Much of the world may be in lockdown

but not this newsletter. We continue to see if we can make a monthly newsletter require a ream of paper for printing!

Microsoft *didn't* announce two new functions this month – but they have been spotted out in the wilds of the Microsoft 365 Beta Channel: we let you know what we've figured out about **ARRAYTOTEXT** and **VALUETOTEXT**. Have you got what it text to read about them..?

We take another look at Excel Money this month as we find out more about this, albeit it may be of only limited global interest, given its current focus on the US (and then it seems for only certain versions of Excel) – but for the future, who knows?

Aside from the insider knowledge on the Windows Insider channels, we also have our monthly regulars Beat the Boredom, Visual Basics, Power Pivot Principles, Power Query Pointers, Power BI Updates, the A to Z of Excel Functions (*read before they EXPire*), Keyboard Shortcuts et al.

Happy reading and remember: stay safe, stay happy, stay healthy.

Until next month.

Liam Bastick, Managing Director, SumProduct

New Excel Functions: ARRAYTOTEXT and VALUETOTEXT

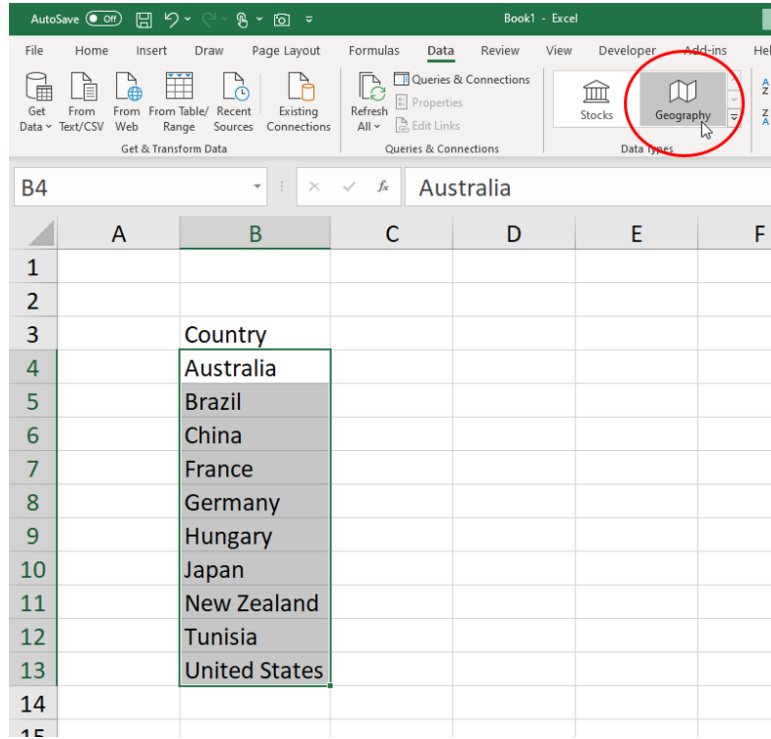Have you got what it text to succeed with Excel..? Imagine you had a list of countries, selected randomly:

	A	B	C
1			
2			
3		Country	
4		Australia	
5		Brazil	
6		China	
7		France	
8		Germany	
9		Hungary	
10		Japan	
11		New Zealand	
12		Tunisia	
13		United States	
14			
15			

If I wanted to put these into a "grammatical" list, I could simply use the **TEXTJOIN** function, *viz.*

	A	B	C	D	E	F	G	H	I
1									
2									
3		Country							
4		Australia							
5		Brazil							
6		China							
7		France							
8		Germany							
9		Hungary							
10		Japan							
11		New Zealand							
12		Tunisia							
13		United States							
14									
15		Australia, Brazil, China, France, Germany, Hungary, Japan, New Zealand, Tunisia, United States							
16									
17		=TEXTJOIN(", ",,B4:B13)							

$$\text{=TEXTJOIN(", ",,B4:B13)}$$

is a very elegant way to combine all items into a punctuated list. That's great, but let's complicate it. Instead of doing this, imagine I had converted these country names to the Geography Data Type, by highlighting the cells and changing them:


This causes a problem for our previous formula:

To get the formula to work, we need to extract the Name field from the Geography Data Types:

$$\text{=TEXTJOIN(", ",,B4:B13.Name)}$$

	A	B	C	D	E	F	G	H	I
1									
2									
3		Country							
4		📖Australia							
5		📖Brazil							
6		📖China							
7		📖France							
8		📖Germany							
9		📖Hungary							
10		📖Japan							
11		📖New Zealand							
12		📖Tunisia							
13		📖United States							
14									
15		Australia, Brazil, China, France, Germany, Hungary, Japan, New Zealand, Tunisia, United States							
16									
17		*=TEXTJOIN(", ",,B4:B13.Name)*							

In fact, as soon as you add the period (.) to the range reference, the world (quite literally!) is your oyster, *e.g.* if you just type the dot:

=TEXTJOIN(", ",,B4:B13.)
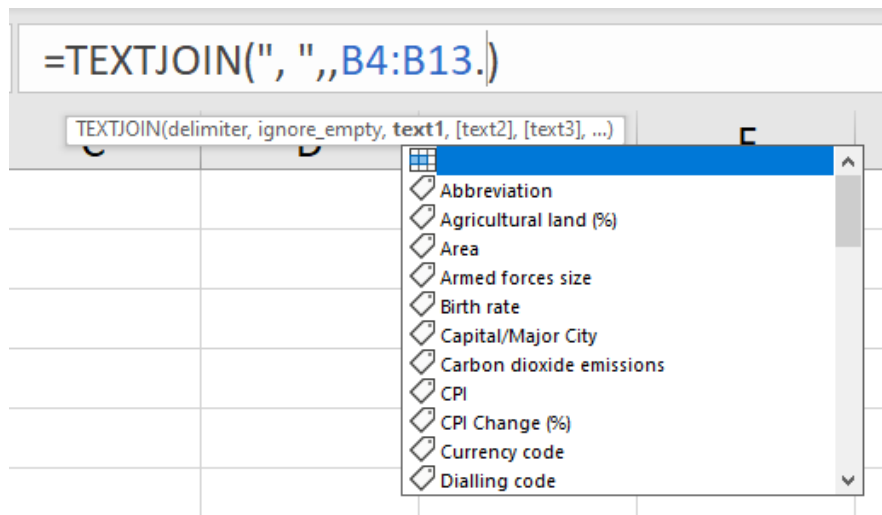
You can see a whole new world opens up. For example:

=TEXTJOIN(", ",,B4:B13.[Carbon dioxide emissions])

	A	B	C	D	E	F	G	H	I	J	K	L
1												
2												
3		Country										
4		📖Australia										
5		📖Brazil										
6		📖China										
7		📖France										
8		📖Germany										
9		📖Hungary										
10		📖Japan										
11		📖New Zealand										
12		📖Tunisia										
13		📖United States										
14												
15		361261.839, 529808.16, 10291926.878, 303275.568, 719883.438, 42086.159, 1214048.358, 34664.151, 28829.954, 5254279.285										
16												
17		*=TEXTJOIN(", ",,B4:B13.[Carbon dioxide emissions])*										

Introducing ARRAYTOTEXT

The concern is though, for some people, this may be a little too much and they may very well just want to convert what they have to a text list. This is where the first of two new – and unannounced – Excel functions comes to the rescue, the first one being **ARRAYTOTEXT**:

=ARRAYTOTEXT(B4:B13)

	A	B	C	D	E	F	G	H	I
1									
2									
3		Country							
4		📖Australia							
5		📖Brazil							
6		📖China							
7		📖France							
8		📖Germany							
9		📖Hungary							
10		📖Japan							
11		📖New Zealand							
12		📖Tunisia							
13		📖United States							
14									
15		Australia, Brazil, China, France, Germany, Hungary, Japan, New Zealand, Tunisia, United States							
16									
17		*=ARRAYTOTEXT(B4:B13)*							
18									

Notice that you neither need to supply the name field explicitly nor the delimiter. In its simplest form, it tries to keep things simple. **ARRAYTOTEXT** follows your locale (regional setting) convention, so, here in Australia, we use a comma as a list delimiter, but this will not always be the case.

ARRAYTOTEXT has two arguments:

ARRAYTOTEXT(array, [format])

The arguments are as follows:

- **array** is a required argument and represents the **array** that needs to be listed. This means the range may have more than one row and / or more than one column:

	A	B	C
1			
2			
3		Country	
4		📖Australia	📖China
5		📖Brazil	📖France
6			
7		Australia, China, Brazil, France	
8			
9		*=ARRAYTOTEXT(B4:C5)*	
10			

Note that the array is listed like reading a book in English – left to right, then down the page. This is different to how INDEX works for example

- **format** is an optional argument. This has two options:

Format	Description
0 [default]	**Concise:** list is presented in an easy to read format
1	**Strict:** list is presented in a strict array format

Here is the same example using the 'Strict' format:

	A	B	C	D
1				
2				
3		Country		
4		📖Australia	📖China	
5		📖Brazil	📖France	
6				
7		{"Australia","China";"Brazil","France"}		
8				
9		*=ARRAYTOTEXT(B4:C5,1)*		
10				

Here, each column is separated by a comma and each column by a semi-colon. The text is also shown contained with quotation marks (double inverted commas).

Unlike the **TEXTJOIN** function, it cannot suppress blanks:

	A	B	C	D	E
1					
2					
3		Country			
4		📖Australia			
5		📖Brazil			
6					
7					
8					
9					
10					
11					
12		📖Tunisia			
13		📖United States			
14					
15		Australia, Brazil, , , , , , , Tunisia, United States			
16					
17		*=ARRAYTOTEXT(B4:B13,0)*			
18					

Having said that, **TEXTJOIN** has its own problems with blanks and Geography or Stock Data Types:

	A	B	C	D
1				
2				
3		Country		
4		📖Australia		
5		📖Brazil		
6				
7				
8				
9				
10				
11				
12		📖Tunisia		
13		📖United States		
14				
15		#FIELD!		
16				
17		*=TEXTJOIN(", ",,B4:B13.Name)*		
18				

This generates the *#FIELD!* error, which denotes that you have tried to retrieve data from a non-existent Data Type field (please see here for more details).

It's not just blank ranges that can cause this. With the May release of Power BI Desktop, you can now curate featured tables to be referenced in Excel (Insider or Beta build). This can help you easily link your Excel sheets with authoritative enterprise data.

In Excel's data types gallery, you will be able to find data from featured tables in Power BI datasets. For example, you can feature data on Customers, Product and Suppliers:
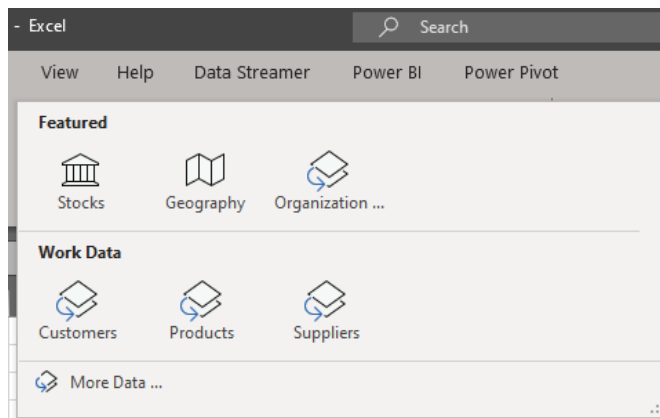
Additionally, by using Power BI's certified and promoted datasets capabilities, you can enable members of your organisation to find and use relevant / refreshable data to assist in decision-making.

For example, the 'Let's Stop N Shop' cell (below) is linked to curated, organisational data from Power BI, so you can find the contact information for the owner of the store right within your spreadsheet, *viz.*
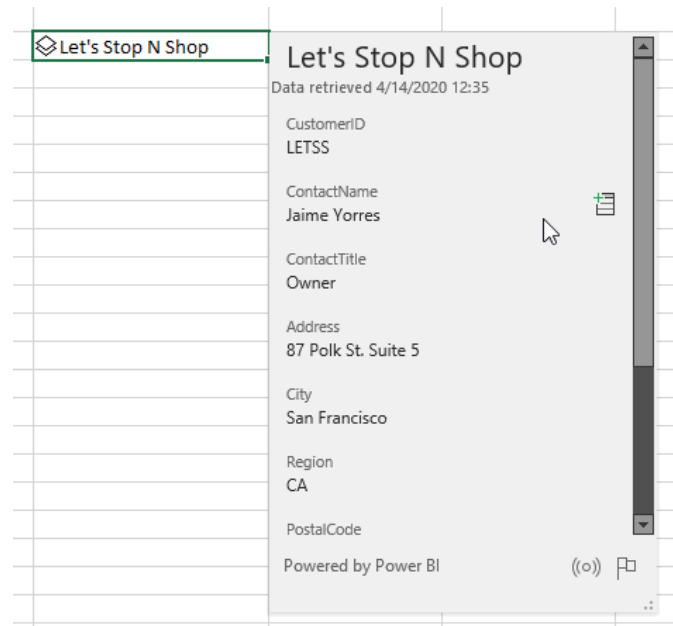
This way you may generate "Power BI Data Types". In the example below, Human is a Power BI Data Type that has no name field:
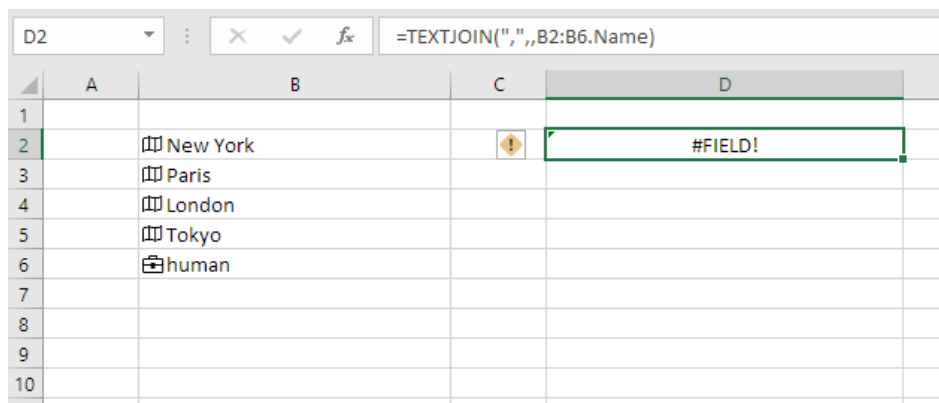
The problem with **TEXTJOIN** persists. There are other problems too: the **TEXTJOIN** formula does not consider the end user's locale preferences, for instance.

And There's More: VALUETOTEXT

ARRAYTOTEXT is not the only new, "unintroduced" function. Ladies and gentlemen, may I also present to you **VALUETOTEXT**. This may be seen as a "building block" because it allows you to access the individual text fields returned in **ARRAYTOTEXT** and then use them in other ways.

VALUETOTEXT also has two – hopefully familiar – arguments:

VALUETOTEXT(value, [format])

The arguments are as follows:

- **value** is a required argument and represents a single **value** you wish to convert to text. This is why this function is considered a "building block" for **ARRAYTOTEXT**

- **format** is an optional argument. This has two options:

Format	Description
0 [default]	**Concise:** list is presented in an easy to read format
1	**Strict:** list is presented in a strict array format

In its most basic form, **VALUETOTEXT** converts a value to text:

	A	B	C	D	E
1					
2					
3		Country			
4		🗺Australia			
5					
6					
7		Australia		*=VALUETOTEXT(B4)*	
8					
9		"Australia"		*=VALUETOTEXT(B4,1)*	
10					

From this illustration, you may think **TEXT(,"General")** and **VALUETOTEXT** are interchangeable. However, they differ in several ways:

- **TEXT** may be used to change a value to numerous different formats, *e.g.* "mmm yy" or "$#,##0". This is not the case with **VALUETOTEXT**

- **TEXT(,"General")** will currently produce an *#VALUE!* error when used with the Stocks and Geography Data Types. **VALUETOTEXT** has no such issues

- **VALUETOTEXT** supports additional encodings and may be expanded in the future (*i.e.* it is "future-proofed")

- **VALUETOTEXT** is locale friendly.

