



Power Query
Week 3 Documentation

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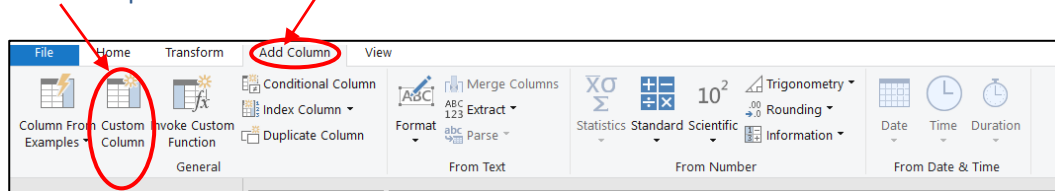
2025

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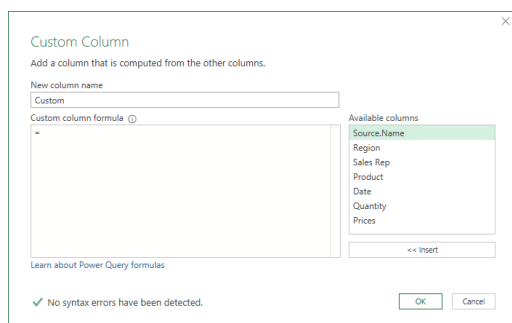
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1) Add Column with a formula

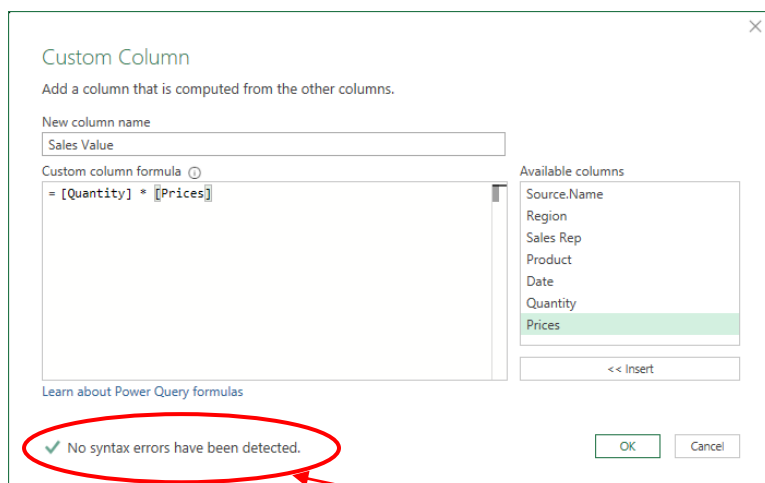
If we wanted to multiply the Price column by the Quantity column, we would use the 'Custom Column' option in the 'Add Column' ribbon:



Clicking on this option will display the Custom Column wizard:



We can amend the Name (this will be the column Name that will appear in the Query), and enter the formula by selecting from the columns in the 'Available Columns' list on the right:



This very helpfully displays that 'No errors have been detected', so we know the formula is correct.

Click 'OK' and there will be a new column in the PQ (on the right hand side):

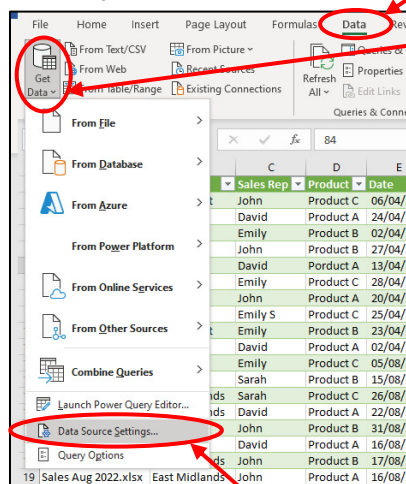
= Table.AddColumn(#"Expanded Product_Data", "Sales Value", each [Quantity] * [Prices])						
	Sales Rep	Product	Date	Quantity	Prices	Sales Value
1	John	Product C	06/04/2022	96	150	14400
2	David	Product A	24/04/2022	61	70	4270
3	Emily	Product B	02/04/2022	198	100	19800
4	John	Product B	27/04/2022	75	100	7500
5	David	Product A	13/04/2022	84	null	null
6	Emily	Product C	28/04/2022	5	150	750
7	John	Product A	20/04/2022	71	70	4970
8	Emily S	Product C	25/04/2022	46	null	null
9	Emily	Product B	23/04/2022	175	100	17500
10	David	Product A	02/04/2022	20	70	1400
11	Emily	Product C	05/08/2022	31	150	4650
12	Sarah	Product B	15/08/2022	180	100	18000
13	Sarah	Product C	26/08/2022	111	150	16650
14	David	Product A	22/08/2022	31	70	2170
15	John	Product B	31/08/2022	132	100	13200
16	David	Product A	16/08/2022	101	70	7070
17	John	Product B	17/08/2022	139	100	13900

