Microsoft Excel Update & Tips for CPAs

Judy Borsher, CPA, MBA, CGMA, CITP, MCT

SCG Training + Consulting

Judy Borsher CPA, MBA, CGMA, CITP, MCT

- President, SCG Training & Consulting Corporation
- Microsoft Certified Trainer
- CPA, CITP with 30 years of accounting and technology business experience including public accounting with KPMG, finance positions, and consulting
- Creator and presenter of custom hands-on technology courses in the Washington DC / Maryland / VA area for over 25 years
- Speaker at technology conferences of the GWSCPA, VSCPA, MACPA, AICPA
- BA and MBA, Cornell University

Questions/information/consulting/training:
Judy@SCG-Training.com

Description

Microsoft Excel users always benefit from new features, functions, and power tools added to Excel.

This presentation incorporates examples of managing data, reporting on data with analysis and visualizations, new productivity features for CPAs, and how Excel works with the other apps within Microsoft 365.

The tips in this demonstration will help you, your team, and your organization work more efficiently in Excel.

Attendees will receive practical information and take-aways for immediate use.

Today's Demo Topics

1. **New Excel Features**
   - PDF content to cells, Intelligent Services - Analyze, Power BI data connection, Show Changes to a workbook
2. **New and Important Excel Functions**
   - Xlookup, Xmatch, Fuzzy Lookup, EOMonth, TEXTSPLIT, use of Vlookup with QuickBooks exports, and more
3. **Data Visualization Features**
   - Chart Variations, Pivot Chart, Slicer Filters, Conditional Format uses, tips for Dashboards as interactive reports
4. **Analyze Data with Pivot Tables and the PowerPivot Data Model**
   - Custom Calculations, (PowerPivot) Data Model, Relate Data, Pivot from multiple data sets, formatting tips, refresh settings,
5. **Power Query Uses**
   - Combining sets of data, manipulating and transforming data, unpivot data

Notes to this presentation

The Windows desktop version of Excel in Microsoft 365 Business will be featured. If you have an older version of Excel, are using the online version of Excel, or using a MacBook, you might not have all the features mentioned in this class.

If your questions are not answered during the class,

please send your question after class to:

Judy@SCG-training.com

Take-Aways

Follow this link for access to the files used in this presentation and continuous learning take-away Excel files, PDFs, and tutorials.

tinyurl.com/yss6y34x

1. New Features in Excel

PDF content to cells

Intelligent Services - Analyze

Power BI data connection

Show Changes to a workbook

Analyze Data (formerly IDEAS)

Ideas

Ideas in **Excel** will analyze your data, and return interesting visuals about it in a task pane.

https://support.microsoft.com/en-us/office/ideas-in-excel-3223aab8-f543-4fda-85ed-76bb0295ffc4?ui=en-us&rs=en-us&ad=us#:~:text=Simply%20click%20a%20cell%20in,it%20in%20a%20task%20pane.

Ideas

Video example

https://support.microsoft.com/en-us/office/ideas-in-excel-3223aab8-f543-4fda-85ed-76bb0295ffc4

Insert Data from Picture or PDF

Insert Data from a Picture

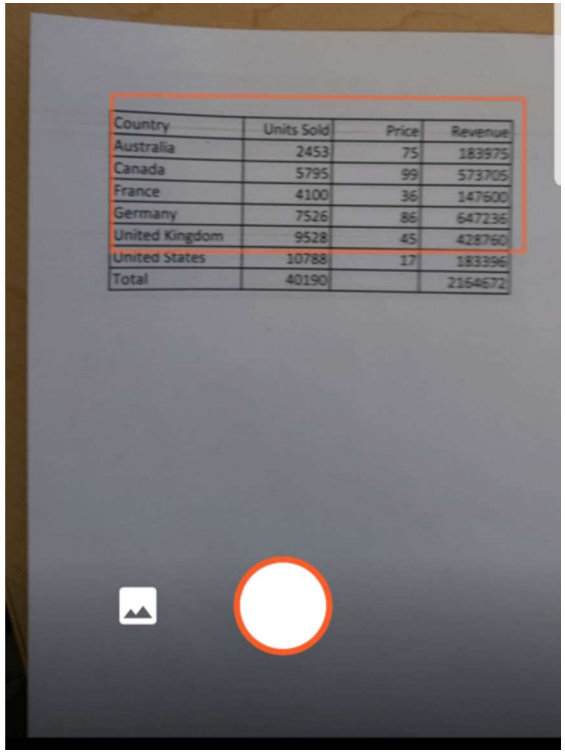
With the new Data from Picture feature, turn images that have table data into data that you can edit in Excel

Insert Data from a Picture

Open Excel on your phone or tablet and tap the **Insert data from picture** button to get started

Next, narrow in on your data until you see it surrounded by a red border, then tap the capture button. If needed, you can use the sizing handles around the edges of the image to crop it to size first.

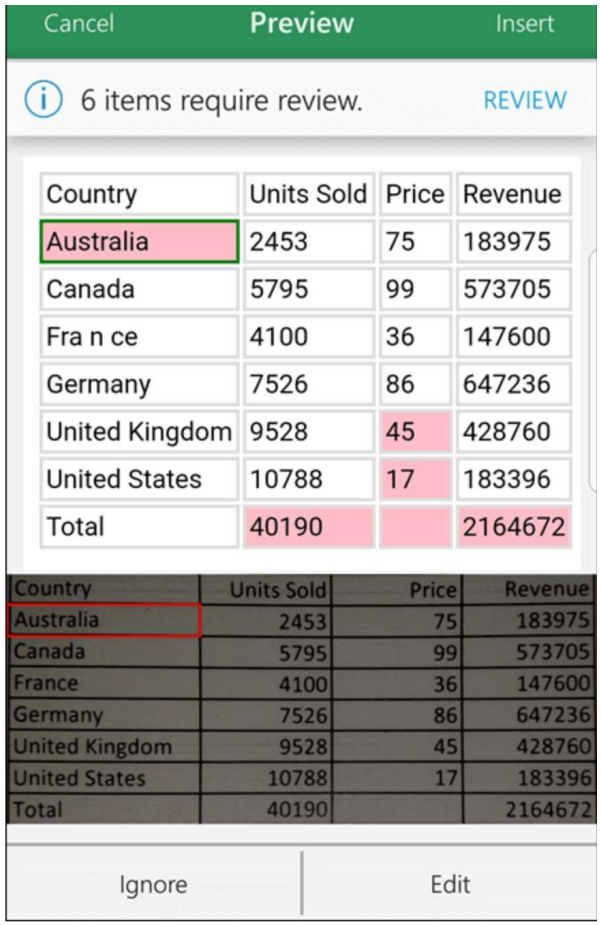
Insert Data from a Picture



Insert Data from a Picture

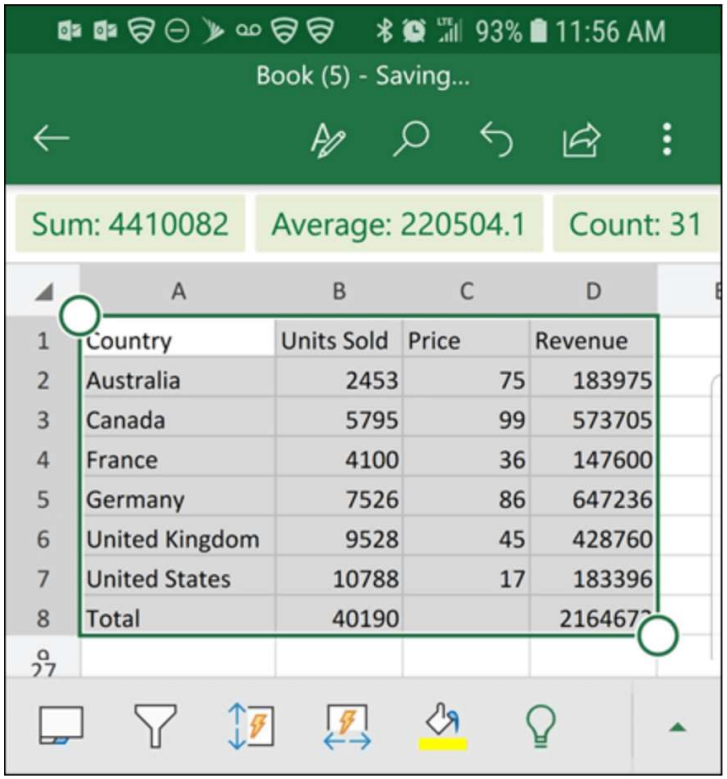
Excel's powerful AI engine will process the image and convert it to a table. When it first imports your data, it will give you a chance to correct any issues it discovered during the conversion process. Tap **Ignore** to move on to the next issue, or **Edit** to correct the issue.

Insert Data from a Picture

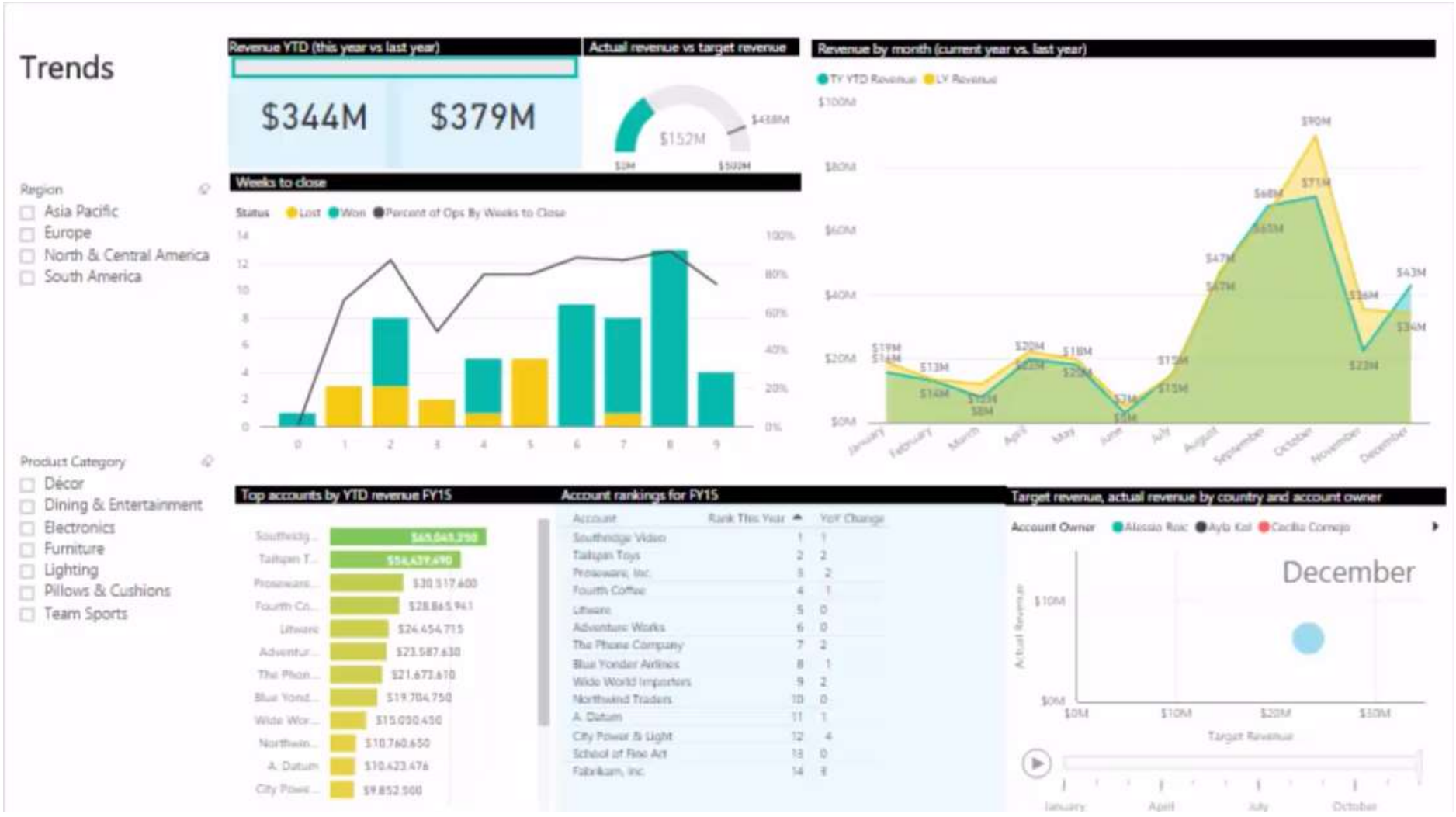


Insert Data from a Picture

Press **Insert** when you're done, and Excel will finish the conversion process, and display your data.

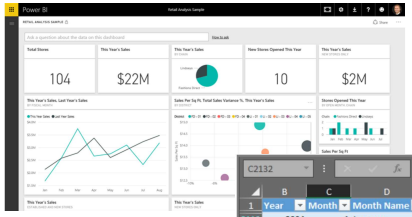


Excel Data Connection to Power BI

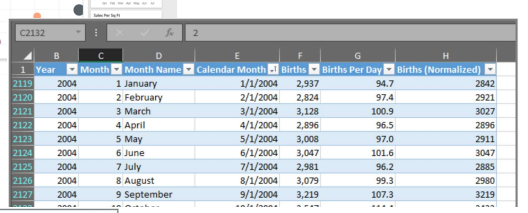

Trends
Revenue YTD (this year vs last year)
$344M
$379M
Actual revenue vs target revenue
$152M
Revenue by month (current year vs. last year)
TY YTD Revenue
LY Revenue
Weeks to close
Status
Lost
Won
Percent of Ops By Weeks to Close
Region
Asia Pacific
Europe
North & Central America
South America
Product Category
Décor
Dining & Entertainment
Electronics
Furniture
Lighting
Pillows & Cushions
Team Sports
Top accounts by YTD revenue FY15
Account rankings for FY15
Account
Rank This Year
YoY Change
Southridge Video
Tailspin Toys
Proseware, Inc.
Fourth Coffee
Litware
Adventure Works
The Phone Company
Blue Yonder Airlines
Wide World Importers
Northwind Traders
A. Datum
City Power & Light
School of Fine Art
Fabrikam, Inc.
Target revenue, actual revenue by country and account owner
Account Owner
Alessia Roc
Ayla Kol
Cecilia Cornejo
December
Target Revenue

Terminology

- Visualizations

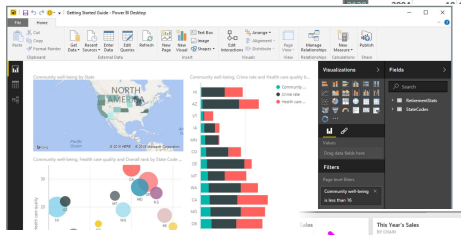


- Datasets

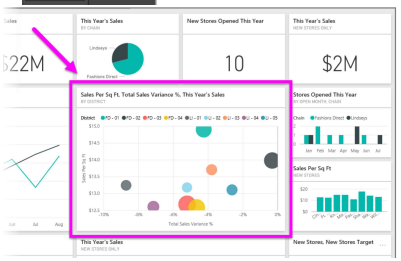


	B	C	D	E	F	G	H
1	Year	Month	Month Name	Calendar Month	Births	Births Per Day	Births (Normalized)
2119	2004	1	January	1/1/2004	2,937	94.7	2842
2120	2004	2	February	2/1/2004	2,824	97.4	2921
2121	2004	3	March	3/1/2004	3,128	100.9	3027
2122	2004	4	April	4/1/2004	2,896	96.5	2896
2123	2004	5	May	5/1/2004	3,008	97.0	2911
2124	2004	6	June	6/1/2004	3,047	101.6	3047
2125	2004	7	July	7/1/2004	2,981	96.2	2885
2126	2004	8	August	8/1/2004	3,079	99.3	2980
2127	2004	9	September	9/1/2004	3,219	107.3	3219

