Work Smart by Microsoft Tech4Good

Hands-On Practice

Microsoft® Excel 2010

Use this guide to learn about some of the features that are available in Microsoft Excel 2010 spreadsheet software.

Topics in this guide include:

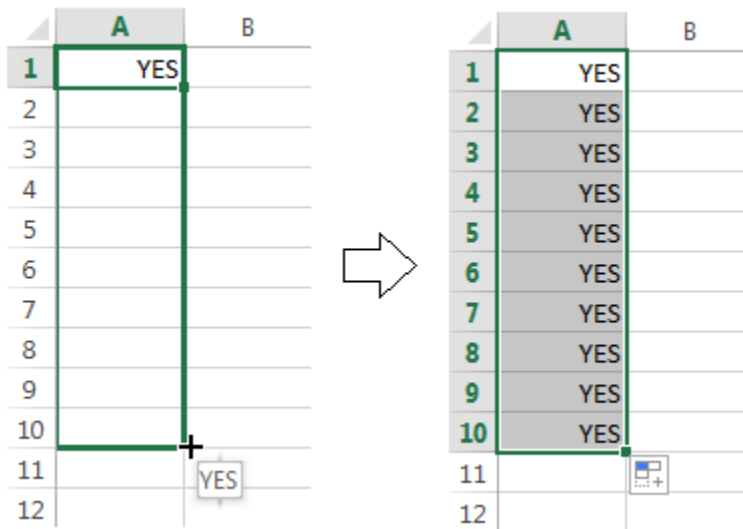|		
Using Fill	Cell References	Naming Cells and Ranges
Logical Functions	Conditional Formats	Control Worksheets
Find And Replace	Sort Data Lists	Filtering Lists
Creating Chats	Format Charts	For More Information

Microsoft

Using Fill

Whether you just want to copy the same value down or need to get a series of numbers or text values, fill handle in Excel is the feature to help. Fill handle is a small square that appears in the bottom-right corner when you select a cell or range.
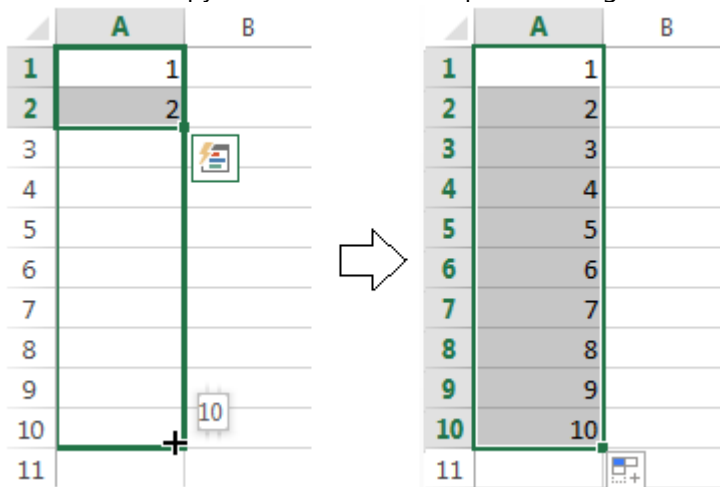
The scheme is simple. Whenever you need to get a series of values in the adjacent cells, just click on the Excel fill handle to see a small black cross and drag it vertically or horizontally. As you release the mouse button, you will see the selected cells filled with the values depending on the pattern you specify.

One of the most popular questions is how to autofill numbers in Excel. This can also be **dates, times, days of the week, months, years** and so on. In addition, Excel's AutoFill will follow any pattern.

For example, if you need to continue a sequence, just enter the first two values into the starting cell and grab the fill handle to copy the data across the specified range.

You can also auto-populate any arithmetic progression sequence where the difference between numbers is constant.

It will even alternate sequences if the selected cells don't relate to each other numerically, like on the picture below.


And it goes without saying, that you can use the AutoFill option to copy a value across your range. You just need to enter the value (could be a number, text, or their combination), and drag it across the cells using the fill handle.

Presume you have already heard of the features I described above. I still believe, some of them appeared new to you. So go on reading to learn even more about this popular yet under-explored tool.

Double-click to automatically populate a large range

Suppose you have a huge database with names. You need to assign a serial number to each name. You can do it in a flash by entering the first two numbers and double-clicking the Excel fill handle.

