



MICROSOFT EXCEL

BEYOND THE BASICS



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Named Ranges

You can use the labels of columns and rows on a worksheet to refer to the cells within those columns and rows. Or you can create descriptive names to represent cells, ranges of cells, formulas, or constant values. Labels can be used in formulas that refer to data on the same worksheet; if you want to represent a range on another worksheet, use a name.

You can also create 3-D names that represent the same cell or range of cells across multiple worksheets.

Guidelines for Names

- The first character of a name must be a letter, an underscore character (_), or a backslash (\). The remaining characters in the name can be letters, numbers, periods, and underscore characters.
- Names cannot be the same as a cell reference, such as Z\$100 or R1C1.
- You can use multiple words in a name, but spaces are not allowed. Underscore characters and periods may be used as word separators — for example, Sales_Tax or First.Quarter.
- A name can contain up to 255 characters. If a name defined for a range contains more than 253 characters, you cannot select it from the Name box.
- Names can contain uppercase and lowercase letters. Microsoft Excel does not distinguish between uppercase and lowercase characters in names. For example, if you have created the name Sales and then create another name called SALES in the same workbook, the second name will replace the first one.

Name Manager – Use the Name Manager to create, edit, and delete range names. The Name Manager provides a complete list of range names in the workbook.

To Name a Range

1. Select the cell or range of cells.
2. Click in the name box.
3. Type the name.
4. Press Enter

Edit or Delete Named Ranges

Use the Name Manager to create, edit, and delete range names.

- From the Formulas Tab, in the Defined Names Group, click on Name Manager.
- Select the named range you want to modify.
- Make the necessary changes then close when finished.



If Functions

The IF function is one of the most popular functions in Excel, and it allows you to make logical comparisons between a value and what you expect.

IF Function - Syntax and Usage

The IF function is one of Excel's logical functions that evaluates a certain condition and returns the value you specify if the condition is TRUE, and another value if the condition is FALSE.

The syntax for Excel IF is as follows: IF(logical_test, [value_if_true], [value_if_false])

As you see, the IF function has 3 arguments, but only the first one is obligatory, the other two are optional.

logical_test - a value or logical expression that can be either TRUE or FALSE. Required. In this argument, you can specify a text value, date, number, or any comparison operator. For example, your logical test can be expressed as or B1="sold", B1<12/1/2014, B1=10 or B1>10.

value_if_true - the value to return when the logical test evaluates to TRUE, i.e. if the condition is met. Optional. For example, the following formula will return the text "Good" if a value in cell B1 is greater than 10: =IF(B1>10, "Good")

value_if_false - the value to be returned if the logical test evaluates to FALSE, i.e. if the condition is not met. Optional. So, an IF statement can have two results. The first result is if your comparison is True, the second if your comparison is False. For example, =IF(C2="Yes",1,2) says IF(C2 = Yes, then return a 1, otherwise return a 2). If you need to apply more than one criteria, use the SUMIFS function.

SumIF Function

The **SUMIF** function is a worksheet function that adds all numbers in a range of cells based on one criteria (for example, is equal to 2000).

The SUMIF function is a built-in function in Excel that is categorized as a Math/Trig Function. As a worksheet function, the SUMIF function can be entered as part of a formula in a cell of a worksheet. To add numbers in a range based on multiple criteria, try the SUMIFS function.

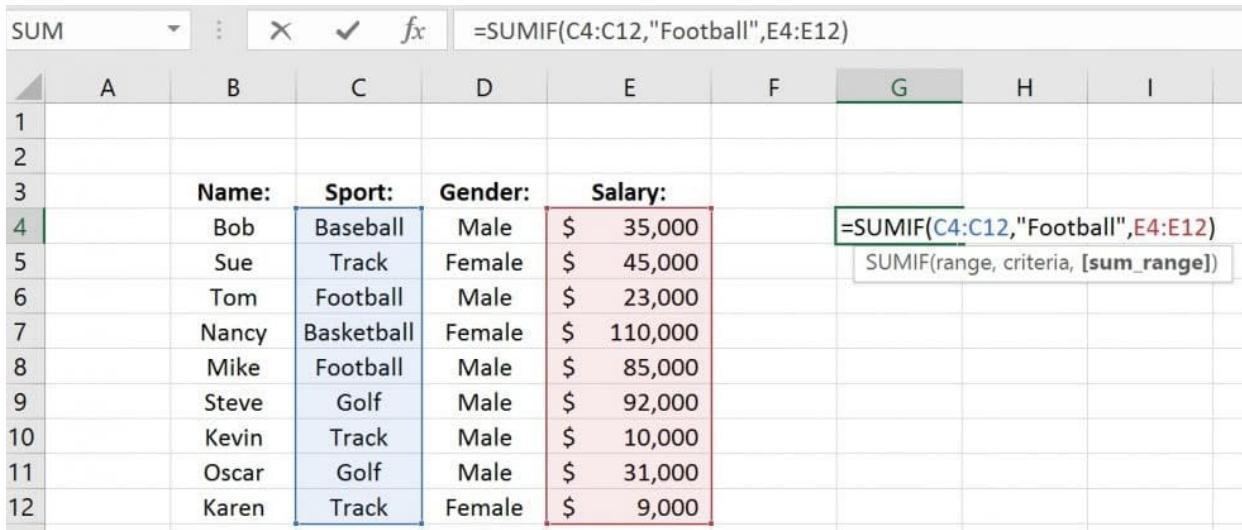
=SUMIF(
SUMIF(range, criteria, [sum_range])

