PowerExcel User Manual

PowerExcel

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POWEREXCEL

USER MANUAL

Topics

- Introduction to PowerExcel
- Creating Slices – PowerExcel PivotTable, Read/Write Formulas, and Power Query
- Entering Data in a PowerExcel Slice
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PowerExcel User Manual

1. INTRODUCTION to PowerExcel

PowerExcel is a simple, powerful way for Excel users to connect to a highly efficient, collaborative business-modeling platform hosted in the cloud. That platform is available from PARIS Technologies, Inc., the developer of PowerExcel.

With PowerExcel, users access data from a business model for all manner of reporting, analytics and planning: for example, financial reports, departmental budgets, sales forecasts. Users can also model *new* analytics and plan versions, creating limitless data views from a single spreadsheet.

All this can be done via the standard Microsoft Excel install that exists on virtually every business user's computer—so, as a user, you can experience PowerExcel simply by opening the tool you work with every day.

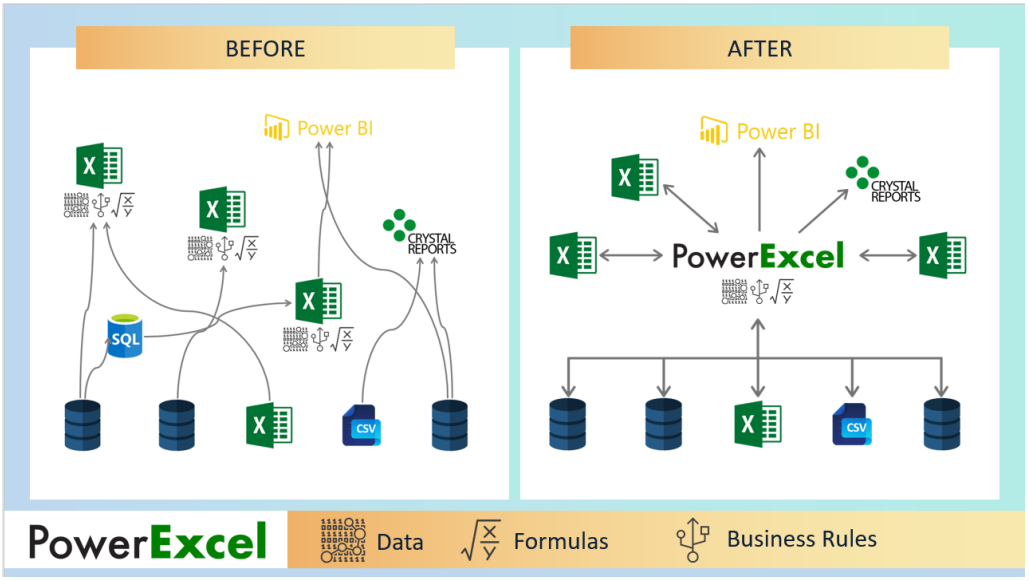
The only requirement is a **PowerExcel Add-In** to reach Cloud-based models. [Note that the following image shows a single user connecting to a PowerExcel Cloud Server through use of the PowerExcel Add-in; the PowerExcel Cloud Server is a multi-server configuration, as shown next page, at right, the "After" image.]

The business data resides on a **PowerExcel Cloud Server**—**PARIS Technologies** makes this Cloud Server available for teams to work far more efficiently than can be done with existing, overwhelmingly complex spreadsheet-only systems. Remote users from different locations, whether around the world, or simply using individual machines, will have the capability to work on separate Excel workbooks that are all connected to a shared model on the cloud server. [NOTE that there are various PowerExcel Teams Editions available for different needs.] With the PARIS PowerExcel Cloud Server, Excel is transformed into a dynamic access point for critical business decision-making.

If you have installed the PowerExcel Add-In, or have an interest in doing so, contact PARIS Technologies to set up your PowerExcel Cloud Server for free, under the terms of the PowerExcel Teams Editions.

In the image below, the *Before* picture, at left, shows a typical scenario with proliferating spreadsheets. This represents the work done presently, by firms large and small, in spreadsheet-only models. *Without* PowerExcel, individual workbook(s) contain the entire business model(s)—a huge problem, because Excel becomes an unwieldy database itself, freighted with innumerable links, formulas, macros and the like. Spreadsheet models of this sort become literally too big to handle, much less keep free of frightening, potentially catastrophic errors.

As for sharing these spreadsheet-only models: often they make the rounds via email—leading to multiple differing versions of the truth (a scary concept in itself). Or they are posted on a shared directory/site, which hardly solves the "overly burdened, frightening" spreadsheet issue.



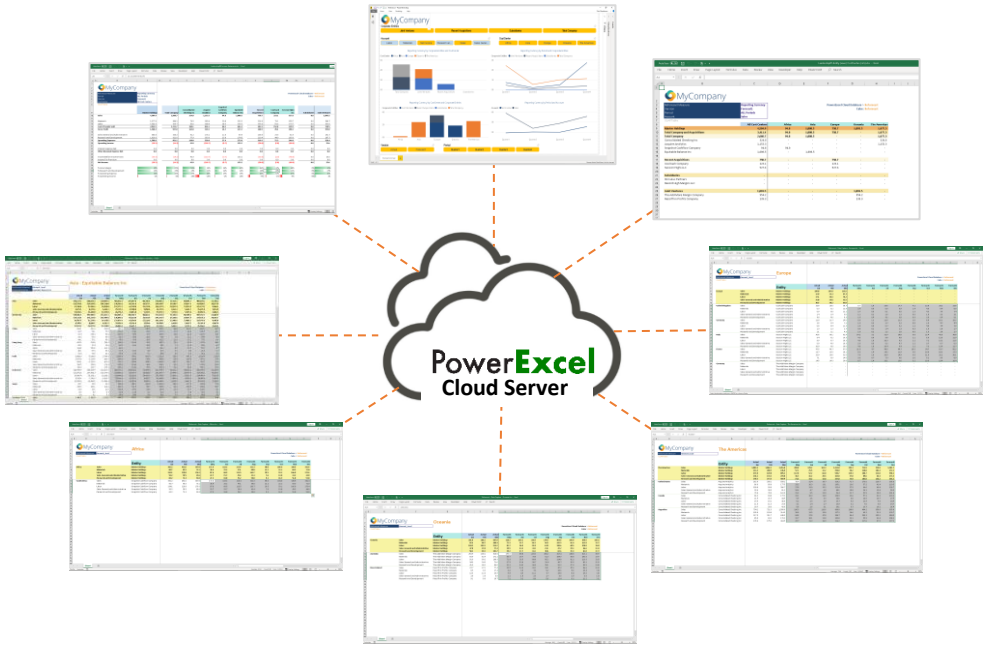
The *After* picture, at right, shows the PowerExcel Cloud Server in the middle. Business model(s) are accessible from the everyday spreadsheet…and, Yes, Power BI (and any other BI application) can be set up as another way to reach business data, in real time.

For leadership, PowerExcel provides the means to communicate a vision for the business and for staff to collaborate and act on that vision. In brief: leadership can see results dynamically, and—with responsive planning models in place—can control against objectives, in order to change business strategies as quickly as possible.

PowerExcel solves these issues, and confers upon users and firms other benefits, so that you can:

- Seamlessly and dynamically share your data through the cloud
- See your numbers tick and tie from the start
- Use a Financial Data Repository that keeps multiple versions of your numbers straight
- Collaborate in critical department- or organization-wide efforts that concern reporting, analytics and planning

The following illustration shows an example of users collaborating on a shared model, whether via report views, planning (e.g., budget/forecast) templates or even charts and graphs—all via a "disburdened" everyday instance of Excel.



PowerExcel Users at Work

About this Manual

This manual is intended to give you a view into the main capabilities that users can perform while using PowerExcel—creating Slices, entering data in shared models, using the Dimension Editor (to create new components of the model), and building more complex reports.

An important note: the data shown here is from a representative financial model. While the exercises proceed in a logical chronological fashion, some of the data may not be the same from exercise to exercise. That said, with basic understanding of Excel and an inquisitiveness about how PowerExcel can be useful to you, we hope that you are inspired to investigate further, for a potential PowerExcel solution at your own firm!

PLEASE ALSO NOTE BEFORE PROCEEDING

If you see the "@" Symbol in the Microsoft Excel Formula Bar

Microsoft recently changed the syntax for some formulas in Excel, adding an "implicit intersection operator" or "@" symbol. This new syntax is added automatically by Excel to some formulas. Microsoft has made these changes in the core of Excel and you may or may not be aware that this has happened.

PARIS Technologies, developer of PowerExcel and other advanced planning/ analytics/reporting products that feature dynamic spreadsheet connectivity—has responded to these recent changes in Microsoft Excel and has developed enhancements, allowing PARIS products to work with the new Microsoft's changes to Excel.

Indeed, many of the functions that you see in use within this PowerExcel manual will now contain the "@" symbol. Although the screen grabs and the text describing these functions may not presently show the "@" symbol, they will work as described.

2. Working with Slices – PivotTable, Read/Write Formulas and Power Query

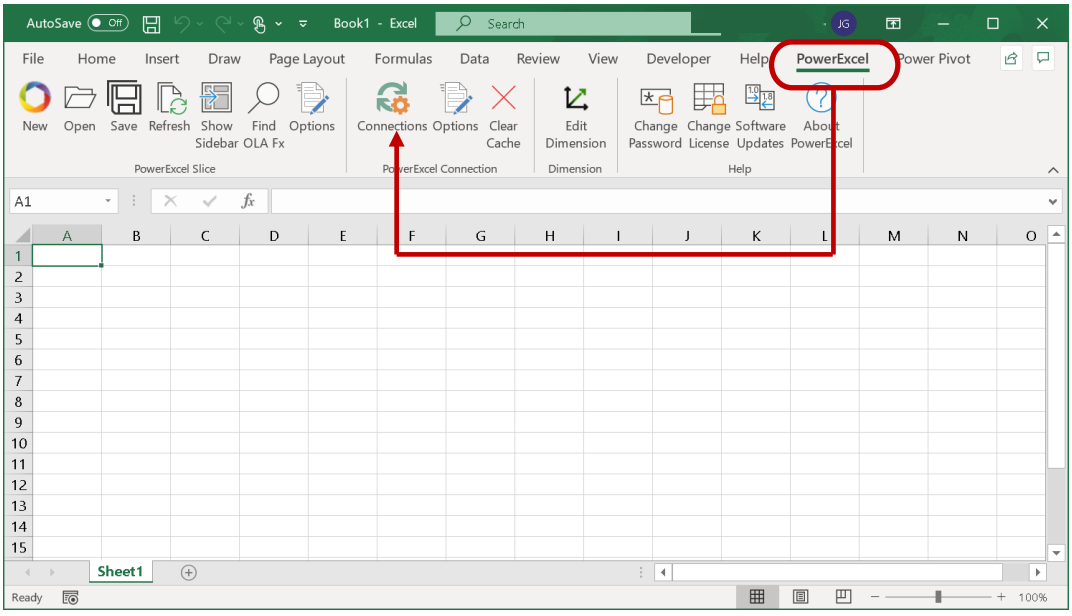
This section will describe the first step in using PowerExcel: how, through a standard spreadsheet, you can reach data that exists in a business model known as a Cube. The following describes how to establish a connection to a model, and the two methods used to create a Slice of business data, which will then allow a user to create a view of *any* desired data.

Important: This manual assumes that you have already installed and registered PowerExcel. If you have not done so, review the **PowerExcel - Prerequisites. Installation, Registration** manual.

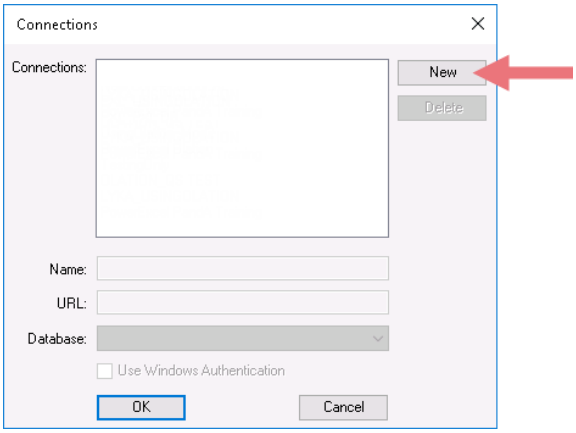
2.1 Establishing the PowerExcel Connection

Begin by creating a PowerExcel Connection in Excel.
To do this:

1. Launch the Excel application and go to the **PowerExcel** tab along the Excel ribbon.



2. In the **PowerExcel Connection** control group, click the **Connections** icon.



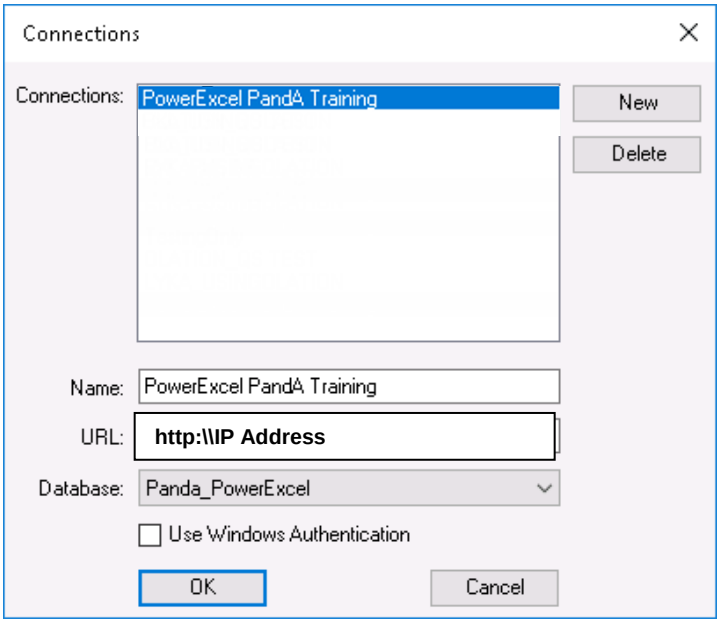
3. In the **Connections** dialog that appears, click **New** (red arrow in preceding image).

4. In the **Name** field, enter the <**name of the PowerExcel connection**>.
   Note: You can provide any name for the connection. For this exercise, **PowerExcel PandA Training** is the PowerExcel connection name.
5. In the **URL** field, enter the <**correct URL**>. This URL will be the URL of the Server where the source PowerExcel database (**Panda_PowerExcel** in this example) is currently running/opened.

Important: Typically, you will be entering an **http:\\IP Address** to reach a Cloud-based Server provided by PARIS Technologies.

6. From the **Database** drop-down options, select the correct source PowerExcel database. In this example, select **Panda_PowerExcel** as the source PowerExcel database.

Important: The source PowerExcel database must be opened on the specified Server in order for that database to be displayed when you click the **Database** drop-down button.



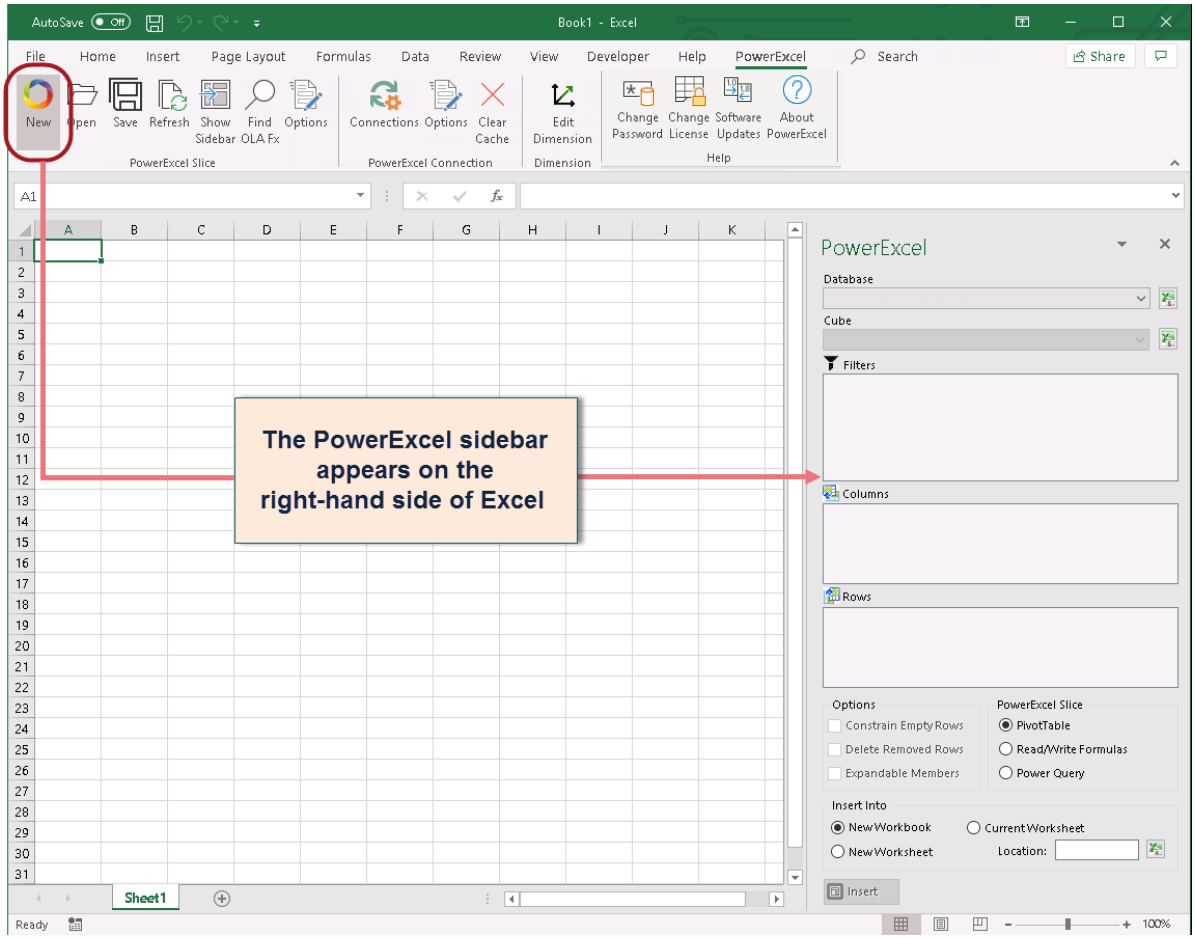
7. Click **OK**. The PowerExcel connection is now successfully created.

2.2 Creating a PowerExcel Slice

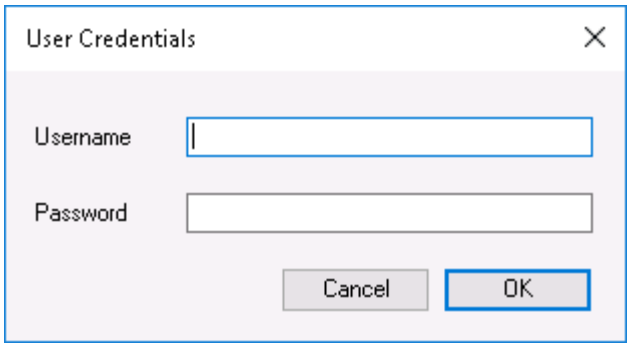
Important: Before we begin creating PowerExcel Slices, configure the PowerExcel Slice settings and enable the **Automatically display sidebar** option. This will help reduce the number of clicks needed to do to work with the PowerExcel sidebar.

TO DO THIS: Go to the **PowerExcel Addin Tab** of the Excel ribbon by clicking the **Options icon** in the **PowerExcel Slice** control group and enabling the **Automatically display sidebar** option in the Slice Options dialog. Remember to click **Save**.

1. In the **PowerExcel Tab** of the Excel ribbon, go to the **PowerExcel Slice** control group and click the **New** (Slice) icon. The PowerExcel sidebar will appear in the right-hand area of Excel. (The New icon and the sidebar are shown in the following image.)

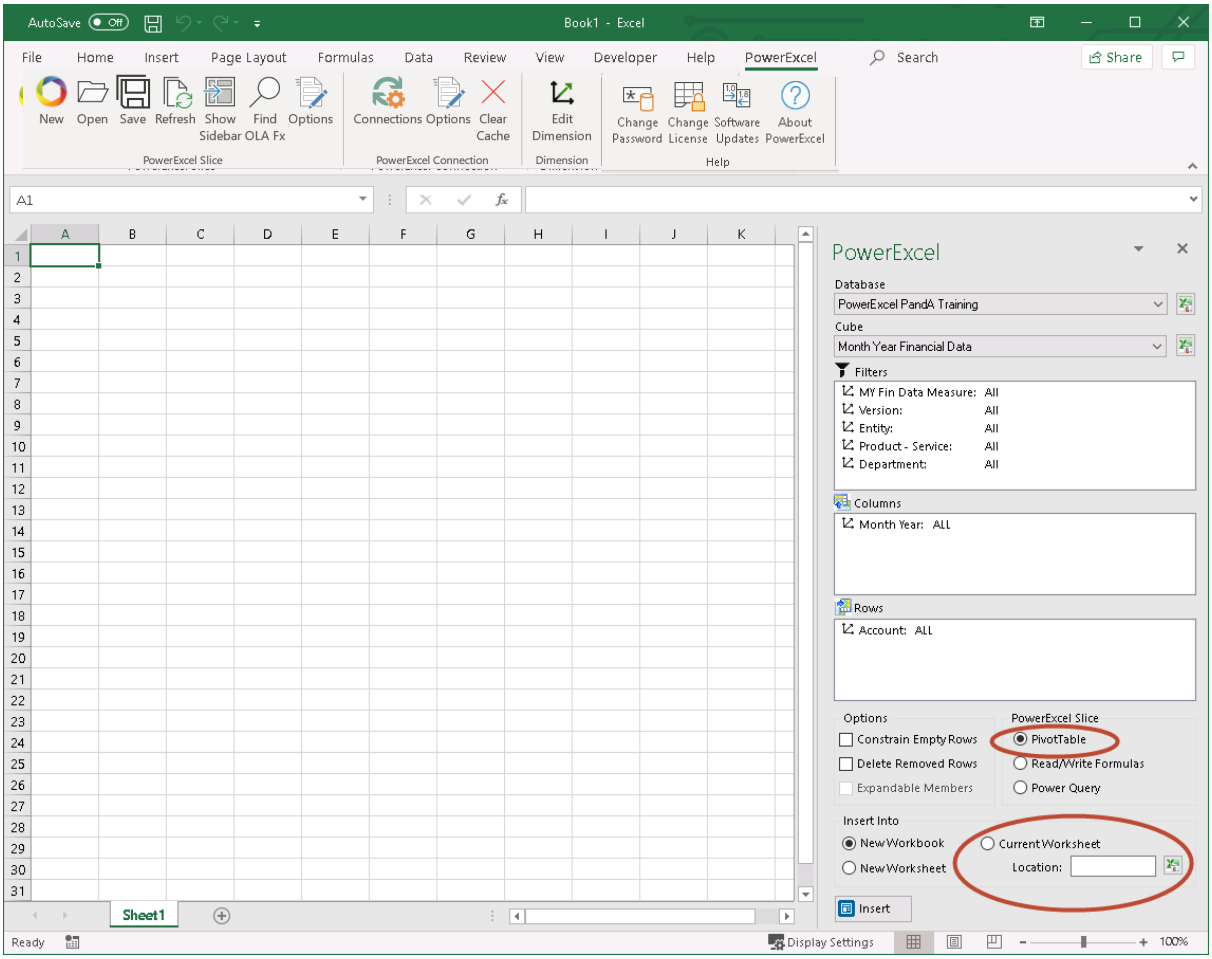


2. In the **PowerExcel sidebar**, click on the **Database** drop-down and select the appropriate PowerExcel connection, e.g., **PowerExcel PandA Training**.
3. **Note:** If you are trying to connect to a secured PowerExcel database, you will next be prompted to enter valid user credentials to access the database.



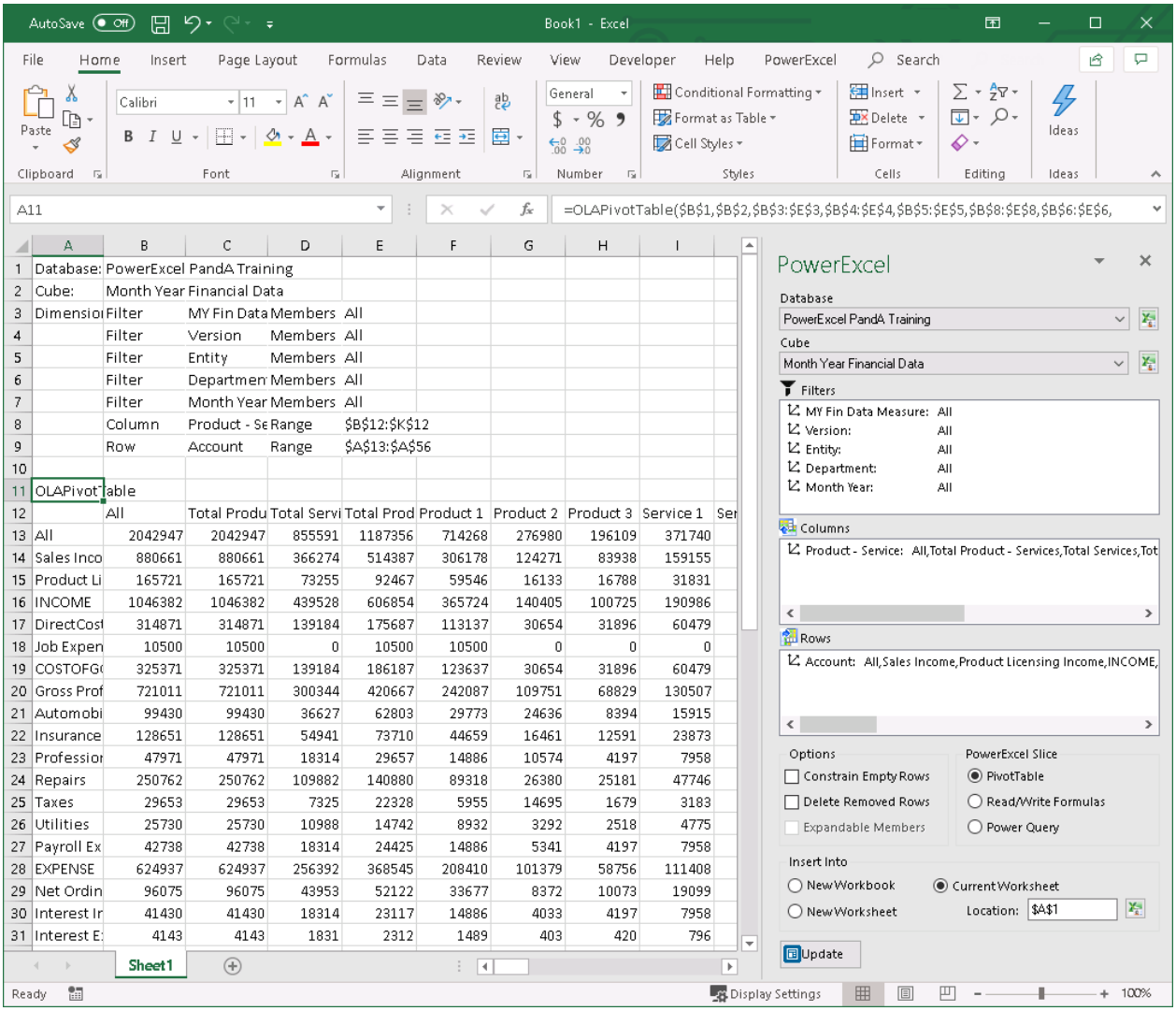
If you are connecting to a non-secured database, you will not be prompted for User Credentials. Just proceed to selecting the Cube.

4. From the **Cube** drop-down options, select the appropriate Cube, e.g., **Month Year Financial Data**.
   The PowerExcel sidebar will appear as follows:



You may re-arrange the Dimensions by dragging and dropping them among the Filters, Columns and Rows sections, and you may also select specific Members to display. We will demonstrate this shortly; for now, we will create a Slice with the default selections.

5. Pick a PowerExcel Slice output by enabling the correct radio button. You can select **PivotTable** (circled above), **Read/Write Formulas**, or **Power Query**. We will elaborate on these options in the succeeding topics.
   For now, select **PivotTable**.
6. Select where you want to generate the PowerExcel report into the spreadsheet. In this example, choose to insert into the **Current Worksheet** starting at cell **A1**. (See selection for **Current Worksheet and Location** circled above.)
7. Click the **Insert** button.
   The PowerExcel Slice will look as follows:



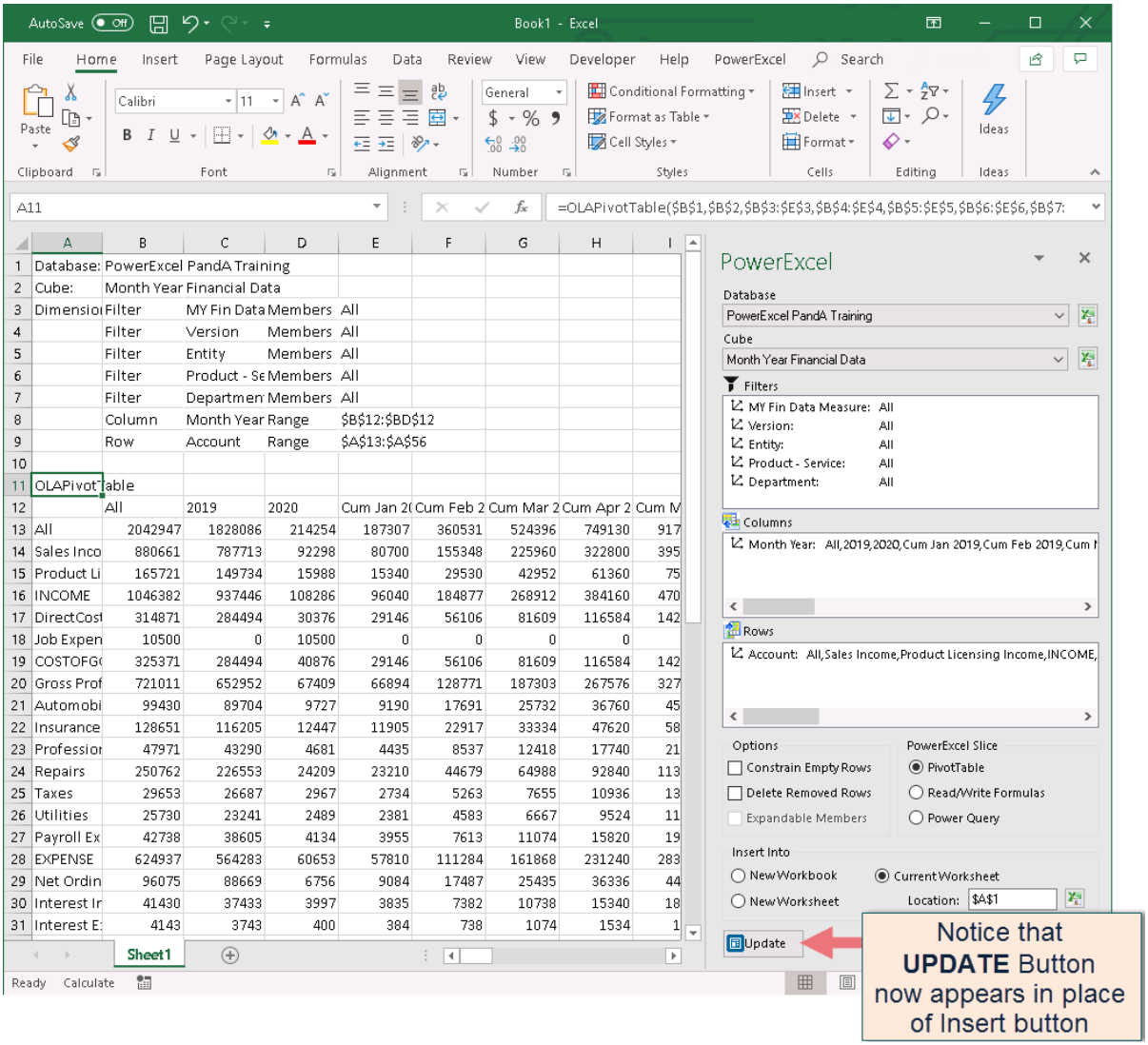
At this point, you have demonstrated making a Connection to a PowerExcel database and testing how to create an example Slice.

2.3 Using PowerExcel PivotTable—- Reconfiguring a Slice

As mentioned previously, you can re-arrange a Slice by dragging and dropping Dimensions to the Filters, Columns and Rows boxes. You can also select the preferred 'Display Member' for those Dimensions within the Filters (Page Members). Likewise, you can select a specific set of Members to be displayed along the Columns and Rows.

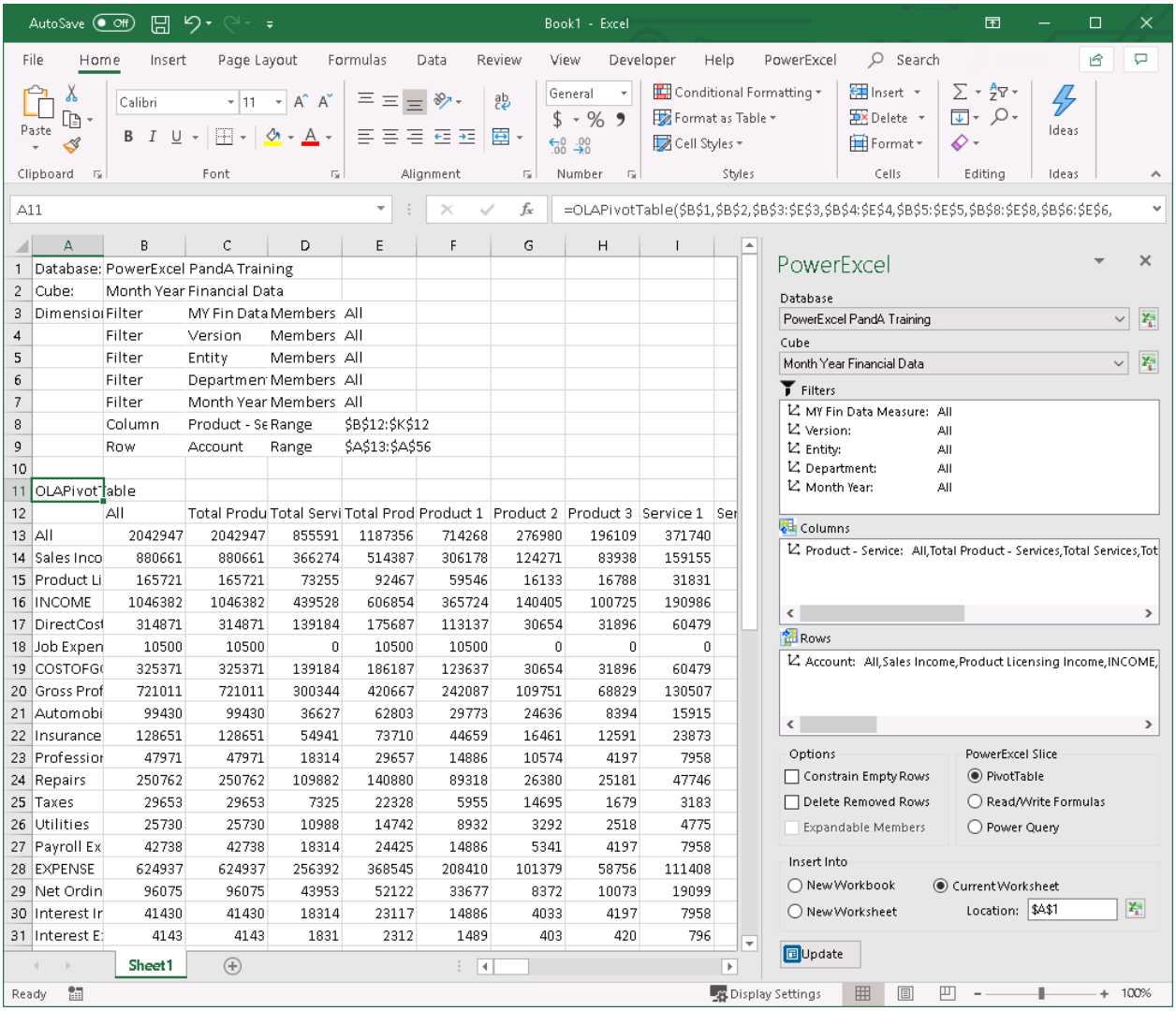
Note: For the ensuing pages, **PowerExcel PivotTable** is the function that is used to bring data into Excel. The **Read/Write Formulas** and **PowerExcel Power Query function** will be explored in subsequent pages.

Important: Before making any changes to the PowerExcel Slice for the FIRST TIME, you will need to click away from the PowerExcel sidebar and click on any cell that contains the PowerExcel connection references (e.g., OLAPivotTable, OLADatabase, OLACube, OLATableMember, etc.) so that the **Insert** button is replaced by an **Update** button.



