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Academy

HOME CREDIT

Virtual Internship Experience

Data Processing using Excel

Data Validation, Conditional Formatting, Data Filter, Pivot Table, and Named Range

1. DATA VALIDATION

You can use data validation to restrict the type of data or values that users enter into cells. For example, you might use data validation to calculate the maximum allowed value in a cell based on a value elsewhere in the workbook. In the following example, the user has typed abc , which is not an acceptable value in that cell.


When is data validation useful?

Data validation is invaluable when you want to share a workbook with others, and you

want the data entered to be accurate and consistent. Among other things, you can use data validation for the following:

1. Restrict entries to predefined items in a list— For example, you can limit a user's department selections to Accounting, Payroll, HR, to name a few.
2. Restrict numbers outside a specified range— For example, you can specify a maximum percentage input for an employee's annual merit increase, let's say 3%, or only allow a whole number between 1 and 100.
3. Restrict dates outside a certain time frame— For example, in an employee time off request, you can prevent someone from selecting a date before today's date.
4. Restrict times outside a certain time frame— For example, you can specify meeting scheduling between 8:00 AM and 5:00 PM.
5. Limit the number of text characters— For example, you can limit the allowed text in a cell to 10 or fewer characters.
6. Validate data based on formulas or values in other cells— For example, you can use data validation to set a maximum limit for commissions and bonuses based on the overall projected payroll value. If users enter more than the limit amount, they see an error message.

Data Validation Input and Error Messages

You can choose to show an Input Message when the user selects the cell. Input messages are generally used to offer users guidance about the type of data that you want entered in the cell. This type of message appears near the cell. You can move this message if you want to, and it remains visible until you move to another cell or press Esc.
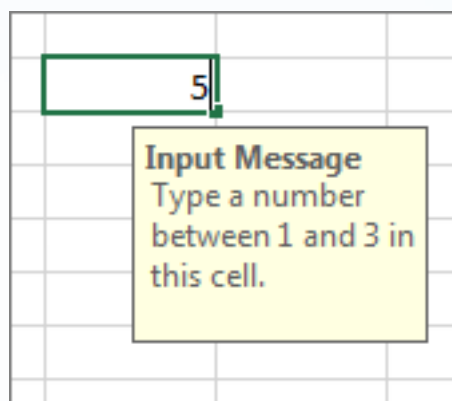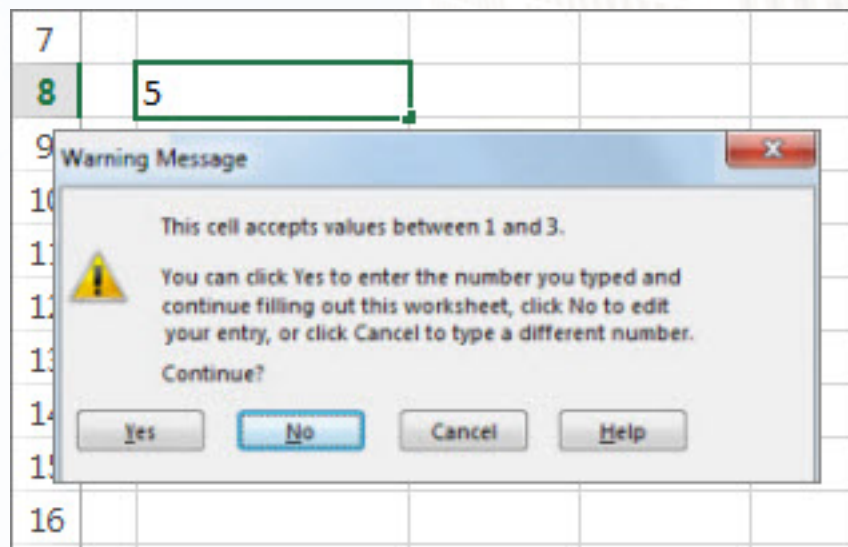

You set up your Input Message in the second data validation tab.
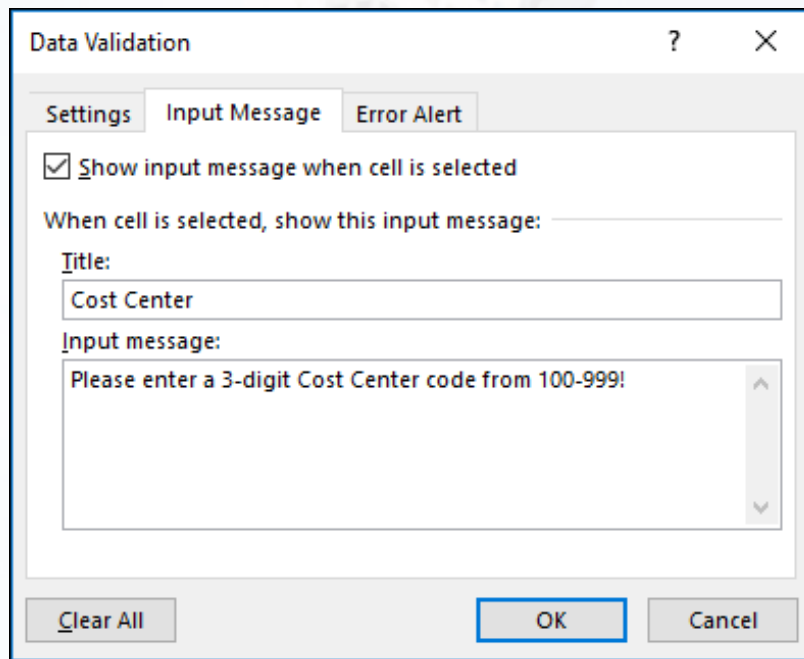
Once your users get used to your Input Message, you can uncheck the Show input message when cell is selected option.

You can also show an Error Alert that appears only after users enter invalid data.

You can choose from three types of error alerts:

Icon	Type	Use to
❌	Stop	Prevent users from entering invalid data in a cell. A **Stop** alert message has two options: **Retry** or **Cancel**.
⚠️	Warning	Warn users that the data they entered is invalid, without preventing them from entering it. When a **Warning** alert message appears, users can click **Yes** to accept the invalid entry, **No** to edit the invalid entry, or **Cancel** to remove the invalid entry.
ℹ️	Information	Inform users that the data they entered is invalid, without preventing them from entering it. This type of error alert is the most flexible. When an **Information** alert message appears, users can click **OK** to accept the invalid value or **Cancel** to reject it.

**Tips for working with data validation**
Use these tips and tricks for working with data validation in Excel.

1. The width of the drop-down list is determined by the width of the cell that has the data validation. You might need to adjust the width of that cell to prevent truncating the width of valid entries that are wider than the width of the drop-down list.
2. If you plan to protect the worksheet or workbook, protect it after you have finished specifying any validation settings. Make sure that you unlock any validated cells before you protect the worksheet. Otherwise, users will not be able to type any data in the cells. See Protect a worksheet.
3. If you plan to share the workbook, share it only after you have finished specifying data validation and protection settings. After you share a workbook, you won't be able to change the validation settings unless you stop sharing.
4. You can apply data validation to cells that already have data entered in them. However, Excel does not automatically notify you that the existing cells contain invalid data. In this scenario, you can highlight invalid data by instructing Excel to circle it on the worksheet. Once you have identified the invalid data, you can hide the circles again. If you correct an invalid entry, the circle disappears automatically.

To apply the circles, select the cells you want to evaluate and go to **Data > Data**

Tools > Data Validation > Circle Invalid Data.
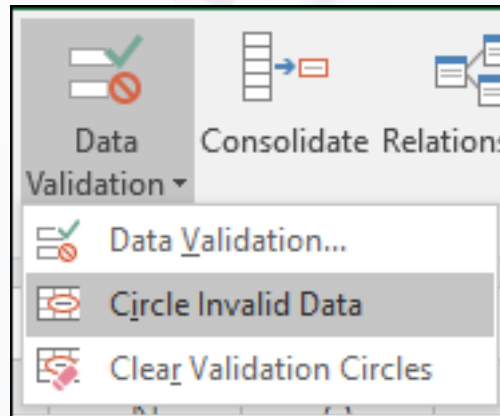
5. To quickly remove data validation for a cell, select it, and then go to Data > Data Tools > Data Validation > Settings > Clear All.
6. To find the cells on the worksheet that have data validation, on the Home tab, in the Editing group, click Find & Select, and then click Data Validation. After you have found the cells that have data validation, you can change, copy, or remove validation settings.
7. When creating a drop-down list, you can use the Define Name command (Formulas tab, Defined Names group) to define a name for the range that contains the list. After you create the list on another worksheet, you can hide the worksheet that contains the list and then protect the workbook so that users won't have access to the list.
8. If you change the validation settings for a cell, you can automatically apply your changes to all other cells that have the same settings. To do so, on the Settings tab, select the Apply these changes to all other cells with the same settings check box.
9. If data validation isn't working, make sure that:
   - Users are not copying or filling data – Data validation is designed to show messages and prevent invalid entries only when users type data directly in a cell. When data is copied or filled, the messages do not appear. To prevent users from copying and filling data by dragging and dropping cells, go to File > Options > Advanced > Editing options > clear the Enable fill handle and cell drag-and-drop check box, and then protect the worksheet.
   - Manual recalculation is turned off – If manual recalculation is turned on, uncalculated cells can prevent data from being validated correctly. To turn off manual recalculation, go to the Formulas tab > Calculation group > Calculation Options > click Automatic.
   - Formulas are error free – Make sure that formulas in validated cells do not cause errors, such as #REF! or #DIV/0!. Excel ignores the data validation until you correct the error.

- Cells referenced in formulas are correct – If a referenced cell changes so that a formula in a validated cell calculates an invalid result, the validation message for the cell won't appear.
- An Excel table might be linked to a SharePoint site – You cannot add data validation to an Excel table that is linked to a SharePoint site. To add data validation, you must unlink the Excel table or convert the Excel table to a range.
- You might currently be entering data – The Data Validation command is not available while you are entering data in a cell. To finish entering data, press Enter or ESC to quit.
- The worksheet might be protected or shared – You cannot change data validation settings if your workbook is shared or protected. You'll need to unshare or unprotect your workbook first.

2.   CONDITION FORMATTING

Conditional formatting can help make patterns and trends in your data more apparent. To use it, you create rules that determine the format of cells based on their values, such as the following monthly temperature data with cell colors tied to cell values.

	A	B	C	D	E	F	G
1	City	Jan	Feb	Mar	Apr	May	Jun
2	Barstow	80	84	84	97	95	98
3	California City	78	86	84	96	98	102
4	Cinco	83	86	86	97	95	103
5	Hesperia	78	85	87	98	97	102
6	Lancaster	78	85	86	99	95	101
7	Mojave	82	85	86	98	96	99
8	Palmdale	81	84	85	97	95	101
9	Ridgecrest	81	87	87	97	96	98
10	Rosamond	82	86	88	99	97	101
11	Santa Clarita	79	85	87	95	96	103

You can apply conditional formatting to a range of cells (either a selection or a named range), an Excel table, and in Excel for Windows, even a PivotTable report.

Apply conditional formatting in a PivotTable report

Conditional formatting typically works the same way in a range of cells, an Excel table, or a PivotTable report. However, conditional formatting in a PivotTable report has some extra considerations:

1. There are some conditional formats that don't work with fields in the Values area of a PivotTable report. For example, you can't format such fields based on whether they contain unique or duplicate values. These restrictions are mentioned in the remaining sections of this article, where applicable.
2. If you change the layout of the PivotTable report by filtering, hiding levels, collapsing and expanding levels, or moving a field, the conditional format is maintained as long as the fields in the underlying data are not removed.
3. The scope of the conditional format for fields in the Values area can be based on the data hierarchy and is determined by all the visible children (the next lower level in a hierarchy) of a parent (the next higher level in a hierarchy) on rows for one or more columns, or columns for one or more rows.
4. There are three methods for scoping the conditional format of fields in the Values area: by selection, by corresponding field, and by value field.

The default method of scoping fields in the Values area is by selection. You can

change the scoping method to the corresponding field or value field by using the Apply formatting rule to option button, the New Formatting Rule dialog box, or the Edit Formatting Rule dialog box.

| Method	Use this method if you want to select
Scoping by selection	- A contiguous set of fields in the Values area, such as all of the product totals for one region. - A non-contiguous set of fields in the Values area, such as product totals for different regions across levels in the data hierarchy.
Scoping by value field	- Avoid making many non-contiguous selections. - Conditionally format a set of fields in the Values area for all levels in the hierarchy of data. - Include subtotals and grand totals.
Scoping by corresponding field	- Avoid making many non-contiguous selections. - Conditionally format a set of fields in the Values area for one level in the hierarchy of data. - Exclude subtotals. When you conditionally format fields in the Values area for top, bottom, above average, or below average values, the rule is based on all visible values by default. However, when you scope by corresponding field, instead of using all visible values, you can apply the conditional format for each combination of: - A column and its parent row field. - A row and its parent column field.

Format Cells by Using a Two color Scale

Color scales are visual guides that help you understand data distribution and variation. A two-color scale helps you compare a range of cells by using a gradation of two colors. The shade of the color represents higher or lower values. For example, in a green and yellow color scale, as shown below, you can specify that higher value cells have a more green color and lower value cells have a more yellow color.

State	Q1	Q2	Q3	Q4
Alabama	$116,672	$162,589	$289,900	$320,934
Florida	$362,230	$173,172	$494,499	$373,953
Georgia	$567,260	$459,498	$568,716	$479,664
Louisiana	$610,774	$225,695	$734,153	$792,256
Mississippi	$774,684	$262,058	$490,187	$134,807
North Carolina	$706,781	$192,999	$513,336	$448,284
South Carolina	$700,817	$779,382	$779,711	$289,995
Texas	$1,224,379	$1,003,260	$990,534	$1,301,247
Virginia	$698,070	$619,838	$659,936	$724,434

Quick formatting:
1. Select one or more cells in a range, table, or PivotTable report.
2. On the Home tab, in the Styles group, click the arrow next to Conditional Formatting, and then click Color Scales.
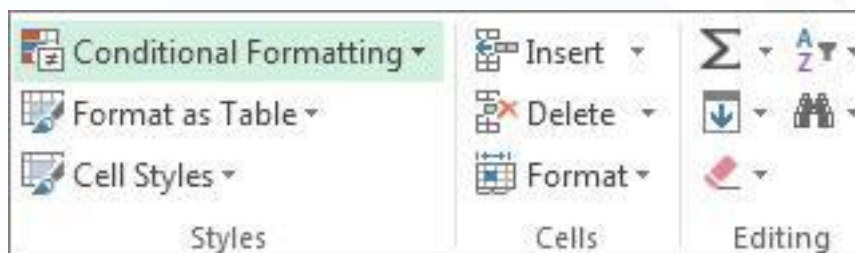
3. Select a two-color scale.
   Hover over the color scale icons to see which icon is a two-color scale. The top color represents higher values, and the bottom color represents lower values.

