

K2's Ten "Must Know" Features In Excel

Most business professionals have used Excel for years, often without the benefit of any formal training. Thus, they don't know about key features in the application and, therefore, don't use them. Of course, this leads to inefficiencies and errors. Isn't it time to stop this madness? This session is for you if you're ready to become more efficient and effective with Excel! You will learn ten critical features that can help you get more work done in less time and improve your accuracy. We encourage you to make plans to join us for this session to learn the best ways of working with Excel!

Introduction

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Learning Objectives

Upon completing this session, you should be able to:

- List at least three primary features associated with Power Query
- Identify the steps necessary to utilize modern collaboration options in Excel
- Cite examples of the benefits related to using dynamic arrays
- Differentiate between Solver and Scenario Manager as optimization tools
- Identify at least three benefits of protecting your data with Sensitivity Labels

Manipulating Text In Excel

Most business professionals – especially accounting and financial professionals – use Excel primarily to work with numerical data. But, on occasion, they may also need to manipulate text in Excel. Fortunately, Excel provides legacy and new options to assist with those efforts.

Text To Columns Wizard

Excel's **Text To Columns Wizard** is a legacy feature that can help split a single data column into multiple columns. This feature is straightforward and often adequately handles the designated task. To illustrate, consider the example pictured in **Figure 1**. Further, suppose you needed to quickly split the combined data in column B into separate columns – one for the name, another for the address, another for the city, etc. Excel's Text To Columns Wizard is often the right tool for tasks like these without injecting additional formulas into the workbook.

You can perform the following steps to split the data into individual columns using Text To Columns.

1. Select the source range of data, which in this case is cells **A2:A13**.
2. Click **Text To Columns** in the Data Tools group on the Ribbon's **Data** tab.
3. Indicate whether a specific character delimits the data or whether to split the data based on its' length. In this example, because a comma separates each field, we choose the "Delimited" option and click **Next**.
4. In Step 2 of the Text To Columns wizard, select **Comma** and click **Next**. Note that the wizard previews how the data will split after selecting "Comma."

- Finally, Step 3 of the Wizard offers options to apply formats if necessary.

	A	B	C
1			
2		Nancy Freehafer, 123 Main St, Atlanta, GA	
3		Andrew Cencini, 456 Elm St, Houston, TX	
4		Jan Kotas, 789 Oak Ave, Vancouver, BC	
5		Mariya Sergienko, 1234 Hill Blvd, Los Angeles, CA	
6		Steven Thorpe, 6789 Biscayne Ln, Miami, FL	
7		Michael Neipper, 135 Ave K, Calgary, AB	
8		Robert Zare, 79 B Central Ave, Minneapolis, MN	
9		Laura Giussani, 246 Park Ave, Dallas, TX	
10		Anne Hellung-Larsen, 468 Spuce Dr, Toronto, ON	
11		Anna Bedecs, 689 Pine Ave, Portland, OR	
12		Antonio Gratacos Solsona, 297 Vista Dr, Denver, CO	
13		Thomas Axen, 638 Golden Peak, Salt Lake City, UT	
14			

Figure 1 - Sample Data For Manipulating Text

Flash Fill

Flash Fill is a formula-free alternative to Text To Columns. Flash Fill utilizes patterns in your data and manipulates the data based on those patterns. Therefore, you will specify the patterns Flash Fill should use when modifying text, and Flash Fill will do the heavy lifting for you. To illustrate, consider the data set pictured above in Figure 1. To use Flash Fill to split the data into multiple columns, type in a pattern similar to that shown in **Figure 2**.

	A	B	C	D	E	F
1			Name	Address	City	State/Province
2		Nancy Freehafer, 123 Main St, Atlanta, GA	Nancy Freehafer	123 Main St	Atlanta	GA
3		Andrew Cencini, 456 Elm St, Houston, TX				
4		Jan Kotas, 789 Oak Ave, Vancouver, BC				
5		Mariya Sergienko, 1234 Hill Blvd, Los Angeles, CA				
6		Steven Thorpe, 6789 Biscayne Ln, Miami, FL				
7		Michael Neipper, 135 Ave K, Calgary, AB				
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11		Anna Bedecs, 689 Pine Ave, Portland, OR				
12		Antonio Gratacos Solsona, 297 Vista Dr, Denver, CO				
13		Thomas Axen, 638 Golden Peak, Salt Lake City, UT				

Figure 2 - Pattern Established For Flash Fill

With your data identified and a pattern established, click in cell **C3**, and then select **Flash Fill** from the **Data Tools** group on the Ribbon's **Data** tab. Upon doing so, Flash Fill will attempt to fill the remaining rows with the appropriate data for the selected column, as shown in **Figure 3**.

	A	B	C	D	E	F
1			Name	Address	City	State/Province
2		Nancy Freehafer, 123 Main St, Atlanta, GA	Nancy Freehafer	123 Main St	Atlanta	GA
3		Andrew Cencini, 456 Elm St, Houston, TX	Andrew Cencini			
4		Jan Kotas, 789 Oak Ave, Vancouver, BC	Jan Kotas			
5		Mariya Sergienko, 1234 Hill Blvd, Los Angeles, CA	Mariya Sergienko			
6		Steven Thorpe, 6789 Biscayne Ln, Miami, FL	Steven Thorpe			
7		Michael Neipper, 135 Ave K, Calgary, AB	Michael Neipper			
8		Robert Zare, 79 B Central Ave, Minneapolis, MN	Robert Zare			
9		Laura Giussani, 246 Park Ave, Dallas, TX	Laura Giussani			
10		Anne Hellung-Larsen, 468 Spuce Dr, Toronto, ON	Anne Hellung-Larsen			
11		Anna Bedecs, 689 Pine Ave, Portland, OR	Anna Bedecs			
12		Antonio Gratacos Solsona, 297 Vista Dr, Denver, CO	Antonio Gratacos Solsona			
13		Thomas Axen, 638 Golden Peak, Salt Lake City, UT	Thomas Axen			



Figure 3 - Using Flash Fill To Extract And Insert Data

Next, perform the steps above on each additional column where you need to populate data. Flash Fill will attempt to use its’ pattern recognition capabilities to fill the data. However, in some cases, Flash Fill may be unable to insert data based on specified patterns. In such cases, enter correct data in the empty cell, and Flash Fill will attempt to “learn” from the new data and fill the cells. Also, note that you can use Flash Fill to join cells together. The process for doing so is the same as for splitting data – specify your data’s pattern and then use Flash Fill to concatenate the data.

Formula-Based Approaches For Manipulating Data

Many users will prefer the formula-free approaches discussed above. However, these approaches have one potential shortcoming – the results do not update as your data changes. Thus, if your data is subject to change, you want to use a formula-based approach to ensure that your results are always current.

“Legacy” functions such as **LEFT**, **RIGHT**, and **MID** can all be helpful when attempting to manipulate text via formula. However, a newer breed of functions may be easier for some to use and provide more power. Included in these functions are **TEXTBEFORE**, **TEXTAFTER**, and **TEXTSPLIT**. We will use **TEXTBEFORE** to illustrate these functions’ power and ease of use.

Examine the highlighted **TEXTBEFORE** formulas shown below in **Figure 4**. The formula’s simplicity is striking – it extracts all the text before the string’s first comma, working from left to right.

	A	B
1		
2	Nancy Freehafer	Nancy Freehafer, 123 Main St, Atlanta, GA
3	Andrew Cencini	Andrew Cencini, 456 Elm St, Houston, TX
4	Jan Kotas	Jan Kotas, 789 Oak Ave, Vancouver, BC
5	Mariya Sergienko	Mariya Sergienko, 1234 Hill Blvd, Los Angeles, CA
6	Steven Thorpe	Steven Thorpe, 6789 Biscayne Ln, Miami, FL
7	Michael Neipper	Michael Neipper, 135 Ave K, Calgary, AB
8	Robert Zare	Robert Zare, 79 B Central Ave, Minneapolis, MN
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12	Antonio Gratacos Solsona	Antonio Gratacos Solsona, 297 Vista Dr, Denver, CO
13	Thomas Axen	Thomas Axen, 638 Golden Peak, Salt Lake City, UT
14		

Figure 4 - Illustrating Excel's TEXTBEFORE Function

If, however, you wanted the formulas to extract only the city and state/province, you could use the following formula to complete the task:

=TEXTAFTER(B2,"," ,2)

The formula illustrated above extracts all the text appearing after the second comma in the string.