2) Updating Link to Files / folders

The PQ will have been created and linked to specific files or folders, but they will need to be updated if files are moved or re-named. This only needs to be done once each time there is a change, as long as the PQ file is saved afterwards.

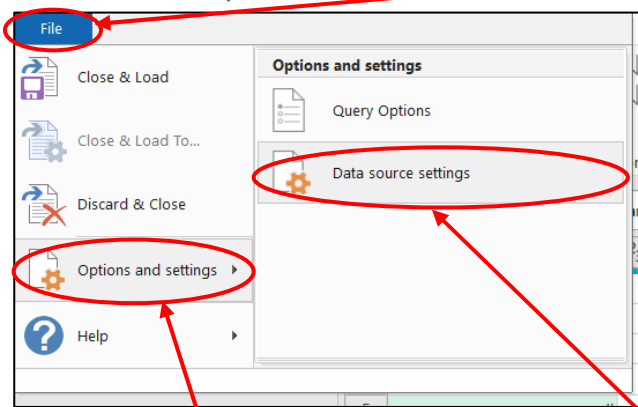
There are 2 ways to access the 'Data Source Settings':

- 1) From any sheet, select the 'Data' ribbon, and left click on 'Get Data':



Then select 'Data Source Settings'.

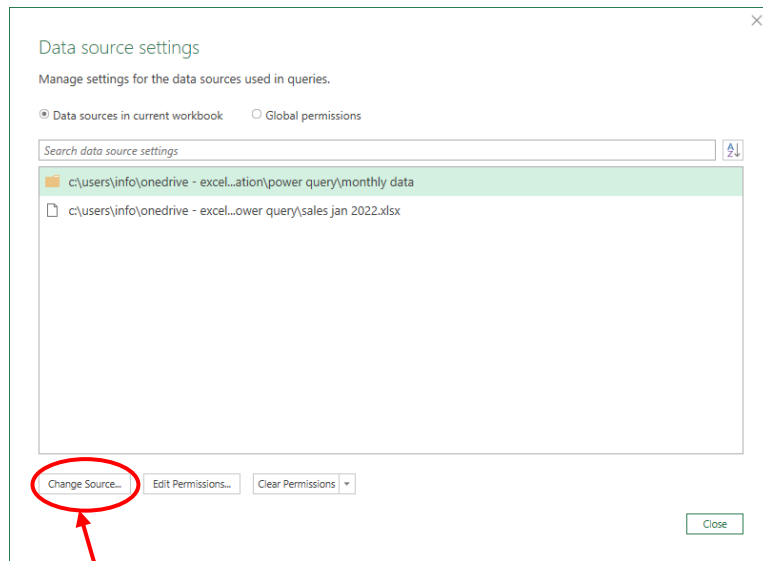
- 2) From Power Query Editor, select 'File' ribbon:



Select 'Options and Settings' and then select 'Data Source Settings'

Data Source Settings

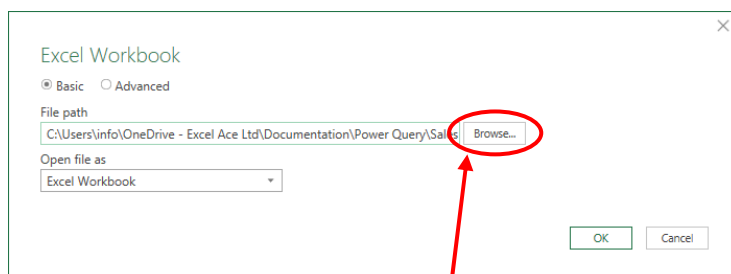
The screen that appears will be as follows:



This is a list of ALL files / Folders that the Queries in this file have been linked to.