	A	B	C	D
1	The following data were generated randomly			
2	First Name	Last Name	Number	
3	Helen	Twain	1	
4	Anna	Connon	2	
5	Bryan	Johnson		
6	David	Fisher		
7	Sandra	Williams		
8	Gary	Rich		
9	Marie	Clark		
10	Alfred	Cutting		
11	Sean	Rice		
12	Steve	Bower		
13	Gary	Abner		
14	David	Polzin		
15	Jean	Finneran		
16	Gary	Bradley		
17	Boruch	Rich		
18	Alex	Walsh		
19	Gloria	Mitchell		
20	Boruch	Laping		

	A	B	C	D
1	The following data were generated randor			
2	First Name	Last Name	Number	
3	Helen	Twain	1	
4	Anna	Connon	2	
5	Bryan	Johnson	3	
6	David	Fisher	4	
7	Sandra	Williams	5	
8	Gary	Rich	6	
9	Marie	Clark	7	
10	Alfred	Cutting	8	
11	Sean	Rice	9	
12	Steve	Bower	10	
13	Gary	Abner	11	
14	David	Polzin	12	
15	Jean	Finneran	13	
16	Gary	Bradley	14	
17	Boruch	Rich	15	
18	Alex	Walsh	16	
19	Gloria	Mitchell	17	
20	Boruch	Laping	18	

Note. This hint will only work if you have values to the left or right of the column you need to fill as Excel looks at the adjacent column to define the last cell in the range to fill. Please also keep in mind that it will populate by the longest column in case you have values to the right and to the left of the empty range you want to fill down.

Excel - Fill down a series of values that contain text

It's not a problem for the AutoFill option to copy across the values that contain both text and numerical values. Moreover, Excel is quite smart to know that there are only 4 quarters or that some ordinal numbers need the corresponding letter suffixes.

	A	B	C	D
1	1st	Quarter 1	Day 1	
2	2nd	Quarter 2	Day 2	
3	3rd	Quarter 3	Day 3	
4	4th	Quarter 4	Day 4	
5	5th	Quarter 1	Day 5	
6	6th	Quarter 2	Day 6	
7	7th	Quarter 3	Day 7	
8	8th	Quarter 4	Day 8	
9	9th	Quarter 1	Day 9	
10	10th	Quarter 2	Day 10	
11				
12				

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Cell References

Relative Reference

By default, Excel uses relative reference. See the formula in cell D2 below. Cell D2 references (points to) cell B2 and cell C2. Both references are relative.

COUN... ▼ ⊘ ✕ ✓ fx	=B2*C2							
	A	B	C	D	E	F	G	H	I
1	Product	Quantity	Price	Amount					
2	bread	2	1.5	=B2*C2					
3	butter	1	1.2						
4	cheese	3	2						
5	ham	3	1.8						
6									
7									

1. Select cell D2, click on the lower right corner of cell D2 and <u>drag</u> it down to cell D5.

COUN... ▼ ⊘ ✕ ✓ fx	=B5*C5							
	A	B	C	D	E	F	G	H	I
1	Product	Quantity	Price	Amount					
2	bread	2	1.5	3					
3	butter	1	1.2	1.2					
4	cheese	3	2	6					
5	ham	3	1.8	=B5*C5					
6									
7									

Cell D3 references cell B3 and cell C3. Cell D4 references cell B4 and cell C4. Cell D5 references cell B5 and cell C5. In other words: each cell references its two neighbors on the left.

Absolute Reference

See the formula in cell E3 below.

1. To create an absolute reference to cell H3, place a $ symbol in front of the column letter and row number of cell H3 (H3) in the formula of cell E3.

COUN... ▾	⊘ ✕ ✓ ƒx	=B3*H3						
	A	B	C	D	E	F	G	H	I
1								
2		Length (cm)	Width (cm)		Length (inch)	Width (inch)		Conversion rate
3		1	10		=B3*H3			0.3937008
4		5	10					
5		4	8					
6		2	10					
7								
8								

2. Now we can quickly drag this formula to the other cells.

COUN... ▾	⊘ ✕ ✓ ƒx	=C6*H3						
	A	B	C	D	E	F	G	H	I
1								
2		Length (cm)	Width (cm)		Length (inch)	Width (inch)		Conversion rate
3		1	10		0.3937008	3.937008		0.3937008
4		5	10		1.968504	3.937008		
5		4	8		1.5748032	3.1496064		
6		2	10		0.7874016	=C6*H3		
7								
8								

The reference to cell H3 is fixed (when we drag the formula down and across). As a result, the correct lengths and widths in inches are calculated.