You can change the method of scoping for fields in the Values area of a PivotTable report by using the Formatting Options button that appears next to a PivotTable field that has conditional formatting applied.

Advanced formatting:

1. Select one or more cells in a range, table, or PivotTable report.
2. On the Home tab, in the Styles group, click the arrow next to Conditional Formatting, and then click Manage Rules. The Conditional Formatting Rules Manager dialog box appears.
3. Do one of the following:
   - To add a completely new conditional format, click New Rule. The New Formatting Rule dialog box appears.
   - To add a new conditional format based on one that is already listed, select the rule, then click Duplicate Rule. The duplicate rule appears in the dialog box. Select the duplicate, then select Edit Rule. The Edit Formatting Rule dialog box appears.
   - To change a conditional format, do the following:
     - Make sure that the appropriate worksheet, table, or PivotTable report is selected in the Show formatting rules for list box.
     - Optionally, change the range of cells by clicking Collapse Dialog in the Applies to box to temporarily hide the dialog box, by selecting the new range of cells on the worksheet, and then by selecting Expand Dialog.
     - Select the rule, and then click Edit rule. The Edit Formatting Rule dialog box appears.
4. Under Apply Rule To, to optionally change the scope for fields in the Values area of a PivotTable report by:
   - Selection: Click Selected cells.
   - All cells for a Value label: Click All cells showing <Value label> values.
   - All cells for a Value label, excluding subtotals and the grand total: Click All cells showing <Value label> values for <Row Label>.
5. Under Select a Rule Type, click Format all cells based on their values (default).
6. Under Edit the Rule Description, in the Format Style list box, select 2-Color Scale.
7. To select a type in the Type box for Minimum and Maximum, do one of the following:
   - Format lowest and highest values: Select Lowest Value and Highest Value. In this case, you do not enter a Minimum and MaximumValue.
   - Format a number, date, or time value: Select Number and then enter a Minimum and MaximumValue.
   - Format a percentage Percent: Enter a Minimum and MaximumValue. Valid values are from 0 (zero) to 100. Don't enter a percent sign. Use a percentage when you want to visualize all values proportionally because the distribution of values is proportional.
   - Format a percentile: Select Percentile and then enter a Minimum and MaximumValue. Valid percentiles are from 0 (zero) to 100.

Use a percentile when you want to visualize a group of high values (such as the top 20thpercentile) in one color grade proportion and low values (such as the bottom 20th percentile) in another color grade proportion, because they represent extreme values that might skew the visualization of your data.

- Format a formula result: Select Formula and then enter values for Minimum and Maximum.
  - The formula must return a number, date, or time value.
  - Start the formula with an equal sign (=).
  - Invalid formulas result in no formatting being applied.
  - It's a good idea to test the formula to make sure that it doesn't return an error value.

8. To choose a Minimum and Maximum color scale, click Color for each, and then select a color. If you want to choose additional colors or create a custom color, click More Colors. The color scale you select is shown in the Preview box.
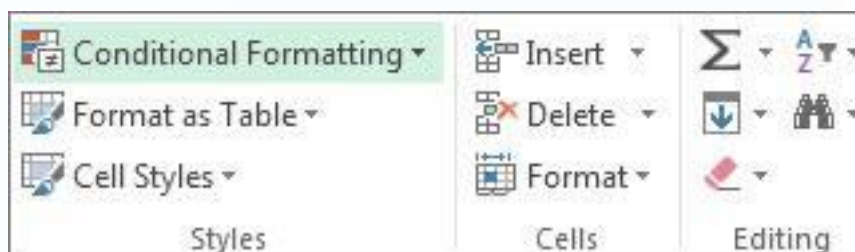
Format Cells by Using a Three color Scale

Color scales are visual guides that help you understand data distribution and variation. A three-color scale helps you compare a range of cells by using a gradation of three colors. The shade of the color represents higher, middle, or lower values. For example, in a green, yellow, and red color scale, you can specify that higher value cells have a green color, middle value cells have a yellow color, and lower value cells have a red color.

Quick formatting:
1. Select one or more cells in a range, table, or PivotTable report.
2. On the Home tab, in the Styles group, click the arrow next to Conditional Formatting, and then click Color Scales.
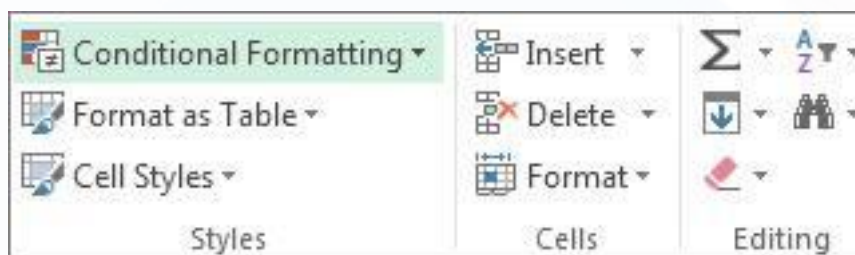
3. Select a three-color scale. The top color represents higher values, the center color represents middle values, and the bottom color represents lower values. Hover over the color scale icons to see which icon is a three-color scale.

You can change the method of scoping for fields in the Values area of a PivotTable report by using the Formatting Options button that appears next to a PivotTable field that has conditional formatting applied..

Advanced formatting
1. Select one or more cells in a range, table, or PivotTable report.
2. On the Home tab, in the Styles group, click the arrow next to Conditional Formatting, and then click Manage Rules. The Conditional Formatting Rules Manager dialog box appears.
3. Do one of the following:
   ● To add a new conditional format, click New Rule. The New Formatting Rule dialog box appears.
   ● To add a new conditional format based on one that is already listed, select the rule, then click Duplicate Rule. The duplicate rule is copied and appears in the dialog box. Select the duplicate, then select Edit Rule. The Edit Formatting Rule dialog box appears.
   ● To change a conditional format, do the following:
      ● Make sure that the appropriate worksheet, table, or PivotTable report is selected in the Show formatting rules for list box.
      ● Optionally, change the range of cells by clicking Collapse Dialog in the Applies to box to temporarily hide the dialog box, by selecting the new range of cells on the worksheet, and then by selecting Expand Dialog.
      ● Select the rule, and then click Edit rule. The Edit Formatting Rule dialog box appears.
4. Under Apply Rule To, to optionally change the scope for fields in the Values area of a PivotTable report by:
   ● Selection: Click Just these cells.
   ● Corresponding field: Click All <value field> cells with the same fields.
   ● Value field: Click All <value field> cells.
5. Under Select a Rule Type, click Format all cells based on their values.
6. Under Edit the Rule Description, in the Format Style list box, select 3-Color Scale.
7. Select a type for Minimum, Midpoint, and Maximum. Do one of the following:
   ● Format lowest and highest values: Select a Midpoint. In this case, you do not enter a Lowest and HighestValue.
   ● Format a number, date, or time value: Select Number and then enter a value for Minimum, Midpoint, and Maximum.
   ● Format a percentage: Select Percent and then enter a value for Minimum, Midpoint, and Maximum. Valid values are from 0 (zero) to 100. Do not enter a percent (%) sign.
   ● Format a percentile: Select Percentile and then enter a value for Minimum, Midpoint, and Maximum.

- Format a formula result: Select Formula and then enter a value for Minimum, Midpoint, and Maximum.

8. To choose a Minimum, Midpoint, and Maximum color scale, click Color for each, and then select a color.
   - To choose additional colors or create a custom color, click More Colors.
   - The color scale you select is shown in the Preview box.

Format Cells by Using Data Bars

A data bar helps you see the value of a cell relative to other cells. The length of the data bar represents the value in the cell. A longer bar represents a higher value, and a shorter bar represents a lower value. Data bars are useful in spotting higher and lower numbers, especially with large amounts of data, such as top selling and bottom selling toys in a holiday sales report.

The example shown here uses data bars to highlight dramatic positive and negative values. You can format data bars so that the data bar starts in the middle of the cell, and stretches to the left for negative values.

Region	Q1	Q2	Q3	Q4
NE	($1 ,268)	$48,484	$33,297	$182,525
SE	$48,576	$33,954	$39,634	$43,946
South	$42,455	($10 ,551)	$39,667	$44,561
North	$49,762	$48,295	$41,245	($1 ,262)
West	$34,340	($2 ,297)	$31,532	$171,238

Quick formatting
1. Select one or more cells in a range, table, or PivotTable report.
2. On the Home tab, in the Style group, click the arrow next to Conditional Formatting, click Data Bars, and then select a data bar icon.

You can change the method of scoping for fields in the Values area of a PivotTable report by using the Apply formatting rule to option button.

Advanced formatting

1. Select one or more cells in a range, table, or PivotTable report.
2. On the Home tab, in the Styles group, click the arrow next to Conditional Formatting, and then click Manage Rules. The Conditional Formatting Rules Manager dialog box appears.
3. Do one of the following:
   - To add a conditional format, click New Rule. The New Formatting Rule dialog box appears.
   - To add a new conditional format based on one that is already listed, select the rule, then click Duplicate Rule. The duplicate rule is copied and appears in the dialog box. Select the duplicate, then select Edit Rule. The Edit Formatting Rule dialog box appears.
   - To change a conditional format, do the following:
     - Make sure that the appropriate worksheet, table, or PivotTable report is selected in the Show formatting rules for list box.
     - Optionally, change the range of cells by clicking Collapse Dialog in the Applies to box to temporarily hide the dialog box, by selecting the new range of cells on the worksheet, and then by selecting Expand Dialog.
     - Select the rule, and then click Edit rule. The Edit Formatting Rule dialog box appears.
4. Under Apply Rule To, to optionally change the scope for fields in the Values area of a PivotTable report by:
   - Selection: Click Just these cells.
   - Corresponding field: Click All <value field> cells with the same fields.
   - Value field: Click All <value field> cells.
5. Under Select a Rule Type, click Format all cells based on their values.
6. Under Edit the Rule Description, in the Format Style list box, select Data Bar.
7. Select a Minimum and MaximumType.
8. To choose a Minimum and Maximum color scale, click Bar Color.
9. To show only the data bar and not the value in the cell, select Show Bar Only.
10. To apply a solid border to data bars, select Solid Border in the Border list box and choose a color for the border.
11. To choose between a solid bar and a gradiated bar, choose Solid Fill or Gradient Fill in the Fill list box.
12. To format negative bars, click Negative Value and Axis and then, in the Negative Value and Axis Settings dialog box, choose options for the negative bar fill and border colors. You can choose position settings and a color for the axis. When you are finished selecting options, click OK.
13. You can change the direction of bars by choosing a setting in the Bar Direction list box. This is set to Context by default, but you can choose between a left–to–right and a right–to–left direction, depending on how you want to present your data.

Format Cells by Using an Icon Set

Use an icon set to annotate and classify data into three to five categories separated by a threshold value. Each icon represents a range of values. For example, in the 3 Arrows icon set, the green up arrow represents higher values, the yellow sideways arrow represents middle values, and the red down arrow represents lower values.
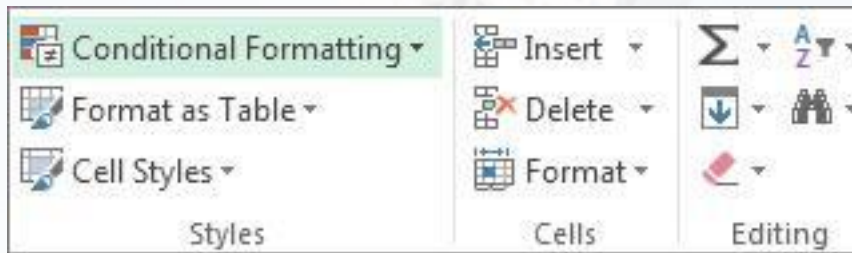
The example shown here works with several examples of conditional formatting icon sets.

Student ID		Grade		Student ID		Grade
323658	⚪	2.9		323658		❗
325461	🟢	4.0		325461		
334706	🔴	1.9		334706		✖
340103	🔴	2.1		340103		✖
553983	🟡	2.9		553983		❗
562224	🟡	2.9		562224		❗
604239	🔴	2.4		604239		✖
620766	🟢	3.2		620766		

CS Rep ID		Rating		CS Rep ID		Rating
552	📶	2		552		◑
659	📶	5		659		●
569	📶	0		569		○
319	📶	0		319		○
363	📶	3		363		◕
387	📶	3		387		◕
192	📶	1		192		◔
643	📶	2		643		◑

You can choose to show icons only for cells that meet a condition; for example, displaying a warning icon for those cells that fall below a critical value and no icons for those that exceed it. To do this, you hide icons by selecting No Cell Icon from the icon drop-down list next to the icon when you are setting conditions. You can also create your own combination of icon sets; for example, a green "symbol" check mark, a yellow "traffic light", and a red "flag."

Quick formatting

1. Select the cells that you want to conditionally format.
2. On the Home tab, in the Style group, click the arrow next to Conditional Formatting, click Icon Set, and then select an icon set.

You can change the method of scoping for fields in the Values area of a PivotTable report by using the Apply formatting rule to option button.

Advanced formatting
1. Select the cells that you want to conditionally format.
2. On the Home tab, in the Styles group, click the arrow next to Conditional Formatting, and then click Manage Rules. The Conditional Formatting Rules Manager dialog box appears.
3. Do one of the following:
   - To add a conditional format, click New Rule. The New Formatting Rule dialog box appears.
   - To add a new conditional format based on one that is already listed, select the rule, then click Duplicate Rule. The duplicate rule is copied and appears in the dialog box. Select the duplicate, then select Edit Rule. The Edit Formatting Rule dialog box appears.
   - To change a conditional format.
4. Under Apply Rule To, to optionally change the scope for fields in the Values area of a PivotTable report by:
   - Selection: Click Just these cells.
   - Corresponding field: Click All <value field> cells with the same fields.
   - Value field: Click All <value field> cells.
5. Under Select a Rule Type, click Format all cells based on their values.
6. Under Edit the Rule Description, in the Format Style list box, select Icon Set.