Note: File is signified by the 'Paper' icon on the left of the file name. A folder is signified by a yellow folder (similar to the file explorer symbol).

To amend the links, simply left click onto the required file / folder to select it in the above list, then select 'Change Source':



This screen will appear to show you the current filepath & filename that the Query is linked to. To amend this, simply click on the browse button, and you will be taken to your usual browse windows, to navigate to the filepath & filename you want to connect the Query to.

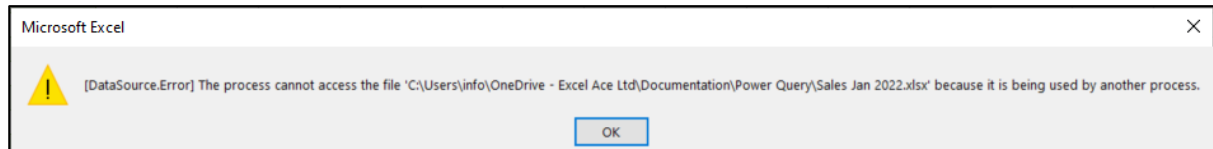
This can be done for ALL connections, as often as required. Once all the connections have been updated, click 'Close' on the above window, to return to the Spreadsheet or Power Query Editor (depending on where you started from).

3) Troubleshooting in PQ

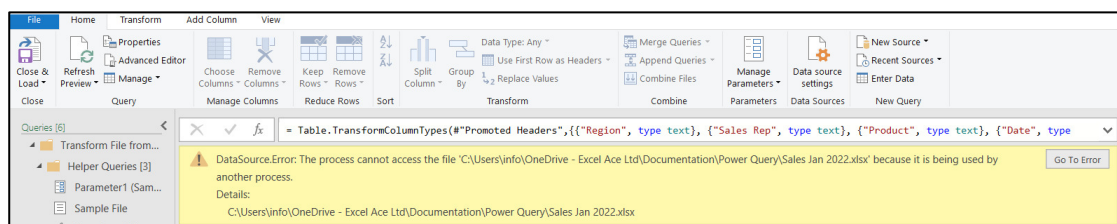
Power Query is very good at letting you know if there is a problem, here are some typical issues you may encounter, and more importantly, how to resolve them:

1) Data File is open

When you refresh data (from the Spreadsheet), you may see this error message appear:



If you are in PQ Editor, the error will appear as follows:



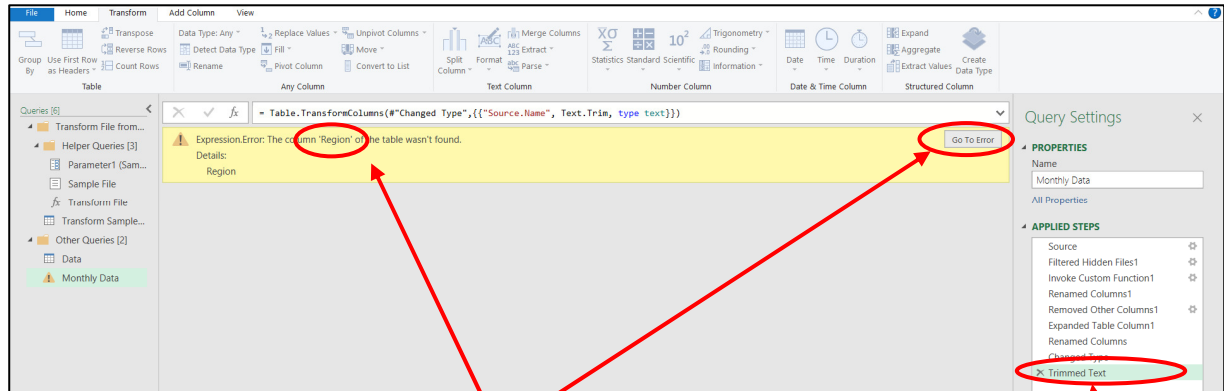
Both messages are telling you that the file (named in the error) is open, and therefore PQ cannot complete a Refresh.

This is simple to resolve, you simply need to close the relevant file, and they try Refresh again.