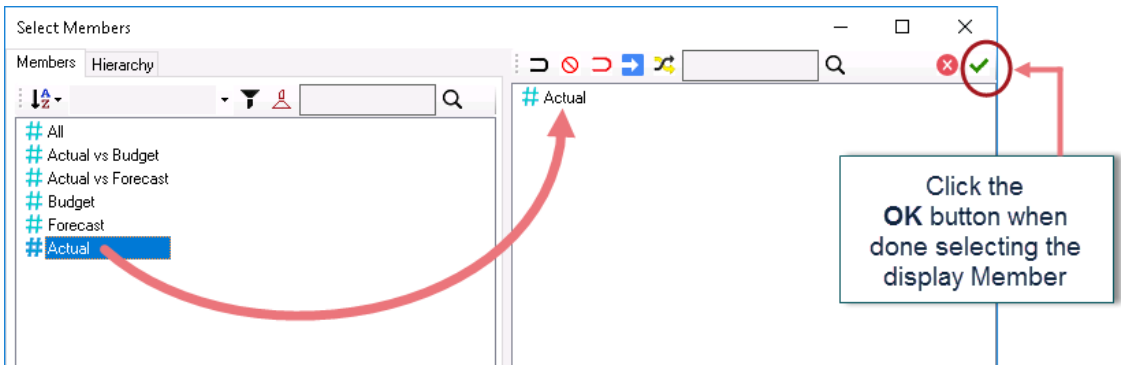
To reconfigure the PowerExcel Slice shown previously:

1. **Change the position of Dimensions within the Slice**.
   To do this:
   - In the PowerExcel sidebar, drag and drop the **Month Year** Dimension from the Columns to the **Filters**.
   - Next, drag and drop the **Product – Service** Dimension from the Filters to the **Columns**.
   - Click the **Update** button. The Slice will look as follows:

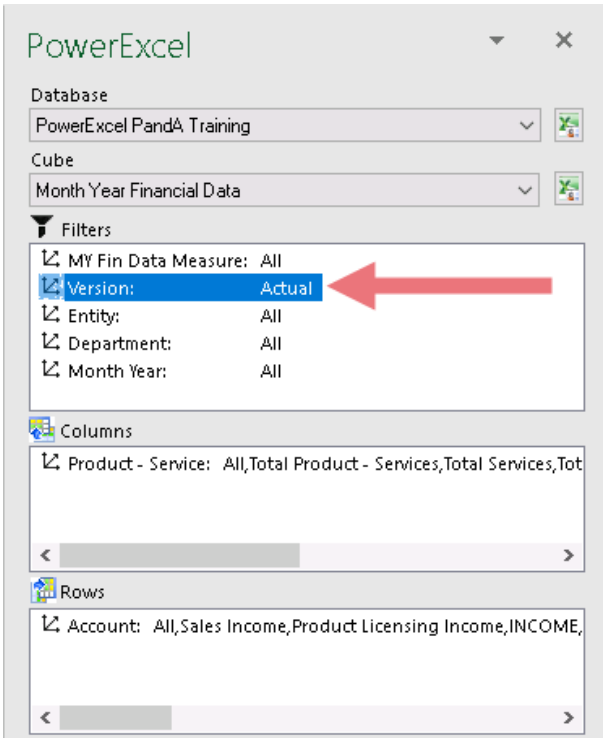


2. **Change the Display Member of Dimensions in Filters**.
   Next, we will change the display Member of one Dimension (**Version**) in the Filters section of the PowerExcel sidebar. For this, we want to see only *Actual* data showing.
   To change the display Member in the Filters section:

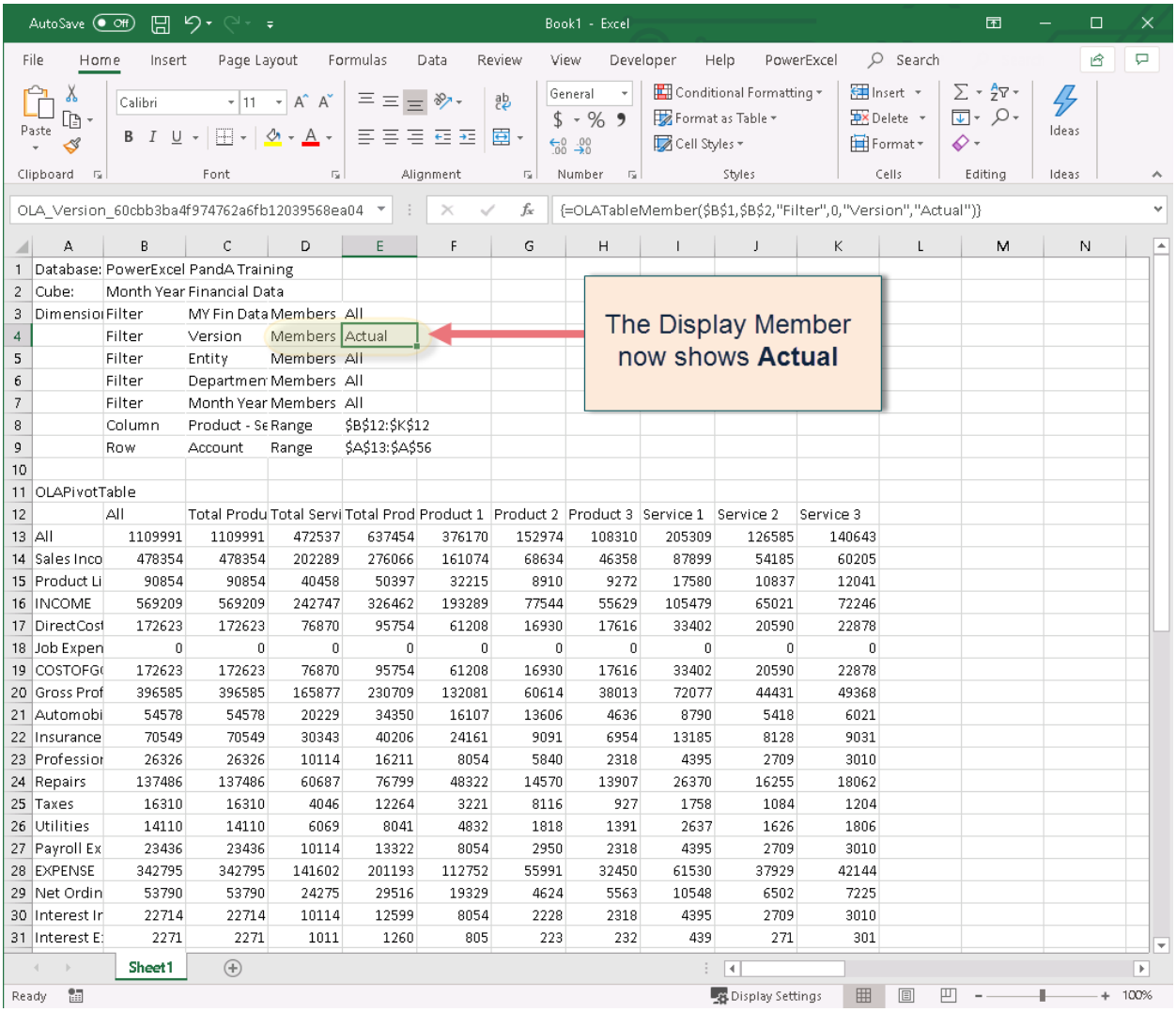
- Double-click on the **Version** dimension. In the Select Members dialog that appears, delete the **ALL** Member displayed on the right-hand pane; then drag and drop the **Actual** Member from the left-hand pane to the right-hand pane.
- Click the **green checkmark icon** (OK button) located the top right-hand corner of the dialog. (See the following screen images.)



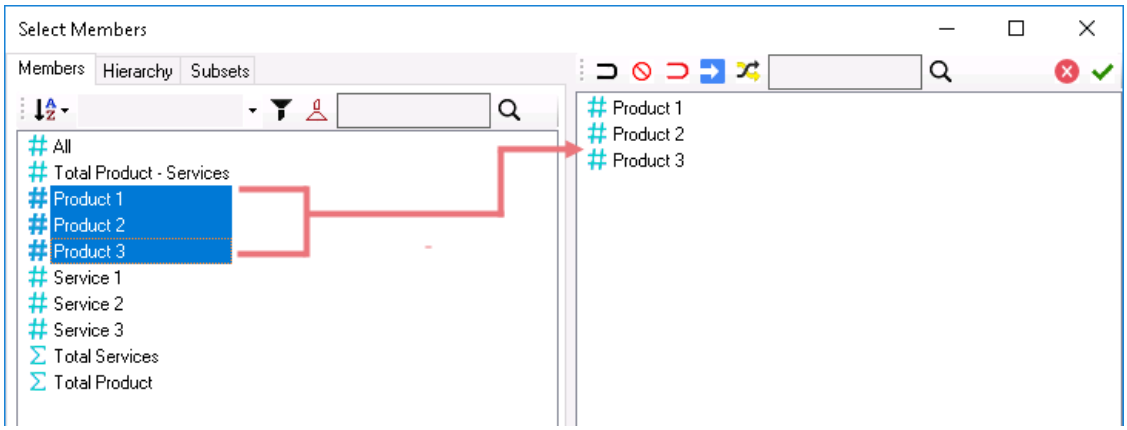
- Back in the PowerExcel sidebar, notice that the **Version** Dimension now shows *Actual* as the display Member.



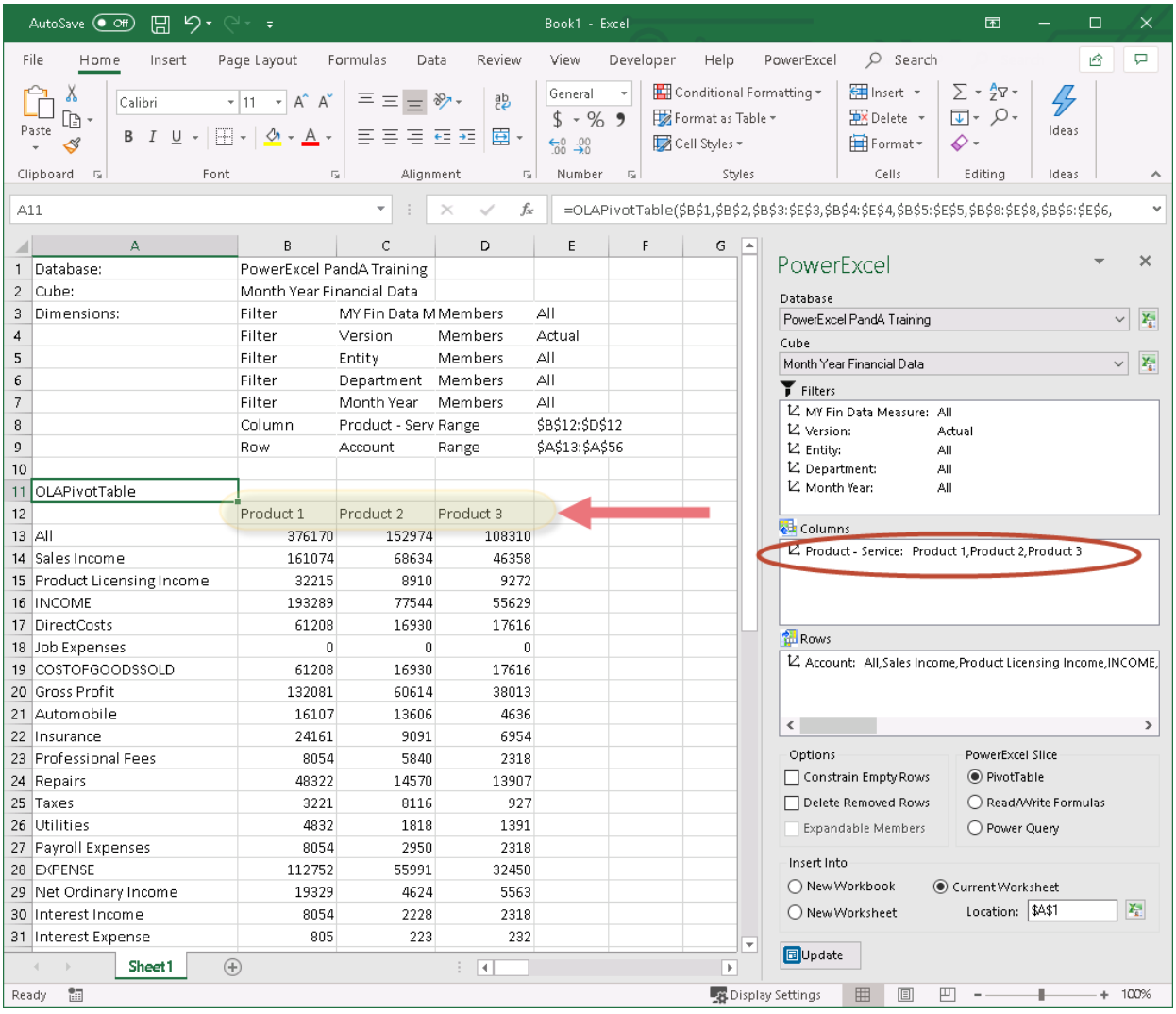
- In the PowerExcel sidebar, click the **Update** button. This updates the PowerExcel Slice values to show *Actual* data.



3. **Change the Display Members of Dimensions in Rows or Columns**.
   Next, we will change the display Members in Columns so that it only shows selected individual Products (**Product 1** to **Product 3**).
   To change the display Members in the Columns section:
   - Double-click on the **Product - Service** Dimension. In the Select Members dialog that appears, delete the members displayed on the right-hand pane; then drag and drop the members **Product 1** to **Product 3** from the left-hand pane to the right-hand pane.
   - Click the **green checkmark icon** (OK button) located the top right-hand corner of the dialog.

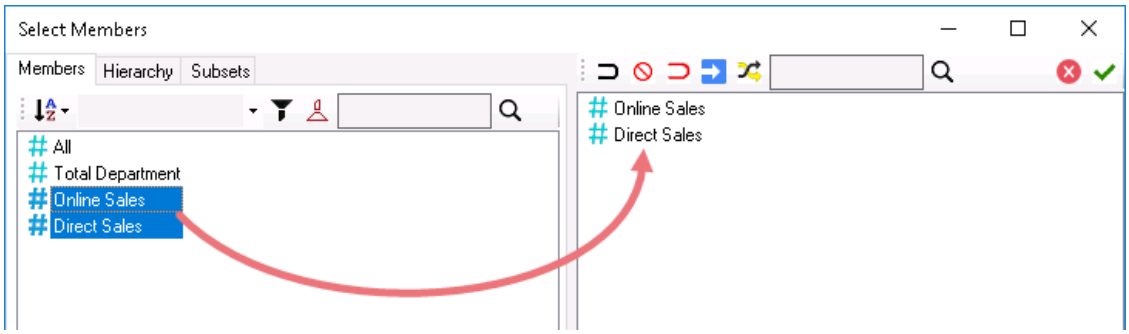


4. **Click the Update button.**
   The PowerExcel Slice is updated. Notice that the columns only show *Product 1*, *Product 2* and *Product 3* (red arrow in the below image).
   Also note that in the Columns section of the PowerExcel sidebar only those specific Members appear (circled in the below image).

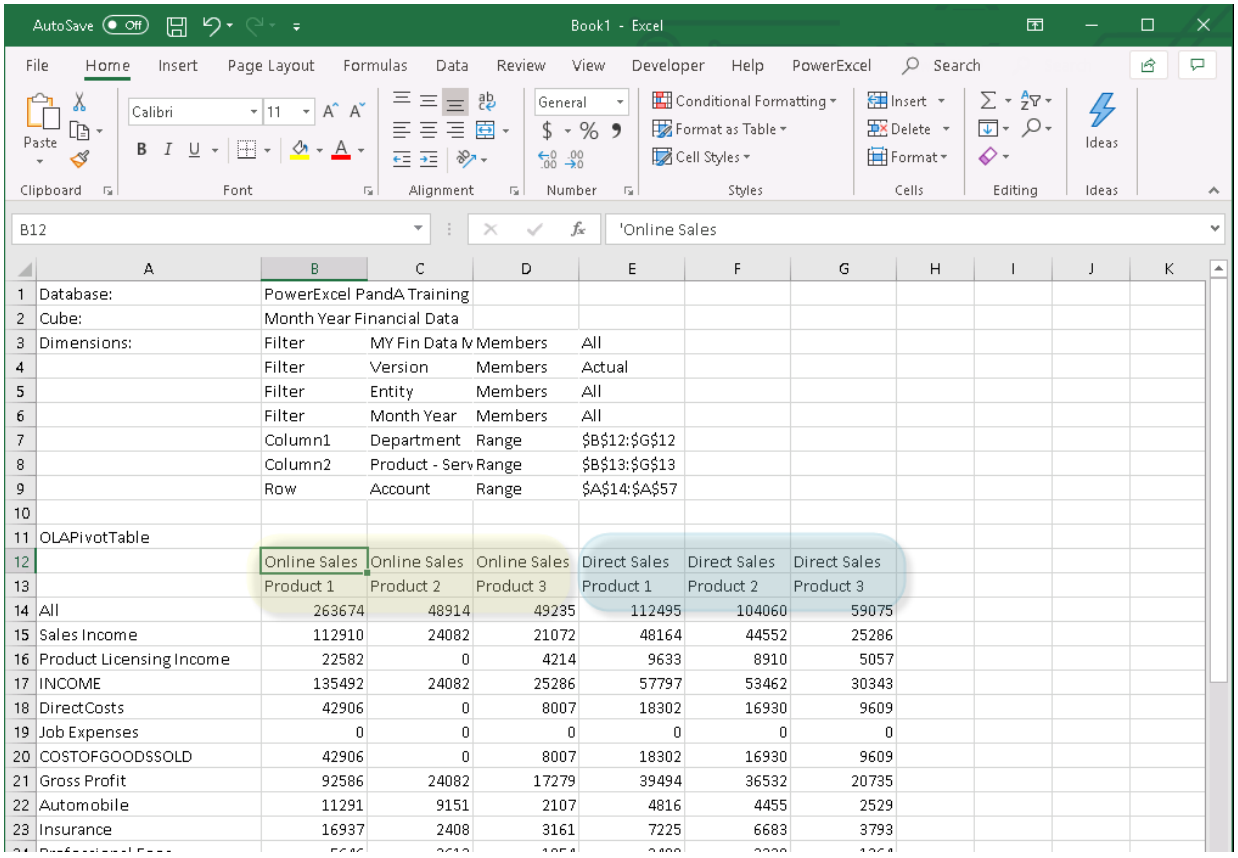


	A	B	C	D	E
1	Database:	PowerExcel PandA Training			
2	Cube:	Month Year Financial Data			
3	Dimensions:	Filter	MY Fin Data M	Members	All
4		Filter	Version	Members	Actual
5		Filter	Entity	Members	All
6		Filter	Department	Members	All
7		Filter	Month Year	Members	All
8		Column	Product - Serv	Range	$B$12:$D$12
9		Row	Account	Range	$A$13:$A$56
10					
11	OLAPivotTable				
12		Product 1	Product 2	Product 3	
13	All	376170	152974	108310	
14	Sales Income	161074	68634	46358	
15	Product Licensing Income	32215	8910	9272	
16	INCOME	193289	77544	55629	
17	DirectCosts	61208	16930	17616	
18	Job Expenses	0	0	0	
19	COSTOFGOODSSOLD	61208	16930	17616	
20	Gross Profit	132081	60614	38013	
21	Automobile	16107	13606	4636	
22	Insurance	24161	9091	6954	
23	Professional Fees	8054	5840	2318	
24	Repairs	48322	14570	13907	
25	Taxes	3221	8116	927	
26	Utilities	4832	1818	1391	
27	Payroll Expenses	8054	2950	2318	
28	EXPENSE	112752	55991	32450	
29	Net Ordinary Income	19329	4624	5563	
30	Interest Income	8054	2228	2318	
31	Interest Expense	805	223	232	

5. **Nesting Dimensions**.
   This time, we will 'Nest' (aka 'Stack') Dimensions along the columns to display both **Product – Service** and **Department** Dimensions along the columns.
   - Since we already have the **Product – Service** Dimension displayed along the columns and, assuming we want to show the same set of Members, we will need to drag and drop the **Department** Dimension from the **Filters** section to the **Columns** section and place **Department** on top of **Product – Service**.
   - Change the display Members of Department to only show *Online Sales* and *Direct Sales*.



   - Click the **Update** button.
     The PowerExcel Slice will look as follows, with *columns B to D* showing *Online Sales* data for Product 1, Product 2 and Product 3, and *columns E to G* showing *Direct Sales* data for the same products.

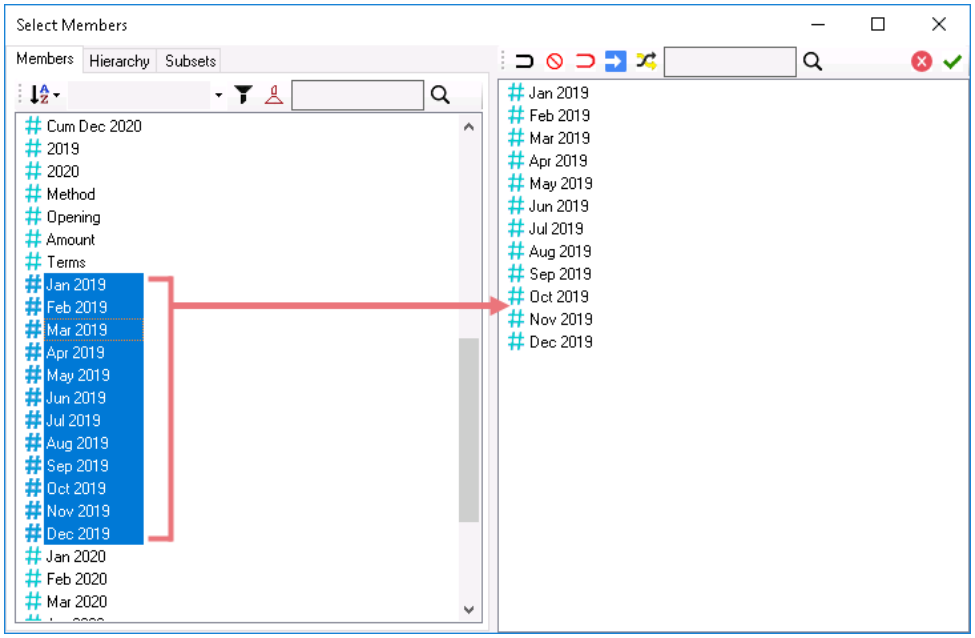


	A	B	C	D	E	F	G	H	I	J	K
1	Database:	PowerExcel PandA Training									
2	Cube:	Month Year Financial Data									
3	Dimensions:	Filter	MY Fin Data M	Members	All						
4		Filter	Version	Members	Actual						
5		Filter	Entity	Members	All						
6		Filter	Month Year	Members	All						
7		Column1	Department	Range	$B$12:$G$12						
8		Column2	Product - Serv	Range	$B$13:$G$13						
9		Row	Account	Range	$A$14:$A$57						
10											
11	OLAPivotTable										
12		Online Sales	Online Sales	Online Sales	Direct Sales	Direct Sales	Direct Sales				
13		Product 1	Product 2	Product 3	Product 1	Product 2	Product 3				
14	All	263674	48914	49235	112495	104060	59075				
15	Sales Income	112910	24082	21072	48164	44552	25286				
16	Product Licensing Income	22582	0	4214	9633	8910	5057				
17	INCOME	135492	24082	25286	57797	53462	30343				
18	DirectCosts	42906	0	8007	18302	16930	9609				
19	Job Expenses	0	0	0	0	0	0				
20	COSTOFGOODSSOLD	42906	0	8007	18302	16930	9609				
21	Gross Profit	92586	24082	17279	39494	36532	20735				
22	Automobile	11291	9151	2107	4816	4455	2529				
23	Insurance	16937	2408	3161	7225	6683	3793				

In preparation for our next topic, re-arrange the Slice so that it shows the following:

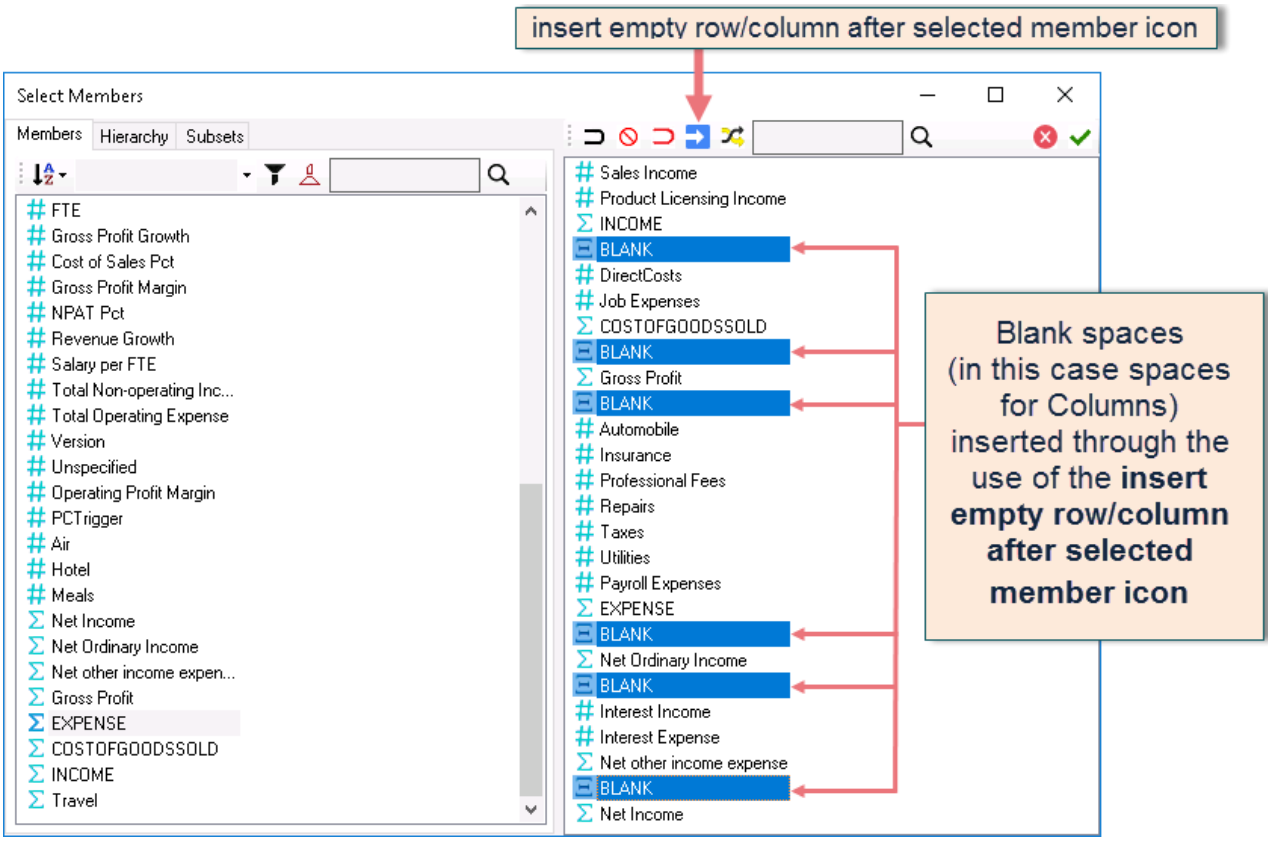
Filter	My Fin Data Measure: *All*
	Version: *Actual*
	Entity: *All*
	Product – Service: *All*
	Department: *All*
Columns	Month Year: individual months for 2019 (*Jan 2019* to *Dec 2019*)
Rows	Account: *Sales Income, Product Licensing Income, INCOME, DirectCosts, Job Expenses, COSTOFGOODSOLD, Gross Profit, Automobile, Insurance, Professional Fees, Repairs, Taxes, Utilities, Payroll Expenses, EXPENSE, Net Ordinary Income, Interest Income, Interest Expense, NET other income expense, Net Income*

6. Place the Dimensions, **My Fin Data Measure**, **Version**, **Entity**, **Product – Service** and **Department**, along the **Filters** section. Set display Members for all Dimensions along the Filter to **ALL**, except for the **Version** where **Actual** should be the display Member.
7. Drag and drop the **Month Year** Dimension along the **Columns** section. Double-click on the **Month Year** Dimension. In the Select Members dialog that appears, delete the members displayed on the right-hand pane then drag and drop the members **Jan 2019** to **Dec 2019** from the left-hand pane to the right-hand pane (as shown below). Click the **green checkmark icon** (OK button) located the top right-hand corner of the dialog.

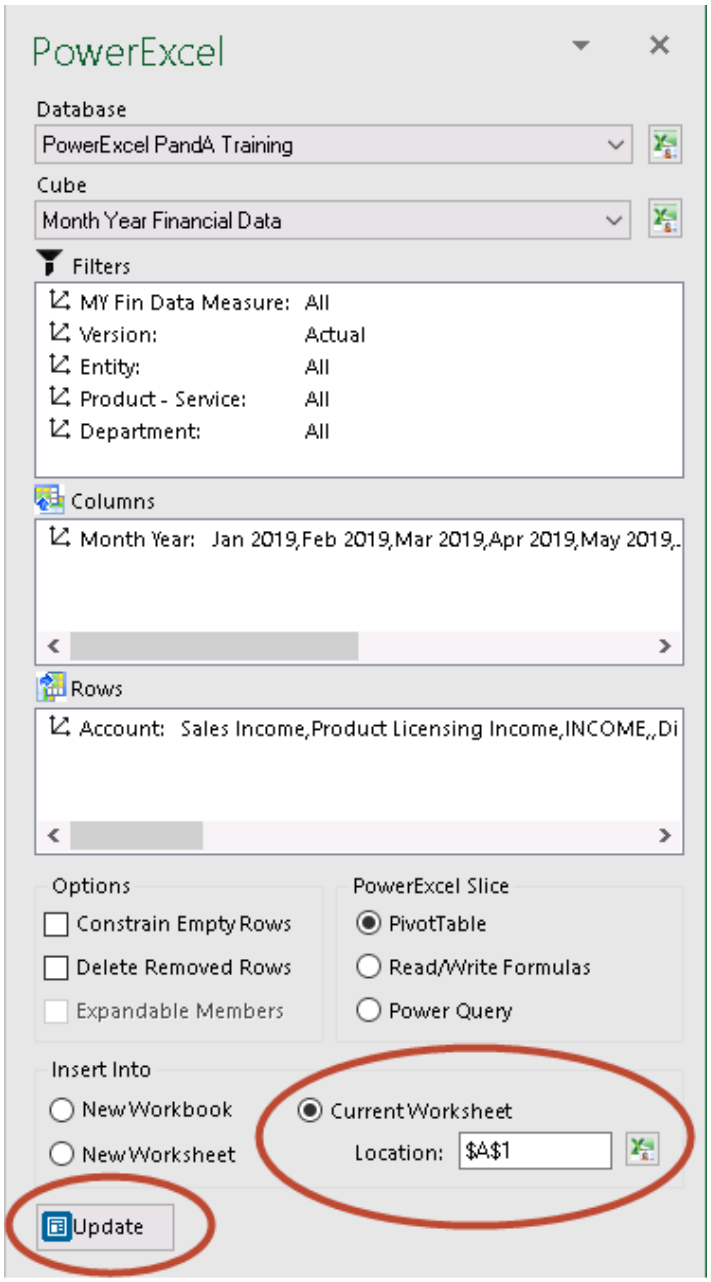


8. Leave the **Account** Dimension at the **Rows** section. Double-click on the Account Dimension and in the Select Members dialog that appears delete the members displayed on the right-hand pane; then drag and drop the Members listed in the table guide. Arrange the Members in the same order as listed there.

Note: You can use the insert empty row/column after selected member icon to place blank rows and columns between Members (as shown below).

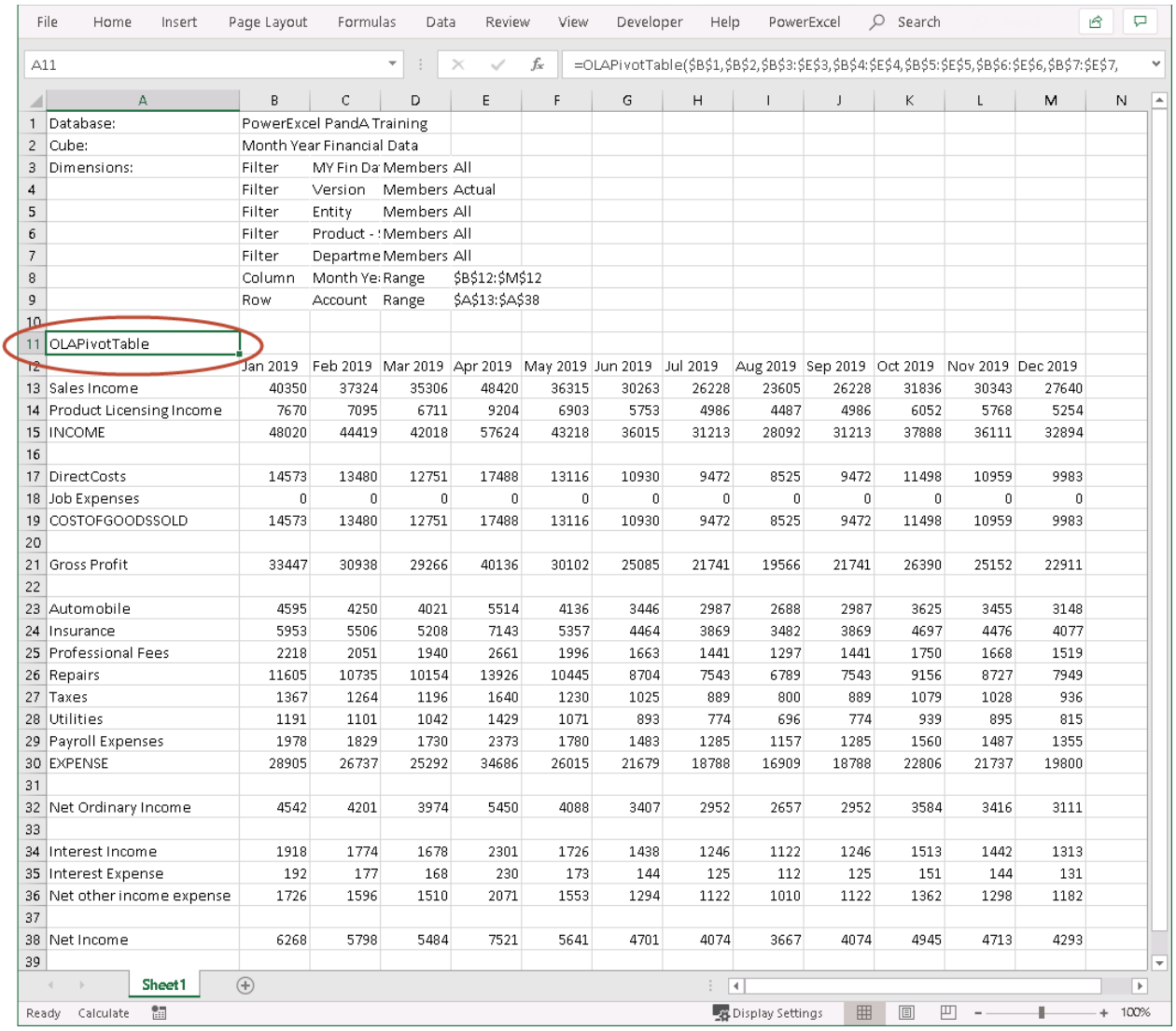


9. Click the **green checkmark icon** (OK button) to commit changes.



10. With **current worksheet** (circled in the image above) selected and with **A1** as the starting cell selected, click the **Update** button (also circled in the image above). **Note:** You can adjust the column width as desired so that you can better see the data. Also note the **OLAPivotTable** reference (circled in the succeeding image).

The PowerExcel Slice will look as follows:



	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Database:	PowerExcel PandA Training												
2	Cube:	Month Year Financial Data												
3	Dimensions:	Filter	MY Fin Da	Members	All									
4		Filter	Version	Members	Actual									
5		Filter	Entity	Members	All									
6		Filter	Product - !	Members	All									
7		Filter	Departme	Members	All									
8		Column	Month Ye:	Range	$B$12:$M$12									
9		Row	Account	Range	$A$13:$A$38									
10														
11	OLAPivotTable													
12		Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Jun 2019	Jul 2019	Aug 2019	Sep 2019	Oct 2019	Nov 2019	Dec 2019	
13	Sales Income	40350	37324	35306	48420	36315	30263	26228	23605	26228	31836	30343	27640	
14	Product Licensing Income	7670	7095	6711	9204	6903	5753	4986	4487	4986	6052	5768	5254	
15	INCOME	48020	44419	42018	57624	43218	36015	31213	28092	31213	37888	36111	32894	
16														
17	DirectCosts	14573	13480	12751	17488	13116	10930	9472	8525	9472	11498	10959	9983	
18	Job Expenses	0	0	0	0	0	0	0	0	0	0	0	0	
19	COSTOFGOODSSOLD	14573	13480	12751	17488	13116	10930	9472	8525	9472	11498	10959	9983	
20														
21	Gross Profit	33447	30938	29266	40136	30102	25085	21741	19566	21741	26390	25152	22911	
22														
23	Automobile	4595	4250	4021	5514	4136	3446	2987	2688	2987	3625	3455	3148	
24	Insurance	5953	5506	5208	7143	5357	4464	3869	3482	3869	4697	4476	4077	
25	Professional Fees	2218	2051	1940	2661	1996	1663	1441	1297	1441	1750	1668	1519	
26	Repairs	11605	10735	10154	13926	10445	8704	7543	6789	7543	9156	8727	7949	
27	Taxes	1367	1264	1196	1640	1230	1025	889	800	889	1079	1028	936	
28	Utilities	1191	1101	1042	1429	1071	893	774	696	774	939	895	815	
29	Payroll Expenses	1978	1829	1730	2373	1780	1483	1285	1157	1285	1560	1487	1355	
30	EXPENSE	28905	26737	25292	34686	26015	21679	18788	16909	18788	22806	21737	19800	
31														
32	Net Ordinary Income	4542	4201	3974	5450	4088	3407	2952	2657	2952	3584	3416	3111	
33														
34	Interest Income	1918	1774	1678	2301	1726	1438	1246	1122	1246	1513	1442	1313	
35	Interest Expense	192	177	168	230	173	144	125	112	125	151	144	131	
36	Net other income expense	1726	1596	1510	2071	1553	1294	1122	1010	1122	1362	1298	1182	
37														
38	Net Income	6268	5798	5484	7521	5641	4701	4074	3667	4074	4945	4713	4293	
39														

We recommend, at this point, saving the Slice above by clicking on **Save As** and browsing to a preferred location, just as you save a normal spreadsheet.

Important: If you save a Slice, you can open it at any time and see the latest data from the Cloud-based model by simply pressing **F9** to re-establish the connection.

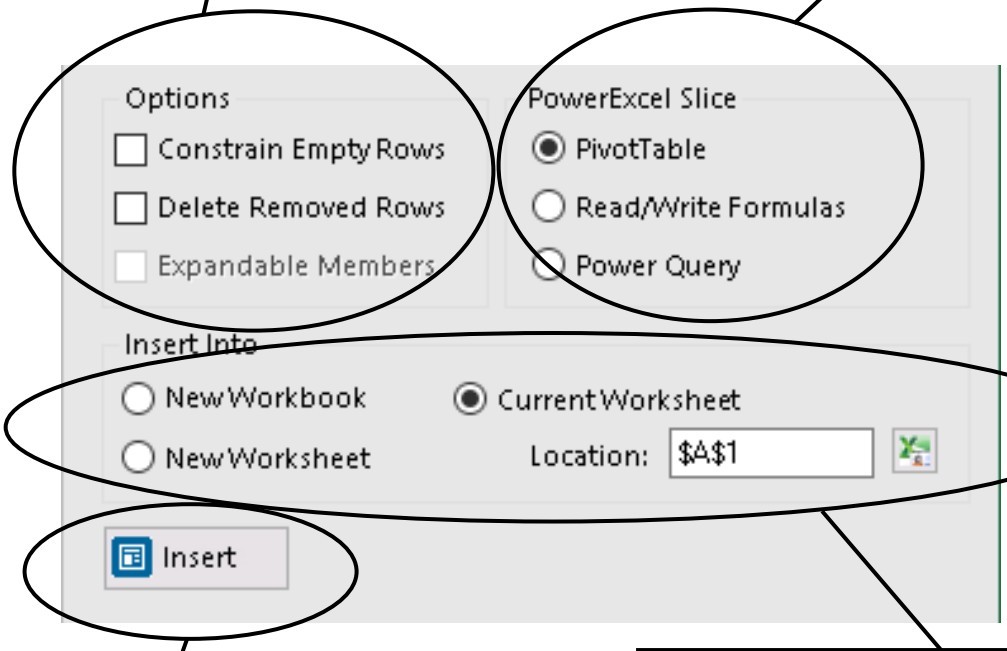
The final section of this manual concerns Saving Slices so that they can be viewed by other users who also have a PowerExcel connection to the same model.

We are now in a position to explain some of the features that PowerExcel provides, which will give you extensive capabilities in organizing data within the PowerExcel Slice. (See the following section.)

Note that the selections at the bottom of the PowerExcel pop-up window at right visible when you click on the OLAPivotTable function located in cell A11 (circled in the previous image).

These selections will enable you to remove Rows or Columns that have only zero values. NOTE: Expandable Members will be available in the next product version.

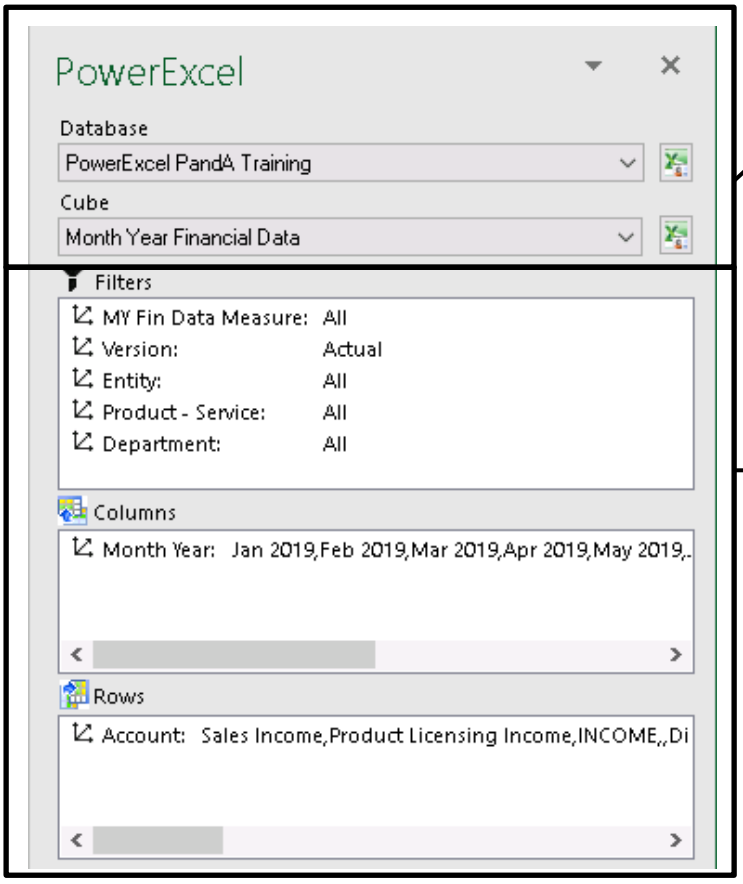
These selections determine the function that governs how data from the cube will be shown in the Slice. In the previous steps, OLAPivotTable was used. In the next few pages, you will use both Read/Write Formulas and Power Query.