Set up your own Conditional Formatting Rule
If none of the above options is what you're looking for, you can create your own conditional formatting rule in a few simple steps.
1. Select the cells that you want to format.
2. On the Home tab, click Conditional Formatting > New Rule.
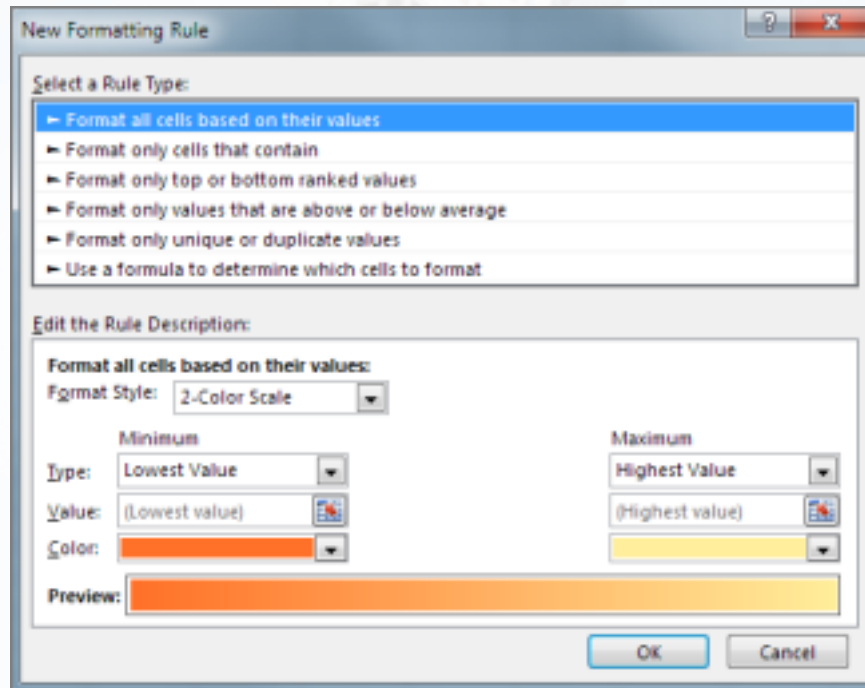
3. Create your rule and specify its format options, then click OK.
4. If you don't see the options that you want, you can use a formula to determine which cells to format – see the next section for steps).

Copy and Paste Conditional Formatting
If you want to apply an existing formatting style to new or other data on your worksheet, you can use Format Painter to copy the conditional formatting to that data.
1. Click the cell that has the conditional formatting that you want to copy.
2. Click Home > Format Painter.
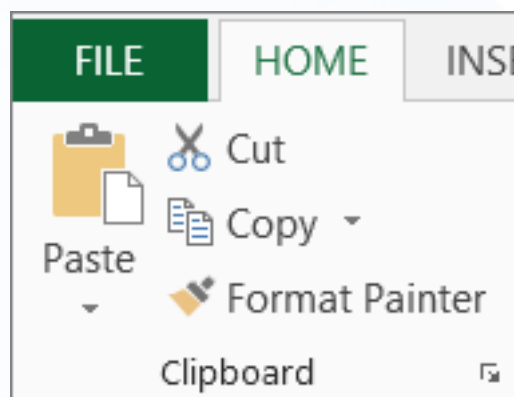
   The pointer changes to a paintbrush.
3. To paste the conditional formatting, drag the paintbrush across the cells or ranges of cells you want to format.

4. To stop using the paintbrush, press Esc.

Find all Cells that have a Conditional Format
1. Click any cell that does not have a conditional format.
2. On the Home tab, in the Editing group, click the arrow next to Find & Select, and then click Conditional Formatting.
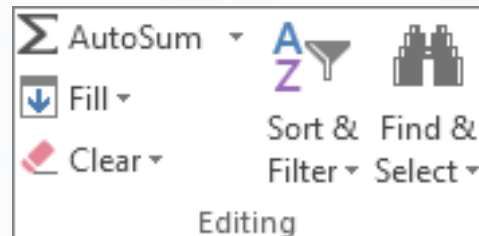
Find only cells that have the same conditional format
1. Click any cell that has the conditional format that you want to find.
2. On the Home tab, in the Editing group, click the arrow next to Find & Select, and then click Go To Special.
3. Click Conditional formats.
4. Click Same under Data validation.
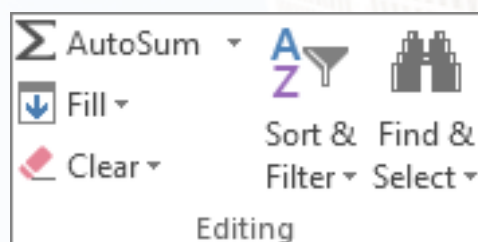
Manage Conditional Formatting Rules
When you use conditional formatting, you set up rules that Excel uses to determine when to apply the conditional formatting. To manage these rules, you should understand the order in which these rules are evaluated, what happens when two or more rules conflict, how copying and pasting can affect rule evaluation, how to change the order in which rules are evaluated, and when to stop rule evaluation.

● Learn about conditional formatting rule precedence
   You create, edit, delete, and view all conditional formatting rules in the workbook by using the Conditional Formatting Rules Manager dialog box. (On the Home tab, click Conditional Formatting, and then click Manage Rules.)

The Conditional Formatting Rules Manager dialog box appears.
When two or more conditional formatting rules apply, these rules are evaluated in order of precedence (top to bottom) by how they are listed in this dialog box.
Here's an example that has expiration dates for ID badges. We want to mark badges that expire within 60 days but are not yet expired with a yellow background color, and expired badges with a red background color.

In this example, cells with employee ID numbers who have certification dates due to expire within 60 days are formatted in yellow, and ID numbers of employees with an expired certification are formatted in red. The rules are shown in the following image.

The first rule (which, if True, sets cell background color to red) tests a date value in column B against the current date (obtained by using the TODAY function in a formula). Assign the formula to the first data value in column B, which is B2. The formula for this rule is =B2<TODAY(). This formula tests the cells in column B (cells B2:B15). If the formula for any cell in column B evaluates to True, its corresponding cell in column A (for example, A5 corresponds to B5, A11 corresponds to B11), is then formatted with a red background color. After all the cells specified under Applies to are evaluated with this first rule, the second rule is tested. This formula checks if values in the B column are less than 60 days from the current date (for example, suppose today's date is 8/11/2010). The cell in B4, 10/4/2010, is less than 60 days from today, so it evaluates as True, and is formatted with a yellow background color. The formula for this rule is =B2<TODAY()+60. Any cell that was first formatted red by the highest rule in the list is left alone.

A rule higher in the list has greater precedence than a rule lower in the list. By default, new rules are always added to the top of the list and therefore have a higher precedence, so you'll want to keep an eye on their order. You can change the order of precedence by using the Move Up and Move Down arrows in the dialog box.
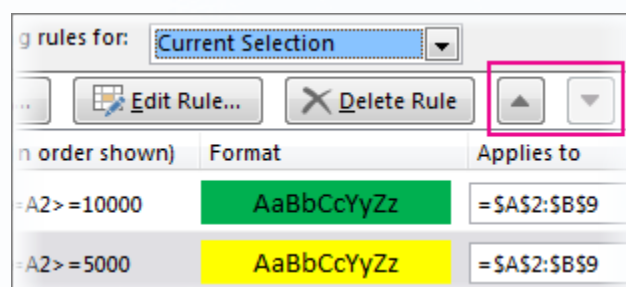
- What happens when more than one conditional formatting rule evaluates to True
  Sometimes you have more than one conditional formatting rule that evaluates to True. Here's how rules are applied, first when rules don't conflict, and then when they do conflict:
- When rules don't conflict   For example, if one rule formats a cell with a bold font and another rule formats the same cell with a red color, the cell is formatted with both a bold font and a red color. Because there is no conflict between the two formats, both rules are applied.
- When rules conflict   For example, one rule sets a cell font color to red and another rule sets a cell font color to green. Because the two rules are in conflict, only one can apply. The rule that is applied is the one that is higher in precedence (higher in the list in the dialog box).
- How pasting, filling, and the Format Painter affect conditional formatting rules
  While editing your worksheet, you may copy and paste cell values that have conditional formats, fill a range of cells with conditional formats, or use the Format Painter. These operations can affect conditional formatting rule precedence in the following way: a new conditional formatting rule based on the source cells is created for the destination cells.
  If you copy and paste cell values that have conditional formats to a worksheet opened in another instance of Excel (another Excel.exe process running at the same time on the computer), no conditional formatting rule is created in the other instance and the format is not copied to that instance.
- What happens when a conditional format and a manual format conflict
  If a conditional formatting rule evaluates as True, it takes precedence over any existing manual format for the same selection. This means that if they conflict, the conditional formatting applies and the manual format does not. If you delete the conditional formatting rule, the manual formatting for the range of cells remains. Manual formatting is not listed in the Conditional Formatting Rules Manager dialog box nor is it used to determine precedence.
- Controlling when rule evaluation stops by using the Stop If True check box
  For backwards compatibility with versions of Excel earlier than Excel 2007, you can select the Stop If True check box in the Manage Rules dialog box to simulate how conditional formatting might appear in those earlier versions of Excel that do not support more than three conditional formatting rules or multiple rules applied to the same range.
  For example, if you have more than three conditional formatting rules for a range of cells, and are working with a version of Excel earlier than Excel 2007, that version of Excel:
  - Evaluates only the first three rules.
  - Applies the first rule in precedence that is True.
  - Ignores rules lower in precedence if they are True.

The following table summarizes each possible condition for the first three rules:

If rule	Is	And if rule	Is	And if rule	Is	Then
One	True	Two	True or False	Three	True or False	Rule one is applied and rules two and three are ignored.
One	False	Two	True	Three	True or False	Rule two is applied and rule three is ignored.
One	False	Two	False	Three	True	Rule three is applied.
One	False	Two	False	Three	False	No rules are applied.

You can select or clear the Stop If True check box to change the default behavior:
● To evaluate only the first rule, select the Stop If True check box for the first rule.
● To evaluate only the first and second rules, select the Stop If True check box for the second rule.
You can't select or clear the Stop If True check box if the rule formats by using a data bar, color scale, or icon set.

Edit the order in which Conditional Formatting Rules are Evaluated
The order in which conditional formatting rules are evaluated – their precedence – also reflects their relative importance: the higher a rule is on the list of conditional formatting rules, the more important it is. This means that in cases where two conditional formatting rules conflict with each other, the rule that is higher on the list is applied and the rule that is lower on the list is not applied.
1. On the Home tab, in the Styles group, click the arrow next to Conditional Formatting, and then click Manage Rules.
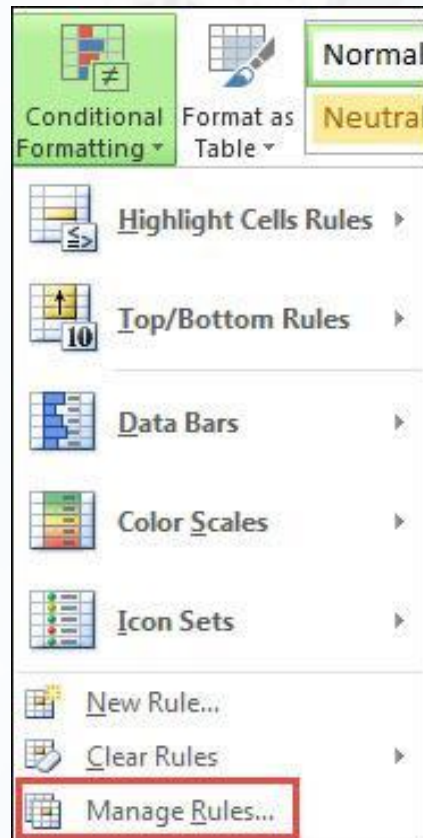
The Conditional Formatting Rules Manager dialog box appears.

The conditional formatting rules for the current selection are displayed, including the rule type, the format, the range of cells the rule applies to, and the Stop If True setting.

If you don't see the rule that you want, in the Show formatting rules for list box, make sure that the right range of cells, worksheet, table, or PivotTable report is selected.

2. Select a rule. Only one rule can be selected at a time.
3. To move the selected rule up in precedence, click Move Up. To move the selected rule down in precedence, click Move Down.
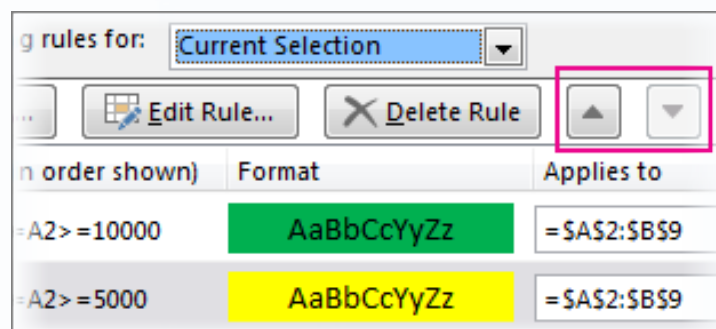
4. Optionally, to stop rule evaluation at a specific rule, select the Stop If True check box.

Clear Conditional Formatting

Clear conditional formatting on a worksheet

● On the Home tab, click Conditional Formatting > Clear Rules > Clear Rules from Entire Sheet.

Follow these steps if you have conditional formatting in a worksheet, and you need to remove it.

For an entire worksheet

● On the Home tab, click Conditional Formatting > Clear Rules > Clear Rules from Entire Sheet.

In a range of cells

1. Select the cells that contain the conditional formatting.

2. Click the Quick Analysis Lens button ![icon] image button that appears to the bottom right of the selected data.

3. Click Clear Format.
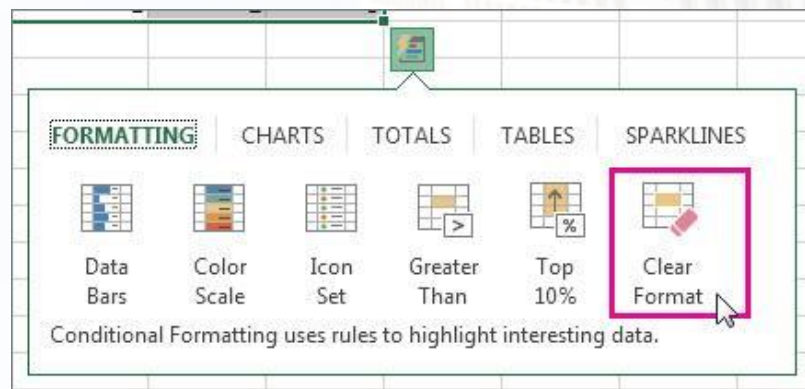
Find and remove the same conditional formats throughout a worksheet

1. Click on a cell that has the conditional format that you want to remove throughout the worksheet.

2. On the Home tab, click the arrow next to Find & Select, and then click Go To Special.

3. Click Conditional formats.

4. Click Same under Data validation. to select all of the cells that contain the same conditional formatting rules.

5. On the Home tab, click Conditional Formatting > Clear Rules > Clear Rules from Selected Cells.

3. DATA FILTER

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.

To filter data:

In our example, we'll apply a filter to an equipment log worksheet to display only the laptops and projectors that are available for checkout.

1. In order for filtering to work correctly, your worksheet should include a header row, which is used to identify the name of each column. In our example, our worksheet is organized into different columns identified by the header cells in row 1: ID#, Type, Equipment Detail, and so on.

