Interactive Business Reporting in Microsoft Excel

A Basic Interactive Report Example

by

Paul S. White

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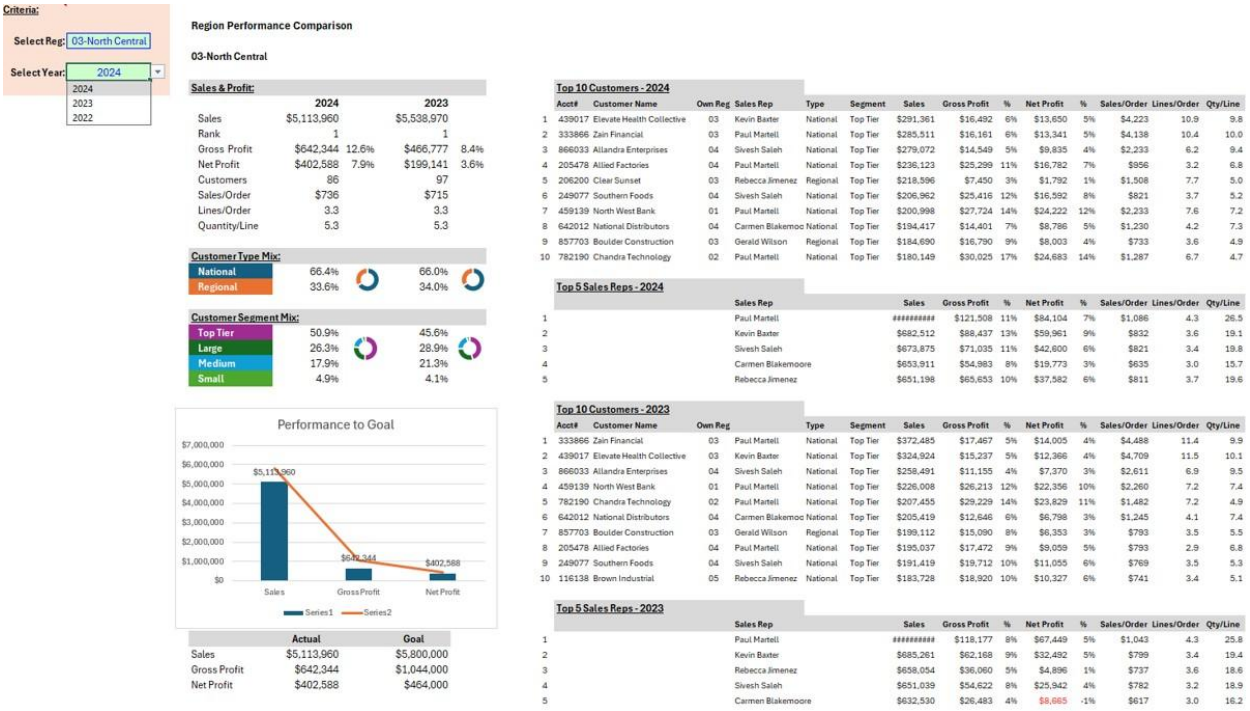
Microsoft Excel as a Reporting Tool

Like Word, Outlook, and other Microsoft Office tools, Excel is heavily used by businesses today, particularly those operating in a Windows-based environment. It has a wide variety of applications, from simple calculations and data storage to complex reports with interactive features and data visualizations. I've personally been using Excel for over 30 years and have long championed its functionality as a reporting and analytics tool. Take note that I am in no way a spokesperson for Microsoft, nor do I receive any compensation from them for promoting the product. I'm simply acknowledging the reality of Excel's ubiquitous presence in the workplace and the versatile features it offers.

The fact is, because so many people are already familiar with Excel, they can leverage it for business purposes without needing to understand all of its advanced features. Many users are comfortable with basic functions like calculations, data entry, and copy-paste operations, and for many business users, that's sufficient for their everyday needs. Additionally, if they have access to a report created in Excel—particularly one with interactive components—they can view the data, apply filters, and grab the pieces of the report that they need to add to presentations and/or other communications.

As an example of interactive features, below is a report in Excel showing regional performance for the fictional company The Paper Connection. This report includes functionality that allows the user to select the region and year from drop-down boxes in the Criteria section in the upper right. Selecting different parameters updates the data in the report to display year-over-year performance, Top 10 customers, and Top 5 sales representatives. The user doesn't need to understand the back-end functionality—they simply select the parameters they need, then they can copy and paste, or do a screen grab, if they want to incorporate part or all of the data into a presentation or other communication. (You can download this and similar reports at the link provided to explore the functionality further.)



This report relies on simple parameters, but there are many additional options for adding advanced interactivity and automation in Excel. And even if interactive features aren't required, Excel remains a powerful tool for providing information in a clear, well-formatted layout that's easy to update and simple for business users to consume and interpret.

Where Excel does have some disadvantages compared to enterprise-level reporting platforms is in data refresh automation. The report mentioned above, as currently configured, requires a manual copy-and-paste of data into multiple tabs to update the information. By contrast, Enterprise Resource Planning (ERP) tools and Business Intelligence (BI) platforms often offer automated data refreshes that can be scheduled throughout the day as needed. Once reports have been built and deployed on those platforms, no human intervention is required unless there's an error with the report or data source.

That said, for some reporting use cases, an automated refresh isn't necessary—particularly for reports that are only updated on a periodic or ad hoc basis. The manual updating process in Excel is fairly straightforward and can be easily documented, allowing other team members to quickly get up to speed on maintaining the report. It's also possible to establish data connections that query data directly into the report and enable scheduled refreshes. This approach typically requires additional coding or advanced configuration and may limit the number of individuals capable of maintaining the report, but it's certainly a viable solution for certain scenarios.

Excel does have its limitations as a reporting solution, though, which is why IT departments often prefer to standardize on ERP and BI tools that offer greater automation, data

governance, and scalability. However, Excel's flexibility, robust data visualization features, and user familiarity make it highly appealing to business users. Given that so many employees across many organizations already have at least a basic proficiency with the software, it makes sense to consider Excel as a reporting and data analysis option, particularly when end-users ultimately want to manipulate or present data within the tool they are most comfortable using.

In the following sections, I will walk through the creation of a simple interactive report in Excel to highlight the features available in the tool.

Setting Up the Data

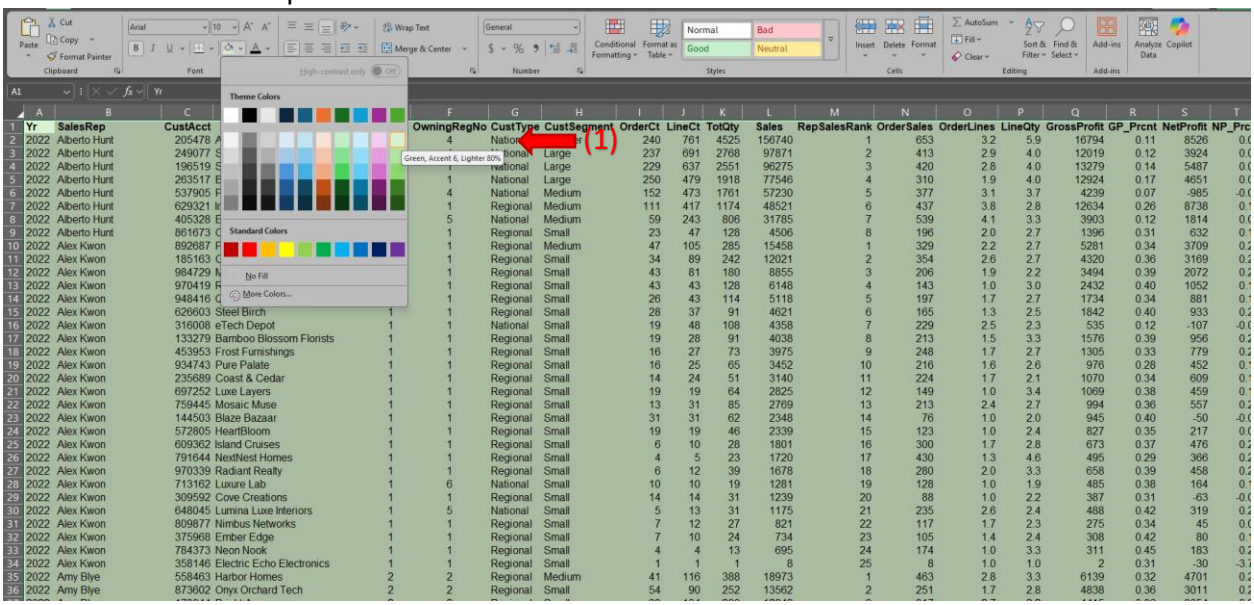
We are going to work with the sample data referenced in the prior post from the fictional company The Paper Connection, and we'll use that to address a request from a regional manager to produce a report showing the Top 10 customers, segmented by sales representative and year. We will build an interactive report that includes two filter options—one for the sales rep and one for the year—and as these filters are adjusted, the data displayed will dynamically update. This will not be a PivotTable report (though that's certainly a viable alternative, which we'll explore later); instead, we'll start by using Data Validation, combined with VLOOKUP, SUMIFS, SORT, and UNIQUE functions to create an interactive reporting experience. At the end, we'll compare two different methodologies, emphasizing their advantages and disadvantages, so you can determine which approach best fits your reporting needs.

Note that I am assuming you have a basic working knowledge of Excel, particularly in using formulas and formatting data. If you're new to Excel, or if your experience is more introductory, I recommend reviewing some beginner-level tutorials on YouTube or picking up a user-friendly guide like Excel for Dummies. (the Dummies books are great for getting you started on tools like this.)

For this report request, we'll be working with a dataset containing three years of customer performance data, which has been added to an Excel workbook and will act as the data source for our report. This dataset includes 22 columns and 1,526 rows, which was generated from a query against the system tables and then copied into the spreadsheet. There are more automated ways to handle this data pull—using PivotTables or Power Query, for example—but we'll start with a simpler process that doesn't require querying expertise. This tutorial is focused on expanding your understanding of Excel's interactive capabilities, and we'll address querying data into spreadsheets in a future session.

If you want to follow along with the instructions, starting with the base dataset, you can find the file Interactive_Report_Ex_Datasets.xlsx at this link. We will be working with the data on the Dataset_v1 tab. The final version of the report is also available at the same location

(Interactive_Report_Ex_v1.xlsx), and you can use that as a reference while building your own version of the report.



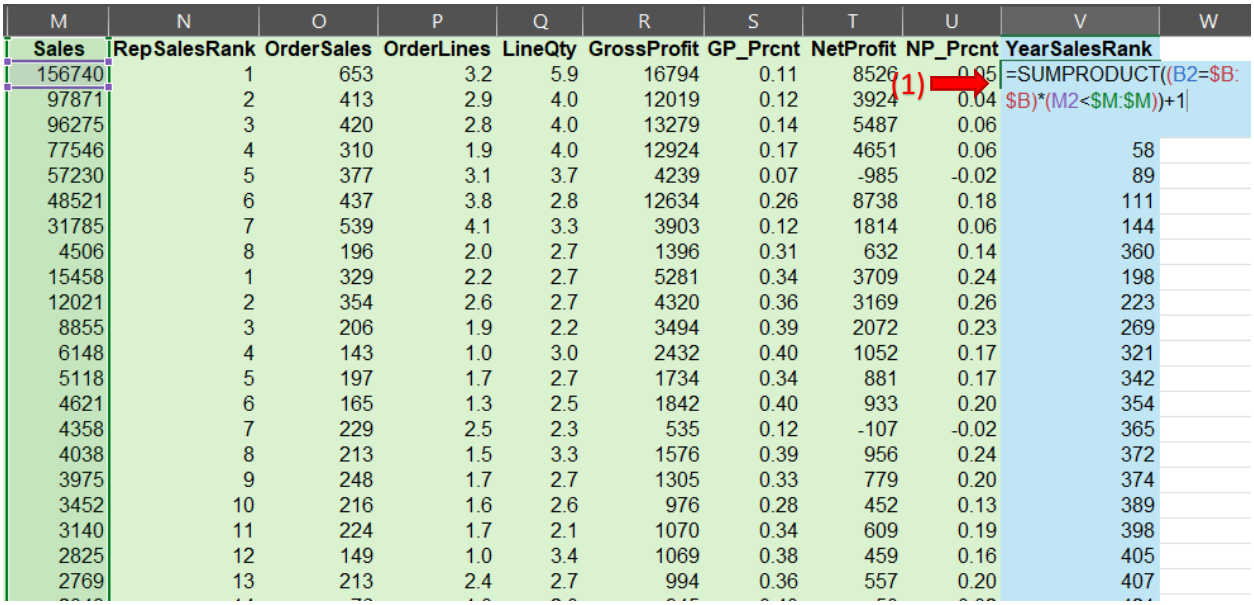
For this exercise, we'll paste the dataset into a new worksheet, starting at cell A1, and we'll title the tab Data_Cust_Perf. As part of my reporting standards and best practices, I typically name data tabs beginning with the word "Data" followed by a brief description. I also use underscores between words to maintain naming consistency and to simplify referencing named ranges or structured data between worksheets in the interactive report. While not strictly necessary, this practice helps maintain a clean, organized workbook structure. You'll notice that the number fields in the raw dataset aren't formatted—this is fine for now, as we'll handle formatting in the final interactive report. Another practice I recommend is to apply a distinct fill color to the dataset—for example, I've used the green fill color to easily identify the raw data source (1).

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Lookup	Yr	SalesRep	CustAcct	CustomerName	RegNo	OwningRegNo	CustType	CustSegment	OrderCt	LineCt	TotQty	Sales	RepSalesRank
2	=B2&C2&N2	2022	Alberto Hunt	20	ed Factories	1	4	National	Top Tier	240	761	4525	156740	1
3	2022Alberto Hunt2	2022	Alberto Hunt	249077	Southern Foods	1	4	National	Large	237	691	2768	97871	2
4	2022Alberto Hunt3	2022	Alberto Hunt	196519	Speedway Motor Co.	1	1	National	Large	229	637	2551	96275	3
5	2022Alberto Hunt4	2022	Alberto Hunt	263517	Bently Foods	1	1	National	Large	250	479	1918	77546	4
6	2022Alberto Hunt5	2022	Alberto Hunt	537905	Fast Track Computers	1	4	National	Medium	152	473	1761	57230	5
7	2022Alberto Hunt6	2022	Alberto Hunt	629321	Ironclad Innovations	1	1	Regional	Medium	111	417	1174	48521	6
8	2022Alberto Hunt7	2022	Alberto Hunt	405328	Ether Echo	1	5	National	Medium	59	243	806	31785	7
9	2022Alberto Hunt8	2022	Alberto Hunt	861673	Oceanic Orbit Maritime	1	1	Regional	Small	23	47	128	4506	8
10	2022Alex Kwon1	2022	Alex Kwon	892687	Phoenix Finance	1	1	Regional	Medium	47	105	285	15458	1
11	2022Alex Kwon2	2022	Alex Kwon	185163	Catalyst Consulting	1	1	Regional	Small	34	89	242	12021	2
12	2022Alex Kwon3	2022	Alex Kwon	984729	Merris Real Estate	1	1	Regional	Small	43	81	180	8855	3
13	2022Alex Kwon4	2022	Alex Kwon	970419	Radiant Reef Aquatics	1	1	Regional	Small	43	43	128	6148	4
14	2022Alex Kwon5	2022	Alex Kwon	948416	Quantum Coast Consulting	1	1	Regional	Small	26	43	114	5118	5
15	2022Alex Kwon6	2022	Alex Kwon	626603	Steel Birch	1	1	Regional	Small	28	37	91	4621	6
16	2022Alex Kwon7	2022	Alex Kwon	316008	eTech Depot	1	1	National	Small	19	48	108	4358	7
17	2022Alex Kwon8	2022	Alex Kwon	133279	Bamboo Blossom Florists	1	1	Regional	Small	19	28	91	4038	8
18	2022Alex Kwon9	2022	Alex Kwon	453953	Frost Furnishings	1	1	Regional	Small	16	27	73	3975	9

The interactive report will utilize the VLOOKUP formula, which requires a unique identifier in the first column of the dataset. To create this, insert a new column at the beginning of the worksheet and title it **Lookup**. In cell A2, enter the formula: "=B2&C2&N2" (1). This concatenates the values from the **Yr**, **SalesRep**, and **RepSalesRank** columns to form a unique key. Copy the formula down for all rows in the dataset. We'll discuss the role of this composite key in more detail when we review how VLOOKUP is leveraged in the report. I

also recommend visually distinguishing calculated columns by applying a different fill color—in this case, I've used dark teal to highlight the new lookup column (1).

Column N (**RepSalesRank**) is part of the original data pull, with the rankings pre-calculated at the query level. While Excel does offer a RANK function, it's not the best fit for this scenario. The RANK function calculates rankings over the *entire* dataset, which would include *all* sales reps across *all* years. In this case, we need rankings segmented by sales rep and year, so pre-calculating this metric upstream ensures better performance and accuracy in the report.



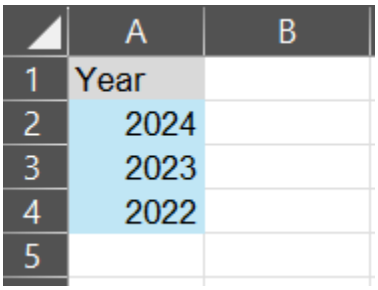
M	N	O	P	Q	R	S	T	U	V	W
Sales	RepSalesRank	OrderSales	OrderLines	LineQty	GrossProfit	GP_Prcnt	NetProfit	NP_Prcnt	YearSalesRank	
156740	1	653	3.2	5.9	16794	0.11	8526	0.05	=SUMPRODUCT((B2=$B:	
97871	2	413	2.9	4.0	12019	0.12	3924	0.04	$B)*(M2<$M:$M))+1	
96275	3	420	2.8	4.0	13279	0.14	5487	0.06		
77546	4	310	1.9	4.0	12924	0.17	4651	0.06	58	
57230	5	377	3.1	3.7	4239	0.07	-985	-0.02	89	
48521	6	437	3.8	2.8	12634	0.26	8738	0.18	111	
31785	7	539	4.1	3.3	3903	0.12	1814	0.06	144	
4506	8	196	2.0	2.7	1396	0.31	632	0.14	360	
15458	1	329	2.2	2.7	5281	0.34	3709	0.24	198	
12021	2	354	2.6	2.7	4320	0.36	3169	0.26	223	
8855	3	206	1.9	2.2	3494	0.39	2072	0.23	269	
6148	4	143	1.0	3.0	2432	0.40	1052	0.17	321	
5118	5	197	1.7	2.7	1734	0.34	881	0.17	342	
4621	6	165	1.3	2.5	1842	0.40	933	0.20	354	
4358	7	229	2.5	2.3	535	0.12	-107	-0.02	365	
4038	8	213	1.5	3.3	1576	0.39	956	0.24	372	
3975	9	248	1.7	2.7	1305	0.33	779	0.20	374	
3452	10	216	1.6	2.6	976	0.28	452	0.13	389	
3140	11	224	1.7	2.1	1070	0.34	609	0.19	398	
2825	12	149	1.0	3.4	1069	0.38	459	0.16	405	
2769	13	213	2.4	2.7	994	0.36	557	0.20	407	

That said, I did decide to include a demonstration of how to calculate a rank within groups in Excel itself. We'll add an additional column to the dataset, titled YearSalesRank, in column V. In cell V2, enter the following formula: "=SUMPRODUCT((B2=$B:$B)*(M2<$M:$M))+1" (1). Copy this formula down for all rows. This ranks each customer's sales within their respective year, so you can see how they compare on a year-over-year basis. You'll notice it may take a while to calculate because SUMPRODUCT is computationally intensive, especially on larger datasets. This is one reason I prefer to pre-calculate ranks in the data layer, but for demonstration purposes, it's useful to understand how this Excel formula works. And yes—this formula is a bit of an Excel wizardry trick that can make your head spin! If you'd like a deeper explanation, you can go to this link for additional reference. Since we won't be using this ranking in the immediate build, you can delete the formula after experimenting with it.

Now that we have our base data in place and formatted according to our reporting standards, we're ready to start building the interactive report.

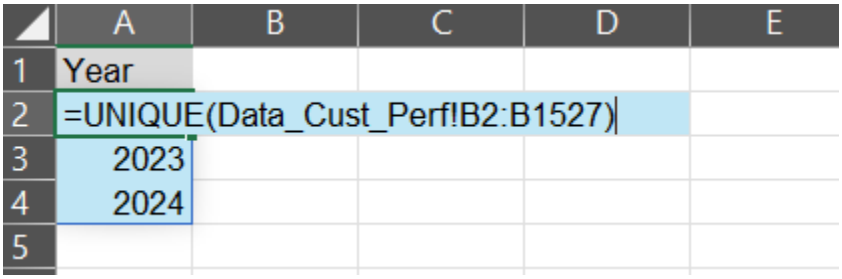
UNIQUE and SORT Formulas

We will be adding drop-down lists to this report, allowing users to select two parameters as part of its interactive functionality. Before we do that, however, we need to set up the source data that these lists will reference. To accomplish this, we will leverage the UNIQUE and SORT functions in Excel. Additionally, we will create a separate tab in the workbook, which I will name Drop_Down_Data, where this data will be stored and maintained.



	A	B
1	Year	
2	2024	
3	2023	
4	2022	
5		

One of the parameters will be Year, and the dataset we prepared in the previous section contains three years' worth of data, ranging from 2022 to 2024. While we could manually type these values into a list on the Drop_Down_Data tab, we are instead going to use the UNIQUE function to automatically extract the distinct values directly from the primary dataset.