Click on this button after you have made all other selections to insert the PowerExcel Slice in a worksheet. As discussed above, the Insert button changes to Update after you have made further selections concerning Filters, Columns and Rows.

These selections will enable you to specify whether you want to insert the PowerExcel Slice into a New Workbook, New Worksheet, or the Current Worksheet; use Location to choose the cell where the PowerExcel function will go.

Note that the selections at the top of the PowerExcel window becomes visible when you click on the OLAPivotTable function located in cell A8, as shown in the previous image.

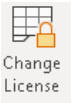


As shown previously after creating a New Connection, this is where you will choose the PowerExcel database and the Cube in that database that you want to "slice to Excel."

These Filter boxes enable you to (a) re-orient the Dimensions you want to see as "Page", Columns and Rows Members, and (b) select the individual Dimension Members that you wish to see in the PowerExcel Slice.

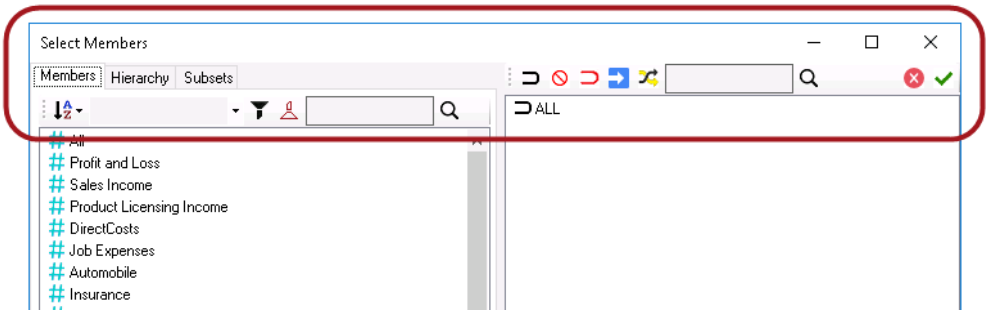
The following are the icons on the PowerExcel ribbon, shown below (with a description).

New	Start here to create a Slice from a PowerExcel database (providing Connection exists).
Open	Opens a Saved Slice. Note that you will have further options about the Slice Type and where to insert the data [see the final section of this manual for further information]
Save	Saves a PowerExcel Slice, which can be viewed by another user with a connection to the same model [see the final section of this manual for further information]

	Refreshes the Slice data after making Member selections
	Shows the PowerExcel Sidebar (pane) if you have unchecked the Option (see Option [PowerExcel Slice] below) to automatically display PowerExcel sidebar.
	Finds PowerExcel functions in an open Slice [available next version]
	[PowerExcel Slice] Brings up a dialog concerning Workbooks (Create a new Workbook, Create a news Sheet in current Workbook) and to enable Defaults (Constrain Rows, Delete Removed Rows, Expandable Members/Expand Children Below Parent, Horizontal Page Headers). Also includes checkbox to automatically Show/Hide PowerExcel sidebar.
	Creates a New connection (or Delete an existing one), or select existing connection to an underlying database, and shows Name, URL, Database
	Brings up a dialog concerning Caching Options, including Cache Expiration (Hours) and Disable All Caching.
	Clears Cache in the open Slice.
	The Dimension Editor enables you to Add new Members (as a Sibling or Child to existing Members) and to reorganize existing Hierarchies. IMPORTANT: Details of the Dimension Editor capabilities are discussed in the ensuing pages; as well, the Dimension Editor must be licensed for use.
	Enables the user to change Password on the selected PowerExcel database.
	Brings up the Register PowerExcel window.
	Click on this to check for new PowerExcel software updates.
	Click on this to check PowerExcel software version and license.

Concerning additional features within PowerExcel to select Dimensions and Members you wish to display: Until now you changed Members in the Select Members dialog by deleting a Member on the right, and then moving a Member from the left to the right-hand pane to view it.

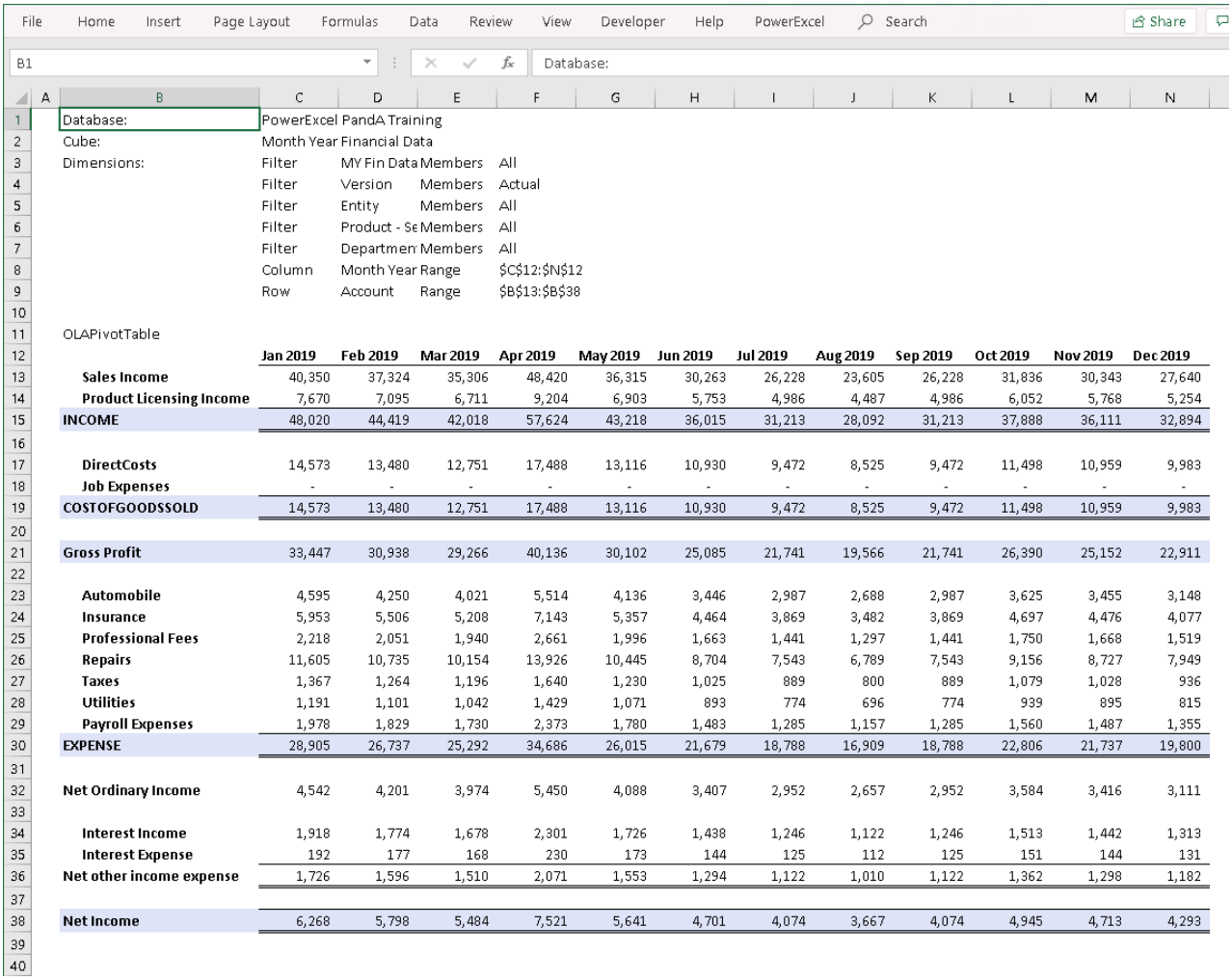
Notice at the top of the **Select Member** dialog that there are selections that can make what Member(s) appear easier.



Function	Icon	Description
MEMBERS Tab (Left-hand pane)		
Sort or Sort Members		Sort the Member list in Natural, Ascending Alphabetical, or Descending Alphabetical order.
Filter box Apply Filter Cancel Filter		Type the filter parameter in the **Filter box** and click the **Apply Filter** button; Members that satisfy the filter parameter will appear. Click the **Cancel Filter** button to remove filter and see the full list of Members again.
Search		In the text box: type the starting string of letters for the Member you want to find; click the **magnifying glass** icon and the first Member with that string will appear. Click on the magnifying glass to see next Members.
HIERARCHY Tab (Left-hand Pane)		
Find Parent		Select-highlight a Member; clicking this will highlight its parent.
Search	Find:	In the **Find** text box: type the starting string of letters for the Member you want to find; click the **magnifying glass** icon and the first Member with that string will appear. Click on the magnifying glass to see next Members.
Expand (Hierarchy)		Expands the entire Dimension hierarchy.
Collapse (Hierarchy)		Collapses the entire Dimension hierarchy.

SUBSET Tab (Left-hand Pane) *This Tab available only for Dimensions along Row/Column sections of the PowerExcel sidebar*		
Search		In the **Find** text box: type the starting string of letters for the Subset you want to find; click the **magnifying glass** icon and the first Subset with that string will appear. Click on the magnifying glass to see next Members.
POWEREXCEL SLICE CONTENT LIST Toolbar icons (Right-hand Pane)		
Copy Selected Members		Copies selected Member(s) on the left-hand pane to the PowerExcel Slice Content list at right.
Clear		Clears the Member(s) listed on the Slice Content list.
Clear and Copy Selected Members		Clears the Member(s) listed on the Slice Content list on the right and copies the selected Member(s) from the left-hand pane to the Slice Content list.
Insert Empty Row/ Column after selected Member		Inserts an empty row after the currently selected Member in the resulting Slice.
Invert Selection		Select a Member(s) on the right side, click on the button; the “inverted Member(s)” will be selected. You can click on the Delete button to remove selected members. Clicking OK (green checkmark button) will show the remaining Members in the PowerExcel Slice.
Search		In the text box: type the starting string of letters for the Member you want to find; click the **magnifying glass** icon and the first Member with that string will appear. Click on the magnifying glass to see next Members.
Exit		Click to close the Select Members dialog.
OK		Click this to commit changes to the displayed Members and return to the PowerExcel Slice.

Finally, we can demonstrate one more important thing about PowerExcel—namely, the ability to continue to **improve a Slice by using standard Excel formatting**. In short, you can apply formatting (e.g., changing the font, using highlighting, etc.) to make the Slice that was previously created/saved to look as follows:



File Home Insert Page Layout Formulas Data Review View Developer Help PowerExcel Search Share

B1 Database:

1	Database:	PowerExcel PandA Training											
2	Cube:	Month Year Financial Data											
3	Dimensions:	Filter	MY Fin Data	Members	All								
4		Filter	Version	Members	Actual								
5		Filter	Entity	Members	All								
6		Filter	Product - Se	Members	All								
7		Filter	Departmen	Members	All								
8		Column	Month Year	Range	$C$12:$N$12								
9		Row	Account	Range	$B$13:$B$38								
10													
11	OLAPivotTable												
12		Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Jun 2019	Jul 2019	Aug 2019	Sep 2019	Oct 2019	Nov 2019	Dec 2019
13	Sales Income	40,350	37,324	35,306	48,420	36,315	30,263	26,228	23,605	26,228	31,836	30,343	27,640
14	Product Licensing Income	7,670	7,095	6,711	9,204	6,903	5,753	4,986	4,487	4,986	6,052	5,768	5,254
15	INCOME	48,020	44,419	42,018	57,624	43,218	36,015	31,213	28,092	31,213	37,888	36,111	32,894
16													
17	DirectCosts	14,573	13,480	12,751	17,488	13,116	10,930	9,472	8,525	9,472	11,498	10,959	9,983
18	Job Expenses	-	-	-	-	-	-	-	-	-	-	-	-
19	COSTOFGOODSSOLD	14,573	13,480	12,751	17,488	13,116	10,930	9,472	8,525	9,472	11,498	10,959	9,983
20													
21	Gross Profit	33,447	30,938	29,266	40,136	30,102	25,085	21,741	19,566	21,741	26,390	25,152	22,911
22													
23	Automobile	4,595	4,250	4,021	5,514	4,136	3,446	2,987	2,688	2,987	3,625	3,455	3,148
24	Insurance	5,953	5,506	5,208	7,143	5,357	4,464	3,869	3,482	3,869	4,697	4,476	4,077
25	Professional Fees	2,218	2,051	1,940	2,661	1,996	1,663	1,441	1,297	1,441	1,750	1,668	1,519
26	Repairs	11,605	10,735	10,154	13,926	10,445	8,704	7,543	6,789	7,543	9,156	8,727	7,949
27	Taxes	1,367	1,264	1,196	1,640	1,230	1,025	889	800	889	1,079	1,028	936
28	Utilities	1,191	1,101	1,042	1,429	1,071	893	774	696	774	939	895	815
29	Payroll Expenses	1,978	1,829	1,730	2,373	1,780	1,483	1,285	1,157	1,285	1,560	1,487	1,355
30	EXPENSE	28,905	26,737	25,292	34,686	26,015	21,679	18,788	16,909	18,788	22,806	21,737	19,800
31													
32	Net Ordinary Income	4,542	4,201	3,974	5,450	4,088	3,407	2,952	2,657	2,952	3,584	3,416	3,111
33													
34	Interest Income	1,918	1,774	1,678	2,301	1,726	1,438	1,246	1,122	1,246	1,513	1,442	1,313
35	Interest Expense	192	177	168	230	173	144	125	112	125	151	144	131
36	Net other income expense	1,726	1,596	1,510	2,071	1,553	1,294	1,122	1,010	1,122	1,362	1,298	1,182
37													
38	Net Income	6,268	5,798	5,484	7,521	5,641	4,701	4,074	3,667	4,074	4,945	4,713	4,293
39													
40													

2.4 Working with a PowerExcel Read/Write Formulas

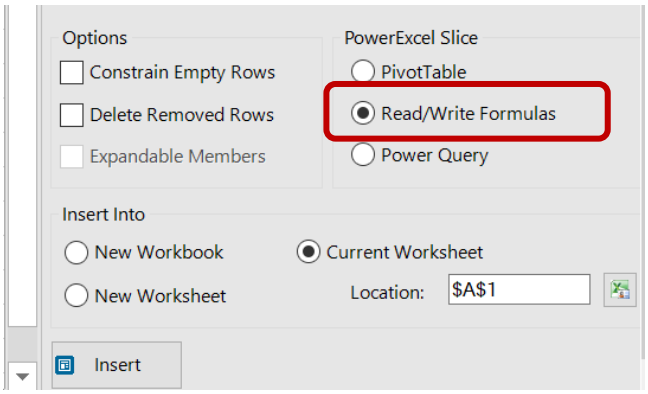
PowerExcel's Read/Write Formulas, when used as the means to bring data into a Slice, has the key advantage of returning business-model data (according to Dimensions selected and filtered) via individual, discrete cell-by-cell functions. In other words, each cell's value is governed by its own function (an OLAReadWrite function), rather than as part of a swath of cells, which is the case when the OLAP Pivot Table or the PowerQuery functions are used (the PowerQuery method is discussed in the section following this one).

The following exercise demonstrates how to use PowerExcel Read/Write Formulas to create a Slice and the advantages of using it. Assuming that you already have a Connection to a PowerExcel database (in the example, PowerExcel PandA Training), proceed as follows.

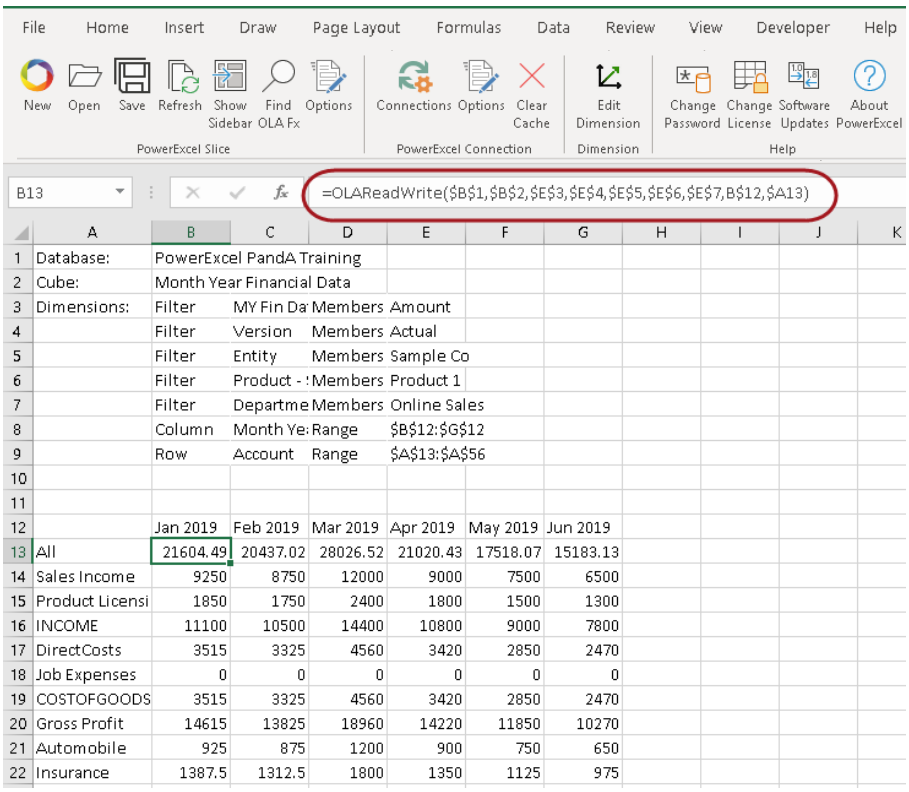
1. To create the example Slice for this exercise, go to the **PowerExcel** tab and in the PowerExcel Slice control group, select the **New** icon.
2. In the PowerExcel sidebar that appears, click on the **Database** drop-down list and select the preferred PowerExcel Database connection (e.g., **PowerExcel PandA Training**) and Cube (**Month Year Financial Data**).
3. Re-arrange the Dimensions by dragging and dropping them along the Filter, Rows and Column areas; and by specifying the indicated display Members, as below.
   Note that the specific directions for picking the Members of the **Account** dimension, in Rows.

Filter	My Fin Data Measure: *Amount*
	Version: *Actual*
	Entity: *Sample Co*
	Product – Service: *Product 1*
	Department: *Online Sales*
Columns	Month Year: *Jan 2019 through Jun 2019*
Rows	*Account* – keep the default, i.e., *All*

4. Click the **green checkmark icon** (OK button).
5. Back in the PowerExcel sidebar, select a Slice Type: use **Read/Write Formulas** by clicking on the appropriate radio button option (circled in the following image).



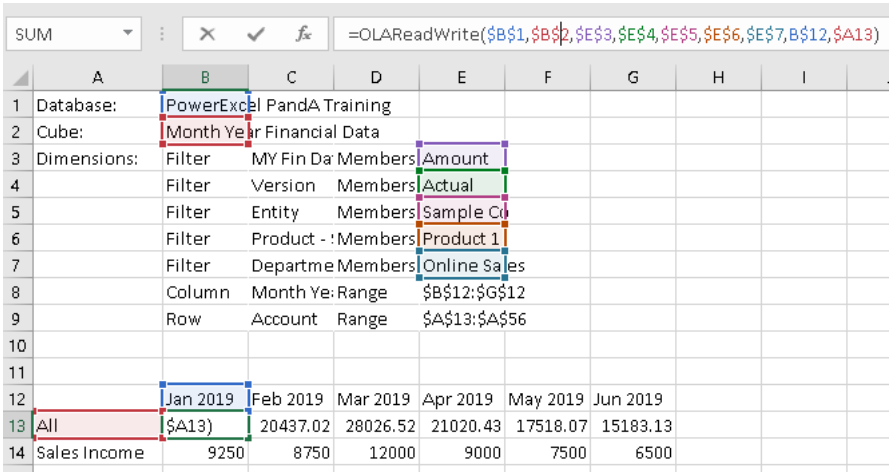
6. Select the **Current Workbook** radio button, and indicate the **Location** (cell) to insert the start of the Slice: in this example, $**A$1**.
   The Slice will appear as follows (detail):



	A	B	C	D	E	F	G	H	I	J	K
1	Database:	PowerExcel PandA Training									
2	Cube:	Month Year Financial Data									
3	Dimensions:	Filter	MY Fin Da	Members	Amount						
4		Filter	Version	Members	Actual						
5		Filter	Entity	Members	Sample Co						
6		Filter	Product - :	Members	Product 1						
7		Filter	Departme	Members	Online Sales						
8		Column	Month Ye:	Range	$B$12:$G$12						
9		Row	Account	Range	$A$13:$A$56						
10											
11											
12		Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Jun 2019				
13	All	21604.49	20437.02	28026.52	21020.43	17518.07	15183.13				
14	Sales Income	9250	8750	12000	9000	7500	6500				
15	Product Licensi	1850	1750	2400	1800	1500	1300				
16	INCOME	11100	10500	14400	10800	9000	7800				
17	DirectCosts	3515	3325	4560	3420	2850	2470				
18	Job Expenses	0	0	0	0	0	0				
19	COSTOFGOODS	3515	3325	4560	3420	2850	2470				
20	Gross Profit	14615	13825	18960	14220	11850	10270				
21	Automobile	925	875	1200	900	750	650				
22	Insurance	1387.5	1312.5	1800	1350	1125	975				

Notice that the function in cell B13 (circled in the above image) is the **OLAReadWrite** function mentioned at the start of this section, and it is the operative means of returning data when Read/Write Formulas is selected in the PowerExcel sidebar, as was done in the creation of this Slice. What is characteristic of this function?—that each cell has its own unique arguments, which is to say the referenced cells in parenthesis following the function itself.

7. Having clicked in cell B13 (or any other), next click in the function itself, which appears in the formula bar (as shown below).



	A	B	C	D	E	F	G	H	I
1	Database:	PowerExcel PandA Training							
2	Cube:	Month Year Financial Data							
3	Dimensions:	Filter	MY Fin Da	Members	Amount				
4		Filter	Version	Members	Actual				
5		Filter	Entity	Members	Sample Co				
6		Filter	Product - :	Members	Product 1				
7		Filter	Departme	Members	Online Sales				
8		Column	Month Ye:	Range	$B$12:$G$12				
9		Row	Account	Range	$A$13:$A$56				
10									
11									
12		Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Jun 2019		
13	All	$A13)	20437.02	28026.52	21020.43	17518.07	15183.13		
14	Sales Income	9250	8750	12000	9000	7500	6500		

The function in this cell (reproduced below) has unique cell references; if you click in any other cell that returns values, you will see that the cell references are indeed different.

=OLAReadWrite($B$1,$B$2,$E$3,$E$4,$E$5,$E$6,$E$7,B$12,$A13)

The Read/Write Formula function points to—and returns the value from—a precise multidimensional data point in the PowerExcel model: thus, the formula in Cell G13 is returning a value from the intersection of (in this example):

$B$1 – the Database where the model is located

$B$2 – the Cube in the Database

$E$3 – the *Amount* Member in the *MY Fin Data Measure* Dimension

$E$4 – the *Actual* Member in the *Version* Dimension

$E$5 – the *Sample Co* Member in the Entity Dimension

$E$6 – the *Product 1* Member in the Product – Services Dimension

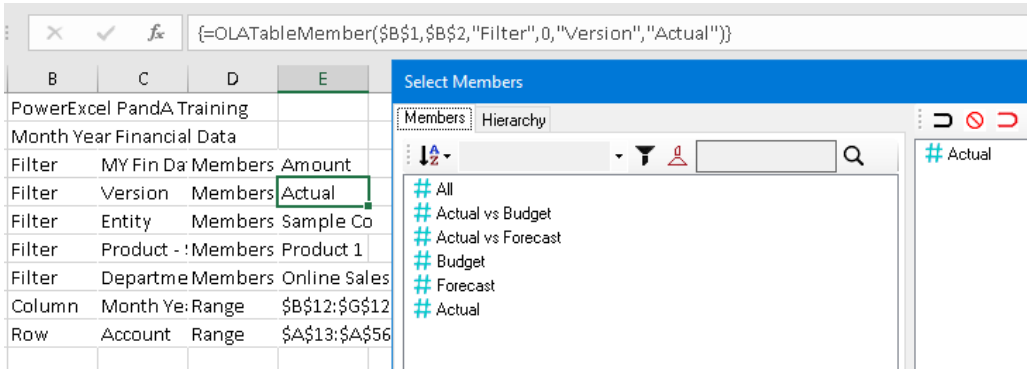
$E$7 – the *Online Sales* Member in the Department Dimension

B$12 – *Jan 2019* from the Month Year Dimension [Column reference]

$A13 – *All* from the Account Dimension [Row reference]

The interesting—and very important—fact is that that these cells are themselves "selectable"—meaning that either by using the PowerExcel pane to the right or by double-click on, for example, those governed by an {OLATableMember…} function, you can select a different Member that will change all results in the field of data in Columns and Rows.

As an example, you can double-click in Cell $E$4, and make a selection of a different version: if you do so and pick "Budget" (from the resulting PowerExcel Select Members window, as shown in the below image), then results for all the Members, including those in Columns and Rows, will show results for *Budget* rather than *Actual*.

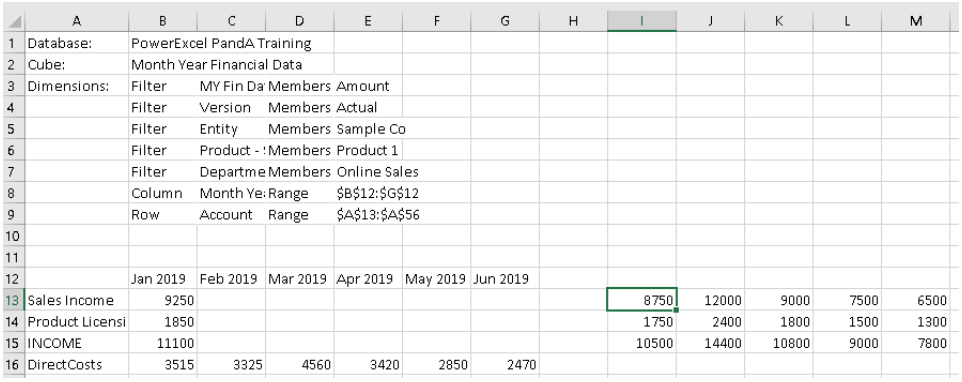


For present, go back to (or keep the selection at) Actual. We will proceed what this "cell-by-cell return of values" enables us to do in the following steps.

8. First delete Row 13, which shows data for the All Account Member—this is a formatting step, to show our data results more cleverly.

9. After the Rows have shifted upward 1 Row, click in Cell C13—*Feb 2019*, *Sales Income*.

10. Highlight all cells across and down to G15 (Jun 2019, INCOME); "grab" those cells and drop them starting in Cell I13—the result will show as in the following image:



	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Database:	PowerExcel PandA Training											
2	Cube:	Month Year Financial Data											
3	Dimensions:	Filter	MY Fin Da	Members	Amount								
4		Filter	Version	Members	Actual								
5		Filter	Entity	Members	Sample Co								
6		Filter	Product - !	Members	Product 1								
7		Filter	Departme	Members	Online Sales								
8		Column	Month Ye	Range	$B$12:$G$12								
9		Row	Account	Range	$A$13:$A$56								
10													
11													
12		Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Jun 2019						
13	Sales Income	9250							8750	12000	9000	7500	6500
14	Product Licensi	1850							1750	2400	1800	1500	1300
15	INCOME	11100							10500	14400	10800	9000	7800
16	DirectCosts	3515	3325	4560	3420	2850	2470						

11. If you now double-click on Cell E4 and select *Budget*, then **hit F9 to update**—note, those cells that you moved to the right show all zeros (as in the next image)! That is because Excel maintained the references to the cells, and the selected Member in them, in their new position—and the *Budget* values for all parameters happen to be zero. In essence, you have proved that with PowerExcel, you can return values from a business model wherever you like, anywhere in a spreadsheet. This is enormously useful in creating precisely the report view you wish, from a multidimensional model of the sort PowerExcel features.

B13 =@OLAReadWrite($B$1,$B$2,$E$3,$E$4,$E$5,$E$6,$E$7,B$12,$A13)

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Database:	PowerExcel PandA Training											
2	Cube:	Month Year Financial Data											
3	Dimensions:	Filter	MY Fin Da	Members	Amount								
4		Filter	Version	Members	Budget								
5		Filter	Entity	Members	Sample Co								
6		Filter	Product - !	Members	Product 1								
7		Filter	Departme	Members	Online Sales								
8		Column	Month Ye	Range	$B$12:$G$12								
9		Row	Account	Range	$A$13:$A$55								
10													
11													
12		Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Jun 2019						
13	Sales Income	0							0	0	0	0	0
14	Product Licensi	0							0	0	0	0	0
15	INCOME	0							0	0	0	0	0
16	DirectCosts	0	0	0	0	0	0						

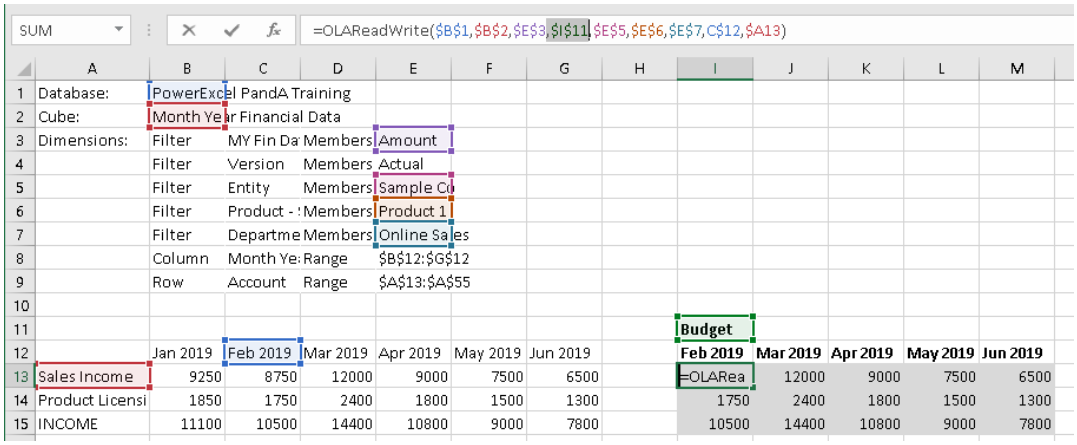
12. For present purposes, revert back to the *Actual* Member (double-click on Cell E4, select Budget, etc.).
    Next, highlight Cells B13 to B15 (*Jan 2019*, *Sales Income* to *Jan 2019, INCOME*); click on the dot—Excel's "fill handle"—at the bottom right of Cell B15 and "drag" the highlight across to Column G.

13. When you hit **F9 to upd**ate—you will see the that the data is the same as the date to the right, which you moved a few steps ago. Here Excel, as is its custom, ensured that what shows in Columns is the sequence (following *Jan 2020*) of *Feb 2020*, *Mar 2020*, etc., out to Column G, *Jun 2019*. (This is a fine example of Excel working the way a user expected!)

	Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Jun 2019						
Sales Income	9250	8750	12000	9000	7500	6500		8750	12000	9000	7500	6500
Product Licensi	1850	1750	2400	1800	1500	1300		1750	2400	1800	1500	1300
INCOME	11100	10500	14400	10800	9000	7800		10500	14400	10800	9000	7800

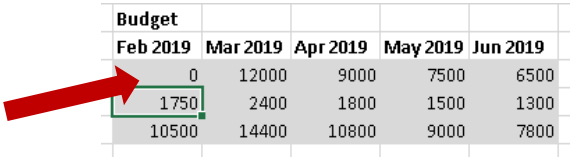
14. This next step involves some housekeeping/formatting, which are always important in data presentation, and which here is necessary to arrive are our objective, which is to show *Budget* numbers to the right of the data showing *Actuals*:
Copy the cells C12 to G12 (Feb 2019 to Jun 2019) and paste them into cell I12, and make those month headers **bold**.
Then, type the word **Budget** into Cell I11, making it **bold** as well.

15. Next, to change the key reference for the right "block" of cells, so that they show Budget figures:
Click in Cell I13, then click within the function in the formula bar.
Change the reference to *Actual* ($E$4) by highlighting it and pointing to Cell I11 (you can do this by pull the rectangle surrounding E4 down to I11).
Before you press **F9** to recalculate, your spreadsheet will look as follows:



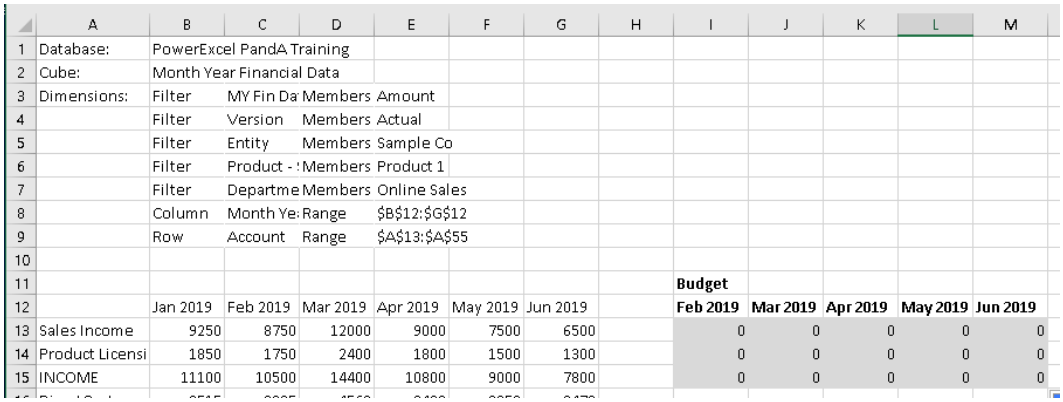
	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Database:	PowerExcel	PandA Training										
2	Cube:	Month Ye	r Financial Data										
3	Dimensions:	Filter	MY Fin Da	Members	Amount								
4		Filter	Version	Members	Actual								
5		Filter	Entity	Members	Sample Co								
6		Filter	Product - !	Members	Product 1								
7		Filter	Departme	Members	Online Sales								
8		Column	Month Ye:	Range	$B$12:$G$12								
9		Row	Account	Range	$A$13:$A$55								
10													
11									Budget				
12		Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Jun 2019		Feb 2019	Mar 2019	Apr 2019	May 2019	Jun 2019
13	Sales Income	9250	8750	12000	9000	7500	6500		=OLARea	12000	9000	7500	6500
14	Product Licensi	1850	1750	2400	1800	1500	1300		1750	2400	1800	1500	1300
15	INCOME	11100	10500	14400	10800	9000	7800		10500	14400	10800	9000	7800

16. Hit the **Enter** key and then press **F9**. Note that the value changes to zero (as per the arrow in the following image)! As we saw earlier, there is indeed a zero value for *Budget*, *Sales Income* for *Feb 2019* (for Amount, Sample Co, Product 1, Online Sales—i.e., the other referenced cells.)



Budget				
Feb 2019	Mar 2019	Apr 2019	May 2019	Jun 2019
0	12000	9000	7500	6500
1750	2400	1800	1500	1300
10500	14400	10800	9000	7800

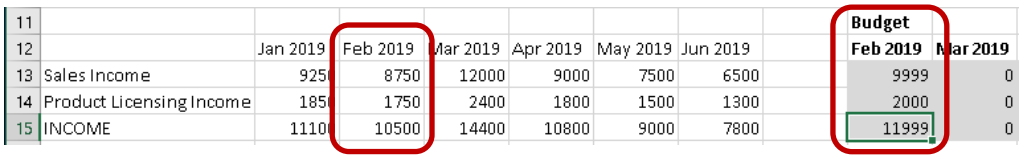
17. Once again put your cursor in Cell I13; use the fill handle at the bottom right and pull down to include I14 and I15; hit **Enter** and then **F9** to update. These cells also show zero values. Lastly, highlight I13 through I15 and, as above, use the fill handle to pull the highlighted area across, covering all of the data set through to Column M. Hit **Enter** and **F9**. The result set will show as in the following image:



	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Database:	PowerExcel PandA Training											
2	Cube:	Month Year Financial Data											
3	Dimensions:	Filter	MY Fin Da	Members	Amount								
4		Filter	Version	Members	Actual								
5		Filter	Entity	Members	Sample Co								
6		Filter	Product - '	Members	Product 1								
7		Filter	Departme	Members	Online Sales								
8		Column	Month Ye	Range	$B$12:$G$12								
9		Row	Account	Range	$A$13:$A$55								
10													
11									Budget				
12		Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Jun 2019		Feb 2019	Mar 2019	Apr 2019	May 2019	Jun 2019
13	Sales Income	9250	8750	12000	9000	7500	6500		0	0	0	0	0
14	Product Licensi	1850	1750	2400	1800	1500	1300		0	0	0	0	0
15	INCOME	11100	10500	14400	10800	9000	7800		0	0	0	0	0

As a final part of this exercise, we will do something that is covered more in depth in a later section: **entering data into a PowerExcel model.** Here we will type a couple of numbers into this spreadsheet, which will further demonstrate (and validate) the use of creating data sets in a spreadsheet by using the OLA ReaWrite function.

18. Type example numbers—e.g., 9999 and 2000—in Cells I13 and I14 (*Sales Income* and *Product Licensing Income*, for *Feb 2019*). In this way, we might be entering future budget numbers (in actuality, the entry template would be for a "plan" period, not the current months), with full, and nearby, knowledge of ongoing Actuals. (The Actual figures appear in Cells C13 and C14—circle to the left in the next image.)
    Hit **Enter** and **F9**.



									Budget	
12		Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Jun 2019		Feb 2019	Mar 2019
13	Sales Income	925	8750	12000	9000	7500	6500		9999	0
14	Product Licensing Income	185	1750	2400	1800	1500	1300		2000	0
15	INCOME	1110	10500	14400	10800	9000	7800		11999	0

As shown above on the right, the two Budget numbers appear and even calculate automatically, delivering the *INCOME* number for *Feb 2019*. This calculation, defined once in the PowerExcel model—rather than in numerous cells individually, in numerous spreadsheets—demonstrates another advantage of using PowerExcel for business modeling.

2.5 Working with a PowerExcel Power Query Table

The PowerExcel Power Query Table dynamically creates a Slice in Excel in a powerful format that leverages Excel's own Power Query capabilities. In sum, it gives the user the ability to apply any queries to the table, apply numerous filters, easily reorder the table, and record/automate/undo changes, among other capabilities.

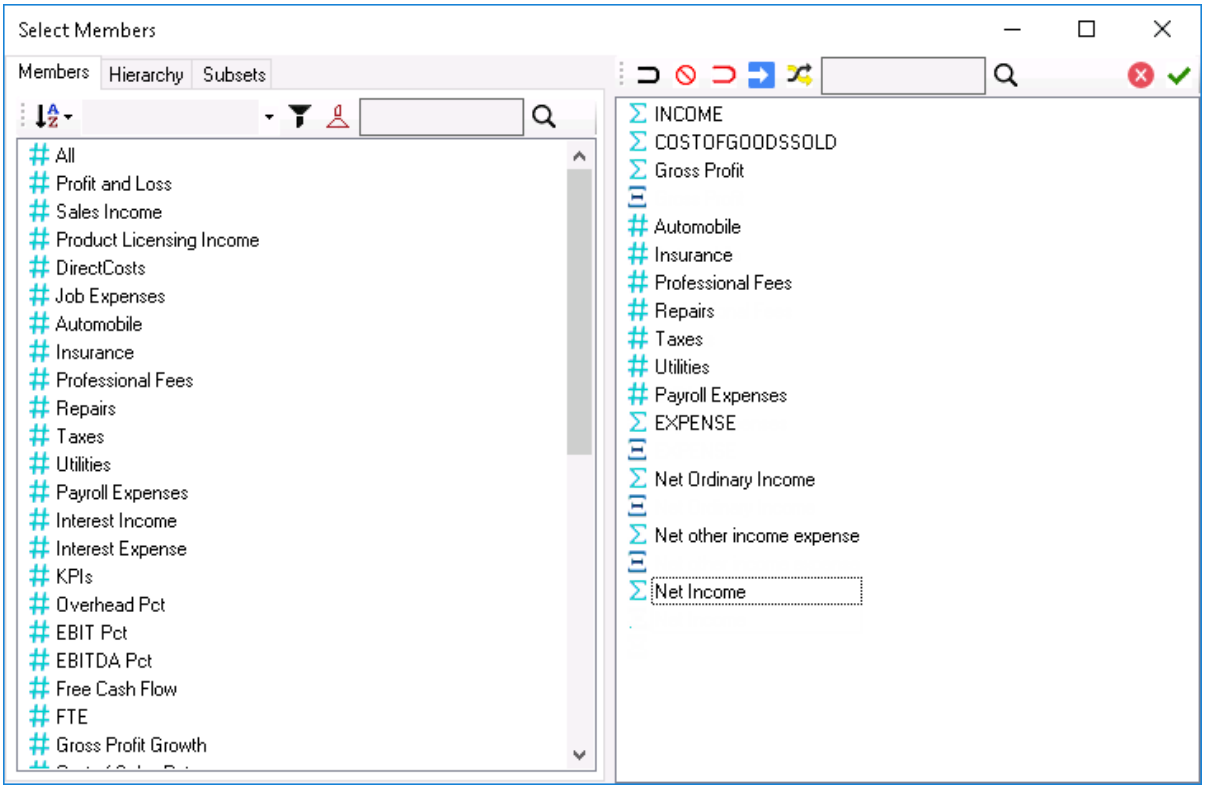
IMPORTANT: The important thing to take note of when using the PowerExcel Power Query Table is that **it is updated using the Refresh button found in the PowerExcel tab** of the Excel ribbon. The **F9** key WILL NOT refresh a PowerExcel Slice that has the Power Query Table as the Slice type.