	A	B	C	D	E	F
1	**ID #**	**Type**	**Equipment Detail**	**Checked Out**	**Checked In**	**Checked Out By**
2	3000	Camera	Saris Lumina Digital Camera	12-May-15	15-May-15	Shannon Nguyen
3	3005	Camera	Saris Zoom Z-60 Digital Camera	27-Jul-15	06-Aug-15	Sela Shepard
4	1021	Laptop	15" EDI SmartPad L200-3 Laptop	15-Sep-15	01-Oct-15	Sofie Ragnar
5	1022	Laptop	15" EDI SmartPad L200-3 Laptop	14-Aug-15	16-Aug-15	Hank Sorenson
6	1023	Laptop	15" EDI SmartPad L200-3 Laptop	08-Aug-15	15-Aug-15	Jennifer Weiss
7	3070	Camera	Omega PixL Digital Camcorder	06-Oct-15		Min Seung
8	1025	Laptop	15" EDI SmartPad L200-4X	26-Sep-15	04-Oct-15	Min Seung
9	1031	Laptop	17" Saris X-10 Laptop	04-Oct-15		Nick Ortiz
10	1032	Laptop	17" Saris X-10 Laptop	19-Sep-15		Stanley Geyer
11	1033	Laptop	17" Saris X-10 Laptop	24-Sep-15	26-Sep-15	George D'Agosta

2. Select the Data tab, then click the Filter command.
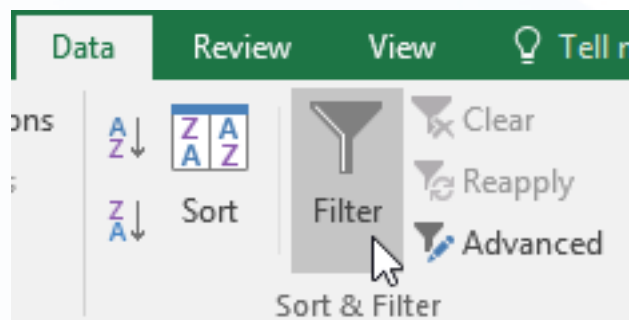
3. A drop-down arrow will appear in the header cell for each column.
4. Click the drop-down arrow for the column you want to filter. In our example, we will filter column B to view only certain types of equipment.

5. The Filter menu will appear.
6. Uncheck the box next to Select All to quickly deselect all data.


7. Check the boxes next to the data you want to filter, then click OK. In this example, we will check Laptop and Projector to view only these types of equipment.
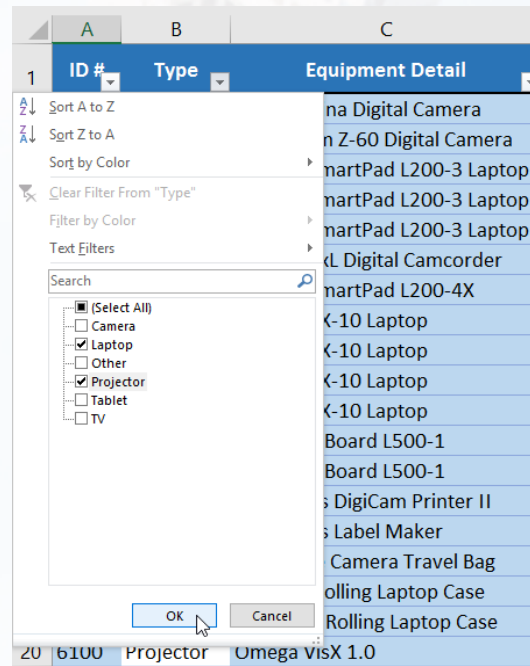
8. The data will be filtered, temporarily hiding any content that doesn't match the criteria. In our example, only laptops and projectors are visible.

	A	B	C	D	E	F
1	ID #	Type	Equipment Detail	Checked Out	Checked In	Checked Out By
4	1021	Laptop	15" EDI SmartPad L200-3 Laptop	15-Sep-15	01-Oct-15	Sofie Ragnar
5	1022	Laptop	15" EDI SmartPad L200-3 Laptop	14-Aug-15	16-Aug-15	Hank Sorenson
6	1023	Laptop	15" EDI SmartPad L200-3 Laptop	08-Aug-15	15-Aug-15	Jennifer Weiss
8	1025	Laptop	15" EDI SmartPad L200-4X	26-Sep-15	04-Oct-15	Min Seung
9	1031	Laptop	17" Saris X-10 Laptop	04-Oct-15		Nick Ortiz
10	1032	Laptop	17" Saris X-10 Laptop	19-Sep-15		Stanley Geyer
11	1033	Laptop	17" Saris X-10 Laptop	24-Sep-15	26-Sep-15	George D'Agosta
12	1034	Laptop	17" Saris X-10 Laptop	25-Aug-15	27-Aug-15	Jay Peralta
20	6100	Projector	Omega VisX 1.0	28-Sep-15	01-Oct-15	Win Armitage
21	6101	Projector	Omega VisX 1.0	26-Sep-15	27-Sep-15	Michael Earley
22	6102	Projector	Omega VisX 1.0	22-Aug-15	23-Aug-15	Jamila Kyle
23	6200	Projector	Saris Lux T-80	01-Sep-15	04-Sep-15	Jolie Chaturvedi
24	6301	Projector	Saris Lux T-81 Lite	10-Sep-15		Marques Herndon
25	6302	Projector	Saris Lux T-81 Lite	08-Sep-15	15-Sep-15	Dean Sorenson
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Filtering options can also be accessed from the Sort & Filter command on the Home tab.
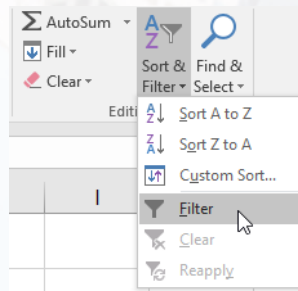
To apply multiple filters:

Filters are cumulative, which means you can apply multiple filters to help narrow down your results. In this example, we've already filtered our worksheet to show laptops and projectors, and we'd like to narrow it down further to only show laptops and projectors that were checked out in August.

1. Click the drop-down arrow for the column you want to filter. In this example, we will add a filter to column D to view information by date.

	A	B	C	D	E	F
1	ID #	Type	Equipment Detail	Checked Out	Checked In	Checked Out By
4	1021	Laptop	15" EDI SmartPad L200-3 Laptop	15-Sep-15	01-Oct-15	Sofie Ragnar
5	1022	Laptop	15" EDI SmartPad L200-3 Laptop	14-Aug-15		Hank Sorenson
6	1023	Laptop	15" EDI SmartPad L200-3 Laptop	08-Aug-15	15-Aug-15	Jennifer Weiss
8	1025	Laptop	15" EDI SmartPad L200-4X	26-Sep-15	04-Oct-15	Min Seung
9	1031	Laptop	17" Saris X-10 Laptop	04-Oct-15		Nick Ortiz
10	1032	Laptop	17" Saris X-10 Laptop	19-Sep-15		Stanley Geyer
11	1033	Laptop	17" Saris X-10 Laptop	24-Sep-15	26-Sep-15	George D'Agosta
12	1034	Laptop	17" Saris X-10 Laptop	25-Aug-15	27-Aug-15	Jay Peralta
20	6100	Projector	Omega VisX 1.0	28-Sep-15	01-Oct-15	Win Armitage
21	6101	Projector	Omega VisX 1.0	26-Sep-15	27-Sep-15	Michael Earley
22	6102	Projector	Omega VisX 1.0	22-Aug-15	23-Aug-15	Jamila Kyle
23	6200	Projector	Saris Lux T-80	01-Sep-15	04-Sep-15	Jolie Chaturvedi
24	6301	Projector	Saris Lux T-81 Lite	10-Sep-15		Marques Herndon
25	6302	Projector	Saris Lux T-81 Lite	08-Sep-15	15-Sep-15	Dean Sorenson
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2. The Filter menu will appear.
3. Check or uncheck the boxes depending on the data you want to filter, then click OK. In our example, we'll uncheck everything except for August.
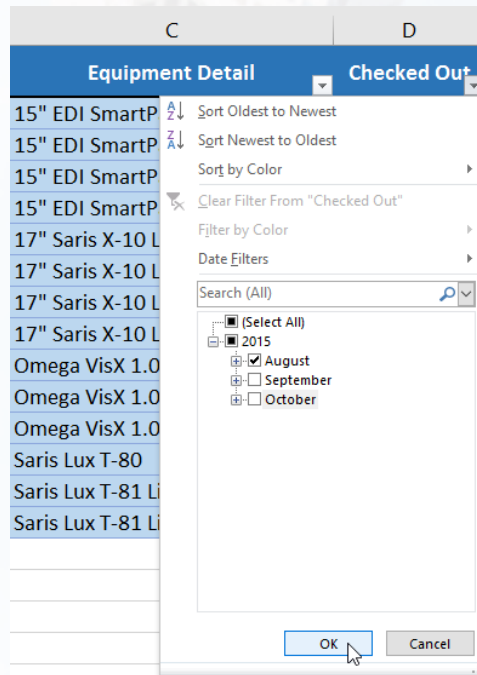
4. The new filter will be applied. In our example, the worksheet is now filtered to show only laptops and projectors that were checked out in August.
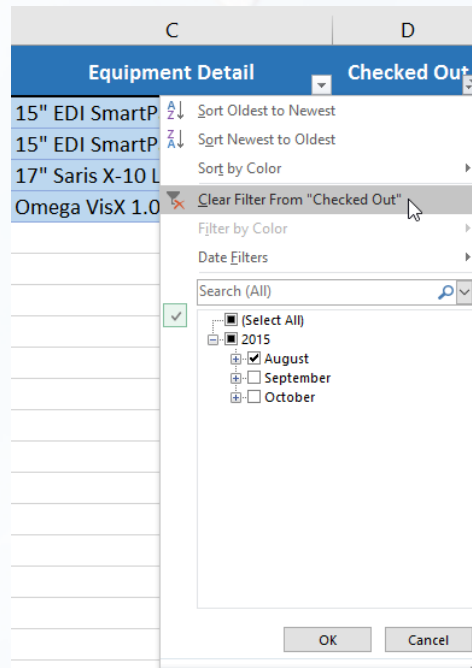

To clear a filter:

After applying a filter, you may want to remove—or clear—it from your worksheet so you'll be able to filter content in different ways.

1. Click the drop-down arrow for the filter you want to clear. In our example, we'll clear the filter in column D.

2. The Filter menu will appear.

3. Choose Clear Filter From [COLUMN NAME] from the Filter menu. In our example, we'll select Clear Filter From "Checked Out".

4. The filter will be cleared from the column. The previously hidden data will be displayed.

To remove all filters from your worksheet, click the Filter command on the Data tab.
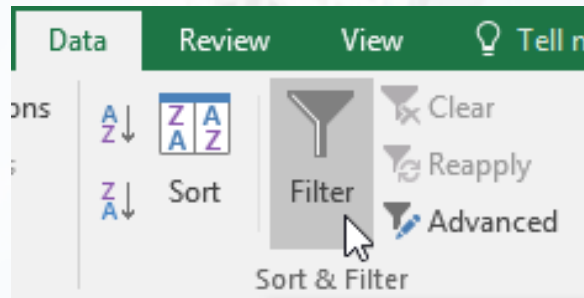
Advanced filtering

If you need a filter for something specific, basic filtering may not give you enough options. Fortunately, Excel includes several advanced filtering tools, including search, text, date, and number filtering, which can narrow your results to help find exactly what you need.

To filter with search:

Excel allows you to search for data that contains an exact phrase, number, date, and more. In our example, we'll use this feature to show only Saris brand products in our equipment log.

1. Select the Data tab, then click the Filter command. A drop–down arrow will appear in the header cell for each column. Note: If you've already added filters to your worksheet, you can skip this step.
2. Click the drop–down arrow for the column you want to filter. In our example, we'll filter column C.

	A	B	C	D	E	F
1	ID #	Type	Equipment Detail	Checked Out	Checked In	Checked Out By
2	3000	Camera	Saris Lumina Digital Camera	12-May-15	15-May-15	Shannon Nguyen
3	3005	Camera	Saris Zoom Z-60 Digital Camera		06-Aug-15	Sela Shepard
4	1021	Laptop	15" EDI SmartPad L200-3 Laptop	15-Sep-15	01-Oct-15	Sofie Ragnar
5	1022	Laptop	15" EDI SmartPad L200-3 Laptop	14-Aug-15	16-Aug-15	Hank Sorenson
6	1023	Laptop	15" EDI SmartPad L200-3 Laptop	08-Aug-15	15-Aug-15	Jennifer Weiss
7	3070	Camera	Omega PixL Digital Camcorder	06-Oct-15		Min Seung
8	1025	Laptop	15" EDI SmartPad L200-4X	26-Sep-15	04-Oct-15	Min Seung
9	1031	Laptop	17" Saris X-10 Laptop	04-Oct-15		Nick Ortiz
10	1032	Laptop	17" Saris X-10 Laptop	19-Sep-15		Stanley Geyer

3. The Filter menu will appear. Enter a search term into the search box. Search results will appear automatically below the Text Filters field as you type. In our example, we'll type saris to find all Saris brand equipment. When you're done, click OK.
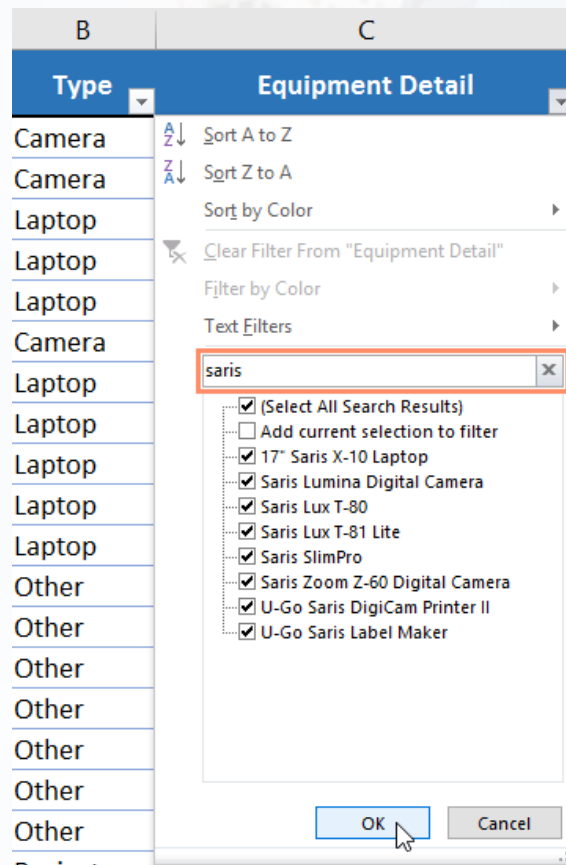
4. The worksheet will be filtered according to your search term. In our example, the worksheet is now filtered to show only Saris brand equipment.