- Reports



- Dashboards



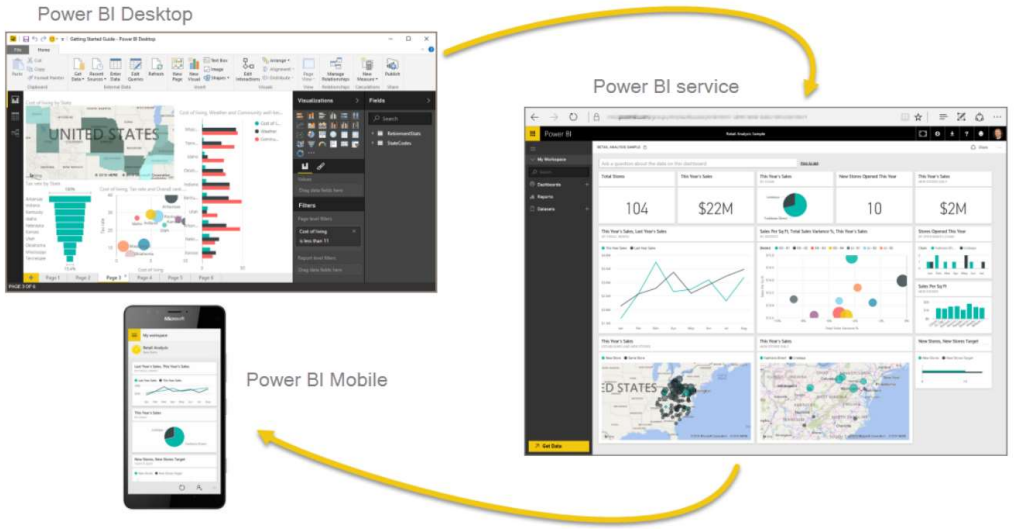
- Tiles

When you're *creating* a report or a dashboard, you can move, resize or arrange tiles.

When you're *viewing*, or *consuming*, a dashboard or report—which means you're not the creator or owner, but the report or dashboard has been shared with you—you can interact with it, but you can't change the size of the tiles or their arrangement.

The parts of Power BI

Power BI consists of a Windows desktop application called **Power BI Desktop**, an online SaaS (*Software as a Service*) service called the **Power BI service**, and Power BI **mobile apps** for Windows, iOS, and Android devices.



A fourth element, **Power BI Report Server**, allows you to publish Power BI reports to an on-premises report server, after creating them in Power BI Desktop. Read more about Power BI Report Server.

2. New Functions in Excel

Xlookup, Xmatch

Fuzzy Lookup

EOMonth

TEXTSPLIT

Use of Vlookup with
QuickBooks exports

and more

Excel Function – XLOOKUP

=XLOOKUP(lookup_value, lookup_array, return_array, [if_not_found], [match_mode], [search_mode])

https://www.microsoft.com/en-us/videoplayer/embed/RE3RKR7?pid=ocpVideo0-innerdiv-oneplayer&postJsllMsg=true&maskLevel=20&market=en-us

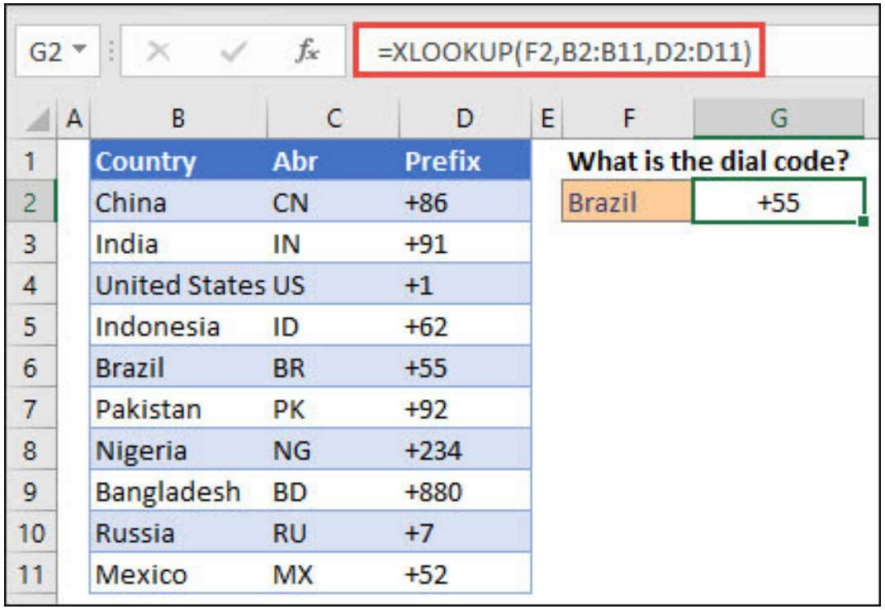
No more counting column numbers!

No need to rearrange columns!

XLOOKUP (example 1)

With XLOOKUP, you can look in one column for a search term, and return a result from the same row in another column, regardless of which side the return column is on.

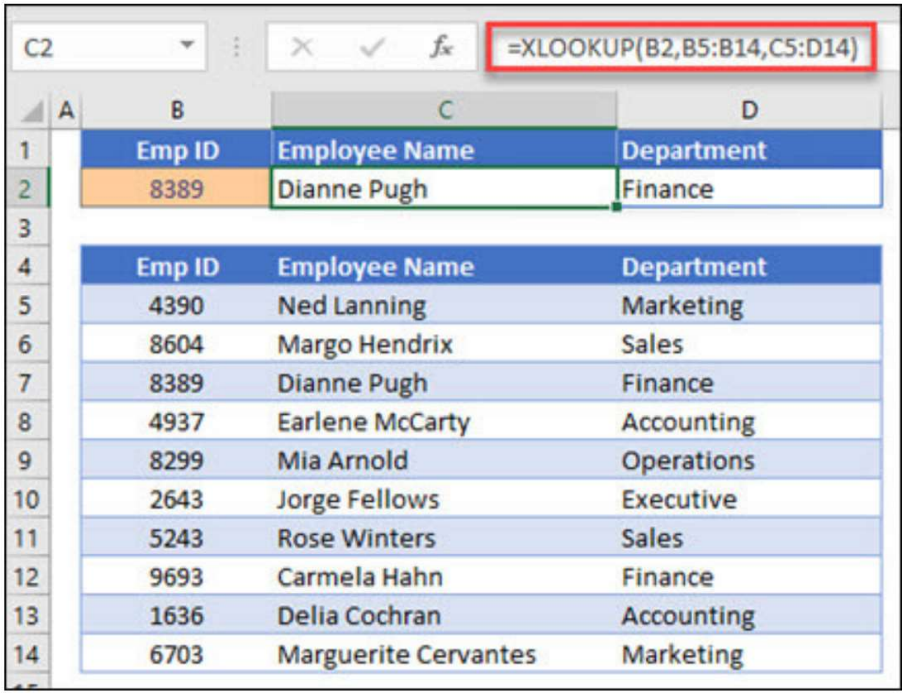
This example uses a simple XLOOKUP
to look up a country name,
then return its telephone country code.
It only includes the lookup_value (cell F2),
lookup_array (range B2:B11),
and return_array (range D2:D11) arguments.
It does not include the match_mode argument,
as XLOOKUP defaults to an exact match.



XLOOKUP is different from VLOOKUP in that it uses separate lookup and return arrays, where VLOOKUP uses a single table array followed by a column index number. The equivalent VLOOKUP formula in this case would be: =VLOOKUP(F2,B2:D11,3,FALSE)

XLOOKUP (example 2)

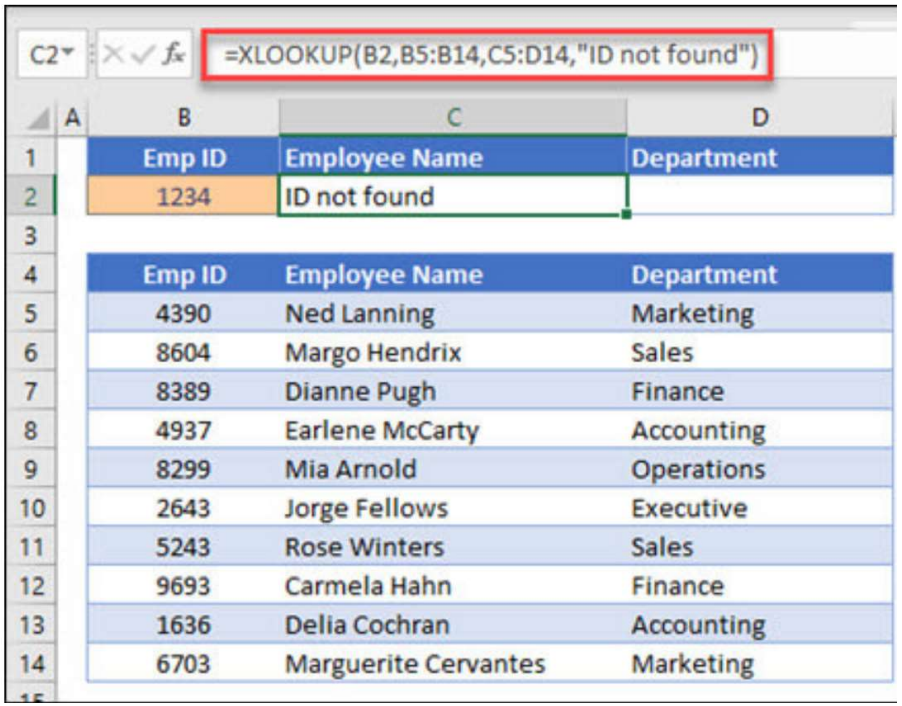
Unlike VLOOKUP, XLOOKUP is able to return an array with multiple items, which allows a single formula to return both employee name and department from cells C5:D14.



	A	B	C	D
1		Emp ID	Employee Name	Department
2		8389	Dianne Pugh	Finance
3				
4		Emp ID	Employee Name	Department
5		4390	Ned Lanning	Marketing
6		8604	Margo Hendrix	Sales
7		8389	Dianne Pugh	Finance
8		4937	Earlene McCarty	Accounting
9		8299	Mia Arnold	Operations
10		2643	Jorge Fellows	Executive
11		5243	Rose Winters	Sales
12		9693	Carmela Hahn	Finance
13		1636	Delia Cochran	Accounting
14		6703	Marguerite Cervantes	Marketing

XLOOKUP (example 3)

This example adds the if_not_found argument to the example.



	A	B	C	D
1		Emp ID	Employee Name	Department
2		1234	ID not found	
3				
4		Emp ID	Employee Name	Department
5		4390	Ned Lanning	Marketing
6		8604	Margo Hendrix	Sales
7		8389	Dianne Pugh	Finance
8		4937	Earlene McCarty	Accounting
9		8299	Mia Arnold	Operations
10		2643	Jorge Fellows	Executive
11		5243	Rose Winters	Sales
12		9693	Carmela Hahn	Finance
13		1636	Delia Cochran	Accounting
14		6703	Marguerite Cervantes	Marketing

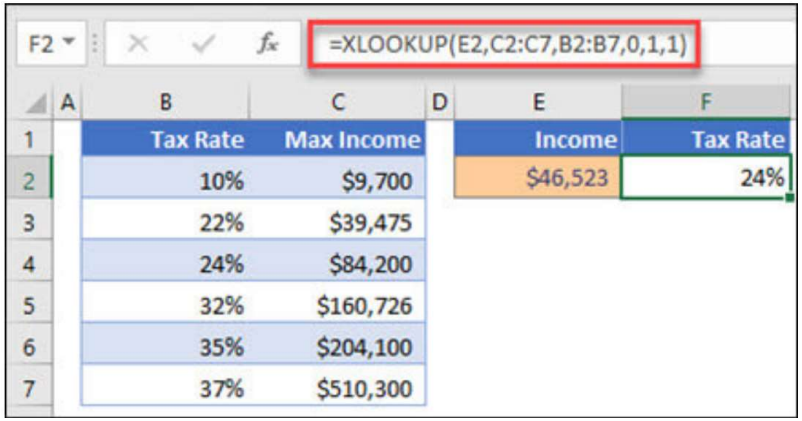
XLOOKUP (example 4)

This example looks in column C for the personal income entered in cell E2, and finds a matching tax rate in column B.

It sets the if-not_found argument to return a 0 if nothing is found.

The match_mode argument is set to 1, which means the function will look for an exact match, and if it can't find one, it will return the next larger item.

The search_mode argument is set to 1, which means the function will search from the first item to the last.



	A	B	C	D	E	F
1		Tax Rate	Max Income		Income	Tax Rate
2		10%	$9,700		$46,523	24%
3		22%	$39,475			
4		24%	$84,200			
5		32%	$160,726			
6		35%	$204,100			
7		37%	$510,300			

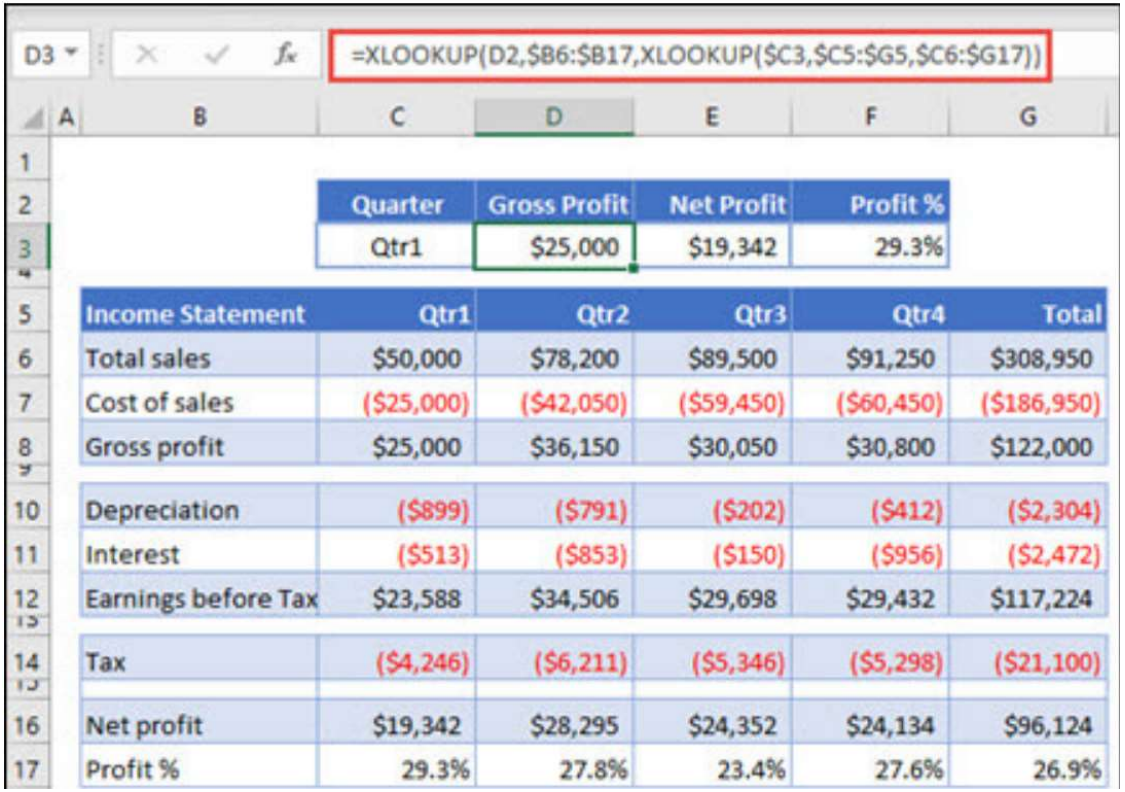
Note: Unlike VLOOKUP, the lookup_array column is to the right of the return_array column, where VLOOKUP can only look from left-to-right.