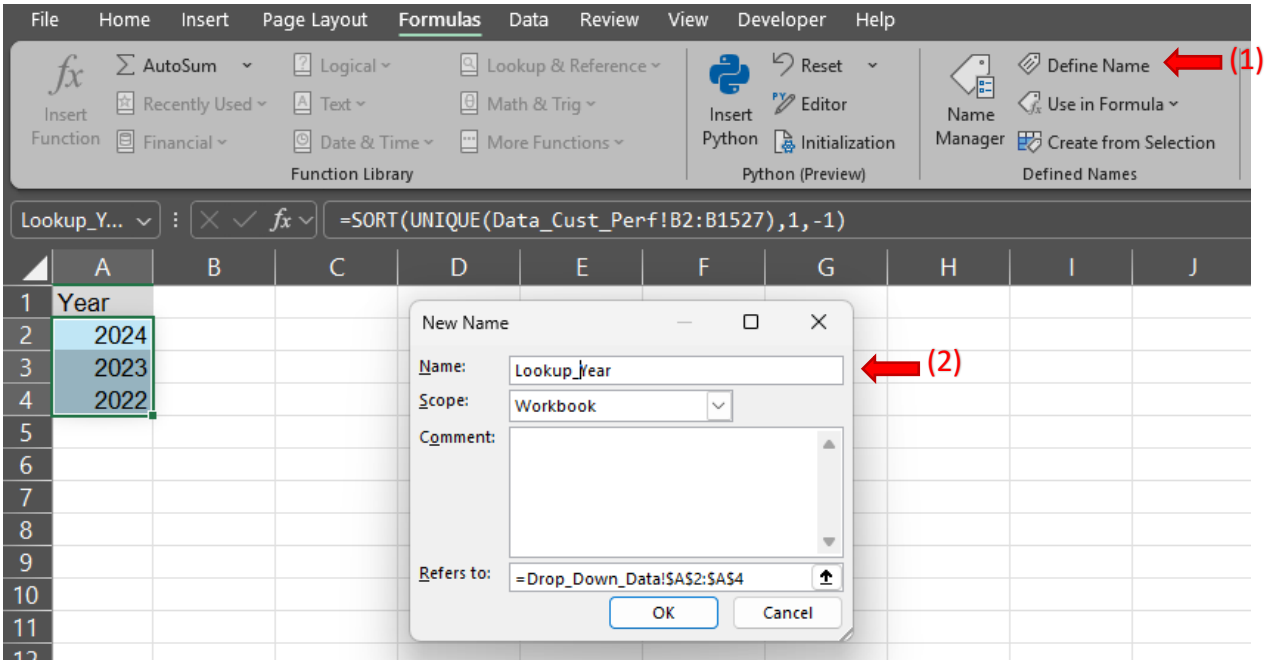


	A	B	C	D	E
1	Year				
2	=UNIQUE(Data_Cust_Perf!B2:B1527)				
3	2023				
4	2024				
5					

In the first example, I typed "Year" as the header into cell A1, followed by manually entering the three years into the next three rows. In the second example, we will automate this process by entering the following formula in cell A2: “=UNIQUE(Data_Cust_Perf!B2:B1527)”. You can either type the formula exactly as shown, or you can enter =UNIQUE(, then navigate to the Data_Cust_Perf sheet and select the desired range manually. Note that by using an underscore in the tab name (Data_Cust_Perf), it simplifies the formula entry, especially if you are typing it directly. Otherwise, you would need to use: “=UNIQUE('Data Cust Perf'!B2:B1527)”. Sometimes those single quotation marks can be tricky, so I recommend using underscores for ease and consistency in naming. Also, you only need to enter the formula in cell A2—this is a dynamic array formula, meaning it will automatically spill into the cells below. Make sure there is no existing data in those cells to avoid an error. As a best practice, avoid selecting the entire column (e.g., =UNIQUE(Data_Cust_Perf!B:B)) as this will also return the header,

which may not sort as expected. Instead, select the range excluding the header row, as shown above.

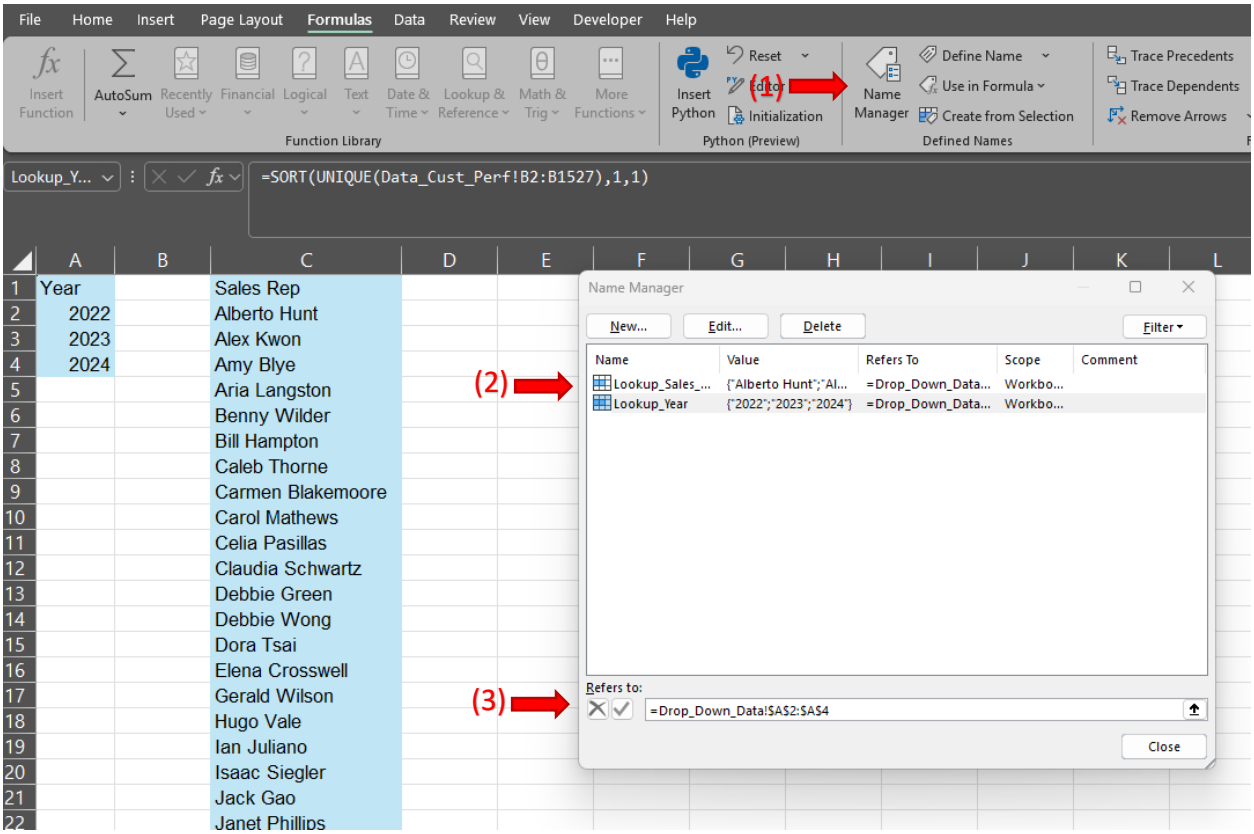
Now, in the manual list above, I sorted the years in reverse order because users are usually going to be looking at the most recent year first. So we will combine the SORT function with UNIQUE to get that same order. Following is the formula for that: "=SORT(UNIQUE(Data_Cust_Perf!B2:B1527),1,-1)". The number 1 following the UNIQUE formula tells Excel to sort by the first column (which is your only option here) and the -1 tells it to sort in descending order. If you want ascending order, you use 1 instead.



Now, we will create the drop-down source data for Sales Reps, where the UNIQUE function becomes even more valuable. For the Year field, there were only three values, making manual entry manageable. However, for Sales Reps, we have considerably more entries. In cell C1, enter the title "Sales Rep." Then, in C2, enter the formula: "=SORT(UNIQUE(Data_Cust_Perf!C2:C1527), 1, 1)". This provides a sorted list of all unique sales rep names, ordered alphabetically (ascending). Once the list populates, select the range C2:C24 (or however many rows are populated) and name the range Lookup_Sales_Rep, following the same process you used for Lookup_Year.

	A	B	C	D	E	F	
1	Year		Sales Rep				
2	2024		=SORT(UNIQUE(Data_Cust_Perf!C2:C1527),1,1)				
3	2023		Alex Kwon				
4	2022		Amy Blye				
5			Aria Langston				
6			Benny Wilder				
7			Bill Hampton				
8			Caleb Thorne				
9			Carmen Blakemoore				
10			Carol Mathews				
11			Celia Pasillas				

Now we will add the Drop Down data for the sales reps and you will see where the unique formula is much more useful. For Year, there are only three values in the list, so manually typing those would not be difficult. But for sales reps, we have considerably more entries. In Cell C1 enter the title Sales Rep and then in C2 enter the formula: "=SORT(UNIQUE(Data_Cust_Perf!C2:C1527),1,1)". Now we have a nice list of the unique sales rep names sorted alphabetically. We will then select the range C2:C24 and name it Lookup_Sales_Rep like we did with Lookup_Year above (more on why we did that in the next section).



At this point, it should be clear why we're taking this approach with Sales Reps. While it's easy to manually enter a few years, handling a list of 44 sales reps is more tedious and prone to error. You could copy and paste the list from a query output, but using the UNIQUE and SORT formulas ensures the drop-down list dynamically adjusts to reflect any changes in the dataset—such as new sales reps added after a data refresh.

That said, you will need to verify whether your named ranges are capturing all of the entries if your dataset expands. If additional rows are added, you can adjust the named ranges accordingly:

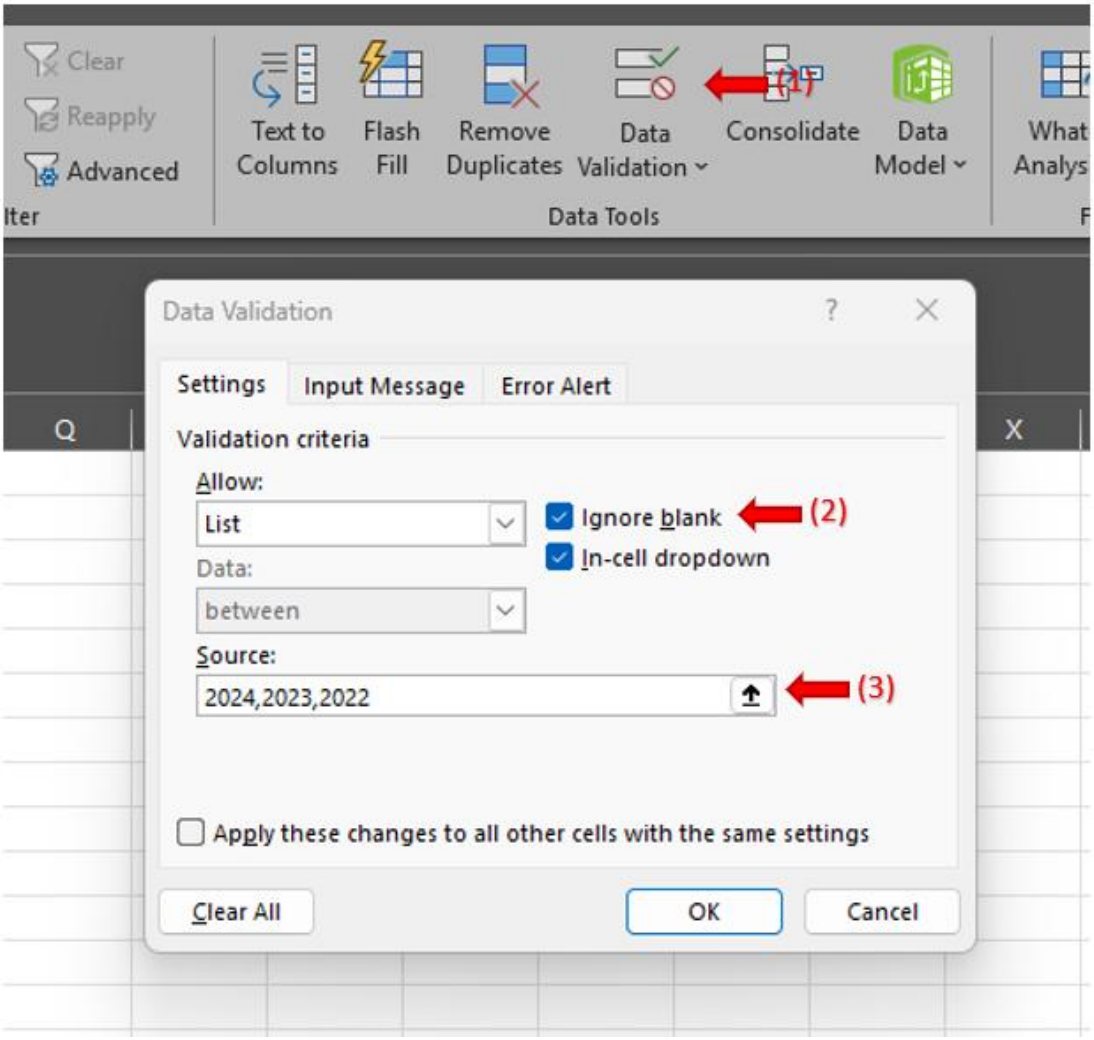
1. Go to Formulas > Name Manager **(1)**.
2. Select the named range you wish to adjust **(2)**.
3. Update the Refers to field with the new range **(3)**.
4. Click Close, and confirm the changes when prompted.

You will notice that I highlighted both of these columns with Dark Teal to indicate that they have formulas similar to what I did on the Data_Cust_Perf tab. That will be important at the end of the process for documentation. As an option, instead of using the UNIQUE and SORT formulas, this data could be automatically queried into the sheet, and that would eliminate the need to update the named ranges. But as I mentioned previously, I will not be getting into querying data in this exercise.

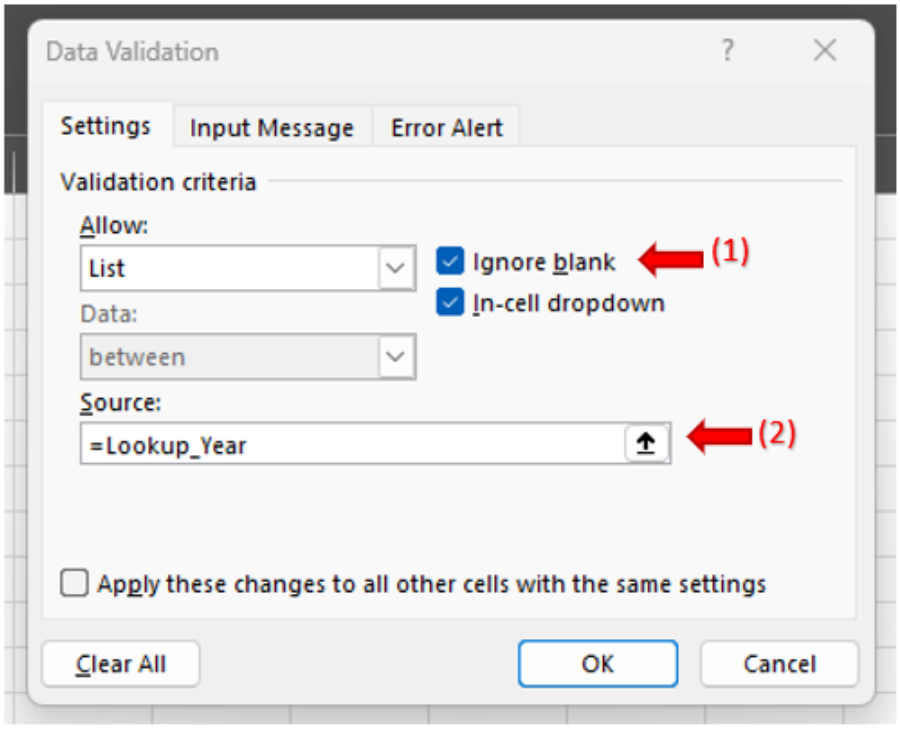
In the next section, we will create the drop down boxes that will reference the data we prepared above.

Creating Drop Down Boxes for Report Parameters

Drop-down boxes can be a valuable tool for providing users with a defined set of parameters to select from, improving both usability and data integrity in an Excel report. There are two primary ways these can be added to an Excel spreadsheet. You can add a drop-down box via the **Insert** menu under **Form Controls** in the **Developer** ribbon, or you can create it through the **Data Validation** feature located in the **Data** ribbon. Both methods have their merits, but **Form Controls** are typically used when the selection needs to trigger a macro or VBA code for automation purposes. Since we don't need that functionality here, we'll use the simpler option: **Data Validation**.

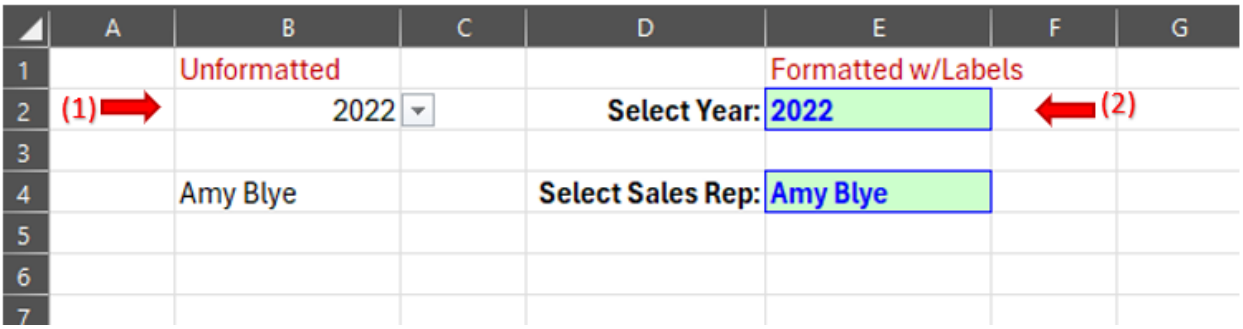


To add a drop-down list, first select the cell where you want the drop-down to appear. Then, navigate to the **Data** ribbon, click on **Data Validation (1)**, and select the first option, **Data Validation**. A pop-up form will appear with several configuration options for the drop-down. Under the Allow criteria, select **List (2)**, and leave the default settings unchanged. In the **Source** field, you can manually type the options you want available in the drop-down, separated by commas **(3)**. For example, I entered the three years corresponding to the dataset we're working with. After clicking **OK**, Excel creates the drop-down list, and you will be able to select one of the three years from the menu.

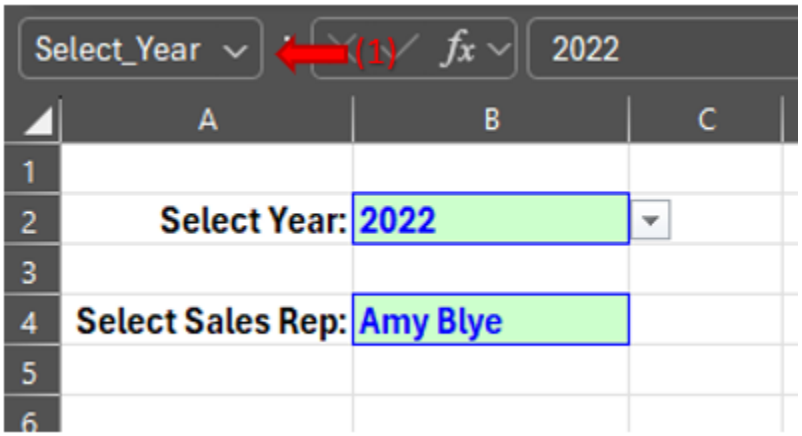


However, in the previous section, we created named ranges specifically for our drop-down lists, so we'll use those instead. Create a new tab in the workbook and name it **Sales_Rep_Top_10**. Then, select cell B2. Open **Data Validation**, select **List (1)**, and in the **Source** field, type "=Lookup_Year" **(2)**, which refers to the named range we established for the year selection. (You can also click the arrow next to the **Source** field and manually select a range from the sheet, but I find it more efficient to create named ranges and reference them directly in the formula.) Click **OK** to create the year drop-down list.

Next, select cell B4 and repeat the same steps. This time, enter "=Lookup_Sales_Rep" as the source to create the drop-down list for Sales Representatives.



When you click in a cell where a drop-down is created, you'll see an arrow appear, indicating a selection list is available **(1)**. Aside from the arrow, there's no visual indicator that the cell contains a drop-down, so I recommend formatting these cells and adding clear labels to make it obvious where user inputs are expected **(2)**. Additionally, it's a best practice to assign defined names to these cells via **Formulas** >> **Define Name**, naming them **Select_Year** and **Select_Sales_Rep** respectively. This allows for easier reference in formulas and improves workbook organization.



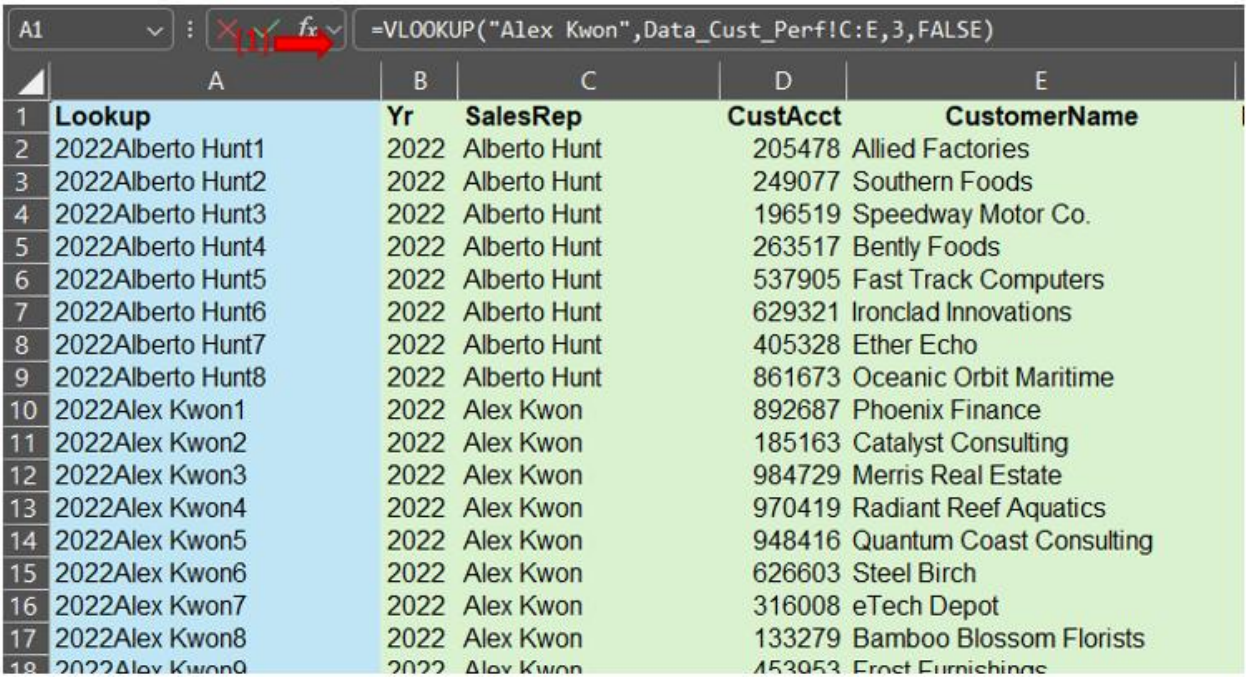
An alternative method to assign a defined name is to select the cell and type the name directly into the **Name Box**, located in the upper-left corner next to the formula bar **(1)**.

Now that we've created the drop-down lists for the report parameters, the next step is to begin building out the dynamic report, which will reference these inputs for interactive functionality.

The VLOOKUP Formula and Its Pitfalls

The next part of the report we are building will involve incorporating the VLOOKUP function, and I'm going to assume a basic familiarity with how VLOOKUP works (if not, you can find a brief explanation at this link). That said, I'll still walk through a couple of quick examples to demonstrate some of the common pitfalls associated with using this function. While

VLOOKUP can be highly effective for retrieving text-based data from a flat file or dataset, you need to be cautious when using it, or you may not get the results you expect.