And finally, another way of extracting the first and last name would be to use the following formula based on Excel's **TEXTSPLIT** function.

=TEXTSPLIT(B2:B13,",")

Of course, any of these formula-based approaches will update results dynamically as the source data changes.

Managing Data Using Power Query

Excel's **Power Query** feature is one of the most significant innovations and additions made to Excel throughout the application's history. Power Query serves two primary purposes. First, Power Query easily links external data into Excel. Second, Power Query provides options for you to create transformations in the linked data to make the data more useful to you. And, because Power Query links the data – instead of copying and pasting it – whenever you refresh a query, all your transformations update. These two features collectively mean that Power Query helps you automate many of your Excel-based reporting and analytical tasks.

If you use Excel 2016 or newer, the functionality provided by Power Query is available in the **Get & Transform** group on the **Data** tab of the Ribbon. Microsoft supports Power Query in all versions

of Excel 2016 and newer. Further, it does not matter whether you run a 32-bit or a 64-bit version of Excel; you have access to Power Query.

One of the most crucial advantages of Power Query is that it facilitates queries from many data sources, including most of the primary data sources in use by accounting and financial professionals. In addition, you can query data from “non-standard” data sources such as PDF documents, Exchange, and Salesforce. Further, and we stress this point, Power Query provides robust capabilities to extract and link data from each source. These capabilities mean that even users with limited technical skills can extract data from their accounting, ERP, CRM, practice management, or other line-of-business databases into Excel for reporting and data analysis quickly and with relative ease. Moreover, Power Query’s capabilities allow you to automate transforming – cleaning up – your data as part of the query process.

To transform the source data so that the query results are acceptable, click the **Transform Data** button near the window’s lower right corner to open the **Query Editor** shown in **Figure 5**. The Query Editor provides tools to transform the data before executing the query to align the results with expectations. Examples of some of the transformations you can make with the Query Editor include adding and deleting columns of data, changing data types, merging columns, splitting columns, renaming columns, transposing data, and adding user-defined calculations.

As you add transformations using the Query Editor, Power Query stores these transformations. The next time you use or refresh your query, the stored transformations apply automatically to your data, relieving you of the task of manually re-performing your modifications. In the example shown, the user is transforming the **Zipcode** field to reformat it as text so that US postal codes with leading zeros display five characters. Without such a transformation, these codes would show only four characters. Upon completing this and any additional modifications, click the Query Editor’s **Home** tab and **Close & Load** to load the transformed data to Excel. **Figure 6** illustrates the completed data query, including the transformation of the Zipcode field.

Notably, with the transformations saved as part of your query, Excel applies them automatically each time you refresh your data. Additionally, recognize that using transformations is not limited to text files. Instead, you can transform any data you link into Excel with Power Query.

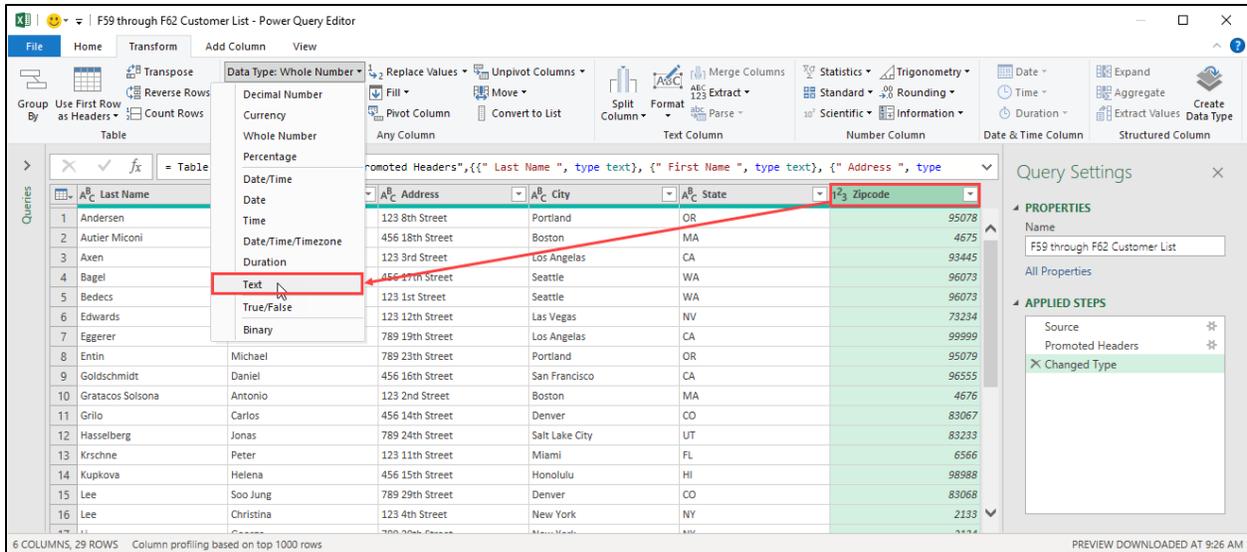


Figure 5 - Using Power Query to Transform Data Before Completing the Query

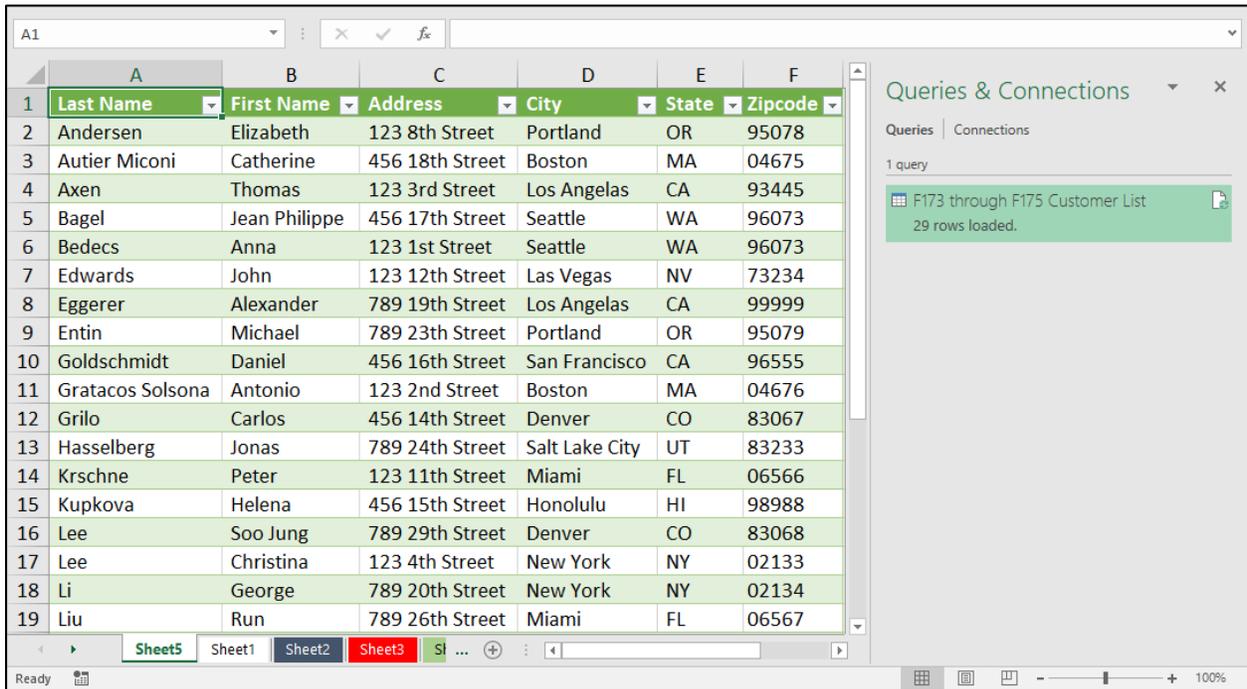


Figure 6 - Completed Text Query, Including Data Transformation

Building PivotTables The Easy Way

Many Excel users believe PivotTables are the application's singular most powerful feature. With PivotTables, we can summarize potentially vast volumes of data into clear, concise reports free of formulas. In this formula-free environment, we can work faster and with far less chance of errors. Thus, using PivotTables is widely considered a best practice for almost all Excel users. However, PivotTables can be intimidating to many users. Fortunately, Excel's Recommended

PivotTables feature provides an easy way for all users – regardless of knowledge or skill level – to take advantage of PivotTables.