As a final, more contrived here is how **VALUETOTEXT** might be used as a building block. Imagine you wanted to put **AND** rather than a comma between items in a list. You could use

=TEXTJOIN(" and ",,VALUETOTEXT(B4:C5))

	A	B	C	D
1				
2				
3		Country		
4		🗺Australia	🗺China	
5		🗺Brazil	🗺France	
6				
7		Australia and China and Brazil and France		
8				
9		*=TEXTJOIN(" and ",,VALUETOTEXT(B4:C5))*		
10				

English teachers with a nervous disposition should look away at this point.

Dynamic arrays allow you to enter this formula without the need for **CTRL + SHIFT + ENTER**.

These two new functions may not appear to represent the most exciting Excel announcement of recent times, but I cannot help thinking these are necessary stepping stones to something greater.

With no announcement supporting these functions (yet!), it's not clear as to the availability of these functions. Our best guess is they are probably being flighted only in Microsoft 365 Beta Channel, but perhaps only to a percentage of Excel Insiders (*i.e.* not everyone in this channel will have it).

I'd keep watching this space for more details…

Excel Virtually Global Over and Out

It's over! 55 hours; 57 sessions; 64 presenters; 712 attendees.

Tuesday 21 to Thursday 23 July was officially Crazy Time here at SumProduct Central. With two of the first four sessions not going ahead due to technical issues (apologies to Bob Umlas and Jon Peltier), attendees might have been forgiven that the event might be headed for significant problems. However, running around like proverbial headless chickens, our staff ensured that these were the last and only major issues of the entire two-and-a-bit-day virtual conference.

We are still receiving feedback, but overall it seemed to be a great success. From auditing spreadsheets to zeroing in on Power BI, there was something for everyone, of all abilities. And it was all for charity. *Médecins Sans Frontières – Doctors Without Borders and Cancer Research* will both benefit from the proceeds.

On behalf of SumProduct, we just wanted to express our sincerest appreciation and gratitude for everyone's hard efforts (co-organisers, presenters and attendees) in getting this event off the ground. Thank you to you all for making it the event that it was!

Now, who said, when is it on next..?
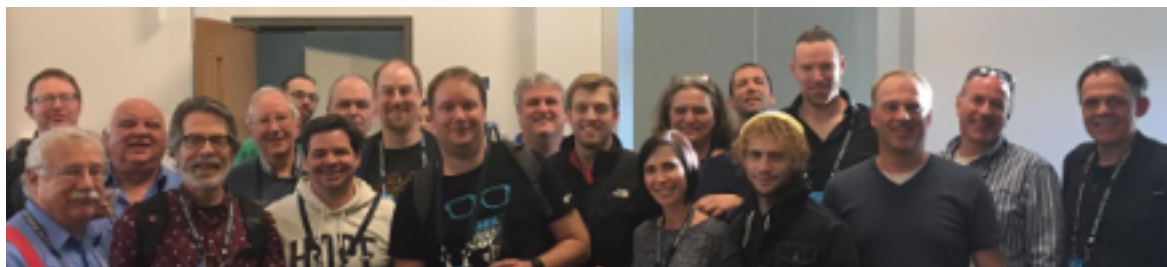
Not everyone pictured here presented, but you get the idea!

Making Money in Excel : More Details

Yes, we've mentioned this before – but now we have more information!

As financial modellers, we sometimes forget that for many of our community managing personal finances can be a tad daunting. Microsoft has noticed that millions of people use Excel to track their budgets, manually updating a budget spreadsheet every month with the latest transactions in an extremely manual and time-consuming manner.

We previously mentioned this back in May. Perhaps neither appropriate nor targeted at the seasoned pro, so many of whom read this newsletter, Money in Excel has now been generally released for Microsoft 365 Personal and Family subscribers – as long as you are in the United States. This Excel add-in is intended to simplify your day-to-day money decisions to help you stay on track of your longer-term financial goals.


For U.S. subscribers only (presently), this add-in allows you to securely connect your bank, credit card, investment and loan accounts to Excel, as well as import your transaction and account information automatically into an Excel spreadsheet.

Once downloaded, the software provides on-screen prompts to connect your financial accounts using a secure third-party plugin supported by *Plaid* (this currently supports most major U.S. financial institutions). Once your account information is verified, the workbook will be updated with your latest transaction history ready for you to use.

Once your financial accounts are connected, Money in Excel will automatically import your transaction information from all your accounts into one workbook. If you click the Update button you'll get the latest snapshot of your transactions and accounts without ever leaving Excel or needing data connectors.

Once your transaction information has been imported into Excel, it's easy to track your spending habits. You may use the '**Snapshot**' sheet to get an instant glimpse of your spending across various categories such as groceries, household items, rent and more. With the built-in graphics, your monthly spending may be summarised in moments. Money in Excel will even alert you to increases in your subscription fees, changes in bank and overdraft charges, or any big purchases that were posted during the month.
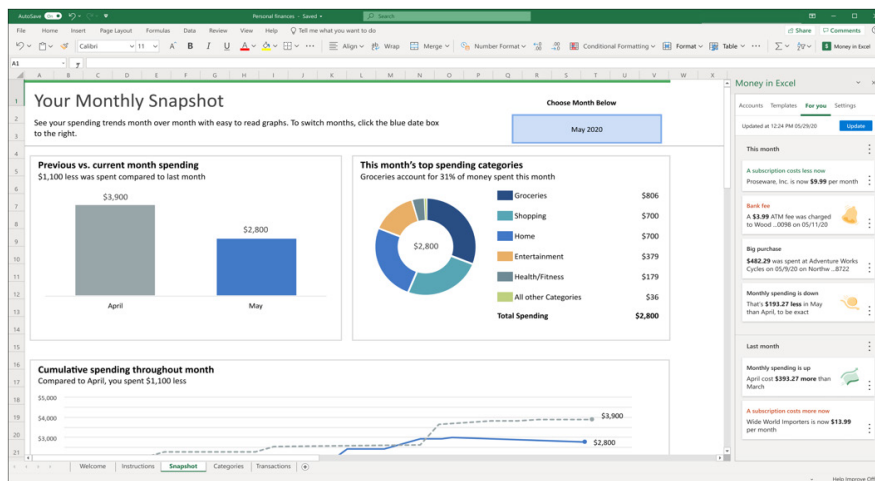
Money in Excel is easily customisable, such as adding your own spend categories, copying data into other Excel worksheets and performing your own calculations. You can always create your own charts and tables too.
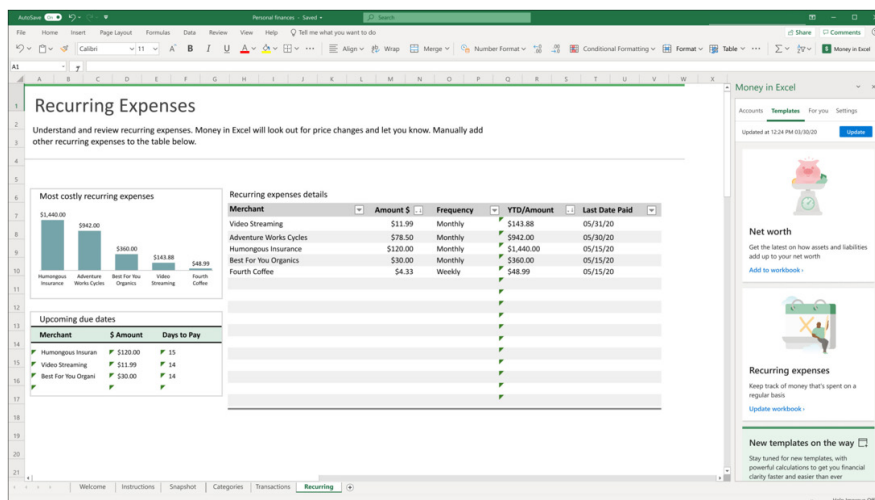
Hopefully, it will be available to other Microsoft 365 users all around the world in due course.

Windows Insider Channels

I know we mainly look at Excel, Power BI and Office products, but for those of us on a Windows Operating System, it is important to stay on top of the way Microsoft releases new Windows builds to us all.

Microsoft has recently announced that they are transitioning and converting their current "ring" model, which is based upon the frequency of builds, to a new channel model that instead concentrates on the quality of builds and better supports parallel coding efforts.

The aim is to make Windows consistent with Office programs, as well as Edge and Teams in the future. The intention is to not only make it clearer for existing Insiders to choose the experience that's right for them, but also for new Insiders to pick the right channel as they join.

It's hard to believe that Microsoft began flighting Windows 10 Insider Preview Builds over five years ago. Back then, Windows Insiders were asked to join one of two rings based upon the frequency of when new builds would be delivered to their device, either "Fast" or "Slow" (plus one):
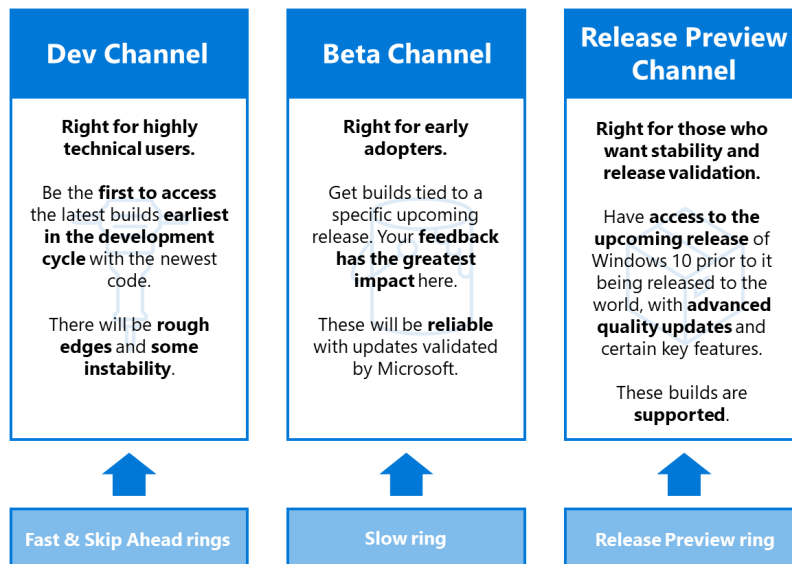
- Insiders who wanted updates the fastest and were comfortable with some rough edges joined the Fast ring
- Insiders who would rather wait for more polished and stable updates joined the Slow ring
- Since early 2016, the Release Preview ring has also been introduced for Insiders who wanted to receive early access to servicing updates on released versions of Windows 10.

Originally, the aim was to flight builds from a single product release. However, as the pace of innovation grew, Microsoft realised the development model had moved on. In the middle of 2019, Insiders were running builds from three different releases (at various stages in the development cycle):

1. Fast ring being on 20H1
2. Slow ring on 19H2 code
3. Release Preview ring on 19H1 code.

The original ring concept had been superseded. Microsoft realised that as they continued to evolve Windows 10, it was critical that Insiders had a flighting option tailored to their needs. Therefore, the focus has shifted from frequency to quality. Insiders may now select a channel that represents the experience they want for their device based upon the quality they are most comfortable with. The frequency of updates will remain unchanged no matter which channel is chosen.

In late June, the Fast ring will become the Dev Channel, the Slow ring will become the Beta Channel, and the Release Preview ring will become the Release Preview Channel.

Dev Channel	Beta Channel	Release Preview Channel
Right for highly technical users.	**Right for early adopters.**	**Right for those who want stability and release validation.**
Be the **first to access** the latest builds **earliest in the development cycle** with the newest code.	Get builds tied to a specific upcoming release. Your **feedback has the greatest impact** here.	Have **access to the upcoming release** of Windows 10 prior to it being released to the world, with **advanced quality updates** and certain key features.
There will be **rough edges** and **some instability**.	These will be **reliable** with updates validated by Microsoft.	These builds are **supported**.
⬆	⬆	⬆
Fast & Skip Ahead rings	**Slow ring**	**Release Preview ring**

- **Dev Channel:** this is intended to be ideal for highly technical users. Insiders in the Dev Channel will receive builds that is earliest in a development cycle and will contain the latest work-in-progress code from our engineers. These builds will have rough edges and some instability that could block key activities or require workarounds.

   These builds will not be matched to a specific Windows 10 release. New features and OS improvements in this channel will show up in future Windows 10 releases when they are ready. They may be delivered as full OS build updates or servicing releases. Insider feedback here will help Microsoft's engineers with major fixes and changes to the latest code

- **Beta Channel:** this is intended to be ideal for early adopters. Insiders and IT professionals in the Beta Channel will be able to check out upcoming Windows 10 features, whilst still receiving relatively reliable updates.

As a part of the Beta Channel, Insiders will see builds that will be tied to a specific upcoming release, like 20H1 previously. Feedback will still be of great importance here, since it will help Microsoft identify key issues and fix them before a major release

- **Release Preview Channel:** Insiders and IT professionals in the Release Preview Channel will have access to the upcoming release of Windows 10 prior to it being released to the world, with advanced quality updates and certain key features. These builds will be fully supported by Microsoft. The Release Preview Channel is the one recommended by Microsoft for companies seeking to preview and validate upcoming Windows 10 releases before broad deployment within their organisation.

As the new concept rolls out, Microsoft has stated it reserves the right to rename, reclassify or add new channels as it sees fit.

These new channels are intended to align with Office, where new channel names were recently announced. Now, those on the Insider programme may make a choice as to which experience they want and have it mean the same thing between Windows and Office. It should be noted that Insiders still need to opt into each Insider Program separately, but this may change in the future.

	Windows	Office
Right for highly technical users and developers. Be the first to access the latest builds earliest in the development cycle with the newest code. There will be rough edges and some instability.	**Dev Channel**	N/A
Right for early adopters and IT Pros who want more reliable builds that are still in development. See what's coming up next and help validate new features.	**Beta Channel**	**Beta Channel**
Right for those who want early access to upcoming releases. Where companies preview and validate upcoming releases before broad deployment. These are supported.	**Release Preview Channel**	**Current or Semi-Annual Preview Channel**

For Windows Insiders, the move to channels will be easy. If your device is currently flighting, Microsoft will automatically move your devices based on your current ring to the new channel that best corresponds with that experience. No action is required.

If you are not yet flighting, it is something you can always consider. **Simply go to Settings -> Update & Security -> Windows Insider Program** and choose the most appropriate channel / experience.

Beat the Boredom Challenge

With many of us currently "working from home" / quarantined, there are only so Zoom / Teams calls you can make before you reach your data limit. Perhaps they should measure data allowance in mugs of coffee. To try and k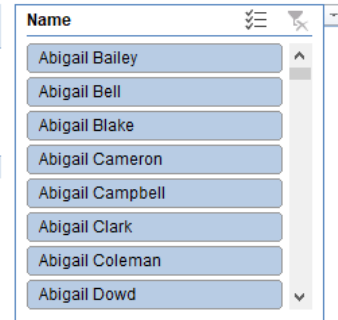eep our readers engaged, we will continue to reproduce some of our popular **Final Friday Fix** challenges from yesteryear in this and upcoming newsletters. One suggested solution may be found later in this newsletter. Here's this month's…

First appearing in Excel 2013, slicers are a visual filter that can be used to interact with PivotTables, PivotCharts or Tables. They are very popular with end users as they are highly intuitive requiring little more than a quick point and click.

