill.

Disadvantages

Whilst Flash Fill works very well with an existing data table, it doesn't update if you add extra rows to the data table. This means you have to go through the Flash Fill steps again to extend the data. Flash Fill is a new feature and not many Excel users are aware of it.

Other Examples

Flash Fill isn't always automatically applied to a table but you can apply it yourself by using the Ctrl + E shortcut.

Dates

Sometimes dates imported into Excel are not recognised as dates by Excel. See example below in the Mar Dates sheet. If you provide two solution dates and then select the whole range and press Ctrl + E Flash Fill will do the rest.

	A	B
1	System Date	Real Date
2	20150715	15/07/2015
3	20150623	23/06/2015
4	20150904	
5	20151001	
6	20151111	

	A	B
1	System Date	Real Date
2	20150715	15/07/2015
3	20150623	23/06/2015
4	20150904	4/09/2015
5	20151001	1/10/2015
6	20151111	11/11/2015

Extracting Part of a Code

In the example in the Mar Codes sheet, we want to extract the number from an alpha numeric code. The number can be in a different position and be different lengths within the code. Again if you provide two examples and then use Ctrl + E Flash Fill will extract the other numbers.

	A	B
1	**Product Code**	**Number**
2	ABC123DEF	123
3	AB23XY	23
4	A100ZZZ	
5	ABC321XYZ	

	A	B
1	**Product Code**	**Number**
2	ABC123DEF	123
3	AB23XY	23
4	A100ZZZ	100
5	ABC321XYZ	321

Teach Flash Fill

Sometime Flash Fill will find and apply the wrong pattern. You can correct it and it will re-apply the pattern.

This is in Mar User Names sheet.

If I enter hjones in cell D3 and then use Ctrl + E Flash Fill will assume I want to add h to the left of the surname.

If I then amend cell D5 to jsmith it will correct the remaining names automatically.

	A	B	C	D
1	**First**	**Middle**	**Last**	**User Name**
2	susan	mary	tan	
3	harry	albert	jones	hjones
4	phil		flash	
5	john		smith	

	A	B	C	D
1	**First**	**Middle**	**Last**	**User Name**
2	susan	mary	tan	htan
3	harry	albert	jones	hjones
4	phil		flash	hflash
5	john		smith	hsmith

Amend cell D5 to jsmith

	A	B	C	D
1	**First**	**Middle**	**Last**	**User Name**
2	susan	mary	tan	stan
3	harry	albert	jones	hjones
4	phil		flash	pflash
5	john		smith	jsmith

When to use Flash Fill

As mentioned Flash Fill won't automatically extend if the table is extended. If your table is complete and you won't be adding to it, then Flash Fill is fast and easy to use.

If the solution needs to automatically expand then formulas combined with Format As Table will be the solution.

I covered text functions in a free webinar available on my website.

April 2016 – Applying a Factor

In budget and forecast models it is common to include a factor that allows you to manipulate large numbers of formulas using a single cell. Sometimes this can be used for sensitivity analysis.

In the Apr Factor sheet I have cost calculations. In cell B2 in the Apr Factor sheet cell B2 is the factor cell. It contains 100%. The functionality required is to reduce costs by 2% we can change cell B2 to 98%.

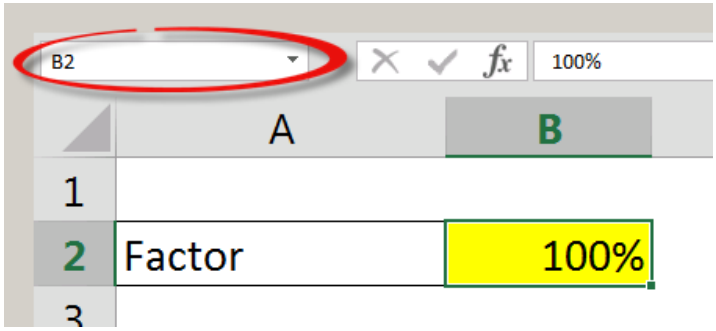
You could have separate factors for costs and revenue calculations. You could even have multiple factors to cope with different expenses types.