XLOOKUP (example 5)

This example uses a nested XLOOKUP function to perform both a vertical and horizontal match. It will first look for Gross Profit in column B, then look for Qtr1 in the top row of the table (range C5:F5), and return the value at the intersection of the two.

This is similar to using the INDEX and MATCH functions in conjunction.

You can also use XLOOKUP to replace the HLOOKUP function.



D3 =XLOOKUP(D2,$B6:$B17,XLOOKUP($C3,$C5:$G5,$C6:$G17))

	Quarter	Gross Profit	Net Profit	Profit %
	Qtr1	$25,000	$19,342	29.3%

Income Statement	Qtr1	Qtr2	Qtr3	Qtr4	Total
Total sales	$50,000	$78,200	$89,500	$91,250	$308,950
Cost of sales	($25,000)	($42,050)	($59,450)	($60,450)	($186,950)
Gross profit	$25,000	$36,150	$30,050	$30,800	$122,000
Depreciation	($899)	($791)	($202)	($412)	($2,304)
Interest	($513)	($853)	($150)	($956)	($2,472)
Earnings before Tax	$23,588	$34,506	$29,698	$29,432	$117,224
Tax	($4,246)	($6,211)	($5,346)	($5,298)	($21,100)
Net profit	$19,342	$28,295	$24,352	$24,134	$96,124
Profit %	29.3%	27.8%	23.4%	27.6%	26.9%

The formula in cells D3:F3 is:
=XLOOKUP(D2,$B6:$B17,XLOOKUP($C3,$C5:$G5,$C6:$G17))

3. Excel Data Visualization

Chart Variations

Pivot Chart, Slicer Filters

Conditional Format uses

Tips for Dashboards

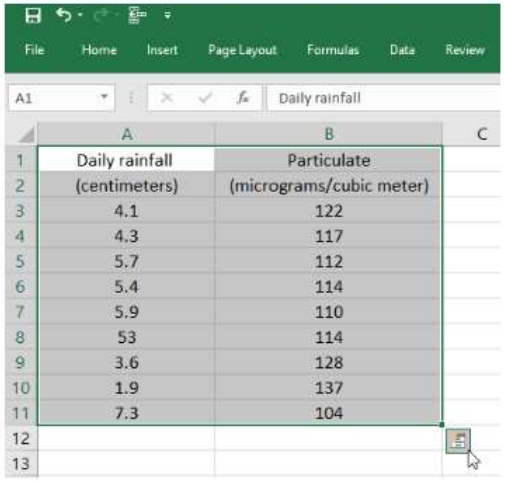
as interactive reports

Excel Quick Analysis – Charts (Windows)

1. Select a range of cells.

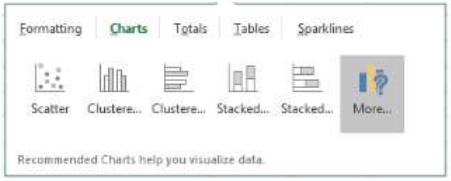
2. Select the **Quick Analysis** button that appears at the bottom right corner of the selected data.

   Or, press Ctrl + Q.



	A	B	C
1	Daily rainfall	Particulate	
2	(centimeters)	(micrograms/cubic meter)	
3	4.1	122	
4	4.3	117	
5	5.7	112	
6	5.4	114	
7	5.9	110	
8	53	114	
9	3.6	128	
10	1.9	137	
11	7.3	104	
12			
13			

3. Select **Charts**.



4. Hover over the chart types to preview a chart, and then select the chart you want.

Quick Analysis features save a lot of time when analyzing data and creating graphs.

For detailed steps of the quick analysis new features, click this link to watch short videos at the Microsoft website:

https://support.office.com/en-us/article/analyze-your-data-instantly-9e382e73-7f5e-495a-a8dc-be8225b1bb78

List of Excel Chart Types

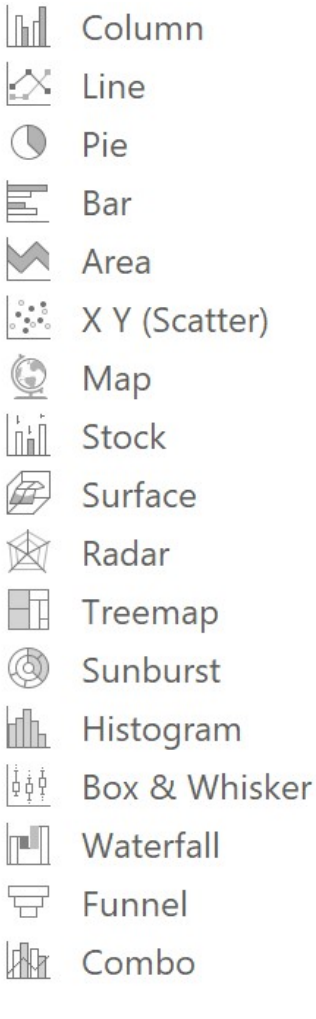
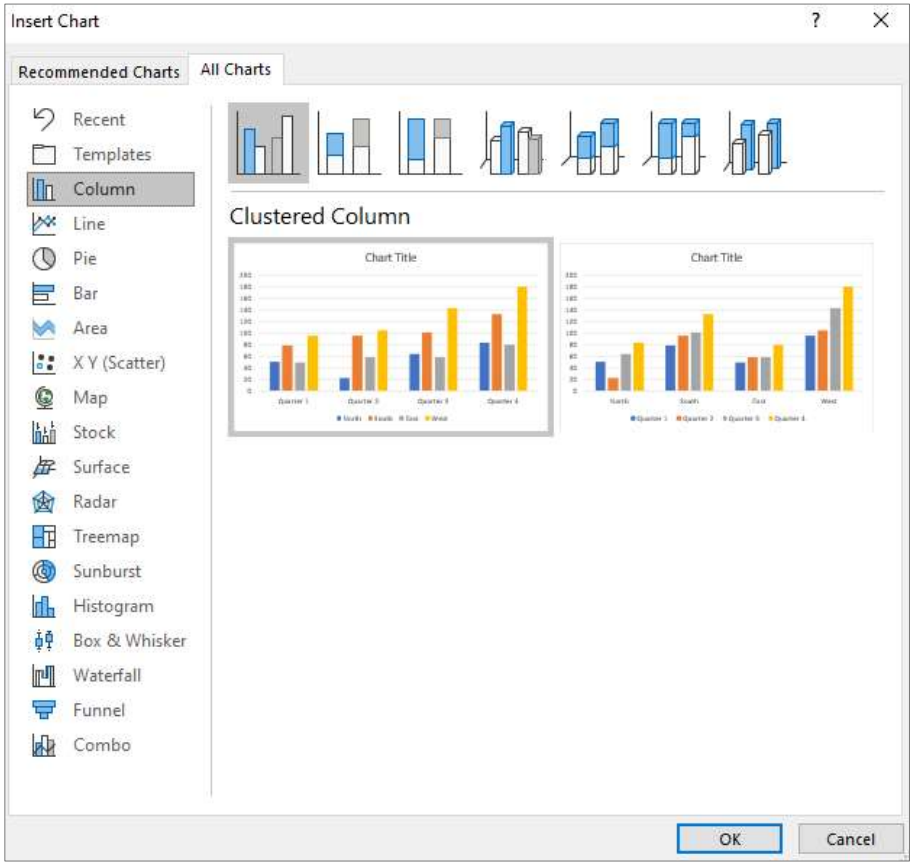
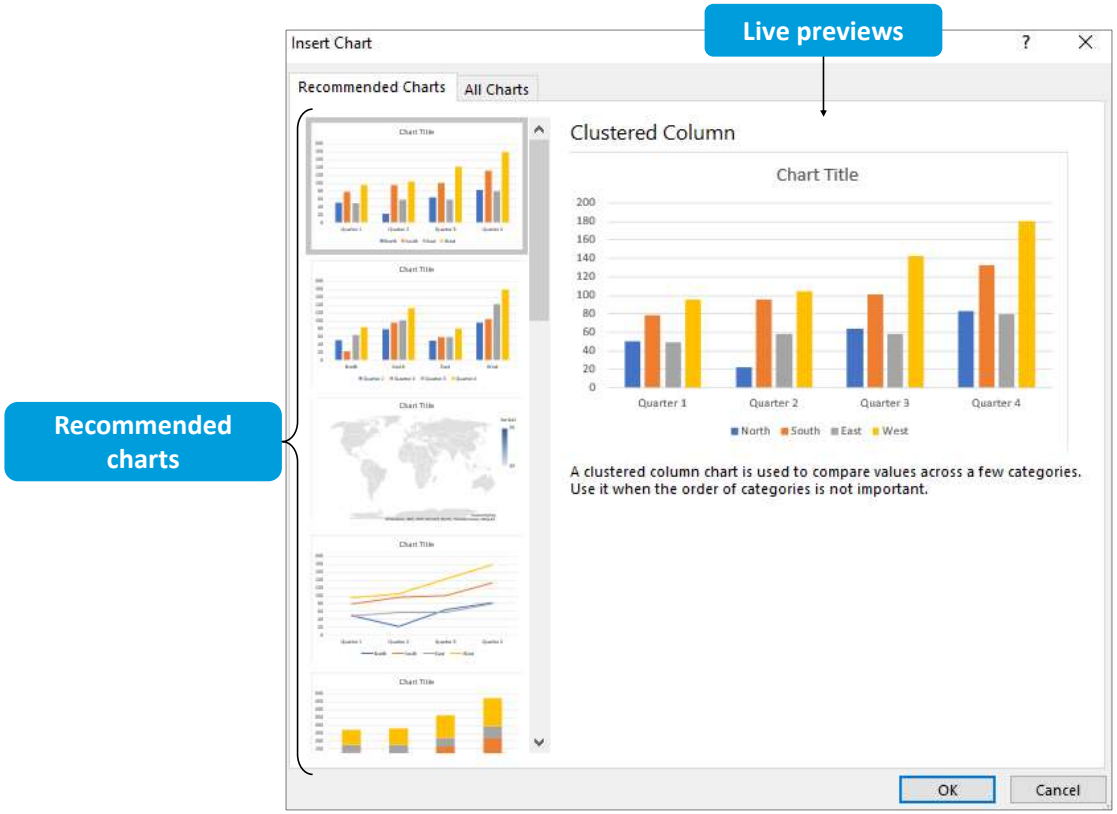


Chart Types


Insert Chart
Recommended Charts
All Charts
Recent
Templates
Column
Line
Pie
Bar
Area
X Y (Scatter)
Map
Stock
Surface
Radar
Treemap
Sunburst
Histogram
Box & Whisker
Waterfall
Funnel
Combo
Clustered Column
Chart Title
Chart Title
OK
Cancel

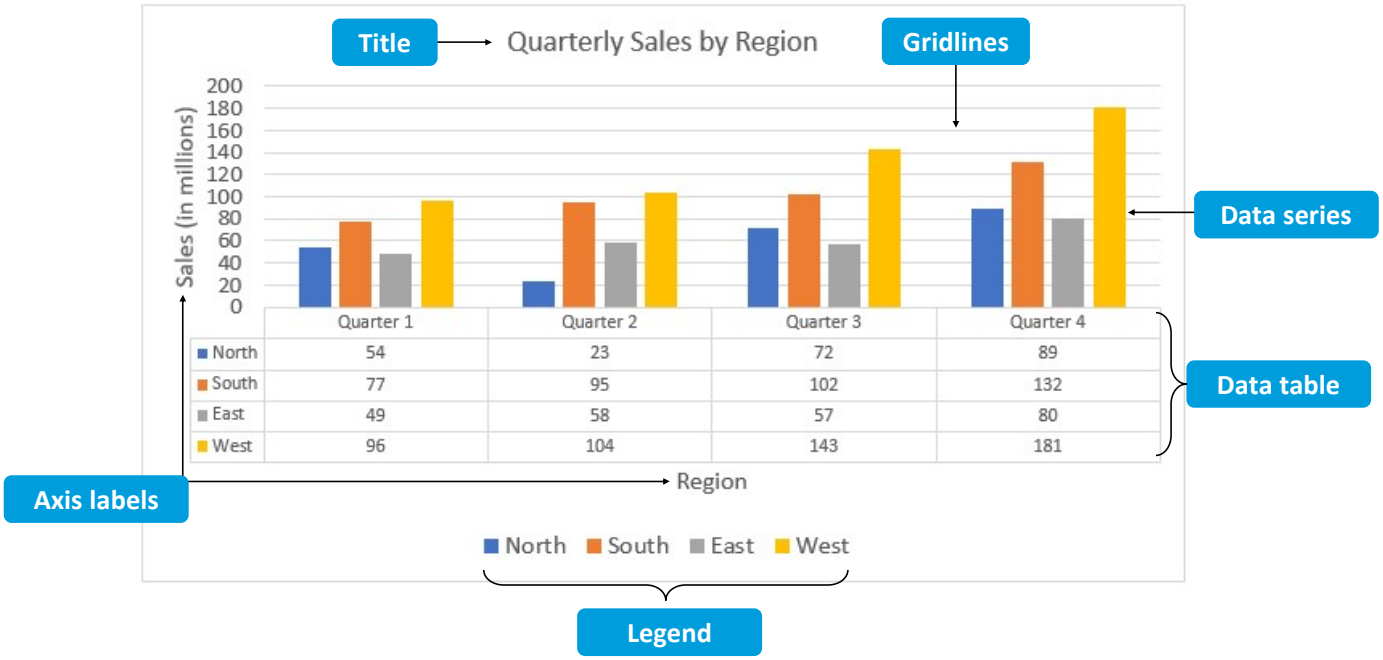
Recommended Charts



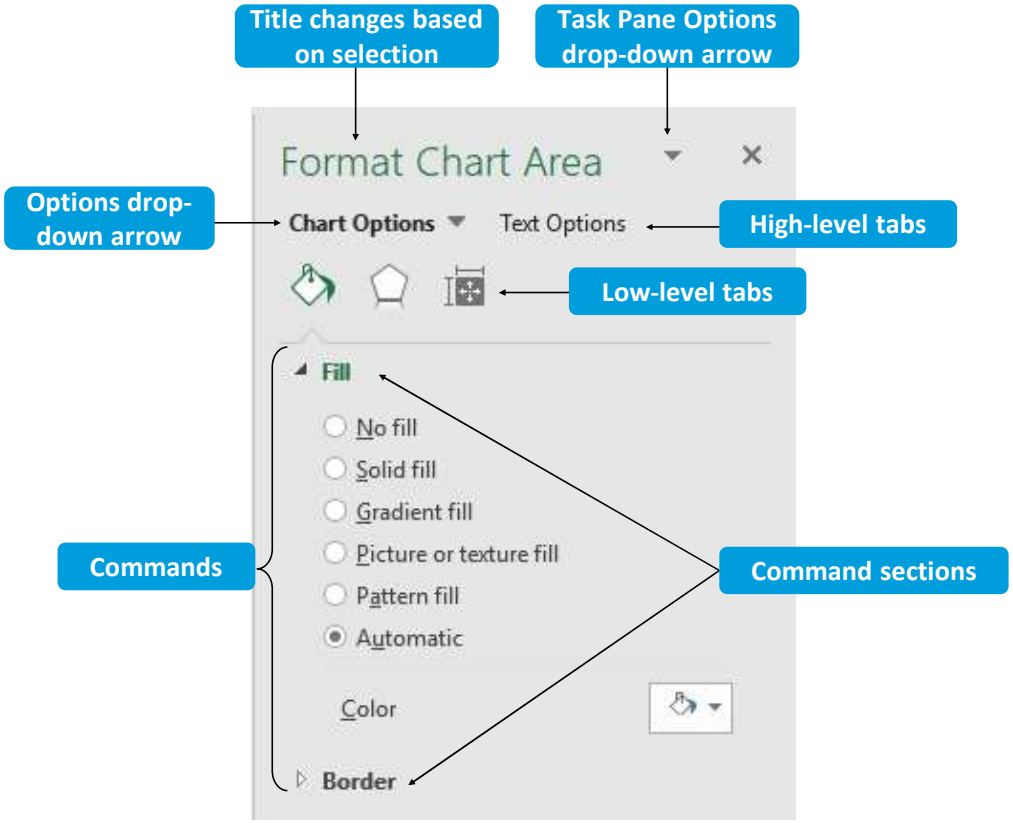
Dual-Axis Charts

Combo chart: A chart that contains data series of differing chart types.