	A	B	C	D	E
1	**Lookup**	**Yr**	**SalesRep**	**CustAcct**	**CustomerName**
2	2022Alberto Hunt1	2022	Alberto Hunt	205478	Allied Factories
3	2022Alberto Hunt2	2022	Alberto Hunt	249077	Southern Foods
4	2022Alberto Hunt3	2022	Alberto Hunt	196519	Speedway Motor Co.
5	2022Alberto Hunt4	2022	Alberto Hunt	263517	Bently Foods
6	2022Alberto Hunt5	2022	Alberto Hunt	537905	Fast Track Computers
7	2022Alberto Hunt6	2022	Alberto Hunt	629321	Ironclad Innovations
8	2022Alberto Hunt7	2022	Alberto Hunt	405328	Ether Echo
9	2022Alberto Hunt8	2022	Alberto Hunt	861673	Oceanic Orbit Maritime
10	2022Alex Kwon1	2022	Alex Kwon	892687	Phoenix Finance
11	2022Alex Kwon2	2022	Alex Kwon	185163	Catalyst Consulting
12	2022Alex Kwon3	2022	Alex Kwon	984729	Merris Real Estate
13	2022Alex Kwon4	2022	Alex Kwon	970419	Radiant Reef Aquatics
14	2022Alex Kwon5	2022	Alex Kwon	948416	Quantum Coast Consulting
15	2022Alex Kwon6	2022	Alex Kwon	626603	Steel Birch
16	2022Alex Kwon7	2022	Alex Kwon	316008	eTech Depot
17	2022Alex Kwon8	2022	Alex Kwon	133279	Bamboo Blossom Florists
18	2022Alex Kwon9	2022	Alex Kwon	453953	Frost Furnishings

First, I'll construct a simple VLOOKUP formula that looks up a customer name by sales representative:

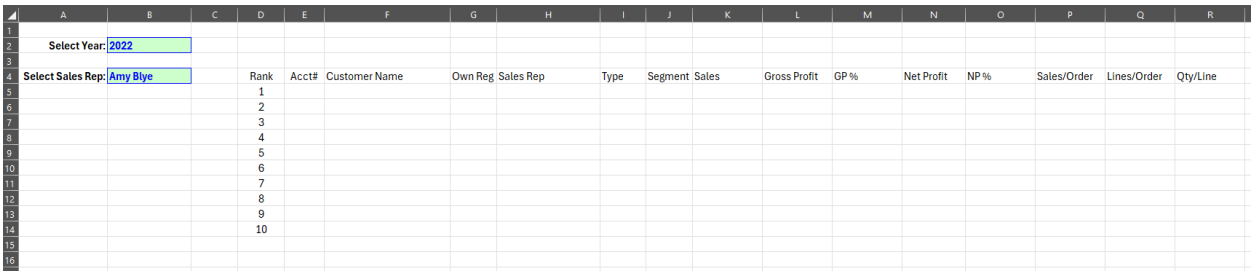
"=VLOOKUP("Alex Kwon",Data_Cust_Perf!C:E,3,FALSE)".

You'll see that I've hard-coded the rep's name in the formula. The search is being performed within columns C through E on our **Data_Cust_Perf** tab, which contains the Sales Rep name, Customer Account number, and Customer Name. The formula's starting reference is Column C, and the range extends to Column E, with VLOOKUP returning the value from the third column in that range, based on an exact match.

The issue here is that Sales Reps often manage multiple accounts, and VLOOKUP will only return the first match it encounters (based on how the data is sorted). This is why the formula as written has limitations. To address this, we created a unique identifier in Column A, which we will leverage shortly (more on that below).

Another common issue with VLOOKUP arises when the structure of the data changes, such as adding or removing columns in your dataset. For example, suppose the formula above is already saved in a cell, but later you insert a CustomerSegment column between CustAcct and CustName. The **Table_Array** reference would automatically expand (from C:E to C:F), but the **Col_Index_Num** (3) wouldn't automatically adjust. As a result, the formula would now return the Customer Segment rather than the Customer Name. This demonstrates

why you need to carefully manage VLOOKUP references and be mindful of these potential pitfalls.



Select Year:	2022																
Select Sales Rep:	Amy Blye		Rank	Acct#	Customer Name	Own Reg	Sales Rep	Type	Segment	Sales	Gross Profit	GP %	Net Profit	NP %	Sales/Order	Lines/Order	Qty/Line
			1														
			2														
			3														
			4														
			5														
			6														
			7														
			8														
			9														
			10														

Now that we've reviewed the mechanics of VLOOKUP, we'll begin configuring the interactive report by entering the column headers for the data we want to display. These headers will include ranking numbers for the Top 10 Customers by Sales Rep and Year. There's no need to worry about formatting at this stage; we'll handle that during the final design phase. And the VLOOKUP will only be used to pull the first six fields of data: Acct#, Customer Name, Own Reg, Sales Rep, Type, Segment. The rest of the data we will get by a different means in the next section.

With the report template created, I'm now going to enter the following formula into cell E5:

"=VLOOKUP(Select_Year&Select_Sales_Rep&$D5,Data_Cust_Perf!$A:$I,4,FALSE)".

Here's a breakdown of each component of the formula:

Lookup_Value: This concatenates the Select_Year parameter, the Select_Sales_Rep parameter, and the value in cell D5 (the rank number). This creates a composite key that matches the Lookup field we previously generated in the **Data_Cust_Perf** tab. It allows us to return multiple customer records, as opposed to just one (which was a limitation in our earlier example). Column D is anchored with a dollar sign ($) so that it remains fixed when the formula is copied down.

Table_Array: This specifies the range from Column A to Column I, referencing the entire columns. The range is anchored with dollar signs ($) to ensure it stays constant when copied. While you could reference a specific range (e.g., $A$1:$I$1527), I prefer using entire columns to account for potential data refreshes that expand the dataset. We'll discuss data range management and performance considerations later.

Col_Index_Num: This retrieves data from the fourth column in the specified table array, which corresponds to CustAcct.

Range_Lookup: Using FALSE specifies an exact match, ensuring we only return results where the Lookup Value matches exactly.

D	E	F	G	H	I	J
Rank	Acct#	Customer Name	Own Reg	Sales Rep	Type	Segment
1	558463					
2						
3						
4						
5						
6						
7						
8						
9						
10						

You will see that in Cell E5, the account number for the selected sales rep's top customer is now showing up.

The next step is to copy that same formula to Cells F5:J5. After doing that, we will edit the formula in each cell to adjust the **Col_Index_Num** to the corresponding field we are pulling in from Data_Cust_Perf: for F5 it will be 5, G5 it will be 7, H5 = 3, I5 = 8, and J5 = 9. Next up, we will copy the formulas in Cells E5:J5 down to cover all ten rows.

D	E	F	G	H	I	J
Rank	Acct#	Customer Name	Own Reg	Sales Rep	Type	Segment
1	558463	Harbor Homes	2	Amy Blye	Regional	Medium
2	873602	Onyx Orchard Tech	2	Amy Blye	Regional	Small
3	173044	Bright Aura	2	Amy Blye	Regional	Small
4	969030	Rain Technologies	2	Amy Blye	Regional	Small
5	273027	Crest Consulting	2	Amy Blye	Regional	Small
6	308218	Crimson Clay	2	Amy Blye	Regional	Small
7	369346	Electric Ember Studios	2	Amy Blye	Regional	Small
8	178150	Brite & Bloom	2	Amy Blye	Regional	Small
9	253723	Copper Compass Navigati	2	Amy Blye	Regional	Small
10	731519	MetroMeadow	2	Amy Blye	Regional	Small

For the Sales Rep you select, all ten rows should populate accordingly. You'll notice that our composite key successfully retrieves each individual customer in the Top 10 ranking, rather than returning duplicates of the first match. However, not all Sales Reps have ten customers in the dataset, so we need to account for that within our report design. For example, select 2022 and Debbie Green from the drop-down lists and observe the results.

Rank	Acct#	Customer Name	Own Reg	Sales Rep	Type	Segment
1	883141	DC Distributors	4	Debbie Green	Regional	Top Tier
2	537905	Fast Track Computers	4	Debbie Green	National	Top Tier
3	167602	All Natural Foods	4	Debbie Green	National	Large
4	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
5	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
6	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
7	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
8	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
9	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
10	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A

You'll notice errors (i.e., #N/A) in the cells where no data was found—because there were only three customers for that Sales Rep in 2022. This isn't ideal for data visualization, so we'll handle it by wrapping the VLOOKUP in an IFERROR function. Update the formula to read:

"=IFERROR(VLOOKUP(Select_Year&Select_Sales_Rep&$D5,Data_Cust_Perf!$A:$I,4,FALSE),"-")".

This will display a dash ("-") instead of an error, providing a cleaner and more professional appearance for the report. (Alternatively, you can have it return a blank by using "".)

Apply the IFERROR wrapper to all cells in the top row (E5:J5), then copy the updated formulas downward to cover all ten rows. And yes, I could have mentioned this earlier—but this highlights an important quality control step in report development!

Up next, we will fill in the data for the other fields, but with a different formula.

The Advantages of the SUMIFS Formula

As I mentioned in the previous post, there are some pitfalls when using the VLOOKUP function, which is why I try to rely on it as little as possible. It's necessary when bringing in text data, and I typically use it for numerical values that don't require aggregation—such as the Account Number and Region Number we are pulling into the report we are building.

However, for aggregated numerical data or metrics, I prefer using SUMIFS, which I find to be much more versatile and efficient in dynamic reporting scenarios.

I only gave a quick overview of VLOOKUP earlier, but I'll spend a little more time on SUMIFS, because I find that not many users are familiar with it (you can read more about it at this link). This function allows you to sum values from a dataset based on one or more criteria, making it ideal for summarized reporting and performance analysis. Here's the basic syntax for SUMIFS:

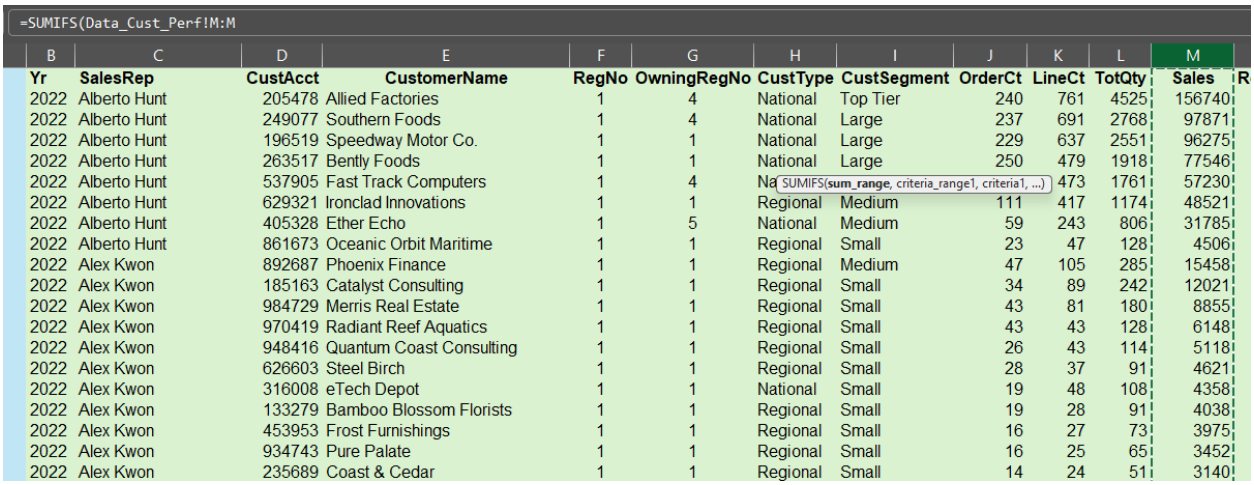
SUMIFS(sum_range, criteria_range1, criteria1, [criteria_range2, criteria2], ...)

Rank	Acct#	Customer Name	Own Reg	Sales Rep	Type	Segment	Sales	Gross Profit	GP %	Net Profit	NP %	Sales/Order	Lines/Order	Qty/Line
1	558463	Harbor Homes	2	Amy Blye	Regional	Medium								
2	873602	Onyx Orchard Tech	2	Amy Blye	Regional	Small								
3	173044	Bright Aura	2	Amy Blye	Regional	Small								
4	969030	Rain Technologies	2	Amy Blye	Regional	Small								
5	273027	Crest Consulting	2	Amy Blye	Regional	Small								
6	308218	Crimson Clay	2	Amy Blye	Regional	Small								
7	369346	Electric Ember Studios	2	Amy Blye	Regional	Small								
8	178150	Brite & Bloom	2	Amy Blye	Regional	Small								
9	253723	Copper Compass Navigati	2	Amy Blye	Regional	Small								
10	731519	MetroMeadow	2	Amy Blye	Regional	Small								

In this case, the **sum_range** is the column of data we want to aggregate—in our current report, we'll start with Sales and work our way across to other metrics. The Sales data resides in column M of the **Data_Cust_Perf** worksheet, so the **sum_range** will be: "=Data_Cust_Perf!$M:$M"

We are filtering this data by three parameters: Year, Sales Rep, and Account Number. Therefore, we'll include three criteria pairs in our formula.

- The Year data is located in column B of **Data_Cust_Perf**, making it **criteria_range1**. The **criteria1** will be the **Select_Year** parameter.
- The Sales Rep data is in column C, which will be **criteria_range2**, with **criteria2** being **Select_Sales_Rep**.
- The Account Number is in column D, which makes it **criteria_range3**, and we'll reference the corresponding Acct # in column E of the **Sales_Rep_Top_10** sheet for **criteria3**.



=SUMIFS(Data_Cust_Perf!M:M

B	C	D	E	F	G	H	I	J	K	L	M
Yr	SalesRep	CustAcct	CustomerName	RegNo	OwningRegNo	CustType	CustSegment	OrderCt	LineCt	TotQty	Sales
2022	Alberto Hunt	205478	Allied Factories	1	4	National	Top Tier	240	761	4525	156740
2022	Alberto Hunt	249077	Southern Foods	1	4	National	Large	237	691	2768	97871
2022	Alberto Hunt	196519	Speedway Motor Co.	1	1	National	Large	229	637	2551	96275
2022	Alberto Hunt	263517	Bently Foods	1	1	National	Large	250	479	1918	77546
2022	Alberto Hunt	537905	Fast Track Computers	1	4	Na	SUMIFS(sum_range, criteria_range1, criteria1, ...)	473	1761	57230	
2022	Alberto Hunt	629321	Ironclad Innovations	1	1	Regional	Medium	111	417	1174	48521
2022	Alberto Hunt	405328	Ether Echo	1	5	National	Medium	59	243	806	31785
2022	Alberto Hunt	861673	Oceanic Orbit Maritime	1	1	Regional	Small	23	47	128	4506
2022	Alex Kwon	892687	Phoenix Finance	1	1	Regional	Medium	47	105	285	15458
2022	Alex Kwon	185163	Catalyst Consulting	1	1	Regional	Small	34	89	242	12021
2022	Alex Kwon	984729	Merris Real Estate	1	1	Regional	Small	43	81	180	8855
2022	Alex Kwon	970419	Radiant Reef Aquatics	1	1	Regional	Small	43	43	128	6148
2022	Alex Kwon	948416	Quantum Coast Consulting	1	1	Regional	Small	26	43	114	5118
2022	Alex Kwon	626603	Steel Birch	1	1	Regional	Small	28	37	91	4621
2022	Alex Kwon	316008	eTech Depot	1	1	National	Small	19	48	108	4358
2022	Alex Kwon	133279	Bamboo Blossom Florists	1	1	Regional	Small	19	28	91	4038
2022	Alex Kwon	453953	Frost Furnishings	1	1	Regional	Small	16	27	73	3975
2022	Alex Kwon	934743	Pure Palate	1	1	Regional	Small	16	25	65	3452
2022	Alex Kwon	235689	Coast & Cedar	1	1	Regional	Small	14	24	51	3140

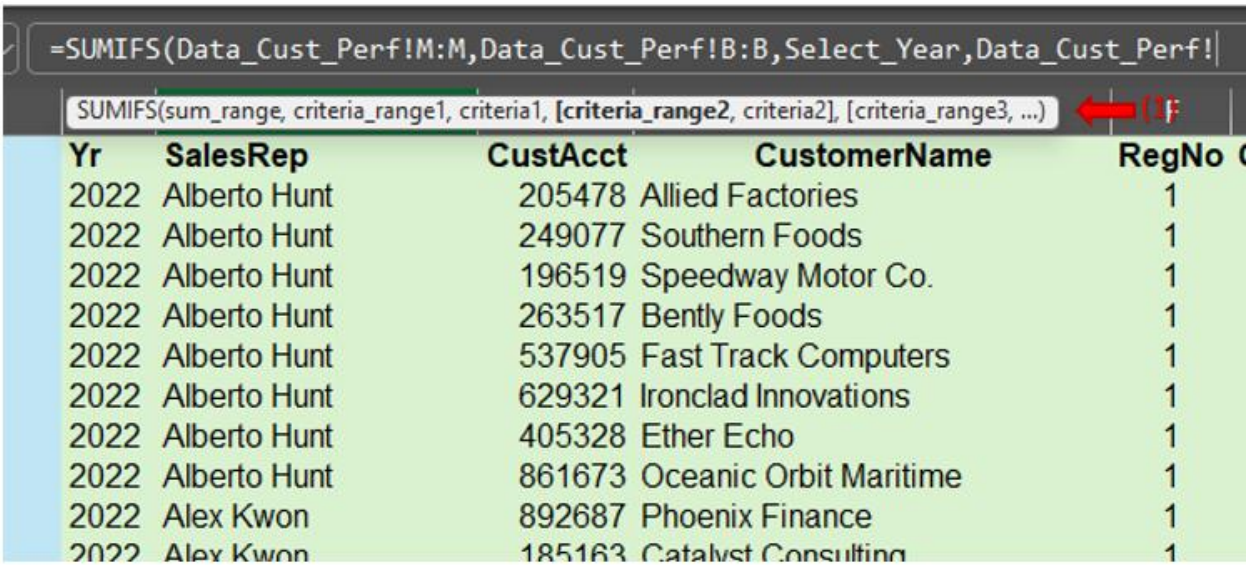
Building the formula

1. Go to cell K5 in the **Sales_Rep_Top_10** worksheet.
2. Type "=SUMIFS(" to start the formula.
3. Navigate to the Data_Cust_Perf worksheet and click on column M. Excel will automatically insert Data_Cust_Perf!M:M into the formula.
4. Continue by typing a comma, then selecting column B, followed by another comma, then entering "Select_Year".
5. Repeat the pattern: comma, select column C, comma, enter "Select_Sales_Rep".
6. Finally, add another comma, select column D, another comma, and click back to **Sales_Rep_Top_10** and select cell E5.

At this point, your formula should look like this:

"=SUMIFS(Data_Cust_Perf!M:M,Data_Cust_Perf!B:B,Select_Year,Data_Cust_Perf!C:C,Select_Sales_Rep,Data_Cust_Perf!D:D,Sales_Rep_Top_10!E5)"

Once you press **Enter**, you should now see a Sales value populate in cell K5.



Yr	SalesRep	CustAcct	CustomerName	RegNo
2022	Alberto Hunt	205478	Allied Factories	1
2022	Alberto Hunt	249077	Southern Foods	1
2022	Alberto Hunt	196519	Speedway Motor Co.	1
2022	Alberto Hunt	263517	Bently Foods	1
2022	Alberto Hunt	537905	Fast Track Computers	1
2022	Alberto Hunt	629321	Ironclad Innovations	1
2022	Alberto Hunt	405328	Ether Echo	1
2022	Alberto Hunt	861673	Oceanic Orbit Maritime	1
2022	Alex Kwon	892687	Phoenix Finance	1
2022	Alex Kwon	185163	Catalyst Consulting	1

Note: Sometimes, the SUMIFS function helper window will pop up and cover the columns you want to select **(1)**. If that happens, you can hover the mouse above the pop-up until the cursor changes to a down arrow, then click. If that doesn't work, you can manually type in the column reference.

Once you have completed the formula, you will want to go in and edit it to anchor the columns by adding "$":

"=SUMIFS(Data_Cust_Perf!$M:$M,Data_Cust_Perf!$B:$B,Select_Year,Data_Cust_Perf!$C:$C,Select_Sales_Rep,Data_Cust_Perf!$D:$D,Sales_Rep_Top_10!$E5)".

Note that you only add the "$" in front of E for the Acct # because that changes with each row and you do not want to anchor on that cell alone. (Look at how the formula adjusts to the row in the cells below to understand how that works.)

Now you can copy the formula across to the other cells in the first row where additional metrics are required. Adjust the **sum_range** for each metric you want to bring in:

- Gross Profit → $R:$R
- GP % → $S:$S
- And so on…

The criteria ranges remain the same since they continue to filter by Year, Sales Rep, and Account Number.

Once the column references have been updated, you can copy these formulas down to populate all ten rows in your Top 10 customer list.

For fields such as GP %, NP %, and Sales per Order, these are calculated fields. However, since they are already pre-calculated in the dataset, you can pull them directly instead of recreating the calculations in your report. (I will demonstrate how to manually calculate them in the next section.)

Rank	Acct#	Customer Name	Own Reg	Sales Rep	Type	Segment	Sales	Gross Profit	GP %	Net Profit	NP %	Sales/Order	Lines/Order	Qty/Line
1	883141	DC Distributors	4	Debbie Green	Regional	Top Tier	173210.3555	33375.9555	0.192690301	29778.4555	0.171920757	1681.653937	7.174757282	5.890392422
2	537905	Fast Track Computers	4	Debbie Green	National	Top Tier	161208.63	11941.38	0.074074074	4078.38	0.02529877	650.0347984	3.745967742	5.003229279
3	167602	All Natural Foods	4	Debbie Green	National	Large	131061.0622	20302.4622	0.154908421	17159.9622	0.130931048	1409.258733	5.935483871	6.375
4	-	-	-	-	-	-	0	0	0	0	0	0	0	0
5	-	-	-	-	-	-	0	0	0	0	0	0	0	0
6	-	-	-	-	-	-	0	0	0	0	0	0	0	0
7	-	-	-	-	-	-	0	0	0	0	0	0	0	0
8	-	-	-	-	-	-	0	0	0	0	0	0	0	0
9	-	-	-	-	-	-	0	0	0	0	0	0	0	0
10	-	-	-	-	-	-	0	0	0	0	0	0	0	0

You may notice that, unlike VLOOKUP (which returns “#N/A” for missing data), the SUMIFS function returns a zero when there is no matching data. While this isn’t technically an error, it may be inconsistent with how we formatted empty results earlier using a dash ("-").

For consistency in data presentation and user experience, we’ll wrap the SUMIFS formula in an IF statement to check if the first column (E) displays a dash, and if so, display a dash in the SUMIFS result as well.

The revised formula looks like this:

“=IF($E5="-","-",SUMIFS(Data_Cust_Perf!$M:$M,Data_Cust_Perf!$B:$B,Select_Year,Data_Cust_Perf!$C:$C,Select_Sales_Rep,Data_Cust_Perf!$D:$D,Sales_Rep_Top_10!$E5))”.

Apply this IF logic to all relevant formulas and copy them down through all ten rows to ensure uniform formatting in the report.

Next up, we will explore SUMIFS further to add some summaries and other calculations.