The assumption is that you have already created a budget and you are instructed to apply a factor to the model.

This example is only small, but it can be applied larger budgets as well.

This solution uses a range name. I will name cell B2 Factor, which allows us to the name in formulas to refer to cell B2.

To name a cell select the cell and click in the Name Box. This is the box that usually shows the current cell reference on the left of the Formula Bar above the column letters. See image below.

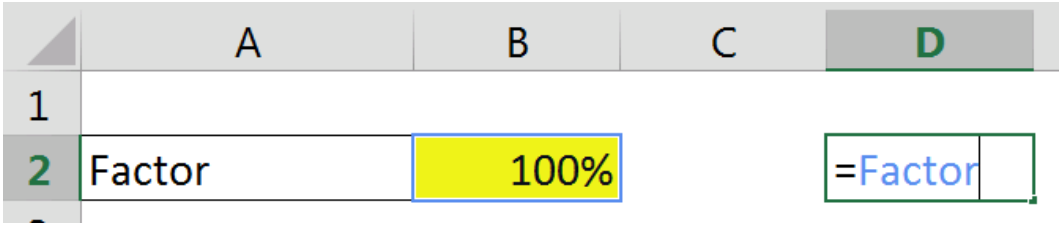


1. Select cell B2 and click in the Name Box and type the word Factor and press Enter. You must press enter otherwise Excel will not create the name. After you press Enter the name should remain in the Name Box.

2. In cell D2 enter the following formula

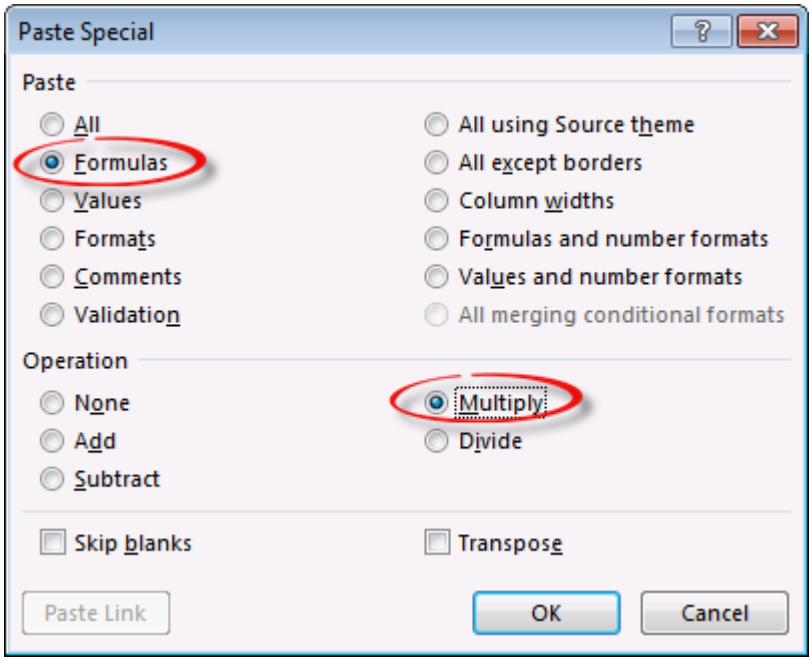
   =Factor

   You can type the = sign and then click on cell B2 and Excel will enter the name for you.