One way to create the desired PivotTable is to use Excel’s **Recommended PivotTable** feature. With Recommended PivotTables, you can click anywhere in your data range and choose **Recommended PivotTables** from the Ribbon’s **Insert** tab. Upon doing so, Excel creates your PivotTable for you, even offering several arrangements for your report from which you can choose. This process can be highly effective when you need to create a simple PivotTable or if you are new to working with PivotTables.

Row Labels	Sum of Amount
Adams & Jefferson, CPAs	347,431.49
City Utilities	25,505.51
Farmer's Produce	171,917.97
Fresh Meats, Inc.	116,473.39
Gamble Insurance	5,725.66
RSI, Inc.	21,736.29
Washington Properties, LLC	28,800.00
Wholesale Beverage	60,434.88
Grand Total	778,025.19

Figure 7 - PivotTable Created Using Recommended PivotTables

Figure 7 shows the results of our efforts. The PivotTable summarizes the raw data into a *formula-free* report that summarizes expenditures by vendor. Further, all PivotTable options remain “on the table.” For example, you can add additional calculations, apply formats to the report, and even build a PivotChart from the underlying PivotTable. In other words, even though we created the PivotTable using the Recommended PivotTable approach, Excel does not limit us in any way as to how we can work with the report.

Optimizing Results With Solver

Excel’s **Solver** add-in allows you to perform calculations you may have thought impossible in Excel. Specifically, Solver enables you to create models that identify optimal solutions based on the specified inputs and constraints. For example, you could use Solver in budgeting environments, resource calculations, and calculating optimal capital structures.

To illustrate Solver, consider the following example. Suppose you have a customer or client who sent a payment to you for \$14,663.10, but they did not provide a remittance advice. Further, suppose the customer has forty-two outstanding invoices with your company, meaning trying to guess which combination of invoices totals \$14,663.10 would be very time-consuming, at best. Instead, you could create a Solver model to identify which combination(s) of invoices sum to \$14,663.10.

To build your model, perform the following steps.

1. List all the invoice numbers in a single column in Excel.
2. Enter each outstanding invoice amount in an adjacent column.
3. Enter "0" in all the cells in another adjoining column.
4. Add a formula in another adjacent column multiplying the invoice amount by the cell containing the zeroes.
5. Create a cell to rec the payment amount your customer sent you.
6. Also, create a cell that sums all the amounts of the values in the column created in Step 4 above.

Upon completing the steps above, your spreadsheet should resemble that shown in **Figure 8**.

	A	B	C	D
1	+			
2	Amount Of Payment Received	\$ 14,663.10		
3	Amount Of Payments Identified	\$ -		
4				
5	Invoice Number	Invoice Amount	Multiplier	Amount
6	5347	\$ 1,128.50	0	\$ -
7	5476	\$ 673.40	0	\$ -
44	10374	\$ 603.10	0	\$ -
45	10383	\$ 3,096.90	0	\$ -
46	10862	\$ 2,978.50	0	\$ -
47	10869	\$ 3,404.00	0	\$ -
48				

Figure 8 - Fundamental Structure Of A Solver Model

Click **Solver** on the Ribbon's **Data** tab. Note, if you do not see Solver on that tab, the most likely cause is that you need to activate the add-in. Upon clicking Solver, Excel opens the Solver Parameters dialog box pictured in

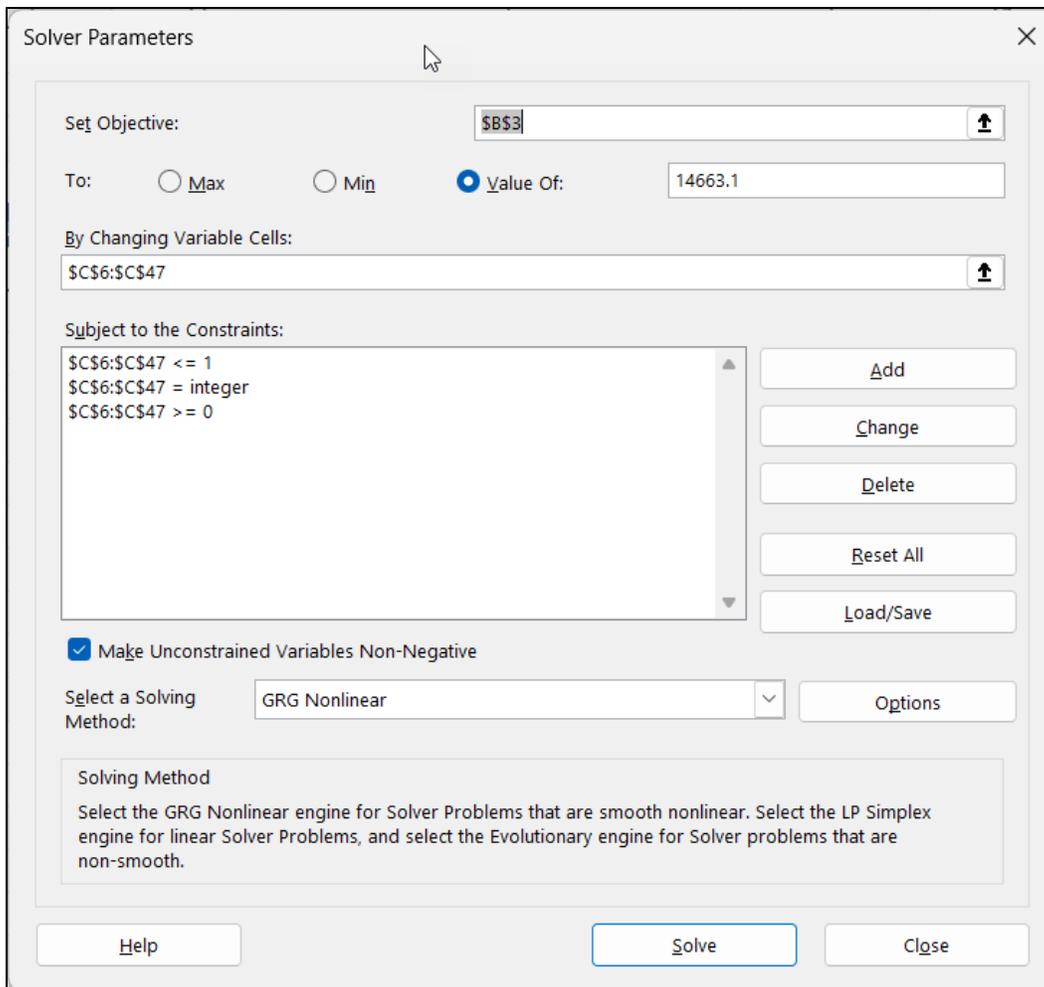


Figure 9 - Excel's Solver Parameters Dialog Box

Near the top of the dialog box, indicate that you want to set cell B3 equal to the specific value of \$14,663.10 by changing cells C6 through C47. Further, specify three constraints, as shown below.

1. Cells C6 through C47 must remain less than or equal to 1.
2. Cells C6 through C47 must remain greater than or equal to 0.
3. Cells C6 through C47 must be integers.

Upon indicating the constraints and clicking **Solve**, Excel identifies the solution shown in **Figure 10**, with some rows hidden for presentation purposes. In this case, the combination of the invoice amounts for 8033, 8340, 8449, 8509, 9373, 9433, and 9473 is the only combination that adds to \$14,663.10.

	A	B	C	D
1				
2	Amount Of Payment Received	\$ 14,663.10		
3	Amount Of Payments Identified	\$ 14,663.10		
4				
5	Invoice Number	Invoice Amount	Multiplier	Amount
6	5347	\$ 1,128.50	0	\$ -
24	8033	\$ 3,492.80	1	\$3,492.80
25	8105	\$ 1,287.60	0	\$ -
26	8243	\$ 2,364.30	0	\$ -
27	8340	\$ 2,038.70	1	\$2,038.70
28	8449	\$ 196.10	1	\$ 196.10
29	8509	\$ 2,493.80	1	\$2,493.80
33	9077	\$ 814.00	0	\$ -
34	9373	\$ 3,378.10	1	\$3,378.10
35	9433	\$ 155.40	1	\$ 155.40
36	9473	\$ 2,908.20	1	\$2,908.20
47	10869	\$ 3,404.00	0	\$ -

Figure 10 - Identified Solution For Solver Example

You could save your Solver solution in Excel's **Scenario Manager** if desired. Scenario Manager is helpful when you want to save multiple *virtual* versions of the same workbook instead of saving numerous *physical* copies of each workbook. You can use Scenario Manager to save assumptions and inputs associated with each workbook version. For example, in an Excel-based budgeting environment, you could save *Best Case*, *Worst Case*, and *Most Likely Case* scenarios representing the inputs associated with each budget version. Then, to switch from the workbook's Best Case version to its Worst Case version, you would not need open a different workbook or even a different worksheet. Instead, you would use Scenario Manager to insert all the necessary assumptions for the version you wish to view.