=SUMIF(range, criteria, [sum_range])

- The **range** parameter is actually the range of cells that will be evaluated by the 'criteria' parameter.
- The **criteria** parameter is the condition that must be met in the range parameter. For instance, if our range was a column that listed t-shirt color, a value like red or white could be our criteria. The criteria value can be text, a number, a date, a logical expression, a cell reference, or even another function.



- The **sum_range** parameter is optional as noted by the brackets. This simply means that if omitted, the sum_range will default to the same cells you chose for the 'range' parameter.

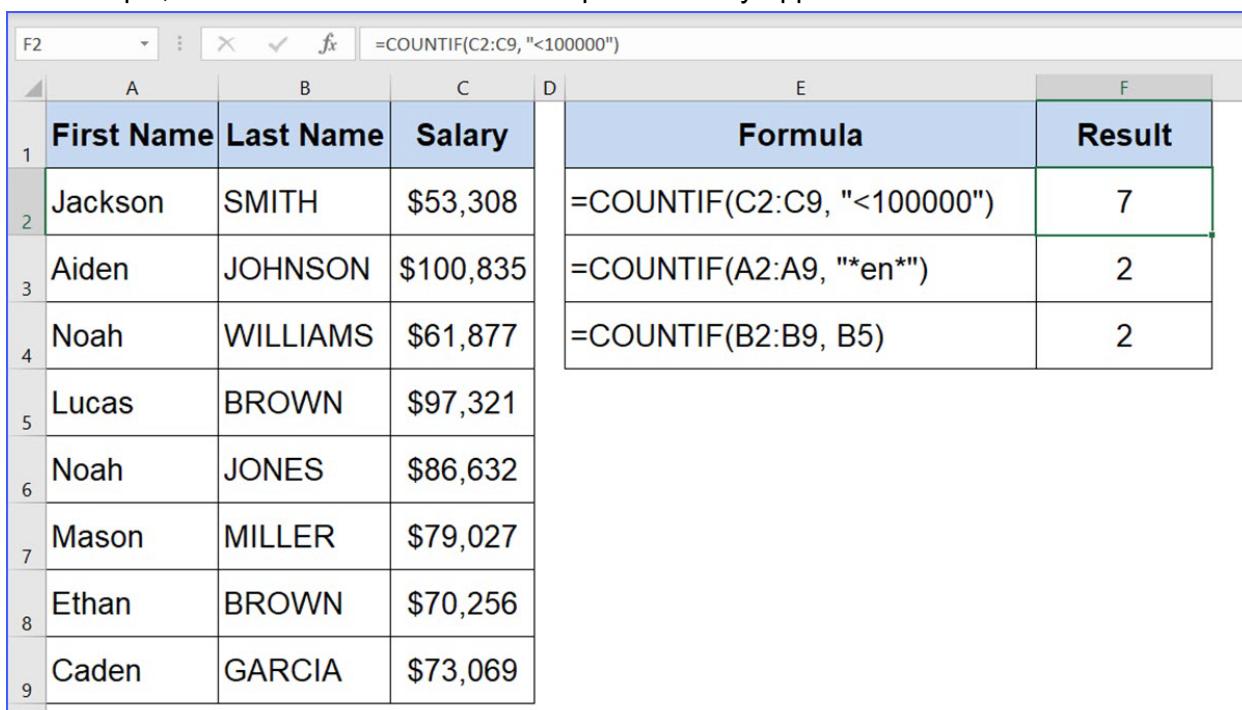


	SUM								
	A	B	C	D	E	F	G	H	I
1									
2									
3	Name:	Sport:	Gender:	Salary:					
4	Bob	Baseball	Male	\$ 35,000					
5	Sue	Track	Female	\$ 45,000					
6	Tom	Football	Male	\$ 23,000					
7	Nancy	Basketball	Female	\$ 110,000					
8	Mike	Football	Male	\$ 85,000					
9	Steve	Golf	Male	\$ 92,000					
10	Kevin	Track	Male	\$ 10,000					
11	Oscar	Golf	Male	\$ 31,000					
12	Karen	Track	Female	\$ 9,000					