3. Copy cell D2.

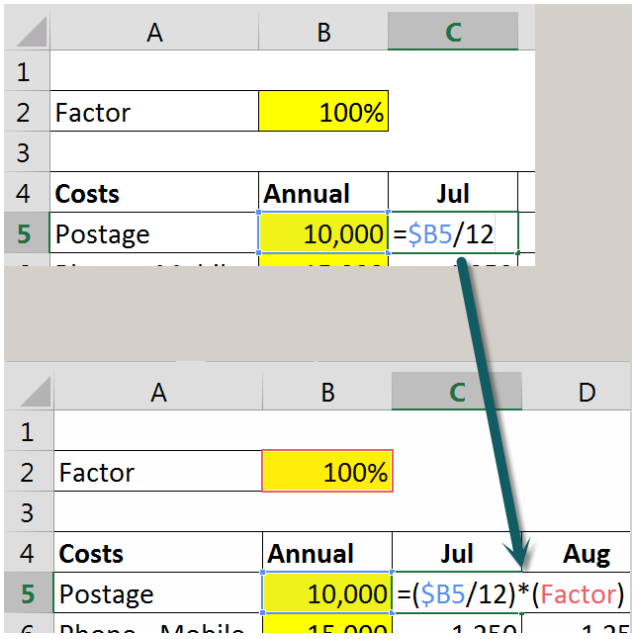
4. Select the range that you want to apply the factor to, in our case the range is C5:H8. Right click the range and select Paste Special. In the Paste section select Formulas, in the Operation section select Multiply. Click OK. See image below.



If you had other ranges to change you can select those and press the F4 key to repeat the above paste special. This assumes you haven't done anything else after you pasted as above.

You can now change cell B2 to 90% and press enter to see the factor being applied.

The formulas have been amended. The existing formula has been multiplied by the factor, see image on right.



Range Names

I recommend the use of range names in most reporting and budgeting models.

I capitalise at least one letter of my range names. When Excel identifies a range name it uses the same capitalisation that you use when you create the name. This makes it easy to identify incorrectly spelled names if you are using multiple names in a formula.

Used correctly, range names add structure and provide flexibility to Excel files. This example has only scratched the surface of the possibilities when you use range names.

September 2016 – Binary File Types and Counting

In this article I discussed an easy way to reduce the size of large Excel files.

When Microsoft introduced in Excel 2007 it added three new Excel file types. Two of the file types .xlsx and .xlsm uses the XML which uses data compression techniques to reduce file size. These files were typically smaller than the corresponding .xls file.

.xlsx doesn't have macros and .xlsm can include macros.

The other file type was a binary file type .xlsb which is even more efficient in reducing file size for larger files. The problem with the binary file type was that it was less compatible than the other two file types.

Because of this incompatibility, the binary file type was not used very much when Excel 2007 first came out. This file type is still available in recent Excel versions and offers a significant reduction in large XML files.

As well as the size reduction, binary files also open, close and save faster than their XML counterparts.

Advantages of Binary Files

1. Reduced file sizes, especially in files larger than 10 MB.
2. Files open quicker
3. Files close quicker
4. File can contain macros

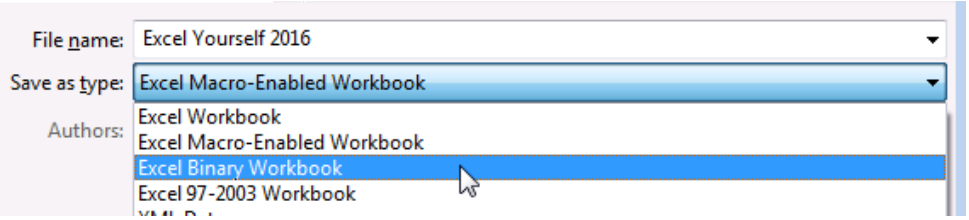
Disadvantages of Binary Files

1. Files may not interact with third party systems that require XML format. Some systems will upload Excel files, the binary file type may not be accepted.
2. The binary file type may not be compatible with Excel 2003 and earlier versions.
3. Files may not be compatible with other spreadsheet systems e.g. Open Office.
4. Files can contain macros.

Note that I have included macros in both lists. Depending on your views on macros you will agree with one of the listings.

In terms of the disadvantages you always have the ability to use Save As to convert the binary file into a file that another system can use, so the disadvantages are not that dramatic.

The shortcut key for Save As in Excel and office is the F12 function key.



Counting in Excel

In the September article I also included a quick tip on counting in Excel. There are two count functions in Excel, COUNT and COUNTA. They calculate slightly differently and the differences can be important depending on the type of counting you are doing.

The COUNT function only counts numeric values which includes dates.