Calculations with SUMIFS

Rank	Acct#	Customer Name	Own Reg	Type	Segment	Sales	Gross Profit	GP %	Net Profit	NP %	Sales/Order	Lines/Order	Qty/Line
1	635306	Ivory Ink	6	Regional	Small	$9,761	$3,248	33.3%	$2,254	23.1%	$375	2.6	2.5
2	507312	Golden Garments	6	Regional	Small	$8,927	$3,397	38.0%	$1,936	21.7%	$229	2.0	2.8
3	160544	Blue Jay Bay	6	Regional	Small	$8,898	$3,121	35.1%	$1,989	22.4%	$297	2.2	3.0
4	765294	Sam & Moon	6	Regional	Small	$8,863	$3,068	34.6%	$2,034	23.0%	$328	2.7	2.3
5	772869	Nectar Network	6	Regional	Small	$8,057	$3,066	38.0%	$2,047	25.4%	$298	2.2	2.4
6	364956	Electric Edge Gaming	6	Regional	Small	$7,724	$2,867	37.1%	$1,431	18.5%	$198	1.5	2.7
7	852968	Ocean’s Edge	6	Regional	Small	$7,497	$2,860	38.1%	$2,106	28.1%	$375	2.2	2.9
8	766167	Mountain & Mist	6	Regional	Small	$7,492	$2,892	38.6%	$1,624	21.7%	$220	1.8	2.5
9	833196	Nova Industries	6	Regional	Small	$7,074	$2,113	29.9%	$1,393	19.7%	$372	2.4	2.4
10	619986	Insight Innovations	6	Regional	Small	$7,068	$2,317	32.8%	$1,272	18.0%	$252	1.9	2.6

We now have our report at a point where we can enhance its visual presentation and data readability. This will include formatting numeric columns as currency, percentages, or

numbers, as appropriate, and bolding the header row for clarity. I'm not going to walk through these formatting steps in detail, as I'm assuming a basic working knowledge of Excel formatting, but feel free to do that on your own as you please.

The next step will be to add totals and comparative metrics, which will involve further use of the SUMIFS function, along with variations that support advanced analytics.

Rank	Acct#	Customer Name	Own Reg	Type	Segment	Sales	Gross Profit	GP %	Net Profit	NP %	Sales/Order	Lines/Order	Qty/Line
1	635306	Ivory Ink	6	Regional	Small	$9,761	$3,248	33.3%	$2,254	23.1%	$375	2.6	2.5
2	507312	Golden Garments	6	Regional	Small	$8,927	$3,397	38.0%	$1,936	21.7%	$229	2.0	2.8
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5	772869	Nectar Network	6	Regional	Small	$8,057	$3,066	38.0%	$2,047	25.4%	$298	2.2	2.4
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9	833196	Nova Industries	6	Regional	Small	$7,074	$2,113	29.9%	$1,393	19.7%	$372	2.4	2.4
10	619986	Insight Innovations	6	Regional	Small	$7,068	$2,317	32.8%	$1,272	18.0%	$252	1.9	2.6
			(1)		Top 10 Totals	=SUM(J5:J14)	$28,947	35.6%	$18,087	22.2%			

We'll begin by adding a totals row at the bottom of the report to show a summary of the Top 10 accounts by Sales Rep **(1)**. For basic metrics like Sales, Gross Profit (GP), and Net Profit (NP), this is straightforward—you can simply use the SUM function. For calculated metrics such as GP % and NP %, you'll use the respective totals to derive those percentages:

GP % = Sum of Gross Profit / Sum of Sales
NP % = Sum of Net Profit / Sum of Sales

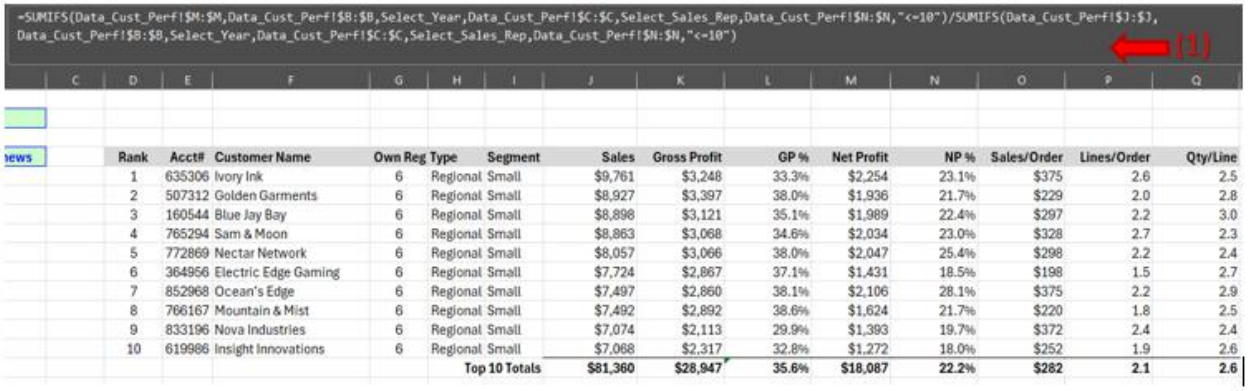
For Sales per Order, Lines per Order, and Quantity per Line, we need to take a different approach. These metrics are pre-aggregated in the dataset, and we don't have the transaction-level data in this summary report to accurately calculate them using basic Excel functions. While you could use the AVERAGE or AVERAGEIFS function, this would result in an average of averages, which may not reflect the true values accurately.

Since we have access to the underlying raw data in the **Data_Cust_Perf** tab, we'll use SUMIFS to calculate more precise metrics in the totals row. Specifically, we'll sum the Sales and divide that by the sum of Orders for the most accurate representation of Sales per Order.

The formula for sales will be as follows:

"=SUMIFS(Data_Cust_Perf!$M:$M,Data_Cust_Perf!$B:$B,Select_Year,Data_Cust_Perf!$C:$C,Select_Sales_Rep,**Data_Cust_Perf!$N:$N,"<=10"**)"

The key difference here is in the third criterion, where we reference column N (which contains the RepSalesRank). The criterion "< =10" ensures that only customers ranked in the Top 10 are included in the calculation. The quotation marks are required around the comparison.



Rank	Acct#	Customer Name	Own Reg	Type	Segment	Sales	Gross Profit	GP %	Net Profit	NP %	Sales/Order	Lines/Order	Qty/Line
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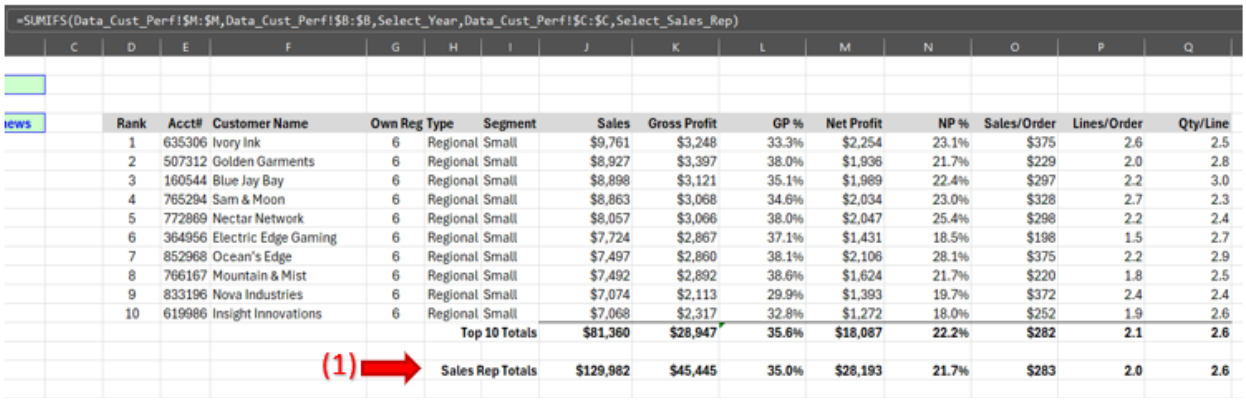
4	765294	Sam & Moon	6	Regional	Small	$8,863	$3,068	34.6%	$2,034	23.0%	$328	2.7	2.3
5	772869	Nectar Network	6	Regional	Small	$8,057	$3,066	38.0%	$2,047	25.4%	$298	2.2	2.4
6	364956	Electric Edge Gaming	6	Regional	Small	$7,724	$2,867	37.1%	$1,431	18.5%	$198	1.5	2.7
7	852968	Ocean's Edge	6	Regional	Small	$7,497	$2,860	38.1%	$2,106	28.1%	$375	2.2	2.9
8	766167	Mountain & Mist	6	Regional	Small	$7,492	$2,892	38.6%	$1,624	21.7%	$220	1.8	2.5
9	833196	Nova Industries	6	Regional	Small	$7,074	$2,113	29.9%	$1,393	19.7%	$372	2.4	2.4
10	619986	Insight Innovations	6	Regional	Small	$7,068	$2,317	32.8%	$1,272	18.0%	$252	1.9	2.6
					Top 10 Totals	$81,360	$28,947	35.6%	$18,087	22.2%	$282	2.1	2.6

To do the full calculation, we need to add the same formula again but point the source_range to Column J in the dataset which is OrderCt. So in Cell O15 we will have a SUMIFS pulling sales divided by another SUMIFS pulling orders. It is definitely a beast of a formula, but it is the most accurate way to pull the data. We will then do the same thing for Lines/Order, referencing Column K in the dataset for Lines, and Qty/Line, referencing Column L for Qty.



Rank	Acct#	Customer Name	Own Reg	Type	Segment	Sales	Gross Profit	GP %	Net Profit	NP %	Sales/Order	Lines/Order	Qty/Line
1	635306	Ivory Ink	6	Regional	Small	$9,761	$3,248	33.3%	$2,254	23.1%	$375	2.6	2.5
2	507312	Golden Garments	6	Regional	Small	$8,927	$3,397	38.0%	$1,936	21.7%	$229	2.0	2.8
3	160544	Blue Jay Bay	6	Regional	Small	$8,898	$3,121	35.1%	$1,989	22.4%	$297	2.2	3.0
4	765294	Sam & Moon	6	Regional	Small	$8,863	$3,068	34.6%	$2,034	23.0%	$328	2.7	2.3
5	772869	Nectar Network	6	Regional	Small	$8,057	$3,066	38.0%	$2,047	25.4%	$298	2.2	2.4
6	364956	Electric Edge Gaming	6	Regional	Small	$7,724	$2,867	37.1%	$1,431	18.5%	$198	1.5	2.7
7	852968	Ocean's Edge	6	Regional	Small	$7,497	$2,860	38.1%	$2,106	28.1%	$375	2.2	2.9
8	766167	Mountain & Mist	6	Regional	Small	$7,492	$2,892	38.6%	$1,624	21.7%	$220	1.8	2.5
9	833196	Nova Industries	6	Regional	Small	$7,074	$2,113	29.9%	$1,393	19.7%	$372	2.4	2.4
10	619986	Insight Innovations	6	Regional	Small	$7,068	$2,317	32.8%	$1,272	18.0%	$252	1.9	2.6
					Top 10 Totals	$81,360	$28,947	35.6%	$18,087	22.2%	$282	2.1	2.6
					Sales Rep Totals	$129,982	$45,445	35.0%	$28,193	21.7%	$283	2.0	2.6

Next, we will add a total line to show all of the sale rep's activity and this will act as a comparison to the Top 10. We will use the same formula as above, tweaked for each corresponding column, but we will take out the third criteria to pull all activity for the sales rep instead of just the top customers. That formula for Sales/Order will look like this:

"=SUMIFS(Data_Cust_Perf!$M:$M,Data_Cust_Perf!$B:$B,Select_Year,Data_Cust_Perf!$C:$C,Select_Sales_Rep)/SUMIFS(Data_Cust_Perf!$J:$J,Data_Cust_Perf!$B:$B,Select_Year,Data_Cust_Perf!$C:$C,Select_Sales_Rep)"

Adjust the columns as necessary for the calculations for Lines/Order and Qty/Line.

Criteria:

Select Year: 2022

Select Sales Rep: Carol Mathews

Top 10 Customers by Sales Rep

Year: 2022 **Sales Rep:** Carol Mathews

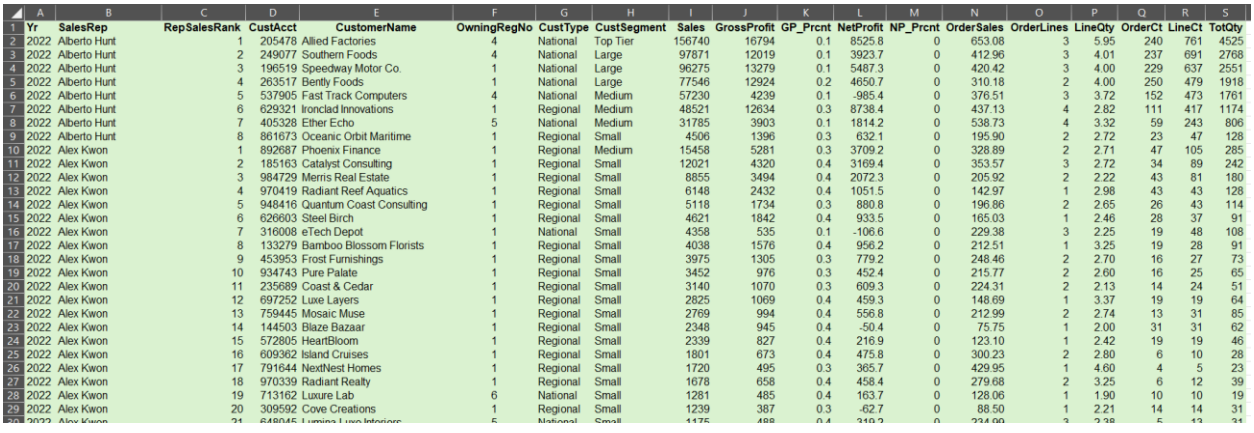
Rank	Acct#	Customer Name	Own Reg	Type	Segment	Sales	Gross Profit	GP %	Net Profit	NP %	Sales/Order	Lines/Order	Qty/Line
1	635306	Ivory Ink	6	Regional	Small	$9,761	$3,248	33.3%	$2,254	23.1%	$375	2.6	2.5
2	507312	Golden Garments	6	Regional	Small	$8,927	$3,397	38.0%	$1,936	21.7%	$229	2.0	2.8
3	160544	Blue Jay Bay	6	Regional	Small	$8,898	$3,121	35.1%	$1,989	22.4%	$297	2.2	3.0
4	765294	Sam & Moon	6	Regional	Small	$8,863	$3,068	34.6%	$2,034	23.0%	$328	2.7	2.3
5	772869	Nectar Network	6	Regional	Small	$8,057	$3,066	38.0%	$2,047	25.4%	$298	2.2	2.4
6	364956	Electric Edge Gaming	6	Regional	Small	$7,724	$2,867	37.1%	$1,431	18.5%	$198	1.5	2.7
7	852968	Ocean's Edge	6	Regional	Small	$7,497	$2,860	38.1%	$2,106	28.1%	$375	2.2	2.9
8	766167	Mountain & Mist	6	Regional	Small	$7,492	$2,892	38.6%	$1,624	21.7%	$220	1.8	2.5
9	833196	Nova Industries	6	Regional	Small	$7,074	$2,113	29.9%	$1,393	19.7%	$372	2.4	2.4
10	619986	Insight Innovations	6	Regional	Small	$7,068	$2,317	32.8%	$1,272	18.0%	$252	1.9	2.6
					Top 10 Totals	**$81,360**	**$28,947**	**35.6%**	**$18,087**	**22.2%**	**$282**	**2.1**	**2.6**
					Sales Rep Totals	**$129,982**	**$45,445**	**35.0%**	**$28,193**	**21.7%**	**$283**	**2.0**	**2.6**

For the final version of the report, we can do some additional formatting to pretty it up by visually separating the Criteria section from the report, adding headers, adjusting the columns, taking out the grid lines, etc. That is to make it printer and/or presentation friendly, and I won't go into the details of that, but you can see that in the example file.

Next up, I am going to do the same report, but with the FILTER formula which has its advantages and disadvantages.

Advantages and Disadvantages of the FILTER Formula

Now, after building the report above using multiple formulas, I'll demonstrate how to pull all the same data using just one formula: FILTER. You, of course, may ask why we didn't use FILTER in the first place. That's because while FILTER has its advantages, it also has limitations—specifically around flexibility and customization. I use it in specific scenarios, but typically I prefer SUMIFS, or a combination of VLOOKUP and SUMIFS, because they offer greater control and scalability for complex business reports.

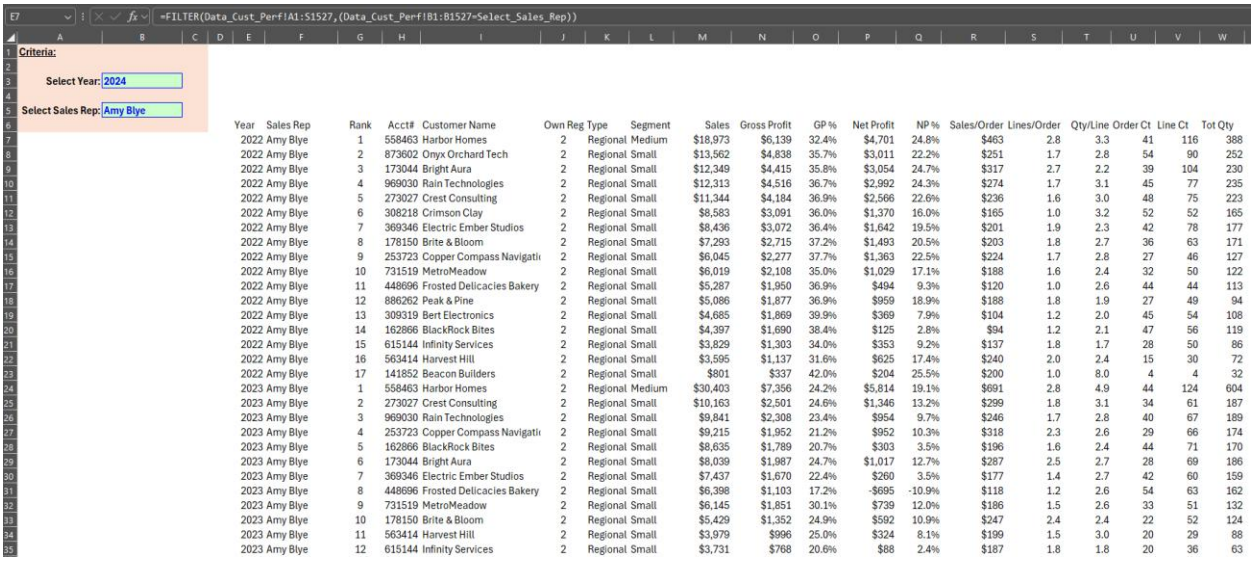


Yr	SalesRep	RepSalesRank	CustAcct	CustomerName	OwningRegNo	CustType	CustSegment	Sales	GrossProfit	GP_Prcnt	NetProfit	NP_Prcnt	OrderSales	OrderLines	LineQty	OrderCt	LineCt	TotQty
2022	Alberto Hunt	1	205478	Allied Factories	4	National	Top Tier	156740	16794	0.1	8525.8	0	653.08	3	5.95	240	761	4525
2022	Alberto Hunt	2	249077	Southern Foods	4	National	Large	97871	12019	0.1	3923.7	0	412.96	3	4.01	237	691	2768
2022	Alberto Hunt	3	196519	Speedway Motor Co.	1	National	Large	96275	13279	0.1	5487.3	0	420.42	3	4.00	229	637	2551
2022	Alberto Hunt	4	263517	Bently Foods	1	National	Large	77546	12924	0.2	4650.7	0	310.18	2	4.00	250	479	1918
2022	Alberto Hunt	5	537905	Fast Track Computers	4	National	Medium	57230	4239	0.1	-985.4	0	376.51	3	3.72	152	473	1761
2022	Alberto Hunt	6	629321	Ironclad Innovations	1	Regional	Medium	48521	12634	0.3	8738.4	0	437.13	4	2.82	111	417	1174
2022	Alberto Hunt	7	405328	Ether Echo	5	National	Medium	31785	3903	0.1	1814.2	0	538.73	4	3.32	59	243	806
2022	Alberto Hunt	8	861673	Oceanic Orbit Maritime	1	Regional	Small	4506	1396	0.3	632.1	0	195.90	2	2.72	23	47	128
2022	Alex Kwon	1	892687	Phoenix Finance	1	Regional	Medium	15458	5281	0.3	3709.2	0	328.89	2	2.71	47	105	285
2022	Alex Kwon	2	185163	Catalyst Consulting	1	Regional	Small	12021	4320	0.4	3169.4	0	353.57	3	2.72	34	89	242
2022	Alex Kwon	3	984729	Merris Real Estate	1	Regional	Small	8855	3494	0.4	2072.3	0	205.92	2	2.22	43	81	180
2022	Alex Kwon	4	970419	Radiant Reef Aquatics	1	Regional	Small	6148	2432	0.4	1051.5	0	142.97	1	2.98	43	43	128
2022	Alex Kwon	5	948416	Quantum Coast Consulting	1	Regional	Small	5118	1734	0.3	880.8	0	196.86	2	2.65	26	43	114
2022	Alex Kwon	6	626603	Steel Birch	1	Regional	Small	4621	1842	0.4	933.5	0	165.03	1	2.46	28	37	91
2022	Alex Kwon	7	316008	eTech Depot	1	National	Small	4358	535	0.1	-106.6	0	229.38	3	2.25	19	48	108
2022	Alex Kwon	8	133279	Bamboo Blossom Florists	1	Regional	Small	4038	1576	0.4	956.2	0	212.51	1	3.25	19	28	91
2022	Alex Kwon	9	453953	Frost Furnishings	1	Regional	Small	3975	1305	0.3	779.2	0	248.46	2	2.70	16	27	73
2022	Alex Kwon	10	934743	Pure Palate	1	Regional	Small	3452	976	0.3	452.4	0	215.77	2	2.60	16	25	65
2022	Alex Kwon	11	235689	Coast & Cedar	1	Regional	Small	3140	1070	0.3	609.3	0	224.31	2	2.13	14	24	51
2022	Alex Kwon	12	697252	Luxe Layers	1	Regional	Small	2825	1069	0.4	459.3	0	148.69	1	3.37	19	19	64
2022	Alex Kwon	13	759445	Mosaic Muse	1	Regional	Small	2769	994	0.4	556.8	0	212.99	2	2.74	13	31	85
2022	Alex Kwon	14	144503	Blaze Bazaar	1	Regional	Small	2348	945	0.4	-50.4	0	75.75	1	2.00	31	31	62
2022	Alex Kwon	15	572805	HeartBloom	1	Regional	Small	2339	827	0.4	216.9	0	123.10	1	2.42	19	19	46
2022	Alex Kwon	16	609362	Island Cruises	1	Regional	Small	1801	673	0.4	475.8	0	300.23	2	2.80	6	10	28
2022	Alex Kwon	17	791644	NextNest Homes	1	Regional	Small	1720	495	0.3	365.7	0	429.95	1	4.60	4	5	23
2022	Alex Kwon	18	970339	Radiant Realty	1	Regional	Small	1678	658	0.4	458.4	0	279.68	2	3.25	6	12	39
2022	Alex Kwon	19	713162	Luxure Lab	6	National	Small	1281	485	0.4	163.7	0	128.06	1	1.90	10	10	19
2022	Alex Kwon	20	309592	Cove Creations	1	Regional	Small	1239	387	0.3	-62.7	0	88.50	1	2.21	14	14	31

The FILTER function pulls data from a dataset into a defined cell range based on parameters specified in the formula. However, it returns data in the exact column order as it exists in the source dataset. This means you need to ensure the original data structure

matches the desired report layout, or you'll have to manually reorder the columns either before or after importing the data into Excel.