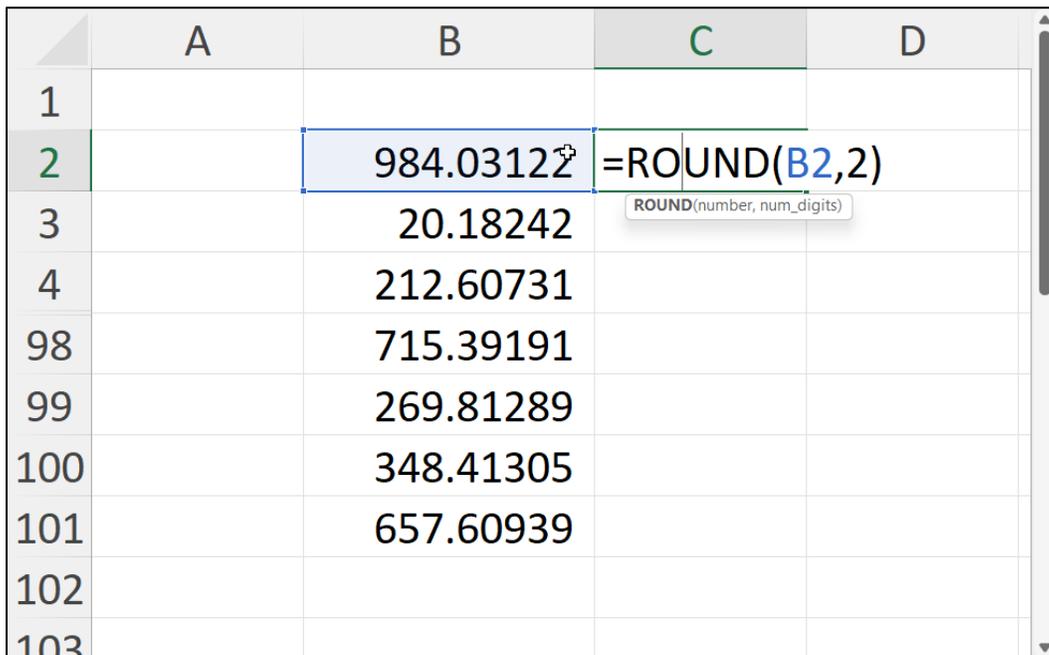
Creating Dynamic Array Formulas

The concept of *dynamic array* formulas first appeared in September 2018 and began to move mainstream for Microsoft 365 subscribers with the July 2019 release. Additionally, perpetual license users running Excel 2021 can also take advantage of dynamic arrays. Yet, regardless of the version in use, most business professionals do not use this feature or the related new functions appearing in the past five years. Those who master dynamic arrays will unlock tremendous productivity and likely work with greater degrees of accuracy in Excel. Bluntly, those who don't will fall behind.

Comparing Two Types Of Array Formulas

Generally speaking, a dynamic array formula can take action on multiple cells simultaneously by “spilling” results to multiple destination cells. Further – and very importantly, every Excel function can now generate dynamic arrays. Dynamic arrays stand in contrast to *legacy array* formulas which require(d) users to enter a **CTRL+SHIFT+ENTER** keyboard sequence to enter a legacy array formula in Excel. Further, legacy array formulas offer no option for spilling results to multiple cells. Thus, if you want to use legacy array formulas on, for example, 1,000 rows of data, you must copy that formula 1,000 times. However, with dynamic arrays, you need only to enter the formula into one cell, and it will take action on the 1,000 rows you desire.

To illustrate, consider the dataset pictured in the Excel worksheet shown in **Figure 11**. We have 100 rows of data that we would like to round to 2 decimal places. In a legacy approach, we would likely create a formula using the ROUND function and copy that formula to all 100 rows in the worksheet.



	A	B	C	D
1				
2		984.03122	=ROUND(B2,2)	
3		20.18242		
4		212.60731		
98		715.39191		
99		269.81289		
100		348.41305		
101		657.60939		
102				
103				

Figure 11 - Legacy Approach To Creating A Formula

On the other hand, we could take advantage of the functionality offered by dynamic arrays to use a more efficient approach. Specifically, consider the example pictured in **Figure 12**. In it, we enter only one formula to round all the data in cells B2 through B101 to two decimal places. With this approach, we reduce the number of formulas in the workbook, which, in turn, should lead to improved spreadsheet performance. Further, this approach should also lead to reduced opportunities for errors simply because the number of formulas in a given workbook should decline. Couple these benefits with other new functions – such as **SORT** and **FILTER** – and it becomes clear that dynamic array formulas should be the new spreadsheet standard.

	A	B	C	D
1				
2		984.03122	=round(B2:B101,2) ^I	
3		20.18242	ROUND(number, num_digits)	
4		212.60731		
98		715.39191		
99		269.81289		
100		348.41305		
101		657.60939		

Figure 12 - Simple Example Of Dynamic Arrays And Formula Reduction

Generating An Audit Trail

Many Excel users would like to have some form of an audit trail generated by the application. With such a report, we could answer the questions of *who* did *what* and *when* they did it in a given workbook. Fortunately, Excel offers such a feature and has provided this feature for many years. The **Highlight Changes** tool on the Ribbon's **Review** tab generates an audit trail in Excel.

First, however, you may need to customize the Ribbon to access Highlight Changes. If you do not see Highlight Changes on the Ribbon's Review tab, right-click the Ribbon and select **Customize Ribbon**. Next, select **All Commands** in the **Choose commands from** section. Finally, scroll through the options, select **Highlight Changes**, and click **Add** to place the feature in the desired tab.

With the feature accessible, you can enable it by performing the following steps.

1. Click **Highlight Changes** on the Ribbon's **Review** tab.
2. In the Highlight Changes dialog box, check the box to **Track changes while editing. This also shared your workbook.**
3. Next, establish any desired **When**, **Who**, and **Where** options. These options allow you to fine-tune the change tracking to your specific needs. The "When" options allow you to track changes for particular periods. The "Who" options allow you to track changes at the user level. Further, the "Where" options allow you to specify the cells for which you want to track changes. Additionally, choose whether you want Excel to highlight changed cells in the workbook as users make the changes.

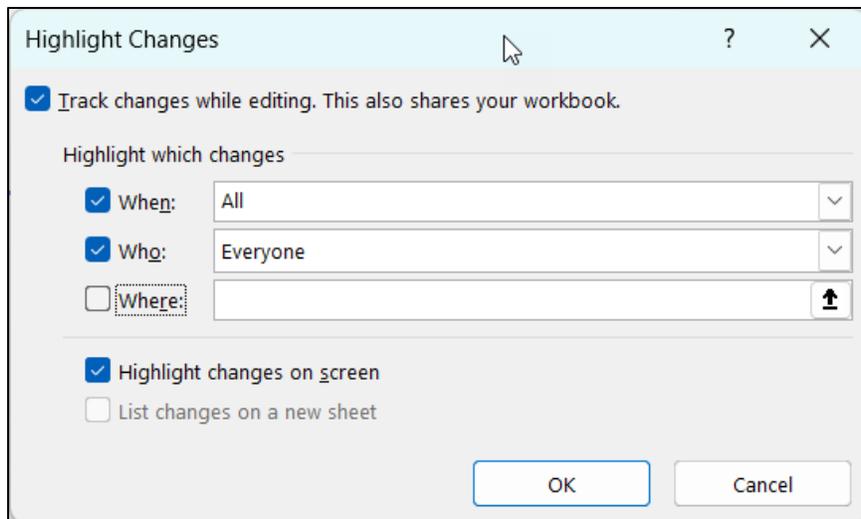


Figure 13 - Excel's Highlight Changes Feature

4. Click **OK** to save your specifications and enable the feature.

Note that in the dialog box pictured in **Figure 13**, the **Highlight changes on screen option** is enabled. With this option active, you will see a triangular tickmark near the upper left corner of any modified cell. Further, if you hover your mouse over the changed cell, you will see documentation of who altered the cell's data, including the date and time the change occurred. See **Figure 14** for an example of change tracking in real-time.