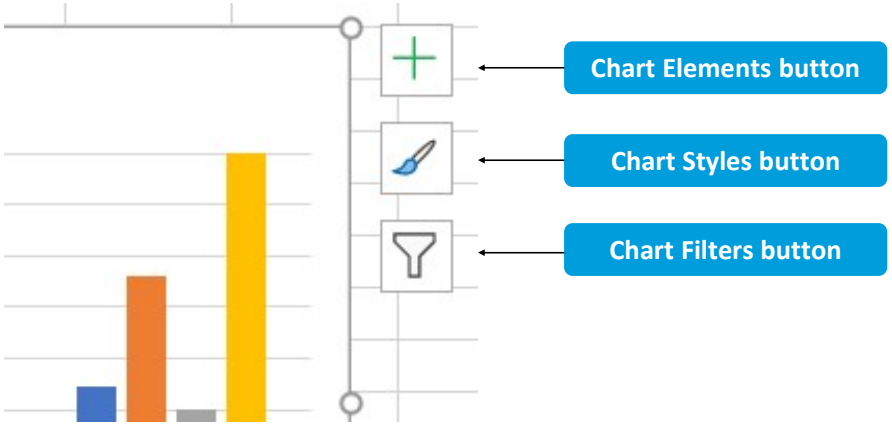
Chart Elements



The Format Task Pane



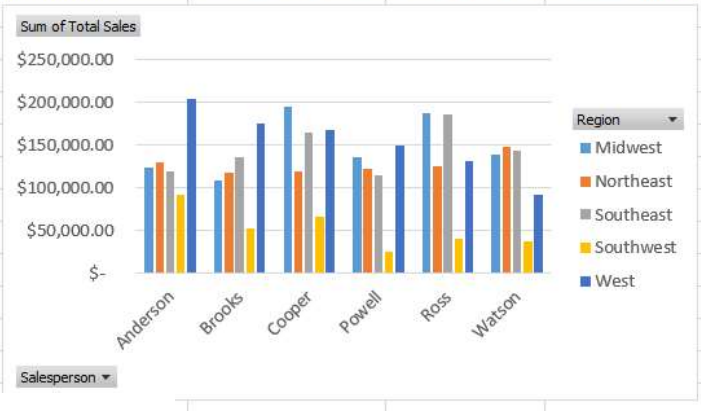
The Chart Tools Buttons



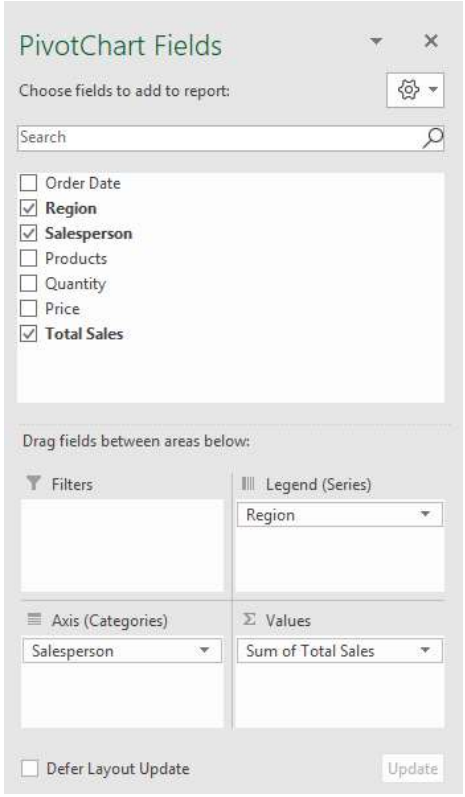
PivotCharts

PivotCharts: Graphical representations of numerical values in a PivotTable and relationships among those values.

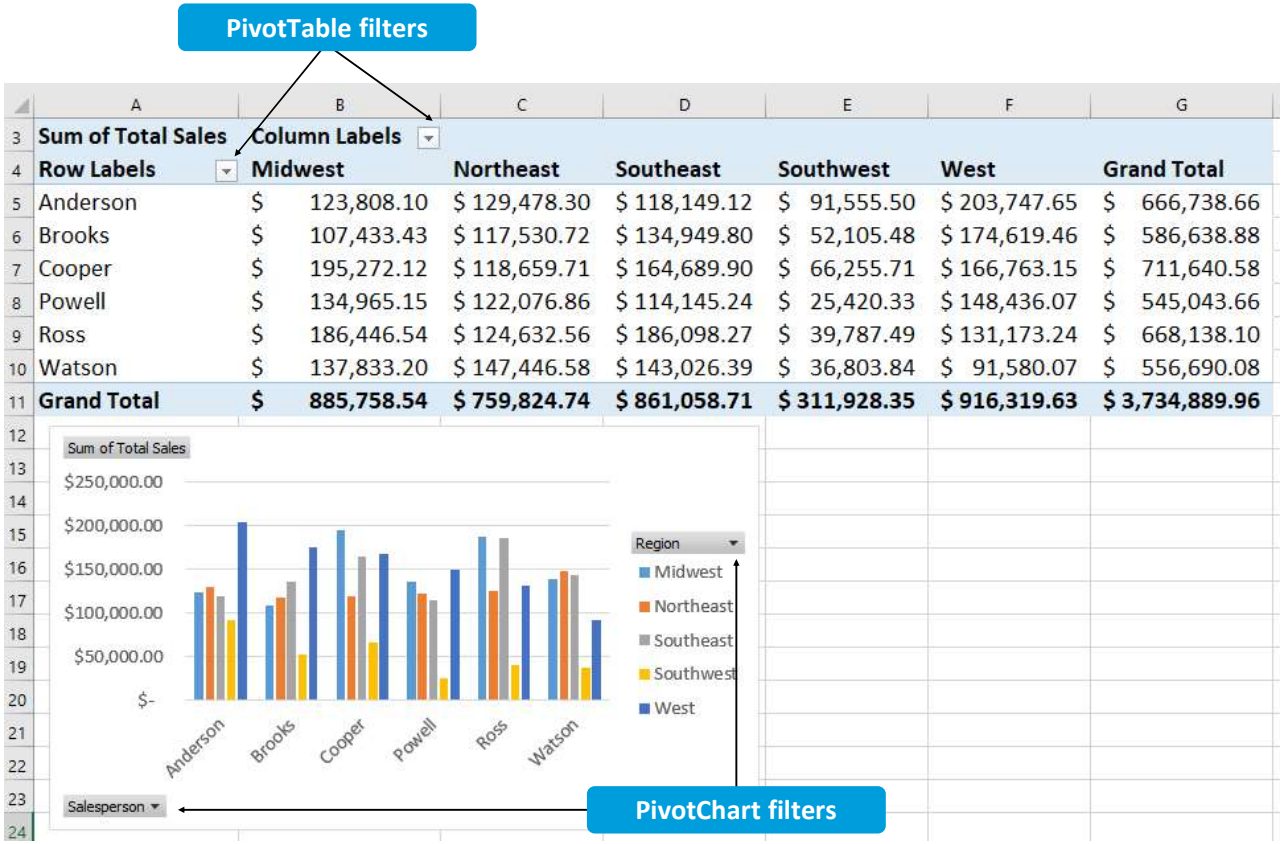
Sum of Total Sales	Column Labels					
Row Labels	Midwest	Northeast	Southeast	Southwest	West	Grand Total
Anderson	$ 123,808.10	$ 129,478.30	$ 118,149.12	$ 91,555.50	$ 203,747.65	$ 666,738.66
Brooks	$ 107,433.43	$ 117,530.72	$ 134,949.80	$ 52,105.48	$ 174,619.46	$ 586,638.88
Cooper	$ 195,272.12	$ 118,659.71	$ 164,689.90	$ 66,255.71	$ 166,763.15	$ 711,640.58
Powell	$ 134,965.15	$ 122,076.86	$ 114,145.24	$ 25,420.33	$ 148,436.07	$ 545,043.66
Ross	$ 186,446.54	$ 124,632.56	$ 186,098.27	$ 39,787.49	$ 131,173.24	$ 668,138.10
Watson	$ 137,833.20	$ 147,446.58	$ 143,026.39	$ 36,803.84	$ 91,580.07	$ 556,690.08
Grand Total	**$ 885,758.54**	**$ 759,824.74**	**$ 861,058.71**	**$ 311,928.35**	**$ 916,319.63**	**$ 3,734,889.96**



The PivotChart Fields Task Pane

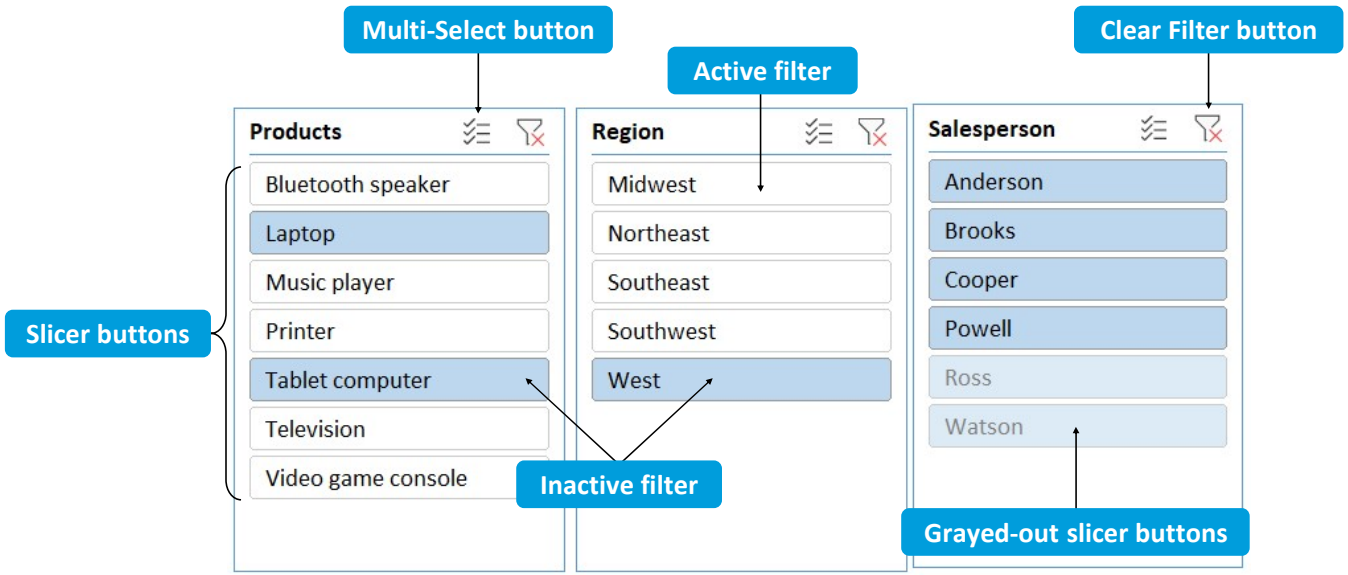


PivotChart Filters

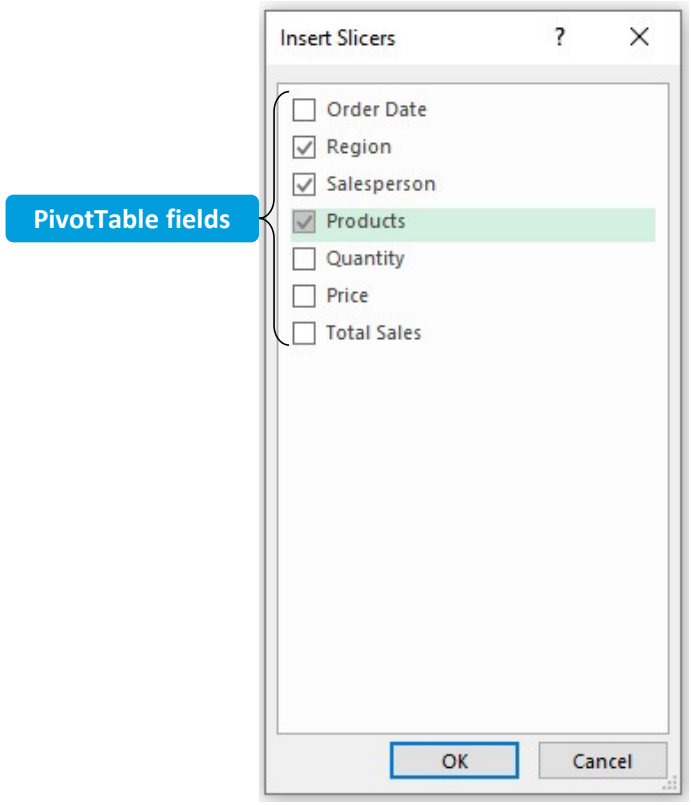


Slicers

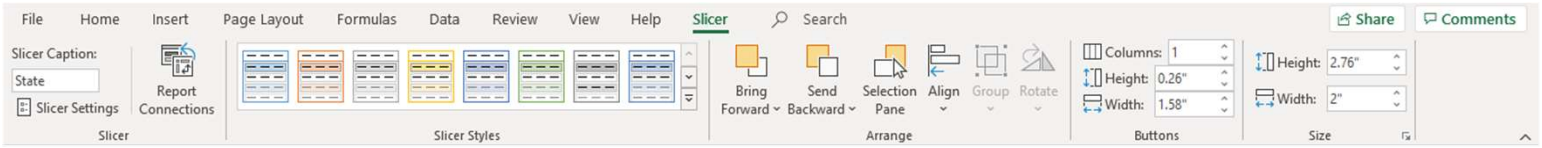
Slicers: Individual Excel objects used to filter the data in PivotTables.