For this exercise, we'll use a second version of the dataset, available in the file **Interactive_Rept_Ex_Datasets.xlsx** on the tab **Dataset_v2** which you can download at this link. If you want to follow along, I recommend starting a new workbook and copying the dataset into a tab named **Data_Cust_Perf**.



E7 =FILTER(Data_Cust_Perf!A1:S1527,(Data_Cust_Perf!B1:B1527=Select_Sales_Rep))

Criteria:

Select Year: 2024

Select Sales Rep: Amy Blye

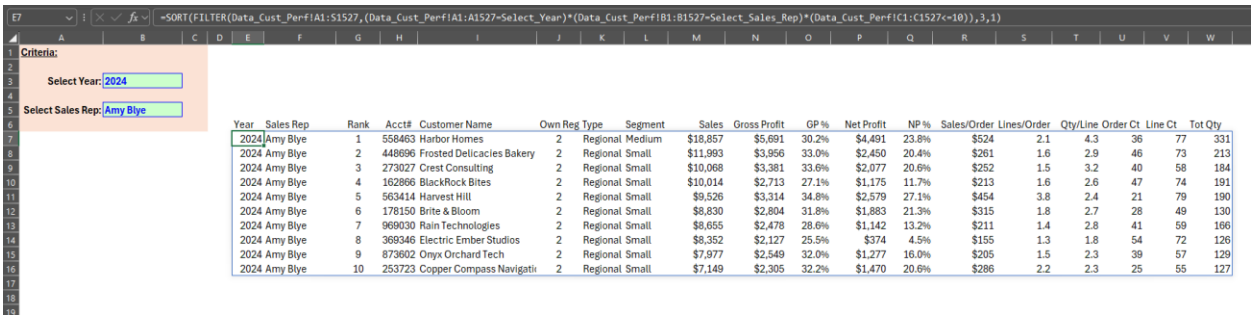
Year	Sales Rep	Rank	Acct#	Customer Name	Own Reg	Type	Segment	Sales	Gross Profit	GP %	Net Profit	NP %	Sales/Order	Lines/Order	Qty/Line	Order Ct	Line Ct	Tot Qty
2022	Amy Blye	1	558463	Harbor Homes	2	Regional	Medium	$18,973	$6,139	32.4%	$4,701	24.8%	$463	2.8	3.3	41	116	388
2022	Amy Blye	2	873602	Onyx Orchard Tech	2	Regional	Small	$13,562	$4,838	35.7%	$3,011	22.2%	$251	1.7	2.8	54	90	252
2022	Amy Blye	3	173044	Bright Aura	2	Regional	Small	$12,349	$4,415	35.8%	$3,054	24.7%	$317	2.7	2.2	39	104	230
2022	Amy Blye	4	969030	Rain Technologies	2	Regional	Small	$12,313	$4,516	36.7%	$2,992	24.3%	$274	1.7	3.1	45	77	235
2022	Amy Blye	5	273027	Crest Consulting	2	Regional	Small	$11,344	$4,184	36.9%	$2,566	22.6%	$236	1.6	3.0	48	75	223
2022	Amy Blye	6	308218	Crimson Clay	2	Regional	Small	$8,583	$3,091	36.0%	$1,370	16.0%	$165	1.0	3.2	52	52	165
2022	Amy Blye	7	369346	Electric Ember Studios	2	Regional	Small	$8,436	$3,072	36.4%	$1,642	19.5%	$201	1.9	2.3	42	78	177
2022	Amy Blye	8	178150	Brite & Bloom	2	Regional	Small	$7,293	$2,715	37.2%	$1,493	20.5%	$203	1.8	2.7	36	63	171
2022	Amy Blye	9	253723	Copper Compass Navigati	2	Regional	Small	$6,045	$2,277	37.7%	$1,363	22.5%	$224	1.7	2.8	27	46	127
2022	Amy Blye	10	731519	MetroMeadow	2	Regional	Small	$6,019	$2,108	35.0%	$1,029	17.1%	$188	1.6	2.4	32	50	122
2022	Amy Blye	11	448696	Frosted Delicacies Bakery	2	Regional	Small	$5,287	$1,950	36.9%	$494	9.3%	$120	1.0	2.6	44	44	113
2022	Amy Blye	12	886262	Peak & Pine	2	Regional	Small	$5,086	$1,877	36.9%	$959	18.9%	$188	1.8	1.9	27	49	94
2022	Amy Blye	13	309319	Bert Electronics	2	Regional	Small	$4,685	$1,869	39.9%	$369	7.9%	$104	1.2	2.0	45	54	108
2022	Amy Blye	14	162866	BlackRock Bites	2	Regional	Small	$4,397	$1,690	38.4%	$125	2.8%	$94	1.2	2.1	47	56	119
2022	Amy Blye	15	615144	Infinity Services	2	Regional	Small	$3,829	$1,303	34.0%	$353	9.2%	$137	1.8	1.7	28	50	86
2022	Amy Blye	16	563414	Harvest Hill	2	Regional	Small	$3,595	$1,137	31.6%	$625	17.4%	$240	2.0	2.4	15	30	72
2022	Amy Blye	17	141852	Beacon Builders	2	Regional	Small	$801	$337	42.0%	$204	25.5%	$200	1.0	8.0	4	4	32
2023	Amy Blye	1	558463	Harbor Homes	2	Regional	Medium	$30,403	$7,356	24.2%	$5,814	19.1%	$691	2.8	4.9	44	124	604
2023	Amy Blye	2	273027	Crest Consulting	2	Regional	Small	$10,163	$2,501	24.6%	$1,346	13.2%	$299	1.8	3.1	34	61	187
2023	Amy Blye	3	969030	Rain Technologies	2	Regional	Small	$9,841	$2,308	23.4%	$954	9.7%	$246	1.7	2.8	40	67	189
2023	Amy Blye	4	253723	Copper Compass Navigati	2	Regional	Small	$9,215	$1,952	21.2%	$952	10.3%	$318	2.3	2.6	29	66	174
2023	Amy Blye	5	162866	BlackRock Bites	2	Regional	Small	$8,635	$1,789	20.7%	$303	3.5%	$196	1.6	2.4	44	71	170
2023	Amy Blye	6	173044	Bright Aura	2	Regional	Small	$8,039	$1,987	24.7%	$1,017	12.7%	$287	2.5	2.7	28	69	186
2023	Amy Blye	7	369346	Electric Ember Studios	2	Regional	Small	$7,437	$1,670	22.4%	$260	3.5%	$177	1.4	2.7	42	60	159
2023	Amy Blye	8	448696	Frosted Delicacies Bakery	2	Regional	Small	$6,398	$1,103	17.2%	-$695	-10.9%	$118	1.2	2.6	54	63	162
2023	Amy Blye	9	731519	MetroMeadow	2	Regional	Small	$6,145	$1,851	30.1%	$739	12.0%	$186	1.5	2.6	33	51	132
2023	Amy Blye	10	178150	Brite & Bloom	2	Regional	Small	$5,429	$1,352	24.9%	$592	10.9%	$247	2.4	2.4	22	52	124
2023	Amy Blye	11	563414	Harvest Hill	2	Regional	Small	$3,979	$996	25.0%	$324	8.1%	$199	1.5	3.0	20	29	88
2023	Amy Blye	12	615144	Infinity Services	2	Regional	Small	$3,731	$768	20.6%	$88	2.4%	$187	1.8	1.8	20	36	63

We will use the same input parameters we set up previously. To start, we'll apply a single parameter filter to demonstrate how the function works. In cell E7 of the Sales_Rep_Top_10 tab, enter the following formula:

"=FILTER(Data_Cust_Perf!A1:S1527,(Data_Cust_Perf!B1:B1527=Select_Sales_Rep))".

This pulls all data from the **Data_Cust_Perf** tab where the Sales Rep matches the value selected in **Select_Sales_Rep**. Note that FILTER returns all columns from the range, including redundant data such as the Year and Sales Rep columns. We could limit the returned columns by adjusting the column range (e.g., stopping at column P), but in this example, we're including the full dataset because we'll use that additional data later.

The spill range dynamically fills the rows and columns with data that meets the specified criteria, but you will need to manually type in the headers.



To add additional filter criteria, enclose each in parentheses and separate them with an asterisk (*) to represent an AND condition. For example, here's the version of the formula that filters by Year and limits the data to the Top 10 customers:

"=FILTER(Data_Cust_Perf!A1:S1527,(Data_Cust_Perf!A1:A1527=Select_Year)*(Data_Cust_Perf!B1:B1527=Select_Sales_Rep)*(Data_Cust_Perf!C1:C1527<=10))"

This produces a dataset similar to our earlier reports, except it includes additional columns like Year, Sales Rep, and the OrderCt, LineCt, and TotQty fields at the end. We'll simply hide these columns in the final version to focus the report on the key metrics.

For better data presentation and to ensure the records are sorted by Top 10 rank, we can nest the FILTER function within SORT to assure the results are sorted by the third column (Sales Rank) in ascending order:

"=SORT(FILTER(Data_Cust_Perf!A1:S1527,(Data_Cust_Perf!A1:A1527=Select_Year)*(Data_Cust_Perf!B1:B1527=Select_Sales_Rep)*(Data_Cust_Perf!C1:C1527<=10)),3,1)".

For documentation purposes, highlight the data in columns E, F, U, V, and W in Plum **(1)** to indicate they will be hidden in the final report. Afterward, you can add totals at the bottom of the data using basic aggregate functions such as SUM, since the data has already been filtered appropriately **(2)**.

This is one of the advantages of FILTER—it allows you to use the visible dataset for calculations without needing to rely on separate criteria-based formulas like SUMIFS.

Year	Sales Rep	Rank	Acct#	Customer Name	Own Reg	Type	Segment	Sales	Gross Profit	GP %	Net Profit	NP %	Sales/Order	Lines/Order	Qty/Line	Order Ct	Line Ct	Tot Qty
2024	Amy Blye	1	558463	Harbor Homes	2	Regional	Medium	$18,857	$5,691	30.2%	$4,491	23.8%	$524	2.1	4.3	36	77	331
2024	Amy Blye	2	448696	Frosted Delicacies Bakery	2	Regional	Small	$11,993	$3,956	33.0%	$2,450	20.4%	$261	1.6	2.9	46	73	213
2024	Amy Blye	3	273027	Crest Consulting	2	Regional	Small	$10,068	$3,381	33.6%	$2,077	20.6%	$252	1.5	3.2	40	58	184
2024	Amy Blye	4	162866	BlackRock Bites	2	Regional	Small	$10,014	$2,713	27.1%	$1,175	11.7%	$213	1.6	2.6	47	74	191
2024	Amy Blye	5	563414	Harvest Hill	2	Regional	Small	$9,526	$3,314	34.8%	$2,579	27.1%	$454	3.8	2.4	21	79	190
2024	Amy Blye	6	178150	Brite & Bloom	2	Regional	Small	$8,830	$2,804	31.8%	$1,883	21.3%	$315	1.8	2.7	28	49	130
2024	Amy Blye	7	969030	Rain Technologies	2	Regional	Small	$8,655	$2,478	28.6%	$1,142	13.2%	$211	1.4	2.8	41	59	166
2024	Amy Blye	8	369346	Electric Ember Studios	2	Regional	Small	$8,352	$2,127	25.5%	$374	4.5%	$155	1.3	1.8	54	72	126
2024	Amy Blye	9	873602	Onyx Orchard Tech	2	Regional	Small	$7,977	$2,549	32.0%	$1,277	16.0%	$205	1.5	2.3	39	57	129
2024	Amy Blye	10	253723	Copper Compass Navigati	2	Regional	Small	$7,149	$2,305	32.2%	$1,470	20.6%	$286	2.2	2.3	25	55	127
								$101,421	$31,318	30.9%	$18,918	18.7%	$269	1.7	2.7	377	653	1787
				(1)				$116,676	$35,596	30.5%	$21,093	18.1%	$265	1.8	2.7			

The totals row that shows all of the sales rep's activity **(1)** will still need to use the SUMIFS formula like we did in the previous section because it has additional data beyond what the FILTER is pulling in. As an option, we could hide any rows beyond the Top 10 customers, but that varies by rep, and the spillover data may conflict with the totals and cause an error. So instead, the SUMIFS is probably the better way to go.

Criteria:

Select Year: 2024

Select Sales Rep: Amy Blye

Top 10 Customers by Sales Rep

Year: 2024 Sales Rep: Amy Blye

Rank	Acct#	Customer Name	Own Reg	Type	Segment	Sales	Gross Profit	GP %	Net Profit	NP %	Sales/Order	Lines/Order	Qty/Line
1	558463	Harbor Homes	2	Regional	Medium	$18,857	$5,691	30.2%	$4,491	23.8%	$524	2.1	4.3
2	448696	Frosted Delicacies Bakery	2	Regional	Small	$11,993	$3,956	33.0%	$2,450	20.4%	$261	1.6	2.9
3	273027	Crest Consulting	2	Regional	Small	$10,068	$3,381	33.6%	$2,077	20.6%	$252	1.5	3.2
4	162866	BlackRock Bites	2	Regional	Small	$10,014	$2,713	27.1%	$1,175	11.7%	$213	1.6	2.6
5	563414	Harvest Hill	2	Regional	Small	$9,526	$3,314	34.8%	$2,579	27.1%	$454	3.8	2.4
6	178150	Brite & Bloom	2	Regional	Small	$8,830	$2,804	31.8%	$1,883	21.3%	$315	1.8	2.7
7	969030	Rain Technologies	2	Regional	Small	$8,655	$2,478	28.6%	$1,142	13.2%	$211	1.4	2.8
8	369346	Electric Ember Studios	2	Regional	Small	$8,352	$2,127	25.5%	$374	4.5%	$155	1.3	1.8
9	873602	Onyx Orchard Tech	2	Regional	Small	$7,977	$2,549	32.0%	$1,277	16.0%	$205	1.5	2.3
10	253723	Copper Compass Navigati	2	Regional	Small	$7,149	$2,305	32.2%	$1,470	20.6%	$286	2.2	2.3
					Top 10 Totals	$101,421	$31,318	30.9%	$18,918	18.7%	$269	1.7	2.7
					Sales Rep Totals	$116,676	$35,596	30.5%	$21,093	18.1%	$265	1.8	2.7

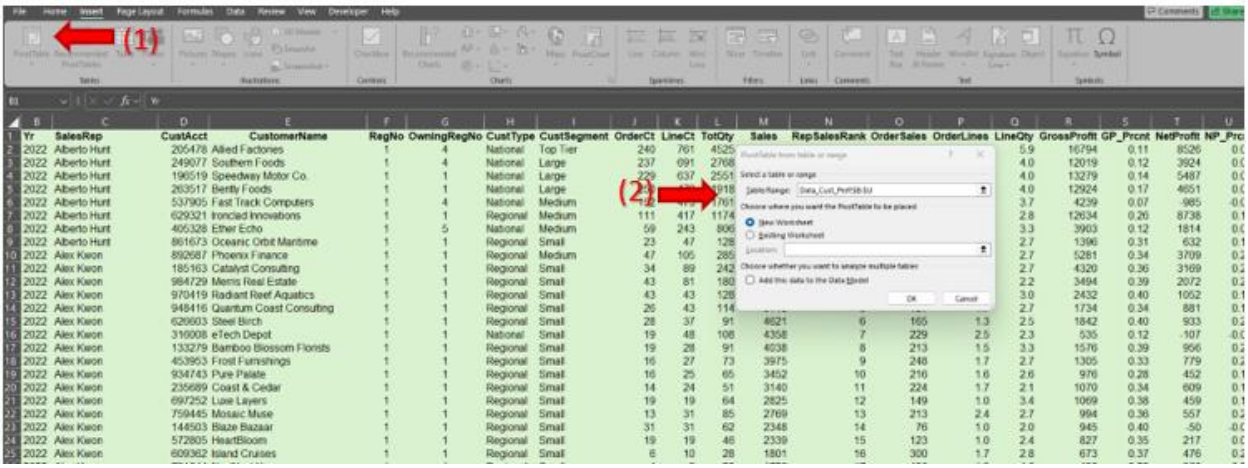
From this point, we can format the report as we did before and hide the columns that are not needed. In the end it looks the same, but I prefer not to have data on the report tab that is not needed. Also if we want to add a column with additional calculations, it would have to go at the end. Or we would have to add it on the tab with the dataset in the order that we want it to appear on the report. Take for example if we decided to bring in the overall sales rank we added to the first dataset, I would have to do at the end which does not look great from a data visualization perspective, or we have to re-order the columns in the dataset.

Ultimately, you can decide which method you prefer. The FILTER formula is pretty simple once you get the hang of it, but it is less flexible, and you may need to figure out how to work in data that is not part of the dataset. The combination of VLOOKUP and SUMIFS requires more formulas, but gives you more control over the data you bring in and more flexibility.

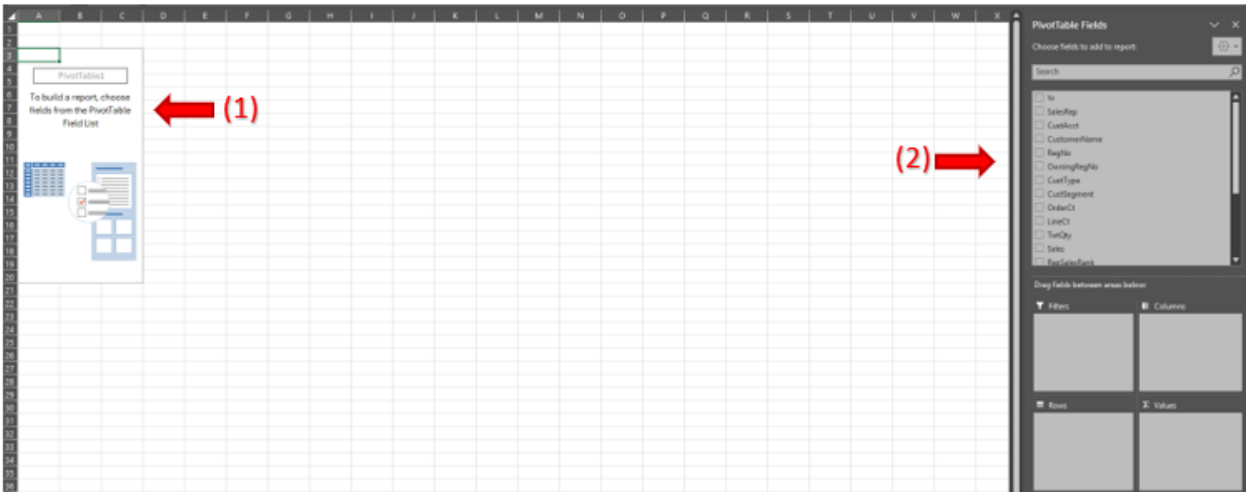
Up next, we will build a similar report using a simple Pivot Table.

Using a PivotTable for Interactive Reporting

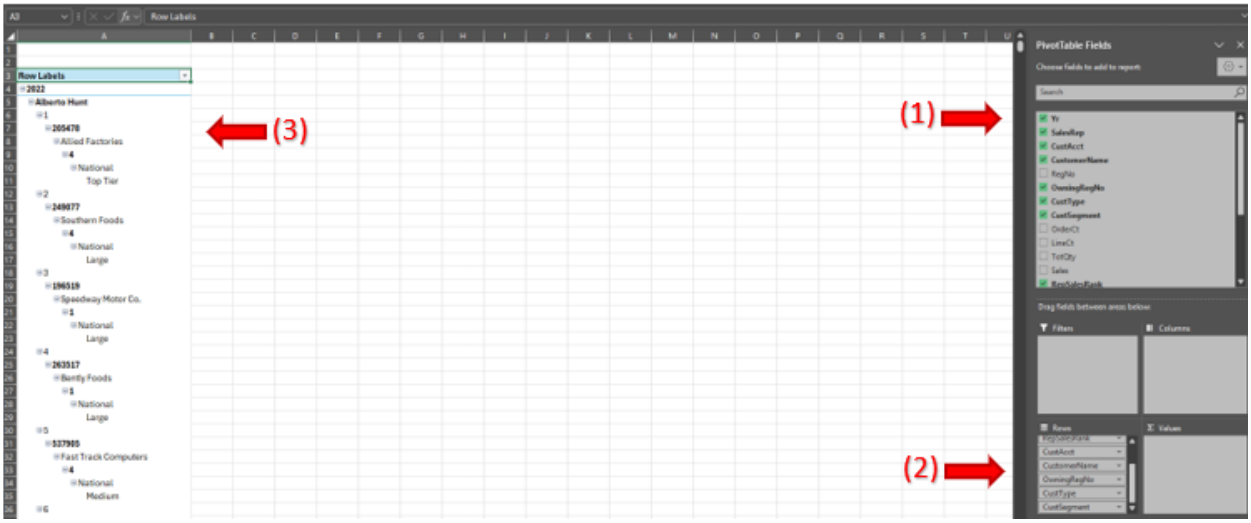
PivotTables also offer an option for interactive reporting, but as with any reporting method, there are both advantages and disadvantages. If you have a solid understanding of PivotTables, they can be a powerful analytical tool, allowing you to summarize, analyze, and explore data with relative ease. However, if you're creating reports that will be used by people who are not well-versed in PivotTable functionality, there can be many user experience pitfalls. When I do utilize PivotTables in reporting solutions, I usually design them in such a way that the interactive elements are intuitive and easy to navigate for end users.