Mixed Reference

Sometimes we need a combination of relative and absolute reference (mixed reference).

1. See the formula in cell F2 below.

COUN... ▾	⊘ ✕ ✓ ƒx	=B2*(1-B6)						
	A	B	C	D	E	F	G	H
1	Product	Price			Prices / Month	Jan	Feb	Mar
2	Jeans	80			Jeans	=B2*(1-B6)		
3	Shirts	30			Shirts			
4								
5	Month	Jan	Feb	Mar				
6	Reduction	20%	40%	80%				
7								
8								

2. We want to copy this formula to the other cells quickly. Drag cell F2 across one cell, and look at the formula in cell G2.

COUN... ▾ ⊝ ✕ ✓ ƒx =C2*(1-C6)

	A	B	C	D	E	F	G	H
1	Product	Price			Prices / Month	Jan	Feb	Mar
2	Jeans	80			Jeans		64 =C2*(1-C6)	
3	Shirts	30			Shirts			
4								
5	Month	Jan	Feb	Mar				
6	Reduction	20%	40%	80%				
7								
8								

Do you see what happens? The reference to the price should be a <u>fixed</u> reference to column <u>B</u>. Solution: place a $ symbol in front of the column letter of cell B2 ($B2) in the formula of cell F2. In a similar way, when we drag cell F2 down, the reference to the reduction should be a <u>fixed</u> reference to row <u>6</u>. Solution: place a $ symbol in front of the row number of cell B6 (B$6) in the formula of cell F2.

Result:

COUN... ▾ ⊝ ✕ ✓ ƒx =$B2*(1-B$6)

	A	B	C	D	E	F	G	H
1	Product	Price			Prices / Month	Jan	Feb	Mar
2	Jeans	80			Jeans	=$B2*(1-B$6)		
3	Shirts	30			Shirts			
4								
5	Month	Jan	Feb	Mar				
6	Reduction	20%	40%	80%				
7								
8								

Note: we don't place a $ symbol in front of the row number of B2 (this way we allow the reference to change from B2 (Jeans) to B3 (Shirts) when we drag the formula down). In a similar way, we don't place a $ symbol in front of the column letter of B6 (this way we allow the reference to change from B6 (Jan) to C6 (Feb) and D6 (Mar) when we drag the formula across).

3. Now we can quickly drag this formula to the other cells.

COUN... ▾ ⊝ ✕ ✓ ƒx =$B3*(1-D$6)

	A	B	C	D	E	F	G	H
1	Product	Price			Prices / Month	Jan	Feb	Mar
2	Jeans	80			Jeans	64	48	16
3	Shirts	30			Shirts	24	18 =$B3*(1-D$6)	
4								
5	Month	Jan	Feb	Mar				
6	Reduction	20%	40%	80%				
7								
8								

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The references to column B and row 6 are fixed.

Naming Cells and Ranges

Assign a descriptive name to a cell or range in Excel 2010 to help make formulas in your worksheets much easier to understand and maintain. Range names make it easier for you to remember the purpose of a formula, rather than using obscure cell references.

For example, the formula =SUM(Qtr2Sales) is much more intuitive than=SUM(C5:C12). In this example, you would assign the name Qtr2Sales to the range C5:C12 in the worksheet.

Naming cells

To name a cell or range, follow these steps:

1. Select the cell or cell range that you want to name.
    You also can select noncontiguous cells (press Ctrl as you select each cell or range).