The problem is, there's one tiny issue with slicers. They are great for selecting one or more elements to filter, but if there are many items, searching is cumbersome. *There appears to be no search facility.*

Searching with a Slicer

Sum of Sale ($)	Column Labels				
Row Labels	East	North	South	West	Grand Total
Laptop	$ 295,176.74	$ 336,336.44	$ 278,241.70	$ 296,814.70	$ 1,206,569.58
Phone	$ 353,698.91	$ 298,889.02	$ 299,192.54	$ 287,517.37	$ 1,239,297.84
Sofa	$ 301,773.36	$ 319,407.21	$ 296,665.75	$ 310,206.30	$ 1,228,052.62
Stereo	$ 323,455.01	$ 304,966.69	$ 289,063.75	$ 295,584.66	$ 1,213,070.11
TV	$ 235,884.09	$ 289,580.50	$ 295,804.09	$ 306,401.96	$ 1,127,670.64
Grand Total	$ 1,509,988.11	$ 1,549,179.86	$ 1,458,967.83	$ 1,496,524.99	$ 6,014,660.79

Name
- Abigail Bailey
- Abigail Bell
- Abigail Blake
- Abigail Cameron
- Abigail Campbell
- Abigail Clark
- Abigail Coleman
- Abigail Dowd

In the example above, wouldn't it be good if you could search for, say, everyone whose surname was "Smith"?

Searching with a Slicer

Sum of Sale ($)	Column Labels				
Row Labels	East	North	South	West	Grand Total
Laptop	$ 295,176.74	$ 336,336.44	$ 278,241.70	$ 296,814.70	$ 1,206,569.58
Phone	$ 353,698.91	$ 298,889.02	$ 299,192.54	$ 287,517.37	$ 1,239,297.84
Sofa	$ 301,773.36	$ 319,407.21	$ 296,665.75	$ 310,206.30	$ 1,228,052.62
Stereo	$ 323,455.01	$ 304,966.69	$ 289,063.75	$ 295,584.66	$ 1,213,070.11
TV	$ 235,884.09	$ 289,580.50	$ 295,804.09	$ 306,401.96	$ 1,127,670.64
Grand Total	$ 1,509,988.11	$ 1,549,179.86	$ 1,458,967.83	$ 1,496,524.99	$ 6,014,660.79

Name

smith

- ☑ (Select All Search Results)
- ☐ Add current selection to filter
- ☑ Adam Smith
- ☑ Alexandra Smith
- ☑ Amanda Smith
- ☐ Brandon Smith
- ☑ Brian Smith
- ☐ Cameron Smith
- ☑ Diane Smith
- ☑ Frank Smith

☑ Select Multiple Items

OK   Cancel

Sound easy? Try it. One solution may be found later in this newsletter – but no reading ahead!

Visual Basics

We thought we'd run an elementary series going through the rudiments of Visual Basic for Applications (VBA) as a springboard for newer users. This month, we consider your options when you run into errors.
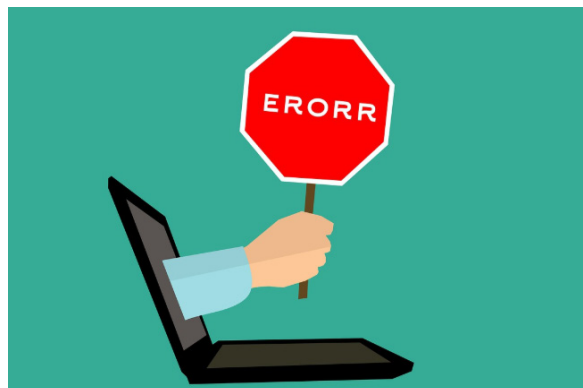
Last time we were here, we talked about a macro you could use to loop through all of the sheets in a file and unhide them and unprotect them. This presents problems when there are passwords that you're not aware of. If this happens, you get a debug error that looks something like this when it keeps trying to run:
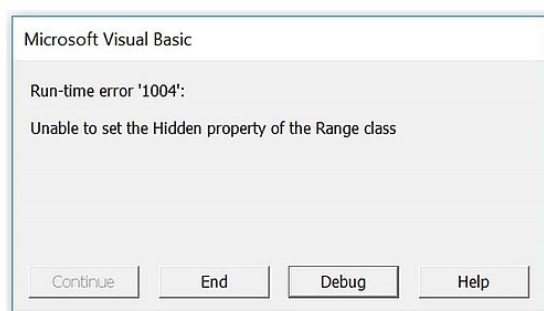
Well, what can we do about it? It depends what do you want it to do, really. Error handling is an important part of VBA because it helps us dictate what you do in these circumstances. Here are some common tools you can use:

`On Error Goto <abc>`

This is generally followed up somewhere else in your code by the text "**<abc>:**". This line tells Excel that it if it runs into an error, it should jump to that section of your code and run the next statement. This is generally how you may jump out of an error that might cause other parts of your code to have problems.

`On Error Goto 0`

It seems a little strange, in the context of the last point, but this line undoes the effect of the previous line and causes errors to stop the code and prompt you for instructions. While this stops your code from running smoothly, it alerts you to problems so that you can address them appropriately.

`On Error Resume Next`

This is a useful but dangerous tool that will ignore any errors and plough on with the next line of code. This should only be used if you expect to have errors occur that will have no follow-up consequences.

Here's how we might use examples of the above to improve our macro code:

```
For Each ws In ActiveWorkbook.Sheets
    ws.Visible = xlSheetVisible
    ws.Activate
    ws.Unprotect
    On Error GoTo NextSheet
    ws.Rows.EntireRow.Hidden = False
    ws.Columns.EntireColumn.Hidden = False
NextSheet:
    On Error GoTo 0
Next ws
```

Now, when a sheet can't be unprotected, it will skip trying to unhide rows and columns, and just move straight onto the next sheet. It's important to note that we have reset the error check so that if another unexpected error occurs, we can ensure that it gets raised just like it should.

More next time.

Power Pivot Principles

We continue our series on the Excel COM add-in, Power Pivot. This month, we look at the ALLEXCEPT function in DAX.

Last month, we discussed the **ALL** function, together with the **CALCULATE** function to sum up values that will not be affected by a filter. Here, we turn the idea on its head with the **ALLEXCEPT** function.

As a refresher, the **ALL** function is often used in conjunction with the **CALCULATE** function, *e.g.*
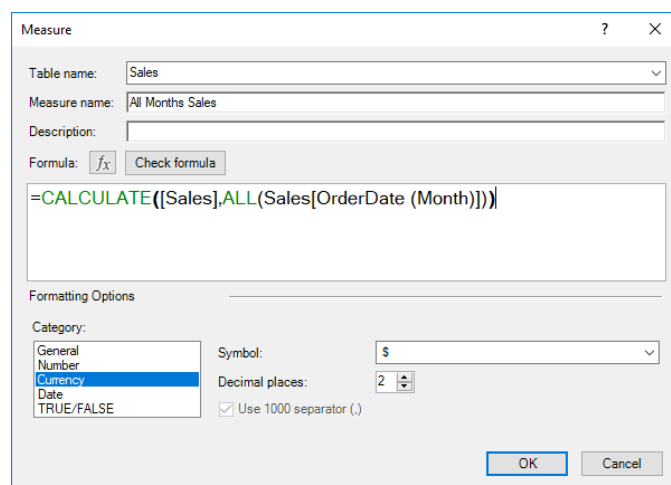
This will result in a column that always sums the total sales of the product category, no matter what filter is applied to this field. If we wish to subject other fields: *e.g.* **ProductKey** and **CustomerKey**, to the **ALL** function we can use a function like this:

<p align="center">=CALCULATE([Sales],ALL(Sales[OrderDate (Month)]),ALL(Sales[ProductKey]),ALL(Sales[CustomerKey])).</p>

It's pretty simple, but the formula may get unnecessarily long quite quickly. This function will ensure that the **OrderDate**, the **ProductKey** and the **CustomerKey** will not be knocked affected by filters on these fields.

But what if we have a table with 30 fields and we don't want 29 of the fields to be knocked off instead of just three? We would have to write up a formula with 29 **ALL** functions!

This is where we can use the **ALLEXCEPT** function. Consider our **Sales** table once more:

	Produc...	Order...	OrderDateKey	DueDateKey	Custome...	Promotio...	SalesTerritor...	SalesOrderNumber
1	87	10-Aug-14 1...	20140810	20140822	103	1	9	SO43966
2	98	17-Aug-14 1...	20140817	20140829	111	1	9	SO43993
3	82	22-Aug-14 1...	20140822	20140903	112	1	9	SO44024

Let's say we don't want to filter any of the fields except for **OrderDate**. We can use the following **CALCULATE** and **ALLEXCEPT** combination:
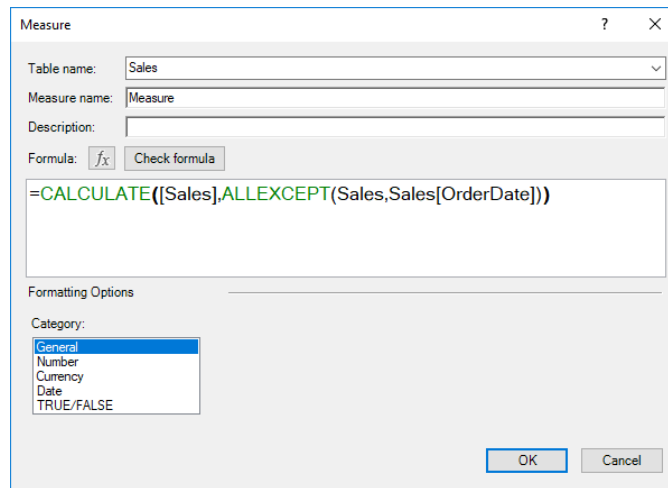
This measure will then allow us to filter all of the other fields, except for the Order Date field in the **Sales** table. Do note the difference in syntax, where the **ALLEXCEPT** function requires us to specify the table first before the field:

<p align="center">ALLEXCEPT(Table, Table[Field])</p>

If you think about it, this makes sense. If we are saying we want to only except certain fields we need to specify the set of fields we are talking about - that is, the <u>table</u>.

More *Power Pivot Principles* next month.

Power Query Pointers

Each month we'll reproduce one of our articles on Power Query (Excel 2010 and 2013) / Get & Transform (Office 365, Excel 2016 and 2019) from www.sumproduct.com/blog. If you wish to read more in the meantime, simply check out our Blog section each Wednesday. This month, we look at the options available to organise queries within a workbook.

When you have spent some time in a particular Excel workbook, transforming and loading data using Power Query, you may find that you have created quite a few different queries. To avoid confusing anyone opening the workbook, whether that is yourself or someone else, there are some techniques you can use. We have already looked at how to get an overview of the connections between queries, but there are other ways you may make it easier to get a quick overview of your queries.
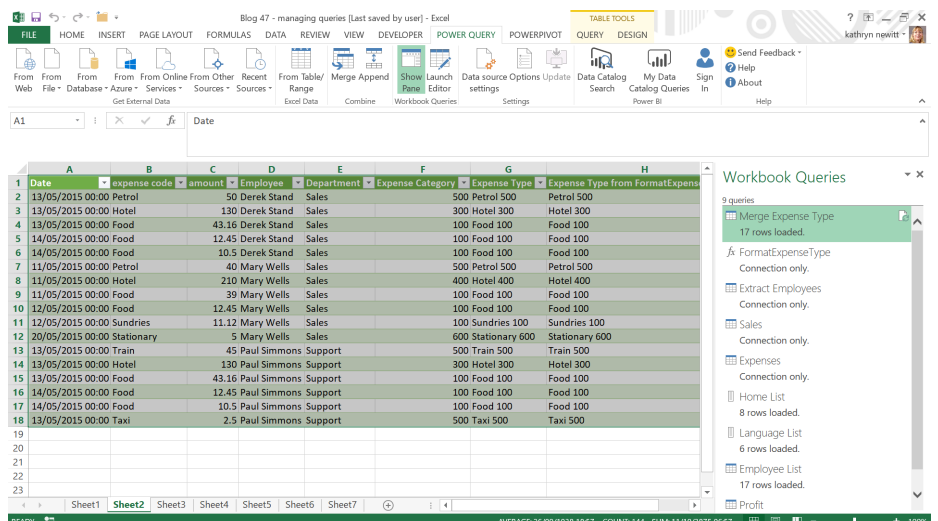
Above, we have a workbook where we have created nine queries – this is obviously a small example, but there is a limit to how much admin anyone wants / needs to see!

The first thing to notice is the 'QUERY' tab within the 'TABLE TOOLS' tab (this is a context specific tab that appears when you click on one or more cells in the loaded table). This only appears when the table has a linked query, and it gives access to a number of options. The 'QUERY' tab will not allow you to access queries that are not linked to your table. For example, if you need to access '**FormatExpenseType**', then you would need to select your query and right click to see the options available.
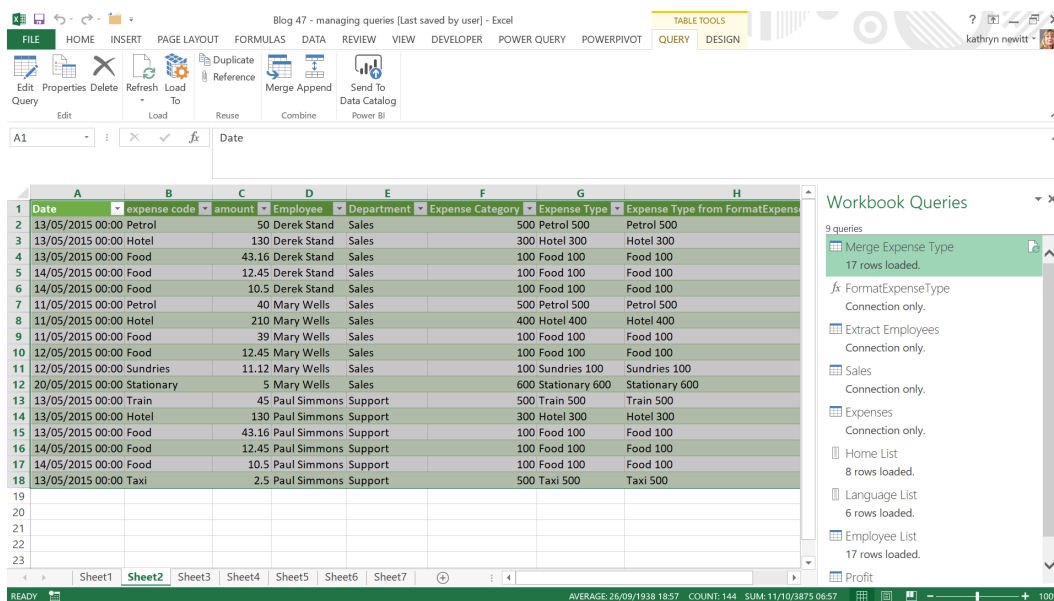
For those queries linked to your table, you have access to the 'QUERY TAB' containing the main query options, which are grouped into 'Edit', 'Load', 'Reuse', 'Combine' and 'Power BI'. For this example, we are interested in how you may make your queries easier to understand and use, so we want to look at the 'Properties' in the 'Edit' section:
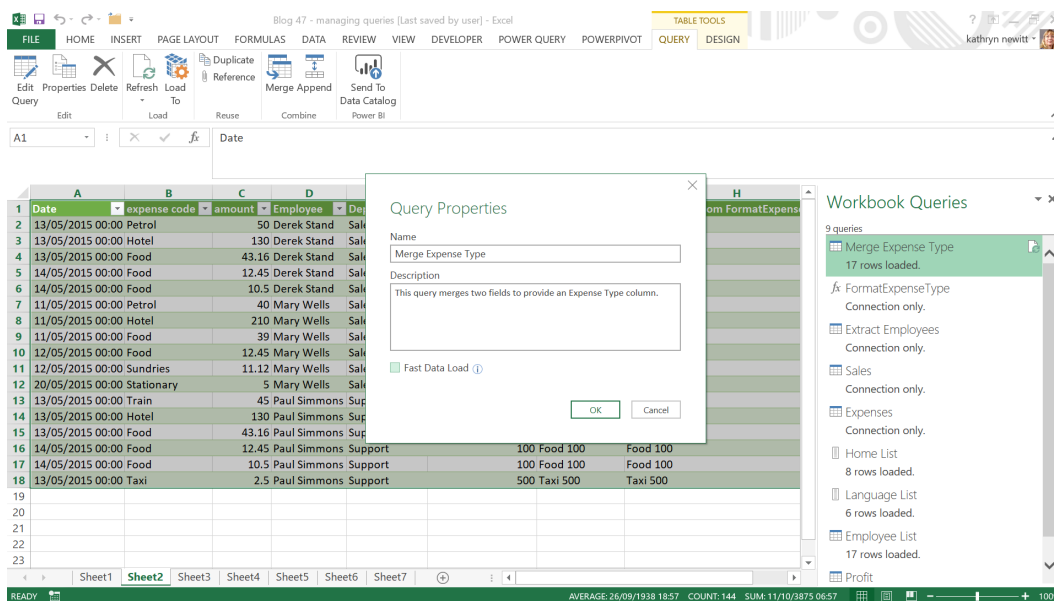
In this dialog, you may describe your query in more detail, and give it a better name if you wish. There is also a little checkbox for 'Fast Data Load' which is worth a look. This is for those queries that are a priority. As Microsoft puts it:

"The default behaviour*(sic)* is "Background Data Load," but now users can instead choose the "Fast Data Load" mode in the Options dialog. When loading a query using the "Fast Data Load" mode, your query will take less time to load, however, Excel may be unresponsive for long periods of time during the upload."