The Insert Slicers Dialog Box

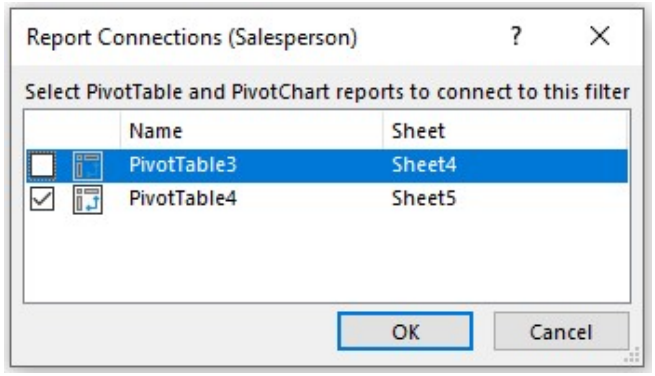


The Slicer Contextual Tab



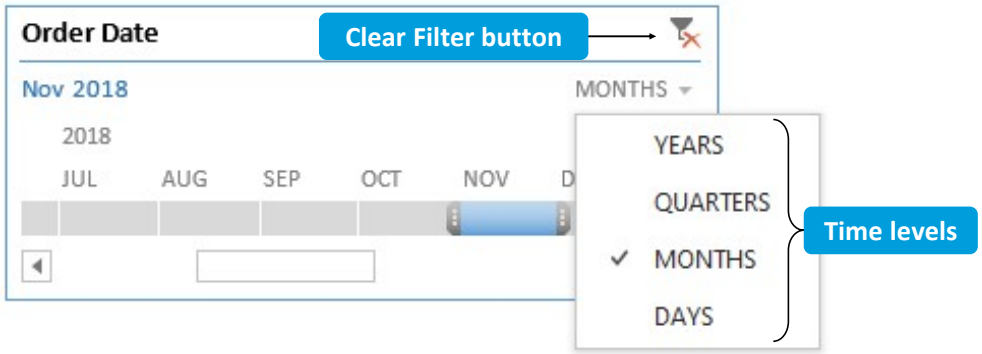
The Report Connections Dialog Box

Shared slicers: Slicers that are connected to and that filter multiple PivotTables based on a common dataset simultaneously.

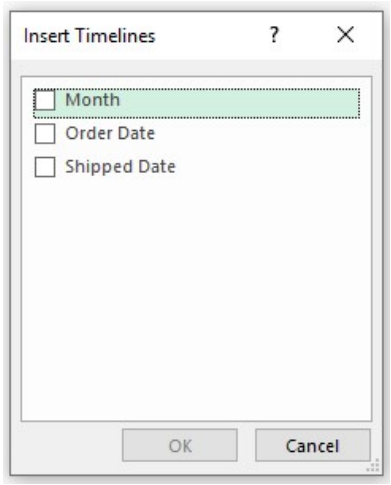


Timelines

Timelines: Individual Excel objects used to filter date-related data in PivotTables.



The Insert Timelines Dialog Box



The Timeline Contextual Tab

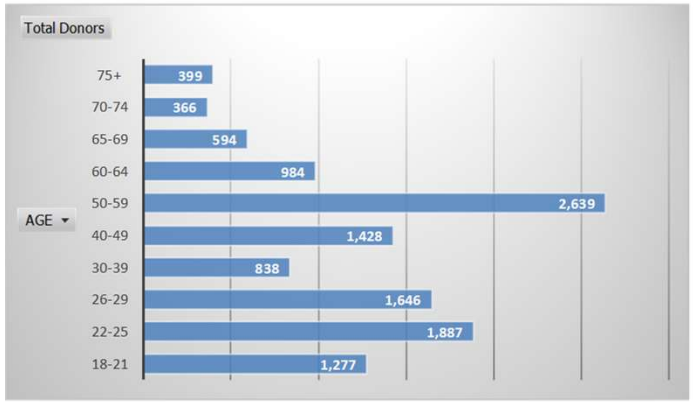
Planning a Dashboard in Excel

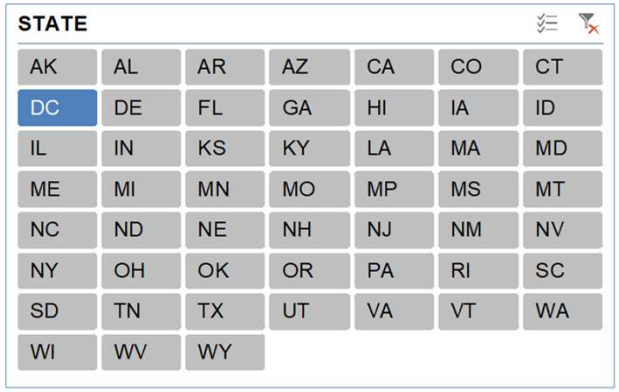
Planning a dashboard in Excel usually involves the following:

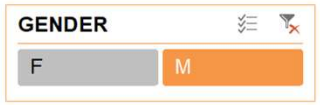
1. Excel Tables
2. Conditional Formatting
3. Charts
4. Filters or Slicers

Excel Pivot Table, Chart, Slicer

Row Labels	Total Donors
18-21	1,277
22-25	1,887
26-29	1,646
30-39	838
40-49	1,428
50-59	2,639
60-64	984
65-69	594
70-74	366
75+	399
Grand Total	**12,058**





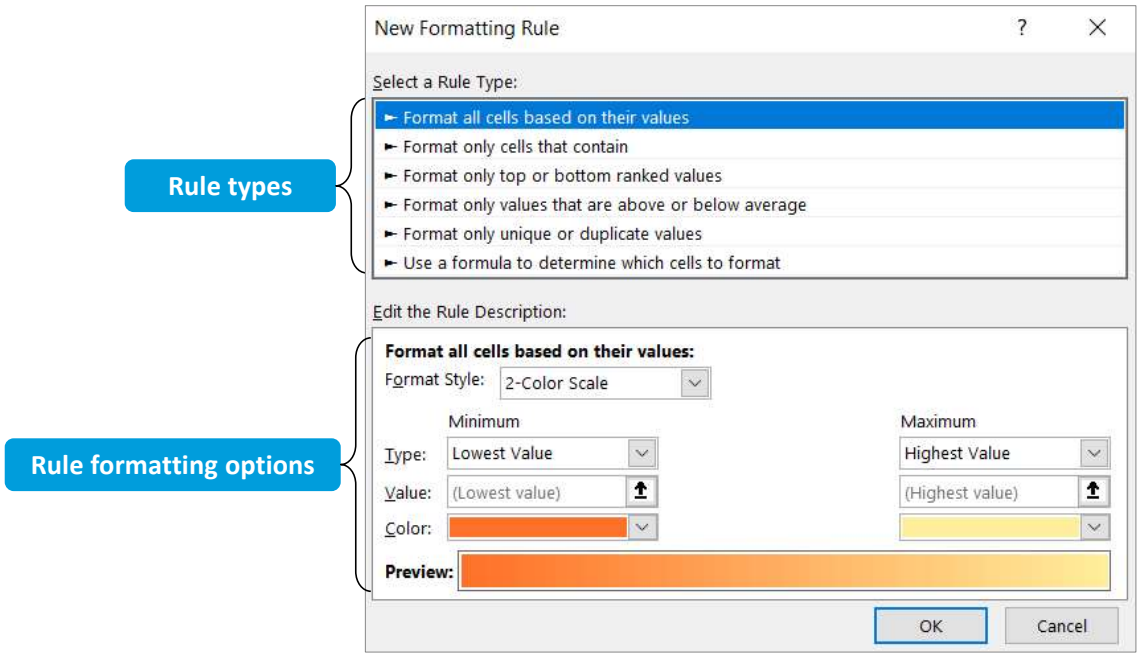


For detailed steps like this example, click this link to watch short videos at the Microsoft website:

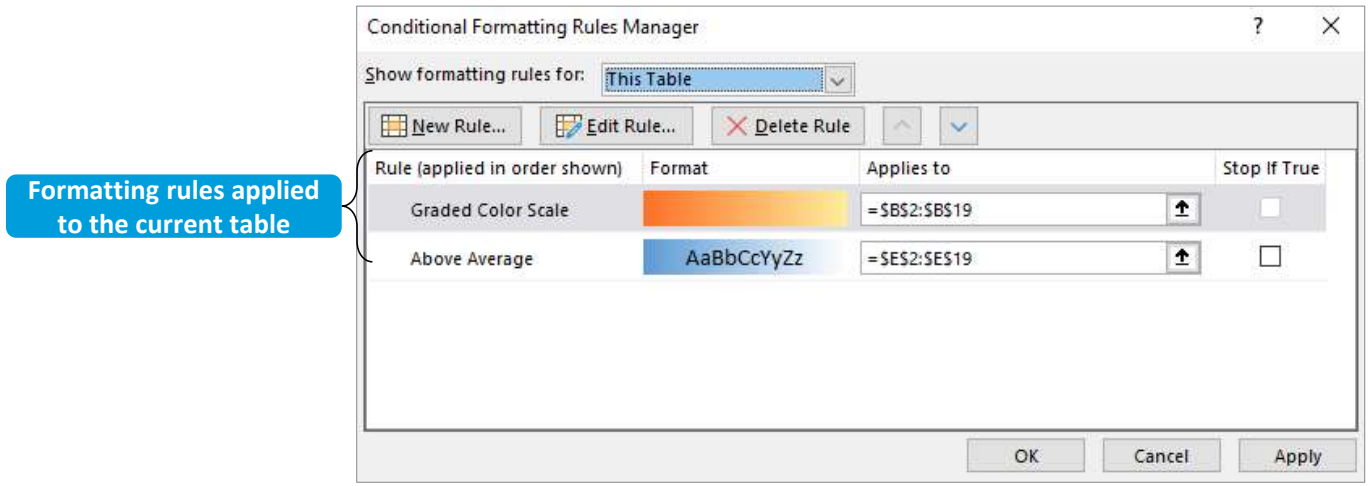
https://support.office.com/en-us/article/video-create-a-pivottable-and-analyze-your-data-7810597d-0837-41f7-9699-5911aa282760

Conditional Formatting to Detect Patterns and Anomalies in data

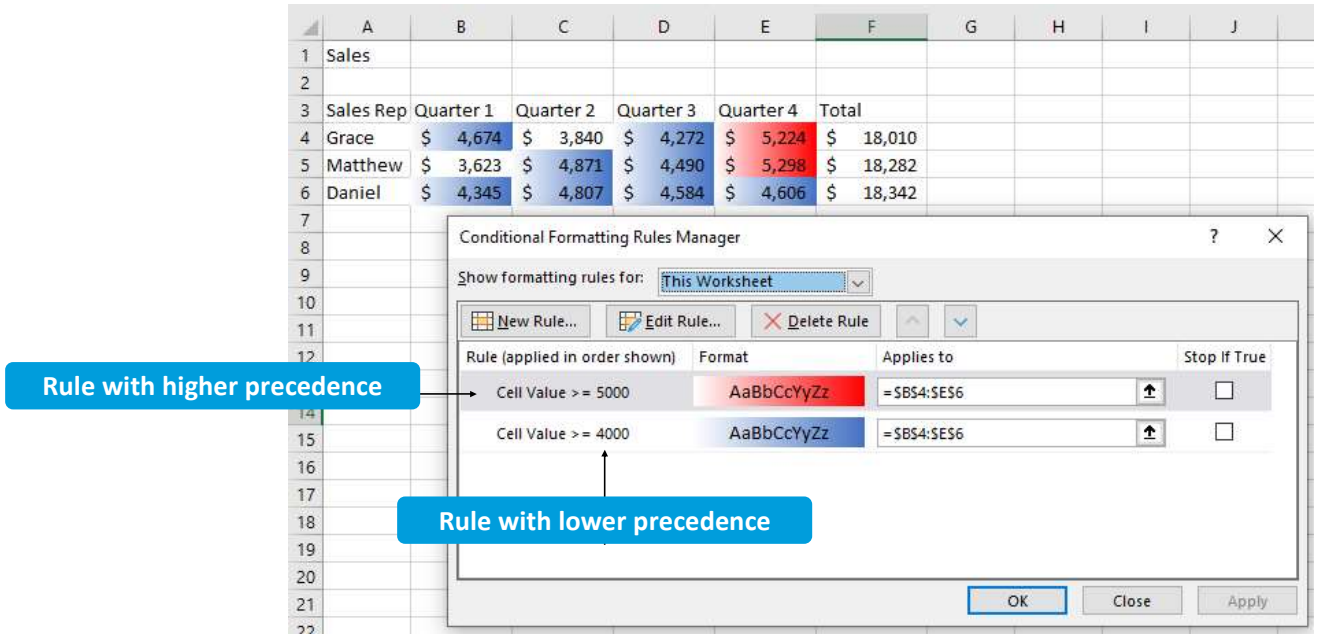
The New Formatting Rule Dialog Box



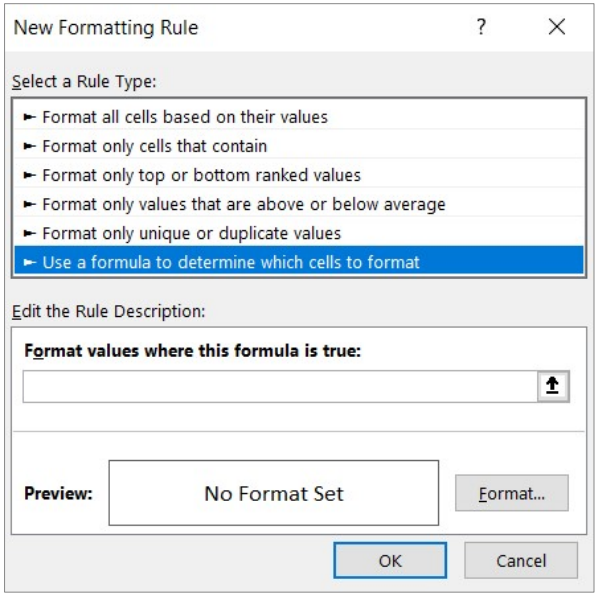
The Conditional Formatting Rules Manager Dialog Box



Rule Precedence

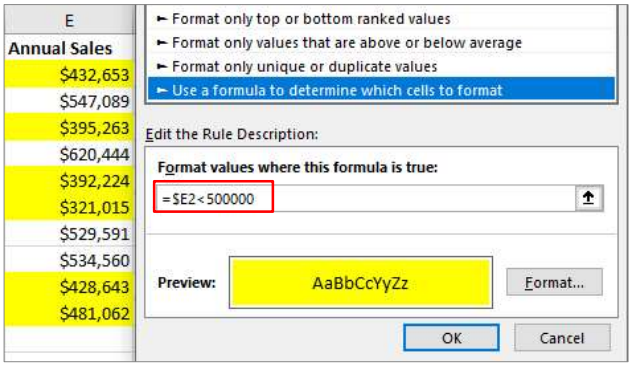


The Use a Formula to Determine Which Cells to Format Rule (Slide 1 of 2)