2. On the Formulas tab, click Define Name in the Defined Names group.
    The New Name dialog box appears.
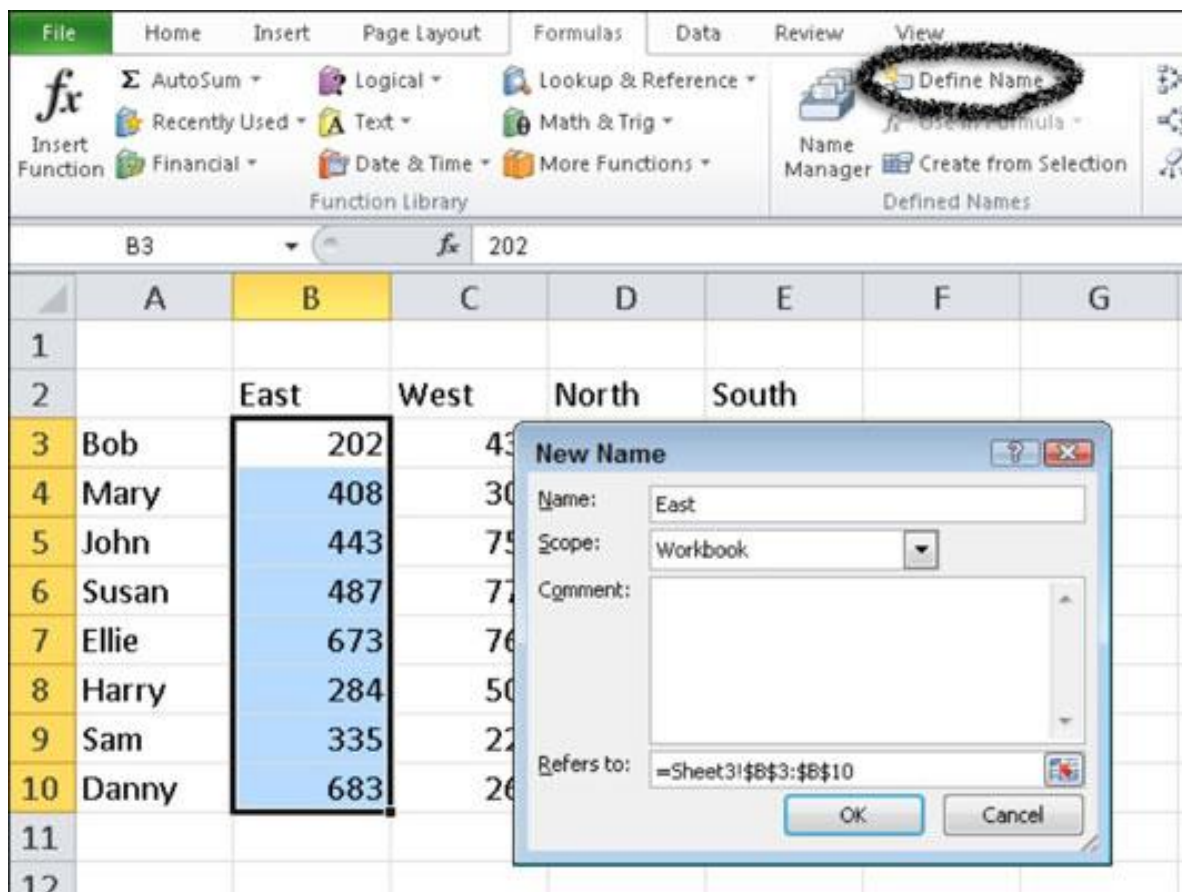
Use the New Name dialog box to assign a name to the selected range.

3. In the Name text box, type up to a 255-character name for the range.

   Range names are not case-sensitive; however, range names must follow these conventions:

   - The first character must be a letter, an underscore, or a backslash.

   - No spaces are allowed in a range name.

   - The range name should not be the same as a cell address. For example, you can't name a range U2 or UB40, but BLINK182 and ABBA are just fine.

4. Click OK.

   Alternatively, you can enter a range name into the Name box located at the left end of the Formula bar and press Enter to create the name.