CountIF Function

The Excel **COUNTIF** function in the Excel table determines the number of items, based on the criterion we provide. The function can be used, as an example, for determining the quantity of supplies, stocktaking, etc. The manual assumes that we have basic knowledge of creating formulas in Excel.

Use COUNTIF, one of the statistical functions, to count the number of cells that meet a criterion; for example, to count the number of times a particular city appears in a customer list.



	A	B	C	D	E	F
1	First Name	Last Name	Salary		Formula	Result
2	Jackson	SMITH	\$53,308		=COUNTIF(C2:C9, "<100000")	7
3	Aiden	JOHNSON	\$100,835		=COUNTIF(A2:A9, "*en*")	2
4	Noah	WILLIAMS	\$61,877		=COUNTIF(B2:B9, B5)	2
5	Lucas	BROWN	\$97,321			
6	Noah	JONES	\$86,632			
7	Mason	MILLER	\$79,027			
8	Ethan	BROWN	\$70,256			
9	Caden	GARCIA	\$73,069			



=COUNTIF(Where do you want to look?, What do you want to look for?) Syntax

=COUNTIF(range, criteria)

AverageIF Function

AVERAGEIF calculates central tendency, which is the location of the center of a group of numbers in a statistical distribution. Returns the average (arithmetic mean) of all the cells in a range that meet a given criteria. Syntax =AVERAGEIF(range, criteria, [average_range])

Flash Fill

Flash Fill is like a data assistant that finishes your work for you. As soon as it detects what you want to do, Flash Fill enters the rest of your data in one fell swoop, following the pattern it recognizes in your data.

Here's in an example:

1. You have a long list containing huge amounts of data. For example, let's say it's the names of your customers and their seven-digit phone numbers shown in the Home Number column. If you need to make a couple of new columns out of this data, you can use Flash Fill. If you need to change the format of each phone number to 395-6492 instead of 3956492, inserting a hyphen in every phone number by typing is a lot of work. In previous versions of Excel, you could use a formula for that. However, Excel 2013 offers an even quicker way of doing it by using Flash Fill.

Type the right format of the first phone number in a new column (e.g. 395-6492). Go to the next cell of the column and start typing the next phone number. After typing the first three digits (722).

Excel will fill in the format you need for the rest of the phone numbers. All you need to do is just press enter, and you will get all phone numbers with a hyphen in that column.

	A	B
1	3039863579	303-986-3579
2	6082141317	608-214-1317
3	6082144418	608-214-4418

Use of AVERAGEIF Function with Three Arguments				
Name	Gender	Age	State	Score
Alex	Male	23	Alabama	60
Mike	Male	25	Texas	84
Teresa	Female	27	Michigan	66
Miguel	Male	21	Alabama	98
Cummins	Male	26	Colorado	92
Nancy	Female	24	Texas	75
Simon	Male	29	Alabama	84
Jen	Female	23	New York	74
Max	Male	21	Florida	97
Maria	Female	28	Texas	62
Josephine	Female	26	Utah	93
Cris	Male	23	Alabama	93
Richards	Male	27	Colorado	63
Victoria	Female	24	Georgia	74
Noah	Male	29	Texas	90

Criteria	Gender
	Male
Average	84.56

>>> =AVERAGEIF(C5:C19, C22, F5:F19)

Lookup Functions

vLookup

The V in VLOOKUP stands for "Vertical." In Excel, the VLookup function searches for value in the left-most column of table_array and returns the value in the same row based on the index_number.

Usually lists like this have some sort of unique identifier for each item in the list. In this case, the unique identifier is in the "Item Code" column. Note: For the VLOOKUP



function to work with a database/list, that list must have a column containing the unique identifier (or “key”, or “ID”), and that column must be the first column in the table. Our sample database above satisfies this criterion.

The secret to VLOOKUP is to organize your data so that the value you look up is to the left of the return value you want to find.