The following exercise demonstrates the use of the **PowerExcel Power Query** to create a Slice. Assuming that you already have a Connection to a PowerExcel database (in the example, PowerExcel PandA Training), proceed as follows.

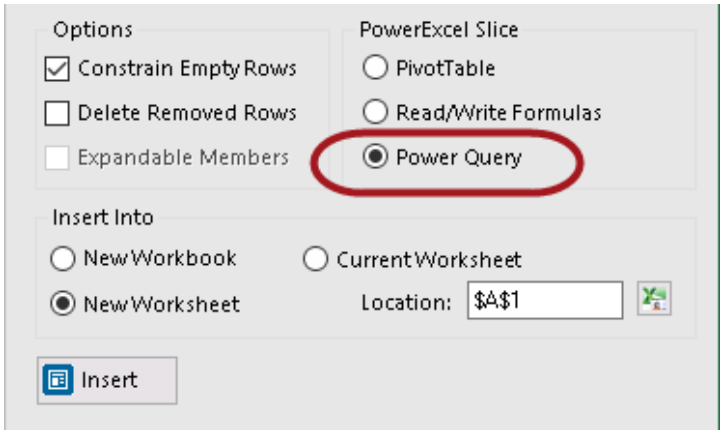
1. Create an example PowerExcel Slice (the Slice demonstrated here closely resembles the one you created previously—but now with all the 2019 months).
2. Open a new Excel workbook. Go to the **PowerExcel** tab and in the PowerExcel Slice control group, select the **New** icon.
3. In the PowerExcel sidebar that appears, click on the **Database** drop-down list and select the preferred PowerExcel Database connection (e.g**., PowerExcel PandA Training**) and Cube (i.e., **Month Year Financial Data**).
4. Re-arrange the Dimensions (the following concerns a 7-dimensional business model, or Cube) by dragging and dropping them along the Filter, Rows and Column areas; and by specifying the indicated display Members:

Filter	My Fin Data Measure: *All*
	Version: *Actual*
	Entity: *All*
	Product – Service: *All*
	Department: *All*
Columns	Month Year: individual months for 2019 (*Jan 2019* to *Dec 2019*) and aggregate month *2019*
Rows	Account: *INCOME, COSTOFGOODSOLD,* *Gross Profit, Automobile, Insurance, Professional Fees, Repairs, Taxes, Utilities, Payroll Expenses, EXPENSE, Net Ordinary Income, NET other income expense, Net Income*

5. For the Account Dimension: double-click on the **Account** Dimension and insert blank spaces (as in the image below) after selected Aggregates. To insert blank spaces, go to the right-hand pane of the Select Members dialog, select a Member and click on the **insert empty row/column after selected member icon**. This will insert a blank row or column right after the Member, as shown in the next image.



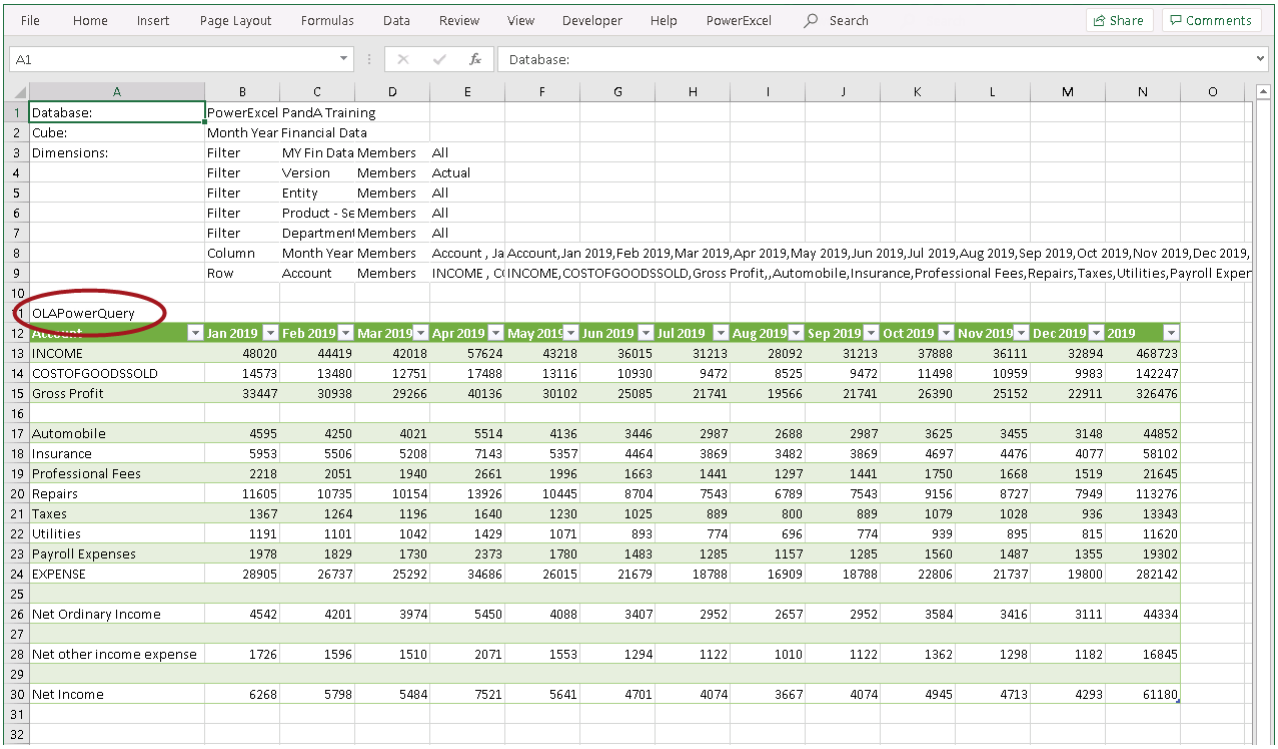
6. Click the **green checkmark** icon (OK button).
7. Back in the PowerExcel sidebar, select a Slice Type: use **PowerExcel Power Query Table** by clicking on the appropriate radio button option (circled in the following image).



8. Select the **Current Workbook** radio button, and indicate the **Location** (cell) to insert the Power Query table. In this example, retain **$A$1**.
9. Click the **Insert** button located at the bottom-left area of the PowerExcel sidebar. Note the OLAPowerQuery function (circled in the image below) is the PowerExcel function that governs how data appears in the spreadsheet.

TIP: Another much faster way to create your PowerExcel Slice, if you had been following the flow of this exercise, is to go back to the PivotTable report you created earlier, click on the **OLAPivotTable** connection reference to bring up the

PowerExcel sidebar, arrange your Dimensions and display Members following our table guide. *But this time,* select **Power Query** as the PowerExcel Slice Type. Select **New Workbook**, specify starting cell Location as cell **A1**, and click the **Update** button. This will generate the desired Power Query Table in a new Excel workbook.



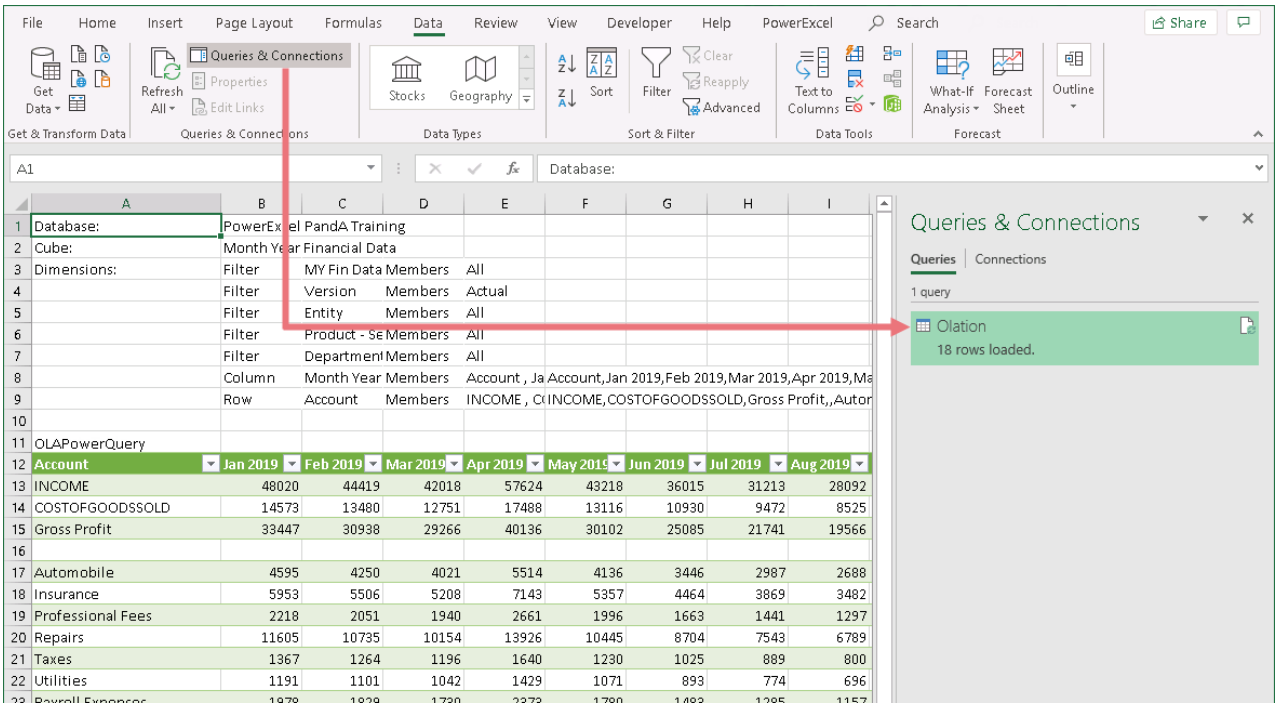
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Database:	PowerExcel PandA Training													
2	Cube:	Month Year Financial Data													
3	Dimensions:	Filter	MY Fin Data	Members	All										
4		Filter	Version	Members	Actual										
5		Filter	Entity	Members	All										
6		Filter	Product - Se	Members	All										
7		Filter	Department	Members	All										
8		Column	Month Year	Members	Account , Ja	Account,Jan 2019,Feb 2019,Mar 2019,Apr 2019,May 2019,Jun 2019,Jul 2019,Aug 2019,Sep 2019,Oct 2019,Nov 2019,Dec 2019,										
9		Row	Account	Members	INCOME , C	INCOME,COSTOFGOODSSOLD,Gross Profit,,Automobile,Insurance,Professional Fees,Repairs,Taxes,Utilities,Payroll Exper										
10															
11	OLAPowerQuery														
12	Account	Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Jun 2019	Jul 2019	Aug 2019	Sep 2019	Oct 2019	Nov 2019	Dec 2019	2019	
13	INCOME	48020	44419	42018	57624	43218	36015	31213	28092	31213	37888	36111	32894	468723	
14	COSTOFGOODSSOLD	14573	13480	12751	17488	13116	10930	9472	8525	9472	11498	10959	9983	142247	
15	Gross Profit	33447	30938	29266	40136	30102	25085	21741	19566	21741	26390	25152	22911	326476	
16															
17	Automobile	4595	4250	4021	5514	4136	3446	2987	2688	2987	3625	3455	3148	44852	
18	Insurance	5953	5506	5208	7143	5357	4464	3869	3482	3869	4697	4476	4077	58102	
19	Professional Fees	2218	2051	1940	2661	1996	1663	1441	1297	1441	1750	1668	1519	21645	
20	Repairs	11605	10735	10154	13926	10445	8704	7543	6789	7543	9156	8727	7949	113276	
21	Taxes	1367	1264	1196	1640	1230	1025	889	800	889	1079	1028	936	13343	
22	Utilities	1191	1101	1042	1429	1071	893	774	696	774	939	895	815	11620	
23	Payroll Expenses	1978	1829	1730	2373	1780	1483	1285	1157	1285	1560	1487	1355	19302	
24	EXPENSE	28905	26737	25292	34686	26015	21679	18788	16909	18788	22806	21737	19800	282142	
25															
26	Net Ordinary Income	4542	4201	3974	5450	4088	3407	2952	2657	2952	3584	3416	3111	44334	
27															
28	Net other income expense	1726	1596	1510	2071	1553	1294	1122	1010	1122	1362	1298	1182	16845	
29															
30	Net Income	6268	5798	5484	7521	5641	4701	4074	3667	4074	4945	4713	4293	61180	
31															
32															

Important: Most of the manipulations you made using the OLAPivotTable to arrange Columns and Rows and to select Members to filter are available in the PowerExcel Power Query Slice. You can try these on your own, arranging a Slice according to your preferences, as explained below.

The great benefit of using PowerExcel's Power Query capability is that—following the creation of a Slice—you can leverage all of Excel's own Power Query options. To show some examples of what can be done, proceed as follows:

10. With your cursor in the PowerExcel Slice, go to the **Data** tab of the Excel ribbon, and select the **Queries & Connections** command icon.

    The **Queries and Connections sidebar** appears to the right of the PowerExcel Slice.



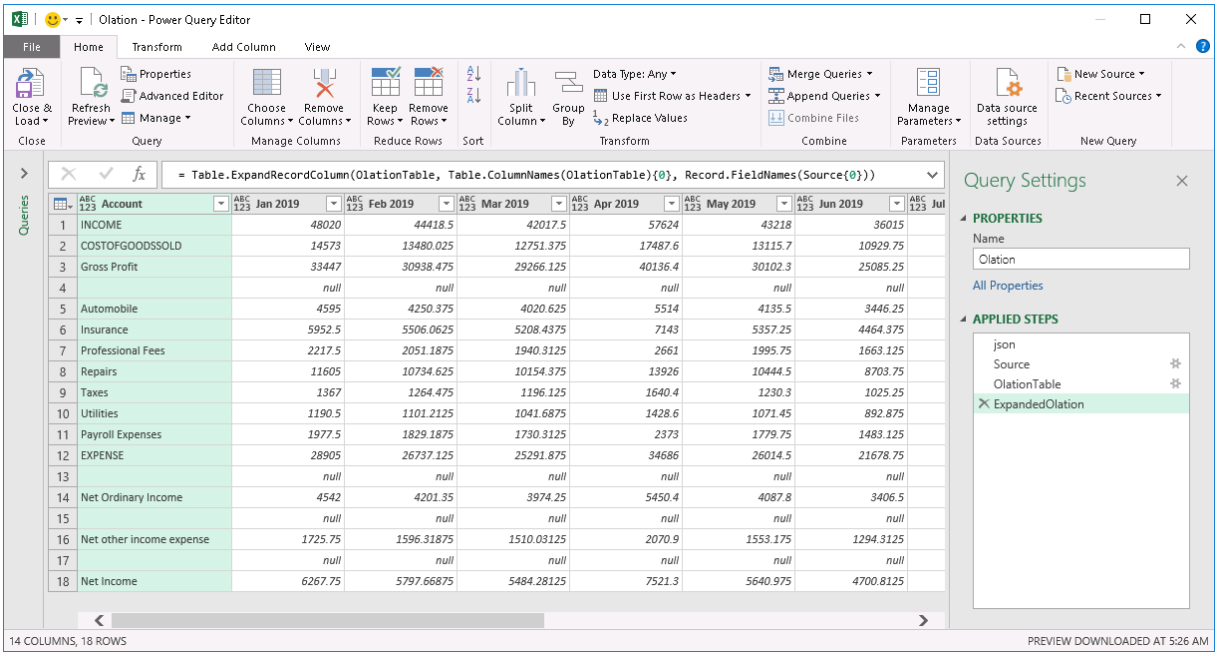
	A	B	C	D	E	F	G	H	I
1	Database:	PowerEx	el PandA Training						
2	Cube:	Month Ye	ar Financial Data						
3	Dimensions:	Filter	MY Fin Data	Members	All				
4		Filter	Version	Members	Actual				
5		Filter	Entity	Members	All				
6		Filter	Product - Se	Members	All				
7		Filter	Department	Members	All				
8		Column	Month Year	Members	Account , Ja	Account,Jan 2019,Feb 2019,Mar 2019,Apr 2019,Ma			
9		Row	Account	Members	INCOME , C	INCOME,COSTOFGOODSSOLD,Gross Profit,,Autor			
10									
11	OLAPowerQuery								
12	Account	Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Jun 2019	Jul 2019	Aug 2019
13	INCOME	48020	44419	42018	57624	43218	36015	31213	28092
14	COSTOFGOODSSOLD	14573	13480	12751	17488	13116	10930	9472	8525
15	Gross Profit	33447	30938	29266	40136	30102	25085	21741	19566
16									
17	Automobile	4595	4250	4021	5514	4136	3446	2987	2688
18	Insurance	5953	5506	5208	7143	5357	4464	3869	3482
19	Professional Fees	2218	2051	1940	2661	1996	1663	1441	1297
20	Repairs	11605	10735	10154	13926	10445	8704	7543	6789
21	Taxes	1367	1264	1196	1640	1230	1025	889	800
22	Utilities	1191	1101	1042	1429	1071	893	774	696

11. When you select a query and double-click on it (see where arrow points), the **Olation - Power Query Editor** appears. (This is shown in the next image.)

    Within the Query Editor, you can make all kinds of changes to the orientation of the data; as well, you can edit the query to show data as you like—there are truly limitless possibilities.

    These allow you to perform actions such as (but not limited to):

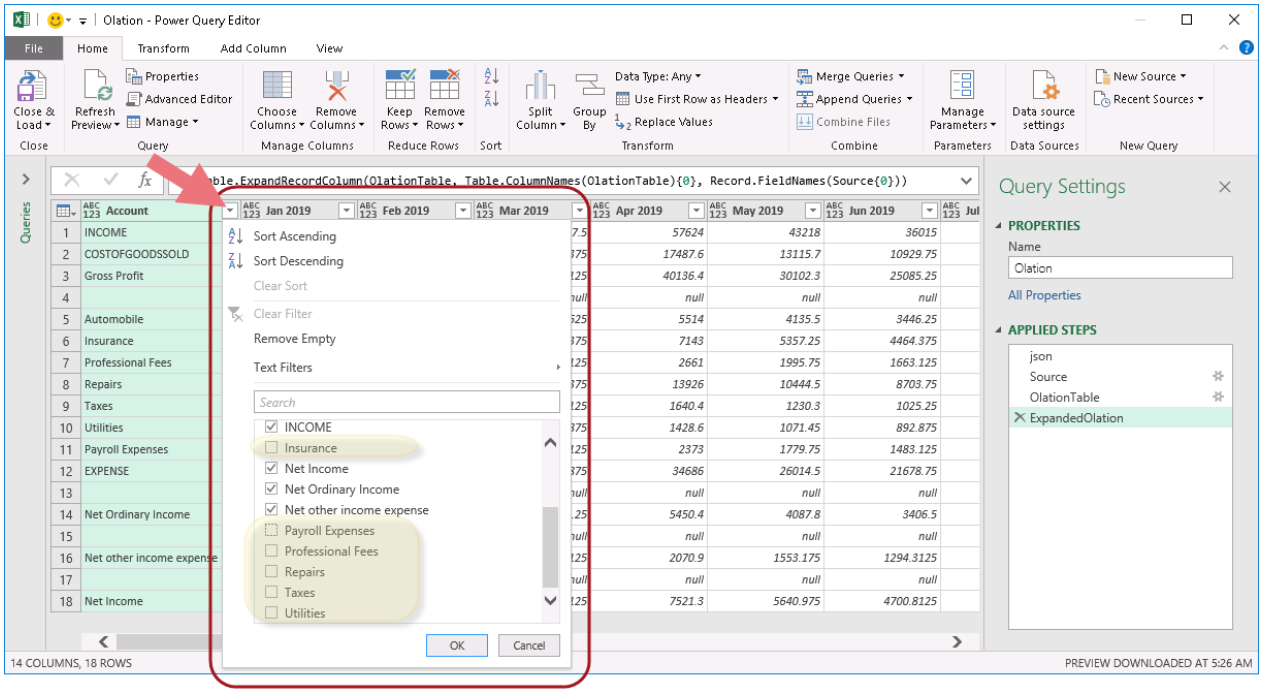
    - Re-order the Columns and Rows
    - Record and Delete some steps or actions performed
    - Remove, Add or Duplicate Columns
    - Unpivot Columns
    - Filter Data that appears in Columns



12. Let us filter **Account** so that it displays only the Aggregate Members. For this exercise, we will remove all sub-accounts of **Expense**.

    To do this:

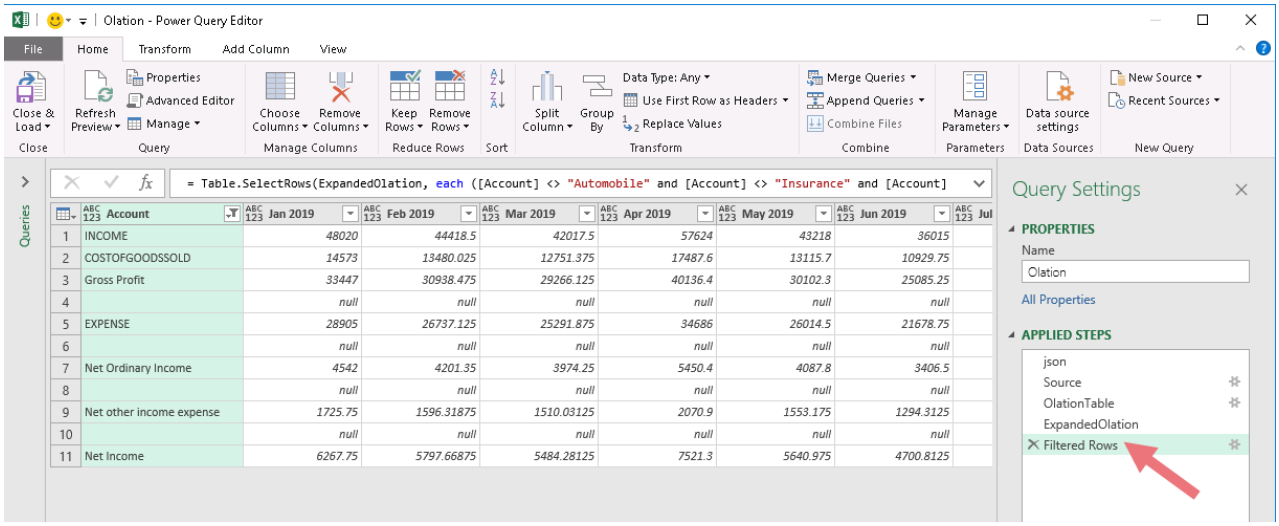
    - In the Olation - Power Query Editor, click on the **Account** drop-down (see where arrow points in the image below).
    - Uncheck all sub-accounts of **EXPENSE**: *Automobile*, *Insurance*, *Professional Fees*, *Repairs*, *Taxes*, *Utilities* and *Payroll Expenses.* Some of these are shown shaded in the image below.



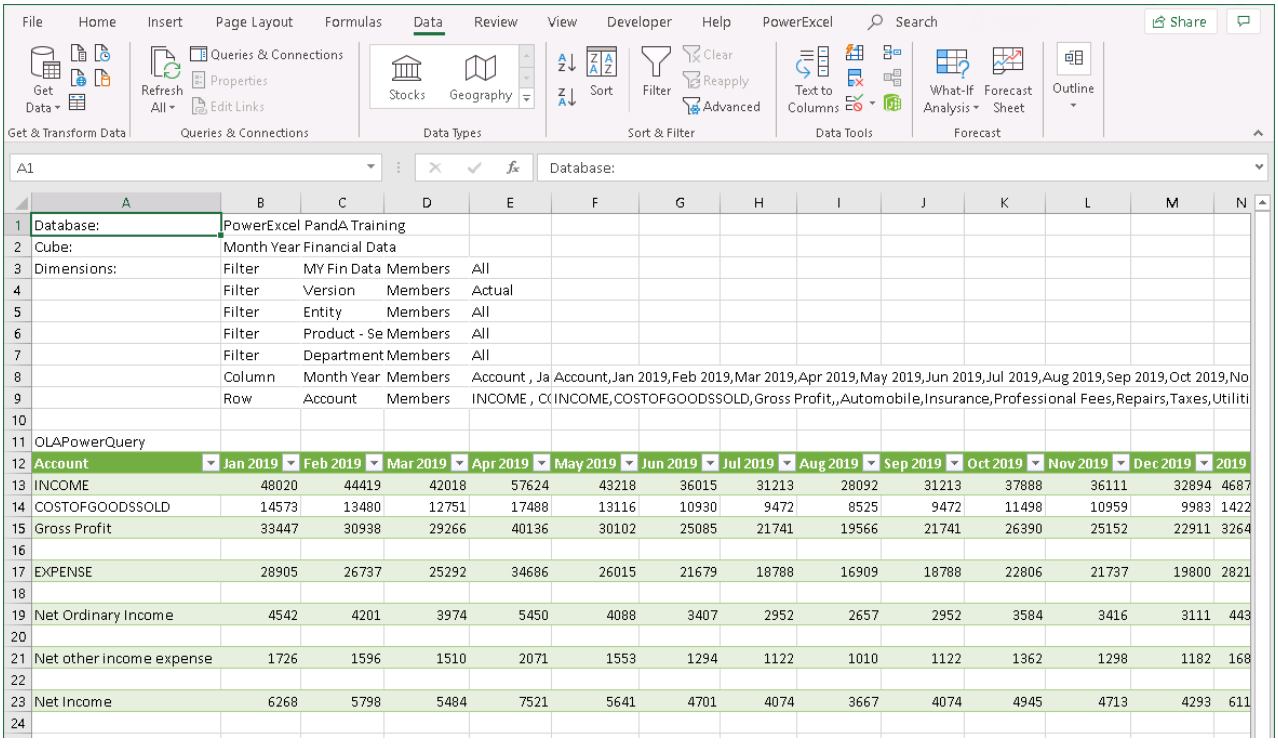
- Click **OK** to apply changes and exit the Filter box.
  Back in the Olation - Power Query Editor, notice that the table is updated.

  You will see in the Olation - Power Query Editor a list of actions performed in the Query Settings sidebar on the right. Notice the action we just performed under the **Applied Steps** section, i.e., Filtered Rows. (See where arrow points in the image below.)

  Note: You can rename the actions or steps by right-clicking on the step or action, selecting the **Rename** option and typing in the <**new name**>.



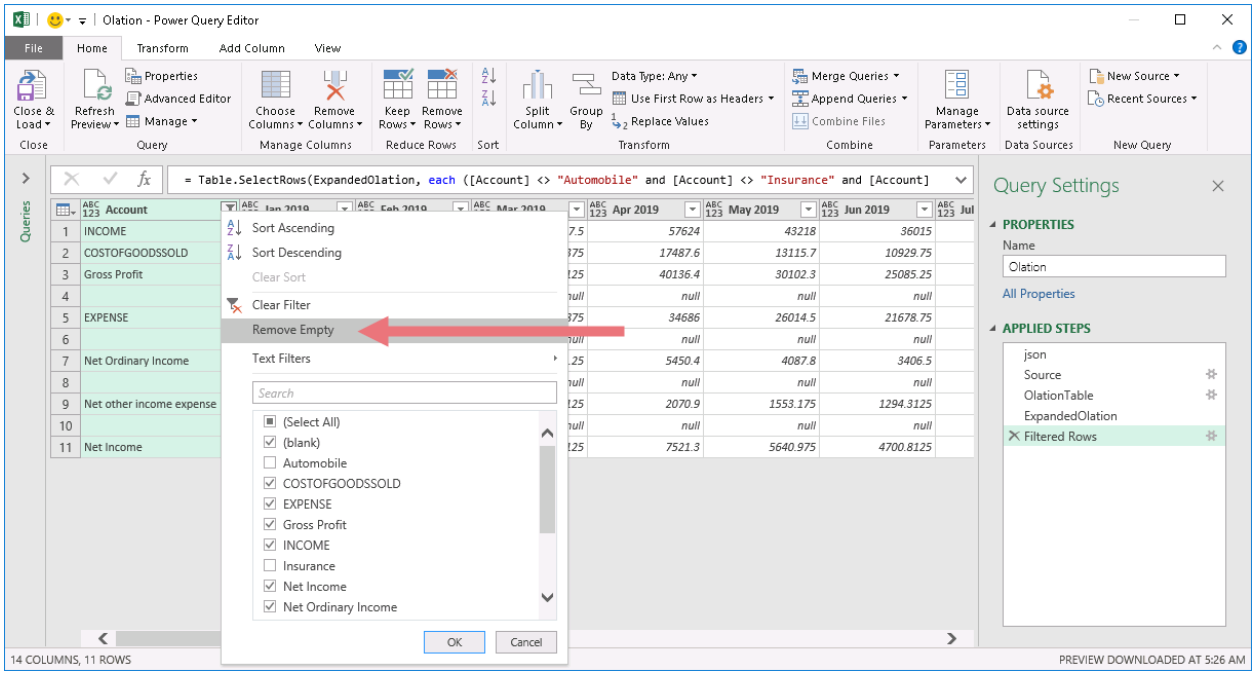
13. Once you click on the **Close & Load** command icon, you will see that the changes have taken effect in the PowerExcel Slice (as shown below).



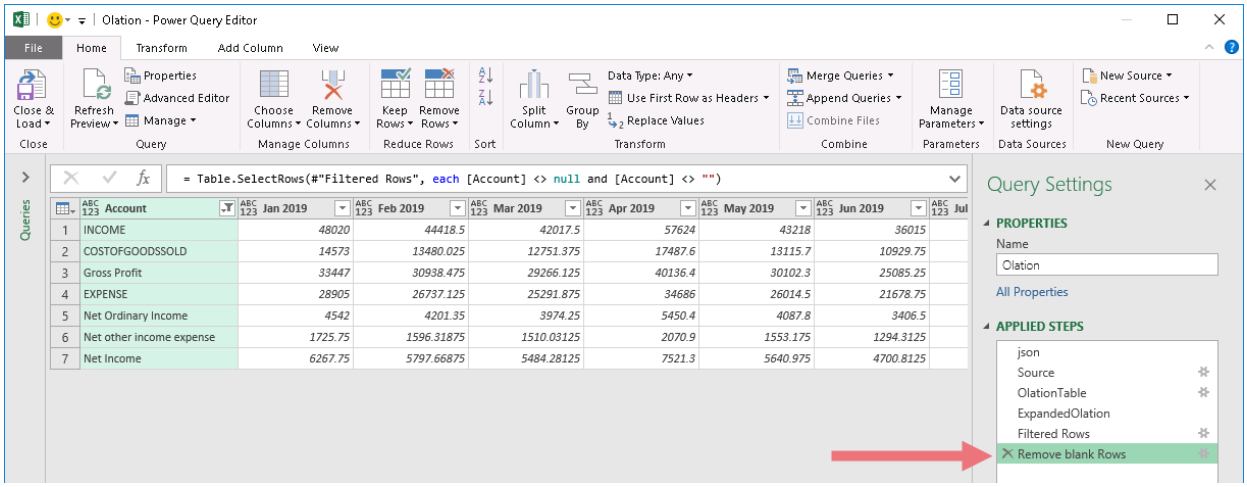
14. We will try another modification. Apply a filter on the rows so that empty rows are removed.

    To do this:

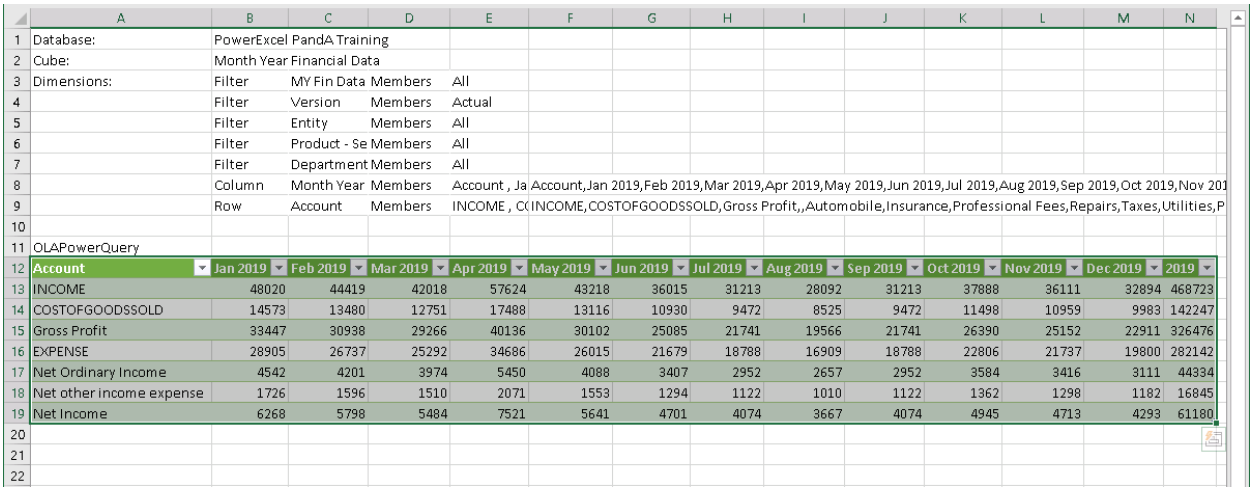
    - In the Queries & Connections sidebar, double-click on a query to access the **Olation - Power Query Editor**.
    - Click on the **Account** drop-down; in the filter window that appears, click the **Remove Empty** option (see where arrow points in the image below).



    - Click **OK**.
    - Once again, you see the new action listed in the **Applied Steps** section of the Olation - Power Query Editor. For easy identification, we can rename this action as **Remove Blank Rows** (see where arrow points in the next image). Notice also that the table now doesn't show any empty rows.



- If at this point you click the **Close & Load** command, you will once again see the changes reflected in the PowerExcel Slice.



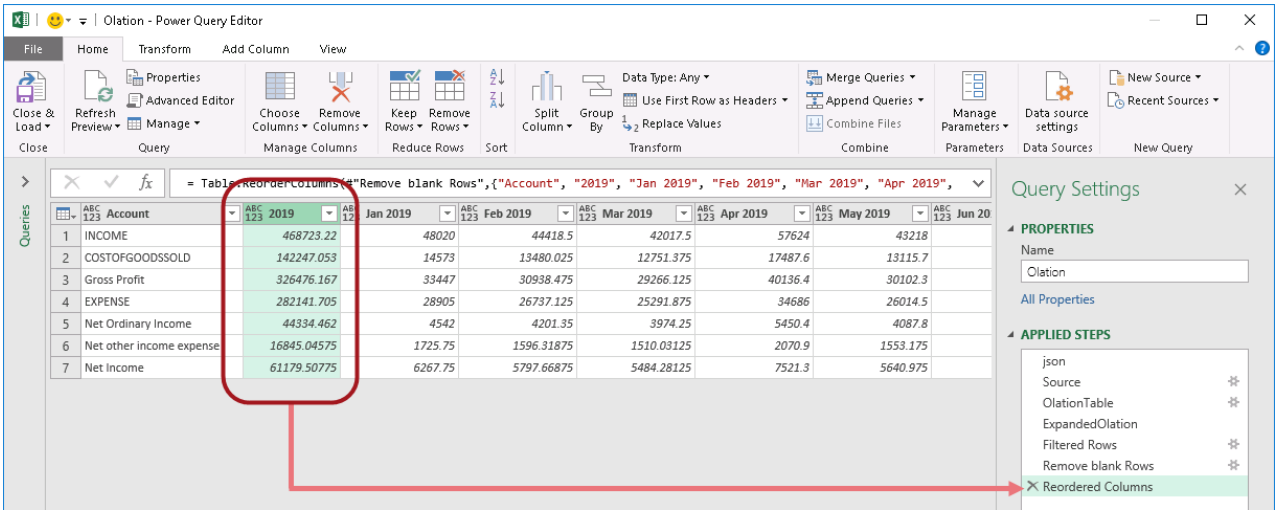
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Database:	PowerExcel PandA Training												
2	Cube:	Month Year Financial Data												
3	Dimensions:	Filter	MY Fin Data	Members	All									
4		Filter	Version	Members	Actual									
5		Filter	Entity	Members	All									
6		Filter	Product - Se	Members	All									
7		Filter	Department	Members	All									
8		Column	Month Year	Members	Account , Ja	Account,Jan 2019,Feb 2019,Mar 2019,Apr 2019,May 2019,Jun 2019,Jul 2019,Aug 2019,Sep 2019,Oct 2019,Nov 201								
9		Row	Account	Members	INCOME , C	INCOME,COSTOFGOODSSOLD,Gross Profit,,Automobile,Insurance,Professional Fees,Repairs,Taxes,Utilities,P								
10														
11	OLAPowerQuery													

12	Account	Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Jun 2019	Jul 2019	Aug 2019	Sep 2019	Oct 2019	Nov 2019	Dec 2019	2019
13	INCOME	48020	44419	42018	57624	43218	36015	31213	28092	31213	37888	36111	32894	468723
14	COSTOFGOODSSOLD	14573	13480	12751	17488	13116	10930	9472	8525	9472	11498	10959	9983	142247
15	Gross Profit	33447	30938	29266	40136	30102	25085	21741	19566	21741	26390	25152	22911	326476
16	EXPENSE	28905	26737	25292	34686	26015	21679	18788	16909	18788	22806	21737	19800	282142
17	Net Ordinary Income	4542	4201	3974	5450	4088	3407	2952	2657	2952	3584	3416	3111	44334
18	Net other income expense	1726	1596	1510	2071	1553	1294	1122	1010	1122	1362	1298	1182	16845
19	Net Income	6268	5798	5484	7521	5641	4701	4074	3667	4074	4945	4713	4293	61180
20														
21														
22														

15. For our third modification, move the **2019** aggregate Member for the **Month Year** Dimension to the beginning of the Columns.