	A	B	C	D	E	F
1	ID #	Type	Equipment Detail	Checked Out	Checked In	Checked Out By
2	3000	Camera	Saris Lumina Digital Camera	12-May-15	15-May-15	Shannon Nguyen
3	3005	Camera	Saris Zoom Z-60 Digital Camera	27-Jul-15	06-Aug-15	Sela Shepard
9	1031	Laptop	17" Saris X-10 Laptop	04-Oct-15		Nick Ortiz
10	1032	Laptop	17" Saris X-10 Laptop	19-Sep-15		Stanley Geyer
11	1033	Laptop	17" Saris X-10 Laptop	24-Sep-15	26-Sep-15	George D'Agosta
12	1034	Laptop	17" Saris X-10 Laptop	25-Aug-15	27-Aug-15	Jay Peralta
15	3800	Other	U-Go Saris DigiCam Printer II	04-Aug-15	05-Aug-15	Hank Sorenson
16	3900	Other	U-Go Saris Label Maker	13-Jun-15	20-Jun-15	Clint Gosse
23	6200	Projector	Saris Lux T-80	01-Sep-15	04-Sep-15	Jolie Chaturvedi
24	6301	Projector	Saris Lux T-81 Lite	10-Sep-15		Marques Herndon
25	6302	Projector	Saris Lux T-81 Lite	08-Sep-15	15-Sep-15	Dean Sorenson
26	1011	Tablet	Saris SlimPro	04-Oct-15		Jay Peralta
27	1012	Tablet	Saris SlimPro	29-Sep-15		August Zorn
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To use advanced text filters:

Advanced text filters can be used to display more specific information, like cells that contain a certain number of characters or data that excludes a specific word or number. In our example, we'd like to exclude any item containing the word laptop.

1. Select the Data tab, then click the Filter command. A drop-down arrow will appear in the header cell for each column. Note: If you've already added filters to your worksheet, you can skip this step.

2. Click the drop-down arrow for the column you want to filter. In our example, we'll filter column C.

	A	B	C	D	E	F
1	ID #	Type	Equipment Detail	Checked Out	Checked In	Checked Out By
2	3000	Camera	Saris Lumina Digital Camera	12-May-15	15-May-15	Shannon Nguyen
3	3005	Camera	Saris Zoom Z-60 Digital Camera		06-Aug-15	Sela Shepard
4	1021	Laptop	15" EDI SmartPad L200-3 Laptop	15-Sep-15	01-Oct-15	Sofie Ragnar
5	1022	Laptop	15" EDI SmartPad L200-3 Laptop	14-Aug-15	16-Aug-15	Hank Sorenson
6	1023	Laptop	15" EDI SmartPad L200-3 Laptop	08-Aug-15	15-Aug-15	Jennifer Weiss
7	3070	Camera	Omega PixL Digital Camcorder	06-Oct-15		Min Seung
8	1025	Laptop	15" EDI SmartPad L200-4X	26-Sep-15	04-Oct-15	Min Seung
9	1031	Laptop	17" Saris X-10 Laptop	04-Oct-15		Nick Ortiz
10	1032	Laptop	17" Saris X-10 Laptop	19-Sep-15		Stanley Geyer

3. The Filter menu will appear. Hover the mouse over Text Filters, then select the desired text filter from the drop-down menu. In our example, we'll choose Does Not Contain... to view data that does not contain specific text.

4. The Custom AutoFilter dialog box will appear. Enter the desired text to the right of the filter, then click OK. In our example, we'll type laptop to exclude any items containing this word.

5. The data will be filtered by the selected text filter. In our example, our worksheet now displays items that do not contain the word laptop.



To use advanced number filters:
Advanced number filters allow you to manipulate numbered data in different ways. In this example, we'll display only certain types of equipment based on the range of ID numbers.

1. Select the Data tab on the Ribbon, then click the Filter command. A drop-down arrow will appear in the header cell for each column. Note: If you've already added filters to your worksheet, you can skip this step.

2. Click the drop-down arrow for the column you want to filter. In our example, we'll filter column A to view only a certain range of ID numbers.

3. The Filter menu will appear. Hover the mouse over Number Filters, then select the desired number filter from the drop–down menu. In our example, we'll choose Between to view ID numbers between a specific number range.
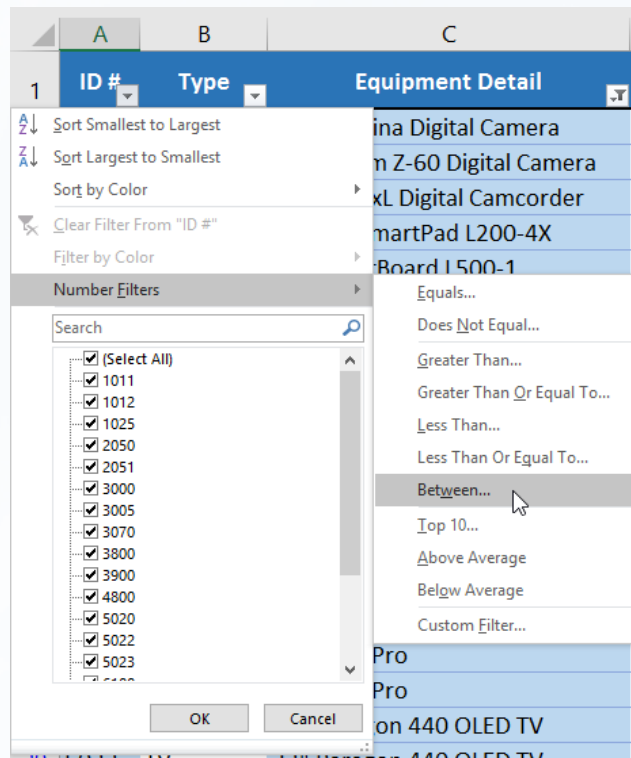
4. The Custom AutoFilter dialog box will appear. Enter the desired number(s) to the right of each filter, then click OK. In our example, we want to filter for ID numbers greater than or equal to 3000 but less than or equal to 6000, which will display ID numbers in the 3000–6000 range.
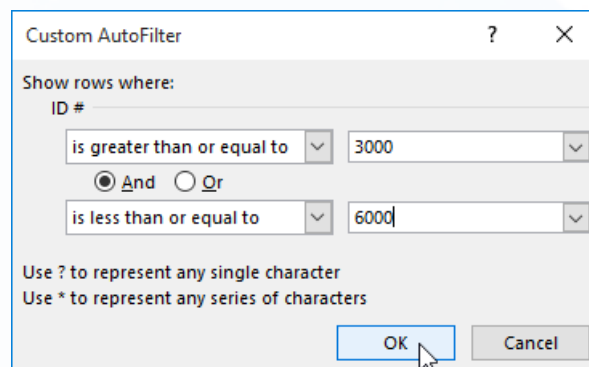
5. The data will be filtered by the selected number filter. In our example, only items with an ID number between 3000 and 6000 are visible.

|	A	B	C	D	E	F
1	ID #	Type	Equipment Detail	Checked Out	Checked In	Checked Out By
2	3000	Camera	Saris Lumina Digital Camera	12-May-15	15-May-15	Shannon Nguyen
3	3005	Camera	Saris Zoom Z-60 Digital Camera	27-Jul-15	06-Aug-15	Sela Shepard
7	3070	Camera	Omega PixL Digital Camcorder	06-Oct-15		Min Seung
15	3800	Other	U-Go Saris DigiCam Printer II	04-Aug-15	05-Aug-15	Hank Sorenson
16	3900	Other	U-Go Saris Label Maker	13-Jun-15	20-Jun-15	Clint Gosse
17	4800	Other	7N Deluxe Camera Travel Bag	27-Jul-15	06-Aug-15	Sela Shepard
28	5020	TV	32" Paragon 440 OLED TV	11-Aug-15	13-Aug-15	Marta Lao
29	5022	TV	32" Paragon 440 OLED TV	17-Jul-15	17-Jul-15	Carl Langer
30	5023	TV	50" Paragon 490L LED TV	01-Oct-15	01-Oct-15	Margaret Lisbon
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To use advanced date filters:

Advanced date filters can be used to view information from a certain time period, such as last year, next quarter, or between two dates. In this example, we'll use advanced date filters to view only equipment that has been checked out between July 15 and August 15.

1. Select the Data tab, then click the Filter command. A drop-down arrow will appear in the header cell for each column. Note: If you've already added filters to your worksheet, you can skip this step.
2. Click the drop-down arrow for the column you want to filter. In our example, we'll filter column D to view only a certain range of dates.

	A	B	C	D	E	F
1	ID #	Type	Equipment Detail	Checked Out	Checked In	Checked Out By
2	3000	Camera	Saris Lumina Digital Camera	12-May-15	15-May-15	Shannon Nguyen
3	3005	Camera	Saris Zoom Z-60 Digital Camera	27-Jul-15	Checked Out: (Showing All) 15	Sela Shepard
7	3070	Camera	Omega PixL Digital Camcorder	06-Oct-15		Min Seung
15	3800	Other	U-Go Saris DigiCam Printer II	04-Aug-15	05-Aug-15	Hank Sorenson
16	3900	Other	U-Go Saris Label Maker	13-Jun-15	20-Jun-15	Clint Gosse
17	4800	Other	7N Deluxe Camera Travel Bag	27-Jul-15	06-Aug-15	Sela Shepard
28	5020	TV	32" Paragon 440 OLED TV	11-Aug-15	13-Aug-15	Marta Lao
29	5022	TV	32" Paragon 440 OLED TV	17-Jul-15	17-Jul-15	Carl Langer
30	5023	TV	50" Paragon 490L LED TV	01-Oct-15	01-Oct-15	Margaret Lisbon
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3. The Filter menu will appear. Hover the mouse over Date Filters, then select the desired date filter from the drop-down menu. In our example, we'll select Between... to view equipment that has been checked out between July 15 and August 15.
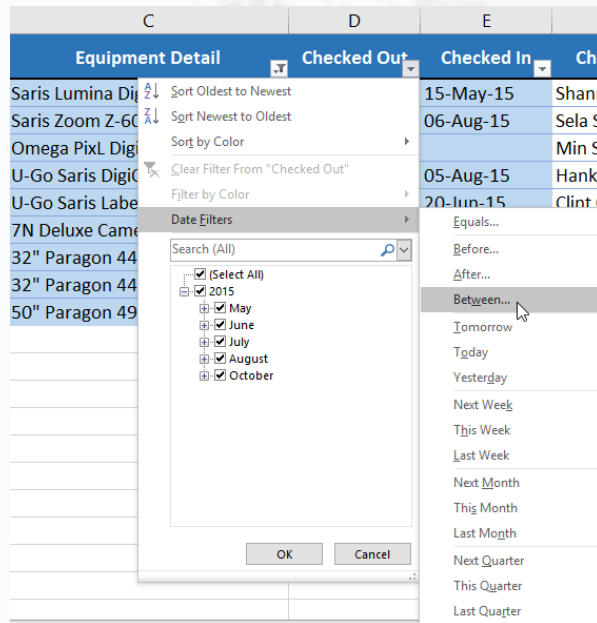
4. The Custom AutoFilter dialog box will appear. Enter the desired date(s) to the right of each filter, then click OK. In our example, we want to filter for dates after or equal to July 15, 2015, and before or equal to August 15, 2015, which will display a range between these dates.
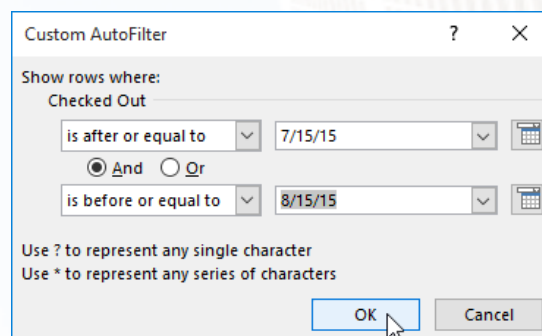
5. The worksheet will be filtered by the selected date filter. In our example, we can now see which items have been checked out between July 15 and August 15.

4. PIVOT TABLE

When you have a lot of data, it can sometimes be difficult to analyze all of the information in your worksheet. PivotTables can help make your worksheets more manageable by summarizing data and allowing you to manipulate it in different ways.

Consider the example below. Let's say we wanted to answer the question What is the amount sold by each salesperson? Answering it could be time consuming and difficult; each salesperson appears on multiple rows, and we would need to total all of their different orders individually. We could use the Subtotal command to help find the total for each salesperson, but we would still have a lot of data to work with.