The COUNTA function counts everything.

The image below demonstrates the differences in the counting techniques.

The green cells in each column specify the cells that are counted by the respective count function.

	A	B	C
1	**Cell Contents**	**COUNT**	**COUNTA**
2	Date	1/09/2016	1/09/2016
3	Number	1234	1234
4	Text	CPA	CPA
5	Binary Result	TRUE	TRUE
6	Number entered as text	1234	1234
7	Blank Cell		
8	Formula displaying a blank		
9	Hyperlink	Sheet1!A1	Sheet1!A1
10	Formula returning a date	1/09/2016	1/09/2016
11	Formula returning a number	1234	1234
12	Formula returning text	CPA	CPA
13	**Count Results**	**4**	**10**

Row 8 demonstrates a formula that returns a blank cell. The formula from cell B8 is shown below.

=IF(B3>0,"",0)

This is ignored by the COUNT function but it will be included in the count by the COUNTA function.

So even though it appears to be blank, or displays as a blank, it is still counted by the COUNTA function.

October 2016 – INDIRECT Function Solution

October's article was inspired by a question from a CPA who had to deal with project reports that were each structured differently. The complication was that the solution had to be able to cope with new projects reports being added that were also in different layouts.

The reports needed to the summarised and the function to achieve that is the SUMIFS function.

The function that will allow us to handle the differently structured sheets is the INDIRECT function.

The layouts of four project sheets are shown on the right.

The layouts are simlar but different and we need to summarise each supplier across each project.

This example only uses short data sets but it will work with larger data sets.

In most cases you would create a separate summarisation formula for each project sheet. This is time-consuming.

The INDIRECT function allow you to create single formula that can be copied across and down to populate a summary report.

	A	B	C	D	E	F
1	**Date**	**Name**	**Amount**			
2	1/08/2016	ABC Ltd	1512.24			
3	2/08/2016	XYZ Ltd	2498.57			
4						

... Project A | Project B | Project C | Project D

	A	B	C	D	E	F
1	**Supplier**	**Date**	**Amount**			
2	XYZ Ltd	1/07/2016	6548.25			
3	Acme Ltd	1/07/2016	3845.14			
4						

... Project A | Project B | Project C | Project D

	A	B	C	D	E	F
1	**Supplier**	**Amount**	**Date**			
2	Acme Ltd	789.45	1/09/2016			
3	Big Co Ltd	48.14	1/07/2016			
4						

... Project A | Project B | Project C | Project D

	A	B	C	D	E	F
1	**Amount**	**Supplier**	**Date**			
2	2315.8	ABC Ltd	1/07/2016			
3	100.25	Big Co Ltd	1/08/2016			
4						

... Project A | Project B | Project C | Project D

Below is the summary report structure we want to populate. We also want to add extra projects to the right and copy the formulas across.

We will create a formula in cell B5 that we will copy across and down to populate the report.

	A	B	C	D	E
1	Amount Column	C:C	C:C	B:B	A:A
2	Supplier Column	B:B	A:A	A:A	B:B
3					
4	Sheet Name	**Project A**	**Project B**	**Project C**	**Project D**
5	ABC Ltd				
6	XYZ Ltd				
7	Acme Ltd				
8	Big Co Ltd				

To start the process we will first create the SUMIFS function that will work on the Project A sheet.

The SUMIFS formula that will work with the Project A sheet is

=SUMIFS('Project A'!C:C,'Project A'!B:B,$A5)

Syntax

SUMIFS(Sum_range,Criteria_range1,,Criteria1…..)

Sum_range – the data range that holds the values you want to sum. When all the criteria are met the values in this range are added up.

Criteria_range1 – the data range that holds the codes/entries that need to be summarised.

Criteria1 – the code/entry that be looked for in Criteria_range1.

Extra pairs of Criteria_range and Criteria can be added to the right of the function to add more criteria.

The SUMIFS function can handle multi-criteria summing. In this case we are only looking at one criteria, the Supplier name. In the Project A sheet, when the supplier name is found in column B the value will be added up from column C.