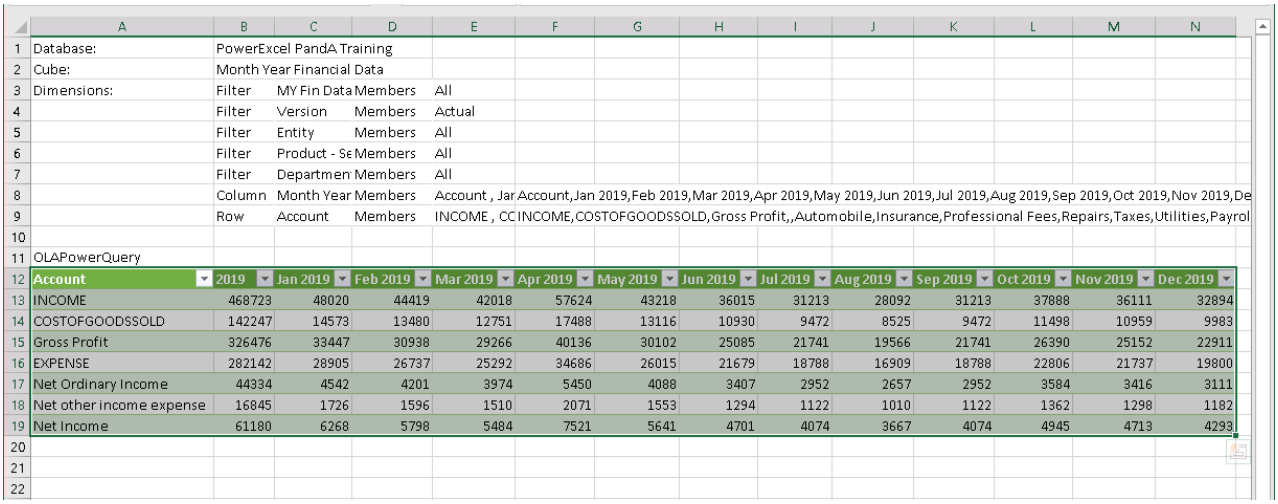
    To do this:

    - In the Queries & Connections sidebar, double-click on a query to access the **Olation - Power Query Editor**.
    - Drag and drop the **2019** column just before **Jan 2019**.
    - Again, you will see the step listed (**Reordered Columns**)



	Account	2019	Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Jun 20
1	INCOME	468723.22	48020	44418.5	42017.5	57624	43218	
2	COSTOFGOODSSOLD	142247.053	14573	13480.025	12751.375	17487.6	13115.7	
3	Gross Profit	326476.167	33447	30938.475	29266.125	40136.4	30102.3	
4	EXPENSE	282141.705	28905	26737.125	25291.875	34686	26014.5	
5	Net Ordinary Income	44334.462	4542	4201.35	3974.25	5450.4	4087.8	
6	Net other income expense	16845.04575	1725.75	1596.31875	1510.03125	2070.9	1553.175	
7	Net Income	61179.50775	6267.75	5797.66875	5484.28125	7521.3	5640.975	

- Click **Close & Load** to update the PowerExcel Slice.
  Now the aggregate member *2019*, which rolls up all individual months of that year, appears in the first column of the Power Query Table.



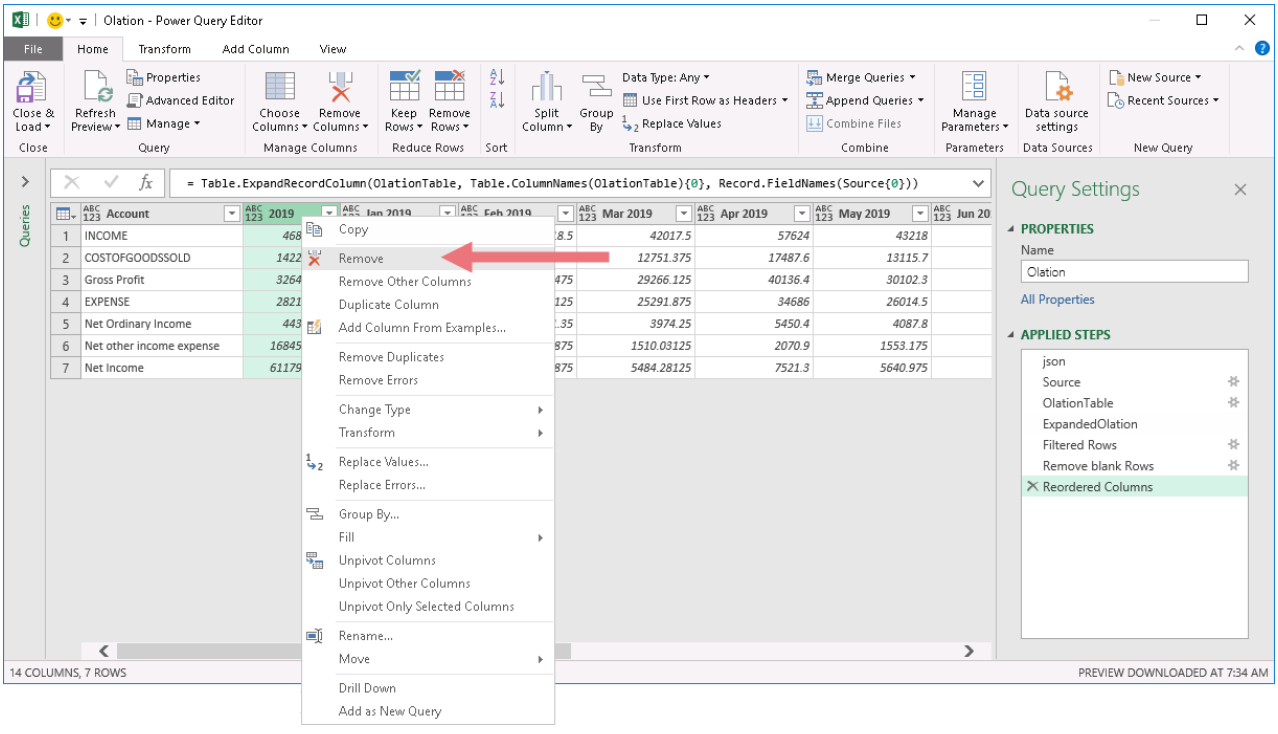
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Database:	PowerExcel PandA Training												
2	Cube:	Month Year Financial Data												
3	Dimensions:	Filter	MY Fin Data	Members	All									
4		Filter	Version	Members	Actual									
5		Filter	Entity	Members	All									
6		Filter	Product - Se	Members	All									
7		Filter	Departmen	Members	All									
8		Column	Month Year	Members	Account , Jar	Account,Jan 2019,Feb 2019,Mar 2019,Apr 2019,May 2019,Jun 2019,Jul 2019,Aug 2019,Sep 2019,Oct 2019,Nov 2019,De								
9		Row	Account	Members	INCOME , CC	INCOME,COSTOFGOODSSOLD,Gross Profit,,Automobile,Insurance,Professional Fees,Repairs,Taxes,Utilities,Payrol								
10														
11	OLAPowerQuery													

12	Account	2019	Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Jun 2019	Jul 2019	Aug 2019	Sep 2019	Oct 2019	Nov 2019	Dec 2019
13	INCOME	468723	48020	44419	42018	57624	43218	36015	31213	28092	31213	37888	36111	32894
14	COSTOFGOODSSOLD	142247	14573	13480	12751	17488	13116	10930	9472	8525	9472	11498	10959	9983
15	Gross Profit	326476	33447	30938	29266	40136	30102	25085	21741	19566	21741	26390	25152	22911
16	EXPENSE	282142	28905	26737	25292	34686	26015	21679	18788	16909	18788	22806	21737	19800
17	Net Ordinary Income	44334	4542	4201	3974	5450	4088	3407	2952	2657	2952	3584	3416	3111
18	Net other income expense	16845	1726	1596	1510	2071	1553	1294	1122	1010	1122	1362	1298	1182
19	Net Income	61180	6268	5798	5484	7521	5641	4701	4074	3667	4074	4945	4713	4293
20														
21														
22														

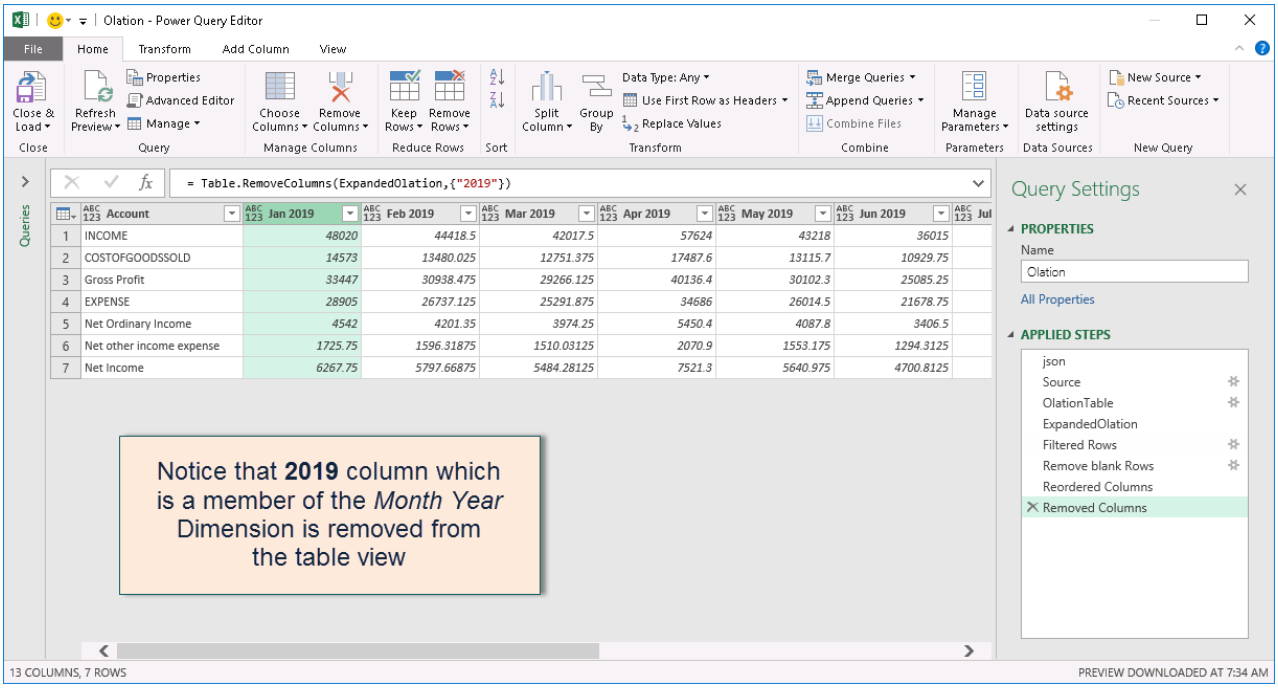
16. For the fourth and final modification, we will delete a column, which, in this example, is the aggregate **Month Year** member, **2019**.

    To do this:

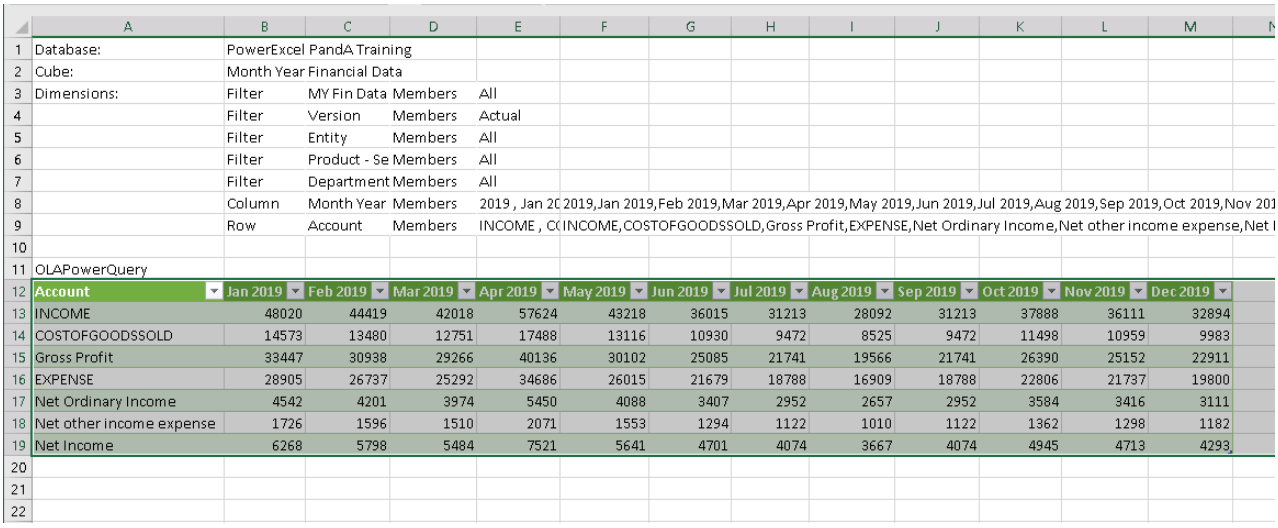
    - In the **Queries & Connections** sidebar, double-click on a query to access the **Olation - Power Query Editor**.
    - Right-click on the **2019** column and select **Remove**.



- The table is once again updated and the action or step listed (**Removed Columns**) under the **Applied Steps** section.

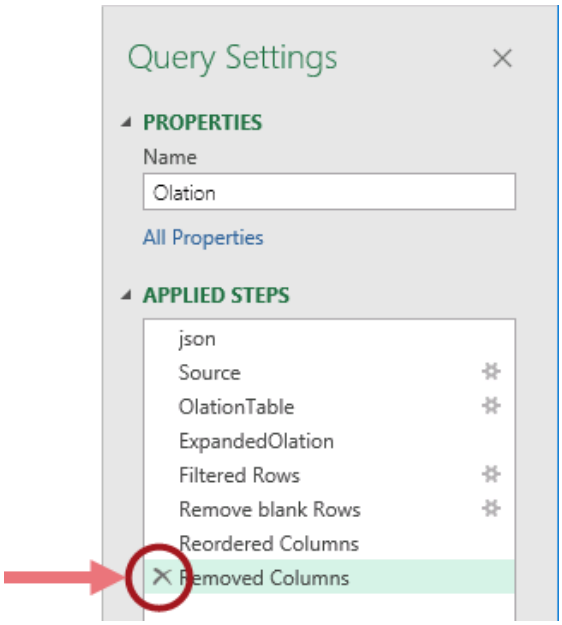


- Click **Close & Load** to update the PowerExcel Slice.
  Now you have formatted your PowerExcel Slice to show only the individual months for the year 2019 along the columns.

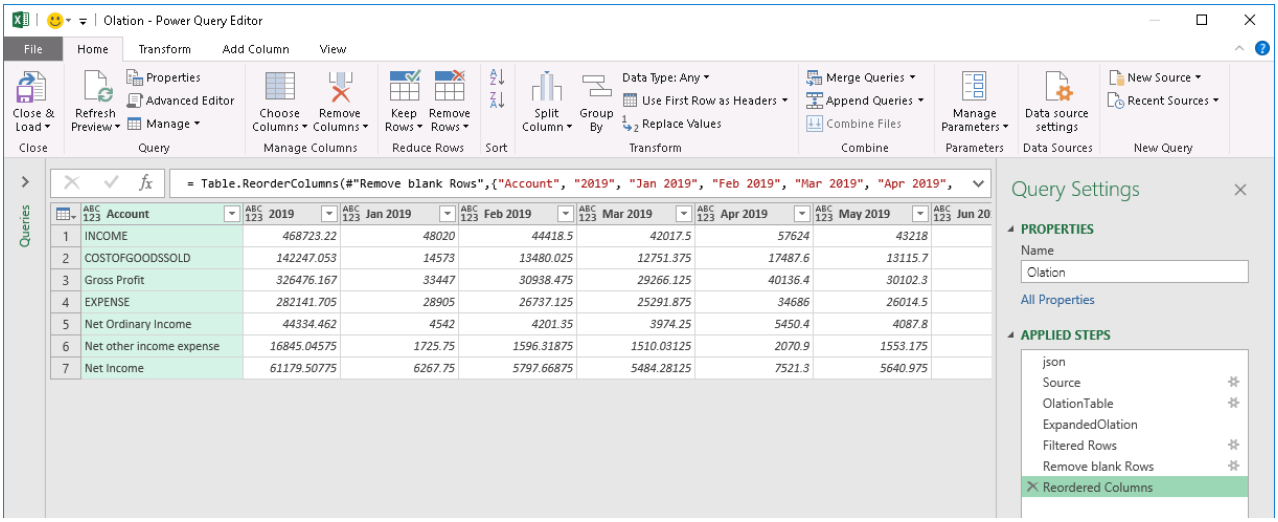


	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Database:	PowerExcel PandA Training											
2	Cube:	Month Year Financial Data											
3	Dimensions:	Filter	MY Fin Data	Members	All								
4		Filter	Version	Members	Actual								
5		Filter	Entity	Members	All								
6		Filter	Product - Se	Members	All								
7		Filter	Department	Members	All								
8		Column	Month Year	Members	2019 , Jan 2	019,Jan 2019,Feb 2019,Mar 2019,Apr 2019,May 2019,Jun 2019,Jul 2019,Aug 2019,Sep 2019,Oct 2019,Nov 201							
9		Row	Account	Members	INCOME , C	INCOME,COSTOFGOODSSOLD,Gross Profit,EXPENSE,Net Ordinary Income,Net other income expense,Net I							
10													
11	OLAPowerQuery												
12	Account	Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Jun 2019	Jul 2019	Aug 2019	Sep 2019	Oct 2019	Nov 2019	Dec 2019
13	INCOME	48020	44419	42018	57624	43218	36015	31213	28092	31213	37888	36111	32894
14	COSTOFGOODSSOLD	14573	13480	12751	17488	13116	10930	9472	8525	9472	11498	10959	9983
15	Gross Profit	33447	30938	29266	40136	30102	25085	21741	19566	21741	26390	25152	22911
16	EXPENSE	28905	26737	25292	34686	26015	21679	18788	16909	18788	22806	21737	19800
17	Net Ordinary Income	4542	4201	3974	5450	4088	3407	2952	2657	2952	3584	3416	3111
18	Net other income expense	1726	1596	1510	2071	1553	1294	1122	1010	1122	1362	1298	1182
19	Net Income	6268	5798	5484	7521	5641	4701	4074	3667	4074	4945	4713	4293
20													
21													
22													

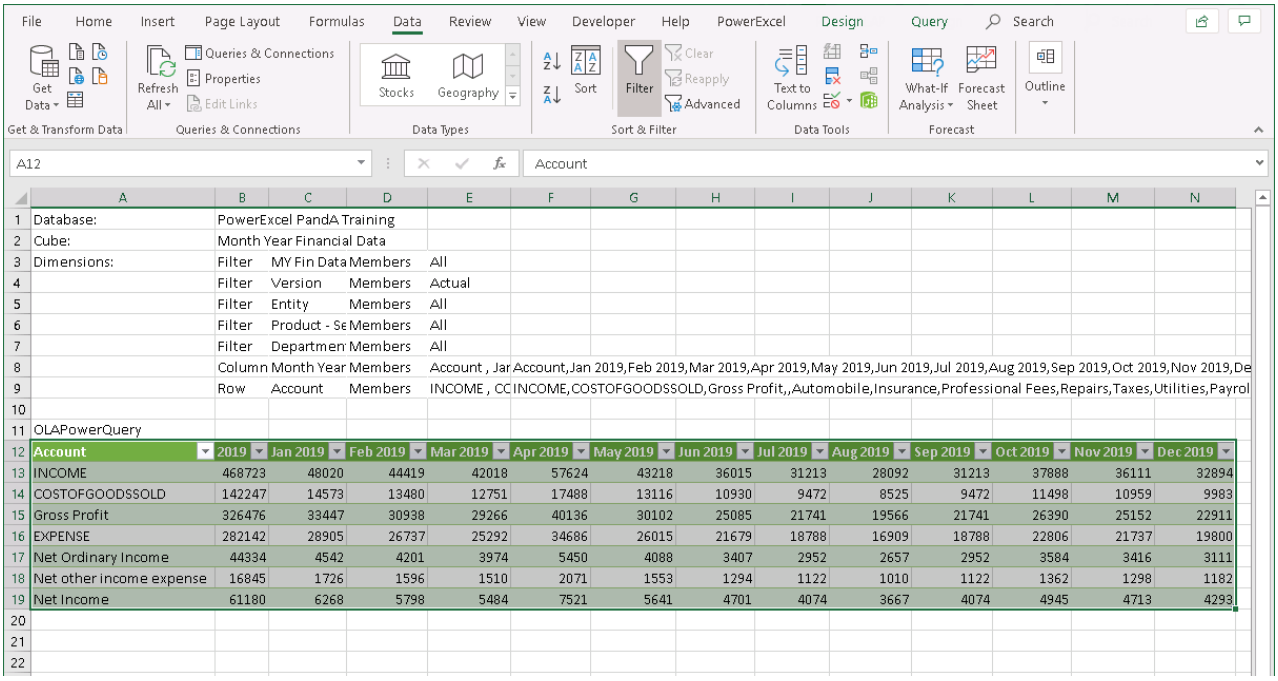
17. Assuming that you want to revert to the PowerExcel Slice prior to the last action (in this case, Removed Columns), you can simply access the Query Editor and remove that step. To do this:
    - In the **Queries & Connections** sidebar, double-click on a query to access the **Olation - Power Query Editor**.
    - In the **Query Settings** sidebar, go to the **Applied Steps** section and locate the action you want to remove, which, in this case, is **Removed Columns**.



- Click on the **Delete** button corresponding to it.
  Alternatively, you can right-click on that action and select **Delete**.
  This will put your Slice in a state prior to the last performed action.



18. Click the **Close & Load** button. Back in the PowerExcel Slice, you will see that it has gone back to the state prior to the removal of the column (see next image).



	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Database:	PowerExcel PandA Training												
2	Cube:	Month Year Financial Data												
3	Dimensions:	Filter	MY Fin Data	Members	All									
4		Filter	Version	Members	Actual									
5		Filter	Entity	Members	All									
6		Filter	Product - Se	Members	All									
7		Filter	Departmen	Members	All									
8		Column	Month Year	Members	Account , Jar	Account,Jan 2019,Feb 2019,Mar 2019,Apr 2019,May 2019,Jun 2019,Jul 2019,Aug 2019,Sep 2019,Oct 2019,Nov 2019,De								
9		Row	Account	Members	INCOME , CC	INCOME,COSTOFGOODSSOLD,Gross Profit,,Automobile,Insurance,Professional Fees,Repairs,Taxes,Utilities,Payrol								
10														
11	OLAPowerQuery													
12	Account	2019	Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Jun 2019	Jul 2019	Aug 2019	Sep 2019	Oct 2019	Nov 2019	Dec 2019
13	INCOME	468723	48020	44419	42018	57624	43218	36015	31213	28092	31213	37888	36111	32894
14	COSTOFGOODSSOLD	142247	14573	13480	12751	17488	13116	10930	9472	8525	9472	11498	10959	9983
15	Gross Profit	326476	33447	30938	29266	40136	30102	25085	21741	19566	21741	26390	25152	22911
16	EXPENSE	282142	28905	26737	25292	34686	26015	21679	18788	16909	18788	22806	21737	19800
17	Net Ordinary Income	44334	4542	4201	3974	5450	4088	3407	2952	2657	2952	3584	3416	3111
18	Net other income expense	16845	1726	1596	1510	2071	1553	1294	1122	1010	1122	1362	1298	1182
19	Net Income	61180	6268	5798	5484	7521	5641	4701	4074	3667	4074	4945	4713	4293
20														
21														
22														

3. Entering Data in a PowerExcel Slice

This section concerns the important topic of entering data into PowerExcel—essentially, populating a data model by entering numbers in a Slice. Often this kind of activity is done as part of a planning (budgeting, forecasting, etc.) exercise, and it includes multiple users working collaboratively on a shared Cloud-based model. With that in mind, below you will see how to enter Budget data, both by typing in numbers and via a bulk copy-paste; additionally, a simple example of a multi-user budgeting exercise is demonstrated.

3.1 "Write Back" into a PowerExcel Slice – Typing in Numbers

For this exercise, we will enter budget data for *Income* accounts and *Cost of Goods Sold* accounts. We will begin by creating a simple Slice with just the *INCOME* and Income sub-accounts; *COSTOFGOODSSOLD* and its sub-accounts, and; *Gross Profit*, all displayed along the columns. Months will be displayed along the rows. We will show how to populate the **Month Year Financial Data** Cube by typing in numbers. As you will see, entering numbers for Detail Members will result in calculations for relevant Aggregates.

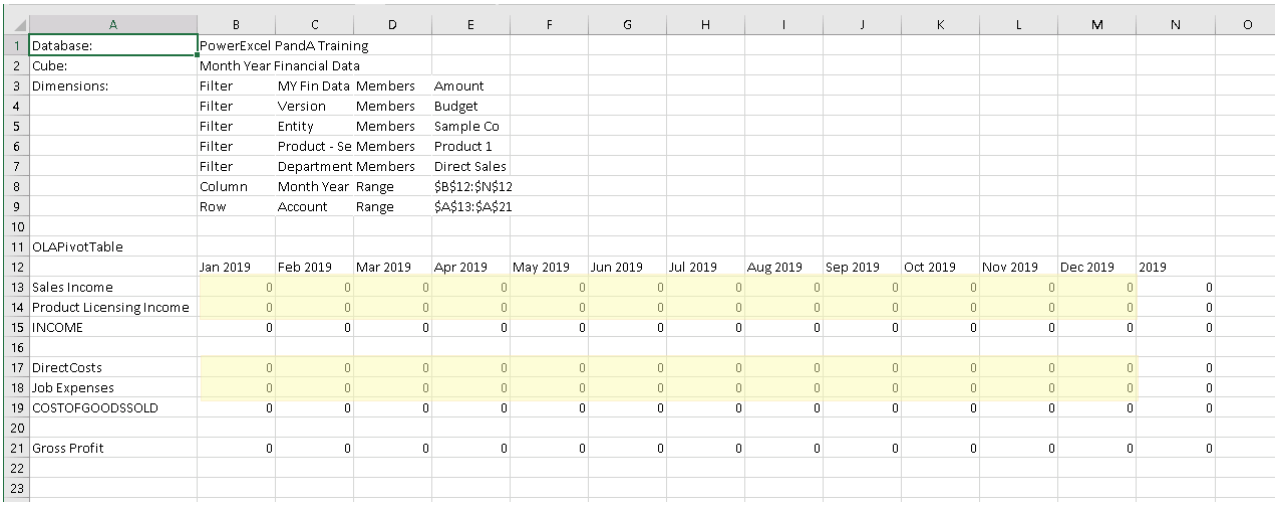
Important: Remember that you can enter data only for Detail Member "intersections," meaning, ALL the selections (whether in Filters, Column or Row) must have detail Members selected at the intersection (cell) where you want to enter data into.

1. We will begin by creating a data entry Slice.
    - Re-arrange the Dimensions by dragging and dropping them in the Filter, Rows and Column areas; and by specifying the indicated display Members:

Filter	My Fin Data Measure: *Amount*
	Version: *Budget*
	Entity: *Sample Co*
	Product – Service: *Product 1*
	Department: *Direct Sales*
Columns	Month Year: individual months for 2019 (*Jan 2019* to *Dec 2019*) and aggregate month *2019*
Rows	Account: *Sales Income, Product Licensing Income, INCOME, Direct Costs, Job Expenses, COSTOFGOODSOLD, Gross Profit*

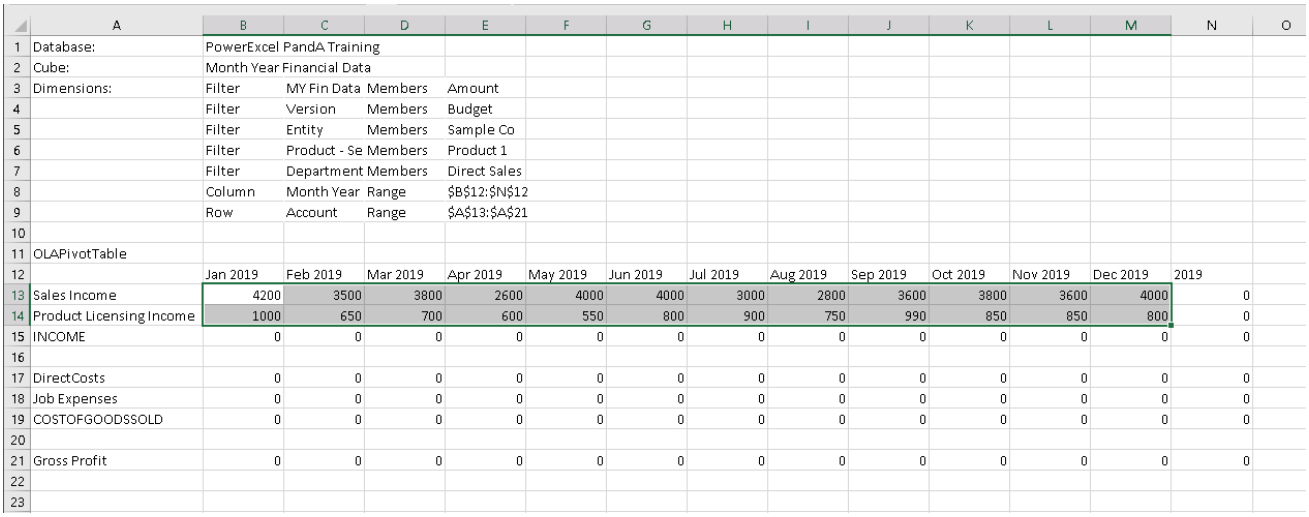
    - For easier viewing, you can insert blank columns after the aggregate accounts *INCOME*, *COSTOFGOODSSOLD* and *Gross Profit*.
    - Select **PivotTable** as the Slice Type then select to Insert the Slice in the **Current worksheet** beginning at cell **A1**.

- Click **Insert**.
  The Slice will look as shown below.
  Note: All cells shaded in yellow are Detail intersections; unshaded cells are Aggregate intersections and will show calculations of their corresponding 'Child Members'.



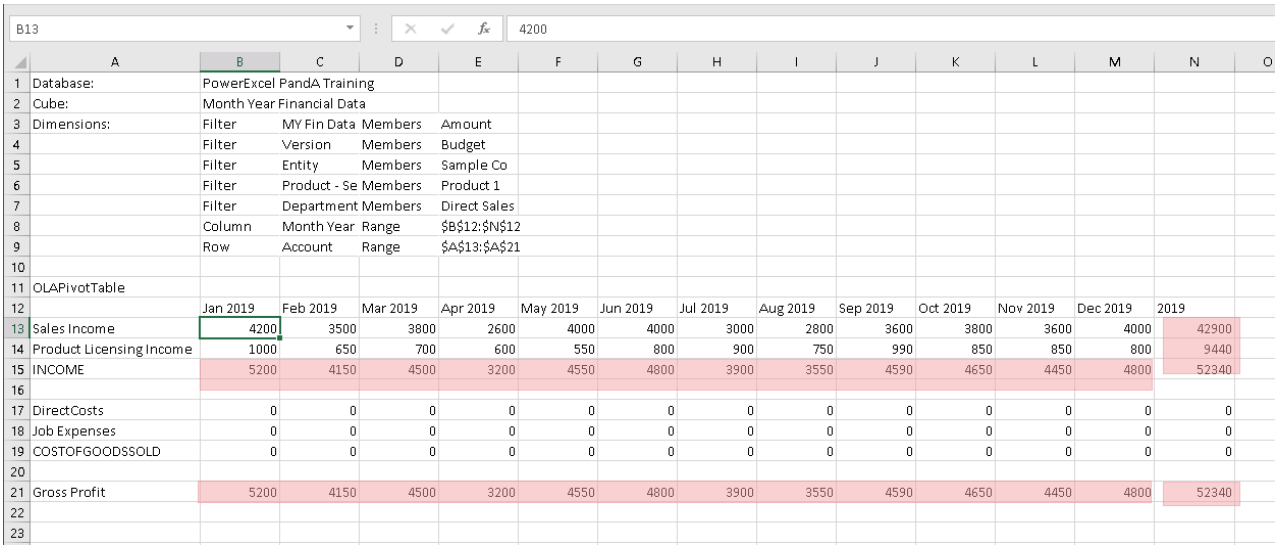
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Database:	PowerExcel PandA Training													
2	Cube:	Month Year Financial Data													
3	Dimensions:	Filter	MY Fin Data	Members	Amount										
4		Filter	Version	Members	Budget										
5		Filter	Entity	Members	Sample Co										
6		Filter	Product - Se	Members	Product 1										
7		Filter	Department	Members	Direct Sales										
8		Column	Month Year	Range	$B$12:$N$12										
9		Row	Account	Range	$A$13:$A$21										
10															
11	OLAPivotTable														
12		Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Jun 2019	Jul 2019	Aug 2019	Sep 2019	Oct 2019	Nov 2019	Dec 2019	2019	
13	Sales Income	0	0	0	0	0	0	0	0	0	0	0	0	0	
14	Product Licensing Income	0	0	0	0	0	0	0	0	0	0	0	0	0	
15	INCOME	0	0	0	0	0	0	0	0	0	0	0	0	0	
16															
17	DirectCosts	0	0	0	0	0	0	0	0	0	0	0	0	0	
18	Job Expenses	0	0	0	0	0	0	0	0	0	0	0	0	0	
19	COSTOFGOODSSOLD	0	0	0	0	0	0	0	0	0	0	0	0	0	
20															
21	Gross Profit	0	0	0	0	0	0	0	0	0	0	0	0	0	
22															
23															

2. We will begin entering budget data for the *INCOME* sub-accounts.
   Type figures for *Sales Income* and *Product Licensing Income* for the individual **Month Year** Members *Jan 2019* to *Dec 2019*. Example figures are shown in the next screen image.



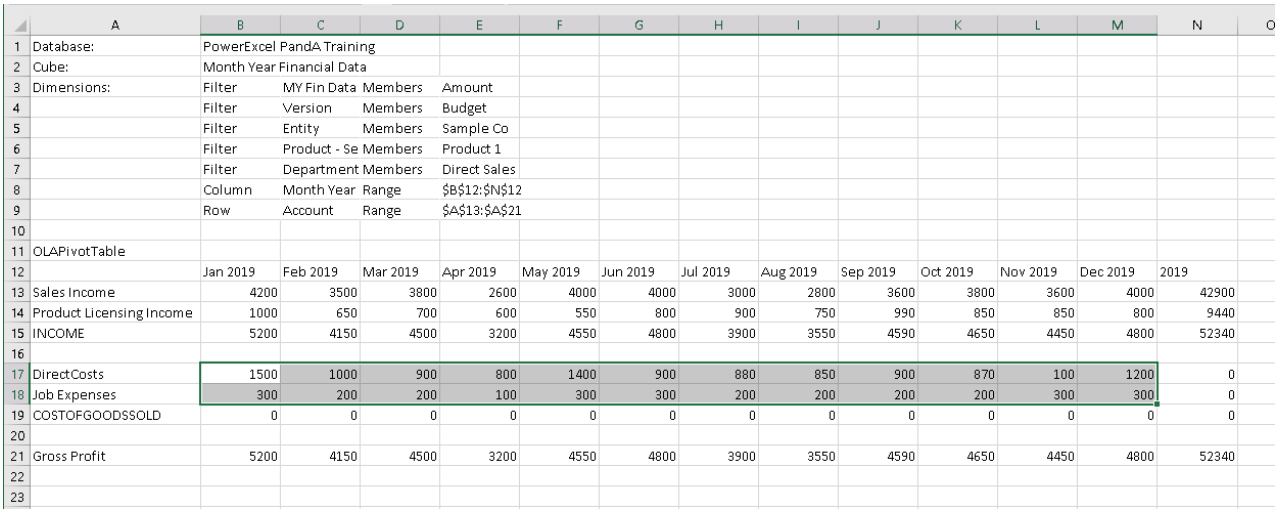
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Database:	PowerExcel PandA Training													
2	Cube:	Month Year Financial Data													
3	Dimensions:	Filter	MY Fin Data	Members	Amount										
4		Filter	Version	Members	Budget										
5		Filter	Entity	Members	Sample Co										
6		Filter	Product - Se	Members	Product 1										
7		Filter	Department	Members	Direct Sales										
8		Column	Month Year	Range	$B$12:$N$12										
9		Row	Account	Range	$A$13:$A$21										
10															
11	OLAPivotTable														
12		Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Jun 2019	Jul 2019	Aug 2019	Sep 2019	Oct 2019	Nov 2019	Dec 2019	2019	
13	Sales Income	4200	3500	3800	2600	4000	4000	3000	2800	3600	3800	3600	4000	0	
14	Product Licensing Income	1000	650	700	600	550	800	900	750	990	850	850	800	0	
15	INCOME	0	0	0	0	0	0	0	0	0	0	0	0	0	
16															
17	DirectCosts	0	0	0	0	0	0	0	0	0	0	0	0	0	
18	Job Expenses	0	0	0	0	0	0	0	0	0	0	0	0	0	
19	COSTOFGOODSSOLD	0	0	0	0	0	0	0	0	0	0	0	0	0	
20															
21	Gross Profit	0	0	0	0	0	0	0	0	0	0	0	0	0	
22															
23															

3. Press **F9** to refresh the PowerExcel Slice. Notice that the columns and rows for Aggregates are also populated with data. These columns and rows show the results of the Hierarchies defined by Dimensions in the Cube (highlighted in pink, next image).



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Database:	PowerExcel PandA Training													
2	Cube:	Month Year Financial Data													
3	Dimensions:	Filter	MY Fin Data	Members	Amount										
4		Filter	Version	Members	Budget										
5		Filter	Entity	Members	Sample Co										
6		Filter	Product - Se	Members	Product 1										
7		Filter	Department	Members	Direct Sales										
8		Column	Month Year	Range	$B$12:$N$12										
9		Row	Account	Range	$A$13:$A$21										
10															
11	OLAPivotTable														
12		Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Jun 2019	Jul 2019	Aug 2019	Sep 2019	Oct 2019	Nov 2019	Dec 2019	2019	
13	Sales Income	4200	3500	3800	2600	4000	4000	3000	2800	3600	3800	3600	4000	42900	
14	Product Licensing Income	1000	650	700	600	550	800	900	750	990	850	850	800	9440	
15	INCOME	5200	4150	4500	3200	4550	4800	3900	3550	4590	4650	4450	4800	52340	
16															
17	DirectCosts	0	0	0	0	0	0	0	0	0	0	0	0	0	
18	Job Expenses	0	0	0	0	0	0	0	0	0	0	0	0	0	
19	COSTOFGOODSSOLD	0	0	0	0	0	0	0	0	0	0	0	0	0	
20															
21	Gross Profit	5200	4150	4500	3200	4550	4800	3900	3550	4590	4650	4450	4800	52340	
22															
23															

4. At this point, the *Direct Costs*, *Job Expenses* and *COSTOFGOODSSOLD* rows are still empty. To see further how Member 'Weights' in Hierarchies affect results: Enter *Direct Costs* and *Job Expenses* figures for the individual **Month Year** Members *Jan 2019* to *Dec 2019*.



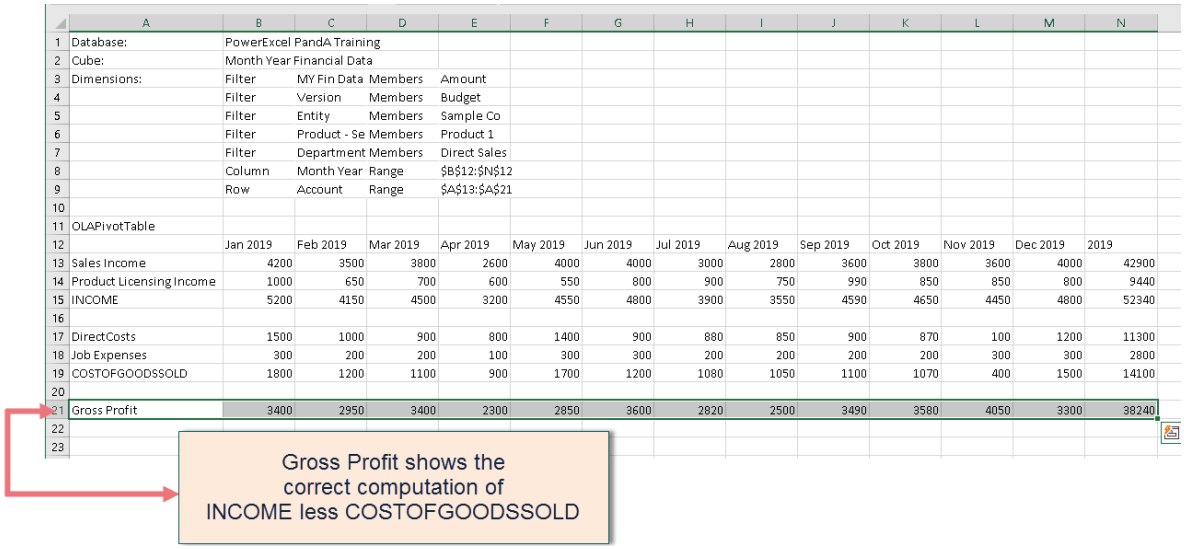
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Database:	PowerExcel PandA Training													
2	Cube:	Month Year Financial Data													
3	Dimensions:	Filter	MY Fin Data	Members	Amount										
4		Filter	Version	Members	Budget										
5		Filter	Entity	Members	Sample Co										
6		Filter	Product - Se	Members	Product 1										
7		Filter	Department	Members	Direct Sales										
8		Column	Month Year	Range	$B$12:$N$12										
9		Row	Account	Range	$A$13:$A$21										
10															
11	OLAPivotTable														
12		Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Jun 2019	Jul 2019	Aug 2019	Sep 2019	Oct 2019	Nov 2019	Dec 2019	2019	
13	Sales Income	4200	3500	3800	2600	4000	4000	3000	2800	3600	3800	3600	4000	42900	
14	Product Licensing Income	1000	650	700	600	550	800	900	750	990	850	850	800	9440	
15	INCOME	5200	4150	4500	3200	4550	4800	3900	3550	4590	4650	4450	4800	52340	
16															
17	DirectCosts	1500	1000	900	800	1400	900	880	850	900	870	100	1200	0	
18	Job Expenses	300	200	200	100	300	300	200	200	200	200	300	300	0	
19	COSTOFGOODSSOLD	0	0	0	0	0	0	0	0	0	0	0	0	0	
20															
21	Gross Profit	5200	4150	4500	3200	4550	4800	3900	3550	4590	4650	4450	4800	52340	
22															
23															

5. Once again, press **F9** to update the PowerExcel Slice. The aggregate columns corresponding to *2019 Direct Costs* and *Job Expenses* (N17 to N18); and the aggregate rows corresponding to *COSTOFGOODSSOLD* are populated with data. Also notice that *Gross Profit* now shows the new results (see highlighted in pink in the next image).