	A	B	C	D	E
1	Salesperson	Region	Account	Order Amount	Month
2	Albertson, Kathy	East	29386	$925.00	January
3	Albertson, Kathy	East	74830	$875.00	February
4	Albertson, Kathy	East	90099	$500.00	February
5	Albertson, Kathy	East	74830	$350.00	March
6	Brennan, Michael	West	82853	$400.00	January
7	Brennan, Michael	West	72949	$850.00	January
8	Brennan, Michael	West	90044	$1,500.00	January
9	Brennan, Michael	West	82853	$550.00	February
10	Brennan, Michael	West	72949	$400.00	March
11	Davis, William	South	55223	$235.00	February
12	Davis, William	South	10354	$850.00	January
13	Davis, William	South	50192	$600.00	March
14	Davis, William	South	27589	$250.00	January
15	Dumlao, Richard	West	67275	$400.00	January
16	Dumlao, Richard	West	41828	$965.00	February

Fortunately, a PivotTable can instantly calculate and summarize the data in a way that will make it much easier to read. When we're done, the PivotTable will look something like this:

Row Labels	Sum of Order Amount
Albertson, Kathy	$2,650.00
Brennan, Michael	$3,700.00
Davis, William	$1,935.00
Dumlao, Richard	$1,490.00
Flores, Tia	$4,565.00
Post, Melissa	$1,690.00
Thompson, Shannon	$3,160.00
Walters, Chris	$4,375.00
Grand Total	**$23,565.00**

Once you've created a PivotTable, you can use it to answer different questions by rearranging—or pivoting—the data. For example, let's say we wanted to answer What is the total amount sold in each month? We could modify our PivotTable to look like this:

Row Labels	Sum of Order Amount
January	$9,090.00
February	$9,160.00
March	$5,315.00
Grand Total	**$23,565.00**

To create a PivotTable:

1. Select the table or cells (including column headers) you want to include in your PivotTable.

|	A	B	C	D	E
1	Salesperson	Region	Account	Order Amount	Month
2	Albertson, Kathy	East	29386	$925.00	January
3	Albertson, Kathy	East	74830	$875.00	February
4	Albertson, Kathy	East	90099	$500.00	February
5	Albertson, Kathy	East	74830	$350.00	March
6	Brennan, Michael	West	82853	$400.00	January
7	Brennan, Michael	West	72949	$850.00	January
8	Brennan, Michael	West	90044	$1,500.00	January
9	Brennan, Michael	West	82853	$550.00	February
10	Brennan, Michael	West	72949	$400.00	March
11	Davis, William	South	55223	$235.00	February
12	Davis, William	South	10354	$850.00	January
13	Davis, William	South	50192	$600.00	March
14	Davis, William	South	27589	$250.00	January
15	Dumlao, Richard	West	67275	$400.00	January
16	Dumlao, Richard	West	41828	$965.00	February

2. From the Insert tab, click the PivotTable command.
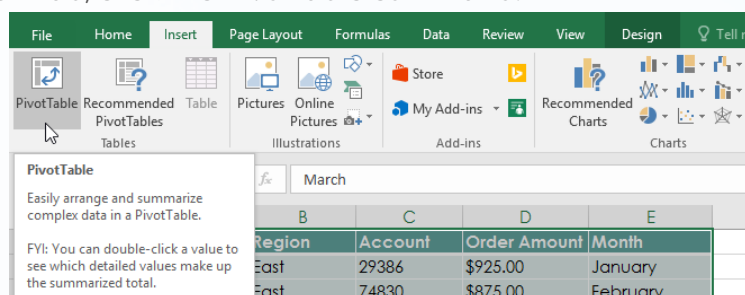
3. The Create PivotTable dialog box will appear. Choose your settings, then click OK. In our example, we'll use Table1 as our source data and place the PivotTable in a new worksheet.
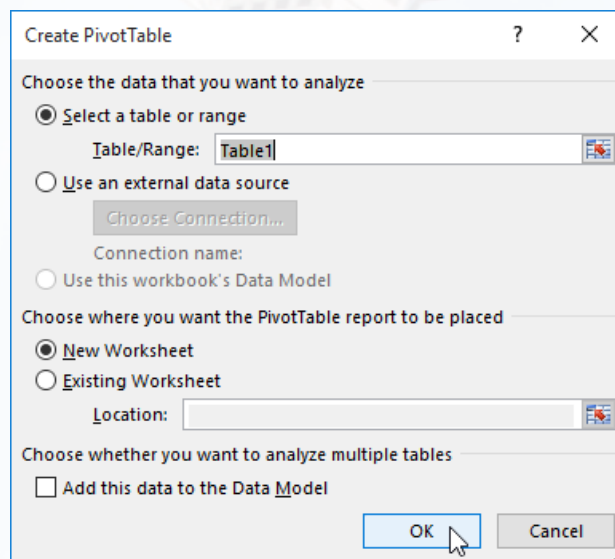
4. A blank PivotTable and Field List will appear in a new worksheet.
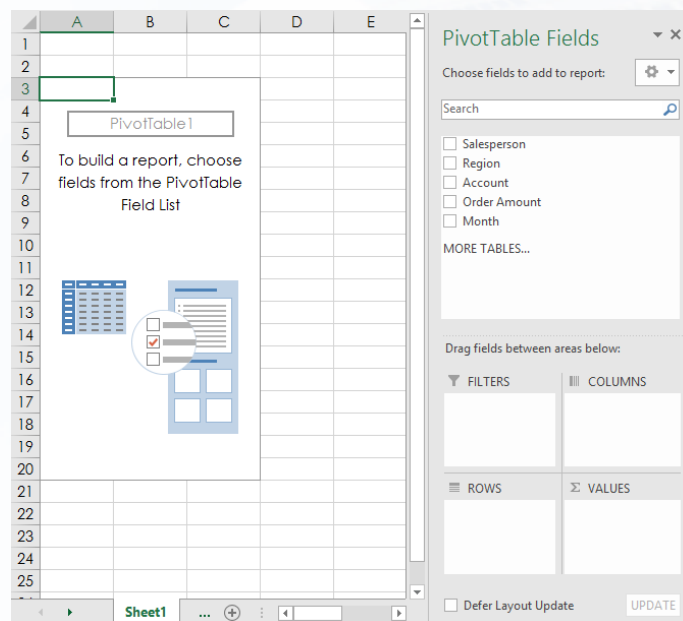
5. Once you create a PivotTable, you'll need to decide which fields to add. Each field is simply a column header from the source data. In the PivotTable Fields list, check the box for each field you want to add. In our example, we want to know the total amount sold by each salesperson, so we'll check the Salesperson and Order Amount fields.
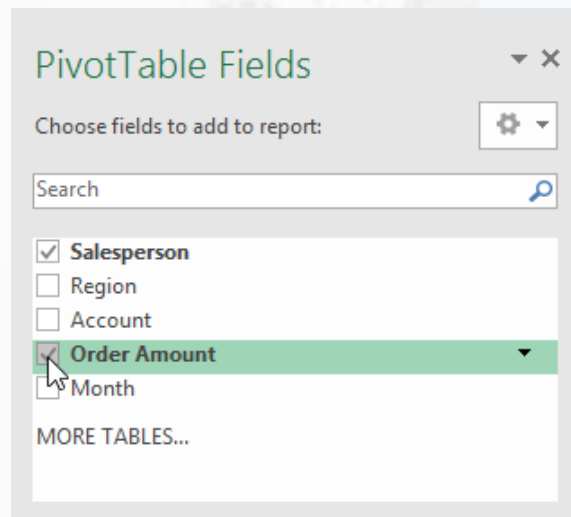
6. The selected fields will be added to one of the four areas below. In our example, the Salesperson field has been added to the Rows area, while Order Amount has been added to Values. You can also drag and drop fields directly into the desired area.
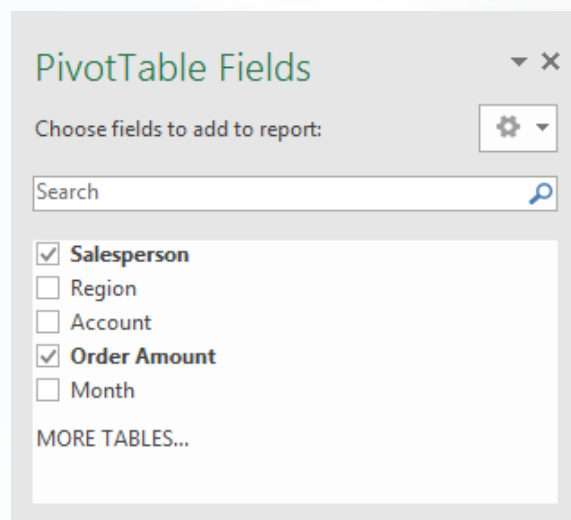
7. The PivotTable will calculate and summarize the selected fields. In our example, the PivotTable shows the amount sold by each salesperson.

Just like with normal spreadsheets, you can sort the data in a PivotTable using the Sort & Filter command on the Home tab. You can also apply any type of number formatting you want. For example, you may want to change the number format to

Currency. However, be aware that some types of formatting may disappear when you modify the PivotTable.

Row Labels	Sum of Order Amount
Flores, Tia	$4,565.00
Walters, Chris	$4,375.00
Brennan, Michael	$3,700.00
Thompson, Shannon	$3,160.00
Albertson, Kathy	$2,650.00
Davis, William	$1,935.00
Post, Melissa	$1,690.00
Dumlao, Richard	$1,490.00
Grand Total	$23,565.00

Pivoting data

One of the best things about PivotTables is that they can quickly pivot—or reorganize—your data, allowing you to examine your worksheet in several ways. Pivoting data can help you answer different questions and even experiment with your data to discover new trends and patterns.

To add columns:

So far, our PivotTable has only shown one column of data at a time. To show multiple columns, you'll need to add a field to the Columns area.
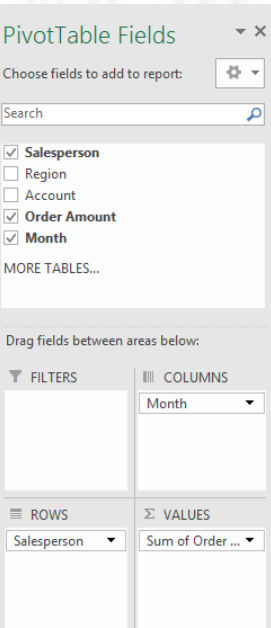
1. Drag a field from the Field List into the Columns area. In our example, we'll use the Month field.
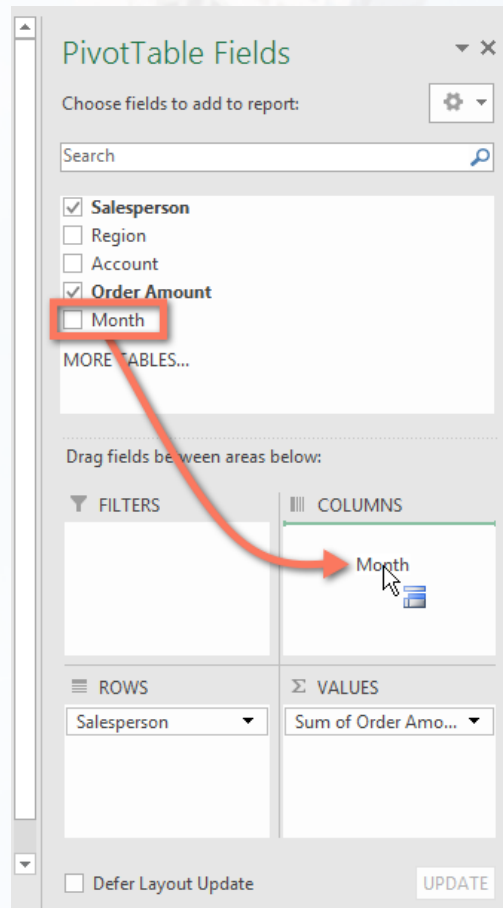
2. The PivotTable will include multiple columns. In our example, there is now a column for each person's monthly sales, in addition to the grand total.


To change a row or column:

Changing a row or column can give you a completely different perspective on your data. All you have to do is remove the field in question, then replace it with another.

1. Drag the field you want to remove out of its current area. You can also uncheck the appropriate box in the Field List. In this example, we've removed the Month and Salesperson fields.
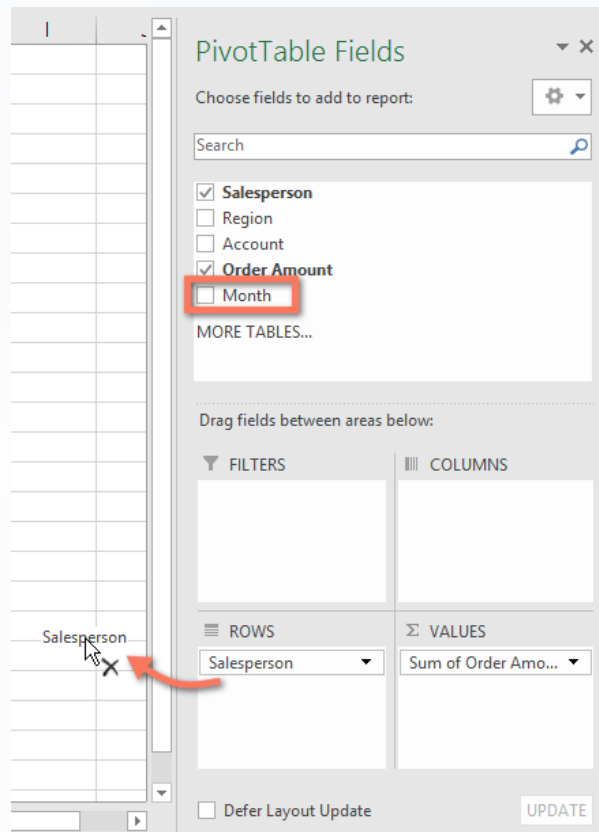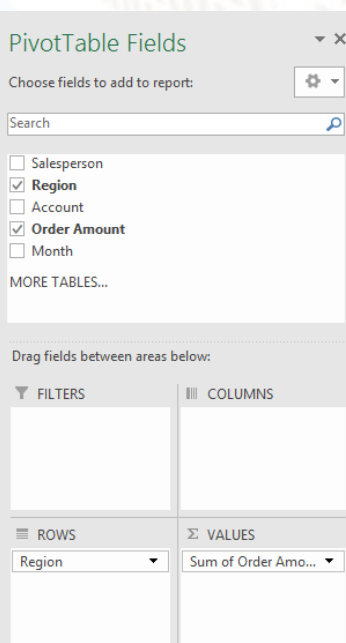

2. Drag a new field into the desired area. In our example, we'll place the Region field under Rows.
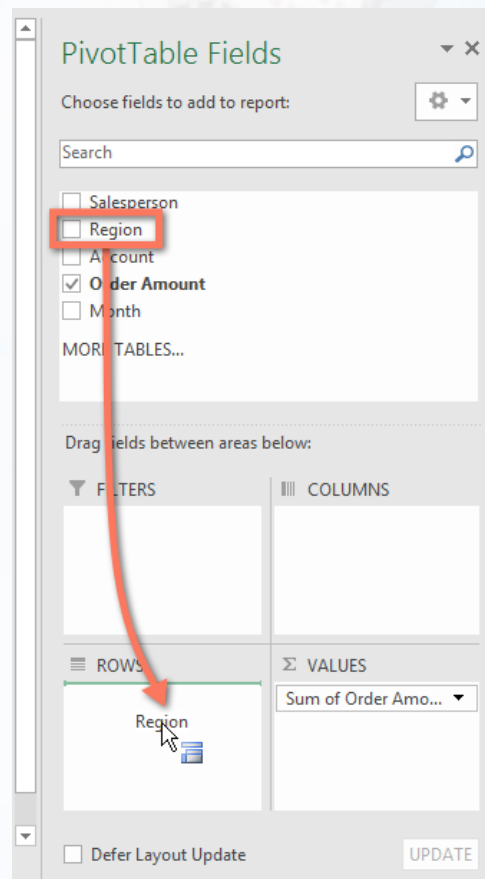
3. The PivotTable will adjust—or pivot—to show the new data. In our example, it now shows the amount sold by each region.

5. NAMED RANGE

A typical spreadsheet can have many different formulas, and it can be difficult to keep track of all of the cell ranges used by those formulas. To make things easier, you can add a more intuitive, descriptive name to any cell range, and then use those named ranges in your formulas.

To create a named range, simply select a cell or cell range, then type the desired name into the Name box (to the left of the formula bar). You can then use the new name whenever you want to refer to that cell range.

How to create an Excel named range

Overall, there are 3 ways to define a name in Excel: Name Box, Define Name button, and Excel Name Manager.