The VLOOKUP function syntax has the following arguments:

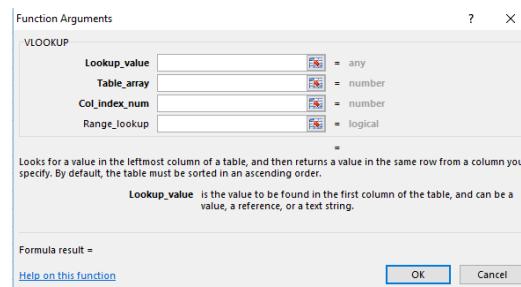
VLOOKUP (lookup_value, table_array, col_index_num, [range_lookup])

For example:

=VLOOKUP(105,A2:C7,2,TRUE)
=VLOOKUP("Fontana",B2:E7,2,FALSE)

lookup_value (required)

- The value you want to look up. The value you want to look up must be in the first column of the range of cells you specify in table-array.
- For example, if table-array spans cells B2:D7, then your lookup_value must be in column B. See the graphic below. Lookup_value can be a value or a reference to a cell.



table_array (required)

- The range of cells in which the VLOOKUP will search for the lookup_value and the return value.
- The first column in the cell range must contain the lookup_value (for example, Last Name in the picture below.) The cell range also needs to include the return value (for example, First Name in the graphic below) you want to find.

col_index_num (required)

- The column number (starting with 1 for the left-most column of table-array) that contains the return value.

range_lookup (optional)

- A logical value that specifies whether you want VLOOKUP to find an exact match or an approximate match:
- TRUE assumes the first column in the table is sorted either numerically or alphabetically, and will then search for the closest value. This is the default method if you don't specify one.
- FALSE searches for the exact value in the first column.



XLookup

The XLOOKUP function searches a range or an array, and then returns the item corresponding to the first match it finds. If no match exists, then XLOOKUP can return the closest (approximate) match.

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

Argument	Description
lookup_value Required*	The value to search for *If omitted, XLOOKUP returns blank cells it finds in lookup_array.
lookup_array Required	The array or range to search
return_array Required	The array or range to return
[if_not_found] Optional	Where a valid match is not found, return the [if_not_found] text you supply. If a valid match is not found, and [if_not_found] is missing, #N/A is returned.
[match_mode] Optional	Specify the match type: 0 - Exact match. If none found, return #N/A. This is the default. -1 - Exact match. If none found, return the next smaller item. 1 - Exact match. If none found, return the next larger item. 2 - A wildcard match where *, ?, and ~ have <u>special meaning</u> .
[search_mode] Optional	Specify the search mode to use: 1 - Perform a search starting at the first item. This is the default. -1 - Perform a reverse search starting at the last item. 2 - Perform a binary search that relies on lookup_array being sorted in ascending order. If not sorted, invalid results will be returned. -2 - Perform a binary search that relies on lookup_array being sorted in descending order. If not sorted, invalid results will be returned.



Examples

Example 1 uses XLOOKUP to look up a country name in a range, and then return its telephone country code. It includes the **lookup_value** (cell F2), **lookup_array** (range B2:B11), and **return_array** (range D2:D11) arguments. It doesn't include the **match_mode** argument, as XLOOKUP produces an exact match by default.

	A	B	C	D	E	F	G
1	Country	Abr	Prefix		What is the dial code?		
2	China	CN	+86		Brazil	+55	
3	India	IN	+91				
4	United States	US	+1				
5	Indonesia	ID	+62				
6	Brazil	BR	+55				
7	Pakistan	PK	+92				
8	Nigeria	NG	+234				
9	Bangladesh	BD	+880				
10	Russia	RU	+7				
11	Mexico	MX	+52				

Note: XLOOKUP uses a lookup array and a return array, whereas VLOOKUP uses a single table array followed by a column index number. The equivalent VLOOKUP formula in this case would be: =VLOOKUP(F2,B2:D11,3, FALSE)

Example 2 looks up employee information based on an employee ID number. Unlike VLOOKUP, XLOOKUP can return an array with multiple items, so a single formula can return both employee name and department from cells C5:D14.

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



Example 3 adds an **if_not_found** argument to the preceding example.

Both formulas will return the same result. Notice, however, for XLOOKUP we provided both the lookup column and the result column separately. While for VLOOKUP we needed to provide the whole table and indicate the result column number. The additional difference we see is that in XLOOKUP we didn't have to provide the exact match parameter – in XLOOKUP the default is an exact match.