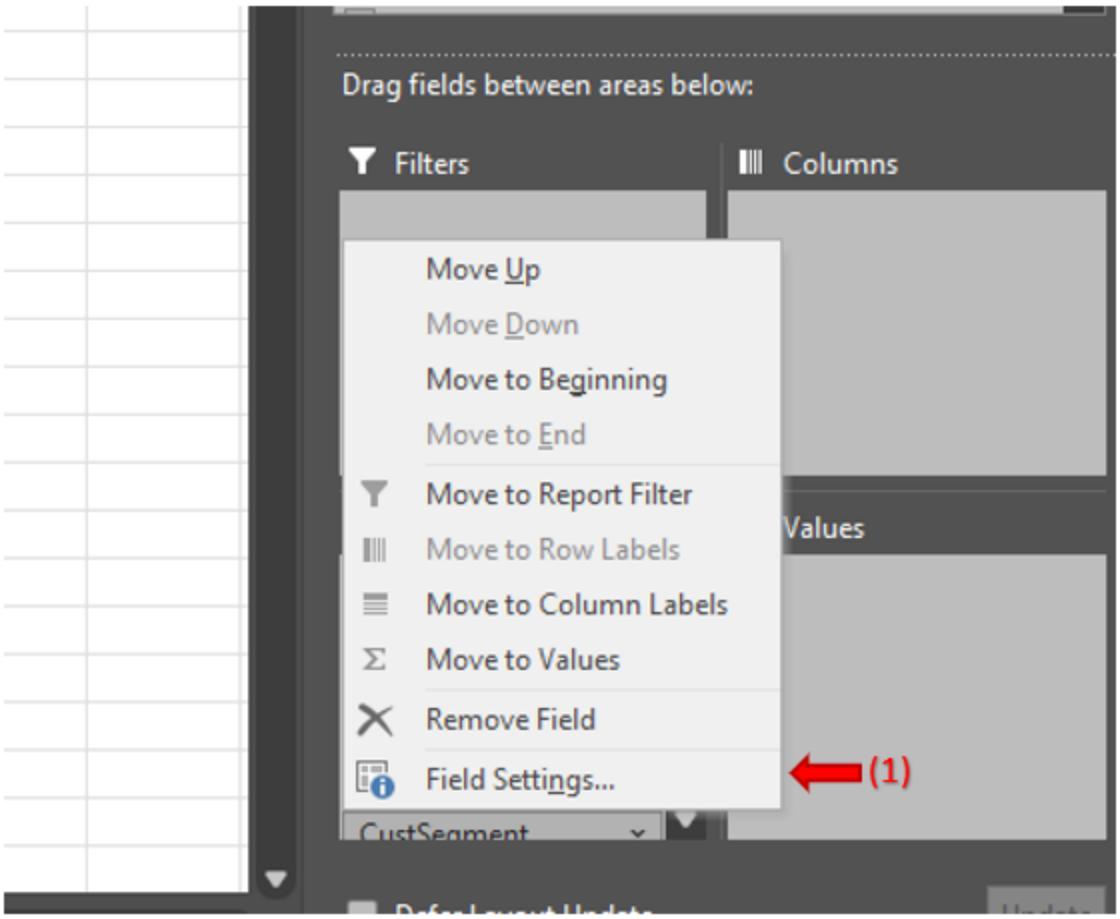
I am going to assume that you have basic knowledge of PivotTables, though if not, the instructions I provide should still get you through the process. To start, we'll return to the original dataset as our base data source. Select columns B through U from the **Data_Cust_Perf** tab, then navigate to the Insert ribbon and select **PivotTable** >> **From Table/Range (1)**. This will open a **Create PivotTable** dialog box **(2)**; accept the default option to create the PivotTable on a new worksheet and click **OK**.



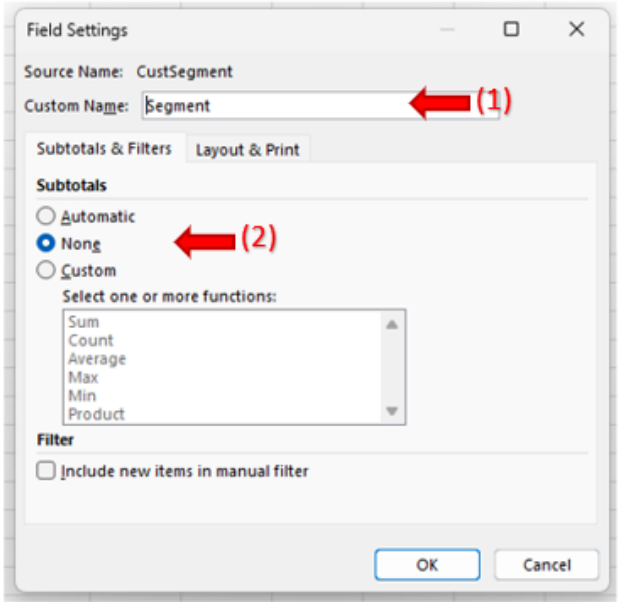
This will create a blank PivotTable canvas on the left and open the **Field List** on the right. We'll start by adding the row fields, which will make up the first columns of the report, followed by the numeric values for our analysis. We won't be using the **Columns** section here, as we are creating a flat-file report structure.

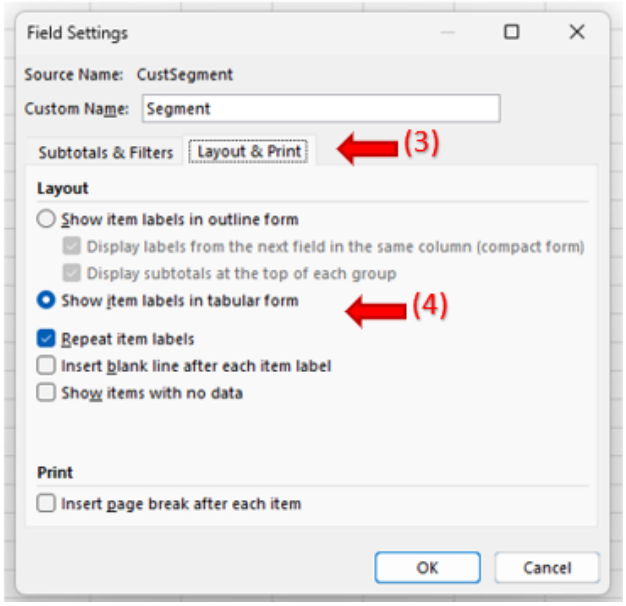


Hover your mouse over the Yr field **(1)** in the **PivotTable Fields** list, then left-click and drag it into the **Rows** area **(2)**. Repeat this process for the following fields: SalesRep, CustAcct, CustName, OwningRegNo, CustType, and CustSegment. You'll notice that in the PivotTable on the left, each field is nested beneath the previous one and indented **(3)**—this is not the layout we want, since we are aiming for a tabular, flat-file output. We'll need to adjust the layout formatting.



Click on the CustSegment field in the **Rows** box and then on the **Field Settings (1)** options in the pop up menu. This brings up the **Field Settings** popup where we will adjust the properties of how the field is displayed.

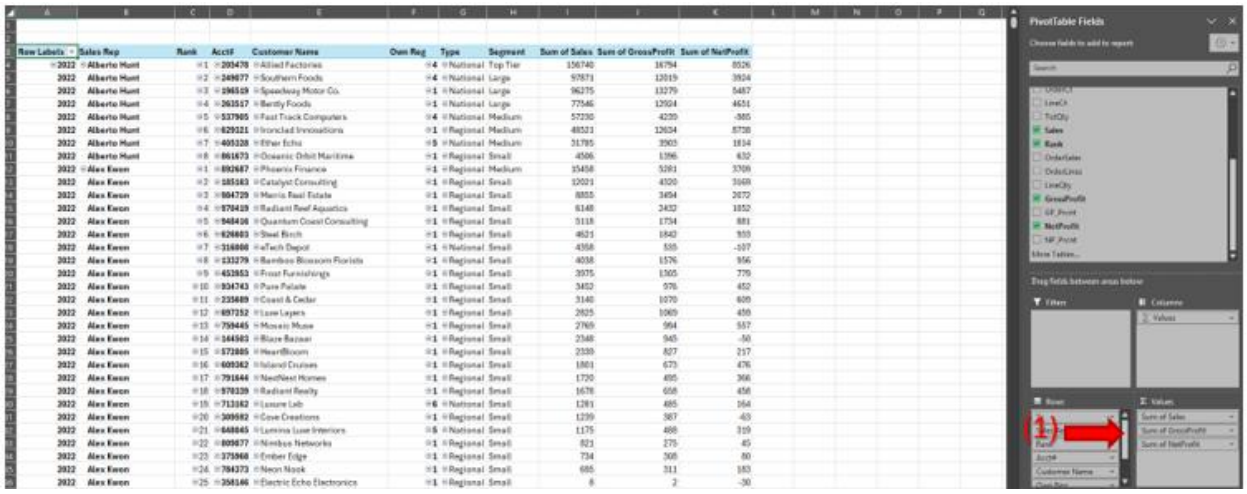




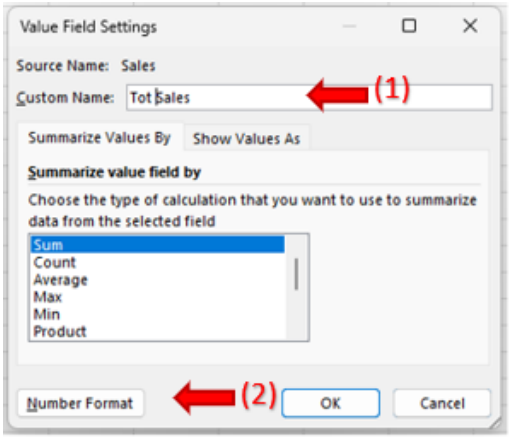
Make the following adjustments:

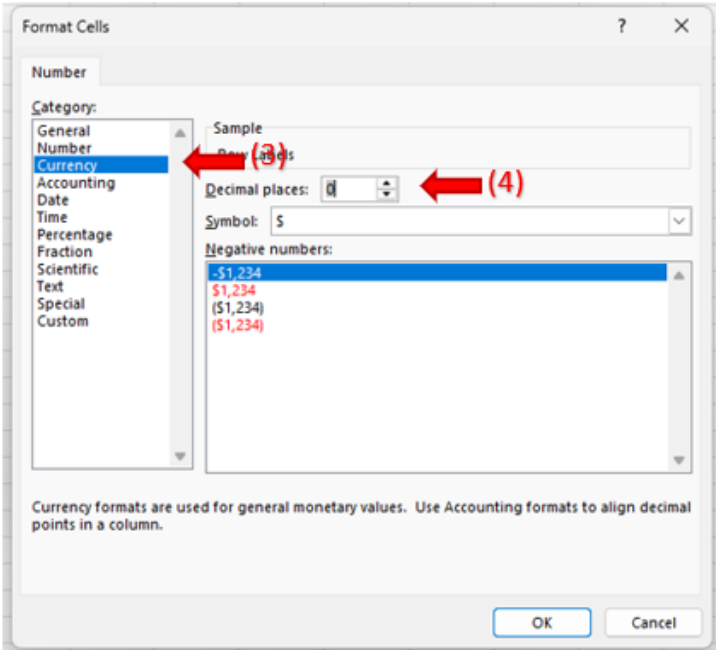
1. Change the **Custom Name** to a more report-friendly label "Segment" **(1)**.
2. In the **Subtotals & Filters** section, select None **(2)**.
3. Navigate to the **Layout & Print** tab **(3)**, and in the **Layout** section, select **Show item labels in tabular form** and **Repeat item labels (4)**.
4. Click **OK**.

Repeat these adjustments for SalesRep, RepSalesRank, CustAcct, CustName, OwningRegNo, and CustType, renaming them for clarity (e.g., "Sales Rep", "Rank", "Acct#", "Customer Name", "Own Reg", and "Type"). While renaming isn't strictly required, I recommend it to ensure column headers are user-friendly and align with reporting standards.

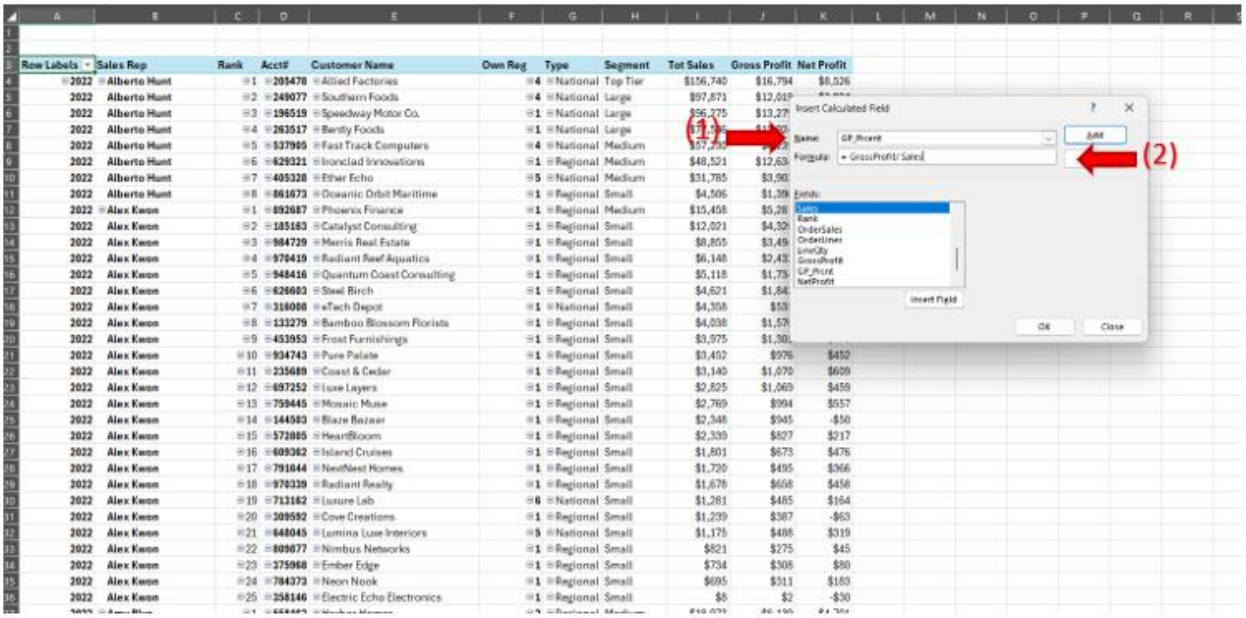


Once the fields are set to tabular form, we can add the numerical data fields—Sales, GrossProfit, and NetProfit—to the Values area. These will also display in the tabular layout, and since the PivotTable doesn't create subtotals for values added in this section, we get a flat output appropriate for data analysis and export.





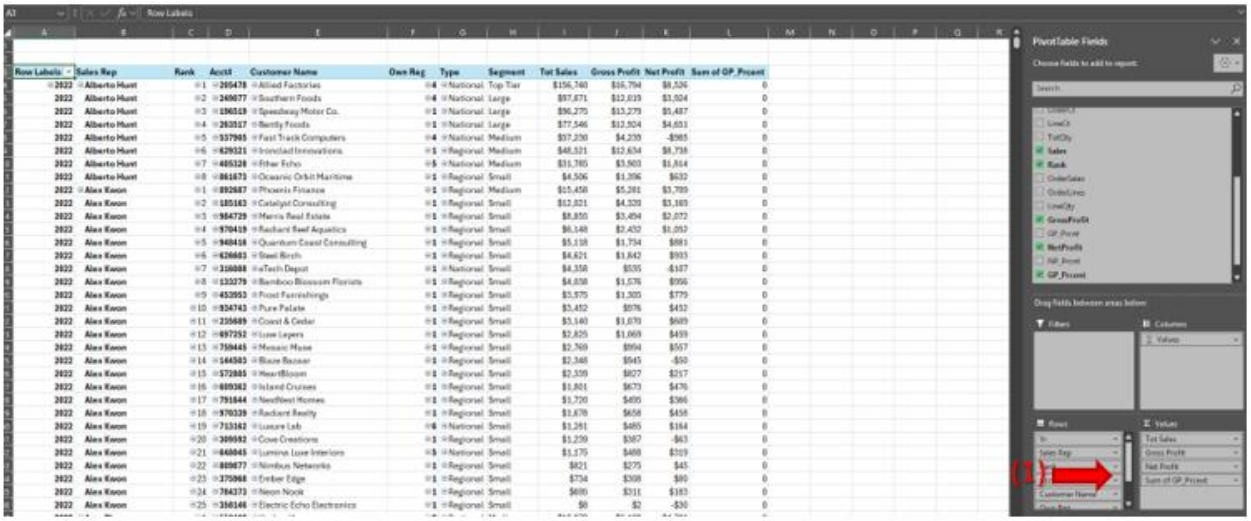
You will see that in the Rows section, "Sum of" has been added in front of the field name and it is also displayed that way in the Pivot Table. That is because Sum is the default selection for numeric fields, though that can be changed to Average, Max, Min, etc. We will keep it as Sum and format the Sales field by clicking on the Sum of Sales box in the **Rows** section and selecting **Value Field Settings**. We will rename the field to "Tot Sales" **(1)** and then click on the Number Format button **(2)**. (Note that since we have the field Sales in the original dataset, we cannot rename a calculated field using the same name, thus the reason we used "Tot Sales".) For the **Number Format**, select **Currency (3)** and 0 decimal places **(4)**. Do the same for GrossProfit and NetProfit, renaming them "Gross Profit" and "Net Profit" respectively.



For calculated fields like GP %, NP %, Sales/Order, etc., you could use the Average aggregation function. However, this would yield an average of averages, which isn't mathematically accurate for most business reporting needs. Instead, we'll create **Calculated Fields** to ensure the accuracy of these metrics.

Navigate to the **PivotTable Analyze** ribbon and select **Fields, Items, & Sets** >> **Calculated Field**. In the **Insert Calculated Field** dialog box:

1. Enter "GP_Prcent" in the Name field **(1)**.
2. In the Formula field, type "=GrossProfit/Sales" to create a gross profit percentage calculation **(2)**.
3. Click **OK** to add the field.

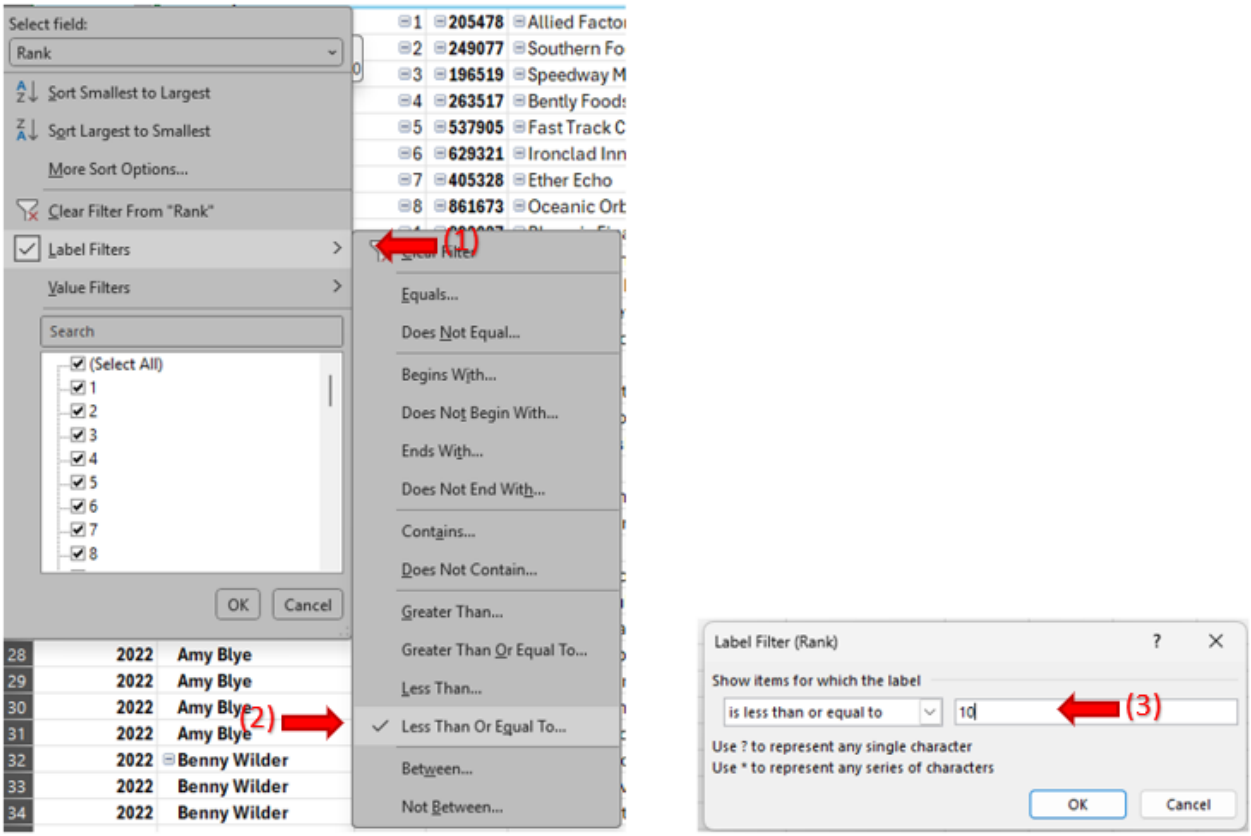


By default, the calculated field displays as a numeric field with the aggregation set to Sum. We'll need to change that to Average. Click Sum of GP_Prcent in the **Values** area **(1)**, select **Value Field Settings**, change the aggregation to Average, and adjust the **Number Format** to Percentage with one decimal place. Rename it "GP %".

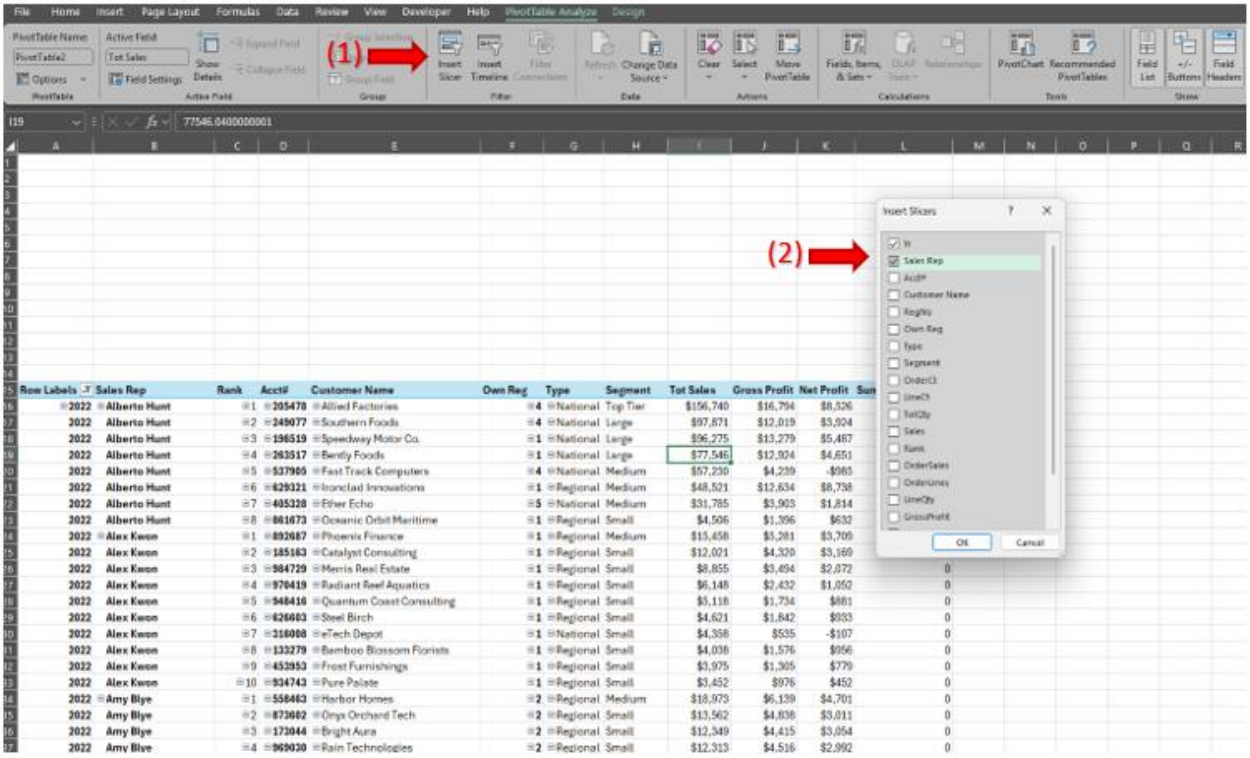
Repeat this process for the following calculated fields:

- NP % = NetProfit/Sales
- Sales/Order = Sales/OrderCt
- Lines/Order = LineCt/OrderCt
- Qty/Line = TotQty/LineCt

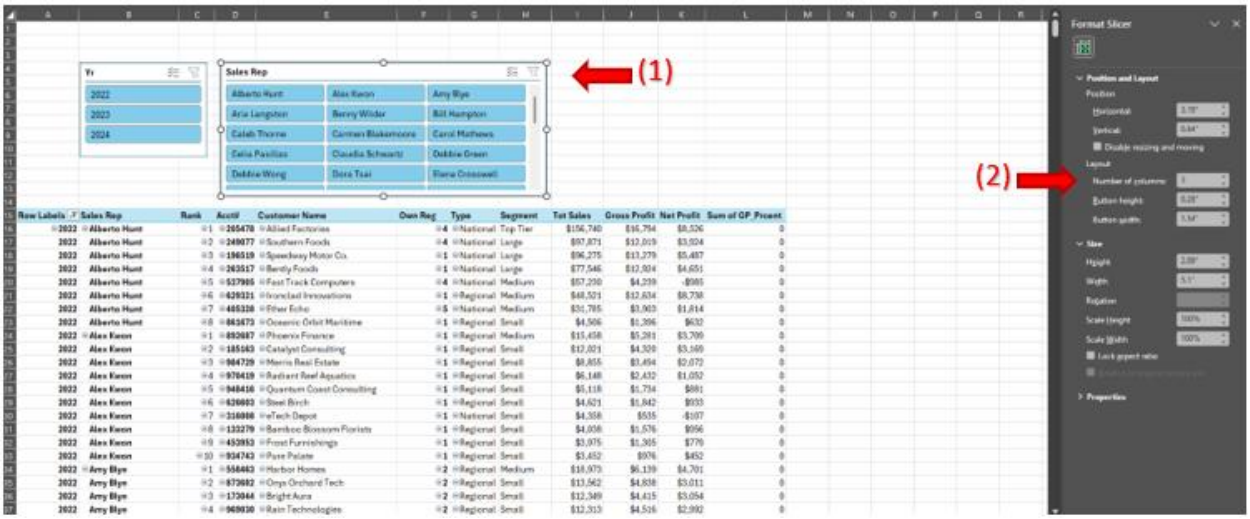
Important: When creating calculated fields, you must give them unique names that do not conflict with any column names in your dataset (e.g., "GP_Prcent" initially, then rename it "GP %").