	A	B	C	D	E	F
1	<h1>Simple loan calculator</h1>					
2						
3		Loan amount	\$	6,000.00	<div style="border: 1px solid black; background-color: #ffffcc; padding: 5px;"> Tommy Stephens, 2/21/2023 9:38 AM: Changed cell D4 from '5.50%' to '5.25%'. </div>	
4		Annual interest rate		5.25%		
5		Loan period in years		4		
6		Start date of loan		2/21/2023		
7						
8		Monthly payment	\$	138.86		
9		Number of payments		48		
10		Total interest	\$	665.10		
11		Total cost of loan	\$	6,665.10		

Figure 14 - Highlighting Changed Cells In Real-Time

One final feature of the audit trail is noteworthy. With change tracking enabled, you can access the Highlight Changes dialog box and select the option labeled **List changes on a new sheet**. Upon doing so, Excel creates a detailed report showing all the workbook changes, as shown in **Figure 15**. Importantly, you can filter this report based on any of the columns. Accordingly, this report could be quite helpful when attempting to identify all the changes made by a user, date, amount, or combination of characteristics.

	A	B	C	D	E	F	G	H	I	J	K
	Action Numb	Da	Tir	Wl	Chan	She	Ran	New Vali	Old Vali	Action Ty	Losing Acti
2	1	2/21/2023	9:47 AM	Tommy Stephens	Cell Change	Loan calculator	D3	\$6,000.00	\$5,000.00		
3	2	2/21/2023	9:47 AM	Tommy Stephens	Cell Change	Loan calculator	D4	5.25%	5.50%		
4	3	2/21/2023	9:47 AM	Tommy Stephens	Cell Change	Loan calculator	D5	4	5		
5	4	2/21/2023	9:48 AM	Tommy Stephens	Cell Change	Loan calculator	D4	6.50%	5.25%		
6	5	2/21/2023	9:48 AM	Tommy Stephens	Cell Change	Loan calculator	D5	7	4		
7											
8		9:48 AM.									
9											

Figure 15 - Excel's "Audit Trail" Report

Note that when using the Highlight Changes feature, you must disable the **Remove personal information from file properties on save** privacy option. You can make this adjustment in the **Privacy Options** group of Excel's **Trust Center**.

Analyzing Data Easily In Excel

Business professionals often need to analyze data to look for trends, anomalies, outliers, and other data points of interest. This form of analysis could be helpful in planning and forecasting, identifying fraudulent or otherwise suspicious transactions, and many other forms of business analysis. Sometimes simple charts – such as line charts – might be helpful. But in other cases, you may need a more sophisticated tool. Consider using Excel's **Analyze Data** feature (formerly known as **Ideas**) in such cases.

With Analyze Data, you can click the data set to analyze and then click **Analyze Data** on the **Home** tab of Excel's Ribbon. Then, Excel analyzes your data to identify trends, patterns, anomalies, and other items of interest. However, for best results, pay attention to the following recommendations.

1. Because Analyze Data works best with tables, you should convert the data range you wish to analyze to a table before running the tool. You can do this by clicking anywhere in the data range and executing a CTRL + T keyboard shortcut.
2. Ensure that you have good, descriptive titles in each column of your data. Note that double rows of headers and merged cells can prove problematic.

3. If your dataset is rather complex, you can use Power Query to transform it so Analyze Data can work with it.
4. Understand that Analyze Data interprets dates formatted as strings to be text. Therefore, you should convert these entries to “real” dates in Excel before running your analysis.
5. If your workbook is in Excel’s legacy format (.xls), Analyze Data cannot process the data.

Using Analyze Data

Assuming none of the five items above exist, you should be able to use Analyze Data easily. To do so, click the dataset you want to analyze and then click **Analyze Data** on the Ribbon’s **Home** tab. Upon doing so, you will see results like those shown in Error! Reference source not found. Notice the PivotCharts on the right side of the graphic below. If desired, you can click the **Insert Chart** button near the lower left corner of each chart to insert them into your workbook. If you do not insert the PivotCharts into the workbook, they will disappear when you close the Analyze Data pane.

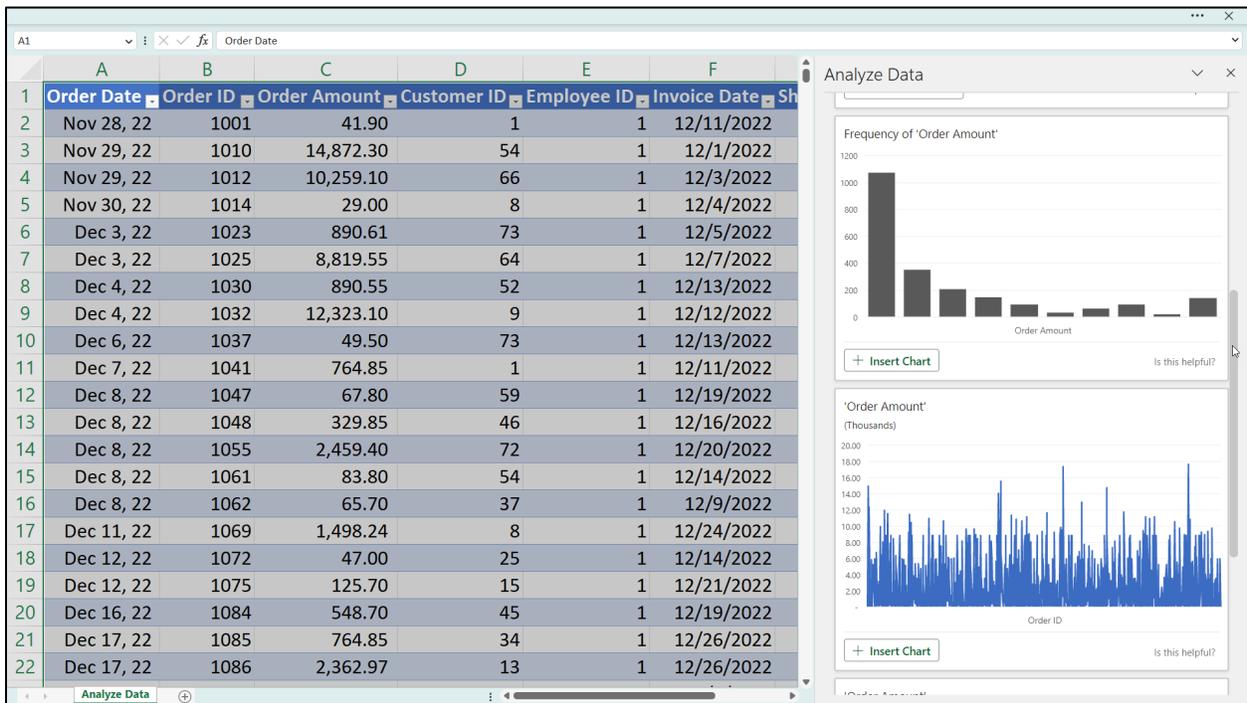


Figure 16 - Results From Using The Analyze Data Feature

One overlooked feature available with Analyze Data is your option to ask natural language questions and view system-generated insights. For example, clicking **Insights for ‘Order Amount’** near the upper right corner of the Excel window generates the analysis shown in **Figure 17**. That analysis discloses that a sales team member was responsible for five transactions outside the norm and likely required follow-up.

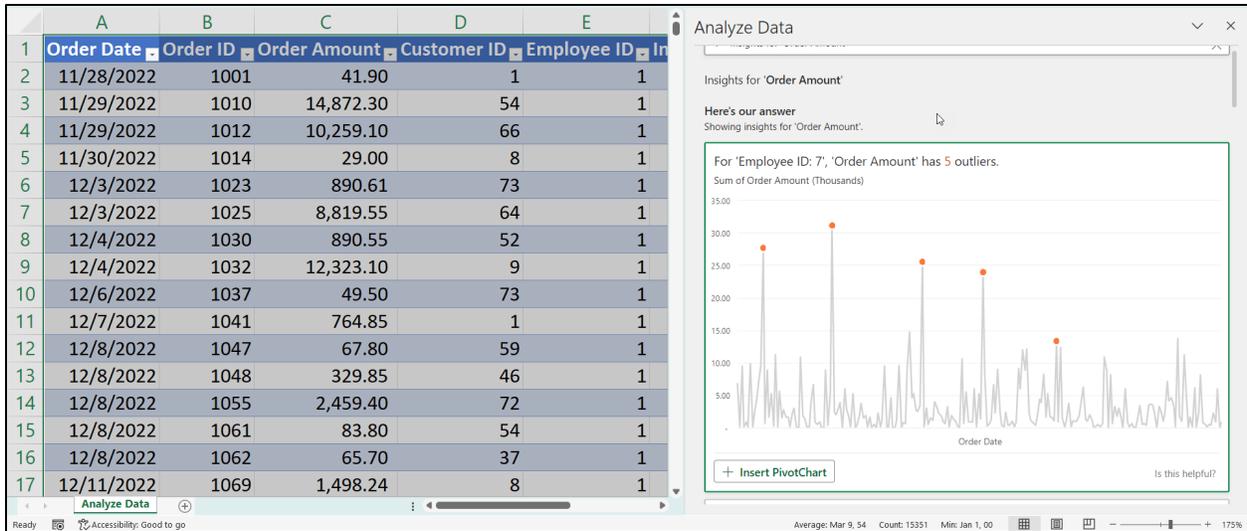


Figure 17 - Additional Insights Regarding A Dataset

For those seeking to streamline data analysis in Excel, the Analyze Data feature is a winner!