The screenshot shows a Microsoft Excel spreadsheet. The formula bar at the top contains the formula `=XLOOKUP(B2,B5:B14,C5:D14,"ID not found")`. The worksheet has four columns: A, B, C, and D. Column A is a row header. Column B is labeled 'Emp ID' and contains the value '1234'. Column C is labeled 'Employee Name' and contains the value 'ID not found'. Column D is labeled 'Department' and is empty. Below these are 13 rows of data. The data is as follows:

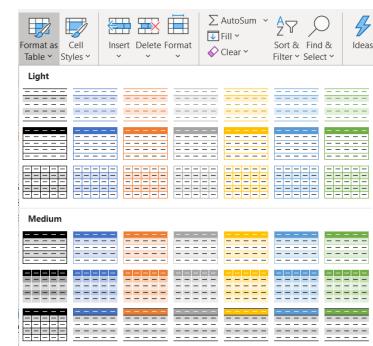
	Emp ID	Employee Name	Department
4	4390	Ned Lanning	Marketing
5	8604	Margo Hendrix	Sales
6	8389	Dianne Pugh	Finance
7	4937	Earlene McCarty	Accounting
8	8299	Mia Arnold	Operations
9	2643	Jorge Fellows	Executive
10	5243	Rose Winters	Sales
11	9693	Carmela Hahn	Finance
12	1636	Delia Cochran	Accounting
13	6703	Marguerite Cervantes	Marketing
14			
15			

This makes the XLOOKUP function a combination of INDEX & MATCH functions. The VLOOKUP had a lot of issues like having to put the lookup column at the front of the table or at least before the result column.

Using Excel Tables

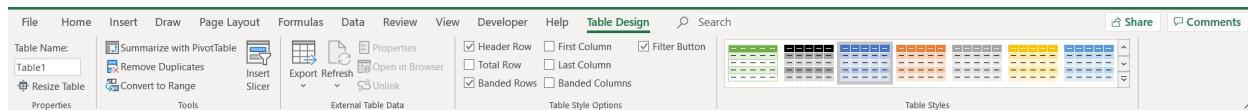
To make managing and analyzing a group of related data easier, you can turn a range of cells into a Microsoft Excel table (previously known as an Excel list). A table typically contains related data in a series of worksheet rows and columns that have been formatted as a table. By using the table features, you can then manage the data in the table rows and columns independently from the data in other rows and columns on the worksheet.

Note: Excel tables should not be confused with the data tables (data table: A range of cells that shows the results of substituting different values in one or more formulas. There are two types of data tables: one-input tables and two-input tables.) that are part of a suite of what-if analysis commands.



To Apply a Table:

1. Click inside the data range.
2. From the Home Tab in the Styles Group click on Format as Table.
3. Click on one of the preformatted options.
4. Use the Table Tools to make changes to the Table.



Sorting and filtering

Filter drop-down lists (drop-down list box: A control on a menu, toolbar, or dialog box that displays a list of options when you click the small arrow next to the list box.) are automatically added in the header row of a table. You can sort tables in ascending or descending order or by color, or you can create a custom sort order. You can filter tables to show only the data that meets the criteria that you specify, or you can filter by color.

Formatting table data

You can quickly format table data by applying a predefined or custom table style. You can also choose Table Styles options to display a table with or without a header or a totals row, to apply row or column banding to make a table easier to read, or to distinguish between the first or last columns and other columns in the table.

Remove a Table

If you chose to remove the Table features from a range of data you can do so by:

1. Select the table
2. From the Design tab in the Tools Group, click on Convert to Range .

Sorting and Filtering Data

You might want to put a list of names in alphabetical order, compile a list of product inventory levels from highest to lowest, or order rows by colors or icons. Sorting data helps you quickly visualize and understand your data better, organize and find the data that you want, and ultimately make more effective decisions.

You can sort data by text (A to Z or Z to A), numbers (smallest to largest or largest to smallest), and dates and times (oldest to newest and newest to oldest) in one or more columns. You can also sort by a custom list (such as Large, Medium, and Small) or by format, including cell color, font color, or icon set. Most sort operations are column sorts, but you can also sort by rows.

Sort criteria are saved with the workbook so that you can reapply the sort each time that you open the workbook for an Excel table, but not for a range of cells. If you want to save sort criteria so that you can periodically reapply a sort when you open a workbook, then it's a good idea to use a table. This is especially important for multicolumn sorts or for sorts that take a long time to create.



Custom Sort

1. Select a range of cells with two or more columns of data, or make sure that the active cell is in a table with two or more columns.
2. On the Home tab, in the Editing group, click Sort & Filter, and then click Custom Sort.
3. The Sort dialog box is displayed.
4. Under Column, in the Sort by box, select the first column that you want to sort.
5. Under Sort On, select the type of sort. Do one of the following:
 - To sort by text, number, or date and time, select Values.
 - To sort by format, select Cell Color, Font Color, or Cell Icon.
6. Under Order, select how you want to sort. Do one of the following:
 - For text values, select A to Z or Z to A.
 - For number values, select Smallest to Largest or Largest to Smallest.
 - For date or time values, select Oldest to Newest or Newest to Oldest.
 - To sort based on a custom list, select Custom List.
 - To add another column to sort by, click Add Level, and then repeat steps three through five.
7. To copy a column to sort by, select the entry, and then click Copy Level.
8. To delete a column to sort by, select the entry, and then click Delete Level.