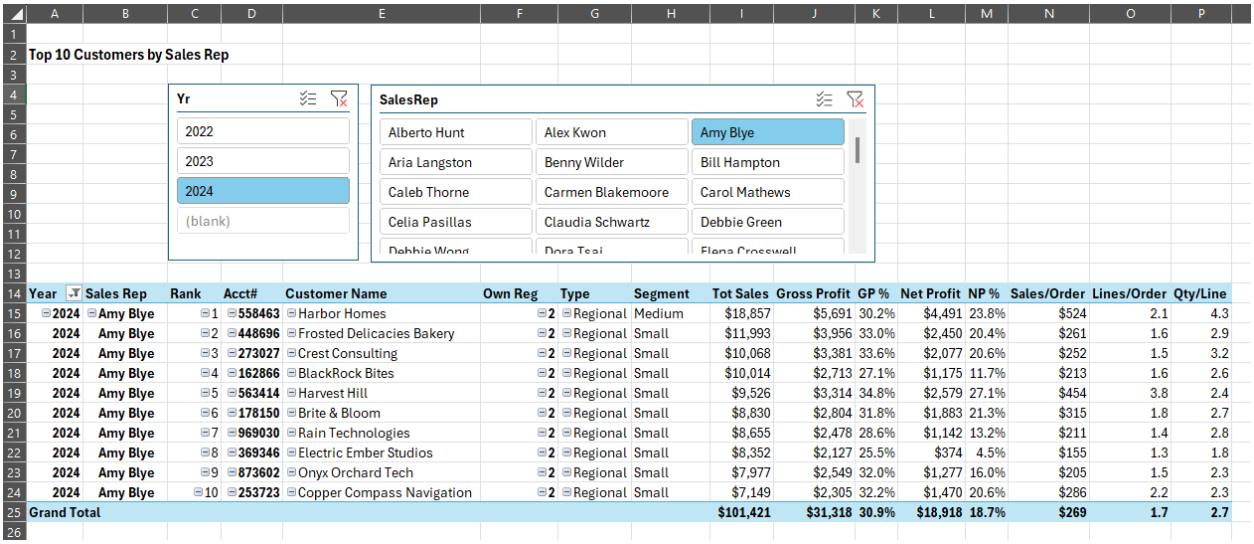
Now we'll apply a Rank Filter to limit the results to the Top 10 customers. Click the filter drop-down in cell A3, choose the Rank field, and select **Label Filters (1)** >> **Less Than or Equal To (2)**. Enter 10 in the filter dialog box **(3)** and click **OK**.



To finalize the interactive components, add additional spacing to your worksheet so that the report headers start at row 14. Then, click anywhere inside the PivotTable, navigate to the **PivotTable Analyze** ribbon, and select **Insert Slicer (1)**. Choose Yr and SalesRep as slicer fields **(2)** and click **OK**.



Reposition the slicers above the data area for better user interface layout. Right-click the SalesRep slicer **(1)**, select **Size & Properties**, and adjust the **Layout** in the **Position and Layout** section **(2)** so the slicer displays 3 columns of Sales Reps to make it easier to work with. Adjust the slicer width as necessary to display names clearly.



Top 10 Customers by Sales Rep

Yr: 2022, 2023, 2024, (blank)

SalesRep: Alberto Hunt, Alex Kwon, Amy Blye, Aria Langston, Benny Wilder, Bill Hampton, Caleb Thorne, Carmen Blakemoore, Carol Mathews, Celia Pasillas, Claudia Schwartz, Debbie Green, Debbie Wong, Dora Tsai, Elena Crosswell

Year	Sales Rep	Rank	Acct#	Customer Name	Own Reg	Type	Segment	Tot Sales	Gross Profit	GP %	Net Profit	NP %	Sales/Order	Lines/Order	Qty/Line
2024	Amy Blye	1	558463	Harbor Homes	2	Regional	Medium	$18,857	$5,691	30.2%	$4,491	23.8%	$524	2.1	4.3
2024	Amy Blye	2	448696	Frosted Delicacies Bakery	2	Regional	Small	$11,993	$3,956	33.0%	$2,450	20.4%	$261	1.6	2.9
2024	Amy Blye	3	273027	Crest Consulting	2	Regional	Small	$10,068	$3,381	33.6%	$2,077	20.6%	$252	1.5	3.2
2024	Amy Blye	4	162866	BlackRock Bites	2	Regional	Small	$10,014	$2,713	27.1%	$1,175	11.7%	$213	1.6	2.6
2024	Amy Blye	5	563414	Harvest Hill	2	Regional	Small	$9,526	$3,314	34.8%	$2,579	27.1%	$454	3.8	2.4
2024	Amy Blye	6	178150	Brite & Bloom	2	Regional	Small	$8,830	$2,804	31.8%	$1,883	21.3%	$315	1.8	2.7
2024	Amy Blye	7	969030	Rain Technologies	2	Regional	Small	$8,655	$2,478	28.6%	$1,142	13.2%	$211	1.4	2.8
2024	Amy Blye	8	369346	Electric Ember Studios	2	Regional	Small	$8,352	$2,127	25.5%	$374	4.5%	$155	1.3	1.8
2024	Amy Blye	9	873602	Onyx Orchard Tech	2	Regional	Small	$7,977	$2,549	32.0%	$1,277	16.0%	$205	1.5	2.3
2024	Amy Blye	10	253723	Copper Compass Navigation	2	Regional	Small	$7,149	$2,305	32.2%	$1,470	20.6%	$286	2.2	2.3
Grand Total								$101,421	$31,318	30.9%	$18,918	18.7%	$269	1.7	2.7

In our final version, selecting a Year and a Sales Rep from the slicers produces essentially the same report as we generated previously, with totals automatically calculated at the bottom of the PivotTable. However, you'll need to include both the Year and Sales Rep fields in the report itself to ensure clarity, especially when multiple slicer selections are available—otherwise, the report might combine data in unintended ways.

Also, avoid adding custom totals beneath the PivotTable. If slicer selections generate too many results, it can trigger conflicts with any manually inserted rows and create an error. This, along with some formatting quirks, is one reason why I might opt not to use PivotTables for final report delivery. Still, they offer powerful interactive capabilities, especially for ad-hoc reporting and data exploration.

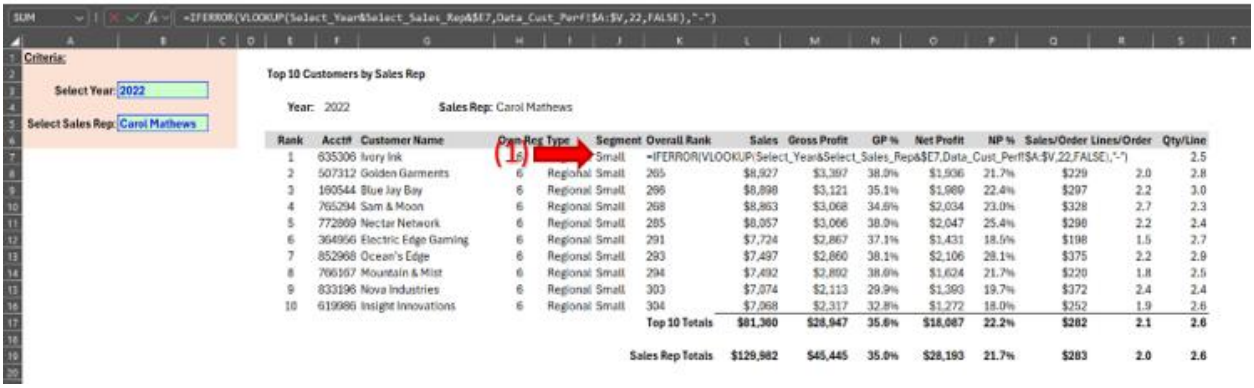
This was a high-level overview of building an interactive report using PivotTables and should not be considered a comprehensive guide. That said, it demonstrates the versatility and analytical power of Excel's PivotTable tool—capabilities that are further enhanced when combined with Power Pivot and other advanced data modeling techniques.

To close out our interactive report example, I will cover documentation to assure sustainability of the report.

Documenting and Maintaining a Report

So we have built the same report in three different formats and all have generally the same end result. Now it is important to document what we have done so that if it needs to be refreshed, there are instructions to act as a guide. This is important even if the report is a one-time request because there is always a chance that this report or something similar will be requested again. Throughout my career, there are multiple times where I have

generated an ad hoc report quickly and sent it out without documenting it, then a year later I get asked for the same report again and had to spend unnecessary time figuring out how I originally pulled the data together. Proper documentation makes it much easier to go back and refresh the report or for a co-worker to step in and take over.



Criteria:

Select Year: 2022

Select Sales Rep: Carol Mathews

Top 10 Customers by Sales Rep

Year: 2022 Sales Rep: Carol Mathews

Rank	Acct#	Customer Name	Cust Reg Type	Segment	Overall Rank	Sales	Gross Profit	GP %	Net Profit	NP %	Sales/Order	Lines/Order	Qty/Line
1	635306	Ivory Ink	6	Regional	Small	=IFERROR(VLOOKUP(Select_Year&Select_Sales_Rep&$E7,Data_Cust_Perf!$A:$V,22,FALSE),"-")							2.5
2	507312	Golden Garments	6	Regional	Small	265	$8,927	$3,397	38.0%	$1,936	21.7%	$229	2.0	2.8
3	180544	Blue Jay Bay	6	Regional	Small	266	$8,898	$3,121	35.1%	$1,989	22.4%	$297	2.2	3.0
4	765294	Sam & Moon	6	Regional	Small	268	$8,863	$3,068	34.6%	$2,034	23.0%	$328	2.7	2.3
5	772869	Nectar Network	6	Regional	Small	285	$8,057	$3,066	38.0%	$2,047	25.4%	$298	2.2	2.4
6	364956	Electric Edge Gaming	6	Regional	Small	291	$7,724	$2,867	37.1%	$1,431	18.5%	$198	1.5	2.7
7	852968	Ocean's Edge	6	Regional	Small	293	$7,497	$2,860	38.1%	$2,106	28.1%	$375	2.2	2.9
8	766167	Mountain & Mist	6	Regional	Small	294	$7,492	$2,892	38.6%	$1,624	21.7%	$220	1.8	2.5
9	833196	Nova Industries	6	Regional	Small	303	$7,074	$2,113	29.9%	$1,393	19.7%	$372	2.4	2.4
10	619986	Insight Innovations	6	Regional	Small	304	$7,068	$2,317	32.8%	$1,272	18.0%	$252	1.9	2.6
						Top 10 Totals	$81,360	$28,947	35.6%	$18,087	22.2%	$282	2.1	2.6
						Sales Rep Totals	$129,982	$45,445	35.0%	$28,193	21.7%	$283	2.0	2.6

Before diving into documentation, let's assume the requestor came back with a change: they'd like the Overall Sales Rank field added after the Segment field. We'll reference this adjustment in our documentation. For the first version of the report, this is fairly simple. We just add a column between Segment and Sales and insert a VLOOKUP formula to bring in the Overall Sales Rank, which we had previously included in the dataset.

If the requestor had wanted the field in a different position, say after Customer Name, we would have needed to adjust the **Col_Index_Num** in the subsequent columns of the report—something I covered in the VLOOKUP section earlier. But we will assume the requestor went easy on us.

How you choose to document a report may vary depending on the audience, but even for a one-off ad hoc report, it's important to provide enough information to support future refreshes or handoffs to other team members. This report, for example, includes a dataset and several formulas that will require updates whenever the data is refreshed, so the documentation needs to cover those points clearly.

	A	B
1	**Report Info:**	
2		
3	**File Name:**	Sales_Rep_Top_10.xslx
4		
5	**Requestor:**	South West Region Manager
6		
7	**Report Creator:**	Paul S. White
8		
9	**Last Updated:**	1/15/2025

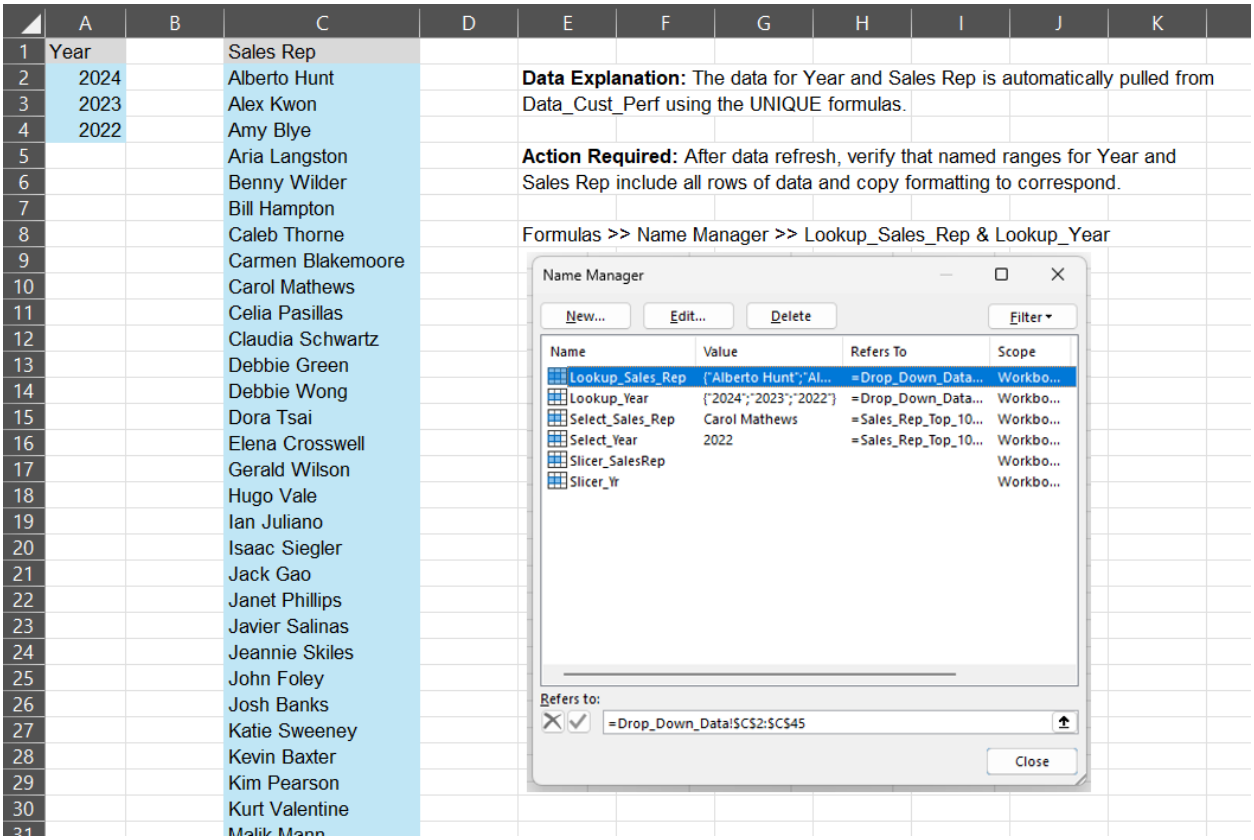
To start off with, I will add a tab titled Report_Info that will contain much of the documentation. The first section of that tab will just have basic info like the file name, the requestor name, the name of the person who created the report, and when it was last updated.

11	**Report and Data Tabs:**	
12		
13	**Sales_Rep_Top_10:**	This tab contains a formated, interactive report that pulls Top 10 customers by sales rep by year.
14		It is driven by data from the tabs **Data_Cust_Perf** and **Drop_Down_Data**.
15		
16	**Data_Cust_Perf:**	This tab contains the data that was supplied to generate the report from a SQL query (see below).
17		
18		**Fields:**
19		
20		**Column A: Lookup**
21		
22		**Data Explanation:** This field contains a formula that drives the VLOOKUP the pulls
23		data to the tab Sales_Rep_Top_10.
24		
25		**Action Required:** After the data from the SQL query is copied into the tab, be
26		sure to copy the formula and formatting to correspond with the dataset.
27		
28		**Columns B:U**
29		
30		**Data Explanation**: These columns are supplied by the SQL query.
31		
32		**Action Required:** The data should be copied here with formatting copied to the
33		corresponding cells.
34		
35		**Column V: YearSalesRank**
36		
37		**Data Explanation:** This formula calculates the customer sales rank by year.
38		
39		**Action Required:** After the data from the SQL query is copied into the tab, be sure to
40		copy the formula and formatting to correspond with the dataset.
41		
42	**Drop_Down_Data:**	This tab contains the data that supplies the parameters on the tab Sales_Rep_Top_10. It is
43		automatically generated using the UNIQUE formula.
44		
45		**Action Required:** Follow the instructions on the tab to updated the Named Ranges
46		after the data has been updated.

The second section will contain a description of each of the report and data tabs along with action items that need to be carried out when the report is refreshed. As you will recall, we previously highlighted data and formula cells to separate them out, and I will be referring to that formatting here.

48	**SQL:**
49	
50	**Action Required:** Run the following SQL query for updates and copy to the tab
51	**Data_Cust_Perf** per the instructions above.
52	
53	Select
54	Yr,
55	SalesRep,
56	CustAcct,
57	CustomerName,
58	RegNo,
59	OwningRegNo,
60	CustType,
61	CustSegment,
62	OrderCt,
63	LineCt,
64	TotQty,
65	Sales,
66	RepSalesRank,
67	OrderSales,
68	OrderLines,
69	LineQty,
70	GrossProfit,
71	GP_Prcnt,
72	NetProfit,
73	NP_Prcnt
74	
75	From
76	view_CustRegSum
77	
78	Where
79	Yr Between 2022 and 2024
80	
81	Order by
82	Yr,
83	SalesRep,
84	RepSalesRank

The next section will have the info on the query or queries that need to be run to update the data. More sections can be added to the report if additional documentation is needed. And if this were to become an ongoing report with regularly scheduled refreshes, more thorough documentation would be required.



Finally, the Drop_Down_Data tab, there is some additional documentation calling out the formulas used and the need to update the Named Ranges after a refresh.

Some reports may not require as much documentation, but the main thing you want to address is the business continuity and the ability to refresh the report in a timely manner. And even if this is one-time ad hoc request, I still like to provide enough information in case refresh is requested or the existing request evolves into a larger report.

This Is Only the Beginning

This exercise was designed to demonstrate some of the basic interactive functionality available in Excel, and how these features can be applied to a relatively simple reporting request. Technically, we could have satisfied the original request by providing a raw data export from a query and allowing the requestor to apply filters. Instead, we provided a user-friendly, interactive report, complete with totals and comparative metrics, to enhance decision-making and data storytelling.

There are numerous additional interactive tools and features available in Excel, including PowerPivot, Power Query, Macros, and more. Each has its place in data analysis and

business intelligence, but sometimes simpler solutions are the best approach—especially for ad hoc requests or for teams without access to advanced BI tools.

I will be following this up with an exercise that does take the report to the next level and that creates a performance dashboard for Regional Managers to use in tracking how their regions and sales reps are progressing. That will rely upon some more advanced features and allow you to take your skills in interactive report creation in Excel to the next level. That will be covered in Part 2 of this series.

Appendix

VLOOKUP

VLOOKUP stands for Vertical Lookup. It's a function in Excel that searches for a value in the first column of a range (or table) and returns a value in the same row from another column. It's one of the most commonly used lookup and reference functions in Excel for pulling related data from tables.

Basic Syntax of VLOOKUP:

VLOOKUP(lookup_value, table_array, col_index_num, [range_lookup])

1. lookup_value

The value you want to find in the first column of the table array.
(Example: An employee ID, product code, etc.)

2. table_array

- The range of cells that contains the data.
- The first column in this range is where Excel will look for the lookup_value.

3. col_index_num

The column number in the table_array from which to retrieve the value.
(1 = first column, 2 = second column, etc.)

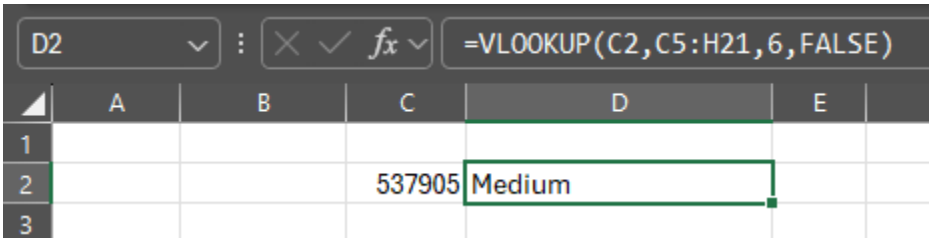
4. [range_lookup]

Optional. Enter FALSE for an exact match, or TRUE for an approximate match.
If you leave it blank, Excel defaults to TRUE.