Forecasting The Future Easily With Excel

For those who engage in budgeting and forecasting activities or other activities where predicting with some degree of accuracy what will happen in the future is necessary, the **FORECAST.ETS** function added beginning with Excel 2016 is noteworthy. The original **FORECAST** function provided only linear forecasting capabilities. However, with **FORECAST.ETS**, you can generate forecasts with exponential smoothing, as pictured in **Figure 18**.

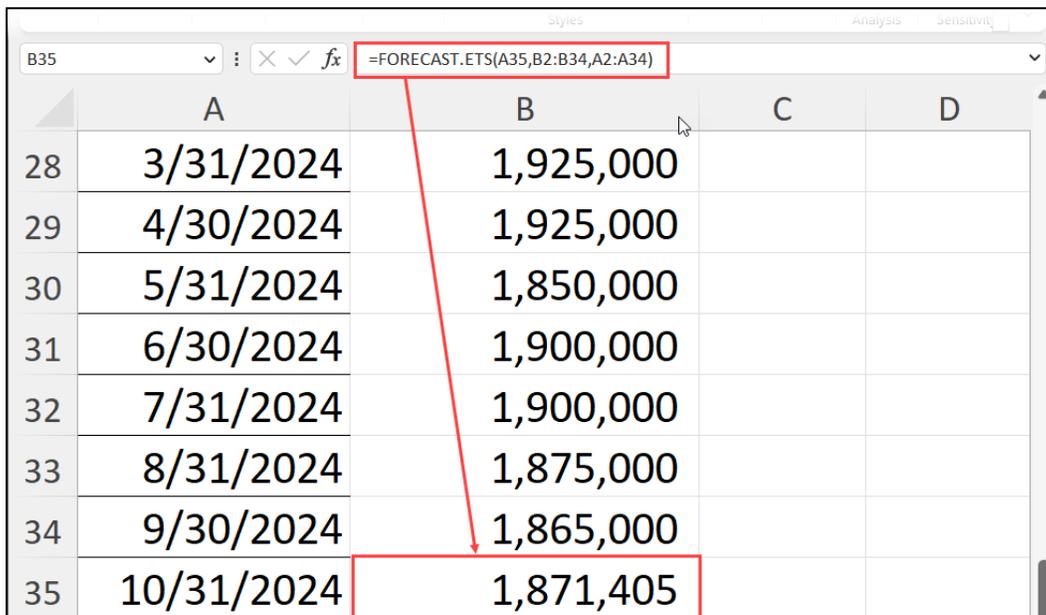


Figure 18 - Using FORECAST.ETS in Excel

Additionally, you can use the new **Forecast Sheet** option on the **Ribbon's Data tab** to create a visualization of your forecast and modify parameters, including seasonality.

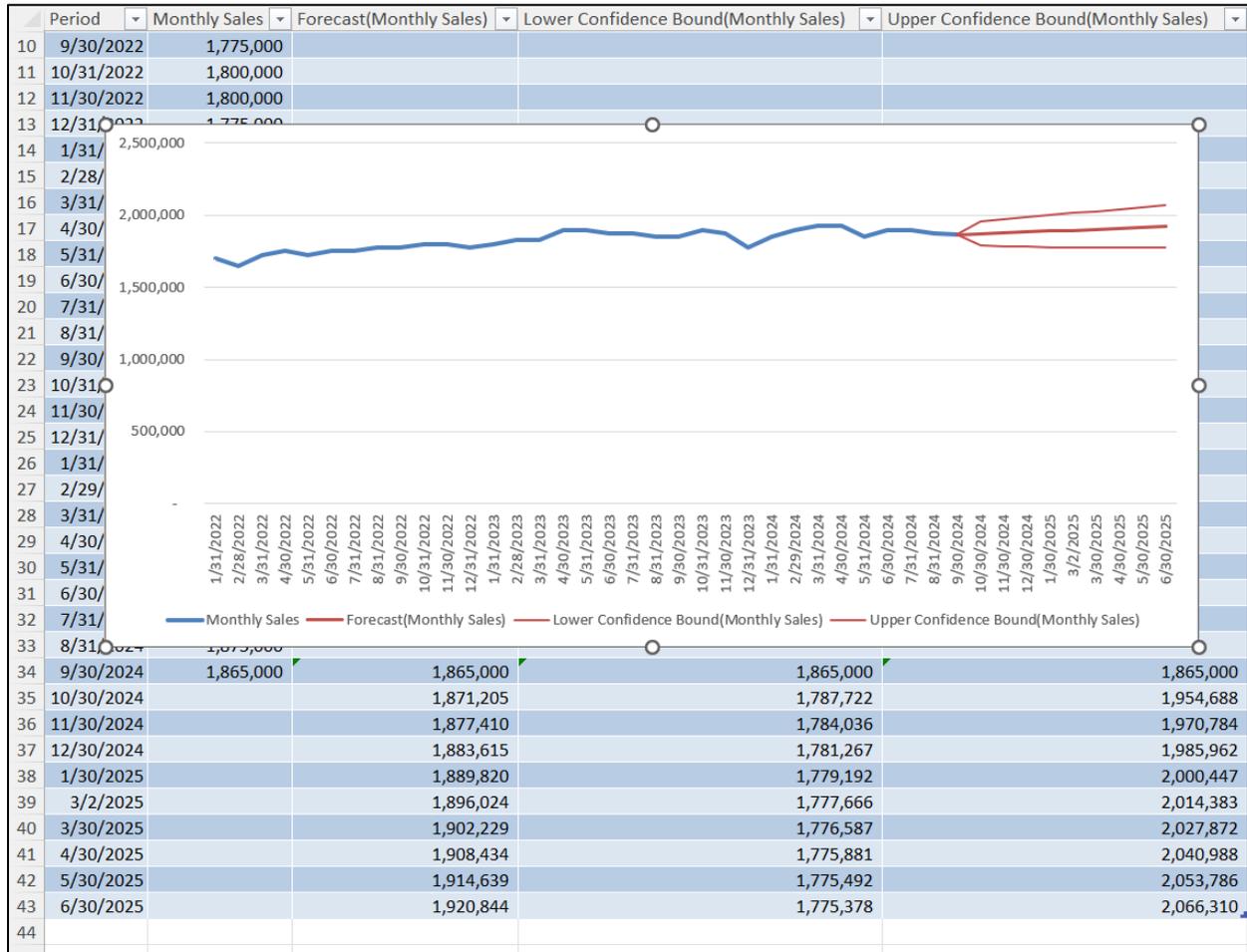


Figure 19 - Completed Forecast Sheet Generated in Excel

In addition to Forecast Sheet and Forecast.ETS, you can still access numerous Excel forecasting functions and regression analysis capabilities. For example, LINEST, LOGEST, and FORECAST are all examples of forecasting functions that might be appropriate for some users. So, for most, the forecasting options in Excel are more than adequate.

Importing Data From Pictures And PDFs

Business professionals often come across non-Excel documents containing numerical data they need in Excel. Unfortunately, most instinctively turn to the tried-and-true process of re-keying the data into Excel – a tedious, time-consuming, and error-prone task. That need not be the case!

Previously, we discussed Excel's Power Query tool as a way of cleaning up, transforming data, and manipulating data feeding into an Excel workbook. An often overlooked feature associated

with Power Query is the tool's ability to import data from PDF documents and pictures, eliminating manual data entry in many cases.

Importing Data From A PDF

Consider the report pictured in **Figure 20**. It is a PDF document that contains operational data from a small chain of restaurants. We have hidden six months of data from the display for presentation purposes.