To change the order in which the columns are sorted, select an entry, and then click the Up or Down arrow to change the order. Entries higher in the list are sorted before entries lower in the list.

Filtering

If your worksheet contains a lot of content, it can be difficult to find information quickly. Filters can be used to narrow down the data in your worksheet, allowing you to view only the information you need.

Do one of the following:

1. Select a range of cells containing alphanumeric data.
2. On the Home tab, in the Editing group, click Sort & Filter, and then click Filter.

The list of text values can be up to 10,000. If the list is large, clear (Select All) at the top, and then select the specific text values to filter by.

Use the down arrow to the right of each column heading to display a unique list of items found in the column. If you only want to see specific records (rows) of information you can unselect all items and select only the items you want to display.

When a filter is applied to a column you will see the down arrow with a filter icon for that column.

To remove a filter from a column, click on the down arrow for that column then click on.



Subtotal Function

The Subtotal function returns a subtotal in a list or database. It is generally easier to create a list with subtotals by using the Subtotal command in the Outline group on the Data tab in the Excel desktop application. Once the subtotal list is created, you can modify it by editing the

SUBTOTAL	Function_num (includes hidden values)	Function_num (ignores hidden values)	Function	function.
Syntax	1	101	AVERAGE	
	2	102	COUNT	
	3	103	COUNTA	
	4	104	MAX	
	5	105	MIN	
	6	106	PRODUCT	
	7	107	STDEV	
	8	108	STDEV.P	
	9	109	SUM	
	10	110	VAR	
	11	111	VAR.P	

=SUBTOTAL(function_num,ref1,[ref2],...)

The SUBTOTAL function syntax has the following arguments:

Function_num Required. The number 1-11 or 101-111 that specifies the function to use for the subtotal. 1-11 includes manually-hidden rows, while 101-111 excludes them; filtered-out cells are always excluded.

PivotTables

Create a PivotTable from a Local Data Source

Local data is within the same Workbook and can be from any of the Worksheets.

Make sure that the range has column headings or that headers are displayed in the table, and that there are no blank rows in the range or table.

1. Make sure the active cell is part of the data range that you want in the PivotTable.
2. On the Insert tab, in the Tables group, click PivotTable.
3. In the Create PivotTable dialog box, make sure that Select a table or range is selected, and then in the Table/Range box, verify the range of cells.
4. Excel automatically determines the range for the PivotTable report, but you can replace it by typing a different range or a name that you defined for the range. For data in another worksheet or workbook, include the workbook and worksheet name by using the following syntax [workbookname]sheetname!range.

Do one of the following:

- To place the PivotTable report in a new worksheet starting at cell A1, click New Worksheet.

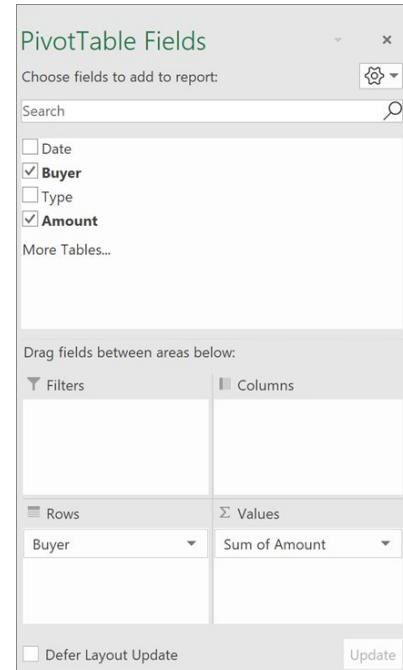


- To place the PivotTable report at a specific location in an existing worksheet, select Existing Worksheet, and then in the Location box, specify the first cell in the range of cells where you want to position the PivotTable report.
5. Click OK.

PivotTable Fields Pane

The windowpane that opens on the right side after you start a PivotTable can be used to select the fields you want to filter, add, rearrange the fields in the table and work with values.

When you select a field from the field list, it will add it to one of the 4 areas. If it is a number field, it goes to the Values area, if it is text it goes to the Rows area.