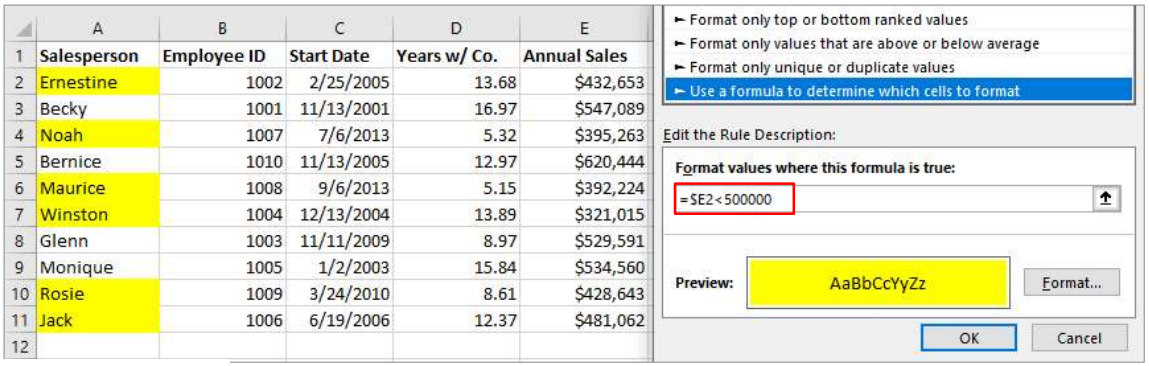


The Use a Formula to Determine Which Cells to Format Rule (Slide 2 of 2)

Formula applies formatting to same cell Excel is evaluating

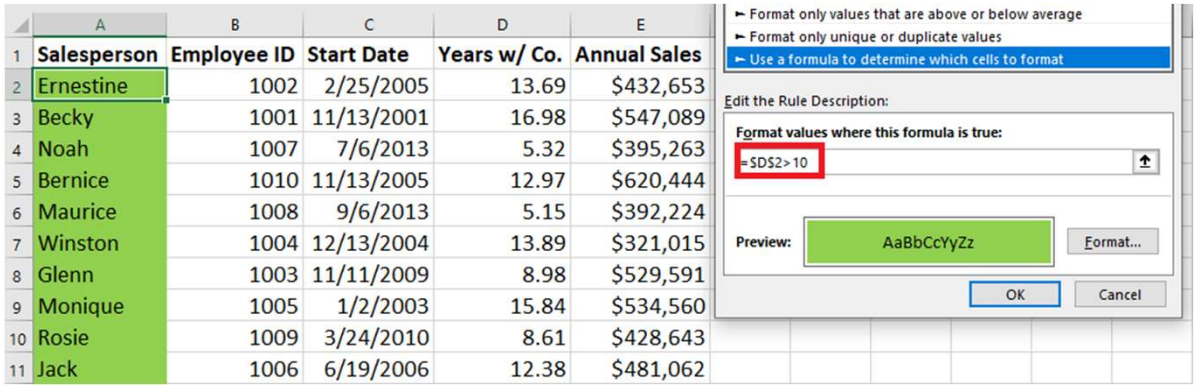


Formula applies formatting to different cells than Excel is evaluating



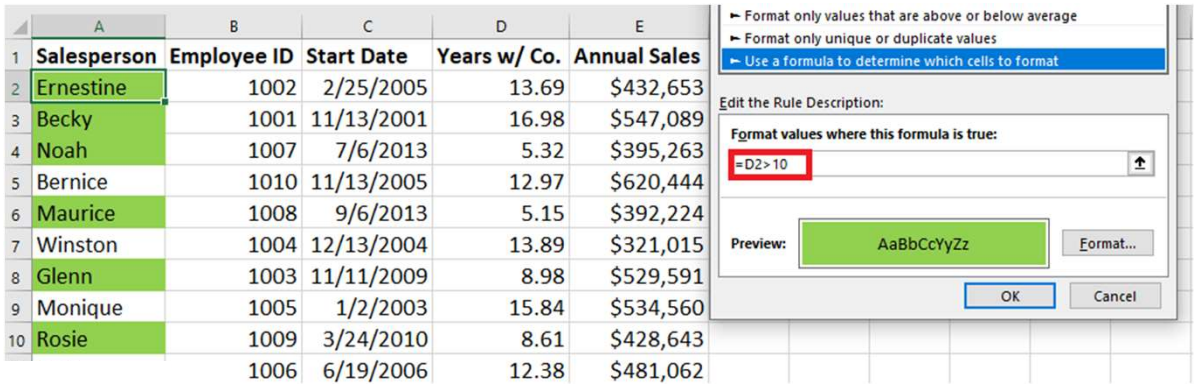
Cell References and Conditional Formatting (Slide 1 of 2)

Copied formatting down a column with an absolute reference



	A	B	C	D	E
1	Salesperson	Employee ID	Start Date	Years w/ Co.	Annual Sales
2	Ernestine	1002	2/25/2005	13.69	$432,653
3	Becky	1001	11/13/2001	16.98	$547,089
4	Noah	1007	7/6/2013	5.32	$395,263
5	Bernice	1010	11/13/2005	12.97	$620,444
6	Maurice	1008	9/6/2013	5.15	$392,224
7	Winston	1004	12/13/2004	13.89	$321,015
8	Glenn	1003	11/11/2009	8.98	$529,591
9	Monique	1005	1/2/2003	15.84	$534,560
10	Rosie	1009	3/24/2010	8.61	$428,643
11	Jack	1006	6/19/2006	12.38	$481,062

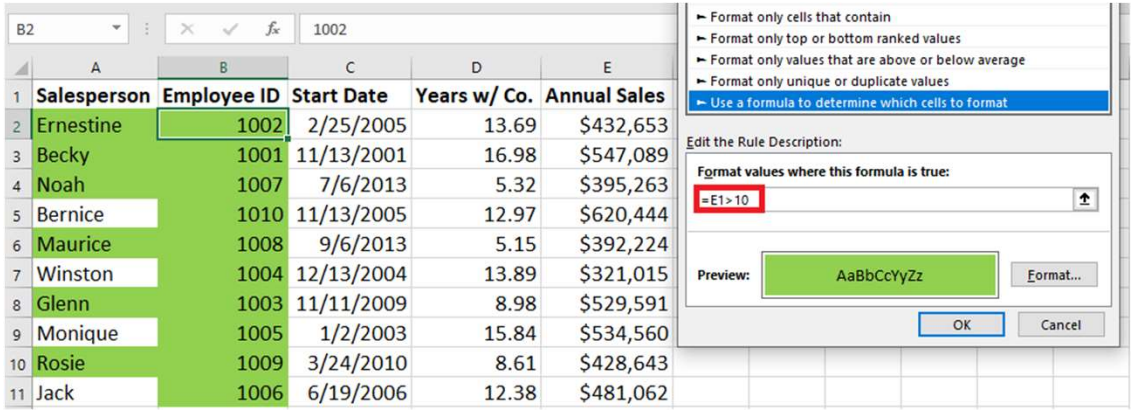
Copied formatting down a column with a relative reference



	A	B	C	D	E
1	Salesperson	Employee ID	Start Date	Years w/ Co.	Annual Sales
2	Ernestine	1002	2/25/2005	13.69	$432,653
3	Becky	1001	11/13/2001	16.98	$547,089
4	Noah	1007	7/6/2013	5.32	$395,263
5	Bernice	1010	11/13/2005	12.97	$620,444
6	Maurice	1008	9/6/2013	5.15	$392,224
7	Winston	1004	12/13/2004	13.89	$321,015
8	Glenn	1003	11/11/2009	8.98	$529,591
9	Monique	1005	1/2/2003	15.84	$534,560
10	Rosie	1009	3/24/2010	8.61	$428,643
		1006	6/19/2006	12.38	$481,062

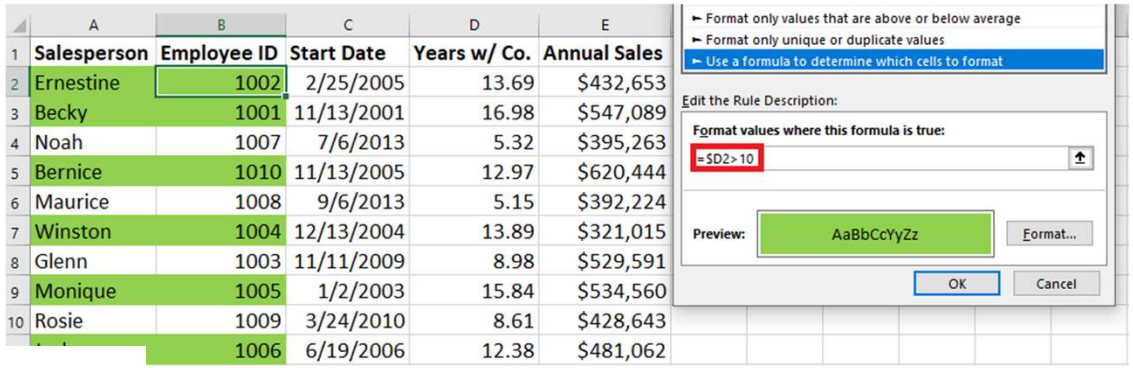
Cell References and Conditional Formatting (Slide 2 of 2)

Copied formatting across columns with a relative reference



	A	B	C	D	E
1	Salesperson	Employee ID	Start Date	Years w/ Co.	Annual Sales
2	Ernestine	1002	2/25/2005	13.69	$432,653
3	Becky	1001	11/13/2001	16.98	$547,089
4	Noah	1007	7/6/2013	5.32	$395,263
5	Bernice	1010	11/13/2005	12.97	$620,444
6	Maurice	1008	9/6/2013	5.15	$392,224
7	Winston	1004	12/13/2004	13.89	$321,015
8	Glenn	1003	11/11/2009	8.98	$529,591
9	Monique	1005	1/2/2003	15.84	$534,560
10	Rosie	1009	3/24/2010	8.61	$428,643
11	Jack	1006	6/19/2006	12.38	$481,062

Copied formatting across columns with a mixed reference



	A	B	C	D	E
1	Salesperson	Employee ID	Start Date	Years w/ Co.	Annual Sales
2	Ernestine	1002	2/25/2005	13.69	$432,653
3	Becky	1001	11/13/2001	16.98	$547,089
4	Noah	1007	7/6/2013	5.32	$395,263
5	Bernice	1010	11/13/2005	12.97	$620,444
6	Maurice	1008	9/6/2013	5.15	$392,224
7	Winston	1004	12/13/2004	13.89	$321,015
8	Glenn	1003	11/11/2009	8.98	$529,591
9	Monique	1005	1/2/2003	15.84	$534,560
10	Rosie	1009	3/24/2010	8.61	$428,643
		1006	6/19/2006	12.38	$481,062

Guidelines for Applying Conditional Formatting to Cells Based on Values in Other Cells (Slide 1 of 2)

- You must use a formula or a function to define the conditional formatting rule.
- You must enter the formula or function in the **Format values where this formula is true** field in the **New Formatting Rule** dialog box.
- The formula or function must begin with an equal sign (=).
- If you are applying the rule to a single cell, you can use either a relative or an absolute reference to the evaluated cell in the formula or function.
- If you are applying the rule to multiple cells in a single column and the rule will be evaluating the data in only a single cell:
  - You must use an absolute reference to the evaluated cell in the formula or function.
- If you are applying the rule to multiple cells in a single column and the rule will be evaluating the associated data stored in multiple rows in another column:
  - You must use a mixed reference that locks the column for the evaluated cells, but that is relative for rows, in the formula or function.

Guidelines for Applying Conditional Formatting to Cells Based on Values in Other Cells (Slide 2 of 2)

- If you are applying the rule to a range that includes multiple rows and columns and the rule will be evaluating the associated data stored in a single cell:
  - You must use an absolute reference for the evaluated cell in the formula or function.
- If you are applying the rule to a range that includes multiple rows and columns and the rule will be evaluating the associated data stored in multiple rows in another column:
  - You must use a mixed reference that locks the column for the evaluated cells, but that is relative for rows, in the formula or function.

4. Analyze Data with Pivot Tables and the Power Pivot Data Model

Custom Calculations

PowerPivot Data Model advantages

Relate Data

Pivot from multiple data sets

Formatting tips

Refresh settings

Pivoting

Pivoting: A form of data manipulation that can take a column of data and pivot it into a row and vice versa.

Original data

	A	B	C	D	E	F	G	H
1	**Order Date**	**State**	**Item #**	**Qty**	**Unit Price**	**Subtotal**	**Tax**	**Total Sale**
2	1/2/2018	NJ	B107	24	$154.95	$3,672.32	9%	$4,002.82
3	1/3/2018	CT	T110	11	$325.00	$3,672.50	4%	$3,819.40
4	1/3/2018	RI	TV100	13	$295.19	$3,926.03	7%	$4,200.85
5	1/5/2018	NY	B107	10	$154.95	$1,549.50	9%	$1,688.96
6	1/6/2018	MA	V104	9	$349.00	$3,210.80	5%	$3,371.34
7	1/6/2018	MD	TV100	8	$295.19	$2,332.00	7%	$2,495.24
8	1/6/2018	NY	M105	9	$285.99	$2,430.92	9%	$2,649.70
9	1/8/2018	VT	V110	21	$349.00	$7,363.90	4%	$7,658.46
10	1/9/2018	CT	P109	19	$99.99	$1,899.81	4%	$1,975.80
11	1/9/2018	PA	T110	8	$325.00	$2,600.00	7%	$2,782.00
12	1/10/2018	NY	L110	6	$329.25	$1,810.88	9%	$1,973.85
13	1/12/2018	CT	M103	18	$285.99	$5,033.42	4%	$5,234.76
14	1/12/2018	RI	P102	6	$99.99	$579.94	7%	$620.54
15	1/13/2018	NH	P104	23	$99.99	$2,259.77	5%	$2,372.76
16	1/15/2018	MA	R101	16	$134.99	$2,213.84	5%	$2,324.53
17	1/15/2018	PA	T101	19	$325.00	$6,142.50	7%	$6,572.48
18	1/15/2018	RI	TV104	20	$295.19	$6,021.88	7%	$6,443.41

Pivoted data

Row Labels	**Sum of Total Sale**
CT	$ 179,235.56
DE	$ 134,693.42
MA	$ 197,966.03
MD	$ 199,693.63
ME	$ 143,031.64
NH	$ 159,095.84
NJ	$ 164,755.56
NY	$ 184,262.65
PA	$ 157,996.73
RI	$ 175,510.78
VT	$ 148,850.53
Grand Total	**$ 1,845,092.37**

PivotTables

PivotTable: A dynamic Excel data object that enables users to perform data analysis by pivoting columns and rows of raw data without altering the raw data.