Month Ending Date	Restaurant Number	Sales	Payroll Expense
1/31/2022	101	1,172,329	215,709
1/31/2022	102	960,554	157,531
1/31/2022	103	1,169,956	180,173
1/31/2022	104	989,238	212,686
2/28/2022	101	1,170,269	227,032
2/28/2022	102	973,438	205,395
2/28/2022	103	1,116,058	179,685
2/28/2022	104	1,051,097	230,190
3/31/2022	101	1,191,158	200,115
3/31/2022	102	950,959	165,467
3/31/2022	103	1,180,638	204,250
3/31/2022	104	1,189,884	188,002
10/31/2022	101	1,071,390	162,851
10/31/2022	102	1,095,797	168,753
10/31/2022	103	938,998	205,641
10/31/2022	104	1,105,036	212,167

Figure 20 - Sample Sales Report for Importing into Excel Using Power Query

Suppose you need the data from the import available to analyze operations and results in Excel. However, you do not want to spend time manually entering 160 cells into a workbook! Fortunately, you don't have to because Power Query can extract the data from the PDF document and place it into the spreadsheet.

In Excel, click **Data** from the Ribbon's Home tab to take advantage of this feature, followed by **Get Data, From File, and From PDF**. Then, select the PDF document containing the data you need to extract in the dialog box and click **Import** to open Power Query's **Navigator**, shown in **Figure 21**.

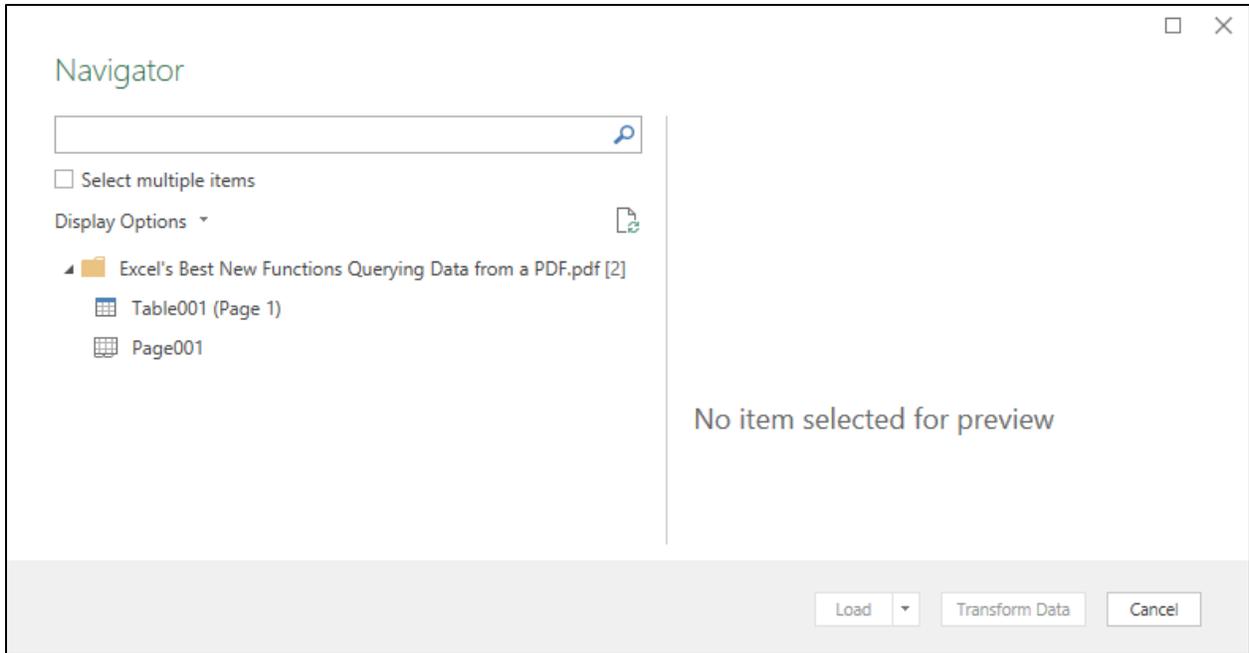


Figure 21 - Opening Power Query's Navigator

Next, choose the table or range you wish to import and select the **Load To...** option, as shown in **Figure 22**.

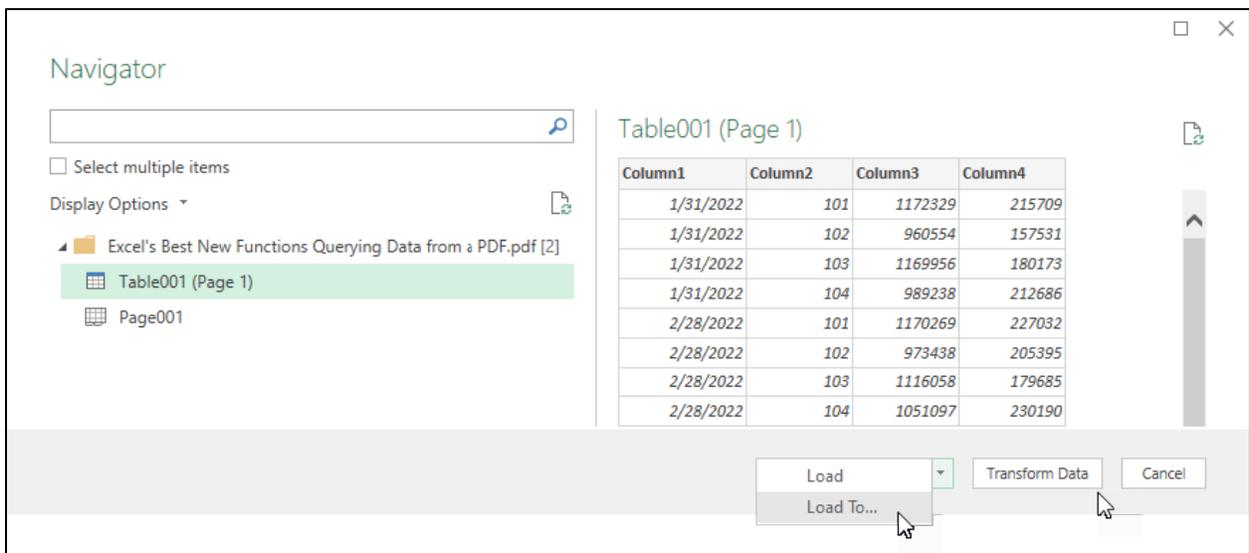


Figure 22 - Previewing the Data to Load into Excel

In the **Import Data** dialog box pictured in **Figure 23**, choose to import the data into a **Table** and place the table in a **New worksheet**.

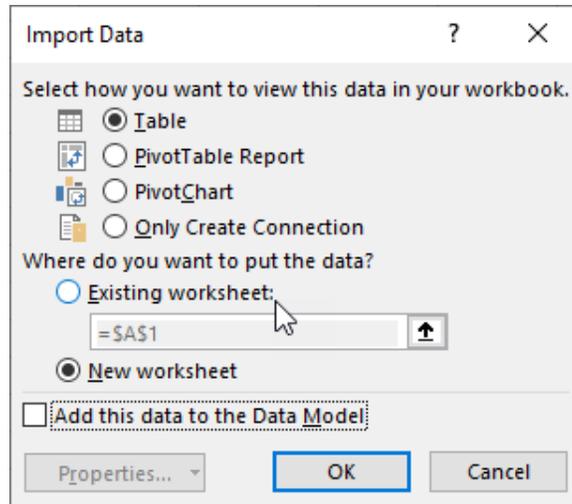


Figure 23 - Excel's Import Data Dialog Box

Figure 24 presents the results of the query. Power Query's ability to extract and import data into Excel from PDF documents should benefit almost all business professionals by reducing time spent on unnecessary data entry.

	A	B	C	D
1	Column1	Column2	Column3	Column4
2	1/31/2022	101	1172329	215709
3	1/31/2022	102	960554	157531
4	1/31/2022	103	1169956	180173
5	1/31/2022	104	989238	212686
6	2/28/2022	101	1170269	227032
7	2/28/2022	102	973438	205395
8	2/28/2022	103	1116058	179685
9	2/28/2022	104	1051097	230190
10	3/31/2022	101	1191158	200115

Figure 24 - Results of Querying a PDF's Data into Excel Using Power Query

Importing Data From A Picture

Continuing with the previous example, suppose someone handed us a sheet of paper with the same numbers as in the last illustration. Further, assume we were away from the office and had no scanner available to use. In this case, we could use a smartphone to snap a picture of the numerical data on the paper and use Power Query's capability to extract data from the image.