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Database:	PowerExcel PandA Training												
2	Cube:	Month Year Financial Data												
3	Dimensions:	Filter	MY Fin Data	Members	Amount									
4		Filter	Version	Members	Budget									
5		Filter	Entity	Members	Sample Co									
6		Filter	Product - Se	Members	Product 1									
7		Filter	Department	Members	Direct Sales									
8		Column	Month Year	Range	$B$12:$N$12									
9		Row	Account	Range	$A$13:$A$21									
10														
11	OLAPivotTable													
12		Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Jun 2019	Jul 2019	Aug 2019	Sep 2019	Oct 2019	Nov 2019	Dec 2019	2019
13	Sales Income	4200	3500	3800	2600	4000	4000	3000	2800	3600	3800	3600	4000	42900
14	Product Licensing Income	1000	650	700	600	550	800	900	750	990	850	850	800	9440
15	INCOME	5200	4150	4500	3200	4550	4800	3900	3550	4590	4650	4450	4800	52340
16														
17	DirectCosts	1500	1000	900	800	1400	900	880	850	900	870	100	1200	11300
18	Job Expenses	300	200	200	100	300	300	200	200	200	200	300	300	2800
19	COSTOFGOODSSOLD	1800	1200	1100	900	1700	1200	1080	1050	1100	1070	400	1500	14100
20														
21	Gross Profit	3400	2950	3400	2300	2850	3600	2820	2500	3490	3580	4050	3300	38240
22														
23														

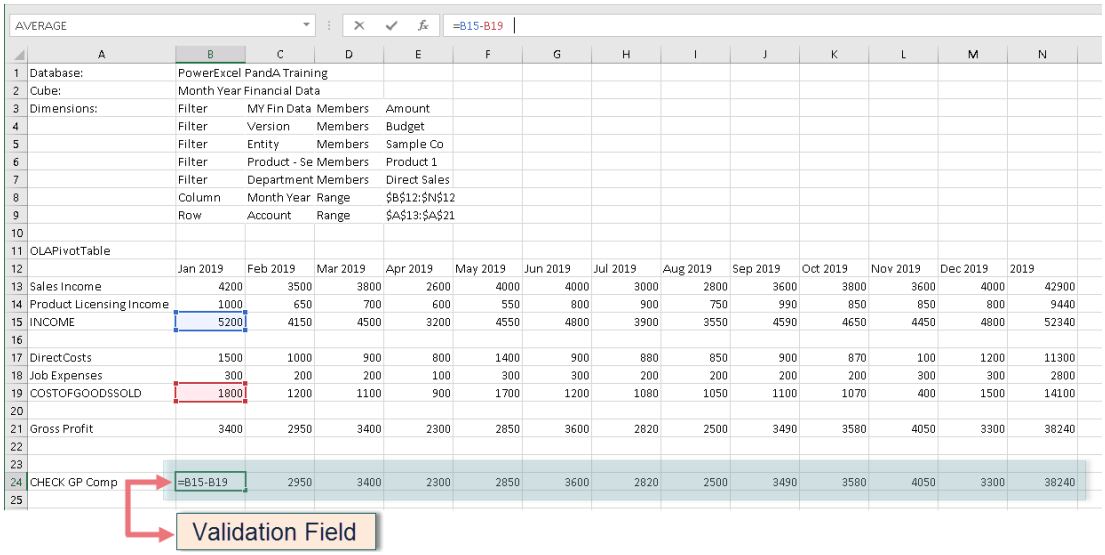
6. Also, notice that the *Gross Profit* computation applies the correct calculation logic whereby: **Gross Profit is INCOME minus COSTOFGOODSSOLD**.

   This is the result of the Member Weight applied to the component children of *Gross Profit* in the underlying PowerExcel model: i.e., a weight of '-1' was applied to *COSTOFGOODSSOLD* (child of *Gross Profit*), as shown in the next image.



Tip: You can temporarily create Excel formulas outside the area of the PowerExcel Slice PivotTable area to check that computations are correct.

As shown in the screenshot below, the *Gross Profit* computation indeed shows the correct formula logic: **Gross Profit = INCOME-COSTOFGOODSSOLD**.



	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Database:	PowerExcel PandA Training												
2	Cube:	Month Year Financial Data												
3	Dimensions:	Filter	MY Fin Data	Members	Amount									
4		Filter	Version	Members	Budget									
5		Filter	Entity	Members	Sample Co									
6		Filter	Product - Se	Members	Product 1									
7		Filter	Department	Members	Direct Sales									
8		Column	Month Year	Range	$B$12:$N$12									
9		Row	Account	Range	$A$13:$A$21									
10														
11	OLAPivotTable													
12		Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Jun 2019	Jul 2019	Aug 2019	Sep 2019	Oct 2019	Nov 2019	Dec 2019	2019
13	Sales Income	4200	3500	3800	2600	4000	4000	3000	2800	3600	3800	3600	4000	42900
14	Product Licensing Income	1000	650	700	600	550	800	900	750	990	850	850	800	9440
15	INCOME	5200	4150	4500	3200	4550	4800	3900	3550	4590	4650	4450	4800	52340
16														
17	DirectCosts	1500	1000	900	800	1400	900	880	850	900	870	100	1200	11300
18	Job Expenses	300	200	200	100	300	300	200	200	200	200	300	300	2800
19	COSTOFGOODSSOLD	1800	1200	1100	900	1700	1200	1080	1050	1100	1070	400	1500	14100
20														
21	Gross Profit	3400	2950	3400	2300	2850	3600	2820	2500	3490	3580	4050	3300	38240
22														
23														
24	CHECK GP Comp	=B15-B19	2950	3400	2300	2850	3600	2820	2500	3490	3580	4050	3300	38240
25														

7. Now that you have entered figures, this data is saved back to the PowerExcel Cloud-based model. Therefore, any new PowerExcel Slice that you create from the **Month Year Financial Data** cube will show the data correctly populated within the model.

3.2 Performing a Bulk Copy/Paste of Data to a PowerExcel Slice

Next, we will demonstrate how to copy a range of values for a "bulk copy/paste" of figures into a PowerExcel Slice.

For this example exercise, we will create a sample Budget report for **Profit and Loss** for the first Quarter of 2020 and for a single **Product-Service** (*Product 2*). We will begin by creating our sample Data Entry Template using a PowerExcel's PivotTable. We will be using assumptions based on the Actuals data for the Current Year (2019) to compute for the Budget data for Next Year (2020).

1. To begin, create a **Data Entry Template**.
   This will involve creating two (2) Pivot Tables in a single worksheet: the first PivotTable will be an **Actuals Slice**, corresponding to **Current Year Actuals** data; the second PivotTable will be a **Budget Slice**, corresponding to **Next Year Budget** data. The second Pivot Table will serve as the data entry field.

   - Create the **FIRST Pivot Table: Actuals Slice** (Current Year Actuals).
     Re-arrange the Dimensions by dragging and dropping them along the Filter, Rows and Column areas; and by specifying the indicated display Members:

Filter	My Fin Data Measure: *Amount*
	Entity: *Sample Co*
	Product – Service: *Product 2*
	Department: *Direct Sales*

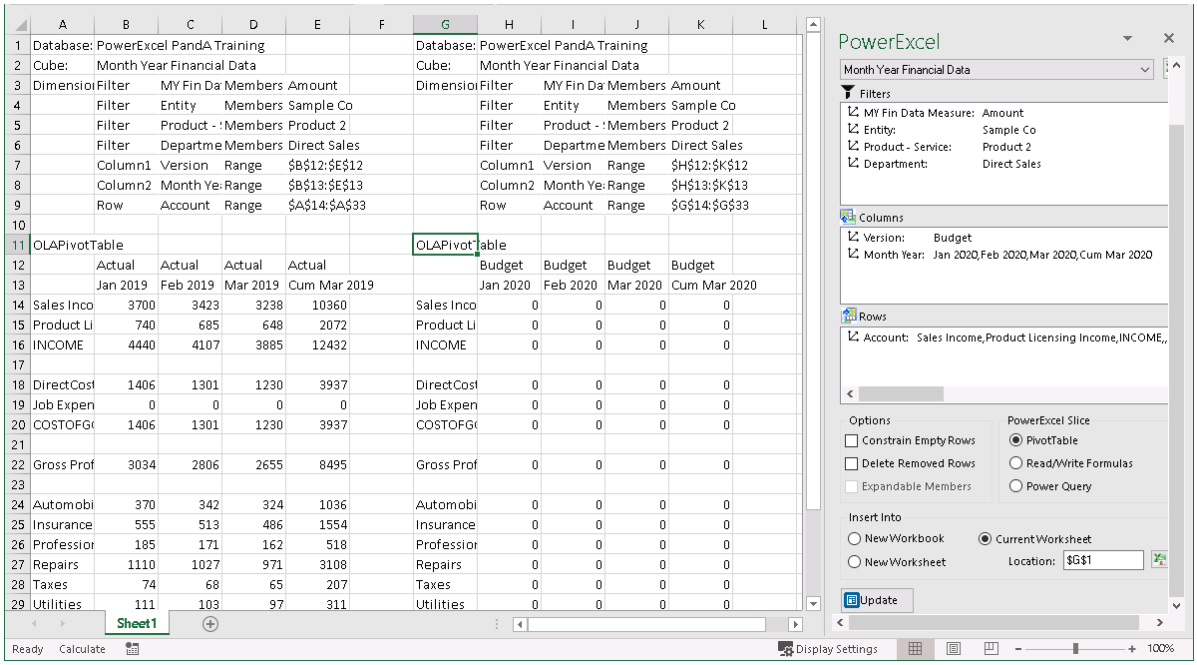
Columns	Version: *Actual*
	Month Year: *Jan 2019*, *Feb 2019*, *Mar 2019* and *Cum Mar 2019*
Rows	Account: *Sales Income, Product Licensing Income, INCOME, Direct Costs, Job Expenses, COSTOFGOODSOLD, Gross Profit, Automobile, Insurance, Professional Fees, Repairs, Taxes, Utilities, Payroll Expenses, EXPENSE, Net Ordinary Income*

- For easier viewing, you can insert blank rows after the aggregate accounts *INCOME*, *COSTOFGOODSSOLD*, *Gross Profit*, *EXPENSE* and *Net Ordinary Income*.
- Choose to insert to the **current worksheet** starting at **cell A1**. Click the **Insert** button.
- In preparation for creating the second Pivot Table within the same worksheet, click on the **OLAPivotTable** reference in cell **A11** to bring up the PowerExcel sidebar. Make sure that the correct PowerExcel connection, i.e., **PowerExcel PandA Training**, is enabled. Go to the Excel ribbon, then to the **PowerExcel** tab, and click the **New** Slice command.
  Notice that doing so will convert the **Update** button to **Insert** button, which will enable you to insert a new PowerExcel PivotTable within the same worksheet.
- Next, create the **SECOND Pivot Table: Budget Slice** (Next Year Budget). Re-arrange the Dimensions by dragging and dropping them in the Filter, Rows and Column areas; and by specifying the indicated display Members:

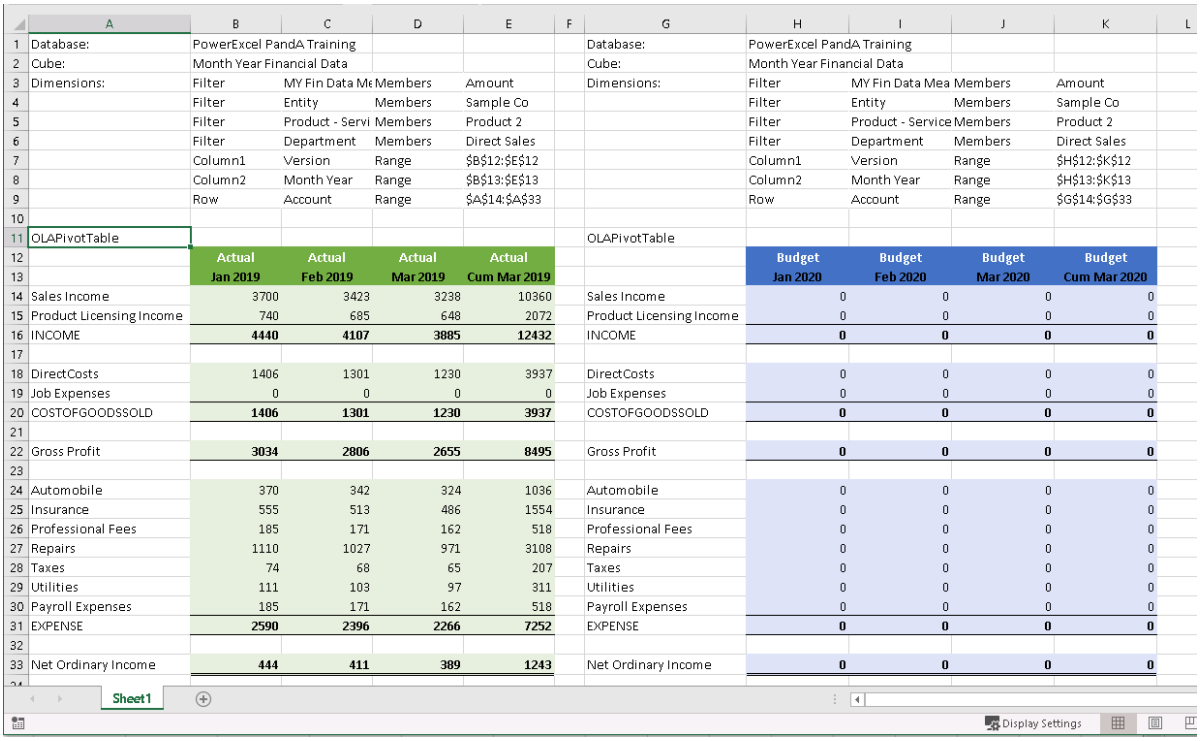
Filter	My Fin Data Measure: *Amount*
	Entity: *Sample Co*
	Product – Service: *Product 2*
	Department: *Direct Sales*
Columns	Version: *Budget*
	Month Year: *Jan 2020*, *Feb 2020*, *Mar 2020* and *Cum Mar 2020*
Rows	Account: *Sales Income, Product Licensing Income, INCOME, Direct Costs, Job Expenses, COSTOFGOODSOLD, Gross Profit, Automobile, Insurance, Professional Fees, Repairs, Taxes, Utilities, Payroll Expenses, EXPENSE, Net Ordinary Income*

Note: The only difference here lies with the **Version** and **Month Year** Members. For the first PivotTable (Actuals Slice), we used first quarter months *2019* and *Actual* version, whereas for the second Pivot Table (Budget Slice), we used first quarter months *2020* and *Budget* version.

- If you configured the first Pivot Table to have blank rows inserted, do the same for the second PivotTable so they will “mirror” each other.
- **Insert** to the **current worksheet** at **cell G1**.
  The **Data Entry Template** (on the right) will look as follows:

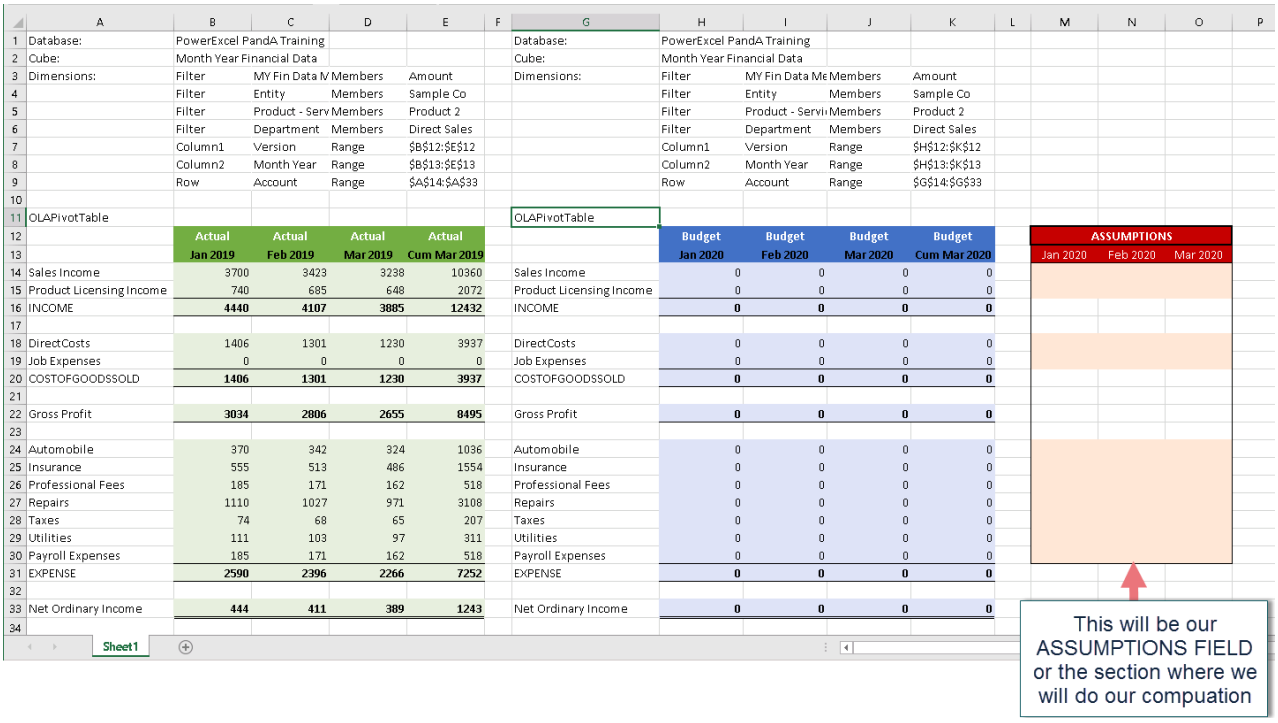


- You can apply your own preferred standard Excel formatting to make Slice viewing and data entry easier, as in the following image:



	A	B	C	D	E	G	H	I	J	K
1	Database:	PowerExcel PandA Training				Database:	PowerExcel PandA Training			
2	Cube:	Month Year Financial Data				Cube:	Month Year Financial Data			
3	Dimensions:	Filter	MY Fin Data Me	Members	Amount	Dimensions:	Filter	MY Fin Data Mea	Members	Amount
4		Filter	Entity	Members	Sample Co		Filter	Entity	Members	Sample Co
5		Filter	Product - Servi	Members	Product 2		Filter	Product - Service	Members	Product 2
6		Filter	Department	Members	Direct Sales		Filter	Department	Members	Direct Sales
7		Column1	Version	Range	$B$12:$E$12		Column1	Version	Range	$H$12:$K$12
8		Column2	Month Year	Range	$B$13:$E$13		Column2	Month Year	Range	$H$13:$K$13
9		Row	Account	Range	$A$14:$A$33		Row	Account	Range	$G$14:$G$33
10										
11	OLAPivotTable					OLAPivotTable				
12		Actual	Actual	Actual	Actual		Budget	Budget	Budget	Budget
13		Jan 2019	Feb 2019	Mar 2019	Cum Mar 2019		Jan 2020	Feb 2020	Mar 2020	Cum Mar 2020
14	Sales Income	3700	3423	3238	10360	Sales Income	0	0	0	0
15	Product Licensing Income	740	685	648	2072	Product Licensing Income	0	0	0	0
16	INCOME	**4440**	**4107**	**3885**	**12432**	INCOME	**0**	**0**	**0**	**0**
17										
18	DirectCosts	1406	1301	1230	3937	DirectCosts	0	0	0	0
19	Job Expenses	0	0	0	0	Job Expenses	0	0	0	0
20	COSTOFGOODSSOLD	**1406**	**1301**	**1230**	**3937**	COSTOFGOODSSOLD	**0**	**0**	**0**	**0**
21										
22	Gross Profit	**3034**	**2806**	**2655**	**8495**	Gross Profit	**0**	**0**	**0**	**0**
23										
24	Automobile	370	342	324	1036	Automobile	0	0	0	0
25	Insurance	555	513	486	1554	Insurance	0	0	0	0
26	Professional Fees	185	171	162	518	Professional Fees	0	0	0	0
27	Repairs	1110	1027	971	3108	Repairs	0	0	0	0
28	Taxes	74	68	65	207	Taxes	0	0	0	0
29	Utilities	111	103	97	311	Utilities	0	0	0	0
30	Payroll Expenses	185	171	162	518	Payroll Expenses	0	0	0	0
31	EXPENSE	**2590**	**2396**	**2266**	**7252**	EXPENSE	**0**	**0**	**0**	**0**
32										
33	Net Ordinary Income	**444**	**411**	**389**	**1243**	Net Ordinary Income	**0**	**0**	**0**	**0**

2. Keep in mind that the second Pivot Table on the right will serve as our data entry field. Next, you will make assumptions based on the Current Year (CY) Actual data. Our assumption will be to project a 20% increase in all Income accounts for next year's 1st quarter months (*Jan 2020*, *Feb 2020* and *Mar 2020*), but we also expect a 5% increase in all Cost of Goods Sold accounts and a 5% increase as well in Expense accounts. In an area within the same worksheet but 'outside' the PowerExcel Slices, we will create an **Assumptions Field**, starting in **column M**.



	A	B	C	D	E	G	H	I	J	K	M	N	O
1	Database:	PowerExcel PandA Training				Database:	PowerExcel PandA Training						
2	Cube:	Month Year Financial Data				Cube:	Month Year Financial Data						
3	Dimensions:	Filter	MY Fin Data M	Members	Amount	Dimensions:	Filter	MY Fin Data Me	Members	Amount			
4		Filter	Entity	Members	Sample Co		Filter	Entity	Members	Sample Co			
5		Filter	Product - Serv	Members	Product 2		Filter	Product - Servi	Members	Product 2			
6		Filter	Department	Members	Direct Sales		Filter	Department	Members	Direct Sales			
7		Column1	Version	Range	$B$12:$E$12		Column1	Version	Range	$H$12:$K$12			
8		Column2	Month Year	Range	$B$13:$E$13		Column2	Month Year	Range	$H$13:$K$13			
9		Row	Account	Range	$A$14:$A$33		Row	Account	Range	$G$14:$G$33			
11	OLAPivotTable					OLAPivotTable							
12		Actual	Actual	Actual	Actual		Budget	Budget	Budget	Budget	ASSUMPTIONS		
13		Jan 2019	Feb 2019	Mar 2019	Cum Mar 2019		Jan 2020	Feb 2020	Mar 2020	Cum Mar 2020	Jan 2020	Feb 2020	Mar 2020
14	Sales Income	3700	3423	3238	10360	Sales Income	0	0	0	0			
15	Product Licensing Income	740	685	648	2072	Product Licensing Income	0	0	0	0			
16	INCOME	**4440**	**4107**	**3885**	**12432**	INCOME	**0**	**0**	**0**	**0**			
18	DirectCosts	1406	1301	1230	3937	DirectCosts	0	0	0	0			
19	Job Expenses	0	0	0	0	Job Expenses	0	0	0	0			
20	COSTOFGOODSSOLD	**1406**	**1301**	**1230**	**3937**	COSTOFGOODSSOLD	**0**	**0**	**0**	**0**			
22	Gross Profit	**3034**	**2806**	**2655**	**8495**	Gross Profit	**0**	**0**	**0**	**0**			
24	Automobile	370	342	324	1036	Automobile	0	0	0	0			
25	Insurance	555	513	486	1554	Insurance	0	0	0	0			
26	Professional Fees	185	171	162	518	Professional Fees	0	0	0	0			
27	Repairs	1110	1027	971	3108	Repairs	0	0	0	0			
28	Taxes	74	68	65	207	Taxes	0	0	0	0			
29	Utilities	111	103	97	311	Utilities	0	0	0	0			
30	Payroll Expenses	185	171	162	518	Payroll Expenses	0	0	0	0			
31	EXPENSE	**2590**	**2396**	**2266**	**7252**	EXPENSE	**0**	**0**	**0**	**0**			
33	Net Ordinary Income	**444**	**411**	**389**	**1243**	Net Ordinary Income	**0**	**0**	**0**	**0**			

3. To compute for our first assumption (*INCOME* accounts), we will create a standard Excel formula where:

Jan 2020 Income accounts = ***Jan 2019 Income accounts * 1.2***;

Therefore, using our sample PowerExcel Slice, our formula will be:

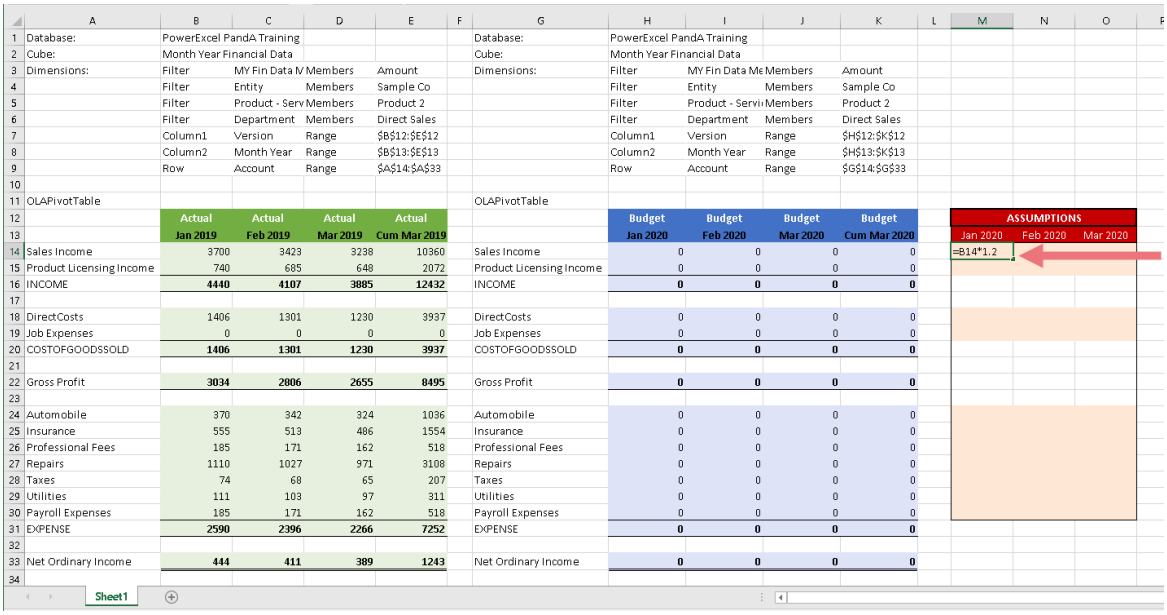
=B14*1.2

Where:

B14 = Jan 2019 Sales Income value
1.2 = 20% increase in Sales

To write the formula:

- In cell **M14**, enter the formula: **=B14*1.2**.



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Database:	PowerExcel PandA Training					Database:	PowerExcel PandA Training							
2	Cube:	Month Year Financial Data					Cube:	Month Year Financial Data							
3	Dimensions:	Filter	MY Fin Data M	Members	Amount		Dimensions:	Filter	MY Fin Data Me	Members	Amount				
4		Filter	Entity	Members	Sample Co			Filter	Entity	Members	Sample Co				
5		Filter	Product - Serv	Members	Product 2			Filter	Product - Servi	Members	Product 2				
6		Filter	Department	Members	Direct Sales			Filter	Department	Members	Direct Sales				
7		Column1	Version	Range	$B$12:$E$12			Column1	Version	Range	$H$12:$K$12				
8		Column2	Month Year	Range	$B$13:$E$13			Column2	Month Year	Range	$H$13:$K$13				
9		Row	Account	Range	$A$14:$A$33			Row	Account	Range	$G$14:$G$33				
10															
11	OLAPivotTable						OLAPivotTable								
12		Actual	Actual	Actual	Actual			Budget	Budget	Budget	Budget		ASSUMPTIONS		
13		Jan 2019	Feb 2019	Mar 2019	Cum Mar 2019			Jan 2020	Feb 2020	Mar 2020	Cum Mar 2020		Jan 2020	Feb 2020	Mar 2020
14	Sales Income	3700	3423	3238	10360		Sales Income	0	0	0	0		=B14*1.2		
15	Product Licensing Income	740	685	648	2072		Product Licensing Income	0	0	0	0				
16	INCOME	4440	4107	3885	12432		INCOME	0	0	0	0				
17															
18	DirectCosts	1406	1301	1230	3937		DirectCosts	0	0	0	0				
19	Job Expenses	0	0	0	0		Job Expenses	0	0	0	0				
20	COSTOFGOODSSOLD	1406	1301	1230	3937		COSTOFGOODSSOLD	0	0	0	0				
21															
22	Gross Profit	3034	2806	2655	8495		Gross Profit	0	0	0	0				
23															
24	Automobile	370	342	324	1036		Automobile	0	0	0	0				
25	Insurance	555	513	486	1554		Insurance	0	0	0	0				
26	Professional Fees	185	171	162	518		Professional Fees	0	0	0	0				
27	Repairs	1110	1027	971	3108		Repairs	0	0	0	0				
28	Taxes	74	68	65	207		Taxes	0	0	0	0				
29	Utilities	111	103	97	311		Utilities	0	0	0	0				
30	Payroll Expenses	185	171	162	518		Payroll Expenses	0	0	0	0				
31	EXPENSE	2590	2396	2266	7252		EXPENSE	0	0	0	0				
32															
33	Net Ordinary Income	444	411	389	1243		Net Ordinary Income	0	0	0	0				
34															

Note: If you are using the same assumption to compute for all INCOME sub-accounts (i.e., *Sales Income* and *Product Licensing Income*), you can copy this formula to all relevant cells.

- **Copy and Paste** the formula to cells **M14** to **O15**.
- Then click **F9** to refresh the formulas. You now have the computed target *Sales Income* for *Jan 2020*, *Feb 2020* and *Mar 2020*, as well as computed target *Product Licensing Income* for those months.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
11	OLAPivotTable						OLAPivotTable								
12		Actual	Actual	Actual	Actual			Budget	Budget	Budget	Budget		ASSUMPTIONS		
13		Jan 2019	Feb 2019	Mar 2019	Cum Mar 2019			Jan 2020	Feb 2020	Mar 2020	Cum Mar 2020		Jan 2020	Feb 2020	Mar 2020
14	Sales Income	3700	3423	3238	10360		Sales Income	0	0	0	0		4440	4107	3885
15	Product Licensing Income	740	685	648	2072		Product Licensing Income	0	0	0	0		888	821	777
16	INCOME	4440	4107	3885	12432		INCOME	0	0	0	0				
17															
18	DirectCosts	1406	1301	1230	3937		DirectCosts	0	0	0	0				
19	Job Expenses	0	0	0	0		Job Expenses	0	0	0	0				
20	COSTOFGOODSSOLD	1406	1301	1230	3937		COSTOFGOODSSOLD	0	0	0	0				
21															
22	Gross Profit	3034	2806	2655	8495		Gross Profit	0	0	0	0				
23															
24	Automobile	370	342	324	1036		Automobile	0	0	0	0				
25	Insurance	555	513	486	1554		Insurance	0	0	0	0				
26	Professional Fees	185	171	162	518		Professional Fees	0	0	0	0				
27	Repairs	1110	1027	971	3108		Repairs	0	0	0	0				
28	Taxes	74	68	65	207		Taxes	0	0	0	0				
29	Utilities	111	103	97	311		Utilities	0	0	0	0				
30	Payroll Expenses	185	171	162	518		Payroll Expenses	0	0	0	0				
31	EXPENSE	2590	2396	2266	7252		EXPENSE	0	0	0	0				
32															
33	Net Ordinary Income	444	411	389	1243		Net Ordinary Income	0	0	0	0				

4. Now, for our second assumption (*COSTOFGOODSSOLD* accounts), we will create a standard Excel formula where:

   ***Jan 2020 COSTOFGOODSSOLD accounts** = **Jan 2019 COSTOFGOODSSOLD accounts * 1.05**;*

   Therefore based on our sample PowerExcel Slice our formula will be:

   =B18*1.05

Where:

B18 = Jan 2019 Direct Costs
1.05 = 5% assumed increase in Cost of Sales accounts

To write the formula:

- In cell **M18** enter the formula: **=B18*1.05**.
  As we are using the same assumptions for all COSTOFGOODSSOLD sub-accounts (i.e., *Direct Costs* and *Job Expenses*), you can:
  Copy and paste this formula to cells **M18** to **O19**.
- Press **F9** to refresh the results of the formula. Since there are no *Job Expenses* data in the sample Slice, you will see 0 values in the corresponding cells. You now have the computed *Direct Costs* for *Jan 2020*, *Feb 2020* and *Mar 2020*.

OLAPivotTable					OLAPivotTable							
	Actual	Actual	Actual	Actual		Budget	Budget	Budget	Budget	ASSUMPTIONS		
	Jan 2019	Feb 2019	Mar 2019	Cum Mar 2019		Jan 2020	Feb 2020	Mar 2020	Cum Mar 2020	Jan 2020	Feb 2020	Mar 2020
Sales Income	3700	3423	3238	10360	Sales Income	0	0	0	0	4440	4107	3885
Product Licensing Income	740	685	648	2072	Product Licensing Income	0	0	0	0	888	821	777
INCOME	**4440**	**4107**	**3885**	**12432**	INCOME	**0**	**0**	**0**	**0**			
DirectCosts	1406	1301	1230	3937	DirectCosts	0	0	0	0	1476	1366	1292
Job Expenses	0	0	0	0	Job Expenses	0	0	0	0	0	0	0
COSTOFGOODSSOLD	**1406**	**1301**	**1230**	**3937**	COSTOFGOODSSOLD	**0**	**0**	**0**	**0**			
Gross Profit	**3034**	**2806**	**2655**	**8495**	Gross Profit	**0**	**0**	**0**	**0**			
Automobile	370	342	324	1036	Automobile	0	0	0	0			
Insurance	555	513	486	1554	Insurance	0	0	0	0			
Professional Fees	185	171	162	518	Professional Fees	0	0	0	0			
Repairs	1110	1027	971	3108	Repairs	0	0	0	0			
Taxes	74	68	65	207	Taxes	0	0	0	0			
Utilities	111	103	97	311	Utilities	0	0	0	0			
Payroll Expenses	185	171	162	518	Payroll Expenses	0	0	0	0			
EXPENSE	**2590**	**2396**	**2266**	**7252**	EXPENSE	**0**	**0**	**0**	**0**			
Net Ordinary Income	**444**	**411**	**389**	**1243**	Net Ordinary Income	**0**	**0**	**0**	**0**			

5. For our third assumption (*EXPENSE* accounts), we will follow the same logic as *COSTOFGOODSSOLD* accounts. Only now, we will be using data for Expense accounts as our reference value.
   To write the formula:
   - In cell **M24** enter the formula: **=B24*1.05**.
     Note: Again, all the EXPENSE sub-accounts will be using the same assumption where you multiply the data by 1.05:
     Copy and paste this formula to cells **M24** to **O30**.
   - Press **F9** to refresh the formula results.
     You now have first quarter months computed budget data for the Expense accounts *Automobile*, *Insurance*, *Professional Fees*, *Repairs*, *Taxes*, *Utilities* and *Payroll Expenses*.
     The PowerExcel Slice will look as follows:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Database:	PowerExcel PandA Training					Database:	PowerExcel PandA Training							
2	Cube:	Month Year Financial Data					Cube:	Month Year Financial Data							
3	Dimensions:	Filter	MY Fin Data M	Members	Amount		Dimensions:	Filter	MY Fin Data Me	Members	Amount				
4		Filter	Entity	Members	Sample Co			Filter	Entity	Members	Sample Co				
5		Filter	Product - Serv	Members	Product 2			Filter	Product - Servi	Members	Product 2				
6		Filter	Department	Members	Direct Sales			Filter	Department	Members	Direct Sales				
7		Column1	Version	Range	$B$12:$E$12			Column1	Version	Range	$H$12:$K$12				
8		Column2	Month Year	Range	$B$13:$E$13			Column2	Month Year	Range	$H$13:$K$13				
9		Row	Account	Range	$A$14:$A$33			Row	Account	Range	$G$14:$G$33				
10															
11	OLAPivotTable						OLAPivotTable								
12		Actual	Actual	Actual	Actual			Budget	Budget	Budget	Budget		ASSUMPTIONS		
13		Jan 2019	Feb 2019	Mar 2019	Cum Mar 2019			Jan 2020	Feb 2020	Mar 2020	Cum Mar 2020		Jan 2020	Feb 2020	Mar 2020
14	Sales Income	3700	3423	3238	10360		Sales Income	0	0	0	0		4440	4107	3885
15	Product Licensing Income	740	685	648	2072		Product Licensing Income	0	0	0	0		888	821	777
16	INCOME	**4440**	**4107**	**3885**	**12432**		INCOME	**0**	**0**	**0**	**0**				
17															
18	DirectCosts	1406	1301	1230	3937		DirectCosts	0	0	0	0		1476	1366	1292
19	Job Expenses	0	0	0	0		Job Expenses	0	0	0	0				
20	COSTOFGOODSSOLD	**1406**	**1301**	**1230**	**3937**		COSTOFGOODSSOLD	**0**	**0**	**0**	**0**				
21															
22	Gross Profit	**3034**	**2806**	**2655**	**8495**		Gross Profit	**0**	**0**	**0**	**0**				
23															
24	Automobile	370	342	324	1036		Automobile	0	0	0	0		389	359	340
25	Insurance	555	513	486	1554		Insurance	0	0	0	0		583	539	510
26	Professional Fees	185	171	162	518		Professional Fees	0	0	0	0		194	180	170
27	Repairs	1110	1027	971	3108		Repairs	0	0	0	0		1166	1078	1020
28	Taxes	74	68	65	207		Taxes	0	0	0	0		78	72	68
29	Utilities	111	103	97	311		Utilities	0	0	0	0		117	108	102
30	Payroll Expenses	185	171	162	518		Payroll Expenses	0	0	0	0		194	180	170
31	EXPENSE	**2590**	**2396**	**2266**	**7252**		EXPENSE	**0**	**0**	**0**	**0**				
32															
33	Net Ordinary Income	**444**	**411**	**389**	**1243**		Net Ordinary Income	**0**	**0**	**0**	**0**				

Sheet1

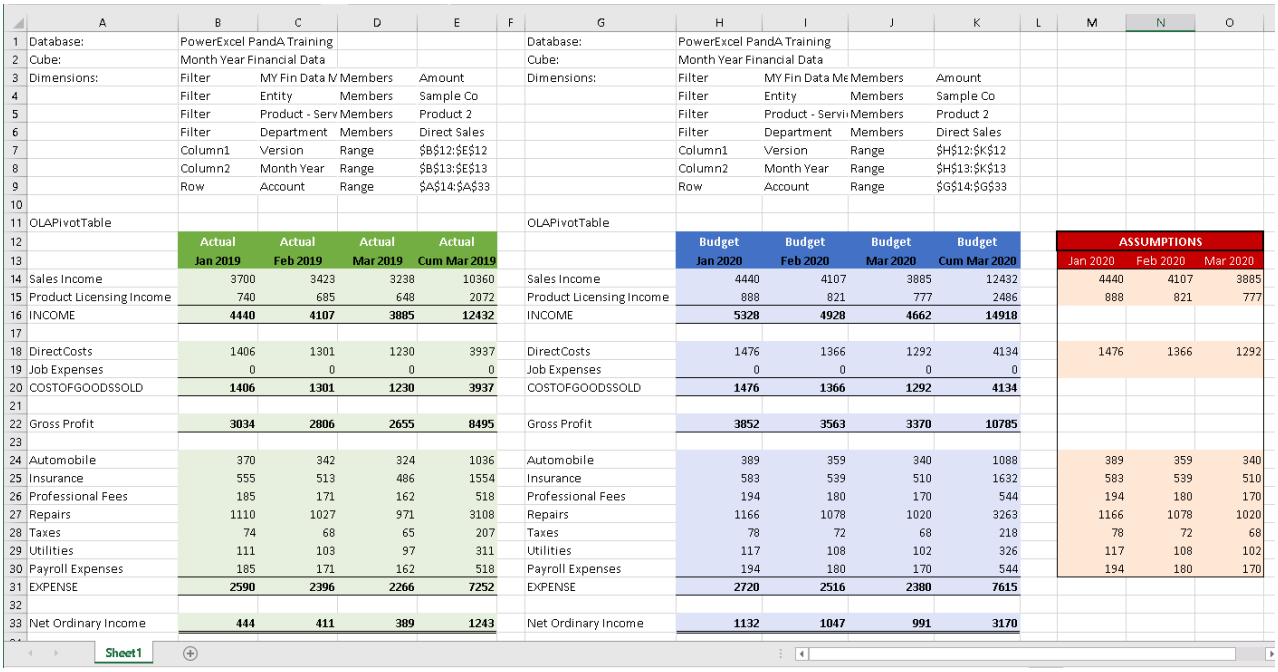
6. Now that we have our assumptions computed, we can copy and paste these values to our Budget Slice.
   To do this:
   - Select the range covered by the assumptions data. In our example this would be the range **M14:O30**.
   - Copy this range of values then paste as values to our Budget Slice (in this example, the range would be **H14:J30**).