Using a named range

To use a named cell or range, click the down arrow in the Name box at the left end of the Formula bar. Select the range name you want to access, and Excel highlights the named cells.
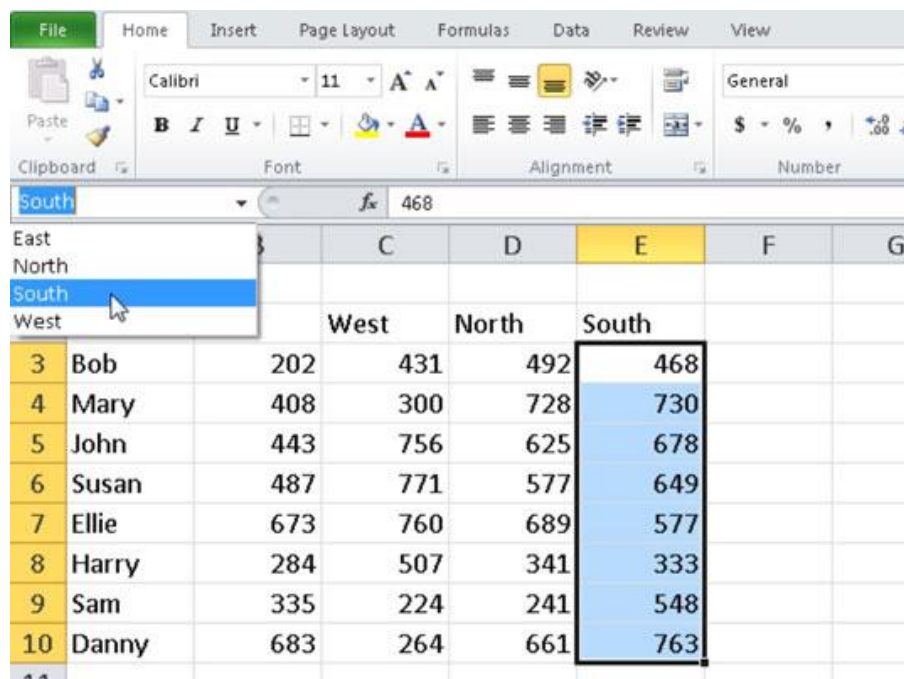
You can select a range name in the Name box to quickly locate an area of a worksheet.
You also can use range names with the Go To dialog box, to make it easier to locate specific areas of a worksheet. Press F5 to display the Go To dialog box, select the range name you want to jump to, and click OK.

You can insert range names into formulas just like they were normal cell references. Be careful using named multi-cell ranges, though. Remember to use functions that require a range instead of a single cell reference — such as MAX, SUM, or AVERAGE — or else you'll get an error message.

Logical Functions

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Excel 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.For example, if you add "Bad" as the third parameter to the above formula, it will return the text "*Good*" if a value in cell B1 is greater than 10, otherwise, it will return "*Bad*": =IF(B1>10, "Good", "Bad")

Though the last two parameters of the IF function are optional, your formula may produce unexpected results if you don't know the underlying logic beneath the hood.

1. If value_if_true is omitted.

If the value_if_true argument is omitted in your Excel IF formula (i.e. there is only a comma following logical_test), the IF function returns zero (0) when the condition is met. Here is an example of such a formula: =IF(B1>10,, "Bad")

If you don't want your IF formula to display any value when the condition is met, enter double quotes ("") in the second parameter, like this: =IF(B1>10, "", "Bad") Technically, in this case the formula returns an empty string, which is invisible to the user but perceivable to other Excel functions.

The following screenshot demonstrates the above approaches in action, and the second one seems to be more sensible:

2. If value_if_false is omitted.

If you don't care what happens if the specified condition is not met, you can omit the 3rd parameter in your Excel IF formulas, which will result in the following.

If the logical test evaluates to FALSE and the value_if_false parameter is omitted (there is just a closing bracket after the value_if_true argument), the IF function returns the logical value FALSE. It's a bit unexpected, isn't it? Here is an example of such a formula: =IF(B1>10, "Good")

If you put a comma after the value_if_true argument, your IF function will return 0, which doesn't make much sense either: =IF(B1>10, "Good",)

And again, the most reasonable approach is to put "" in the third argument, in this case you will have empty cells when the condition is not met: =IF(B1>10, "Good", "")

3. Get the IF function to display logical values TRUE or FALSE

If you want your Excel IF formula to display the logical values TRUE and FALSE when the specified condition is met and not met, respectively, type TRUE in the value_if_true argument. The value_if_false parameter can be FALSE or omitted. Here's a formula example:

=IF(B1>10, TRUE, FALSE)
or
=IF(B1>10, TRUE)