How It Works (Example):

4	Yr	SalesRep	CustAcct	CustomerName	RegNo	OwningRegNo	CustType	CustSegment
5	2022	Alberto Hunt	205478	Allied Factories	1	4	National	Top Tier
6	2022	Alberto Hunt	249077	Southern Foods	1	4	National	Large
7	2022	Alberto Hunt	196519	Speedway Motor Co.	1	1	National	Large
8	2022	Alberto Hunt	263517	Bently Foods	1	1	National	Large
9	2022	Alberto Hunt	537905	Fast Track Computers	1	4	National	Medium
10	2022	Alberto Hunt	629321	Ironclad Innovations	1	1	Regional	Medium
11	2022	Alberto Hunt	405328	Ether Echo	1	5	National	Medium
12	2022	Alberto Hunt	861673	Oceanic Orbit Maritime	1	1	Regional	Small
13	2022	Paul Martell	333866	Zain Financial	3	3	National	Top Tier
14	2022	Paul Martell	459139	North West Bank	3	1	National	Top Tier
15	2022	Paul Martell	205478	Allied Factories	3	4	National	Top Tier
16	2022	Paul Martell	782190	Chandra Technology	3	2	National	Top Tier
17	2022	Paul Martell	623397	Industrial Solutions	3	5	National	Top Tier
18	2022	Paul Martell	499295	Butler and Sons	3	4	National	Large
19	2022	Paul Martell	537905	Fast Track Computers	3	4	National	Large
20	2022	Paul Martell	107439	AE Publishing	3	4	National	Large
21	2022	Paul Martell	984391	Standard Services	3	3	Regional	Large

In the dataset above, there are multiple customers for each rep and we want to find the CustSegment by searching on CustAcct.

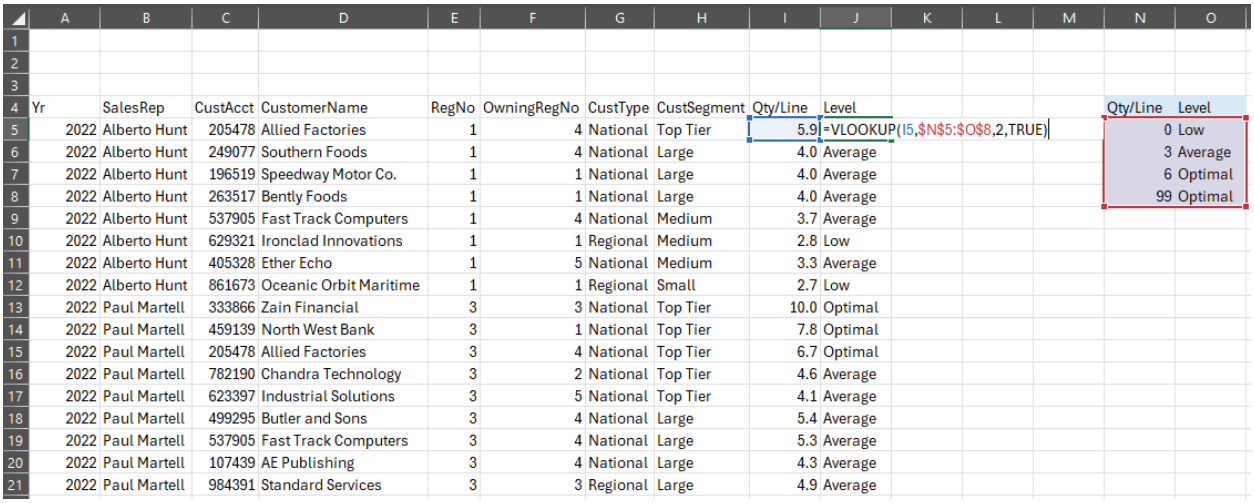


If we type in a customer account number in Cell C2 and then the following formula in D2 “=VLOOKUP(C2,C5:H21,6,FALSE)”, it will return the CustSegment value of “Medium”. That looks for the value referenced in Cell C2 in the range specified and pulls the sixth column from the start of the range. If we then type another value into C2, it will return that customer’s segment info. We can also type the account number directly into the formula instead of the cell reference of C2.

However, take notice in the dataset that the account number occurs twice. That is a national account that is serviced by a sales rep in a different region. If the dataset is sorted as it is above, it will still return the same result, as it will look for the first match. As a solution to this, you can combine columns B & C to create a unique reference and then use that as the lookup_value for the formula. See the section above on VLOOKUP as an example.

Using the TRUE range_lookup:

Typically we will use FALSE as the range_lookup in the VLOOKUP formula because we will be wanting an exact match. But there are cases where close is good enough. We will bring in Qty/Line into the same dataset as above and let's say we are trying to establish a Key Performance Indicator (KPI) that metric. We will establish a classification that Qty/Line of 0 to 3 is Low, 3 to 6 is Average, and above 6 is Optimal.



Yr	SalesRep	CustAcct	CustomerName	RegNo	OwningRegNo	CustType	CustSegment	Qty/Line	Level
2022	Alberto Hunt	205478	Allied Factories	1	4	National	Top Tier	5.9	=VLOOKUP(I5,$N$5:$O$8,2,TRUE)
2022	Alberto Hunt	249077	Southern Foods	1	4	National	Large	4.0	Average
2022	Alberto Hunt	196519	Speedway Motor Co.	1	1	National	Large	4.0	Average
2022	Alberto Hunt	263517	Bently Foods	1	1	National	Large	4.0	Average
2022	Alberto Hunt	537905	Fast Track Computers	1	4	National	Medium	3.7	Average
2022	Alberto Hunt	629321	Ironclad Innovations	1	1	Regional	Medium	2.8	Low
2022	Alberto Hunt	405328	Ether Echo	1	5	National	Medium	3.3	Average
2022	Alberto Hunt	861673	Oceanic Orbit Maritime	1	1	Regional	Small	2.7	Low
2022	Paul Martell	333866	Zain Financial	3	3	National	Top Tier	10.0	Optimal
2022	Paul Martell	459139	North West Bank	3	1	National	Top Tier	7.8	Optimal
2022	Paul Martell	205478	Allied Factories	3	4	National	Top Tier	6.7	Optimal
2022	Paul Martell	782190	Chandra Technology	3	2	National	Top Tier	4.6	Average
2022	Paul Martell	623397	Industrial Solutions	3	5	National	Top Tier	4.1	Average
2022	Paul Martell	499295	Butler and Sons	3	4	National	Large	5.4	Average
2022	Paul Martell	537905	Fast Track Computers	3	4	National	Large	5.3	Average
2022	Paul Martell	107439	AE Publishing	3	4	National	Large	4.3	Average
2022	Paul Martell	984391	Standard Services	3	3	Regional	Large	4.9	Average

Qty/Line	Level
0	Low
3	Average
6	Optimal
99	Optimal

We will create a grid starting in Cell N4 with the base Qty/Line and the classification then use that to bring the Level over to the dataset. The VLOOKUP formula will reference the Qty/Line value in Column I and test it against the grid we established to see what Level it falls into. If it is greater than or equal to 0 and less than 3, it is Low, greater than or equal to 3 and less than 6 it is Average, greater than or equal to 6 and less than 99 it is Optimal. Note that you have to have a top range and repeat the Level there for the formula to work. So just include a number that is higher than the metric would exceed. Note that you do need to anchor the range in the table_array section with "$" before copying it down, otherwise the cell references will change.

Key Things to Remember:

- VLOOKUP always searches vertically (top to bottom).
- The lookup value must be in the first column of the table array.
- If there are duplicate values in the first column, VLOOKUP returns the first match it finds.
- It can be case-insensitive (doesn't distinguish between uppercase and lowercase letters).
- Col_index_num must be a number, not the column letter.

Limitations of VLOOKUP:

- It can only search to the right of the lookup column.

- Large datasets can slow down calculations.
- It's somewhat outdated, and there are alternatives like XLOOKUP and INDEX/MATCH which are more flexible and available in newer versions of Excel.

SUMIFS

SUMIFS is a conditional summing function in Excel. It allows you to add values in a range based on multiple criteria. It's commonly used in business reporting when you need to sum data that meets several conditions—for example, sales totals for a specific region, time period, or product.

Basic Syntax of SUMIFS:

SUMIFS(sum_range, criteria_range1, criteria1, [criteria_range2, criteria2], ...)

1. sum_range

The range of numbers you want to add up.
(Example: Sales amounts, units sold, etc.)

2. criteria_range1

The range of cells that you want to apply the first condition to.

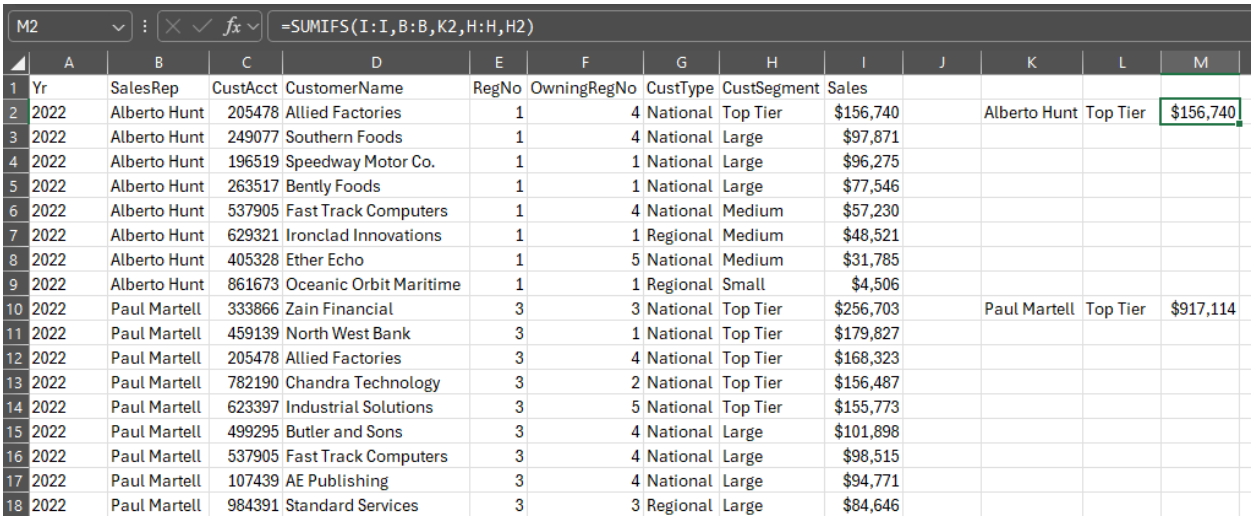
3. criteria1

The condition you want applied to criteria_range1.
(Example: A specific product name, date, region, etc.)

4. [criteria_range2, criteria2], ...

(Optional) You can add additional pairs of ranges and criteria to narrow down your summing.

How It Works (Example):



M2 =SUMIFS(I:I,B:B,K2,H:H,H2)

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Yr	SalesRep	CustAcct	CustomerName	RegNo	OwningRegNo	CustType	CustSegment	Sales				
2	2022	Alberto Hunt	205478	Allied Factories	1	4	National	Top Tier	$156,740		Alberto Hunt	Top Tier	$156,740
3	2022	Alberto Hunt	249077	Southern Foods	1	4	National	Large	$97,871				
4	2022	Alberto Hunt	196519	Speedway Motor Co.	1	1	National	Large	$96,275				
5	2022	Alberto Hunt	263517	Bently Foods	1	1	National	Large	$77,546				
6	2022	Alberto Hunt	537905	Fast Track Computers	1	4	National	Medium	$57,230				
7	2022	Alberto Hunt	629321	Ironclad Innovations	1	1	Regional	Medium	$48,521				
8	2022	Alberto Hunt	405328	Ether Echo	1	5	National	Medium	$31,785				
9	2022	Alberto Hunt	861673	Oceanic Orbit Maritime	1	1	Regional	Small	$4,506				
10	2022	Paul Martell	333866	Zain Financial	3	3	National	Top Tier	$256,703		Paul Martell	Top Tier	$917,114
11	2022	Paul Martell	459139	North West Bank	3	1	National	Top Tier	$179,827				
12	2022	Paul Martell	205478	Allied Factories	3	4	National	Top Tier	$168,323				
13	2022	Paul Martell	782190	Chandra Technology	3	2	National	Top Tier	$156,487				
14	2022	Paul Martell	623397	Industrial Solutions	3	5	National	Top Tier	$155,773				
15	2022	Paul Martell	499295	Butler and Sons	3	4	National	Large	$101,898				
16	2022	Paul Martell	537905	Fast Track Computers	3	4	National	Large	$98,515				
17	2022	Paul Martell	107439	AE Publishing	3	4	National	Large	$94,771				
18	2022	Paul Martell	984391	Standard Services	3	3	Regional	Large	$84,646				

In the dataset above, we have sales by customer, and by each sales rep we want the total sales for Top Tier Customers. In Column K we type the sales rep name once for each and in Column L we typ in “Top Tier” once for each. In the Cell M2, type the formula “=SUMIFS(I:I,B:B,K2,H:H,H2)”. This looks at the data in Column I (Sales) and sums that where it finds a match for the sales rep in Column B and the Top Tier segment in Column H. The results are the sums for just the Top Tier customers. You will note that for rep Alberto Hunt, the sum total matches the sales for customer Allied Factories because that is his only Top Tier customer. Paul Martell has a higher sum because he has multiple Top Tier customers.

Key Things to Remember:

SUMIFS can handle multiple criteria, making it more powerful than SUMIF, which only uses one.

- All the criteria ranges must be the same size as the sum_range.
- Criteria can be:
  - Text: "East"
  - Numbers: 100
  - Operators: ">=01/01/2024"
- Wildcards (* and ?) work in text criteria.
- Dates should be in quotes or refer to a cell value (e.g., ">=" & A2).

Common Business Use Cases:

- Summing sales data by region, product, or sales rep.
- Calculating total expenses by department and month.

- Aggregating units sold where inventory status equals "In Stock" and location is "Warehouse 1".

UNIQUE

The UNIQUE function in Excel returns a list of unique values from a range or array. It's extremely useful when you need to eliminate duplicates from your data or extract distinct entries for reports, summaries, or data validation lists.

NOTE: UNIQUE works in Excel 365, Excel 2019, and Excel Online (not available in earlier versions).

Basic Syntax of UNIQUE:

UNIQUE(array, [by_col], [exactly_once])

1. array

The range or array from which you want to return unique values.
(Example: A column of product names, customer IDs, etc.)

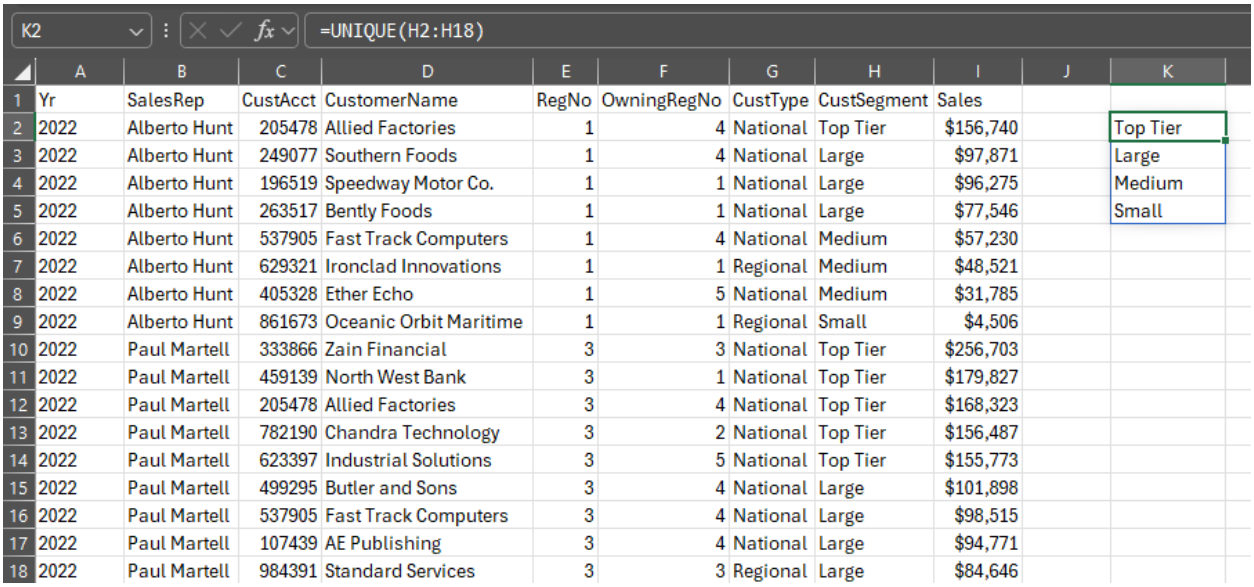
2. [by_col] (Optional)

- FALSE (or omitted): Looks for unique rows (vertically).
- TRUE: Looks for unique columns (horizontally).

3. [exactly_once] (Optional)

- FALSE (or omitted): Returns distinct values (removes duplicates).
- TRUE: Returns only values that appear exactly once in the array.

How It Works (Example):



K2 | =UNIQUE(H2:H18)

	A	B	C	D	E	F	G	H	I	J	K
1	Yr	SalesRep	CustAcct	CustomerName	RegNo	OwningRegNo	CustType	CustSegment	Sales		
2	2022	Alberto Hunt	205478	Allied Factories	1	4	National	Top Tier	$156,740		Top Tier
3	2022	Alberto Hunt	249077	Southern Foods	1	4	National	Large	$97,871		Large
4	2022	Alberto Hunt	196519	Speedway Motor Co.	1	1	National	Large	$96,275		Medium
5	2022	Alberto Hunt	263517	Bently Foods	1	1	National	Large	$77,546		Small
6	2022	Alberto Hunt	537905	Fast Track Computers	1	4	National	Medium	$57,230		
7	2022	Alberto Hunt	629321	Ironclad Innovations	1	1	Regional	Medium	$48,521		
8	2022	Alberto Hunt	405328	Ether Echo	1	5	National	Medium	$31,785		
9	2022	Alberto Hunt	861673	Oceanic Orbit Maritime	1	1	Regional	Small	$4,506		
10	2022	Paul Martell	333866	Zain Financial	3	3	National	Top Tier	$256,703		
11	2022	Paul Martell	459139	North West Bank	3	1	National	Top Tier	$179,827		
12	2022	Paul Martell	205478	Allied Factories	3	4	National	Top Tier	$168,323		
13	2022	Paul Martell	782190	Chandra Technology	3	2	National	Top Tier	$156,487		
14	2022	Paul Martell	623397	Industrial Solutions	3	5	National	Top Tier	$155,773		
15	2022	Paul Martell	499295	Butler and Sons	3	4	National	Large	$101,898		
16	2022	Paul Martell	537905	Fast Track Computers	3	4	National	Large	$98,515		
17	2022	Paul Martell	107439	AE Publishing	3	4	National	Large	$94,771		
18	2022	Paul Martell	984391	Standard Services	3	3	Regional	Large	$84,646		

From the dataset above, we want to grab the unique values for the CustSegment field. In Cell K2 we will type in the following formula "=UNIQUE(H2:H18)" and that will return the four unique values from the Column. Note that since this is a spillover formula, there cannot be data below it that conflicts with the values that will be returned. If you reference just the Column in the formula (i.e., "=UNIQUE(H:H)") that will also return the column header.

Key Things to Know:

- Dynamic Array: UNIQUE automatically spills results into neighboring cells. No need to drag or fill.
- It works horizontally or vertically, depending on how your data is structured.
- It's great for generating dropdown lists, summarizing distinct categories, or feeding into other formulas like FILTER() or SORT().

Common Business Use Cases:

- Extracting a list of unique customers, products, or regions from a dataset.
- Creating data validation lists for dropdown menus.
- Building summary tables where you need distinct groupings (often combined with COUNTIF() or SUMIFS()).

Example with a Data Validation Dropdown:

- Use =UNIQUE(A2:A100) to generate a list of unique items.
- Create a named range for that result.

- Use it as the source for a data validation dropdown list.

SORT

The SORT function in Excel allows you to automatically sort a range or array of data by one or more columns or rows, either ascending or descending. It's part of Excel's dynamic array functions, available in Excel 365, Excel 2019, and Excel Online.

Unlike manual sorting, SORT is dynamic, meaning if the source data changes, the sorted results update automatically—perfect for dashboards and dynamic reports.

Basic Syntax of SORT:

SORT(array, [sort_index], [sort_order], [by_col])

1. array

The range or array you want to sort.

2. [sort_index] (Optional)

The column or row number to sort by.
- 1 = first column or row in your array
- If omitted, defaults to the first column or row.

3. [sort_order] (Optional)

- 1 for ascending (default)
- -1 for descending

4. [by_col] (Optional)

- FALSE (default): Sorts by row
- TRUE: Sorts by column

How It Works (Example):

K2 =SORT(UNIQUE(H2:H18),1,1)

	A	B	C	D	E	F	G	H	I	J	K
1	Yr	SalesRep	CustAcct	CustomerName	RegNo	OwningRegNo	CustType	CustSegment	Sales		
2	2022	Alberto Hunt	205478	Allied Factories	1	4	National	Top Tier	$156,740		Large
3	2022	Alberto Hunt	249077	Southern Foods	1	4	National	Large	$97,871		Medium
4	2022	Alberto Hunt	196519	Speedway Motor Co.	1	1	National	Large	$96,275		Small
5	2022	Alberto Hunt	263517	Bently Foods	1	1	National	Large	$77,546		Top Tier
6	2022	Alberto Hunt	537905	Fast Track Computers	1	4	National	Medium	$57,230		
7	2022	Alberto Hunt	629321	Ironclad Innovations	1	1	Regional	Medium	$48,521		
8	2022	Alberto Hunt	405328	Ether Echo	1	5	National	Medium	$31,785		
9	2022	Alberto Hunt	861673	Oceanic Orbit Maritime	1	1	Regional	Small	$4,506		
10	2022	Paul Martell	333866	Zain Financial	3	3	National	Top Tier	$256,703		
11	2022	Paul Martell	459139	North West Bank	3	1	National	Top Tier	$179,827		
12	2022	Paul Martell	205478	Allied Factories	3	4	National	Top Tier	$168,323		
13	2022	Paul Martell	782190	Chandra Technology	3	2	National	Top Tier	$156,487		
14	2022	Paul Martell	623397	Industrial Solutions	3	5	National	Top Tier	$155,773		
15	2022	Paul Martell	499295	Butler and Sons	3	4	National	Large	$101,898		
16	2022	Paul Martell	537905	Fast Track Computers	3	4	National	Large	$98,515		
17	2022	Paul Martell	107439	AE Publishing	3	4	National	Large	$94,771		
18	2022	Paul Martell	984391	Standard Services	3	3	Regional	Large	$84,646		

Using the same dataset as the UNIQUE example above, we are going to sort the unique values from CustSegment alphabetically with the formula “=SORT(UNIQUE(H2:H18),1,1). The first 1 after the UNIQUE formula indicates to sort based on the first row (which is our only option here). The second 1 tells the formula to sort ascending.

Key Things to Know:

- SORT works dynamically—as your data updates, so does your sorted list.
- It doesn’t overwrite the original data—results are spilled into new cells.
- Works great with UNIQUE, FILTER, and SEQUENCE for building dynamic reports and dashboards.
- It can sort columns instead of rows if you set by_col to TRUE.

Common Business Use Cases:

- Automatically sorting sales data by highest revenue.
- Creating a leaderboard of top-performing employees.
- Organizing a list of products, customers, or regions alphabetically or by value.
- Sorting dates to show the most recent transactions or events.