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Database:	PowerExcel PandA Training					Database:	PowerExcel PandA Training							
2	Cube:	Month Year Financial Data					Cube:	Month Year Financial Data							
3	Dimensions:	Filter	MY Fin Data M	Members	Amount		Dimensions:	Filter	MY Fin Data Me	Members	Amount				
4		Filter	Entity	Members	Sample Co			Filter	Entity	Members	Sample Co				
5		Filter	Product - Serv	Members	Product 2			Filter	Product - Servi	Members	Product 2				
6		Filter	Department	Members	Direct Sales			Filter	Department	Members	Direct Sales				
7		Column1	Version	Range	$B$12:$E$12			Column1	Version	Range	$H$12:$K$12				
8		Column2	Month Year	Range	$B$13:$E$13			Column2	Month Year	Range	$H$13:$K$13				
9		Row	Account	Range	$A$14:$A$33			Row	Account	Range	$G$14:$G$33				
10															
11	OLAPivotTable						OLAPivotTable								
12		Actual	Actual	Actual	Actual			Budget	Budget	Budget	Budget		ASSUMPTIONS		
13		Jan 2019	Feb 2019	Mar 2019	Cum Mar 2019			Jan 2020	Feb 2020	Mar 2020	Cum Mar 2020		Jan 2020	Feb 2020	Mar 2020
14	Sales Income	3700	3423	3238	10360		Sales Income	4440	4107	3885	0		4440	4107	3885
15	Product Licensing Income	740	685	648	2072		Product Licensing Income	888	821	777	0		888	821	777
16	INCOME	**4440**	**4107**	**3885**	**12432**		INCOME				**0**				
17															
18	DirectCosts	1406	1301	1230	3937		DirectCosts	1476	1366	1292	0		1476	1366	1292
19	Job Expenses	0	0	0	0		Job Expenses				0				
20	COSTOFGOODSSOLD	**1406**	**1301**	**1230**	**3937**		COSTOFGOODSSOLD				**0**				
21															
22	Gross Profit	**3034**	**2806**	**2655**	**8495**		Gross Profit				**0**				
23															
24	Automobile	370	342	324	1036		Automobile	389	359	340	0		389	359	340
25	Insurance	555	513	486	1554		Insurance	583	539	510	0		583	539	510
26	Professional Fees	185	171	162	518		Professional Fees	194	180	170	0		194	180	170
27	Repairs	1110	1027	971	3108		Repairs	1166	1078	1020	0		1166	1078	1020
28	Taxes	74	68	65	207		Taxes	78	72	68	0		78	72	68
29	Utilities	111	103	97	311		Utilities	117	108	102	0		117	108	102
30	Payroll Expenses	185	171	162	518		Payroll Expenses	194	180	170	0		194	180	170
31	EXPENSE	**2590**	**2396**	**2266**	**7252**		EXPENSE	**0**	**0**	**0**	**0**				
32															
33	Net Ordinary Income	**444**	**411**	**389**	**1243**		Net Ordinary Income	**0**	**0**	**0**	**0**				

(Ctrl)

Sheet1

- Press **F9** to refresh the Slice values. Note that all relevant aggregate cells have also been updated accordingly.
  Note: It doesn't matter if we copied over values to the aggregate cells because that has NO EFFECT. The Aggregation as defined in the source model will still override whatever input you—i.e., any data entry inputs won't be accepted in those aggregate cells and will only apply to detail cells.



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Database:	PowerExcel PandA Training					Database:	PowerExcel PandA Training							
2	Cube:	Month Year Financial Data					Cube:	Month Year Financial Data							
3	Dimensions:	Filter	MY Fin Data M	Members	Amount		Dimensions:	Filter	MY Fin Data Me	Members	Amount				
4		Filter	Entity	Members	Sample Co			Filter	Entity	Members	Sample Co				
5		Filter	Product - Serv	Members	Product 2			Filter	Product - Servi	Members	Product 2				
6		Filter	Department	Members	Direct Sales			Filter	Department	Members	Direct Sales				
7		Column1	Version	Range	$B$12:$E$12			Column1	Version	Range	$H$12:$K$12				
8		Column2	Month Year	Range	$B$13:$E$13			Column2	Month Year	Range	$H$13:$K$13				
9		Row	Account	Range	$A$14:$A$33			Row	Account	Range	$G$14:$G$33				
10															
11	OLAPivotTable						OLAPivotTable								
12		Actual	Actual	Actual	Actual			Budget	Budget	Budget	Budget		ASSUMPTIONS		
13		Jan 2019	Feb 2019	Mar 2019	Cum Mar 2019			Jan 2020	Feb 2020	Mar 2020	Cum Mar 2020		Jan 2020	Feb 2020	Mar 2020
14	Sales Income	3700	3423	3238	10360		Sales Income	4440	4107	3885	12432		4440	4107	3885
15	Product Licensing Income	740	685	648	2072		Product Licensing Income	888	821	777	2486		888	821	777
16	INCOME	**4440**	**4107**	**3885**	**12432**		INCOME	**5328**	**4928**	**4662**	**14918**				
17															
18	DirectCosts	1406	1301	1230	3937		DirectCosts	1476	1366	1292	4134		1476	1366	1292
19	Job Expenses	0	0	0	0		Job Expenses	0	0	0	0				
20	COSTOFGOODSSOLD	**1406**	**1301**	**1230**	**3937**		COSTOFGOODSSOLD	**1476**	**1366**	**1292**	**4134**				
21															
22	Gross Profit	**3034**	**2806**	**2655**	**8495**		Gross Profit	**3852**	**3563**	**3370**	**10785**				
23															
24	Automobile	370	342	324	1036		Automobile	389	359	340	1088		389	359	340
25	Insurance	555	513	486	1554		Insurance	583	539	510	1632		583	539	510
26	Professional Fees	185	171	162	518		Professional Fees	194	180	170	544		194	180	170
27	Repairs	1110	1027	971	3108		Repairs	1166	1078	1020	3263		1166	1078	1020
28	Taxes	74	68	65	207		Taxes	78	72	68	218		78	72	68
29	Utilities	111	103	97	311		Utilities	117	108	102	326		117	108	102
30	Payroll Expenses	185	171	162	518		Payroll Expenses	194	180	170	544		194	180	170
31	EXPENSE	**2590**	**2396**	**2266**	**7252**		EXPENSE	**2720**	**2516**	**2380**	**7615**				
32															
33	Net Ordinary Income	**444**	**411**	**389**	**1243**		Net Ordinary Income	**1132**	**1047**	**991**	**3170**				

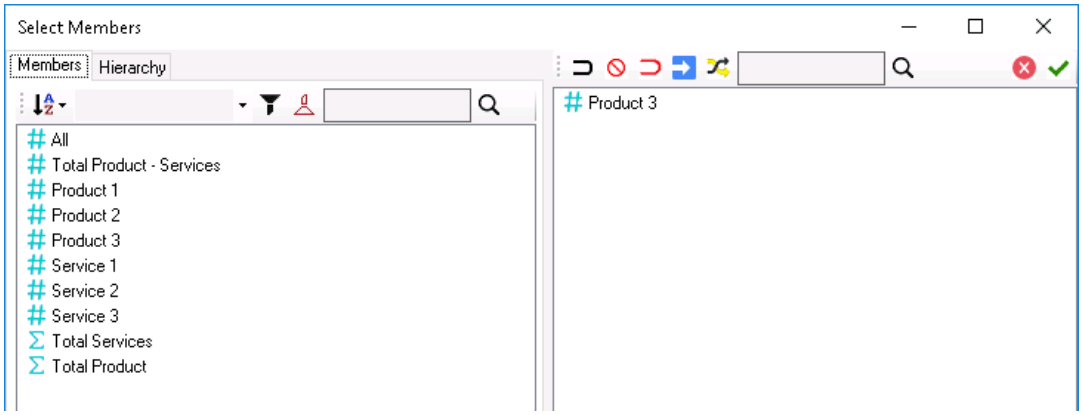
Sheet1

7. To check if the data entry was committed to our database, you can test it by:
   - Creating a new PowerExcel Slice in a new worksheet or workbook.
   - From the Excel ribbon, go to the **PowerExcel** Tab and click on the **New** icon.
   - In the PowerExcel sidebar that appears, select the same connection/database
   - Arrange the Dimensions and display Members as follows:

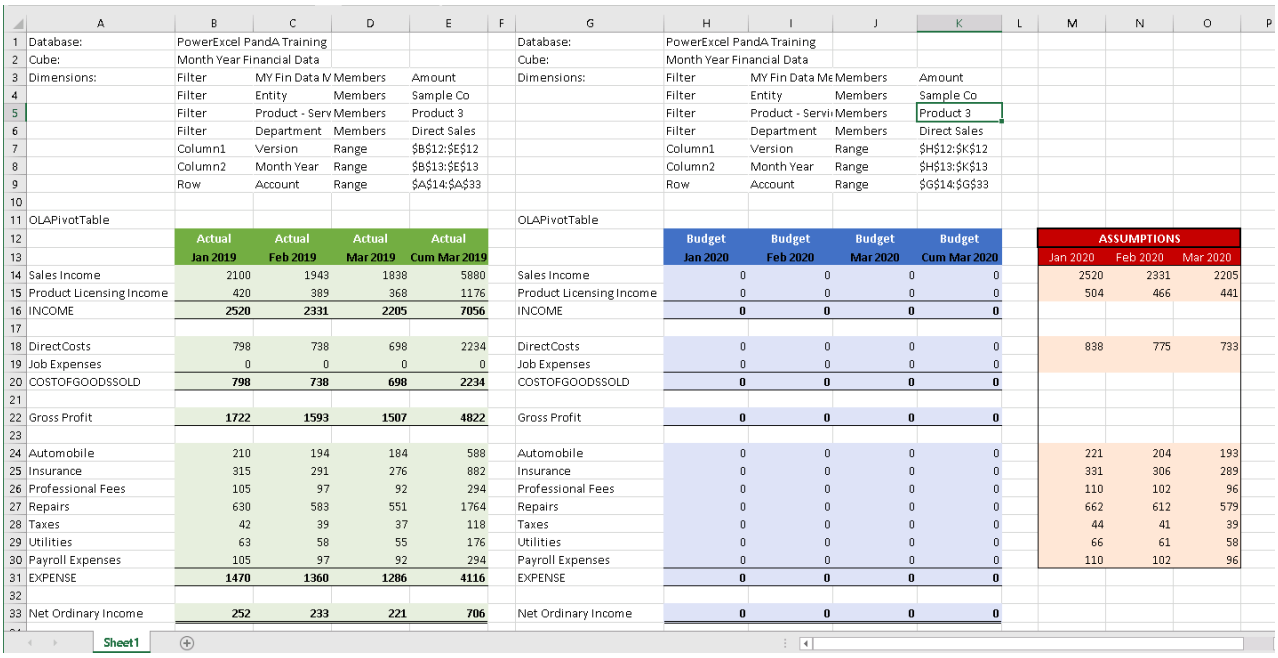
Filter	My Fin Data Measure: *Amount*
	Version: *Budget*
	Entity: *Sample Co*
	Product – Service: *Product 2*
	Department: *Direct Sales*
Columns	Month Year: *Jan 2020*, *Feb 2020*, *Mar 2020* and *Cum Mar 2020*
Rows	Account: *Sales Income, Product Licensing Income, INCOME, Direct Costs, Job Expenses, COSTOFGOODSOLD, Gross Profit, Automobile, Insurance, Professional Fees, Repairs, Taxes, Utilities, Payroll Expenses, EXPENSE, Net Ordinary Income*

- Select **PivotTable** as the Slice type and insert into **current worksheet** starting at cell **A1.**
- Click the **Insert** button.
  The PowerExcel Slice generated reflects the Budget data that was entered.

8. Now you can use the same template to do a bulk copy-and-paste entry for budget data for any other **Product - Service** (e.g., *Product 3*, *Service 1*, etc..), other **Department** (e.g., Online Sales) or other filtered Dimension Members.
   As in the following example: assume we want to enter Budget data for *Product 3*:
   - Go to the area of the spreadsheet referencing **Actuals** on the left.
   - Double-click on the relevant cell, which is **E5** in our example, to bring up the Select Member dialog. Clear the member displayed on the right-hand pane then drag and drop **Product 3** from the left-hand pane to the right.



   - Do the same for your **Budget Slice**. Go reference for the **Product - Service** display Member, which, in the example, is **K5**.
   - Double-click on that cell to bring up the Select Member dialog. Clear the member displayed on the right-hand pane then drag and drop **Product 3** from the left-hand pane to the right.
   - Press **F9** to update the values in the Actual Slice (first Pivot Table), Budget Slice (second Pivot Table) and Assumptions Field.
     The updated Data Entry Template will look as follows:



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Database:	PowerExcel PandA Training					Database:	PowerExcel PandA Training								
2	Cube:	Month Year Financial Data					Cube:	Month Year Financial Data								
3	Dimensions:	Filter	MY Fin Data M	Members	Amount		Dimensions:	Filter	MY Fin Data Me	Members	Amount					
4		Filter	Entity	Members	Sample Co			Filter	Entity	Members	Sample Co					
5		Filter	Product - Serv	Members	Product 3			Filter	Product - Servi	Members	Product 3					
6		Filter	Department	Members	Direct Sales			Filter	Department	Members	Direct Sales					
7		Column1	Version	Range	$B$12:$E$12			Column1	Version	Range	$H$12:$K$12					
8		Column2	Month Year	Range	$B$13:$E$13			Column2	Month Year	Range	$H$13:$K$13					
9		Row	Account	Range	$A$14:$A$33			Row	Account	Range	$G$14:$G$33					
10																
11	OLAPivotTable						OLAPivotTable									
12		Actual	Actual	Actual	Actual			Budget	Budget	Budget	Budget		ASSUMPTIONS			
13		Jan 2019	Feb 2019	Mar 2019	Cum Mar 2019			Jan 2020	Feb 2020	Mar 2020	Cum Mar 2020		Jan 2020	Feb 2020	Mar 2020	
14	Sales Income	2100	1943	1838	5880		Sales Income	0	0	0	0		2520	2331	2205	
15	Product Licensing Income	420	389	368	1176		Product Licensing Income	0	0	0	0		504	466	441	
16	INCOME	**2520**	**2331**	**2205**	**7056**		INCOME	**0**	**0**	**0**	**0**					
17																
18	DirectCosts	798	738	698	2234		DirectCosts	0	0	0	0		838	775	733	
19	Job Expenses	0	0	0	0		Job Expenses	0	0	0	0					
20	COSTOFGOODSSOLD	**798**	**738**	**698**	**2234**		COSTOFGOODSSOLD	**0**	**0**	**0**	**0**					
21																
22	Gross Profit	**1722**	**1593**	**1507**	**4822**		Gross Profit	**0**	**0**	**0**	**0**					
23																
24	Automobile	210	194	184	588		Automobile	0	0	0	0		221	204	193	
25	Insurance	315	291	276	882		Insurance	0	0	0	0		331	306	289	
26	Professional Fees	105	97	92	294		Professional Fees	0	0	0	0		110	102	96	
27	Repairs	630	583	551	1764		Repairs	0	0	0	0		662	612	579	
28	Taxes	42	39	37	118		Taxes	0	0	0	0		44	41	39	
29	Utilities	63	58	55	176		Utilities	0	0	0	0		66	61	58	
30	Payroll Expenses	105	97	92	294		Payroll Expenses	0	0	0	0		110	102	96	
31	EXPENSE	**1470**	**1360**	**1286**	**4116**		EXPENSE	**0**	**0**	**0**	**0**					
32																
33	Net Ordinary Income	**252**	**233**	**221**	**706**		Net Ordinary Income	**0**	**0**	**0**	**0**					

Sheet1

- Notice that the Assumptions Field computation is also updated based on the new reference values. Assuming that you are going to use the same assumptions, you can simply proceed to copy and paste the values from the Assumptions Field to the Budget Slice, as you did previously.

4. Using PowerExcel's Dimension Editor

The **Dimension Editor** or the **Edit Dimension command** is found in the PowerExcel Tab of the Excel ribbon.

The Dimension Editor allows you to create new or rename existing Members; change the Hierarchy structure or create a new Hierarchy; edit Hierarchy Weights, and; sort and filter the Member list directly from Excel. However, you will be restricted from deleting members that exist within the Dimension.

Note: The PowerExcel Dimension Editor capability is enabled on the basis of customer licensing. If your PowerExcel installation does not allow Dimension Editor capabilities, reach PARIS Technologies for further information.

For this exercise, you will learn how to use the Dimension Editor to create a new Member(s) within the PowerExcel model. This is a significant capability allow users to create new metrics, KPIs or analytics of business performance based on existing data in the model.

In the following example, we posit a business that is a children's retail store: its biggest months are Aug 2020 (just before school starts), and Nov 2020 and Dec 2020 (holiday sales). We will create a new Hierarchy in the **Month Year** Dimension called **Key Performance Months** to track the aggregated sales for those three (3) months.

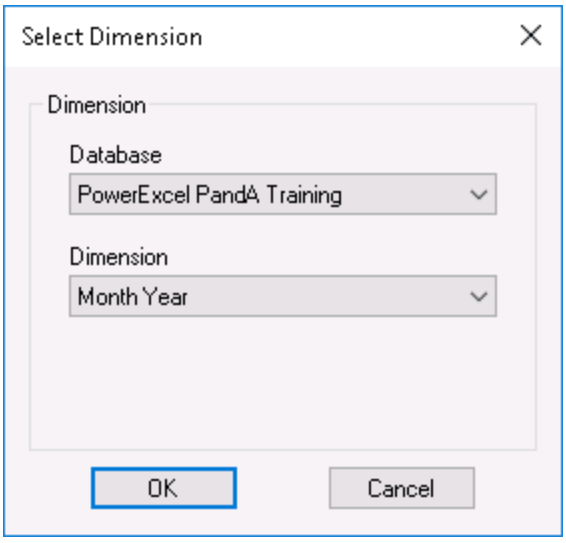
Important: Specific figures or the order of the Dimensions may be different from the data set you are working on. This exercise merely serves as a guide on the steps to be followed to be able to use the feature.

To proceed with the exercise:

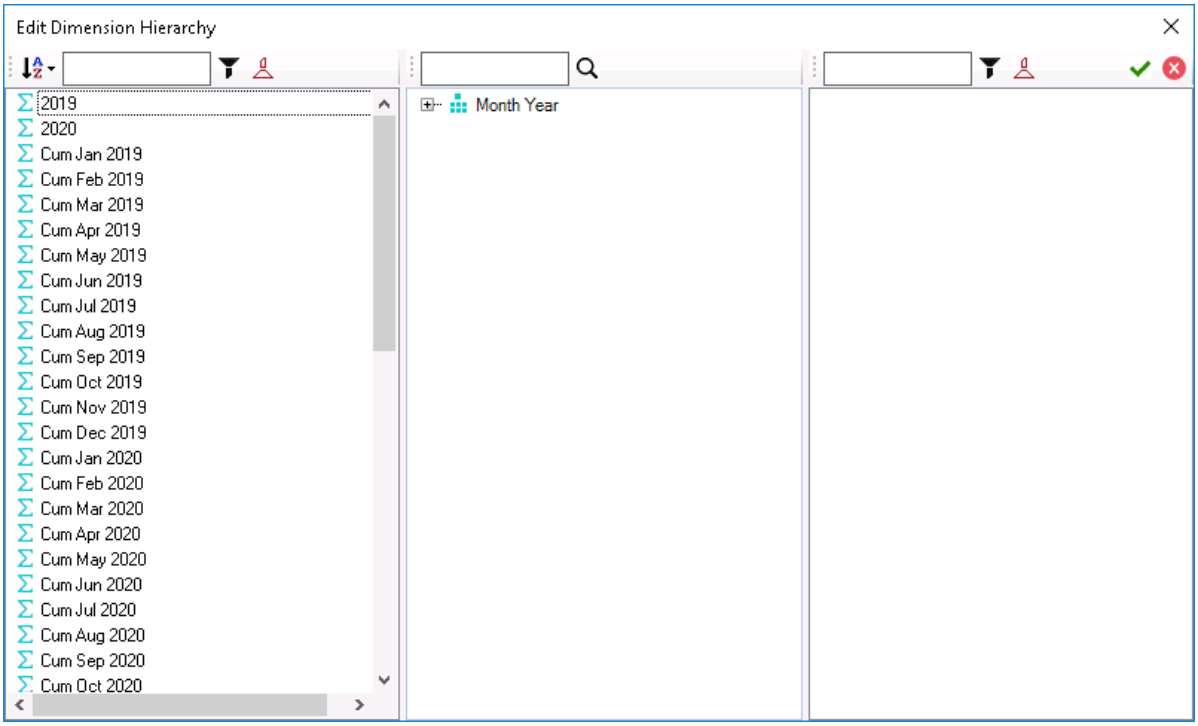
Begin by accessing the Dimension Editor window:

1. Click on the **PowerExcel Tab**.
2. Click on the **Edit Dimension icon** and the following Dimension Editor window appears.

3. Click the **Edit Dimension** button (circled in the previous image).
   The Select Dimension window appears next; select the Database Connection and Dimension you wish to edit (as below, the example **PowerExcel PandA Training** database and the **Month Year** Dimension).



4. Click **OK**; the Edit Dimension Hierarchy window appears (see image below).



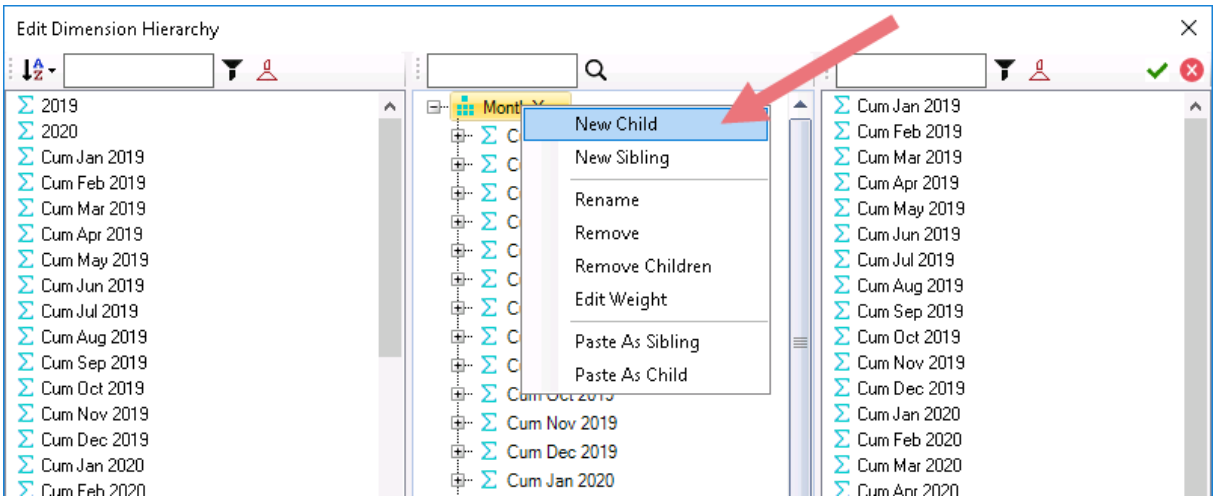
Commands and functions available in the Dimension Editor window:
(These can be found along the top portion of the window)

Function	Icon	Description
Left-hand Pane		
Sort list of members		This option allows you to define the sort order of the Member list. The Member list can be sorted in Natural, Ascending Alphabetical, and Descending Alphabetical orders.
Filter box		This is where you type in the filter parameter.
Filter list of members		This executes the filter parameter specified in the Filter box.
Remove filter from list of members		This removes the filter applied to the Member list.
Middle Pane		
Find member in hierarchy		This allows you to perform a find and search.
Right-hand Pane		
This pane shows the "child" Members when you click on a Hierarchy in the Middle Pane. It features the same options as the Left-hand Pane, except for Sort Member list.		

Other command buttons		
Save Hierarchy		Saves the changes you made in the Hierarchy.
Close without saving		Cancels all the changes and reverts to the original Hierarchy structure.

Next, proceed to add the new Member (*Key Performance Months*):

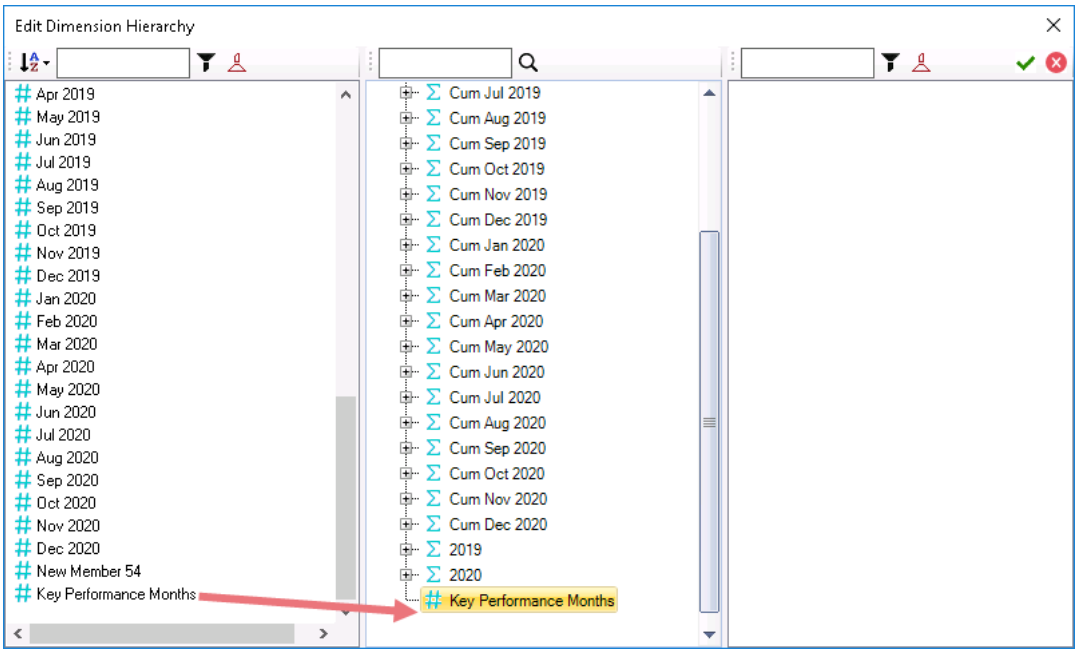
5. Go to the Hierarchy Definition Box (middle pane), right-click on **Month Year** and select **New Child**.
   This will create a new textbox at the bottom of the Hierarchy where you can enter the name of the newly added Member (see below).



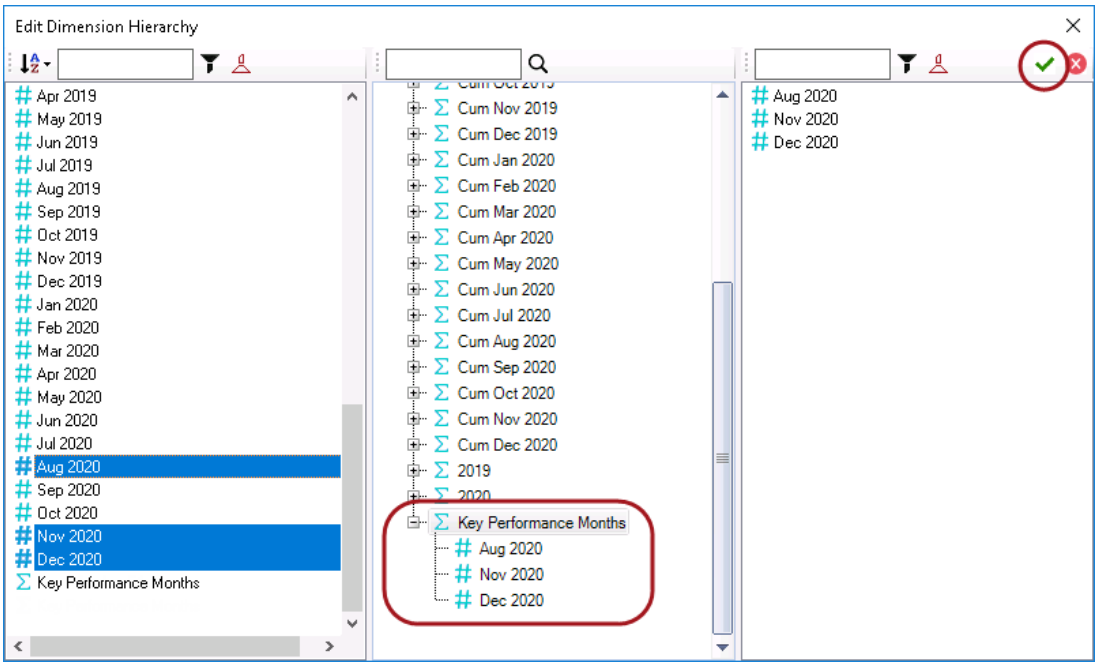
   Alternatively, you can expand **Month Year**, and select a Member which is at the same hierarchy level where you want the new Member to be (for example **2020**); then right-click and select **New Sibling**. Doing this will insert the new Member at the same hierarchy level but directly below the **2020** member. (You may need to scroll down the Hierarchy Definition Field (middle pane) to see the 2020 *Month Year* Member.)

6. In the textbox that appears, type **Key Performance Months**.

   Notice that the newly added member (*Key Performance Months*) is now displayed under the Member List pane (left-hand pane).



7. Press **Ctrl,** then select the Month members **Aug 2020**, **Nov 2020**, and **Dec 2020** on the left, and drag them below Key Performance Months in the middle pane to create the Hierarchy, as shown circled below:

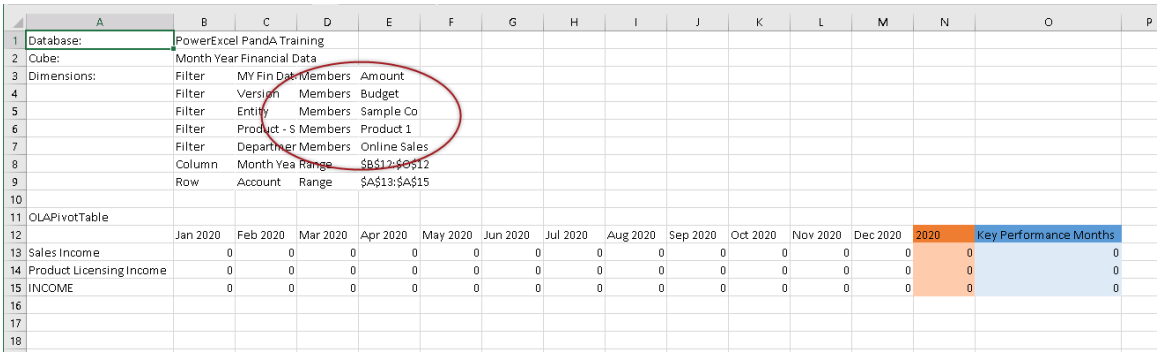


Note that the Member Key Performance Months now has a Sigma sign next to it (Σ).

8. Click the **Save Hierarchy** button (**green checkmark**) at the top right (circled above) to save Hierarchy changes.

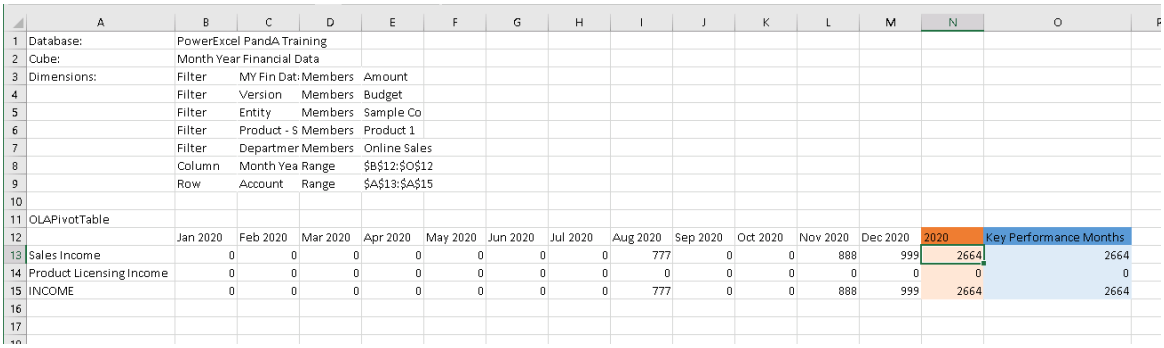
At this point we want to see results in a report—for this, open a new Excel spreadsheet:

9. In the newly opened Excel worksheet, click on the **PowerExcel Tab** and use the selection box on the right to create an Excel slice like the following, with those months shown; you can use Excel formatting capabilities as well.
(Be sure that the Dimension members have been filtered to the Detail level—as below, circled, *Amount* has been selected for from the *Measure* dimension, and *Budget* has been selected from the *Version* dimension, and so on.)



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Database:	PowerExcel PandA Training													
2	Cube:	Month Year Financial Data													
3	Dimensions:	Filter	MY Fin Dat	Members	Amount										
4		Filter	Version	Members	Budget										
5		Filter	Entity	Members	Sample Co										
6		Filter	Product - S	Members	Product 1										
7		Filter	Departmer	Members	Online Sales										
8		Column	Month Yea	Range	$B$12:$O$12										
9		Row	Account	Range	$A$13:$A$15										
10															
11	OLAPivotTable														
12		Jan 2020	Feb 2020	Mar 2020	Apr 2020	May 2020	Jun 2020	Jul 2020	Aug 2020	Sep 2020	Oct 2020	Nov 2020	Dec 2020	2020	Key Performance Months
13	Sales Income	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Product Licensing Income	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	INCOME	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16															
17															
18															

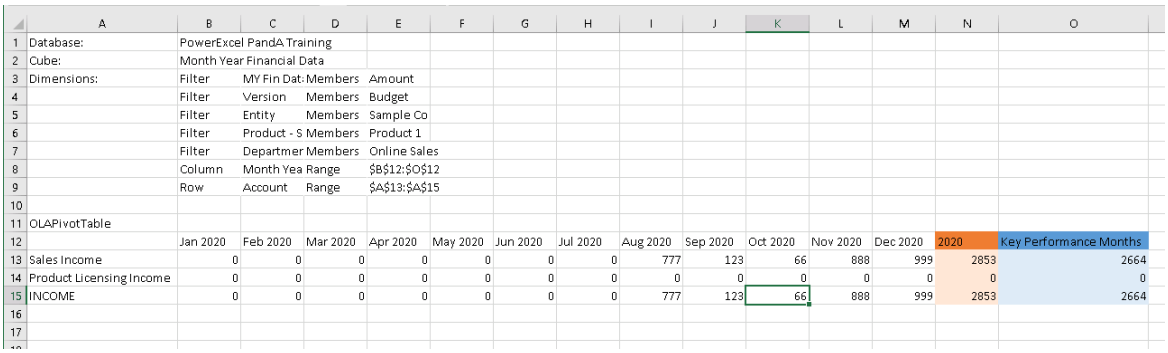
10. To demonstrate the results of the new Hierarchy, **Key Performance Months**, note what happens when you enter *Sales* numbers in *Aug 2020* (**777**), *Nov 2020* (**888**) and *Dec 2020* (**999**).



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Database:	PowerExcel PandA Training													
2	Cube:	Month Year Financial Data													
3	Dimensions:	Filter	MY Fin Dat	Members	Amount										
4		Filter	Version	Members	Budget										
5		Filter	Entity	Members	Sample Co										
6		Filter	Product - S	Members	Product 1										
7		Filter	Departmer	Members	Online Sales										
8		Column	Month Yea	Range	$B$12:$O$12										
9		Row	Account	Range	$A$13:$A$15										
10															
11	OLAPivotTable														
12		Jan 2020	Feb 2020	Mar 2020	Apr 2020	May 2020	Jun 2020	Jul 2020	Aug 2020	Sep 2020	Oct 2020	Nov 2020	Dec 2020	2020	Key Performance Months
13	Sales Income	0	0	0	0	0	0	0	777	0	0	888	999	2664	2664
14	Product Licensing Income	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	INCOME	0	0	0	0	0	0	0	777	0	0	888	999	2664	2664
16															
17															

Indeed, the aggregate Month Year Member *2020* numbers calculate as expected (Column N)—as does the result for Key Performance Months (Column O). Of course, so do results for the aggregate Account Member *INCOME*.

11. If you next enter figures for *September* (**123**) and *October* (**66**), you will see that the *2020* numbers recalculate, but the value for *Key Performance Months* remains the same, which validates the Hierarchy calculation of *Aug 2020*, *Nov 2020* and *Dec 2020*.



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Database:	PowerExcel PandA Training													
2	Cube:	Month Year Financial Data													
3	Dimensions:	Filter	MY Fin Dat	Members	Amount										
4		Filter	Version	Members	Budget										
5		Filter	Entity	Members	Sample Co										
6		Filter	Product - S	Members	Product 1										
7		Filter	Departmer	Members	Online Sales										
8		Column	Month Yea	Range	$B$12:$O$12										
9		Row	Account	Range	$A$13:$A$15										
10															
11	OLAPivotTable														
12		Jan 2020	Feb 2020	Mar 2020	Apr 2020	May 2020	Jun 2020	Jul 2020	Aug 2020	Sep 2020	Oct 2020	Nov 2020	Dec 2020	2020	Key Performance Months
13	Sales Income	0	0	0	0	0	0	0	777	123	66	888	999	2853	2664
14	Product Licensing Income	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	INCOME	0	0	0	0	0	0	0	777	123	66	888	999	2853	2664
16															
17															

5. Range References in a PowerExcel Slice

This section will discuss how to correctly ustilize a Range Function reference within a PowerExcel Slice.

IMPORTANT: The following step-by-step procedure must be observed and followed when changing range references or when changing the range parameter of the OLATableRange formula to ensure that the newly specified range will be committed to the formula.

Please bear in mind that you don't necessarily need to be working on the exact database and data set as shown in this section. This topic merely serves as a guide to enable you to use the operation of this feature correctly.