Note: You will need to close PQ Editor, before you will be able to navigate to the other file to close it.

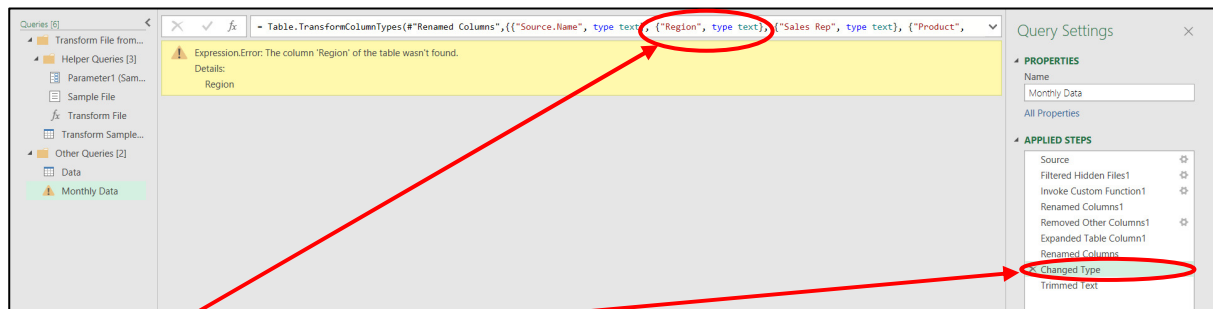
2) Broken Step

If you see this type of error in the PQ Editor, it indicates a change in a Step, has impacted a subsequent Step:



This error provides 2 clues, the first is the Name of the column causing the problem.

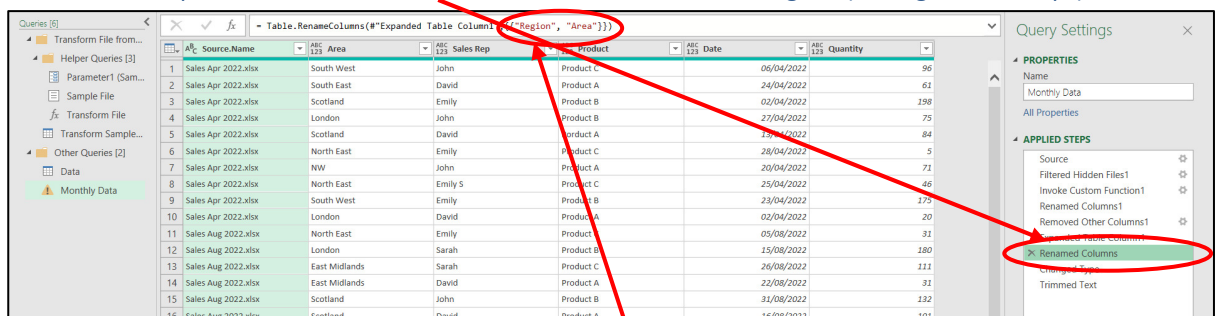
The second clue is the button: Go To Error. Note that we are currently reviewing the Query from the last step, but if we click this button, it will take us to the Step where the problem occurs:



The Step in question has now been selected and we can see what we were attempting to do with the column 'Region'.

There are 2 options to resolve this error:

- 1) We can see in the 'M' Code, the reference to 'Region2', so we could just manually delete this Step (or part of it) from within the 'M' Code.
However, this could lead to further errors, so only do this if you know this is required.
- 2) I would want to know what the 'Region' column is, and why it cannot be found, so I would move up through the steps (before this error occurred), and look at the data to find the column in question. I find another Step named: 'Renamed Columns' and this also refers to 'Region' (amongst other steps):