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```
=IF(B1>10, TRUE, FALSE)
```

B	C	D
13	TRUE	
7	FALSE	
11	TRUE	
1	FALSE	
10	FALSE	
0	FALSE	
16	TRUE	
9	FALSE	

Note. If you want your IF formula to return TRUE and FALSE as the **logical values** (Boolean) that other Excel formulas can recognize, make sure you don't enclose them in double quotes. A visual indication of a Boolean is middle align in a cell, as you see in the screenshot above.

If you want to "TRUE" and "FALSE" to be usual text values, enclose them in "double quotes". In this case, the returned values will be aligned left and formatted as General. No Excel formula will recognize such "TRUE" and "FALSE" text as logical values.

4. Get IF to perform a math operation and return a result

Instead of returning certain values, you can make your IF formula to test the specified condition, perform a corresponding math operation and return a value based on the result. You do this by using arithmetic operators or other Excel functions in the value_if_true and /or value_if_false arguments. Here are just a couple of formula examples:

Example 1: =IF(A1>B1, C3*10, C3*5)

The formula compares the values in cells A1 and B1, and if A1 is greater than B1, it multiplies the value in cell C3 by 10, by 5 otherwise.

Example 2: =IF(A1<>B1, SUM(A1:D1), "")

The formula compares the values in cells A1 and B1, and if A1 is not equal to B1, the formula returns the sum of values in cells A1:D1, an empty string otherwise.

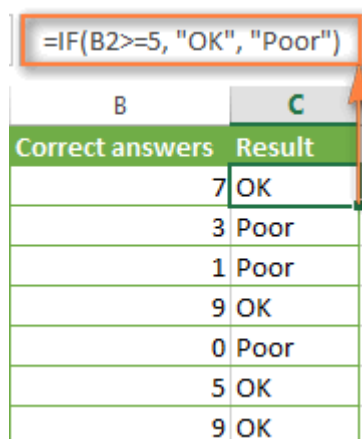Using the IF function in Excel - formula examples

Now that you are familiar with the Excel IF function's syntax, let's look at some formula examples and learn how to use IF as a worksheet function in Excel.

IF function examples for numbers: greater than, less than, equal to

The use of the IF function with numeric values is based on using different comparison operators to express your conditions. You will find the full list of logical operators illustrated with formula examples in the table below.

The screenshot below demonstrates the IF formula with the "Greater than or equal to" logical operator in action:

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Condition	Operator	Formula Example	Description
Greater than	>	=IF(A2>5, "OK",)	If the number in cell A2 is greater than 5, the formula returns "OK"; otherwise 0 is returned.
Less than	<	=IF(A2<5, "OK", "")	If the number in cell A2 is less than 5, the formula returns "OK"; an empty string otherwise.
Equal to	=	=IF(A2=5, "OK", "Wrong number")	If the number in cell A2 is equal to 5, the formula returns "OK"; otherwise the function displays "Wrong number".
Not equal to	<>	=IF(A2<>5, "Wrong number", "OK")	If the number in cell A2 is not equal to 5, the formula returns "Wrong number "; otherwise - "OK".
Greater than or equal to	>=	=IF(A2>=5, "OK", "Poor")	If the number in cell A2 is greater than or equal to 5, the formula returns "OK"; otherwise - "Poor".
Less than or equal to	<=	=IF(A2<=5, "OK", "")	If the number in cell A2 is less than or equal to 5, the formula returns "OK"; an empty string otherwise.

=IF(B2>=5, "OK", "Poor")

B	C
Correct answers	Result
7	OK
3	Poor
1	Poor
9	OK
0	Poor
5	OK
9	OK

Excel IF function examples for text values

Generally, you write an IF formula for text values using either "equal to" or "not equal to" operator, as demonstrated in a couple of IF examples that follow.

Example 1. Case-insensitive IF formula for text values

Like the overwhelming majority of Excel functions, IF is case-insensitive by default. What it means for you is that logical tests for text values do not recognize case in usual IF formulas.

For example, the following IF formula returns either "Yes" or "No" based on the "Delivery Status" (column C):

=IF(C2="delivered", "No", "Yes")

Translated into the plain English, the formula tells Excel to return "No" if a cell in column C contains the word "Delivered", otherwise return "Yes". At that, it does not really matter how you type the word "Delivered" in the logical_test argument - "delivered", "Delivered", or "DELIVERED". Nor does it matter whether the word "Delivered"