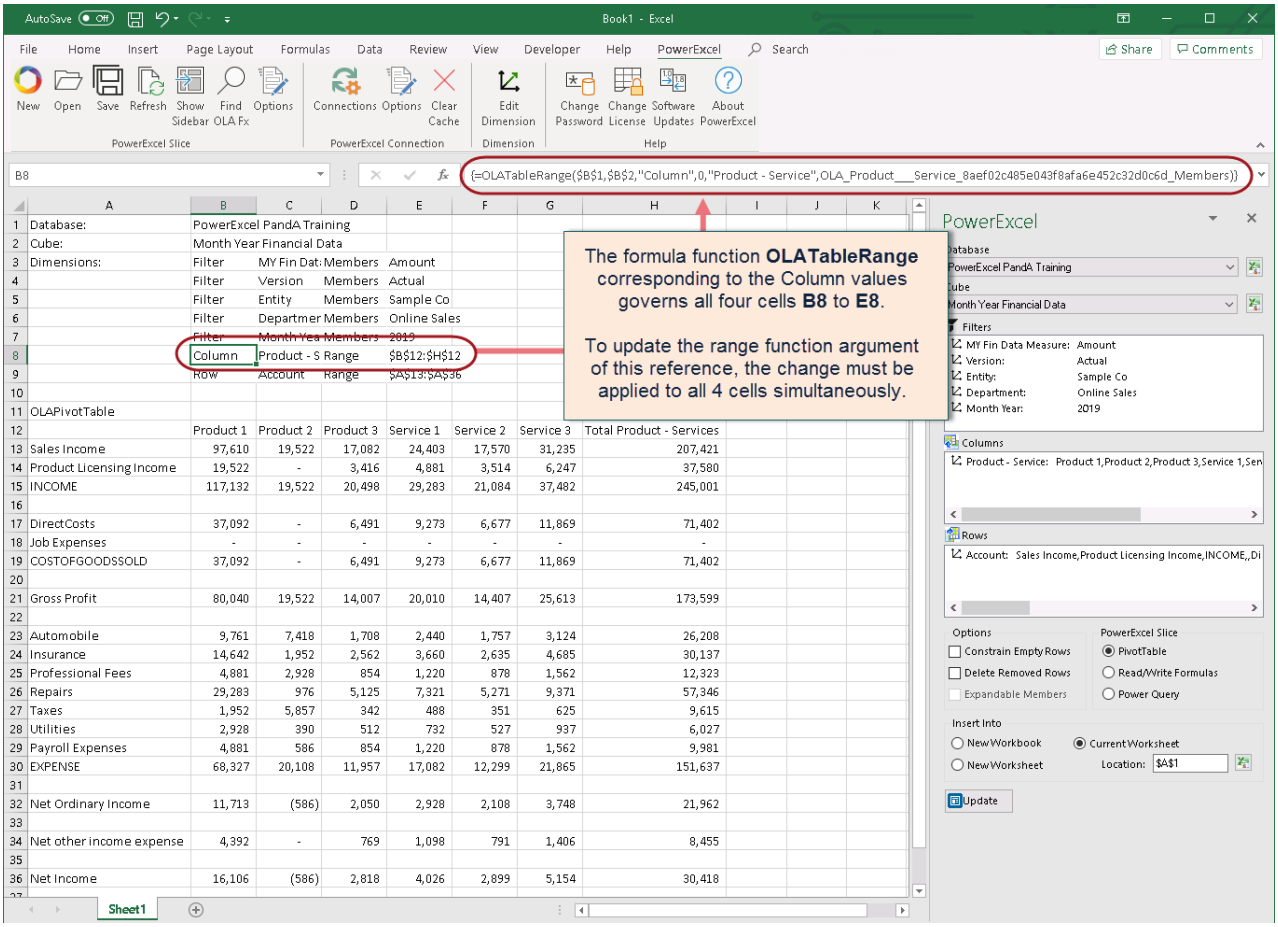
5.1 The OLATableRange Function

A Range or a Range Reference concerns a group of cells rather than just one single cell. In a PowerExcel Slice these are some of the function references that will be encountered.

- OLADatabase
- OLACube
- OLATableMember
- OLATableRange
- OLATableSubset
- PowerExcel Slice Functions (OLAPivotTable, OLAReadWrite and OLAPowerQuery)

For this topic, we will show how to modify or update the OLATableRange function, which enables a user to specify a range of Members to be displayed along the Rows and Columns, to ensure that any modification will be committed Slice.

Observe the references above: they are the connection references that allow you to reach data in a PowerExcel model(s) and show them in a 'Slice'.



Our main concern for this topic concerns the connection references for the Dimensions, specifically in the OLATableRange function reference. As shown above, the circled function (in this case for Columns) governs which Members are shown in Columns B through H in Row 12. Indeed, if you click in each cell—B8, C8, D8 and E8—you will see the same formula.

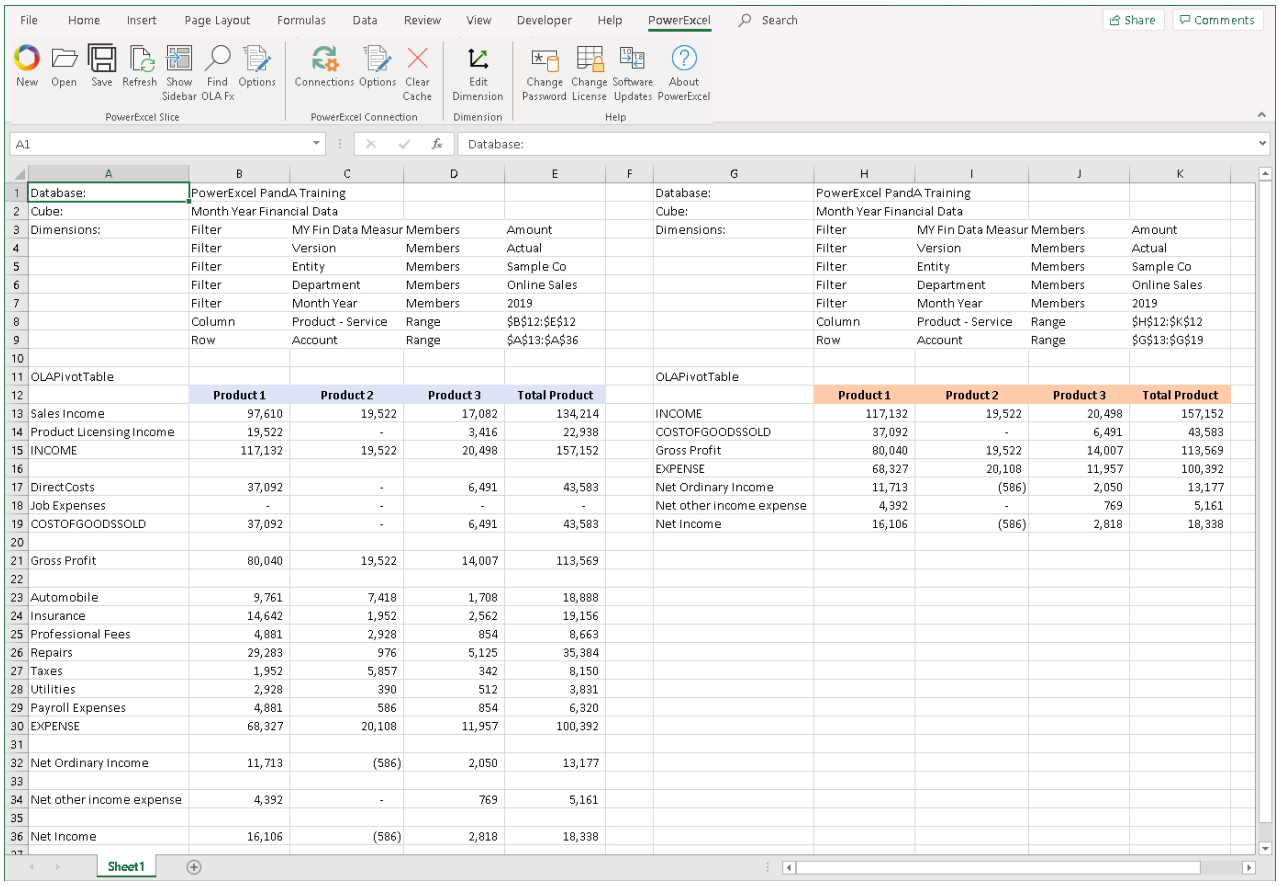
IMPORTANT: To update the Members displayed along the Rows and Columns of the PowerExcel slice, you will need to change the **range** function argument (last parameter) of the OLATableRange formula across all relevant cells (B8 through E8 in the above example).

To correctly update the range, one must bear in mind the following: (1) You must select the group of cells governed by the Range function and update them *simultaneously*; and (2) The Members covered within the new range must be valid Members (i.e., they exist within the source database).

5.2 Changing the Range Reference in a PowerExcel Slice

The proper way to modify the range reference is to simultaneously update the range within the group of cells referenced in the Range Function. In this example, we to change the range reference of a second PivotTable that has been set up on the right of the spreadsheet below (see next image) so that it shows the same Members along the Rows as are displayed in the first PivotTable on the left.

Note that the side-by-side PivotTable "inserts" have been set up in a way that was explained in the "bulk copy/paste" section of **Entering Data in a PowerExcel Slice** (Section 3.2). You can reference those pages to set up a spreadsheet like the one below.

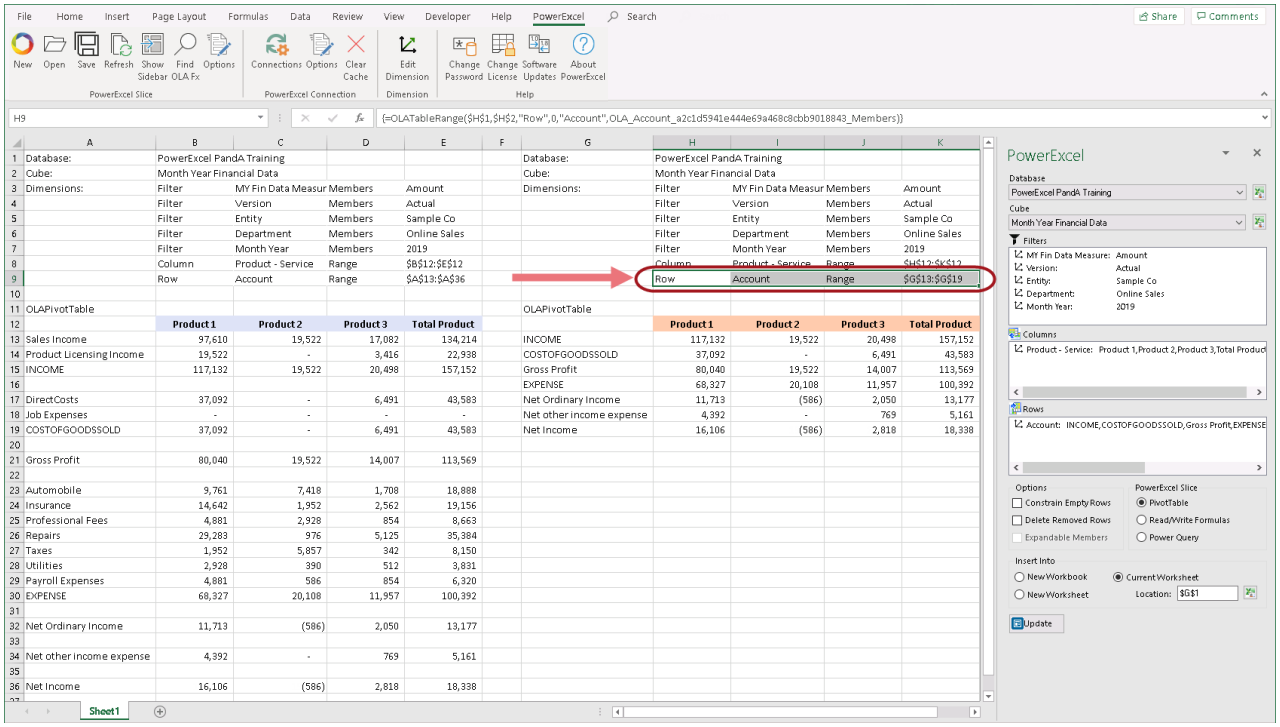


	A	B	C	D	E	F	G	H	I	J	K
1	Database:	PowerExcel PandA Training					Database:	PowerExcel PandA Training			
2	Cube:	Month Year Financial Data					Cube:	Month Year Financial Data			
3	Dimensions:	Filter	MY Fin Data Measur	Members	Amount		Dimensions:	Filter	MY Fin Data Measur	Members	Amount
4		Filter	Version	Members	Actual			Filter	Version	Members	Actual
5		Filter	Entity	Members	Sample Co			Filter	Entity	Members	Sample Co
6		Filter	Department	Members	Online Sales			Filter	Department	Members	Online Sales
7		Filter	Month Year	Members	2019			Filter	Month Year	Members	2019
8		Column	Product - Service	Range	$B$12:$E$12			Column	Product - Service	Range	$H$12:$K$12
9		Row	Account	Range	$A$13:$A$36			Row	Account	Range	$G$13:$G$19
10											
11	OLAPivotTable						OLAPivotTable				
12		**Product 1**	**Product 2**	**Product 3**	**Total Product**			**Product 1**	**Product 2**	**Product 3**	**Total Product**
13	Sales Income	97,610	19,522	17,082	134,214		INCOME	117,132	19,522	20,498	157,152
14	Product Licensing Income	19,522	-	3,416	22,938		COSTOFGOODSSOLD	37,092	-	6,491	43,583
15	INCOME	117,132	19,522	20,498	157,152		Gross Profit	80,040	19,522	14,007	113,569
16							EXPENSE	68,327	20,108	11,957	100,392
17	DirectCosts	37,092	-	6,491	43,583		Net Ordinary Income	11,713	(586)	2,050	13,177
18	Job Expenses	-	-	-	-		Net other income expense	4,392	-	769	5,161
19	COSTOFGOODSSOLD	37,092	-	6,491	43,583		Net Income	16,106	(586)	2,818	18,338
20											
21	Gross Profit	80,040	19,522	14,007	113,569						
22											
23	Automobile	9,761	7,418	1,708	18,888						
24	Insurance	14,642	1,952	2,562	19,156						
25	Professional Fees	4,881	2,928	854	8,663						
26	Repairs	29,283	976	5,125	35,384						
27	Taxes	1,952	5,857	342	8,150						
28	Utilities	2,928	390	512	3,831						
29	Payroll Expenses	4,881	586	854	6,320						
30	EXPENSE	68,327	20,108	11,957	100,392						
31											
32	Net Ordinary Income	11,713	(586)	2,050	13,177						
33											
34	Net other income expense	4,392	-	769	5,161						
35											
36	Net Income	16,106	(586)	2,818	18,338						

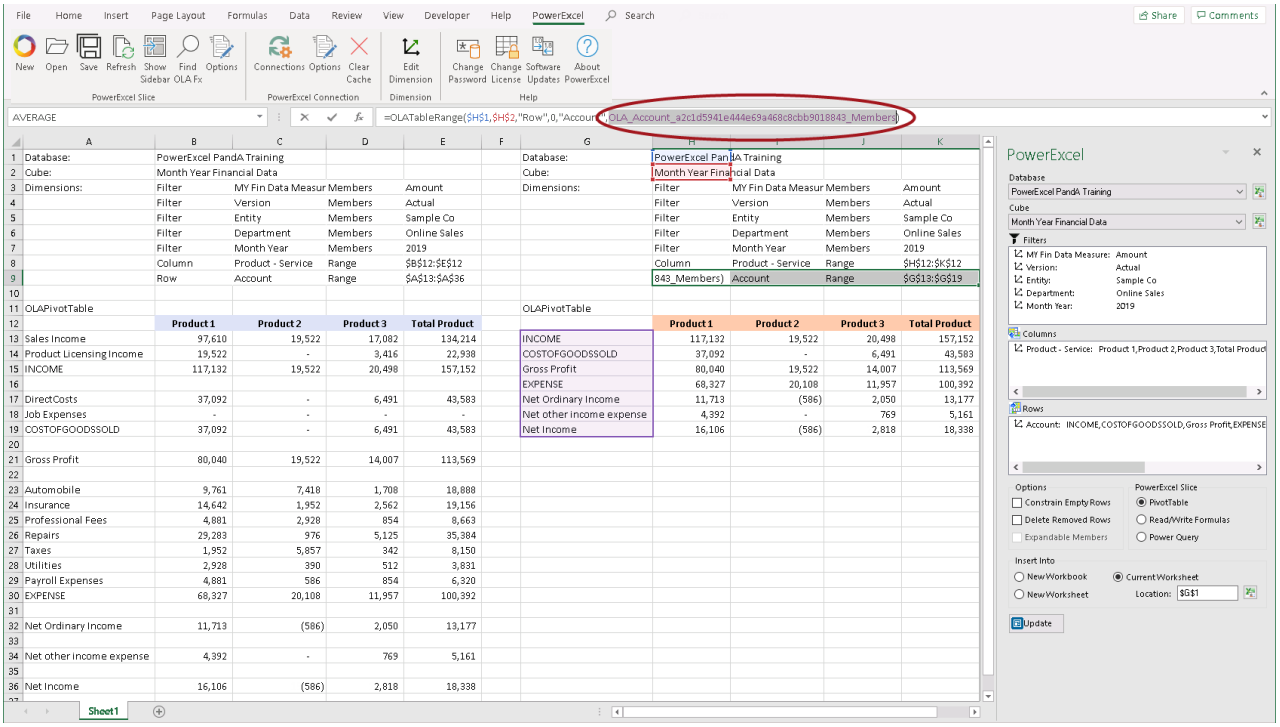
To change the range reference:

1. Go to the PivotTable that you wish to update and locate the OLATableRange Function; highlight the group of cells referenced by the Range Function.
   In this example, we want to update the range of **Account** in the Rows of the second PivotTable; therefore, select or highlight the cells **H9** to **K9**. These four cells comprise the cell range for **Account** referenced by the Range Function: OLATableRange.

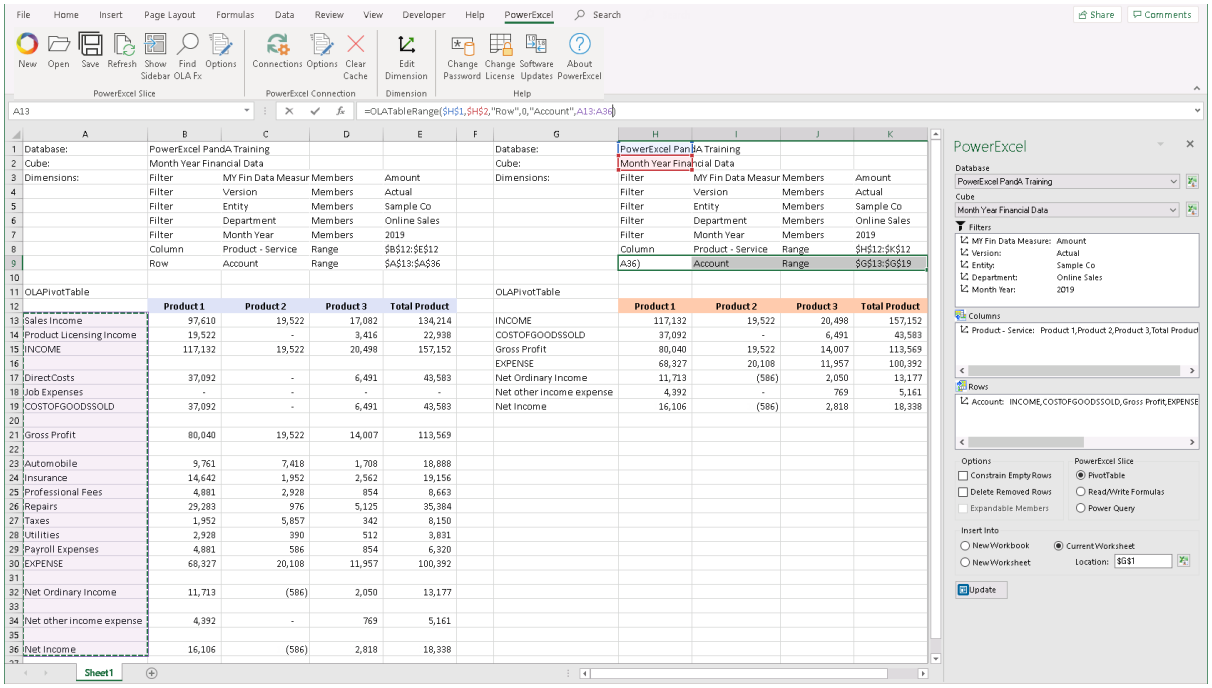
IMPORTANT, and to repeat: To change the range value for the OLATableRange Function, you will need to change all of those cells covered by the range function (see red arrow in the following image).



2. Go to the formula bar and select the **range** function argument (the last function argument). **Double click** to select that function argument (circled in the below image).



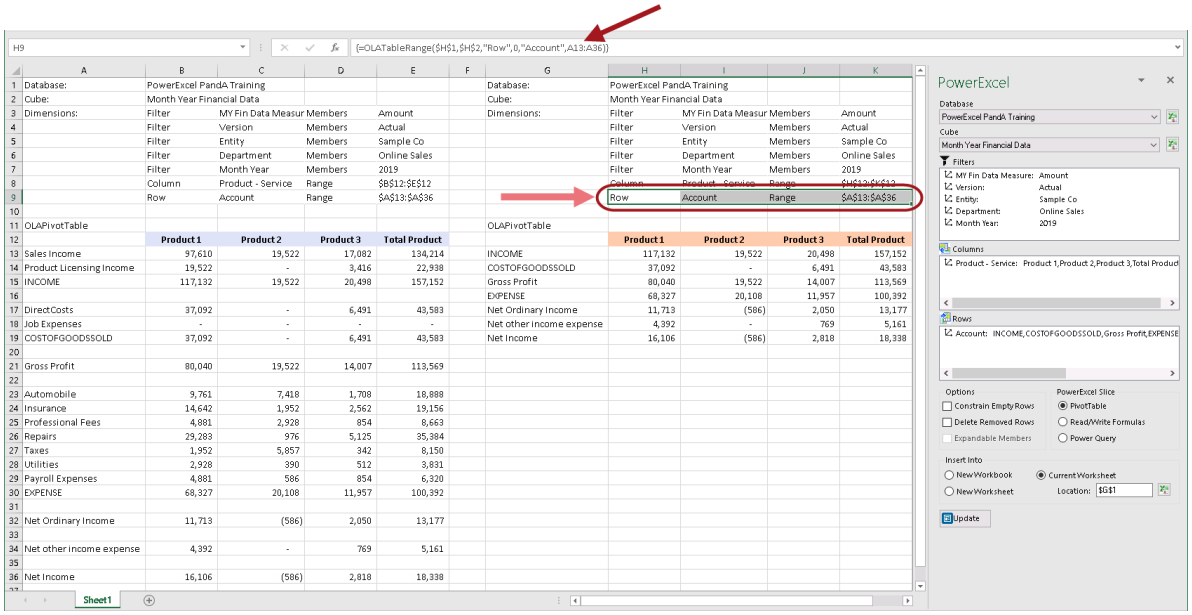
3. Select the new range. In this case, point your cursor to column A and highlight cells **A13 to A36**, our new target range.



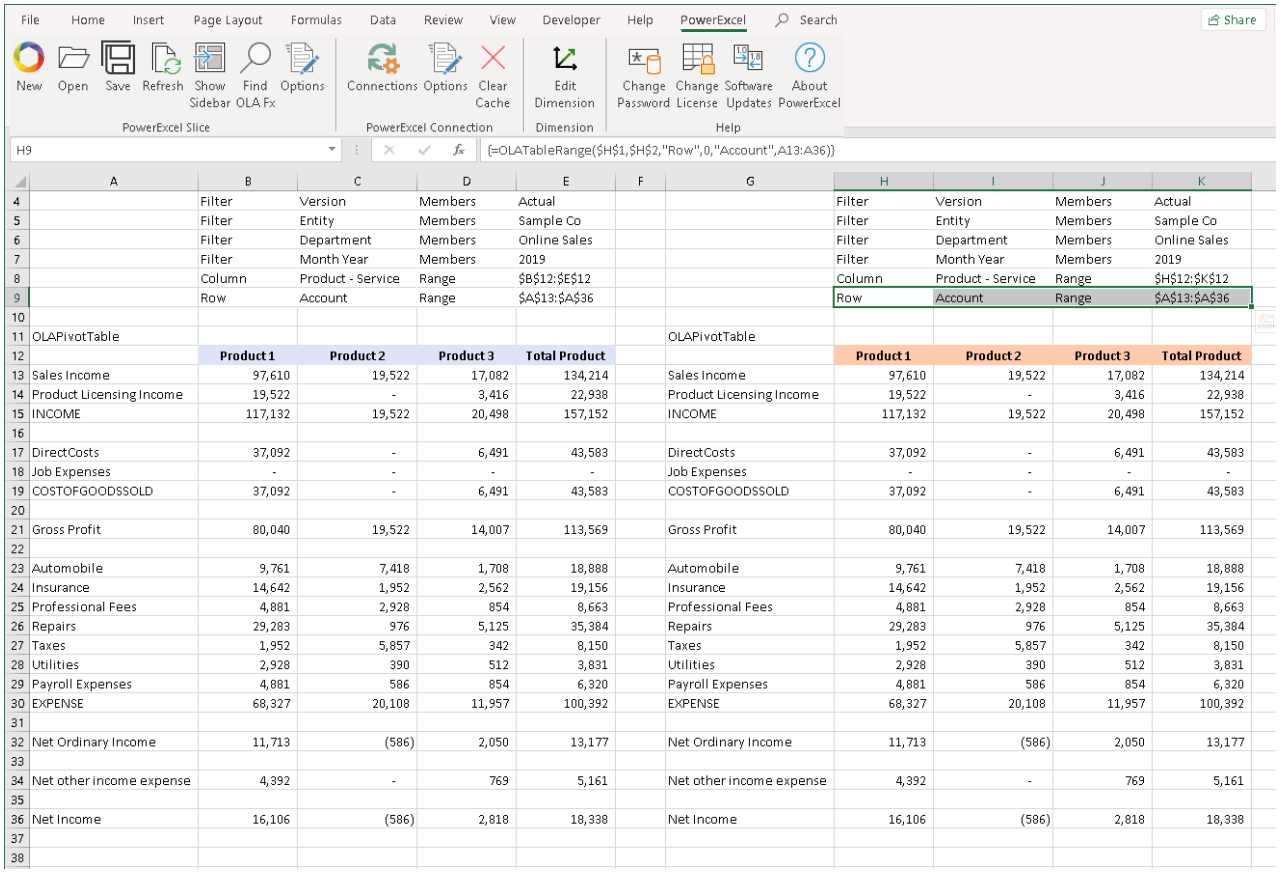
4. To commit the change, press **Ctrl** + **Shift** + **Enter** keys.

IMPORTANT: Bear in mind that when changing range references, in order to successfully commit the changes to the formula, you MUST always press the **Ctrl + Shift + Enter** keys. Otherwise, the new range will not be updated.

Notice the change: whereas before, it shows the **$G$13:$G$19**, now you see that the last function argument shows a value of **$A$13:$A$36** (top arrow in the image below):



5. Press the **F9** key to refresh the PowerExcel Slice. Notice that the range reference for the rows of the second PivotTable has updated and now displays the same **Account** members as in the first PivotTable.



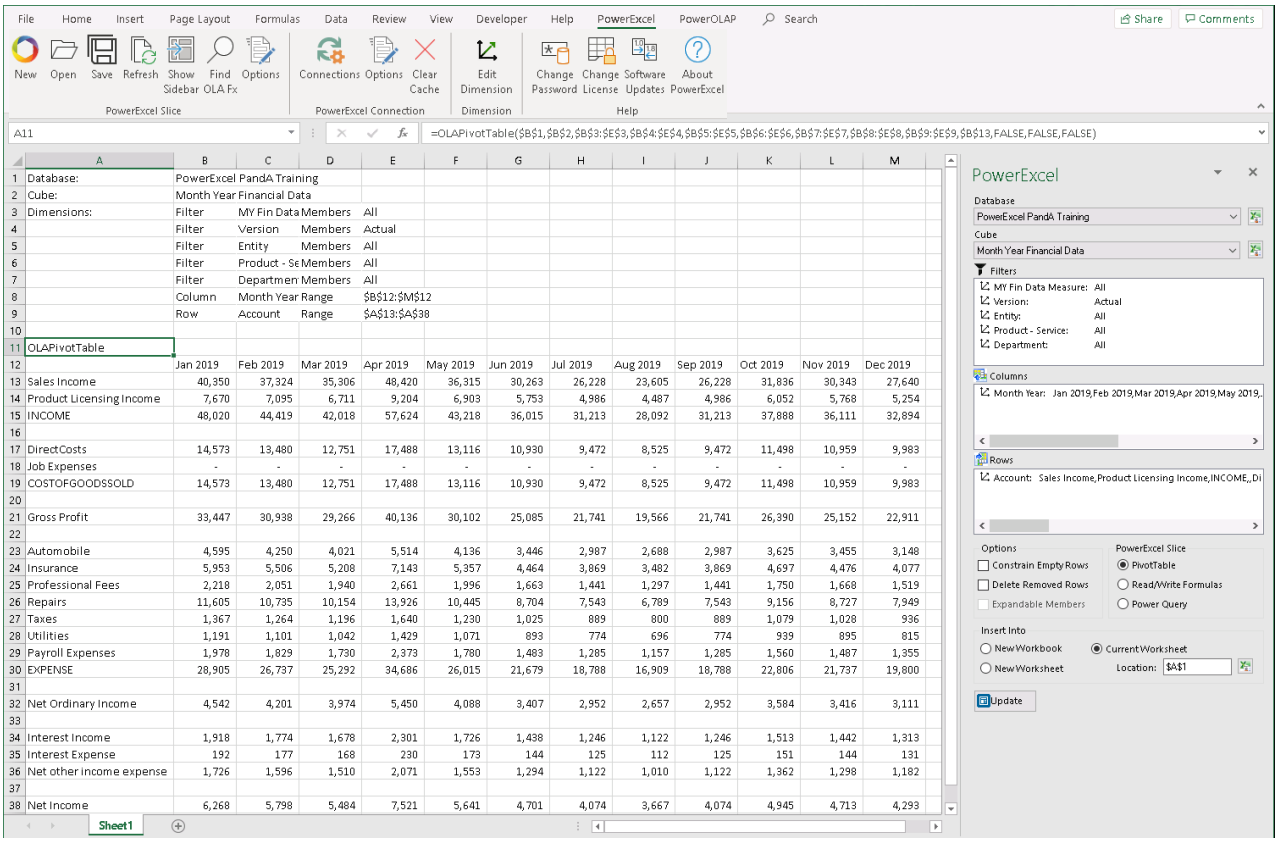
	A	B	C	D	E	F	G	H	I	J	K
4		Filter	Version	Members	Actual			Filter	Version	Members	Actual
5		Filter	Entity	Members	Sample Co			Filter	Entity	Members	Sample Co
6		Filter	Department	Members	Online Sales			Filter	Department	Members	Online Sales
7		Filter	Month Year	Members	2019			Filter	Month Year	Members	2019
8		Column	Product - Service	Range	$B$12:$E$12			Column	Product - Service	Range	$H$12:$K$12
9		Row	Account	Range	$A$13:$A$36			Row	Account	Range	$A$13:$A$36
10											
11	OLAPivotTable						OLAPivotTable				
12		**Product 1**	**Product 2**	**Product 3**	**Total Product**			**Product 1**	**Product 2**	**Product 3**	**Total Product**
13	Sales Income	97,610	19,522	17,082	134,214		Sales Income	97,610	19,522	17,082	134,214
14	Product Licensing Income	19,522	-	3,416	22,938		Product Licensing Income	19,522	-	3,416	22,938
15	INCOME	117,132	19,522	20,498	157,152		INCOME	117,132	19,522	20,498	157,152
16											
17	DirectCosts	37,092	-	6,491	43,583		DirectCosts	37,092	-	6,491	43,583
18	Job Expenses	-	-	-	-		Job Expenses	-	-	-	-
19	COSTOFGOODSSOLD	37,092	-	6,491	43,583		COSTOFGOODSSOLD	37,092	-	6,491	43,583
20											
21	Gross Profit	80,040	19,522	14,007	113,569		Gross Profit	80,040	19,522	14,007	113,569
22											
23	Automobile	9,761	7,418	1,708	18,888		Automobile	9,761	7,418	1,708	18,888
24	Insurance	14,642	1,952	2,562	19,156		Insurance	14,642	1,952	2,562	19,156
25	Professional Fees	4,881	2,928	854	8,663		Professional Fees	4,881	2,928	854	8,663
26	Repairs	29,283	976	5,125	35,384		Repairs	29,283	976	5,125	35,384
27	Taxes	1,952	5,857	342	8,150		Taxes	1,952	5,857	342	8,150
28	Utilities	2,928	390	512	3,831		Utilities	2,928	390	512	3,831
29	Payroll Expenses	4,881	586	854	6,320		Payroll Expenses	4,881	586	854	6,320
30	EXPENSE	68,327	20,108	11,957	100,392		EXPENSE	68,327	20,108	11,957	100,392
31											
32	Net Ordinary Income	11,713	(586)	2,050	13,177		Net Ordinary Income	11,713	(586)	2,050	13,177
33											
34	Net other income expense	4,392	-	769	5,161		Net other income expense	4,392	-	769	5,161
35											
36	Net Income	16,106	(586)	2,818	18,338		Net Income	16,106	(586)	2,818	18,338
37											
38											

6. Saving a PowerExcel Slice

You can save PowerExcel Slices so that it becomes accessible to other users who connect to the same PowerExcel model—from virtually anywhere in the world.

To save the PowerExcel Slice:

1. Create a **PowerExcel Slice** within Excel as in the example.

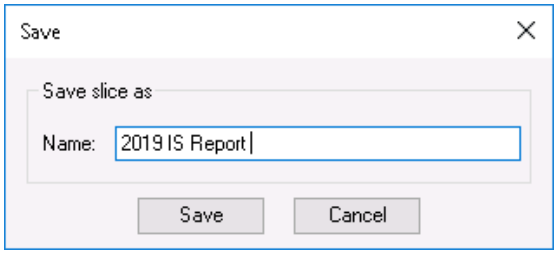


	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Database:	PowerExcel PandA Training											
2	Cube:	Month Year Financial Data											
3	Dimensions:	Filter	MY Fin Data	Members	All								
4		Filter	Version	Members	Actual								
5		Filter	Entity	Members	All								
6		Filter	Product - Se	Members	All								
7		Filter	Departmen	Members	All								
8		Column	Month Year	Range	$B$12:$M$12								
9		Row	Account	Range	$A$13:$A$38								
10													
11	OLAPivotTable												
12		Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Jun 2019	Jul 2019	Aug 2019	Sep 2019	Oct 2019	Nov 2019	Dec 2019
13	Sales Income	40,350	37,324	35,306	48,420	36,315	30,263	26,228	23,605	26,228	31,836	30,343	27,640
14	Product Licensing Income	7,670	7,095	6,711	9,204	6,903	5,753	4,986	4,487	4,986	6,052	5,768	5,254
15	INCOME	48,020	44,419	42,018	57,624	43,218	36,015	31,213	28,092	31,213	37,888	36,111	32,894
16													
17	DirectCosts	14,573	13,480	12,751	17,488	13,116	10,930	9,472	8,525	9,472	11,498	10,959	9,983
18	Job Expenses	-	-	-	-	-	-	-	-	-	-	-	-
19	COSTOFGOODSSOLD	14,573	13,480	12,751	17,488	13,116	10,930	9,472	8,525	9,472	11,498	10,959	9,983
20													
21	Gross Profit	33,447	30,938	29,266	40,136	30,102	25,085	21,741	19,566	21,741	26,390	25,152	22,911
22													
23	Automobile	4,595	4,250	4,021	5,514	4,136	3,446	2,987	2,688	2,987	3,625	3,455	3,148
24	Insurance	5,953	5,506	5,208	7,143	5,357	4,464	3,869	3,482	3,869	4,697	4,476	4,077
25	Professional Fees	2,218	2,051	1,940	2,661	1,996	1,663	1,441	1,297	1,441	1,750	1,668	1,519
26	Repairs	11,605	10,735	10,154	13,926	10,445	8,704	7,543	6,789	7,543	9,156	8,727	7,949
27	Taxes	1,367	1,264	1,196	1,640	1,230	1,025	889	800	889	1,079	1,028	936
28	Utilities	1,191	1,101	1,042	1,429	1,071	893	774	696	774	939	895	815
29	Payroll Expenses	1,978	1,829	1,730	2,373	1,780	1,483	1,285	1,157	1,285	1,560	1,487	1,355
30	EXPENSE	28,905	26,737	25,292	34,686	26,015	21,679	18,788	16,909	18,788	22,806	21,737	19,800
31													
32	Net Ordinary Income	4,542	4,201	3,974	5,450	4,088	3,407	2,952	2,657	2,952	3,584	3,416	3,111
33													
34	Interest Income	1,918	1,774	1,678	2,301	1,726	1,438	1,246	1,122	1,246	1,513	1,442	1,313
35	Interest Expense	192	177	168	230	173	144	125	112	125	151	144	131
36	Net other income expense	1,726	1,596	1,510	2,071	1,553	1,294	1,122	1,010	1,122	1,362	1,298	1,182
37													
38	Net Income	6,268	5,798	5,484	7,521	5,641	4,701	4,074	3,667	4,074	4,945	4,713	4,293

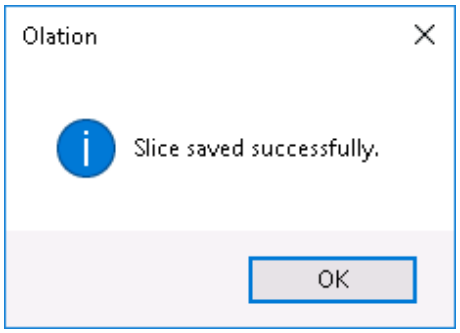
2. Click on a cell containing a PowerExcel reference—e.g., in the example above, the cell containing the OLAPivotTable PowerExcel reference.

   Note: You may click on cells containing other PowerExcel references such as OLADatabase, OLACube, OLATableMember, OLATableRange and OLATableSubset or OLAPowerQuery.

3. In the Excel ribbon, go to the **PowerExcel** tab and click the **Save icon**. The **Save** (Slice as) dialog appears.



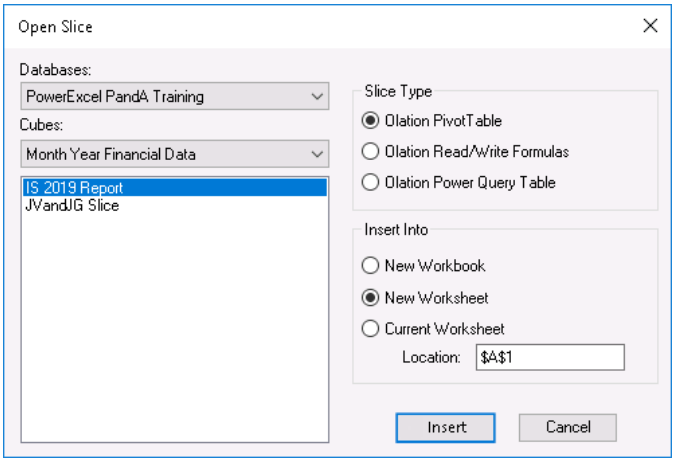
4. Type the <name of the Slice>, e.g., 2019 IS Report.
5. Click **Save**. You will see a prompt that says, “Slice saved successfully.”



6. Click **OK** to close the message prompt.

Next, another PowerExcel user—assuming he or she has a connection to the same PowerExcel model—can proceed as follows:

7. Launch **Excel**, create a **new workbook**
8. From the **PowerExcel ribbon**, click on **Open**.
9. The Open Slice dialog appears, as below.



10. Once again—assuming the next user has a connection to the database—he or she will see it (in this case, **PowerExcel PandA Training**) among the Databases that may be selected from the drop-down, top left. As well, the available Cubes (here, **Month Year Financial Data**) are shown. And following these selections, the available Slices are listed. By selecting the Slice shown on the previous page, the user can create the PowerExcel Slice by using one of the Slice Types, and insert it into a New Workbook, a New Worksheet or the Current Worksheet in the specified location. (Naturally, the Slice will be the same as the one saved by the last user—as shown in the previous page.)

As such, the next user—indeed, any person working on the collaborative PowerExcel model—may see any Slice that has been saved and in that way be dynamically connected to the most updated data, or contribute budget/forecast figures to a company-wide planning model.

And that, in sum, is the power of PowerExcel!

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