Add Fields to the PivotTable

- To place a field in the default area of the layout section, select the check box next to the field name in the field section.
- To place a field in a specific area of the layout section, right-click the field name in the field section, and then select Add to Report Filter, Add to Column Label, Add to Row Label, or Add to Values.
- To drag a field to the area that you want, click and hold the field name in the field section, and then drag it to an area in the layout section.

PivotTable Formula in Excel

In Excel, once we create a pivot table, we can add formulas as calculated fields.

To Create a PivotTable Formula

1. First, create a pivot table with relevant fields we want to keep and then after selecting or putting the cursor on it,
2. From Analyze tab on the ribbon, select **Calculated Fields** from the drop-down list of **Fields, Items & Sets**.
3. There we will be able to see all the fields used in the pivot table along with the section Name and Formula section. Type a Name for the calculated field.



Filter PivotTable Data

Filter your data to focus on a smaller portion of your PivotTable data for in-depth analysis.

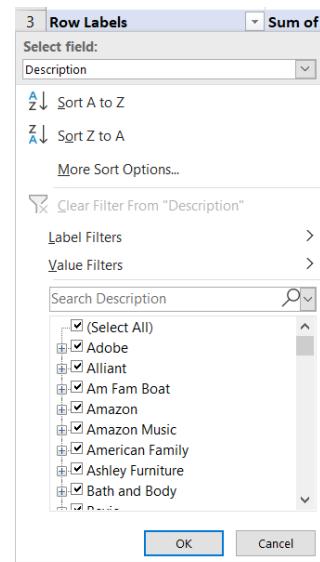
There are several ways to filter the data to only see the records of information you want.

- From the Row Labels at the top of the PivotTable, click the down arrow.
 - From the Field List hesitate on the name of a field, click the down arrow.

Filter with a Slicer

First introduced in Excel 2010 as an interactive way to filter PivotTable data, slicers can now also filter data in Excel tables, query tables, and other data tables. Simpler to set up and use, slicers show the current filter, so you'll know exactly what data you're looking at.

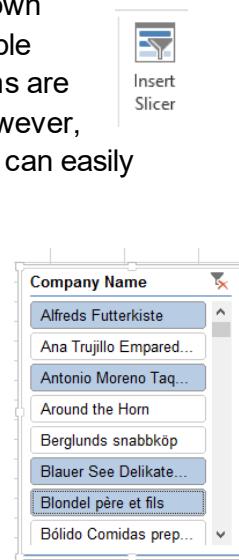
Slicers are easy-to-use filtering components that contain a set of buttons that enable you to quickly filter the data in a PivotTable report, without the need to open drop-down lists to find the items that you want to filter. When you use a regular PivotTable report filter to filter on multiple items, the filter indicates only that multiple items are filtered, and you have to open a drop-down list to find the filtering details. However, a slicer clearly labels the filter that is applied and provides details so that you can easily understand the data that is displayed in the filtered PivotTable report.



Add Slicers

To add a Slicer to a Pivot Table:

1. From the Filter Group on the Analyze tab of the Ribbon, click on the Insert Slicer Icon.
 2. Select the fields you want to filter by then click OK. This will open a separate window for each field you choose.
 3. Click on entries from each of the Slicer windows to filter by that item. Use the CTRL key to select multiple items.



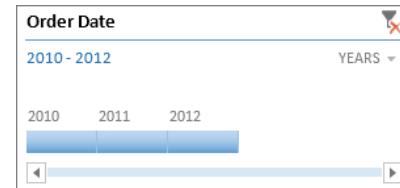
Filter with Timeline

Instead of adjusting filters to show dates, you can use a PivotTable Timeline—a dynamic filter option that lets you easily filter by date/time and zoom in on the period you want with a slider control.



Much like a slicer for filtering data, you can insert a Timeline one time, and then keep it with your PivotTable to change the range of time whenever you like.

1. Click anywhere in a PivotTable to show the PivotTable Tools ribbon group,
2. Click the Analyze tab then Insert Timeline.
3. Choose one or more “date” fields from the list then click OK.



With your Timeline in place, you’re ready to filter by a time period in one of four-time levels (years, quarters, months, or days).

Drag the Timeline scroll bar to the time period you want to analyze.

Visualizing Data with Charts

Create Charts

To create a professional-looking chart that displays the details that you want, you can modify the chart, apply predefined styles and layouts, and add eye-catching formatting. You can also reuse a favorite chart by saving it as a chart template.