I have referred to whole columns in this example which simplifies and shortens the formula.

Our problem is that these columns vary between the various report sheets.

INDIRECT Function

This function is badly named, but very versatile. The text between the brackets of the INDIRECT function is converted into a cell, range or even a range name reference. This enables us to use text to build up the column references that we need for the SUMIFS function.

I have used helper cells in the rows 1, 2 and 3. These will be the building blocks for the reference we need in the SUMIFS. Helper cells allow you to create simpler formulas and formulas that can be copied across and down within in ranges.

Let's examine the SUMIFS function from above – the first reference is the range to add up and it is

'Project A'!C:C

We need to replicate this as a text string between the brackets of the INDIRECT function.

This part of the formula is created by the following INDIRECT function.

INDIRECT("'"&B$4&"'!"&B$1)

This formula uses the & symbol to join text together. The first part of the formula can be difficult to see. It is the double quotation marks followed by a single quotation mark, followed by the double quotation mark. I have included it below in a large font.

"'"

For the INDIRECT function to work the text in cell B4 has to be the same as the sheet name.

The INDIRECT function for the second part of the SUMIFS function 'Project A'!B:B is

INDIRECT("'"&B$4&"'!"&B$2)

The final formula for cell B5 is

=SUMIFS(INDIRECT("'"&B$4&"'!"&B$1),INDIRECT("'"&B$4&"'!"&B$2),$A5)

This can be copied down and across.

The helper cells in rows 1 and 2 provide the flexibility to change the amount column and the supplier column for each sheet involved. If there are structural changes made to the sheets these need to be updated in the helper cells. This includes things like inserting columns which will change the column references. Changing the sheet name will also need to be updated in row 4.

Volatility

One of the drawbacks in using the INDIRECT function is that it is a volatile function. This means that it calculates every time Excel calculates whether it needs to or not. Most functions in Excel only calculate if the cell or range that they are calculating changes. This means that if you use a lot of INDIRECT functions in a file can have an impact on the calculation time. This is less of an issue with today's faster PCs.

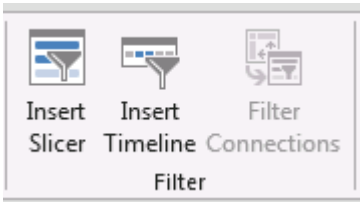
Closed Files

Both the SUMIFS and INDIRECT functions do not return results on closed files. You can create references to external Excel files, but those files must be open to return a result.

	A	B	C	D	E
1	Amount Column	C:C	C:C	B:B	A:A
2	Supplier Column	B:B	A:A	A:A	B:B
3					
4	Sheet Name	**Project A**	**Project B**	**Project C**	**Project D**
5	ABC Ltd	1512.24	0	0	2315.8
6	XYZ Ltd	2498.57	6548.25	0	0
7	Acme Ltd	0	3845.14	789.45	0
8	Big Co Ltd	0	0	48.14	100.25

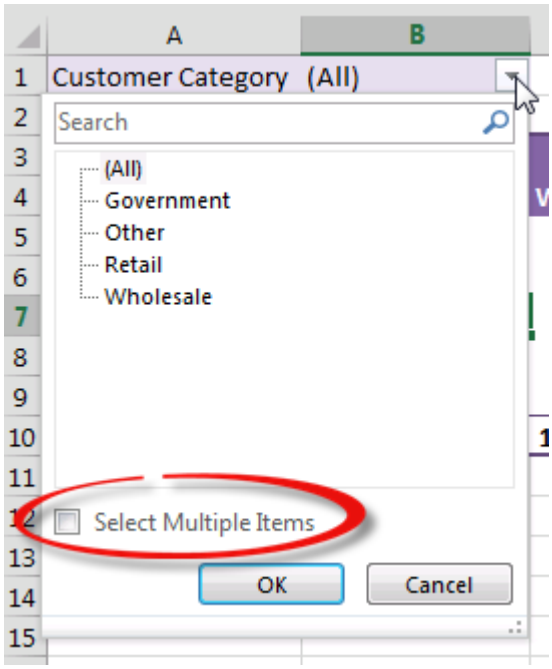
November 2016 – Slicers

Filtering in PivotTables is straightforward if you are filtering by a single items, but if you are filtering by multiple items then there is an issue. Unfortunately the filter display does not list the multiple items that you are filtering by.