So basically, it depends upon which is more important to you: running your query or continuing with other tasks. We are going to leave the queries in this particular workbook loading as a background task, but it's good to know we have a choice.

Assuming we have given all our queries nice names and detailed descriptions, is there anything else we can do to make life easier? The answer to this can be found in the right-click options on any query:
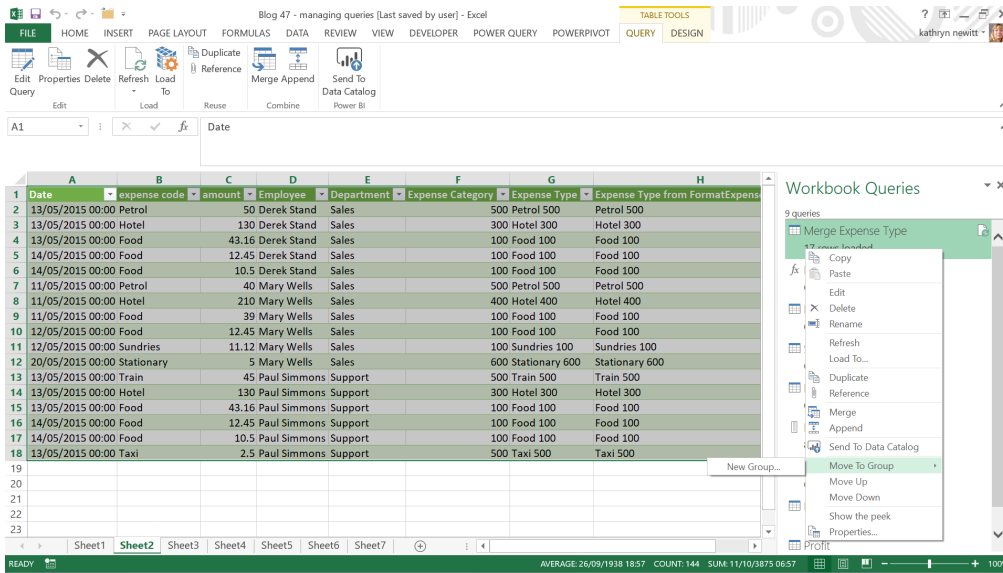
There are a number of options towards the bottom of the list that may help. We can move a query up or down the list, or we may keep our queries in groups, which are essentially folders of queries. As we currently have no groups set up in the workbook, our only option is to create a new one. Therefore, let's put '**Merge Expense Type**' into a new group called '**Expense Type Calculations**'.
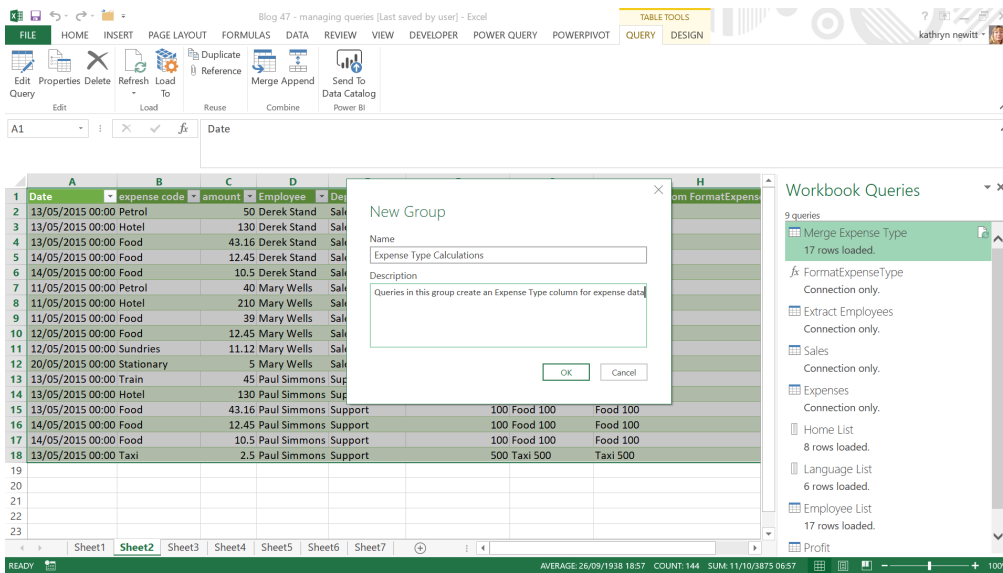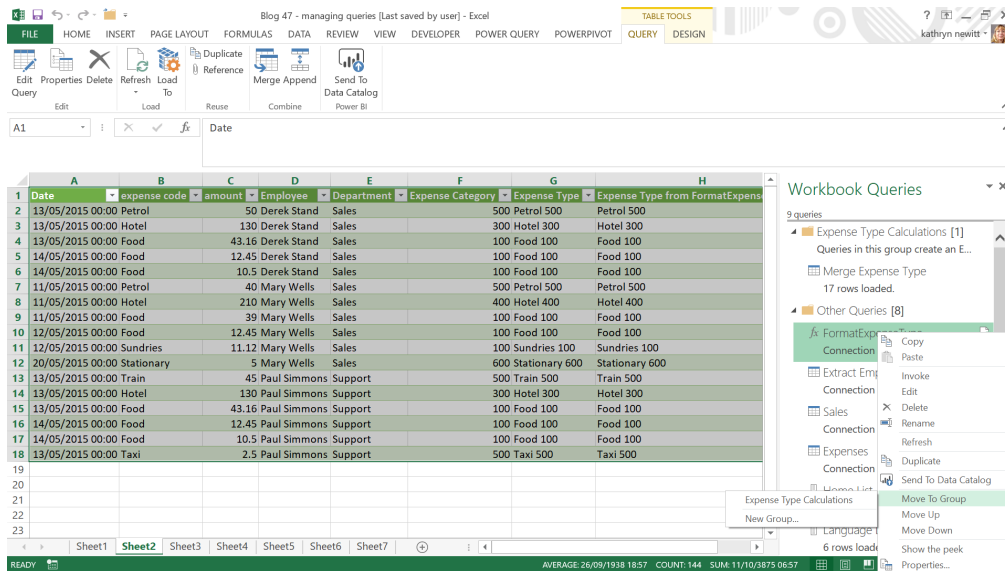

Click 'OK' to create a new group.
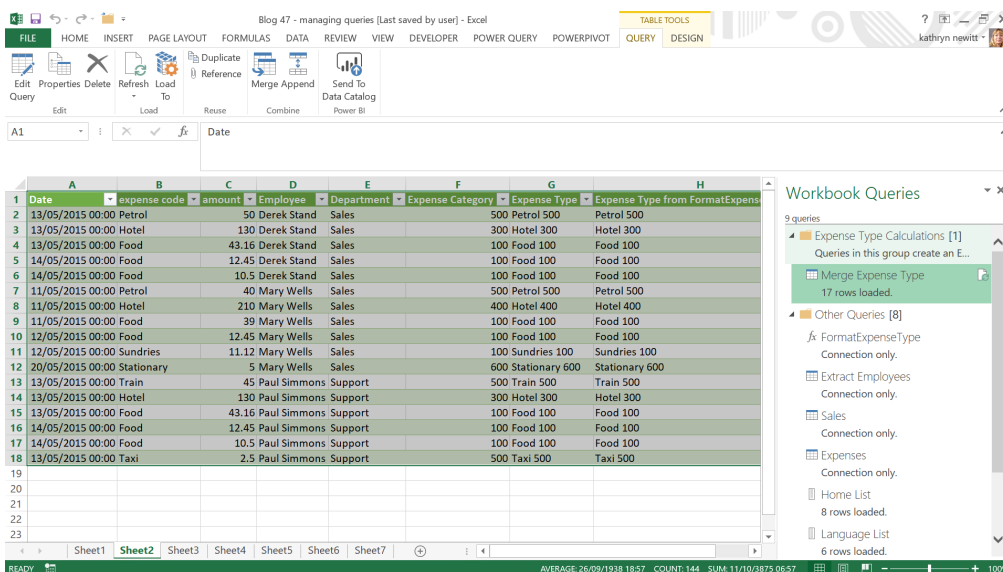
Not only has the '**Merge Expense Type**' been added to our newly created '**Expense Type Calculations**' group, but another group, '**Other Queries**', has been created to house the rest of the queries. Next, we want to add the '**FormatExpenseType**' function to our new group too:

This time the group appears for us to select; we may continue creating groups for the other queries.
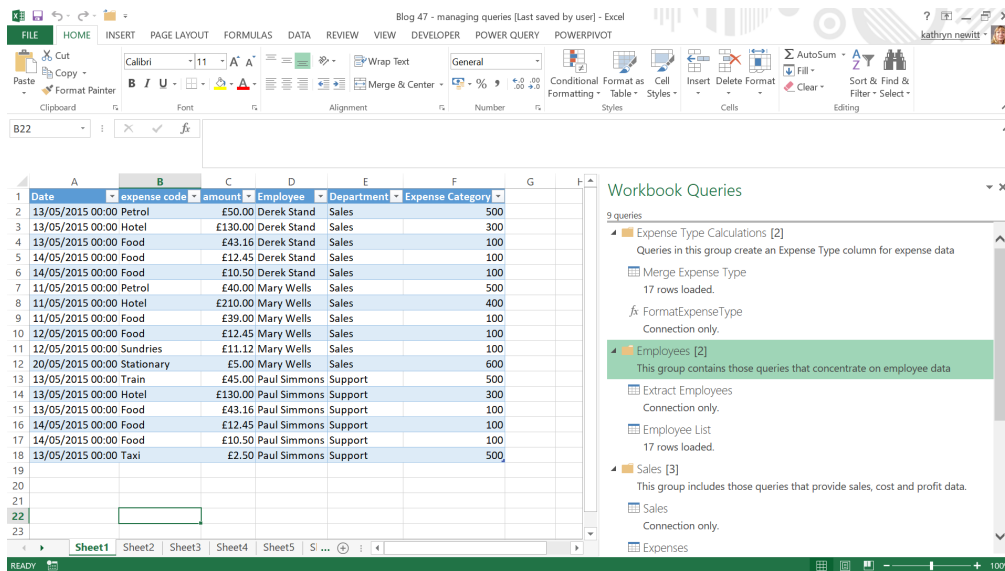
Now all our queries are in groups, and we still have the '**Other Queries**' group for new queries.
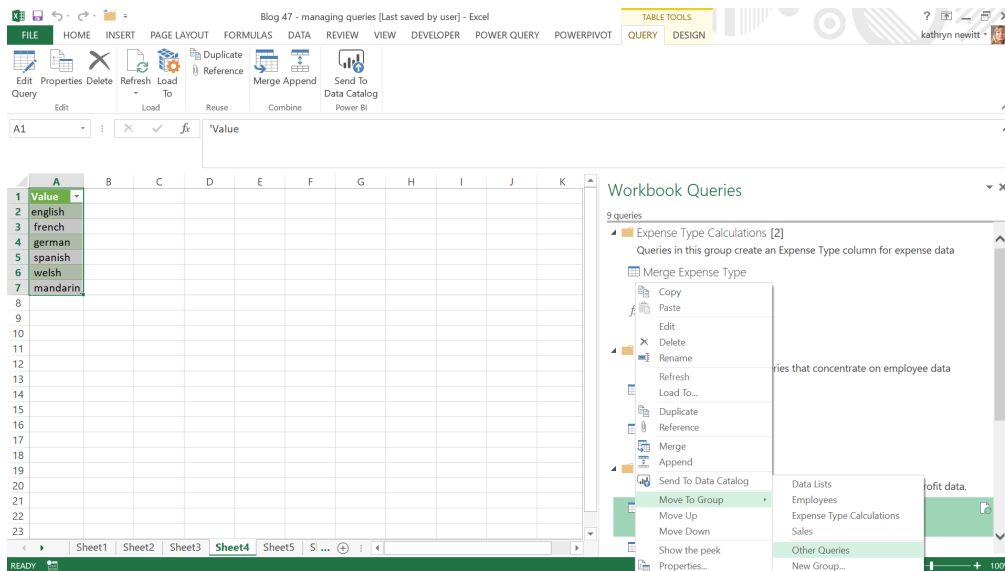
We also have options available when we select a group:
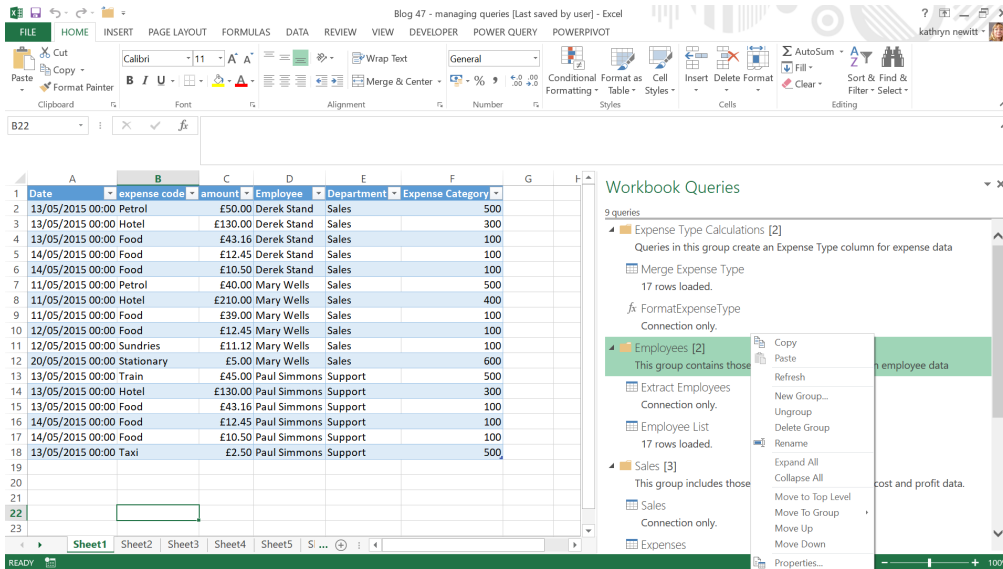
We may add the group to another group, either new or existing, which will create subfolders. To undo this, we can 'Move to Top Level' again. We may also ungroup the queries in the selected group. Just be careful when you delete a group though, as it will also delete any queries in your group!