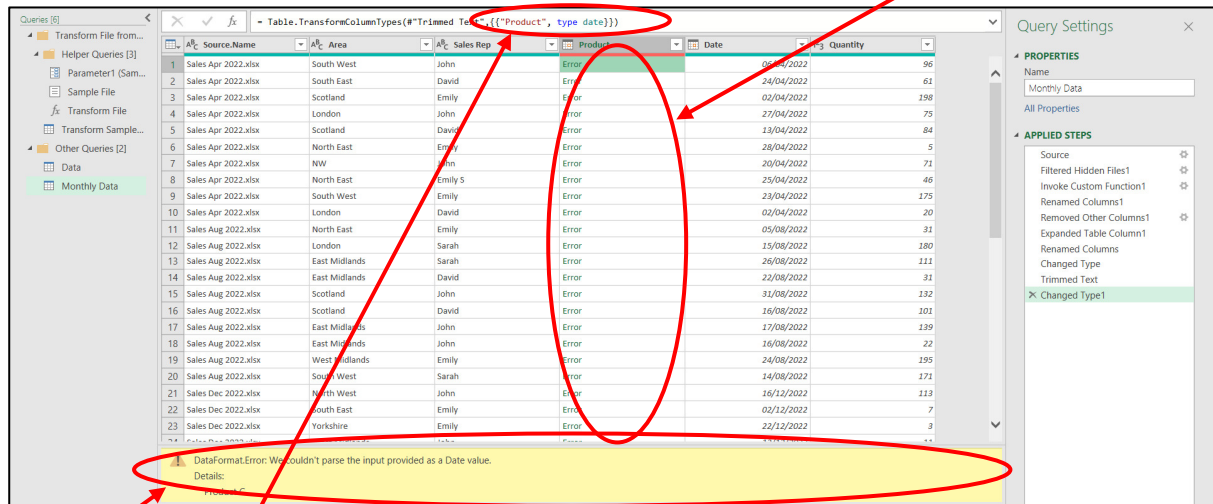
Here you can see (from the 'M' Code), that this step renames the column from 'Region' to 'Area'.

As the subsequent step is trying to use the original Name of the column, this is causing the issue. To resolve this, we can move the renaming of the column to the end of the steps, remove it completely, or amend the 'Changed Type' step to refer to the renamed column of 'Area'.

All of the Steps work on a completely logical basis, and there will always be a reason for them.

3) Error in column

Sometimes you may see an error within a column that will appear in the PQ Editor as follows:



The yellow bar underneath the Data provides some clues, the main clue being the first 3 word: Data Format Error.

Looking at the 'M' Code for this step, you can see that the Data Type for this column has been reset to 'Date'. This content of this column is text, and therefore it cannot be converted to a date, hence the error.

To resolve this, we can simply remove the step to format this column as a date, or amend the Data Type to Text.

There are many reasons for errors, but hopefully the above will provide some insight into how to get started to resolve them.

3) Advanced Transformation Options

The ribbons at the top of the Power Query Editor can be used to transform the data, perform calculations and merge data, in numerous different ways.

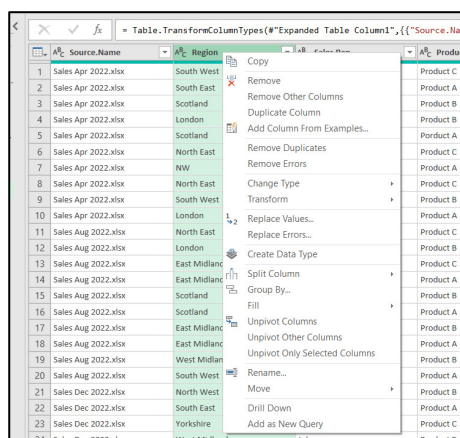
This documentation is not exhaustive of all options available, but more a general overview.

There are 5 Ribbons at the top of the PQ Editor:

- File** - This contains options for Load & Close and PQ Settings
- Home** - These options will amend the data in the existing columns
- Transform** - These are more advanced methods of transforming the data
- Add Column** - These options will create additional columns of data, and can also include formula

Most of the options in all of these Ribbons are as obvious as they sound, and the best way to understand them is to try them and see the impact on data (*don't forget you can just delete a Step if it the result is not what you need*).

A lot of the options can also be found by selecting a column, right clicking mouse and finding the function within that menu (the functionality will be identical to selecting the option from the ribbons):



Some of the Super useful functions are:

- Fill
- Split Column
- Merge Columns

There are some functions that do need a mention:

Pivot / Unpivot Columns

These are really valuable functions, as it can transform columns into rows, and vice versa.