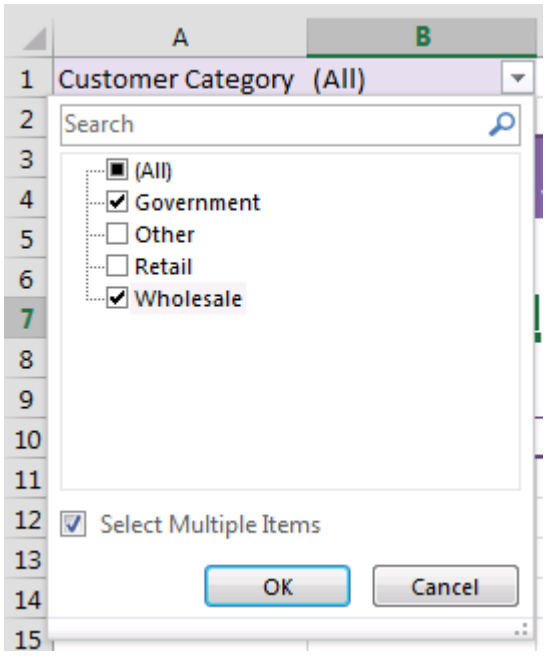


To avoid this problem you can use a Slicer. Slicers were added to Excel in Excel 2010 and they have been updated in the later versions. Excel 2013 and later versions have a Timeline Slicer which improves the interface for date based filtering.

The problem arises when you click the Select Multiple Items checkbox in the filter drop down.

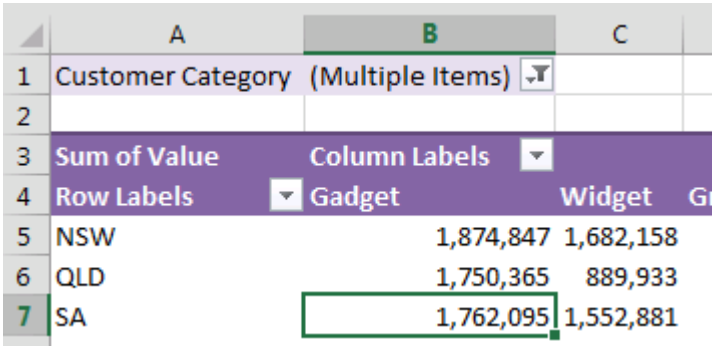


This inserts checkboxes against each of the items which allows you to select the items individually and which causes the problem.



You can see in cell B1 in the image on the right what happens when you select more than one item to filter by.

There is no way of knowing what filter has been applied based on cell B1.



	A	B	C
1	Customer Category	(Multiple Items)	
2			
3	Sum of Value	Column Labels	
4	Row Labels	Gadget	Widget
5	NSW	1,874,847	1,682,158
6	QLD	1,750,365	889,933
7	SA	1,762,095	1,552,881

Slicers are a graphic object that floats above the Excel grid and enables you to select items to filter by.

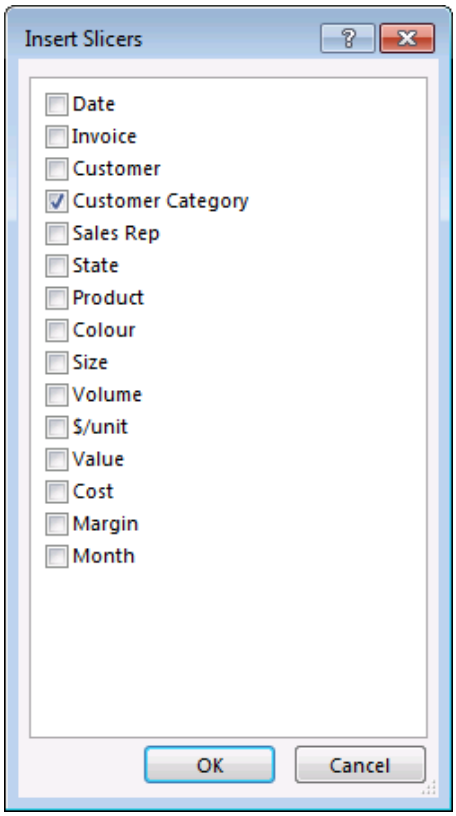
In Excel 2013 you can apply Slicers to PivotTables and to formatted tables.