We may also control the order my groups appear in by moving up or down to alter their position in the queries pane.
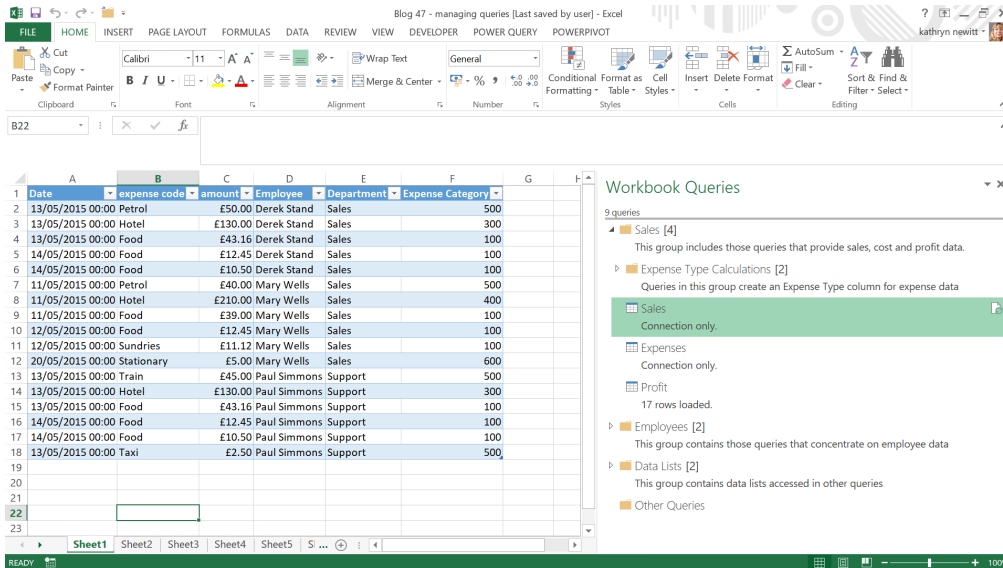
Now my queries are much easier to follow when you come back to this workbook in a few months' time.

More next month!

Power BI Desktop Latest Updates

This month's updates include several enhancements to Q&A, gradient legend support, an ability to further customise slicer header text, the General Availability release for both the relative time filter and Model View enabled for Live Connect, an ability to now launch external tools from Power BI Desktop and more.

Here's the full list of updates:

Reporting

- Gradient legend
- Ability to further customise slicer header text
- Relative time filter is now Generally Available

Analytics

- Enhancements to Q&A:
  - o Field synonyms
  - o Visual renames as suggested synonyms
  - o Orange underlines for ambiguous terms
  - o Updates to Q&A pop-out

Visualisations

- Azure Maps visual (Preview):
  - o Bubble layer
  - o 3D bar chart layer
  - o Reference layer
  - o Custom tile layer
  - o Real-time traffic overlay
- Updates to Multi-Axis Chart by xViz

Modelling

- Support for Excel financial functions
- Model View enabled for Live Connect is now Generally Available

Data Preparation

- Global option to disable automatic type detection

Template Apps

- YouTube Analytics by MAQ Software

Other

- Launch external tools from Power BI Desktop (Preview).

Let's take a look at each in turn.

Gradient legend

You can now include a legend for data colours that have been conditionally formatted by colour scale. This legend is useful for clarifying the meaning of the colours in a visual to report viewers.
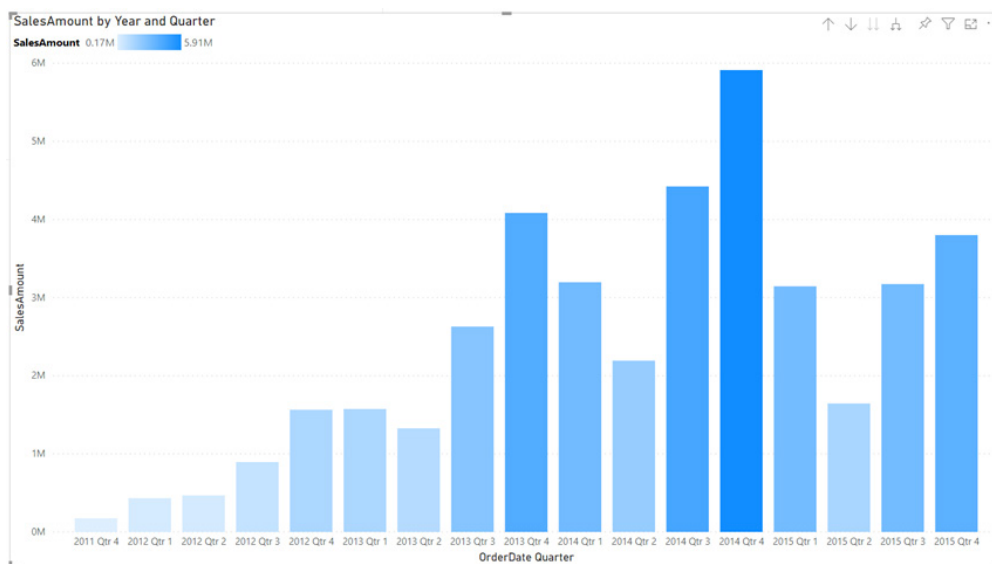
You can find the 'Conditional formatting' dialog in the 'Data colors' card of the Formatting pane.
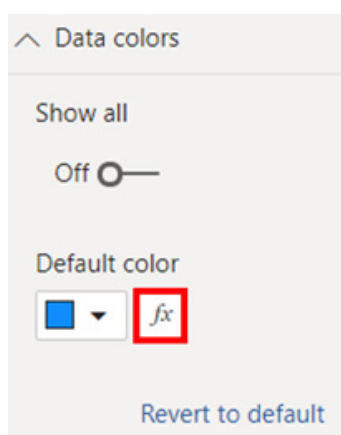
You may use this dialog to set a new rule to format your data along a colour scale:

This will enable the Legend card in the Formatting pane. You may enable the gradient legend by toggling it on, then formatting the legend as required.


Do bear in mind that you cannot both conditionally format your data colours and split your data using the Legend field well. This is because the Legend field well already colours your data by category.

The gradient legend feature is enabled for bar, column, and scatter charts, such as:

- Stacked bar chart
- Stacked column chart
- Clustered bar chart
- Clustered column chart
- 100% stacked bar chart
- 100% stacked column chart
- Scatter chart.

Ability to further customise slicer header text

Last month's update heralded the General Availability of the hierarchical slicer, which included enhancements not just for hierarchy scenarios, but general use cases for slicers themselves. This update adds the ability to further customise the slicer header text.
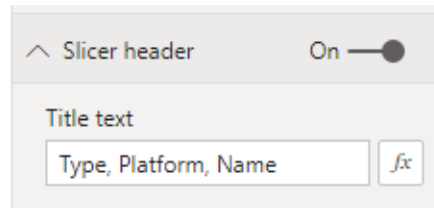

This capability will be mainly beneficial to hierarchical slicer scenarios. For example, let's consider an hierarchical slicer. You may notice that by default the title is based upon the field inputs:
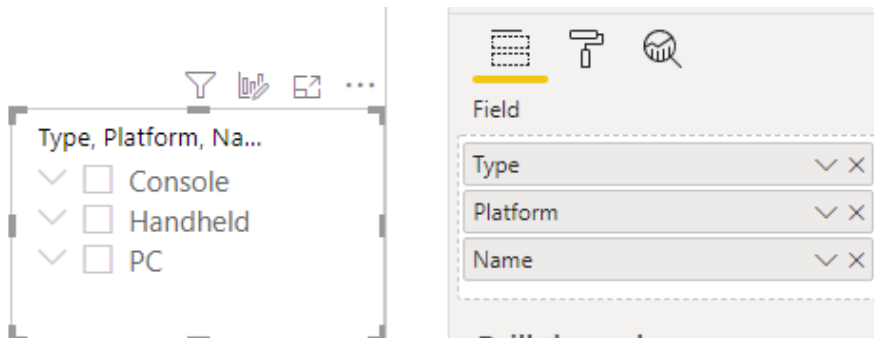
Now, when you navigate to the **Format pane -> Slicer header**, you will see that the Title text of the header may be customised:
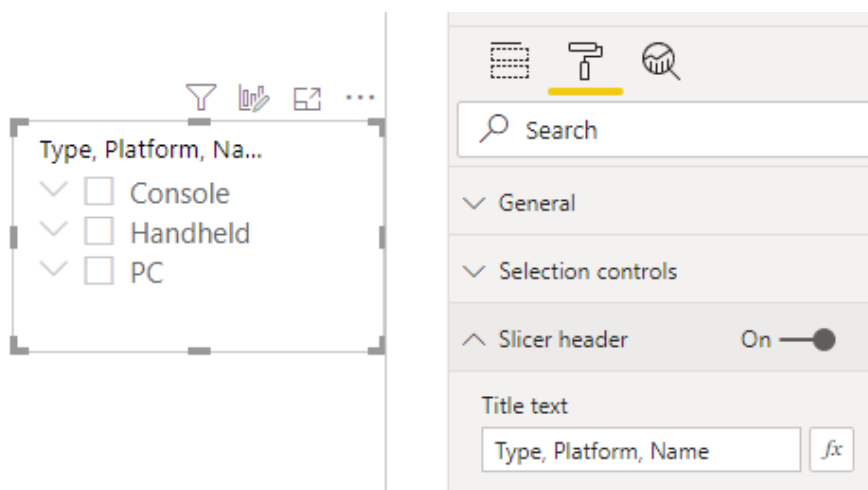

This can be particularly useful when you have several fields in your slicer, and you want to provide a shorter, custom header text (without turning off the slicer header and using visual title setting instead).
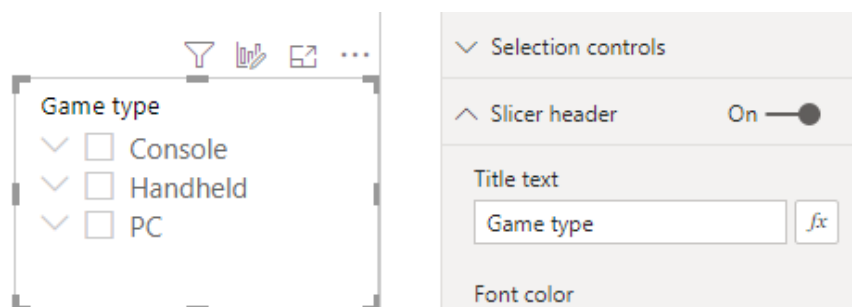
Relative time filter is now Generally Available

Earlier in the year, Microsoft released a public Preview of the relative time filter, which allowed you to filter to a smaller window of time, such as last one hour or last one minute (no jokes, please).
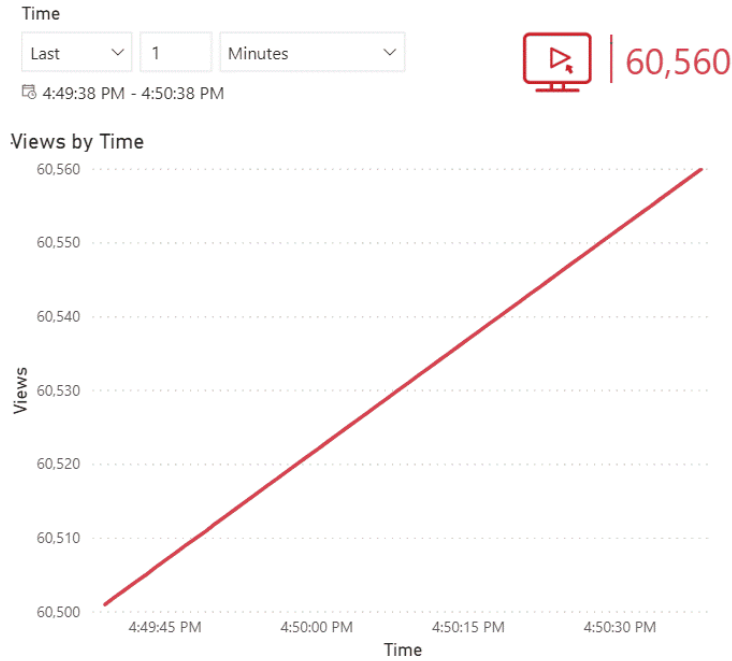
This feature is now Generally Available.

Enhancements to Q&A

There have been several enhancements to Q&A with this update. These include:

- New field synonyms
- Visual renames as suggested synonyms
- Orange underlines for ambiguous terms
- Updates to Q&A pop-out.

FIELD SYNONYMS

Field synonyms are the newest addition to the Q&A setup, where you may manage the synonyms for tables and fields, and include or exclude specific tables and fields from Q&A. The field synonyms section shows a list of all tables in your data model. Turning off 'Include in Q&A' for a table will hide everything in that table from Q&A. When you expand a table, you will see the table name and all the fields with their terms and suggested terms. Q&A prioritises terms over suggested terms, so if you want to keep one of the suggested terms, you can use the plus sign to add it to the list of terms. Next to promoting suggested terms, you may also add new terms, delete or reorder them.
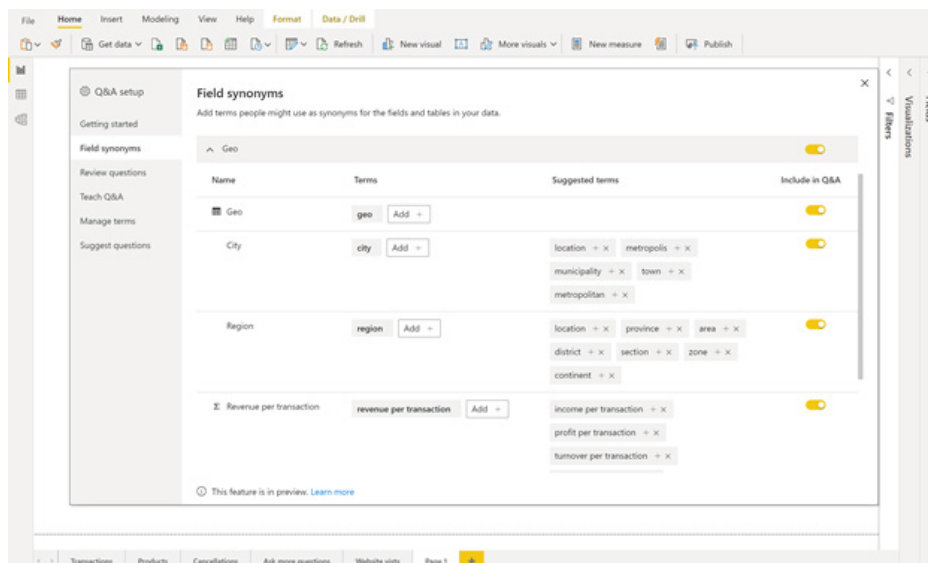
VISUAL RENAMES AS SUGGESTED SYNONYMS

Next to adding common synonyms for field names in the suggested terms, the latest Power BI Desktop update adds field renames from visuals in the report (great English!) to the list of suggested terms. This means that when you change a field name on the axis of a line chart, this will be added as an alternative to the initial field name. For example, changing the field name 'Prod_cat_L2' to '**Product category level 2**' on a chart, will add the latter as a suggested synonym.