To create a Chart:

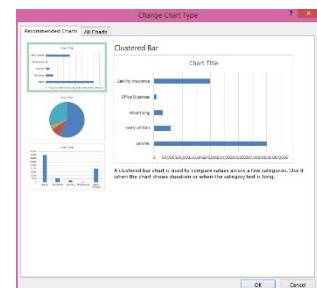
1. Select your data
2. Go to the Insert Tab and choose one of the Chart Types in the Chart Group.
3. Once your chart has been created you now can use the contextual tools for formatting the chart.



Recommended Charts

With Chart recommendations, Excel recommends the most suitable charts for your data. Get a quick peek to see how your data looks in the different charts, and then simply pick the one that shows the insights you want to present.

The **Recommended Charts** button on the **Insert** tab lets you pick from a variety of charts that are right for your data. Related types of charts like scatter and bubble charts are under one umbrella. When you click a chart, you’ll also see a simpler Chart Tools ribbon. With just a Design and Format tab, it should be easier to find what you need.





Modify and Format Charts



Add Chart Elements

Three chart buttons let you quickly pick and preview changes to chart elements (like titles or labels), the look and style of your chart, or to the data that is shown.

Layout Options

On the Layout tab for Chart options, you will find ways to add or remove different elements of a Chart like:

- Titles – Chart and Axis
- Legends
- Data Labels
- Data Tables

Combine Data from Multiple Sources

Link Data

In Excel, a link is a formula that dynamically pulls in data from a cell in another worksheet. The worksheet can be in the same workbook or a different workbook. The destination worksheet is the worksheet that contains the link formula. The worksheet containing the data that will be brought in is called the source worksheet.

1. Click in a cell where you want to linked data to appear.
2. Type =CellReference like =C4. Whatever is in cell C4 will appear on the cell you linked it to.

Copy Paste Link

Although you can copy and paste data from one Excel file to another, you can also create a link between two files or workbooks. When you create a link between files, the copied data updates when the original data changes. It's also possible to create a link between a chart located in an Excel workbook and a Microsoft Word file or PowerPoint slide.

1. Select the cell(s) you want to link then copy.
2. Navigate to where you want to link them, right click on the cell.
3. Left-click on Paste Link from the pop-up menu.



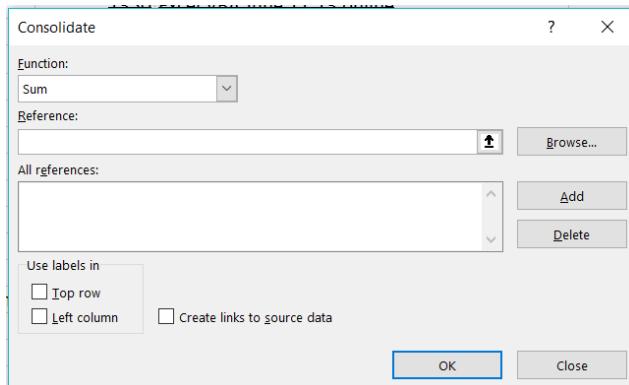
Consolidate Data

To summarize and report results from separate worksheets, you can consolidate data from each sheet into a master worksheet. The sheets can be in the same workbook as the master worksheet, or



in other workbooks. When you consolidate data, you assemble data so that you can more easily update and aggregate as necessary.

1. Open all files (workbooks) that contain the data you want to consolidate.
2. Ensure the data is organized in the same way.
3. On the Data ribbon select Data Tools and then Consolidate.
4. Select the method of consolidation (in our example, it's Sum).
5. Select the data including the labels and click Add.
6. Repeat step 5 for each worksheet or workbook that contains the data.
7. Check boxes "top row", "left column", and "create links to data source" (note you don't have to tick these boxes if you don't want labels or don't want live links) and click the OK button.



Hyperlinks

For quick access to related information in another file or on a web page, you can insert a hyperlink in a worksheet cell.

1. On a worksheet, click the cell where you want to create a hyperlink. You can also select an object, such as a picture or an element in a chart, that you want to use to represent the hyperlink.
2. On the Insert tab, in the Links group, click Hyperlink
3. You can also right-click the cell or graphic and then click Hyperlink on the shortcut menu, or you can press Ctrl+K.
4. Under Link to, click Create New Document.
5. In the Name of new document box, type a name for the new file.

Tip: To specify a location other than the one shown under Full path, you can type the new location preceding the name in the Name of new document box, or you can click Change to select the location that you want and then click OK.

6. Under When to edit, click Edit the new document later or Edit the new document now to specify when you want to open the new file for editing.
7. In the Text to display box, type the text that you want to use to represent the hyperlink.
8. To display helpful information when you rest the pointer on the hyperlink, click ScreenTip, type the text that you want in the ScreenTip text box, and then click OK.