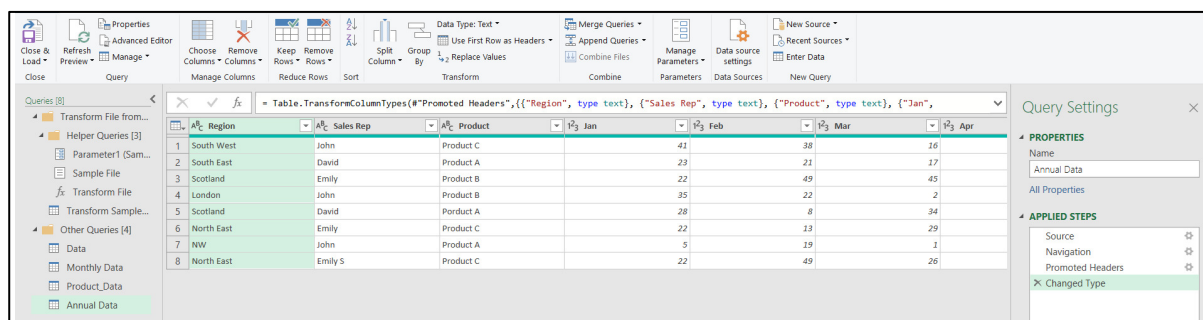
Unpivot

In this Excel File, we have a column for each Month:

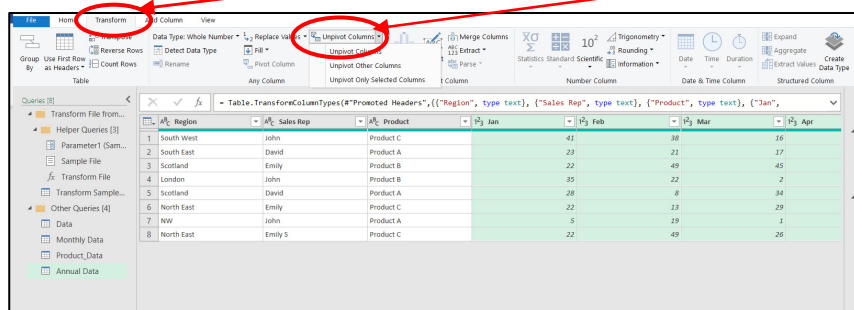
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Region	Sales Rep	Product	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2	South West	John	Product C	41	38	16	30	15	50	19	19	19	14	33	34
3	South East	David	Product A	23	21	17	2	3	30	5	5	5	13	5	21
4	Scotland	Emily	Product B	22	49	45	28	38	12	29	11	22	8	0	22
5	London	John	Product B	35	22	2	37	28	27	10	38	25	17	18	27
6	Scotland	David	Product A	28	8	34	18	10	4	24	7	49	46	18	17
7	North East	Emily	Product C	22	13	29	30	41	8	1	39	50	24	12	13
8	NW	John	Product A	5	19	1	20	40	20	31	7	32	21	42	12
9	North East	Emily S	Product C	22	49	26	33	33	16	43	9	50	31	45	15

This makes it difficult to Summarise with Pivot Tables and Formulas, but we can use the 'Unpivot' function in Power Query to transform this into a row per Region / Sales Rep / Product & Month, with just one column for Quantity.

First we would need to import the Data into Power Query (Data, Get Data, From File, From Excel Workbook) and this would appear as a Query like this:



Select the columns you need to Unpivot (Jan : Dec), then in the 'Transform' ribbon, select 'Unpivot Columns':



You can see there are a couple of options here:

Unpivot Columns

This can be used to Unpivot ALL (or selected) columns.