Unique entries from the Order Date column are column headings

The PivotTable entries are a summary of all sales for each month of orders across each state

Sum of Total Sale	Months						
State	Jan	Feb	Mar	Apr	May	Jun	Grand Total
CT	$ 21,827.79	$ 27,339.16	$ 23,981.13	$ 12,760.16	$ 21,049.90	$ 7,479.55	$ 114,437.69
DE	$ 15,805.75		$ 11,690.18	$ 24,727.29	$ 5,941.73	$ 23,188.13	$ 81,353.09
MA	$ 13,199.27	$ 25,562.30	$ 14,922.81	$ 16,095.37	$ 31,989.78	$ 11,243.55	$ 113,013.09
MD	$ 2,495.24	$ 12,675.08	$ 17,746.36	$ 25,025.35	$ 21,172.35	$ 21,813.15	$ 100,927.53
ME	$ 2,771.60	$ 12,066.45	$ 19,777.31	$ 25,639.82	$ 10,565.35	$ 715.99	$ 71,536.51
NH	$ 5,585.86	$ 37,407.63	$ 8,730.60	$ 3,273.16	$ 27,331.12	$ 3,444.27	$ 85,772.64
NJ	$ 23,744.41	$ 11,064.84	$ 13,824.31	$ 11,456.95	$ 18,512.23	$ 5,797.61	$ 84,400.34
NY	$ 10,977.98	$ 17,340.74	$ 7,122.62	$ 7,485.22	$ 8,197.80	$ 5,747.66	$ 56,872.02
PA	$ 16,721.51	$ 11,310.60	$ 18,038.17	$ 3,278.77	$ 3,034.08	$ 10,478.29	$ 62,861.42
RI	$ 25,612.42	$ 7,789.73	$ 4,555.85	$ 23,335.10	$ 18,908.08	$ 12,570.96	$ 92,772.15
VT	$ 10,887.42	$ 19,676.37	$ 15,026.51	$ 7,032.24	$ 9,922.92	$ 7,225.06	$ 69,770.52
Grand Total	**$ 149,629.26**	**$ 182,232.90**	**$ 155,415.85**	**$ 160,109.43**	**$ 176,625.33**	**$ 109,704.22**	**$ 933,717.00**

Unique entries from the State column are row labels

Transactional Data

Transactional data: Data that represents each individual transaction, or event, in a series of transactions, and that is not summarized in any way, shape, or form.

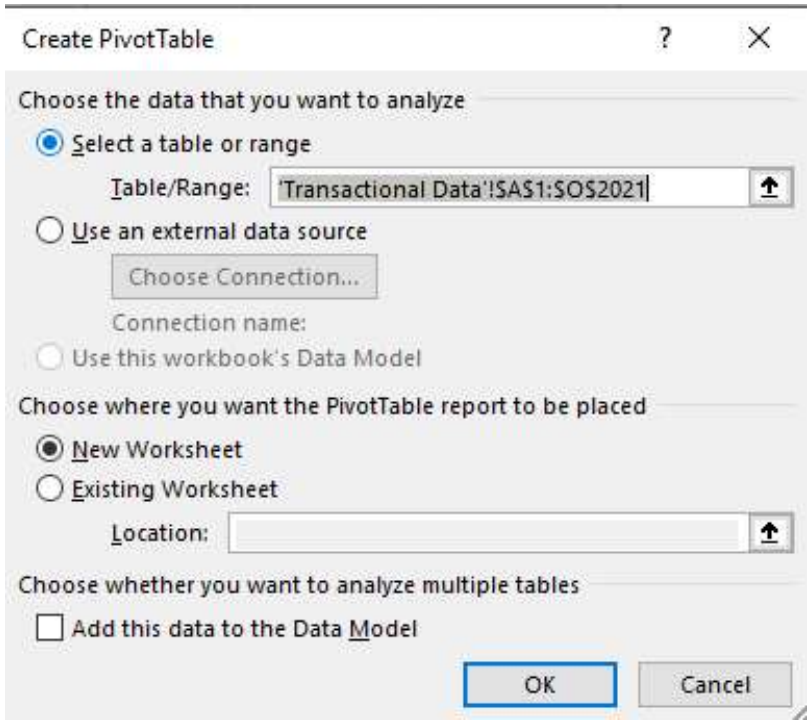
Transactional data

	A	B	C	D	E	F	G	H	I
1	Date	Time	Store #	Item #	Quantity	Price	Subtotal	Tax	Total Sales
2	1/2/2018	22:59	S137	L104	20	$329.25	$6,486.23	7%	$6,940.26
3	1/2/2018	21:01	S316	V107	21	$349.00	$7,398.80	7%	$7,916.72
4	1/2/2018	07:33	S323	TV107	17	$295.19	$4,900.15	7%	$5,243.16
5	1/2/2018	03:11	S352	T107	10	$325.00	$3,347.50	4%	$3,481.40
6	1/2/2018	15:06	S404	B107	24	$154.95	$3,672.32	9%	$4,002.82
7	1/2/2018	16:22	S511	R108	14	$134.99	$1,822.37	5%	$1,913.48
8	1/3/2018	21:05	S162	T110	11	$325.00	$3,672.50	4%	$3,819.40
9	1/3/2018	07:02	S253	V109	15	$349.00	$5,374.60	6%	$5,697.08
10	1/3/2018	04:59	S484	TV100	13	$295.19	$3,926.03	7%	$4,200.85
11	1/3/2018	16:25	S493	B106	6	$154.95	$898.71	7%	$961.62
12	1/4/2018	04:06	S212	B106	10	$154.95	$1,487.52	5%	$1,561.90
13	1/4/2018	04:37	S271	R105	8	$134.99	$1,052.92	5%	$1,105.57
14	1/4/2018	17:39	S336	R101	6	$134.99	$863.94	5%	$907.13
15	1/4/2018	06:36	S563	L101	8	$329.25	$2,666.93	7%	$2,853.61
16	1/4/2018	12:50	S563	V101	11	$349.00	$3,839.00	7%	$4,107.73
17	1/5/2018	08:04	S111	M107	16	$285.99	$4,690.24	6%	$4,971.65
18	1/5/2018	13:19	S155	B100	14	$154.95	$2,184.80	4%	$2,272.19

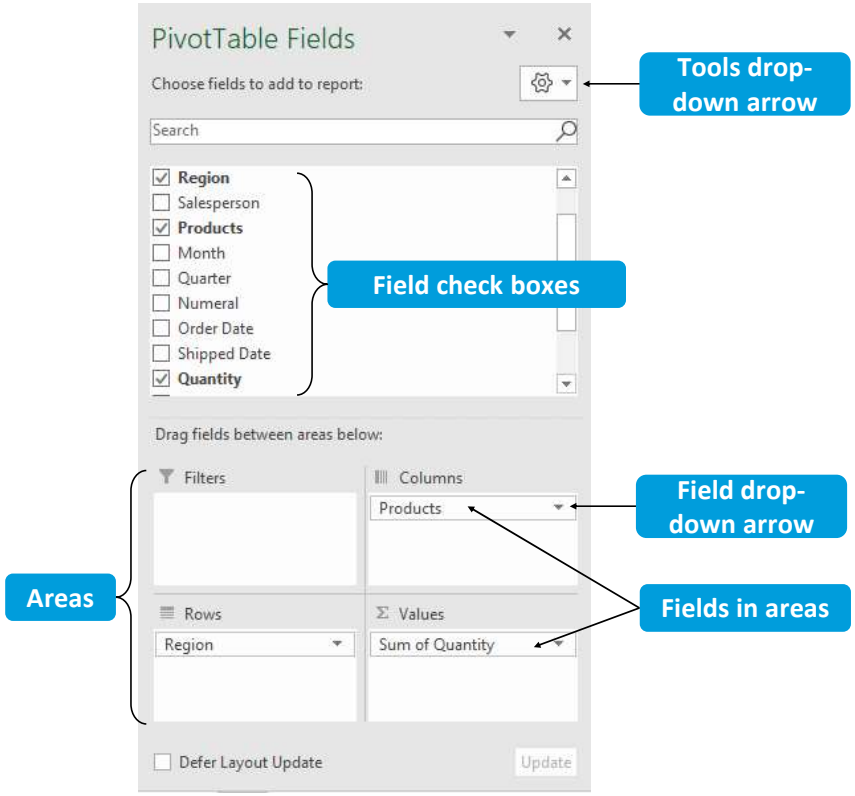
Summarized data

	A	B	C	D
1	Store #	Avg Qty Sold	Avg Price	Total Sales
2	S101	12.9	$221.32	$ 18,033.11
3	S102	17.4	$236.22	$ 27,281.40
4	S103	20.4	$266.06	$ 22,435.28
5	S104	15.4	$264.50	$ 12,171.80
6	S105	16.7	$233.11	$ 34,115.52
7	S106	15.8	$259.19	$ 30,066.48
8	S107	12.8	$247.88	$ 17,097.78
9	S111	9.4	$270.04	$ 14,032.89
10	S112	14.1	$271.77	$ 23,479.52
11	S113	16.7	$305.89	$ 60,857.05
12	S114	12.6	$276.05	$ 15,464.04
13	S115	18.4	$278.08	$ 33,924.89
14	S116	10.9	$154.95	$ 3,564.16
15	S117	11.9	$215.68	$ 23,261.96
16	S121	14.7	$206.58	$ 27,011.12
17	S122	17.5	$312.22	$ 11,270.24
18	S123	12.9	$250.39	$ 20,092.18

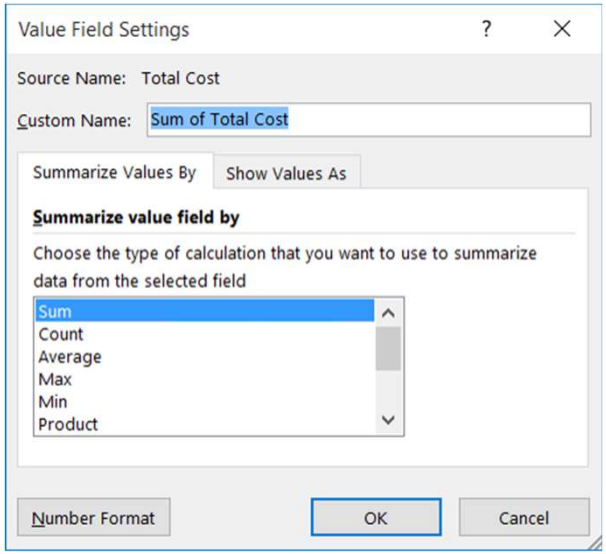
The Create PivotTable Dialog Box

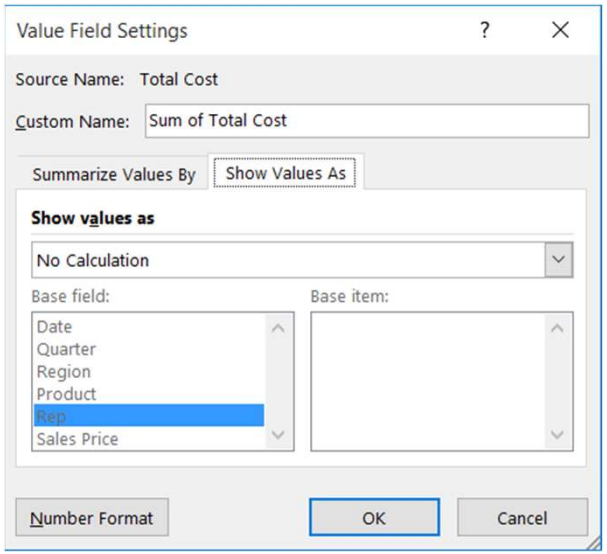


The PivotTable Fields Task Pane



The Value Field Settings Dialog Box





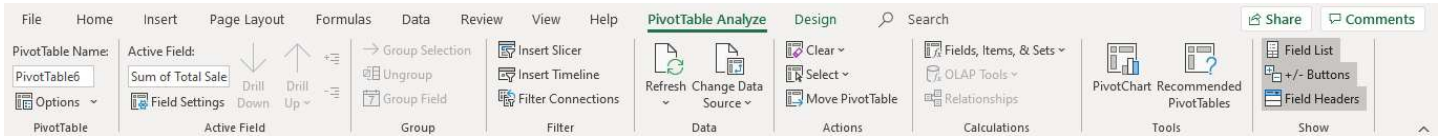
SUM

Sum of Total Sales	Column Labels					
Row Labels	Midwest	Northeast	Southeast	Southwest	West	Grand Total
Anderson	$ 123,808.10	$ 129,478.30	$ 118,149.12	$ 91,555.50	$ 203,747.65	$ 666,738.66
Austin	$ 188,287.31	$ 148,298.09	$ 183,735.35	$ 62,406.89	$ 128,036.67	$ 710,764.31
Brooks	$ 107,433.43	$ 117,530.72	$ 134,949.80	$ 52,105.48	$ 174,619.46	$ 586,638.88
Cooper	$ 195,272.12	$ 118,659.71	$ 164,689.90	$ 66,255.71	$ 166,763.15	$ 711,640.58
Powell	$ 134,965.15	$ 122,076.86	$ 114,145.24	$ 25,420.33	$ 148,436.07	$ 545,043.66
Ross	$ 186,446.54	$ 124,632.56	$ 186,098.27	$ 39,787.49	$ 131,173.24	$ 668,138.10
Scott	$ 133,718.36	$ 157,960.38	$ 156,985.35	$ 27,140.63	$ 141,646.94	$ 617,451.65
Watson	$ 137,833.20	$ 147,446.58	$ 143,026.39	$ 36,803.84	$ 91,580.07	$ 556,690.08
West	$ 122,512.21	$ 151,339.21	$ 121,247.06	$ 36,045.86	$ 120,378.62	$ 551,522.96
Grand Total	**$ 1,330,276.42**	**$ 1,217,422.42**	**$ 1,323,026.47**	**$ 437,521.73**	**$ 1,306,381.85**	**$ 5,614,628.89**

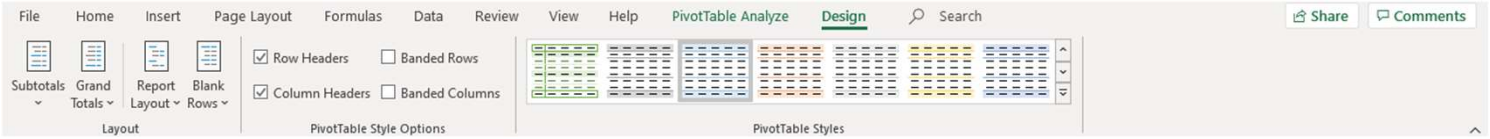
Percentage of Total

Sum of Total Sales	Column Labels					
Row Labels	Midwest	Northeast	Southeast	Southwest	West	Grand Total
Anderson	2.21%	2.31%	2.10%	1.63%	3.63%	11.88%
Austin	3.35%	2.64%	3.27%	1.11%	2.28%	12.66%
Brooks	1.91%	2.09%	2.40%	0.93%	3.11%	10.45%
Cooper	3.48%	2.11%	2.93%	1.18%	2.97%	12.67%
Powell	2.40%	2.17%	2.03%	0.45%	2.64%	9.71%
Ross	3.32%	2.22%	3.31%	0.71%	2.34%	11.90%
Scott	2.38%	2.81%	2.80%	0.48%	2.52%	11.00%
Watson	2.45%	2.63%	2.55%	0.66%	1.63%	9.91%
West	2.18%	2.70%	2.16%	0.64%	2.14%	9.82%
Grand Total	**23.69%**	**21.68%**	**23.56%**	**7.79%**	**23.27%**	**100.00%**

The PivotTable Analyze Contextual Tab



The Design Contextual Tab for PivotTables



The GETPIVOTDATA Function

B14 =GETPIVOTDATA("Total Sales",A3,"Region","Southwest","Products","Laptop")

	A	B	C	D	E	F	G
3	**Sum of Total Sales**	**Column Labels**					
4	**Row Labels**	**Midwest**	**Northeast**	**Southeast**	**Southwest**	**West**	**Grand Total**
5	Bluetooth speaker	$ 135,147.39	$ 103,351.65	$ 99,508.89	$ 46,128.61	$ 95,294.25	$ 479,430.80
6	Laptop	$ 261,654.98	$ 260,798.93	$ 311,865.60	$ 97,392.15	$ 270,972.75	$ 1,202,684.40
7	Music player	$ 110,948.28	$ 119,938.62	$ 133,910.08	$ 36,501.30	$ 100,851.03	$ 502,149.30
8	Printer	$ 62,843.72	$ 57,614.24	$ 73,512.65	$ 36,846.32	$ 82,361.76	$ 313,178.68
9	Tablet computer	$ 225,452.50	$ 190,385.00	$ 286,812.50	$ 87,100.00	$ 253,500.00	$ 1,043,250.00
10	Television	$ 257,996.06	$ 232,727.80	$ 230,631.95	$ 62,845.95	$ 237,952.66	$ 1,022,154.41
11	Video game console	$ 276,233.50	$ 252,606.20	$ 186,784.80	$ 70,707.40	$ 265,449.40	$ 1,051,781.30
12	**Grand Total**	**$ 1,330,276.42**	**$ 1,217,422.42**	**$ 1,323,026.47**	**$ 437,521.73**	**$ 1,306,381.85**	**$ 5,614,628.89**
13							
14	Laptop Sales in South	$ 97,392.15					

Protect a Pivot Table so other users cannot change the Pivot Table layout or format

If you plan to send a pivot table file to someone or upload to a Team, you can add sheet protection (with a password). Then no one can modify the pivot table or access the underlying data source. They will be able to click and tap the slicers to run the filtering.