ORANGE UNDERLINES FOR AMBIGUOUS TERMS

This update introduces a third type of underline to the Q&A question box. In addition to red double underlines for terms that Q&A doesn't understand and blue underlines for terms that Q&A does understand, you will now also see orange dotted underlines for ambiguous terms. An example of an ambiguous term can be when there are two dates in a table *e.g.* 'purchasing date' and 'delivery date'. When asking Q&A a question related to the last year, it might not be clear whether you mean the last year for purchasing or delivery date, in this instance. The new underline formatting helps distinguish this ambiguity so you may adjust your question if needed.
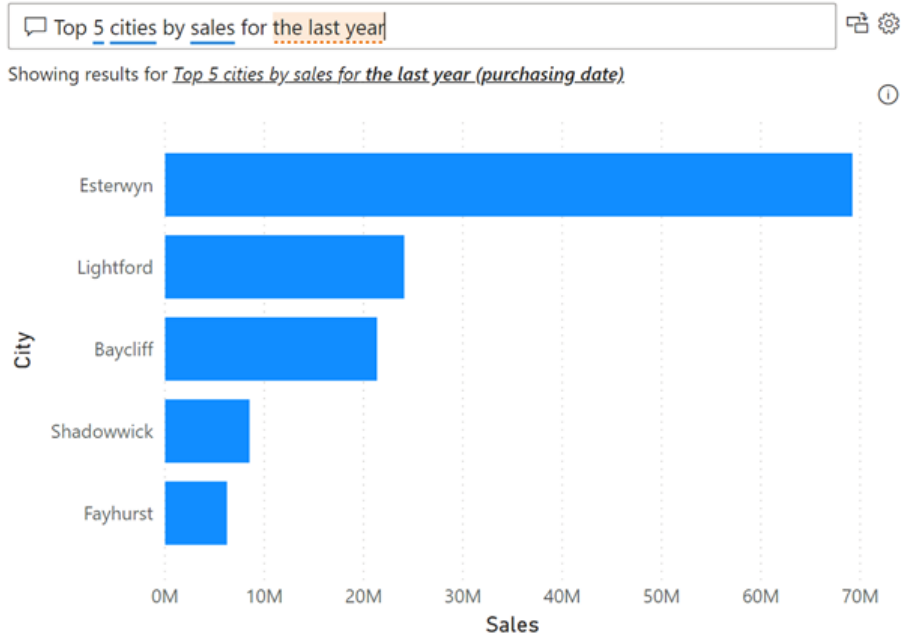
UPDATES TO Q&A POP-OUT

The Q&A pop-out has also been modified. When adding a Q&A button to a report, you will now see the pop-out aligns with the Q&A visual. It also contains any suggested questions you have defined in Q&A setup. Questions that have been saved to existing Q&A buttons will be consolidated under the suggested questions section in Q&A setup.
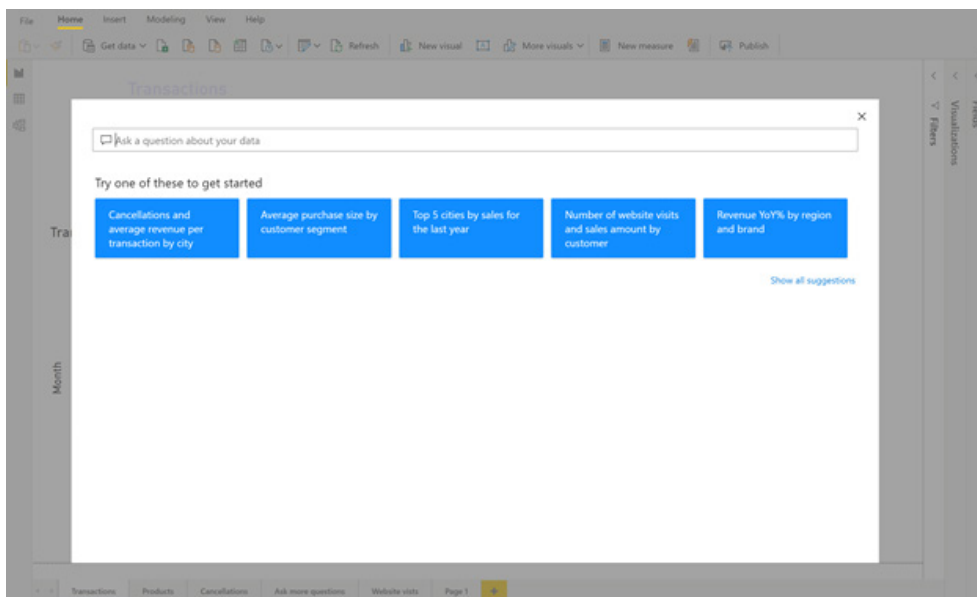
Azure Maps visual (Preview)

The Azure Maps visual for Power BI is now available for public Preview and includes the following visualisation layers:

- Bubble layer
- 3D bar chart layer
- Reference layer
- Custom tile layer
- Real-time traffic overlay.

In addition to these visualisation layers, this visual also leverages built-in Power BI features such as tooltips, colour themes and filter / slicer support.

BUBBLE LAYER

Bubble layers represent location data as scaled circles on the Azure map visual. You may use a linear scaling method or customise the scaling logic, using a logarithmic or Cubic-Bezier curve (whatever that is). Additionally, users may pass a value into the legend field and have the fill colour of the circles dynamically set. You may also outline the circles with a single colour or enable the high contrast outline option to have a high contrast variant of the fill colour assigned to the circle, to help ensure the circles are clearly visible regardless of which style the map is selected. This allows you to easily visualise two metrics for each location on the map, namely scale and category.

For example, the following image shows bicycle accident locations in North Carolina (US). The colour indicates the speed limit of the road the accident occurred on and the size is based on the number of individuals involved in the accident. We might get gory pictures next.
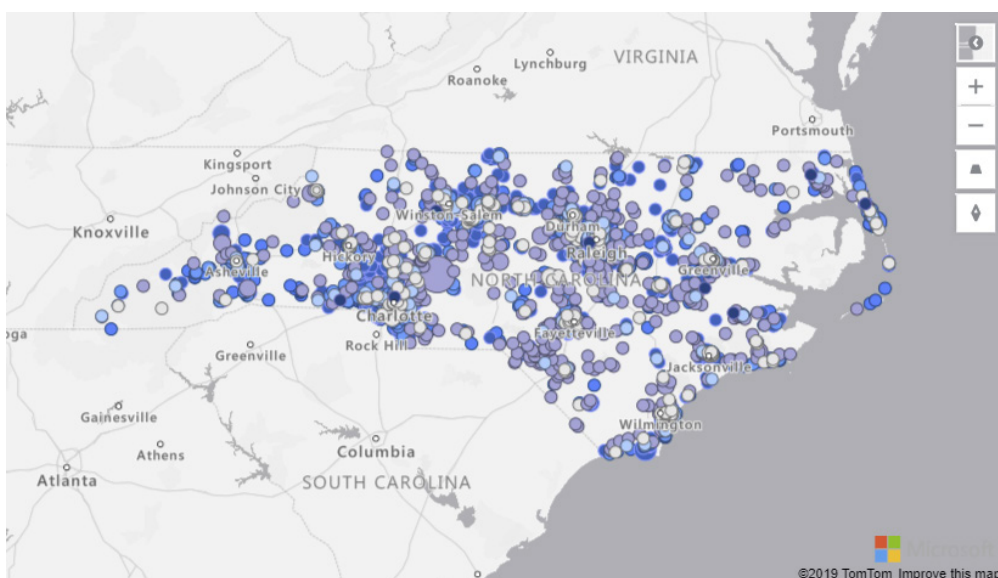
3D BAR CHART LAYER

3D bar charts are useful for allowing visualisation of location data as either 3D bars or cylinders on the map. You may tilt and rotate the map by holding down the right mouse button and dragging or use one of the navigation controls to view your data from different perspectives.

Like the bubble layer, the bar chart layer can easily depict two metrics at the same time using colour and relative height. The following map displays store locations with bar heights representing the revenue generated from each location, coloured by sales region:
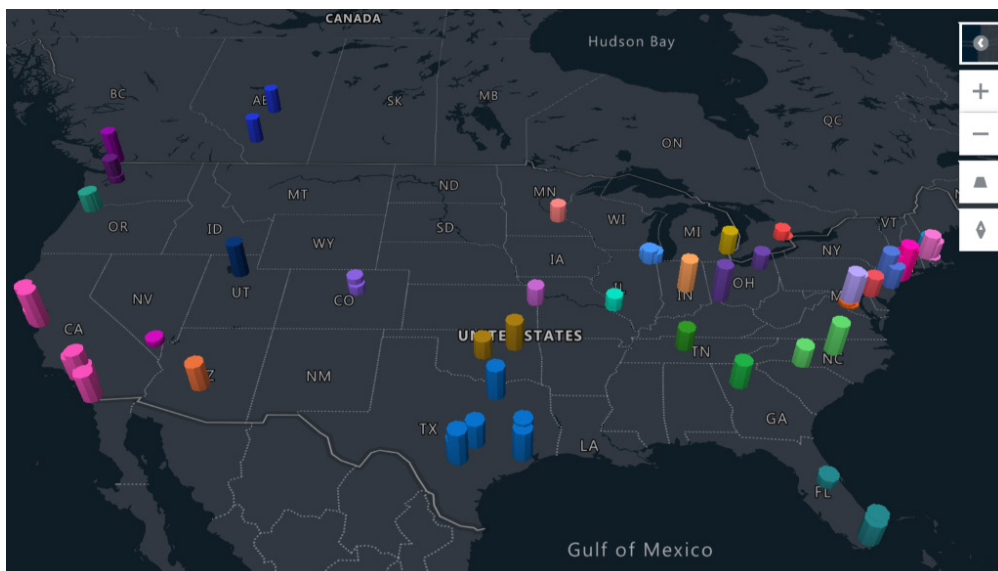
REFERENCE LAYER

Power BI currently allows a single data set to be connected to a visual. However, when working with maps, it's often desirable to be able to overlay additional data layers to add more context to a report. With this feature, a GeoJSON file containing custom location data may be uploaded and overlaid on the map. Properties in the GeoJSON file can be used to customise the style of the shapes.
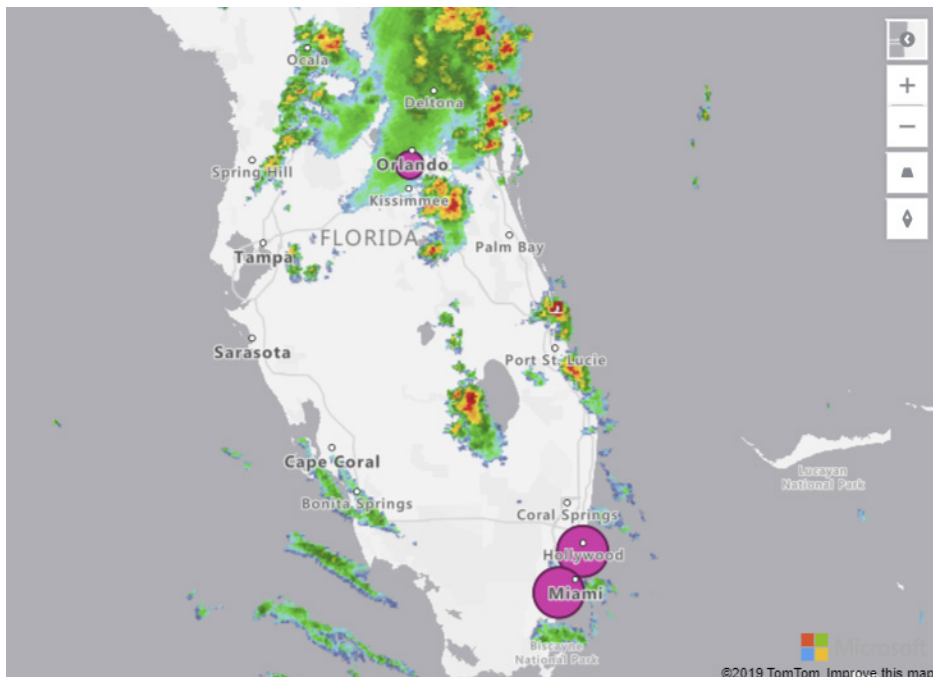
For example, the following map image adds a GeoJSON file of census tract boundaries coloured by population below a layer of addresses, coloured by real estate value. This then provides insights on how population density is related to property values:
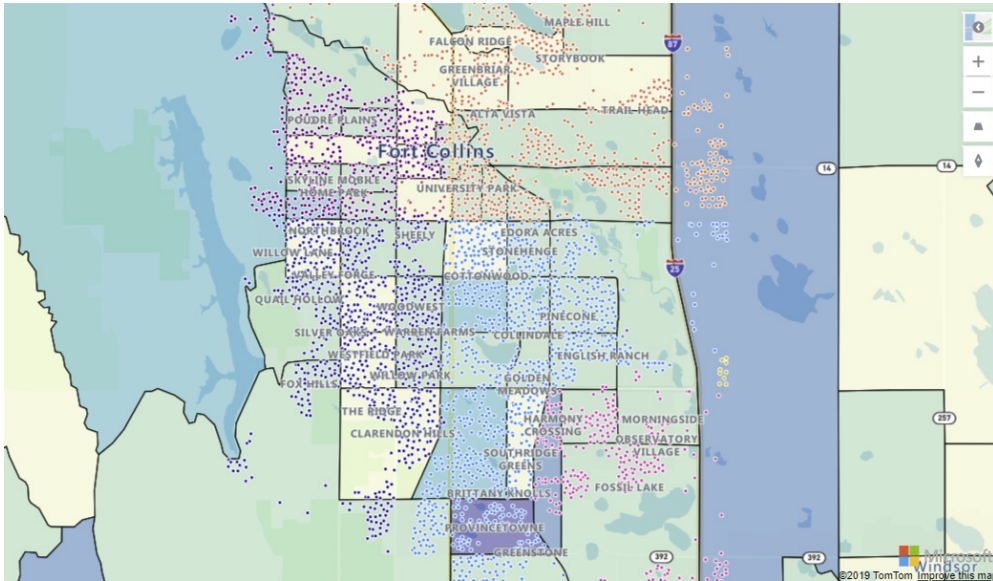
CUSTOM TILE LAYER

You may overlay a custom tile layer on the map to add an additional layer of context. Tile layers allow you to superimpose images on top of Azure Maps base map tiles. For example, you may overlay weather data from the Azure Maps weather services or bring your own tile service.

The following map displays a bubble layer of sales data of store selling sunglasses above a tile layer, showing current weather radar from Azure Maps. In this case, you can easily see that fewer sales of sunglasses are occurring where there is rain.

REAL-TIME TRAFFIC OVERLAY

Here is a very practical one. You may overlay real-time traffic flow data to see how traffic congestion relates to your data. For example, the following map is showing the position of field technicians rendered as a bubble layer on the map, coloured by their experience level. This has been scaled by the amount of remaining time on their current job. Real-time traffic is overlaid on the map and provides a quick visual reference of which technicians are most likely to be delayed getting to their next job due to traffic congestion.
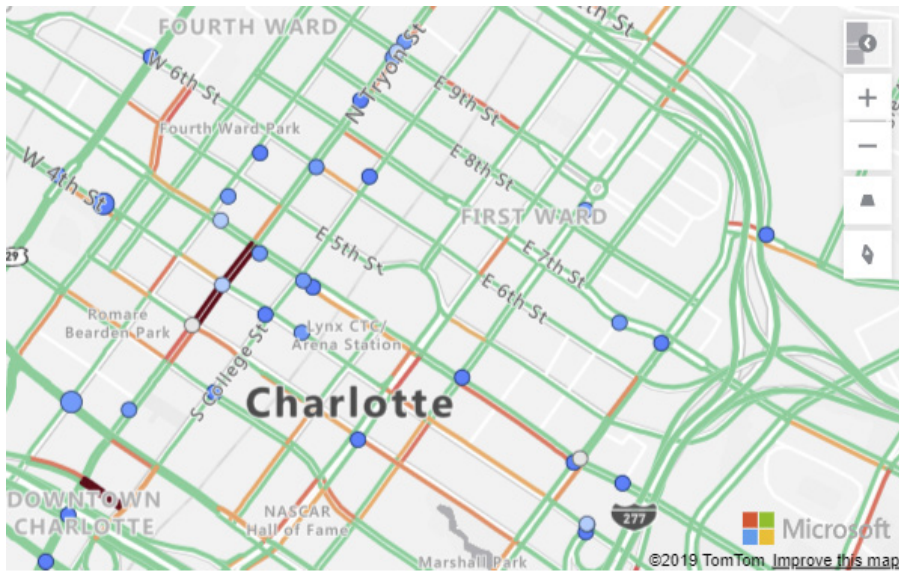
Updates to Multi-Axis Chart by xViz

xViz has released a new version (1.1.5) of the Multi-Axis Chart with new features, including annotations for storytelling, external URL linking, advanced data label and axis customisations. It supports 20+ chart options, covering single series, multiple series, combo charts, dual axis, grouped charts, multiple axes and flipped axes charts. There are also stacked chart dedicated enhancements, such as display column totals for Stacked chart and ToolTips for stacked scenario charts. Further, styling options have also been added in this release.
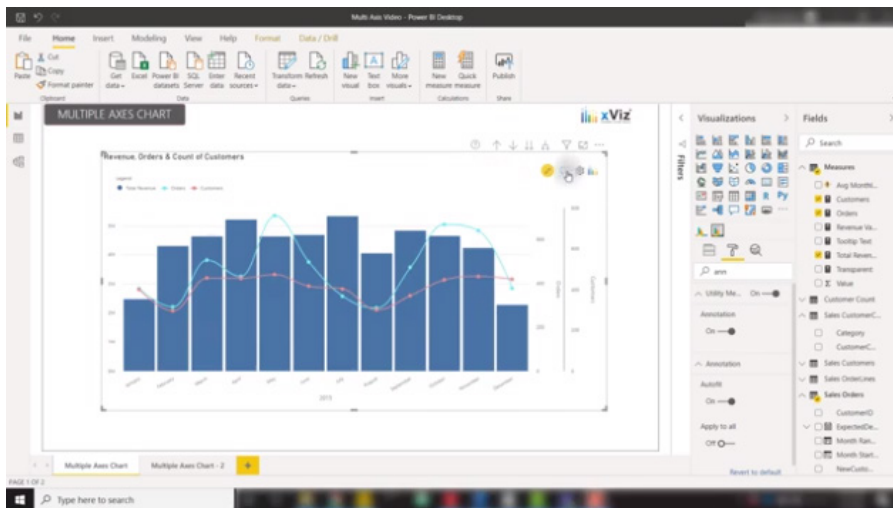