Upon taking a picture of your data and saving it to your computer, open the file that contains the image. Then, copy the data you want to import into Excel to the Windows Clipboard. Next, click **From Picture** followed by **From Clipboard** on the Ribbon's **Data** tab. This action will take you to the preview feature shown in **Figure 25**. Verify that the data is correct and, assuming so, click **Insert Data**.

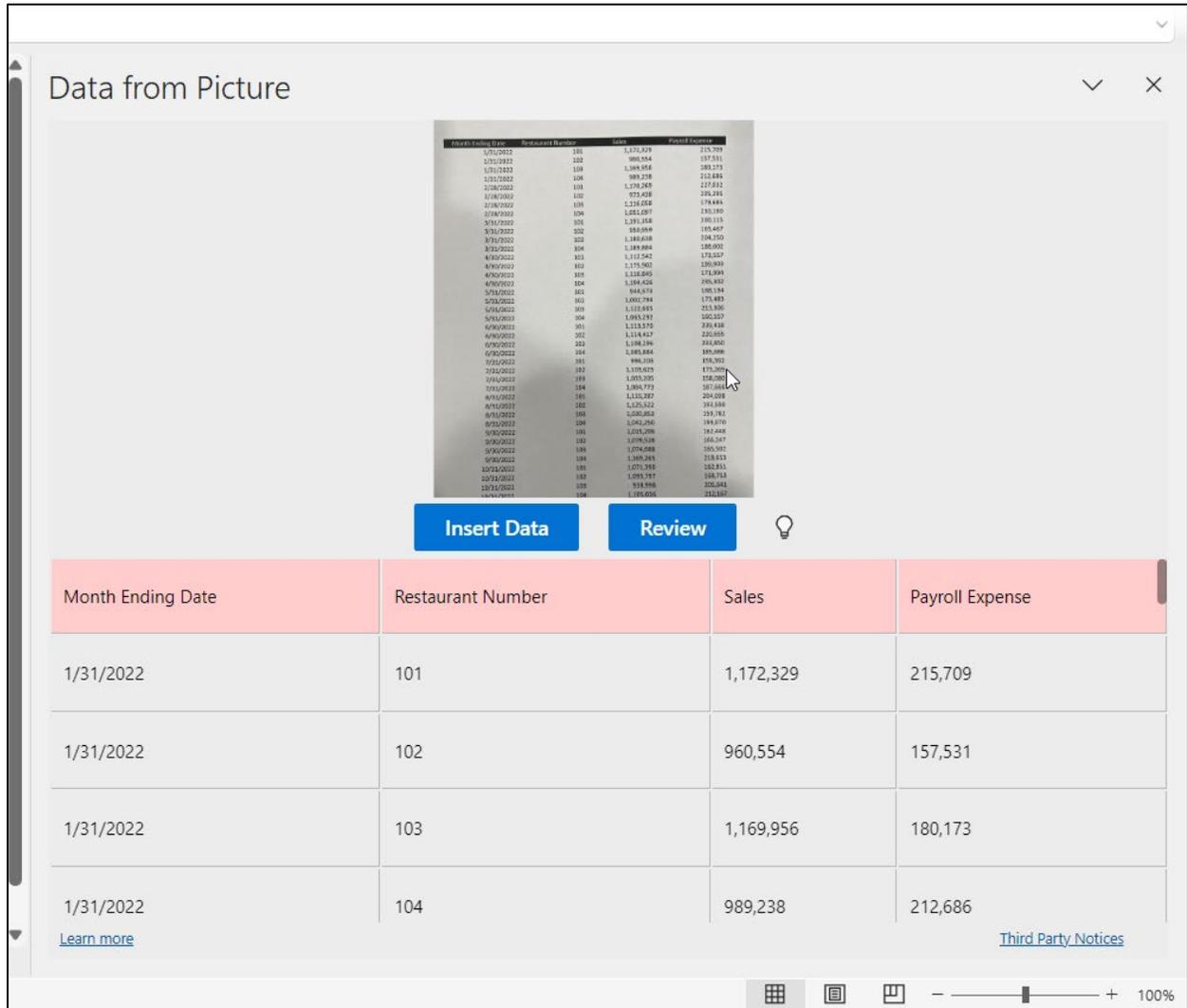


Figure 25 - Importing Data From A Picture

Upon clicking Insert Data, Excel inserts the data into the worksheet, eliminating the tedious and time-consuming task of entering the data manually. Of course, once the data resides in Excel, you can use it in any manner you see fit, including using it in formulas, PivotTables, charts, etc.

Securing Data With Sensitivity Labels

Sensitivity labels allow users to classify and protect data in Microsoft Office documents according to predefined policies. Once you “stamp” an Office document with a sensitivity label, the security

policy associated with that sensitivity label protects the document's information. Sensitivity labels are available in Microsoft 365 applications, and you must be signed in to your Microsoft 365 work or school accounts to use them.

When using Office desktop apps, you can use sensitivity labels to protect Excel, Word, PowerPoint, and Outlook data. You can also use sensitivity labels to protect the information in web-based versions of Office applications. Further, sensitivity labels are supported in Windows, macOS, iOS, and Android environments.

How To Create Sensitivity Labels

To create sensitivity labels, you must have Admin rights in your organization's Microsoft Purview compliance portal. Assuming you possess those rights, navigate to the portal. Then select **Solutions, Information protection, and Labels**. Next, select **Create a label** to begin creating a new label.

When creating a new label, the first action is to define its scope. You can configure the scope to be 1) **Items**, 2) **Groups & sites**, or 3) **Schematized data assets**. If you choose Items, you can apply your label to documents such as Word and Excel files. If you select Groups & sites, you can use the tool on Microsoft 365 groups and sites for Teams and Sharepoint. Finally, if you choose Schematized data assets as the scope, you can label content automatically based on a Purview Data Map.

After selecting the label's scope, you can specify its specific protection options. For example, you can choose from among the following options.

- **Encrypt.** If you choose this option, the sensitivity label encrypts emails and documents so unauthorized users cannot access them. As part of this protection scheme, you can specify which user(s) or groups can access the information and for how long.
- **Mark the content.** This selection allows you to apply watermarks, headers, footers, and similar items to your document. You can use this feature to add markings to documents but not email messages.
- **Protect content in containers such as sites and groups.** Upon selecting this option, you can protect information from access by unauthorized users. Specifically, this option prohibits unauthorized users from accessing named storage locations.
- **Apply the label automatically to files and emails, or recommend a label.** This option allows you to choose how to identify sensitive information you want to be labeled and apply the label automatically. Alternatively, you can prompt users to use a label you recommend.

- **Set the default sharing link type.** With this option, you can prevent users from oversharing documents with too many participants.

Configuring Label Scopes

As you create your policies, you will also establish **label scopes**. These scopes control two items:

1. Which label settings are configurable for that label, and
2. Where the label will be visible to other users.

Label scopes allow you to create sensitivity labels that others can apply to documents and emails; however, users cannot apply label scopes to containers. Additionally, you can create label priorities and sublabels, if necessary, to meet your specific needs.

Publishing Sensitivity Labels Via Label Policies

Upon creating your sensitivity labels, you can publish them by creating **label policies**. Upon doing so, you can begin using the labels to protect your information.

To create a sensitivity policy, choose **Solutions, Information protection**, followed by **Label policies**. Then select **Publish label** and **Create policy**. Purview will then prompt you to create your policy. Within 24 hours of publishing the policy, its label will be visible in your Office applications. To apply a specific sensitivity label to a document, click **Sensitivity** from the application's **Home** tab and choose the policy you want to use. From that point forward, the policy associated with the label will be in force.

Summarizing Sensitivity Labels

Sensitivity labels are a robust security and privacy option in Microsoft 365 environments. Unfortunately, many users remain unaware of their availability and presence. Therefore, this tool remains underutilized. However, as detailed above, starting with sensitivity labels need not be overwhelming. Consequently, you may want to consider adopting this tool soon.

Summary

Excel is anything but a new application. However, that doesn't mean that it is a stale tool. On the contrary, new features continue to emerge, and existing features continue to improve. Those who learn about and utilize key features in Excel will find their efficiency and accuracy soar. In this session, you have learned about ten "must-know" Excel features that are broadly applicable to accounting and financial professionals. Commit to investing a few minutes learning how to use these tools to be as efficient and accurate when working with Excel as possible.