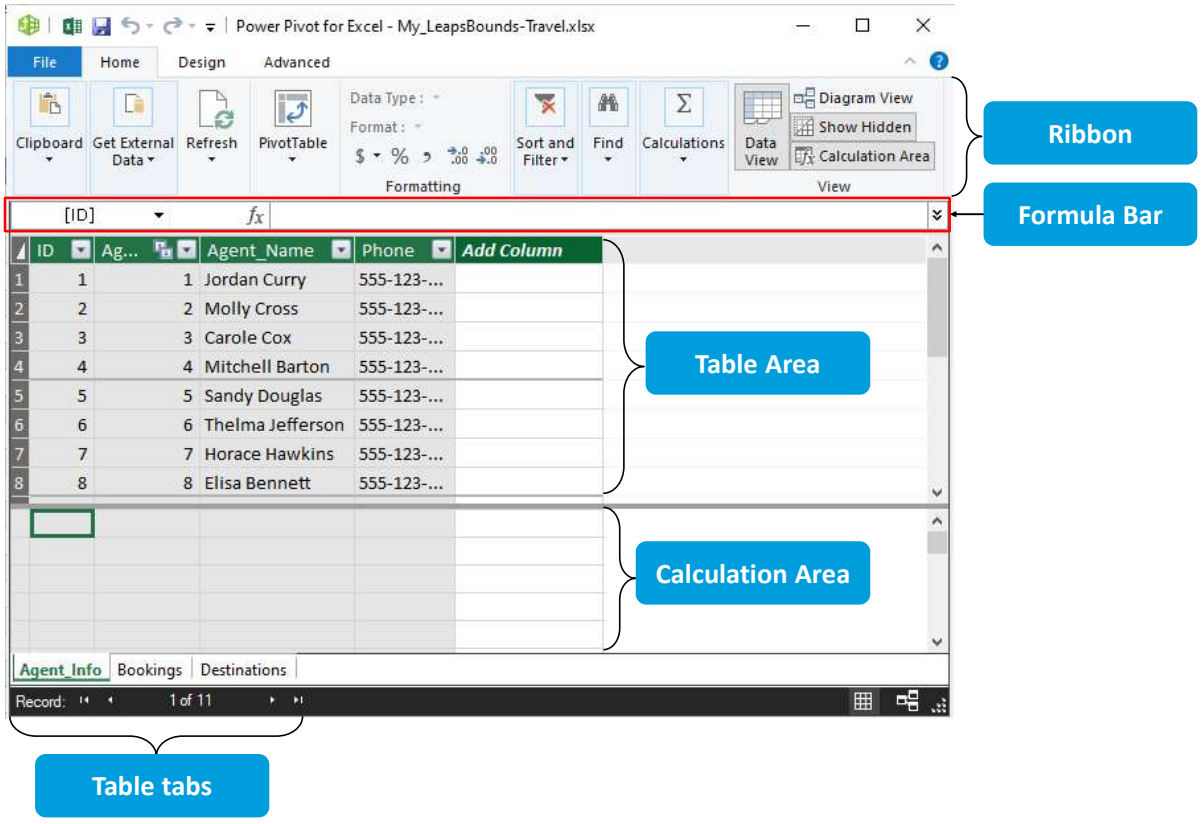
1. Select all slicers using the CTRL key to multiple select
2. Right click on a Slicer and select **Size & Properties**
3. Under Properties, **uncheck** the **Locked** box and press Close
4. From the ribbon, select the **Protect Sheet** tool
5. **Uncheck** the **Select Locked Cells** and **check** the **Select Unlocked Cells & Use Pivot Table Reports**
6. Optionally, enter a password and press **OK**

Note: The slicers are not locked and could be altered or deleted.

Power Pivot Data Model discussion and Distinct Count vs. Count

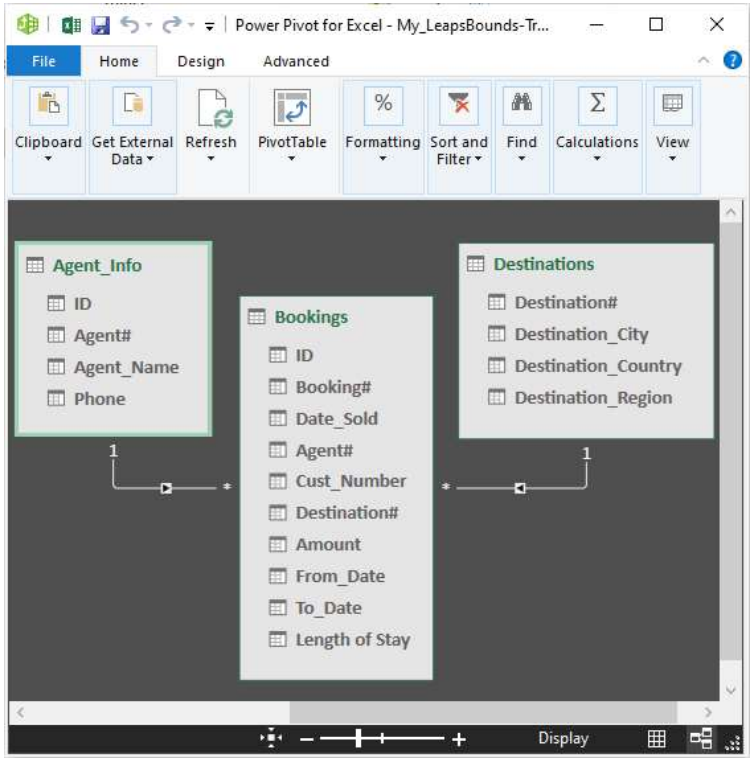
The Power Pivot Tab

The Power Pivot Window



PowerPivot: Relating Data

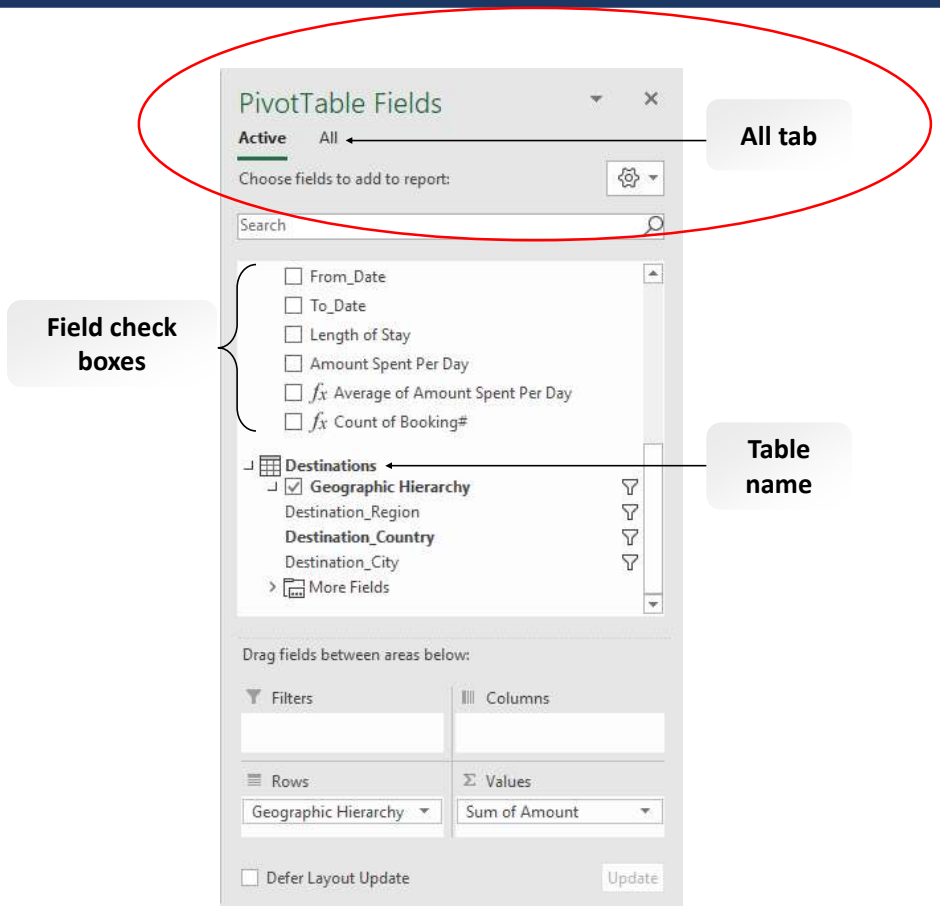
Table Views in the Power Pivot Window



The Home Tab


Power Pivot for Excel - My_LeapsBounds-Travel.xlsx
File
Home
Design
Advanced
Paste
Paste Append
Paste Replace
Copy
Clipboard
From Database
From Data Service
From Other Sources
Existing Connections
Get External Data
Refresh
PivotTable
Data Type :
Format :
Formatting
Sort A to Z
Sort Z to A
Clear Sort
Clear All Filters
Sort by Column
Sort and Filter
Find
Find
AutoSum
Create KPI
Calculations
Data View
Diagram View
Show Hidden
Calculation Area
View

The PivotTable Fields Task Pane



5. Excel Power Query

(Get and Transform)

Combining sets of data

manipulating and transforming data

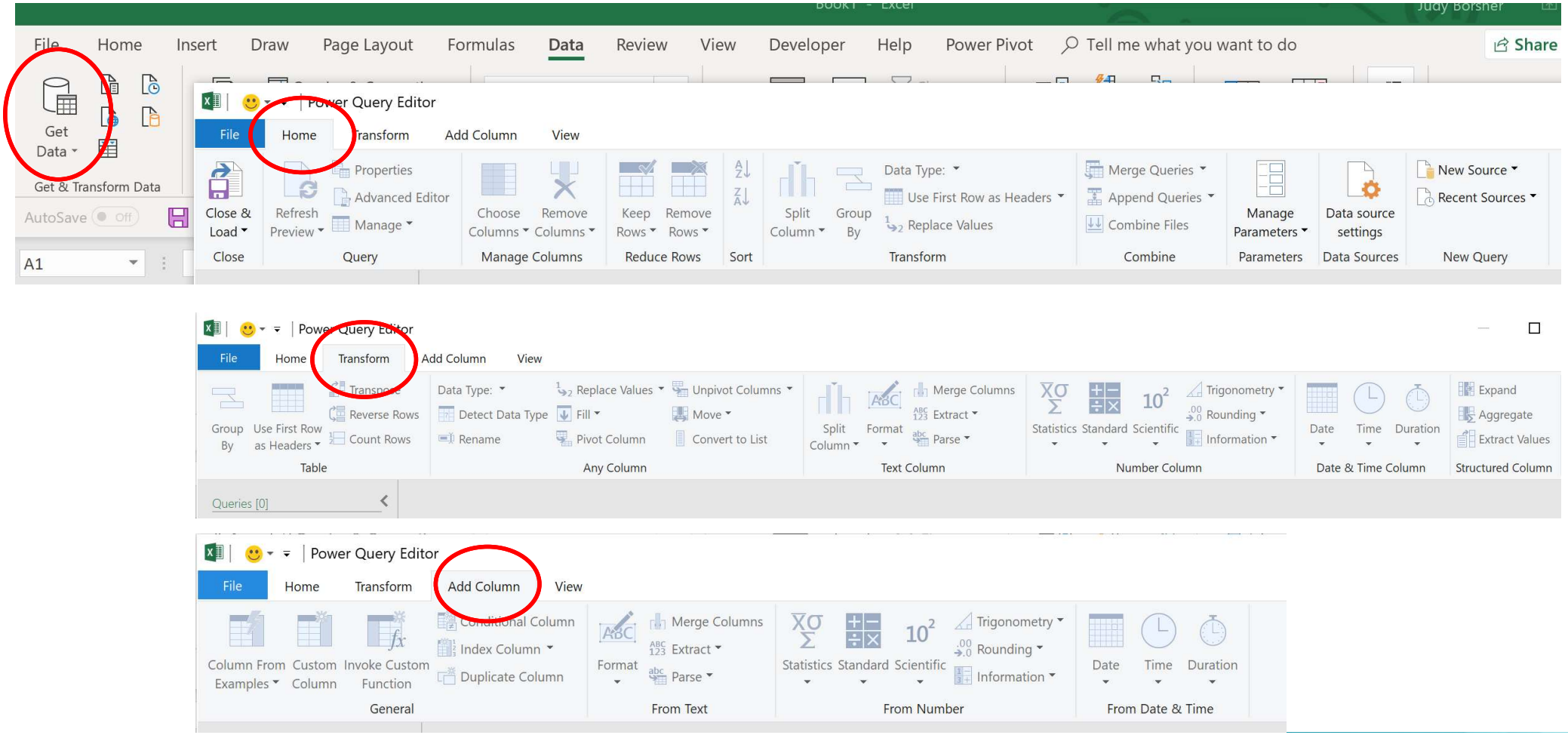
unpivoting data

Introduction to Microsoft Power Query for Excel (Get and Transform)

Power Query is used to connect to external data, transform data, and create a data model.

https://support.office.com/en-us/article/Introduction-to-Microsoft-Power-Query-for-Excel-6E92E2F4-2079-4E1F-BAD5-89F6269CD605?omkt=en-US&ui=en-US&rs=en-US&ad=US

Excel Power Query Editor



Microsoft Excel Update & Tips for CPAs

Thank you for your attendance!

Questions/information/consulting/training:
Judy@SCG-Training.com