Type a name in the Name Box

The Name Box in Excel is fastest way to create a named range:

1. Select a cell or a range of cells that you want to name.
2. Type a name into the Name Box.
3. Press the Enter key.

Create a name by using the Define Name option

Another way to make a named range in Excel is this:

1. Select the cell(s).
2. On the Formulas tab, in the Define Names group, click the Define Name button.
3. In the New Name dialog box, specify three things:
   - In the Name box, type the range name.
   - In the Scope dropdown, set the name scope (Workbook by default).
   - In the Refers to box, check the reference and correct it if needed.
4. Click OK to save the changes and close the dialog box.

Note. By default, Excel creates a name with absolute references. If you'd rather have a relative named range, remove the $ sign from the reference (before you do this, make sure you fully understand how relative names behave in worksheets).
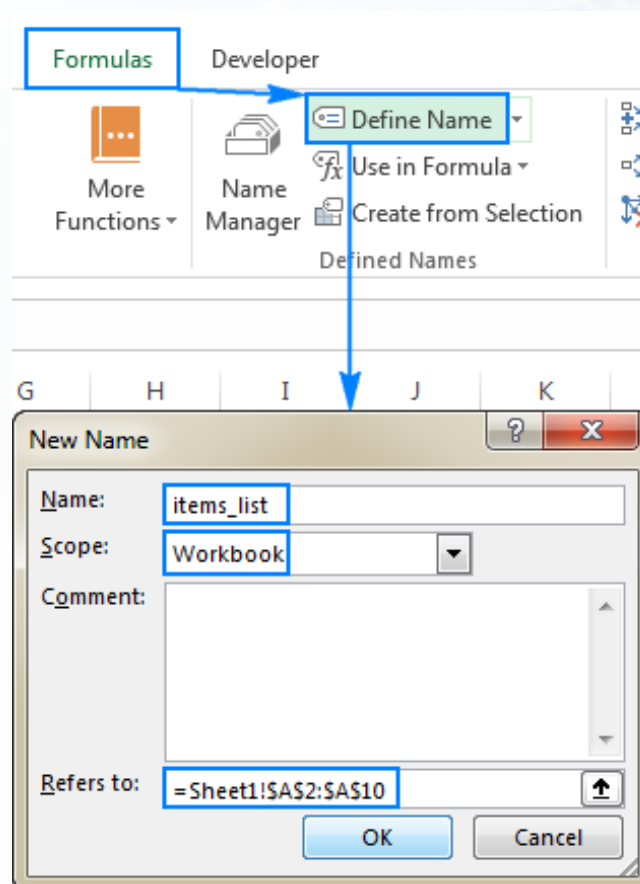

Compared to the previous method, using Define Name in Excel takes a few extra clicks, but it also provides a couple more options such as setting the

name's scope and adding a comment that explains something about the name. Additionally, Excel's Define Name feature allows you to create a name for a constant or formula.

Make a named range by using Excel Name Manager

Usually, the Name Manager in Excel is used to work with existing names. However, it can help you build a new name too. Here's how:

1. Go to the Formulas tab > Defined Names group, click Name Manager. Or, just press Ctrl + F3 (my preferred way).
2. In the top left hand corner of the Name Manager dialog window, click the New... button:
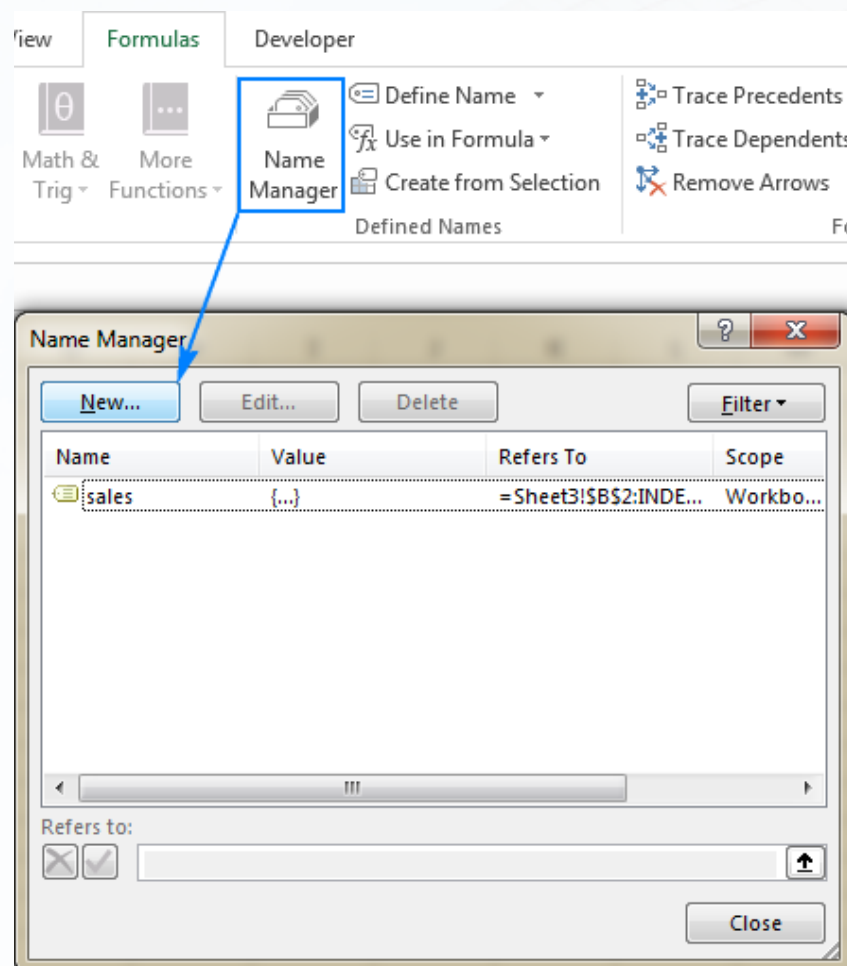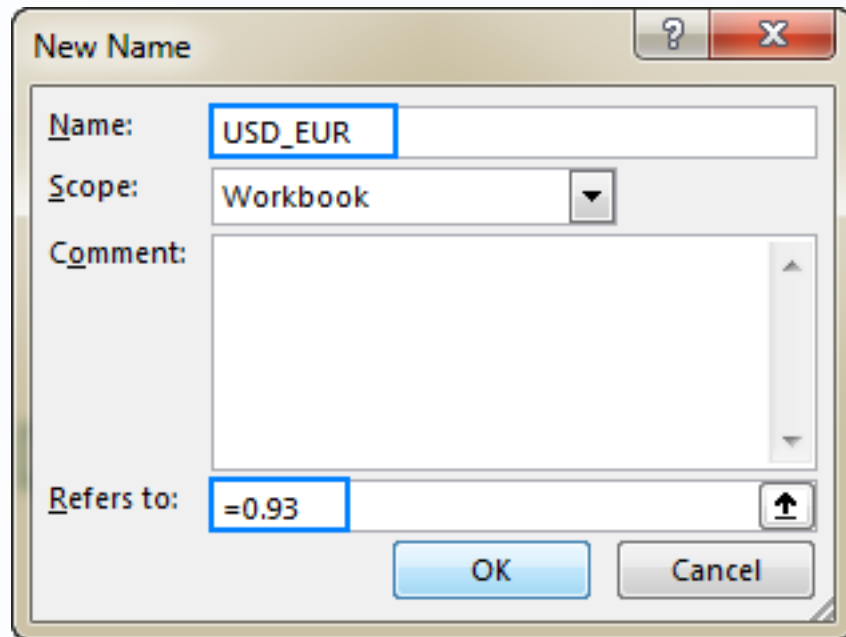

3. This will open the New Name dialog box where you configure a name as demonstrated in the previous section.

How to create an Excel name for a constant

In addition to named ranges, Microsoft Excel allows you to define a name without cell reference that will work as a named constant. To create such a name, use either the Excel Define Name feature or Name Manager as explained above.

For instance, you can make a name like USD_EUR (USD – EUR conversion rate) and assign a fixed value to it. For this, type the value preceded by an equal sign (=) in the Refers to field, e.g. =0.93:

And now, you can use this name anywhere in your formulas to convert USD to EUR:

As soon as the exchange rate changes, you update the value only in one central location, and all of your formulas will get recalculated in a single step!

How to define a name for a formula

In a similar manner, you can give a name to an Excel formula, for example, the one that returns the count of non-empty cells in column A, excluding the header row (-1):

=COUNTA(Sheet5!$A:$A)-1
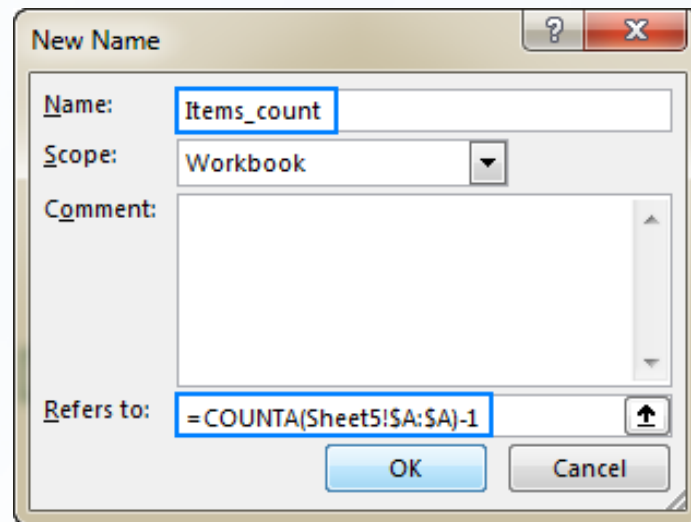
Note. If your formula refers to any cells on the current sheet, you do not need to include the sheet name in the references, Excel will do it for you automatically. If you are referencing a cell or range on another worksheet, add the sheet's name followed by the exclamation point before the cell/range reference (like in the formula example above).

Now, whenever you want to know how many items there are in column A on Sheet5, not including the column header, just type the equality sign followed by the name of your formula in any cell, like this: =Items_count


How to name columns in Excel (names from selection)

If your data is arranged in a tabular form, you can quickly create names for each column and/or row based on their labels:

1. Select the entire table including the column and row headers.
2. Go to the Formulas tab > Define Names group, and click the Create from Selection button. Or, press the keyboard shortcut Ctrl + Shift + F3.
3. Either way, the Create Names from Selection dialogue box will open. You select the column or row with headers, or both, and click OK.

In this example, we have headers in the top row and left column, so we select these two options:
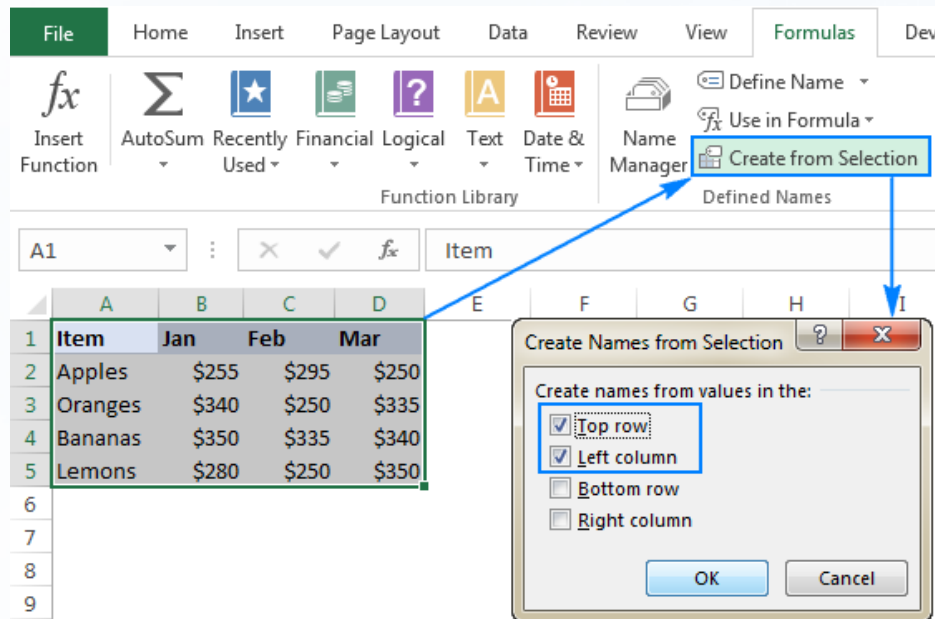
As the result, Excel will create 7 named ranges, picking up names from the headers automatically:
1. Apples, Bananas, Lemons and Oranges for rows, and
2. Jan, Feb and Mar for columns.

Note. If there are any spaces between words in the header labels, the spaces will be replaced with underscores (_).

Excel dynamic named range

In all previous examples, we have been dealing with static named ranges that always refer to the same cells, meaning you would have to update the range reference

manually whenever you want to add new data to the named range.

If you are working with expandable data sets, it stands to reason to create a dynamic named range that accommodates newly added data automatically.

Excel naming rules

When creating a name in Excel, there are a few rules to remember:

- An Excel name should be under 255 characters long.
- Excel names cannot contain spaces and most punctuation characters.
- A name must begin with a letter, underscore (_), or backslash (\). If a name begins with anything else, Excel will throw an error.
- Excel names are case-insensitive. For example, "Apples", "apples" and "APPLES" will be treated as the same name.
- You cannot name ranges like cell references. That is, you can't give the name "A1" or "AA1" to a range.
- You can use a single letter to name a range like "a", "b", "D", etc. except for the letters "r" "R", "c", and "C" (these characters are used as shortcuts for selecting a row or column for the currently selected cell when you type them in the NameBox).

Excel name scope

In terms of Excel names, scope is the location, or level, within which the name is recognized. It can be either:

- Specific worksheet – the local worksheet level
- Workbook – the global workbook level

Worksheet level names

A worksheet-level name is recognized within the worksheet where it is located. For example, if you create a named range and set its scope to Sheet1, it will be recognized only in Sheet1.

To be able to use a worksheet-level name in another worksheet, you must prefix the worksheet's name followed by the exclamation point (!), like this:

Sheet1!items_list

To reference a worksheet-level name in another workbook, you should also include the workbook name enclosed in square brackets:

[Sales.xlsx]Sheet1!items_list

If either the sheet name or workbook name contains spaces, they should be enclosed in single quotation marks:

'[Sales 2017.xlsx]Sheet1'!items_list

Workbook level names

A workbook-level name is recognized within the entire workbook, and you can refer to it simply by name from any sheet in the same workbook.

A use to a workbook-level name in another workbook, precede the name with the workbook name (including the extension) followed by the exclamation point:

Book1.xlsx!items_list

Scope precedence

A defined name must be unique within its scope. You can use the same name in different scopes, but this might create a name conflict. To prevent this from happening, by default, the worksheet level takes precedence over the workbook level.

If there are a few identically named ranges with different scopes, and you want to use the workbook level name, prefix the name with the workbook name as if you were referring to a name in another workbook, e.g.: Book1.xlsx!data. This way, the name conflict can be overridden for all worksheets except for the first sheet, which always uses the local worksheet level name.