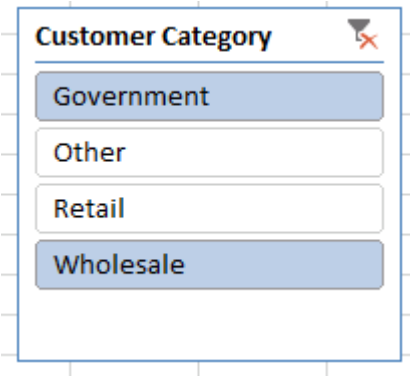
When you click the Insert Slicer icon a dialog lists all of the field (column) headings. You can select multiple fields to filter by.

In our case we will only filter by the customer category.

When you click OK the Slicer is added to the sheet.

If you have a filter in place already then that filter will be displayed on the Slicer, see below.





The icon in the top right of the Slicer will clear the current filters.

To select multiple items on a Slicer simply hold the Ctrl key down and use the mouse to click the buttons on the Slicer.

This Slicer filter interface is more intuitive and easy to use for most users.

Advantages with Using a Slicer

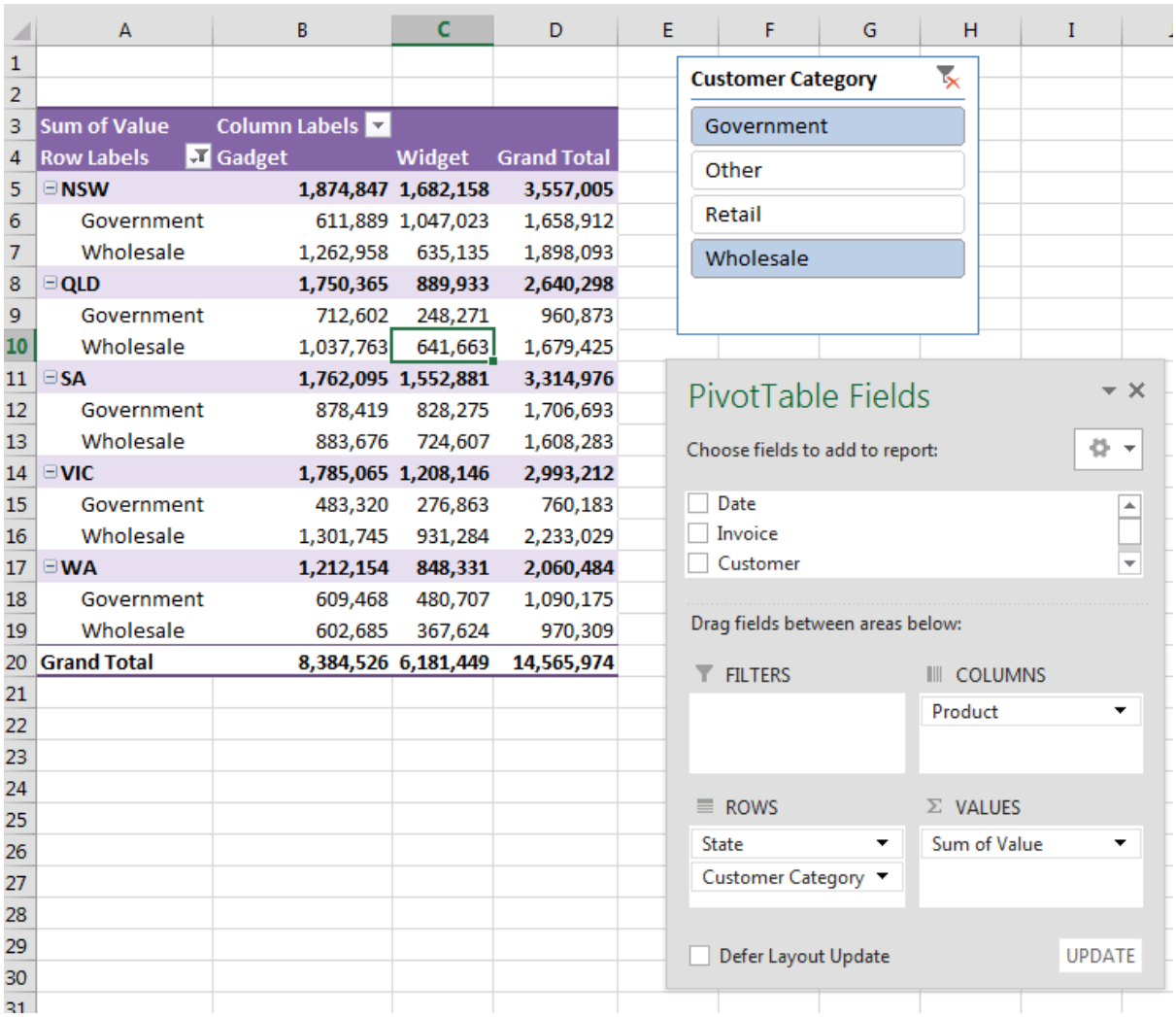
There are two more advantages with using a Slicer to filter.