You may add data-point annotations with context to enhance "storytelling", with textual call outs driving focus to important areas. These highlighted areas may be emphasised with differently coloured icons and arrows.
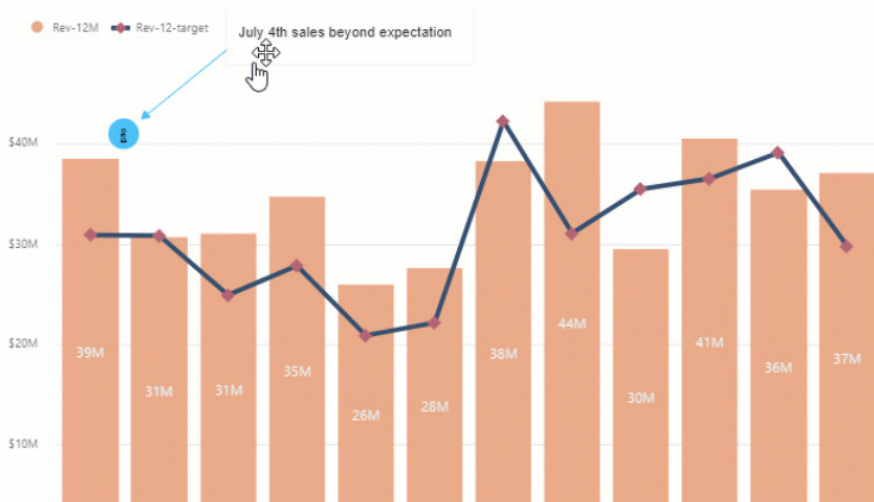
There have been many new features added to the Multi-Axis Chart:

- Annotation
- Runtime deviation bar
- External URL
- Interaction: Lasso, reverse Lasso and Zoom
- Column totals for stacked charts
- Styling: pattern for stacked charts
- New chart options: lollipop, stepped area and line charts
- Data label customisation for individual series
- Specific data label positioning and format options for line, column, and stacked charts
- Number formatting, specific to each series

- Axis break for **y** axis
- Log axis
- **x** axis label display options
- Time series capabilities
- Series ordering
- Series visibility
- Breadcrumb
- Marker customisation for line, area, and Lollipop
- ToolTip enhancements: shared ToolTip and stacked chart ToolTip
- Responsiveness: axis labels auto hide.
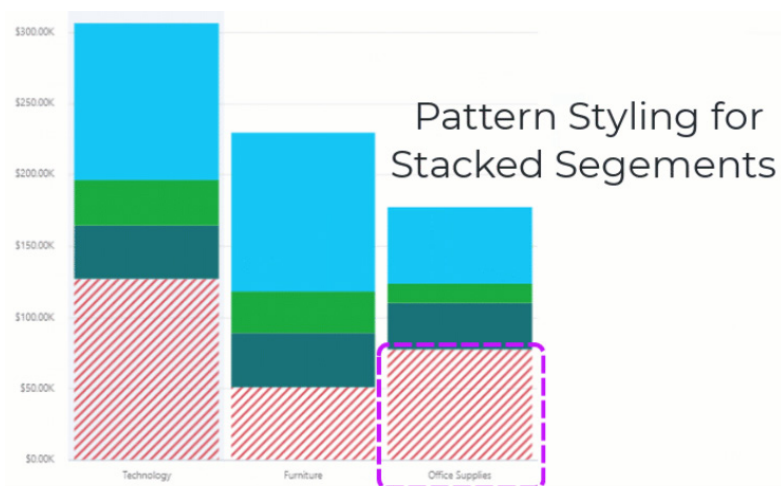
Support for Excel financial functions

We have been saying for some time that we want DAX to support Excel's built-in financial functions. With this release, Microsoft has now added **49** financial functions to DAX.

XNPV and **XIRR** were earlier arrivals, but now they have been joined by a raft of useful functions. These new additions have the same name and signature as their Excel counterparts, so they should be instantly recognisable in DAX.

It should be noted that although these functions are available for all languages, the functions themselves will be in English only at this point.

Here's the full list of these added financial functions:

- **ACCRINT**
- **ACCRINTM**
- **AMORDEGRC**
- **AMORLINC**
- **COUPBAYBS**
- **COUPDAYS**
- **COUPDAYSNC**
- **COUPNCD**
- **COUPNUM**
- **COUPPCD**
- **CUMIPMT**
- **CUMPRINC**
- **DB**
- **DDB**
- **DISC**
- **DOLLARDE**
- **DOLLARFR**

- **DURATION**
- **EFFECT**
- **FV**
- **INTRATE**
- **IPMT**
- **ISPMT**
- **MDURATION**
- **NOMINAL**
- **NPER**
- **ODDFPRICE**
- **ODDFYIELD**
- **ODDLPRICE**
- **ODDLYIELD**
- **PDURATION**
- **PMT**
- **PPMT**
- **PRICE**

- **PRICEDISC**
- **PRICEMAT**
- **PV**
- **RATE**
- **RECEIVED**
- **RRI**
- **SLN**
- **SYD**
- **TBILLEQ**
- **TBILLPRICE**
- **TBILLYIELD**
- **VDB**
- **YIELD**
- **YIELDDISC**
- **YIELDMAT.**

Model View enabled for Live Connect is now Generally Available

The Model View enabled for Live Connected sources is now Generally Available. In addition to making the feature Generally Available, Microsoft has made some revisions too:

- If you are connected to a multidimensional source or an older version of AS, relationship lines will be displayed. However, column information will not be shown
- If you have display folders and are viewing a model with translated captions, your display folders will now show those caption names.

Global option to disable automatic type detection

When working against schema-less data sources (such as Files, Web Pages, *etc.*), Power Query will try to automatically detect column headers and types based on the data. For some time, it's also been possible to disable automatic type detection as a "current file" option.

Microsoft admitted that a common request was that this option should be available globally, so that advanced users can always disable type detection. With this month's release, Power BI Desktop has introduced

a new global option that allows users to disable automatic header and type detection against schema-less sources.

This new option can be found under the Options dialog (under **Global -> Data Load**). This allows users to control whether header / type detection should be always enabled, always disabled or depend on the specific setting for the current file (available under **Current File -> Data Load**).
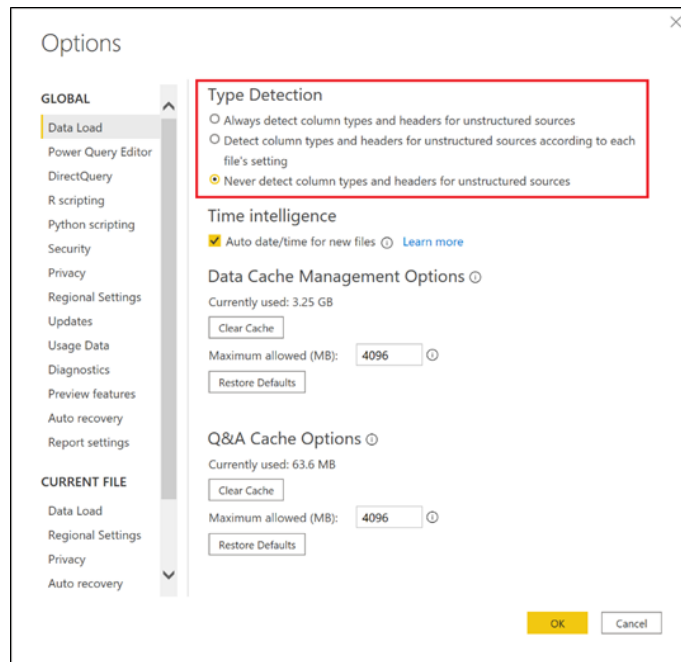
YouTube Analytics by MAQ Software

The YouTube Analytics by MAQ Software allows YouTube channel owners and contributors to identify and analyse their content performance across time, through data received from comments and feedback. This report is targeted towards enterprises and independent channel owners,

who want to gauge their channel / campaign performances across time. By consolidating the key data points in a single report, users will get a quick overview to help evaluate channel performance.
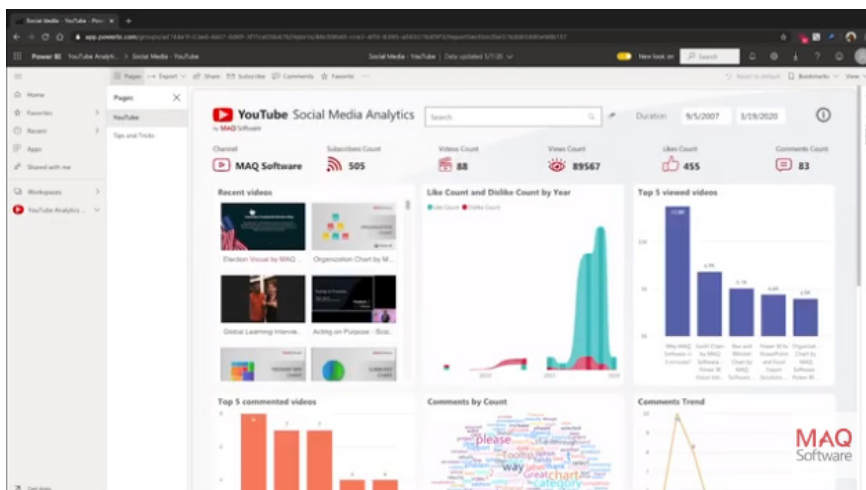
The YouTube Analytics enables sales operations personnel to identify and analyse things such as:

- which videos have the highest reach and engagement
- the overall success rate (total views / total likes)
- comments trend across time
- top emerging themes.

Using the insights found in YouTube Analytics, social media channel administrators can:

- uncover insights faster: derive valuable insights faster by analysing and visualising your channels and channels in terms of content performance
- campaign Planning: extract and identify underlying themes which may be correlated with channel content to design campaign strategies
- optimise content performance: implement the insights gained to improve and optimise the channel content performance.
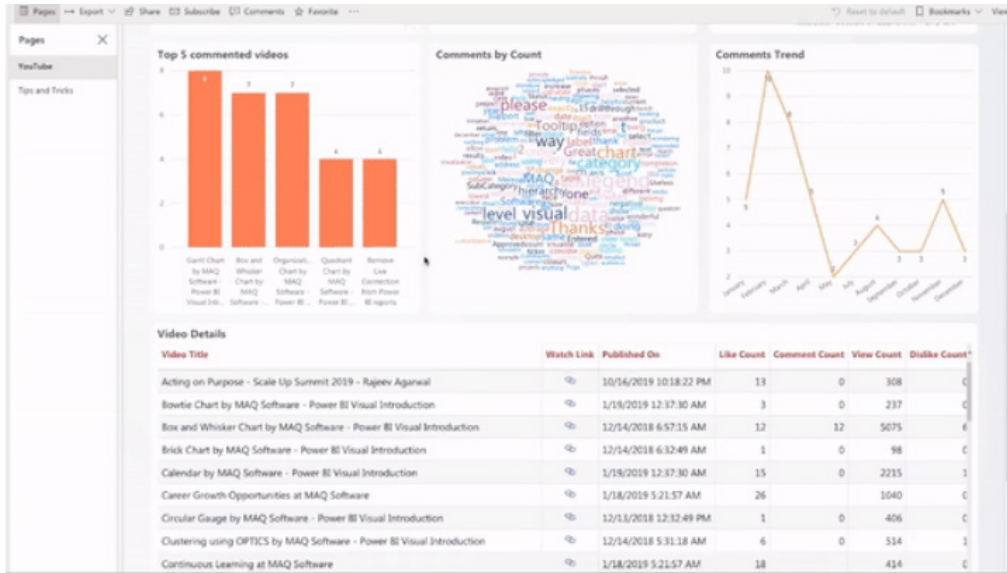
To use this application, users must:

- possess a Google API key, with access to the library 'YouTube Data API v3'
- be a Power BI Pro User.

To connect data:

- you will need a Google API key, with access to the library 'YouTube Data API v3'
- fetch the channel ID from your YouTube Channel
- after these details, you will be asked to validate four connection strings with Authentication method set to Anonymous and privacy level setting as 'Public'
- After all the above steps have been completed, the report will be refreshed with the data of the channel.

Launch external tools from Power BI Desktop (Preview)

Power BI Desktop supports external-tool extensibility to provide abilities beyond the core functionality. Leveraging the community tools for Analysis Services, this unlocks additional Analysis Services engine features for BI professionals, DAX query /expression optimisation and authoring, and application lifecycle management (ALM).

The External Tools Ribbon contains buttons for external tools installed on the machine and registered with Power BI Desktop. External tools launched from Power BI Desktop are automatically connected to the Analysis Services engine running behind Power BI Desktop providing a seamless experience for users.
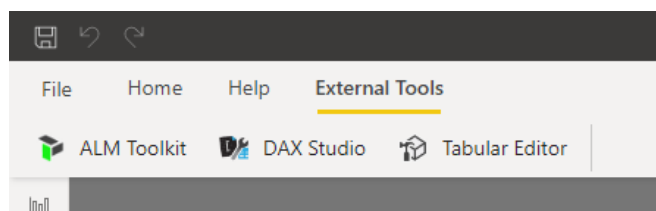
That's it for this month – more next month, we're sure!

The A to Z of Excel Functions: EXP

This function returns **e** raised to the power of number. The constant **e** equals 2.71828182845904, the base of the natural logarithm.

The EXP function employs the following syntax to operate:

EXP(number)

The **EXP** function has the following arguments:

- **number:** this is required and represents the exponent applied to the base e.

It should be further noted that:

- to calculate powers of other bases, use the exponentiation operator (^)
- **EXP** is the inverse of **LN**, the natural logarithm of **number**.