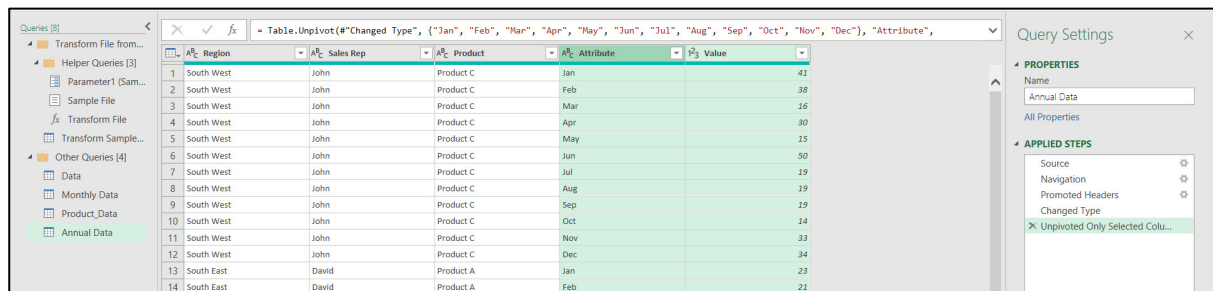
Unpivot Other Columns

This can be used to Unpivot the columns that have NOT been selected. So, in this instance, I could have selected the 3 columns I didn't want to Unpivot and used this option. This is very useful especially if the Names of the columns to Unpivot may vary.

Unpivot Other Columns

This can be used to Unpivot only the selected columns.

In this example we will use Unpivot Selected Columns, and the Query will appear as follows:



	Region	Sales Rep	Product	Attribute	Value
1	South West	John	Product C	Jan	42
2	South West	John	Product C	Feb	38
3	South West	John	Product C	Mar	16
4	South West	John	Product C	Apr	30
5	South West	John	Product C	May	15
6	South West	John	Product C	Jun	50
7	South West	John	Product C	Jul	19
8	South West	John	Product C	Aug	19
9	South West	John	Product C	Sep	19
10	South West	John	Product C	Oct	14
11	South West	John	Product C	Nov	33
12	South West	John	Product C	Dec	34
13	South East	David	Product A	Jan	23
14	South East	David	Product A	Feb	21

This query now has just 5 columns, with a lot more rows than previous, and is much easier to use within Pivot Tables.

Pivot

The function of 'Pivot' can be used to achieve the opposite result, if we needed to transform rows into columns with data similar to this:

	A	B	C	D	E
1	Region	Sales Rep	Product	Type	Value
2	South West	John	Product C	Sales	£50.00
3	South West	John	Product C	Cost	£20.00
4	South West	John	Product C	Profit	£30.00
5	South West	John	Product C	Qty	10
6					
7					
8	South East	David	Product A	Sales	£75.00
9	South East	David	Product A	Cost	£15.00
10	South East	David	Product A	Profit	£60.00
11	South East	David	Product A	Qty	5
12					
13					
14	North East	Emily	Product B	Sales	£200.00
15	North East	Emily	Product B	Cost	£85.00
16	North East	Emily	Product B	Profit	£115.00
17	North East	Emily	Product B	Qty	20
18					

First we would need to import the Data into Power Query (Data, Get Data, From File, From Excel Workbook) and this would appear as a Query like this:

= Table.SelectRows("#Changed Type", each ([Type] <> null))					
	A ^B _C Region	A ^B _C Sales Rep	A ^B _C Product	A ^B _C Type	1 ² ₃ Value
1	South West	John	Product C	Sales	50
2	South West	John	Product C	Cost	20
3	South West	John	Product C	Profit	30
4	South West	John	Product C	Qty	10
5	South East	David	Product A	Sales	75
6	South East	David	Product A	Cost	15
7	South East	David	Product A	Profit	60
8	South East	David	Product A	Qty	5
9	North East	Emily	Product B	Sales	200
10	North East	Emily	Product B	Cost	85
11	North East	Emily	Product B	Profit	115
12	North East	Emily	Product B	Qty	20

Select the column you need to Pivot (Type), then in the 'Transform' ribbon, select 'Pivot Columns'. This will make a new column for each item that appears in the 'Type' column, but we will need to select the column of data to include in those new columns, using this box:

Pivot Column

Use the names in column "Type" to create new columns.

Values Column(s)

Value

> Advanced options

Learn more about Pivot Column

OK

Cancel

In this example we will use the Values column, and the Query will appear as follows:

= Table.Pivot("#Filtered Rows", List.Distinct("#Filtered Rows"[Type]), "Type", "Value", List.Sum)							
	A ^B _C Region	A ^B _C Sales Rep	A ^B _C Product	1 ² ₃ Sales	1 ² ₃ Cost	1 ² ₃ Profit	1 ² ₃ Qty
1	North East	Emily	Product B	200	85	115	20
2	South East	David	Product A	75	15	60	5
3	South West	John	Product C	50	20	30	10

This query now has just 3 rows, with a column for each type of data.