The first is that a single Slicer can filter multiple PivotTables. The PivotTables must be based on the same data source table. This means that you can have a file that is dedicated to reporting by state. You could have a single Slicer that enables the manager to select a state and all of the PivotTable reports in the file will be updated to that state.

The down side of using a single Slicer to filter multiple reports is that the Slicer will only appear on one sheet but it will be controlling reports on other sheets. Hence it will not be apparent on the other sheets that the report is being filtered by the Slicer. In this case you should insert a text box explaining that the Slicer that controls the report is on a separate sheet.

The second thing that Slicers allow you to do that normal filtering won't, is that you can list the field in the report and filter by it. In normal PivotTable filters you cannot include the filter field in the body of the report.

See the next page where a filter field is included in the report.



Sum of Value	Column Labels		
Row Labels	Gadget	Widget	Grand Total
NSW	1,874,847	1,682,158	3,557,005
Government	611,889	1,047,023	1,658,912
Wholesale	1,262,958	635,135	1,898,093
QLD	1,750,365	889,933	2,640,298
Government	712,602	248,271	960,873
Wholesale	1,037,763	641,663	1,679,425
SA	1,762,095	1,552,881	3,314,976
Government	878,419	828,275	1,706,693
Wholesale	883,676	724,607	1,608,283
VIC	1,785,065	1,208,146	2,993,212
Government	483,320	276,863	760,183
Wholesale	1,301,745	931,284	2,233,029
WA	1,212,154	848,331	2,060,484
Government	609,468	480,707	1,090,175
Wholesale	602,685	367,624	970,309
Grand Total	8,384,526	6,181,449	14,565,974

Filtering Formatted Tables

The Format as Table option on the Home ribbon was added in Excel 2007. I recommend you use it for your Excel tables. It is not just about formatting, there are a number of other advantages that I have covered in other free webinars.

In Excel 2013 a Slicer can control a formatted table, which in turn could control a chart.

In the Nov Chart sheet try this.

1. Click a cell in the table and press Ctr l + T and press Enter. This create a formatted using the default colour.

2. Click the Insert ribbon and click the Insert Slicer icon. Choose the State field and click OK.

3. Select the range B2:C33 the Insert ribbon and choose a clustered column chart – the first column chart.

4. Change the Slicer and this will change the chart. **Note:** when rows are hidden by the filter it will affect how the chart displays. You may want to place the chart below the table.