Please see our example below:

	A	B	C
1	**Formula**	**Description**	**Result**
2	=EXP(1)	Approximate value of e	2.718281828
3	=EXP(2)	Base of the natural logarithm e raised to the power of 2	7.389056099
4	=EXP(-1)	Approximate value of reciprocal of e	0.367879441
5			

The A to Z of Excel Functions: EXPON.DIST

In probability theory and statistics, the exponential distribution (also known as negative exponential distribution) is the probability distribution that describes the time between events in a Poisson point process. That's good if you know what that is! This is a process in which events occur continuously and independently at a constant average rate. It is a particular case of the probability distribution known as the gamma distribution. It is also the continuous analogue of the geometric distribution, and it has the key property of being memoryless. In addition to being used for the analysis of Poisson point processes, it is also found in various other contexts.
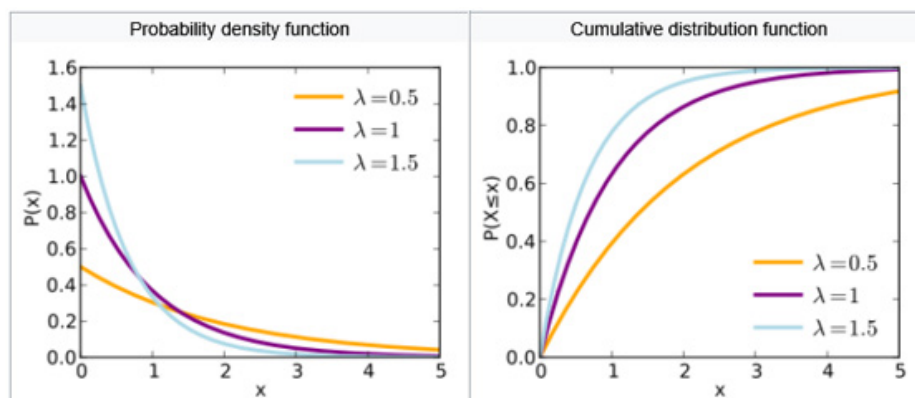
It should be noted that the exponential distribution is not the same as the class of exponential families of distributions, which is a large class of probability distributions that includes the exponential distribution as one of its members, but also includes the normal distribution, binomial distribution, gamma distribution, Poisson and many others.

So, back to Excel. This function returns the exponential distribution. You should use **EXPON.DIST** to model the time between events, such as how long an automated bank teller (ATM) takes to deliver cash. For example, you can use **EXPON.DIST** to determine the probability that the process takes at most one minute.

The **EXPON.DIST** function employs the following syntax to operate:

EXPON.DIST(x, lambda, cumulative)

This function originated in Excel 2010 for compatibility purposes.

The **EXPON.DIST** function has the following arguments:

- **x:** this is required and represents the value of the function
- **lambda:** this is also required and denotes the parameter value
- **cumulative:** again, required. This is a logical value that indicates which form of the exponential function to provide. If **cumulative** is TRUE, **EXPON.DIST** returns the cumulative distribution function; if FALSE, it returns the probability density function.

It should be further noted that:

- if **x** or lambda is nonnumeric, **EXPON.DIST** returns the *#VALUE!* error value
- if **x** < 0, **EXPON.DIST** returns the *#NUM!* error value
- if **lambda** ≤ 0, **EXPON.DIST** returns the *#NUM!* error value
- The equation for the probability density function is:

$$f(x; \lambda) = \lambda e^{-\lambda x}$$

- The equation for the cumulative distribution function is:

$$F(x; \lambda) = 1 - e^{-\lambda x}$$

Please see the example below:

	A	B	C
1	**Data**	**Description**	
2	0.5	Value of the function	
3	5	Parameter value	
4			
5			
6	**Formula**	**Description**	**Result**
7	=EXPON.DIST(A2,A3,TRUE)	Cumulative exponential distribution function	0.917915001
8	=EXPON.DIST(A2,A3,FALSE)	Probability exponential distribution function	0.410424993
9			

The A to Z of Excel Functions: EXPONDIST
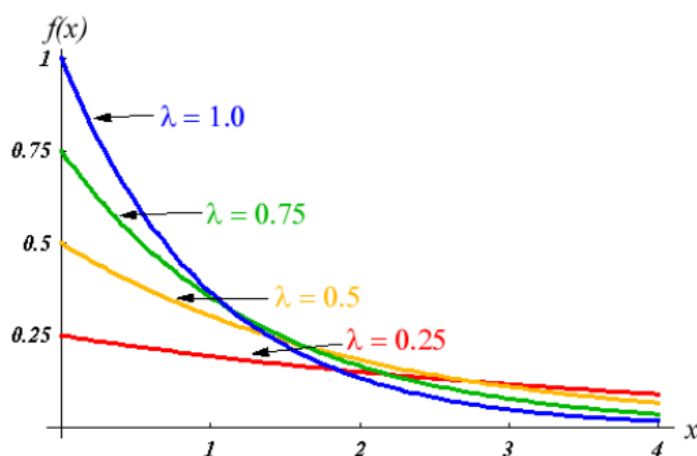
This function is similar to **EXPON.DIST** (*above*). This has been replaced with that function, which may provide improved accuracy and whose name better reflects its usage. Although this function is still available for backward compatibility, you should consider using the new functions from now on, because this function may not be available in future versions of Excel, according to Microsoft.

The **EXPONDIST** function employs the following syntax to operate:

EXPONDIST(x, lambda, cumulative)

The **EXPONDIST** function has the following arguments:

- **x:** this is required and represents the value of the function
- **lambda:** this is also required and denotes the parameter value
- **cumulative:** again, required. This is a logical value that indicates which form of the exponential function to provide. If **cumulative** is TRUE, **EXPONDIST** returns the cumulative distribution function; if FALSE, it returns the probability density function.

It should be further noted that:

- if **x** or lambda is nonnumeric, **EXPONDIST** returns the *#VALUE!* error value
- if **x** < 0, **EXPONDIST** returns the *#NUM!* error value
- if **lambda** ≤ 0, **EXPONDIST** returns the *#NUM!* error value
- The equation for the probability density function is:

$$f(x; \lambda) = \lambda e^{-\lambda x}$$

- The equation for the cumulative distribution function is:

$$F(x; \lambda) = 1 - e^{-\lambda x}$$

Please see my example below:

	A	B	C
1	**Data**	**Description**	
2	0.5	Value of the function	
3	5	Parameter value	
4			
5			
6	**Formula**	**Description**	**Result**
7	=EXPONDIST(A2,A3,TRUE)	Cumulative exponential distribution function	0.917915001
8	=EXPONDIST(A2,A3,FALSE)	Probability exponential distribution function	0.410424993
9			

More Excel Functions next month…

Beat the Boredom Suggested Solution

Earlier in the newsletter, we discussed slicers. First appearing in Excel 2013, slicers are a visual filter that can be used to interact with PivotTables, PivotCharts or Tables. They are very popular with end users as they are highly intuitive requiring little more than a quick point and click.

The problem was that although are great for selecting one or more elements to filter, if there are many records to scroll through, searching is cumbersome. *There appears to be no search facility*.
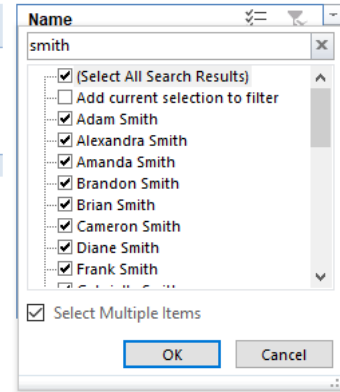
Searching with a Slicer

Sum of Sale ($)	Column Labels				
Row Labels	East	North	South	West	Grand Total
Laptop	$ 295,176.74	$ 336,336.44	$ 278,241.70	$ 296,814.70	$ 1,206,569.58
Phone	$ 353,698.91	$ 298,889.02	$ 299,192.54	$ 287,517.37	$ 1,239,297.84
Sofa	$ 301,773.36	$ 319,407.21	$ 296,665.75	$ 310,206.30	$ 1,228,052.62
Stereo	$ 323,455.01	$ 304,966.69	$ 289,063.75	$ 295,584.66	$ 1,213,070.11
TV	$ 235,884.09	$ 289,580.50	$ 295,804.09	$ 306,401.96	$ 1,127,670.64
Grand Total	$ 1,509,988.11	$ 1,549,179.86	$ 1,458,967.83	$ 1,496,524.99	$ 6,014,660.79

Name
- Abigail Bailey
- Abigail Bell
- Abigail Blake
- Abigail Cameron
- Abigail Campbell
- Abigail Clark
- Abigail Coleman
- Abigail Dowd

In the example above, wouldn't it be good if you could search for, say, everyone whose surname was "Smith"?

Searching with a Slicer

Sum of Sale ($)	Column Labels					
Row Labels	East	North	South	West	Grand Total
Laptop	$ 295,176.74	$ 336,336.44	$ 278,241.70	$ 296,814.70	$ 1,206,569.58
Phone	$ 353,698.91	$ 298,889.02	$ 299,192.54	$ 287,517.37	$ 1,239,297.84
Sofa	$ 301,773.36	$ 319,407.21	$ 296,665.75	$ 310,206.30	$ 1,228,052.62
Stereo	$ 323,455.01	$ 304,966.69	$ 289,063.75	$ 295,584.66	$ 1,213,070.11
TV	$ 235,884.09	$ 289,580.50	$ 295,804.09	$ 306,401.96	$ 1,127,670.64
Grand Total	$ 1,509,988.11	$ 1,549,179.86	$ 1,458,967.83	$ 1,496,524.99	$ 6,014,660.79

Clearly from the screenshot I appear to have achieved it. But that's exactly my point. I appear to have achieved it. Perception is nine-tenths of the game sometimes. So how did I do it?

It's easy – just follow these steps, assuming you are creating a slicer for a PivotTable:

- Create a PivotTable in the usual way
- Insert a slicer on the worksheet (click inside the PivotTable and then from the context tab 'PivotTable Tools, Analyze' tab on the Ribbon, select the slicer you require. You will note there is <u>no</u> search facility
- Make a copy of the PivotTable and paste it close to the original PivotTable. Note that the slicer is connected to both of these summary tables
- Remove <u>all</u> of the fields from the new PivotTable. If this causes an error, you have the two PivotTables too close together and you will need to separate them further apart
- In the Field list of the second (now empty) PivotTable, add the slicer field to the 'Filters' area of the PivotTable
- Now comes the clever part. Line up the slicer / adjust column widths so that it covers the filter button of the second PivotTable – except for the drop-down arrow. This gives the impression that the drop-down arrow 'belongs' to the slicer
- Turn off the Autofit column widths option on both PivotTables (simply right-click on the PivotTable and select 'PivotTable Options...'): →

- Right-click on the slicer and select 'Size and Properties...' from the shortcut menu. In the 'Properties' section, choose 'Don't move or size with cells'
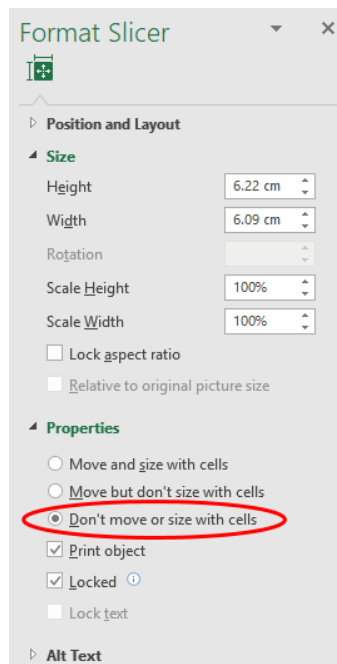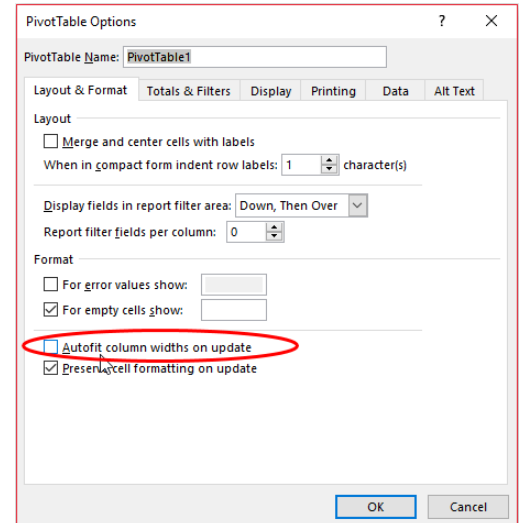
- These two setting changes will ensure the slicer continues to cover the second PivotTable
- Optionally, you can hide the column that contains the field name in the 'Filters' area of the new PivotTable.

That's it! You can check out our example Excel file here (please link to the workbook).

Until next time.

Upcoming SumProduct Training Courses - COVID-19 update

Due to the COVID-19 pandemic that is currently spreading around the globe, we are suspending our in-person courses until further notice. However, to accommodate the new working-from-home dynamic, we are switching our public and in-house courses to an online delivery stream, presented via Microsoft Teams, with a live presenter running through the same course material, downloadable workbooks to complete the hands-on exercises during the training session, and a recording of the sessions for your use within 1 month for you to refer back to in the event of technical difficulties. To assist with the pacing and flow of the course, we will also have a moderator who will help answer questions during the course.

If you're still not sure how this will work, please contact us at training@sumproduct.com and we'll be happy to walk you through the process.

Location	Course	Date	Date	Duration	Duration
Online (Australia)	Excel Tips and Tricks	18 Aug 2020	09:00-17:00 AEST	(-1 day) 23:00-07:00 GMT	1 Day
Online (Australia)	Financial Modelling	19 - 20 Aug 2020	09:00-17:00 AEST	(-1 day) 23:00-07:00 GMT	2 Days
Online (Australia)	Power Pivot, Power Query and Power BI	7 - 9 Sep 2020	09:00-17:00 AEST	(-1 day) 23:00-07:00 GMT	3 Days
Online (Australia)	Power Pivot, Power Query and Power BI	9 - 11 Nov 2020	09:00-17:00 AEDT	(-1 day) 22:00-07:00 GMT	3 Days
Online (Australia)	Excel Tips and Tricks	16 Nov 2020	09:00-17:00 AEDT	(-1 day) 22:00-07:00 GMT	1 Day
Online (Australia)	Financial Modelling	17 - 18 Nov 2020	09:00-17:00 AEDT	(-1 day) 22:00-07:00 GMT	2 Days
Online (Australia)	Power Pivot, Power Query and Power BI	14 - 16 Dec 2020	09:00-17:00 AEDT	(-1 day) 22:00-07:00 GMT	3 Days

Key Strokes

Each newsletter, we'd like to introduce you to useful keystrokes you may or may not be aware of. This month, we thought we would hold a **FUNCTION**…

Keystroke	What it does
F1	Help
F2	Toggle Select, Edit and Enter / Point modes
F3	Paste names
F4	Redo / Edit (F2) mode: toggle $ references for cell anchoring
F5	Go To / Refresh File List
F6	Next Pane

Keystroke	What it does
F7	Check spelling
F8	Extend selection mode
F9	Calculate now
F10	Activate menus
F11	Insert chart on a new sheet
F12	Save As

There are *c.*550 keyboard shortcuts in Excel. For a comprehensive list, please download our Excel file at www.sumproduct.com/thought/keyboard-shortcuts. Also, check out our new daily **Excel Tip of the Day** feature on the www.sumproduct.com homepage.

Our Services

We have undertaken a vast array of assignments over the years, including:
· **Business planning**
· **Building three-way integrated financial statement projections**
· **Independent expert reviews**
· **Key driver analysis**
· **Model reviews / audits for internal and external purposes**
· **M&A work**
· **Model scoping**
· **Power BI, Power Query & Power Pivot**
· **Project finance**
· **Real options analysis**
· **Refinancing / restructuring**
· **Strategic modelling**
· **Valuations**
· **Working capital management**

If you require modelling assistance of any kind, please do not hesitate to contact us at contact@sumproduct.com.

Link to Others

These newsletters are not intended to be closely guarded secrets. Please feel free to forward this newsletter to anyone you think might be interested in converting to "the SumProduct way".

If you have received a forwarded newsletter and would like to receive future editions automatically, please subscribe by completing our newsletter registration process found at the foot of any www.sumproduct.com web page.

Any Questions?

If you have any tips, comments or queries for future newsletters, we'd be delighted to hear from you. Please drop us a line at newsletter@sumproduct.com.

Training

SumProduct offers a wide range of training courses, aimed at finance professionals and budding Excel experts. Courses include Excel Tricks & Tips, Financial Modelling 101, Introduction to Forecasting and M&A Modelling.

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Drop us a line at training@sumproduct.com for a copy of the brochure or download it directly from www.sumproduct.com/training.