**Excel Name Manager – quick way to edit, delete and filter names**

As its name suggests, the Excel Name Manager is specially designed to manage names: change, filter, or delete existing names as well as create new ones.

There are two ways to get to the Name Manager in Excel:

- On the Formulas tab, in the Define Names group, click the Name Manager
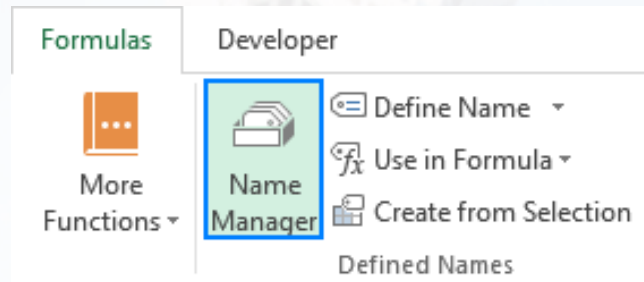
- Press the Ctrl + F3 shortcut.
- Either way, the Name Manager dialog window will open, letting you see all names in the current workbook at a glance. Now, you can select the name you want to work with, and click one of the 3 buttons at the top of the window to perform the corresponding action: edit, delete or filter.
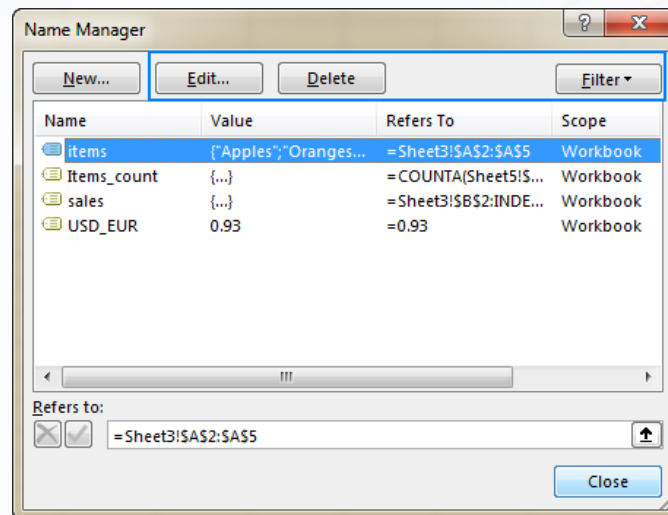

How to edit named range in Excel

To change an existing Excel name, open the Name Manager, select the name, and click the Edit... button. This will open the Edit Name dialog box where you can change the name and reference. The scope of the name cannot be changed.
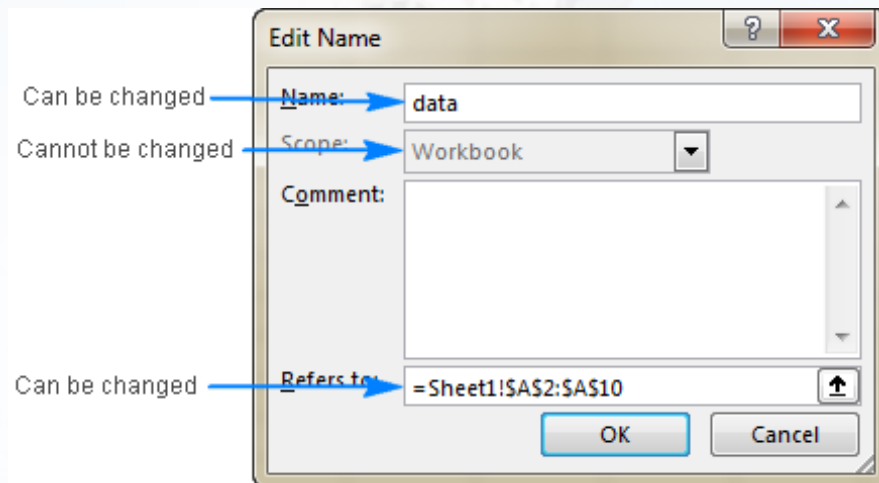
To edit a name reference, you do not need to open the Edit Name dialog box. Just select the name of interest in the Excel Name Manager, and type a new reference directly in the Refers to box, or click the button at the right and select the desired range on the sheet. After you click the Close button, Excel will ask if you want to save the changes, and you click Yes.
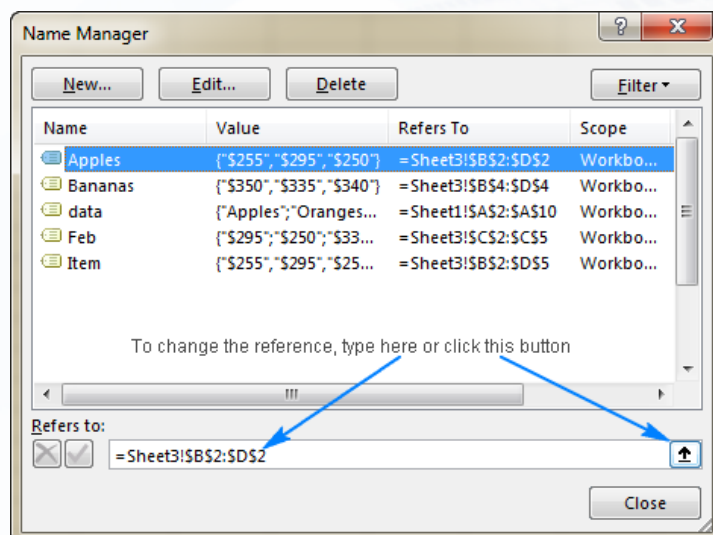
How to filter names in Excel
If you have a lot of names in a certain workbook, click the Filter button at the top right corner of the Excel Name Manager window to view only the names relevant at a given time. The following filters are available:
- Names scoped to worksheet or workbook
- Names with or without errors
- Defined names or table names

### How to delete named range in Excel
To delete a named range, select it in the Name Manager and click the Delete button at the top.

To delete several names, click the first name, then press the Ctrl key and hold it while clicking other names you want to remove. Then click the Delete button, and all selected names will be deleted in one go.

To delete all defined names in a workbook, select the first name in the list, press and hold the Shift key, and then click the last name. Release the Shift key and click Delete.

How to delete defined names with errors

If you have a number of invalid names with reference errors, click the Filter button > Names with Errors to filter them:
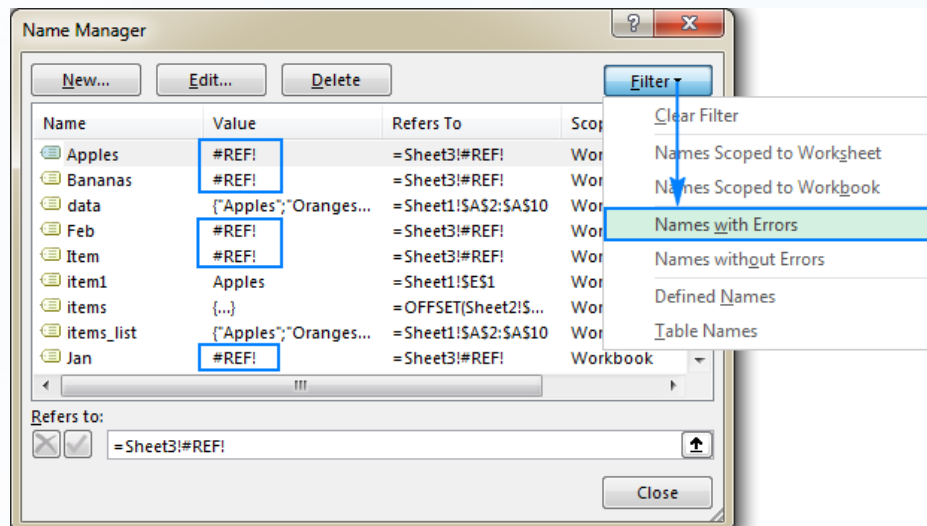

Note. If any of your Excel names are used in formulas, be sure to update the formulas before deleting names, otherwise your formulas will return #NAME? errors.

Top 5 benefits of using names in Excel

So far in this tutorial, we have been focusing mostly on how-to things that cover different aspects of creating and using named ranges in Excel. But you may be curious to know what is so special about Excel names that makes them worth the effort? The top five advantages of using defined names in Excel follow below.

1. Excel names make formulas easier to make and read

    You don't have to type complex references or go back and forth selecting ranges on the sheet. Just start typing the name you want to use in the formula, and Excel will show a list of matching names for you to choose from. Double click the desired name, and Excel will insert it in the formula straight away:
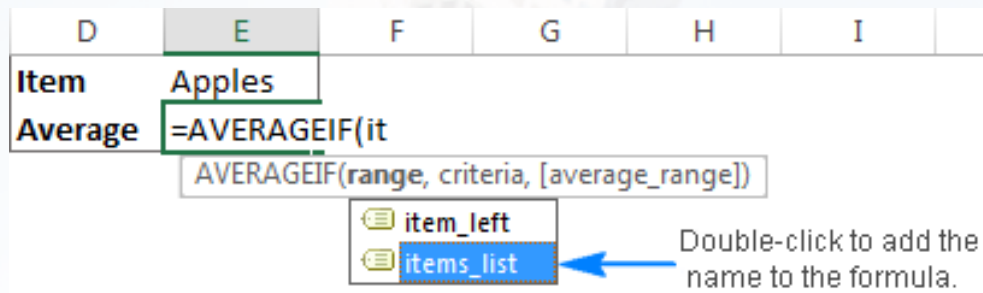
2. Excel names allow creating expandable formulas
    By using dynamic named ranges, you can create a "dynamic" formula that automatically includes new data in calculations without you having to update every reference manually.
3. Excel names make formulas easier to re-use
    Excel names make it a lot easier to copy a formula to another sheet or port a formula into a different workbook. All you have to do is create the same names in the destination workbook, copy/paste the formula as is, and you will get it working immediately.
4. Named ranges simplify navigation
    To quickly get to a specific named range, just click on its name in the Name box. If a named range resides on another sheet, Excel will take you to that sheet automatically.
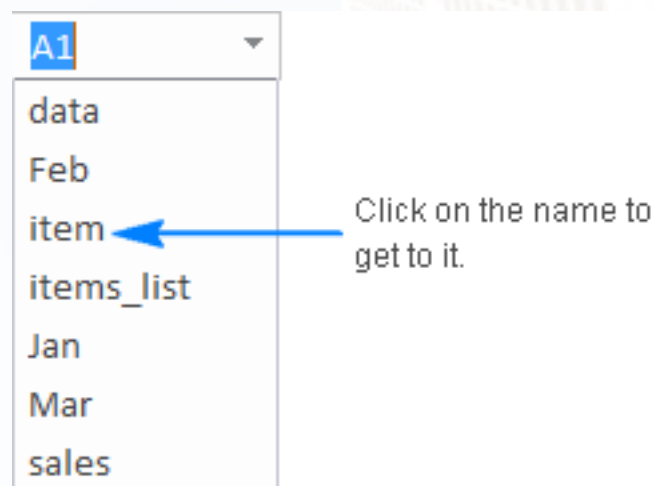
Note. Dynamic named ranges do not show up in the Name box in Excel. To see dynamic ranges, open the Excel Name Manager (Ctrl + F3) that shows full details about all names in the workbook, including their scope and references.

5. Named ranges allow creating dynamic drop-down lists
    To build an expandable and updatable drop down list, make a dynamic named range first, and then create a data validation list based on that range. The detailed step-by-step instructions can be found here: How to create a dynamic dropdown in Excel.
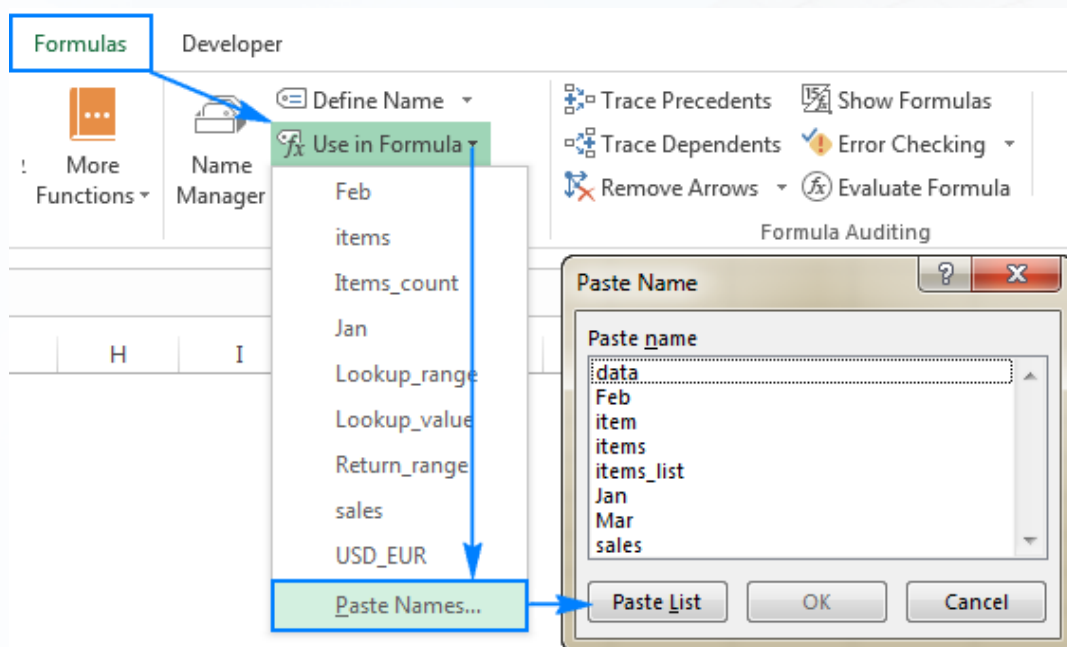
Excel named range – tips and tricks

Now that you know the basics of creating and using names in Excel, let me share a few more tips that may prove helpful in your work.

How to get a list of all names in the workbook

To get a more tangible list of all names in a current workbook, do the following:

1. Select the topmost cell of the range where you want the names to appear.
2. Go to the Formulas tab > Define Names group, click Use in Formulas, and then click Paste Names... Or, simply press the F3 key.
3. In the Paste Names dialog box, click Paste List.

Reference :

1. https://support.microsoft.com/en-us/office/more-on-data-validation-f38dee73-9900-4ca6-9301-8a5f6e1f0c4c
2. https://support.microsoft.com/en-us/office/use-conditional-formatting-to-highlight-information-fed60dfa-1d3f-4e13-9ecb-f1951ff89d7f
3. https://edu.gcfglobal.org/en/excel/filtering-data/1/
4. https://edu.gcfglobal.org/en/excel/intro-to-pivottables/1/

5. https://www.ablebits.com/office-addins-blog/2017/07/11/excel-name-named-range-define-use/