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is in lowercase or uppercase in the source table, as illustrated in the screenshot below.

	B	C	D	E	F	G	H
	Product	Delivery Status	Action required				
	Cherries	Delivered	No				
	Bananas	In transit	Yes				
	Apples	delivered	No				
	Oranges	DELIVERED	No				
	Lemons	In transit	Yes				
	Kiwis	Out for delivery	Yes				
	Mangos	Delivered	No				
	Peaches	Out for delivery	Yes				

fx =IF(C2="delivered", "No", "Yes")

The IF formula returns "No" if a cell in column C contains the word "Delivered". In all other cases, it returns "Yes".

Another way to achieve exactly the same result is to use the "not equal to" operator and swap the value_if_true and value_if_false arguments:

=IF(C2<>"delivered", "Yes", "No")

Example 2. Case-sensitive IF formula for text values

If you want a case-sensitive logical test, use the IF function in combination with EXACT that compares two text strings and returns TRUE if the strings are **exactly the same**, otherwise it returns FALSE. The EXACT functions is case-sensitive, though it ignores formatting differences.

You use IF with EXACT in this way:

=IF(EXACT(C2,"DELIVERED"), "No", "Yes")

Where C is the column to which your logical test applies and "DELIVERED" is the case-sensitive text value that needs to be matched exactly.

=IF(EXACT($C5,"DELIVERED"), "No", "Yes")

	B	C	D
	Product	Delivery Status	Action required
	Cherries	Delivered	Yes
	Bananas	In transit	Yes
	Apples	delivered	Yes
	Oranges	DELIVERED	No
	Lemons	In transit	Yes
	Kiwis	Out for delivery	Yes
	Mangos	Delivered	Yes
	Peaches	Out for delivery	Yes

Naturally, you can also use a cell reference rather than a text value in the 2nd argument of the EXACT function, if you want to.

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Note. When using text values as parameters for your IF formulas, remember to always enclose them in "double quotes".
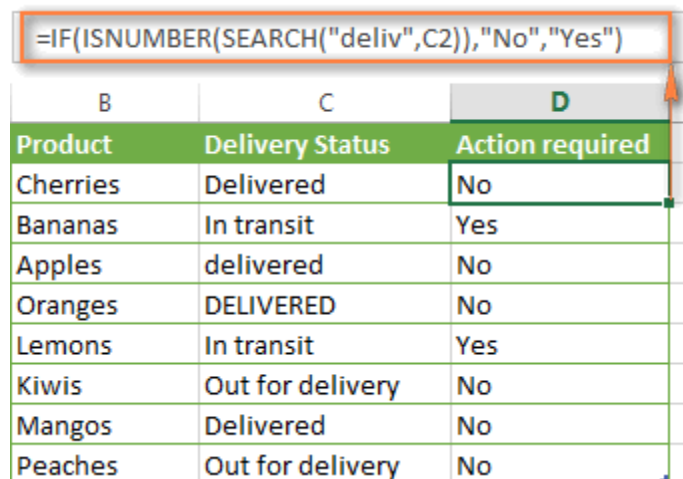
Example 3. IF formula for text values with partial match

If you want to base your condition on a partial match rather than exact match, an immediate solution that comes to mind is using wildcard characters (* or ?) in the logical_test argument. However, this simple and obvious approach won't work. Many Excel functions accept wildcards, but regrettably IF is not one of them.

A solution is to use IF in combination with ISNUMBER and SEARCH (case-insensitive) or FIND (case-sensitive) functions.

For example, if No action is required both for "Delivered" and "Out for delivery" items, the following formula will work a treat:

=IF(ISNUMBER(SEARCH("deliv",C2)), "No", "Yes")

=IF(ISNUMBER(SEARCH("deliv",C2)),"No","Yes")		
B	**C**	**D**
Product	**Delivery Status**	**Action required**
Cherries	Delivered	No
Bananas	In transit	Yes
Apples	delivered	No
Oranges	DELIVERED	No
Lemons	In transit	Yes
Kiwis	Out for delivery	No
Mangos	Delivered	No
Peaches	Out for delivery	No

We've used the SEARCH function in the above formula since a case-insensitive match suits better for our data. If you want a case-sensitive match, simply replace SEARCH with FIND in this way:

=IF(ISNUMBER(FIND("*text*", *where to search*)), value_if_true, value_if_false)

Excel IF formula examples for dates

At first sight, it may seem that IF formulas for dates are identical to IF functions for numeric and text values that we've just discussed. Regrettably, it is not so.

Unlike many other Excel functions, IF cannot recognize dates and interprets them as mere text strings, which is why you cannot express your logical test simply as >"11/19/2014" or >11/19/2014. Neither of the above arguments is correct, alas.

Example 1. IF formulas for dates with DATEVALUE function

To make the Excel IF function to recognize a date in your logical test as a date, you have to wrap it in the **DATEVALUE function**, like this DATEVALUE("11/19/2014"). The complete IF formula may take the following shape:

=IF(C2<DATEVALUE("11/19/2014"), "Completed", "Coming soon")

As illustrated in the screenshot below, this IF formula evaluates the dates in column C and returns "Completed" if a game was played before Nov-11. Otherwise, the formula returns "Coming soon".

=IF(C2<DATEVALUE("11/19/2014"), "Completed", "Coming soon")

	B	C	D	E	F	G	H
	Game	Date	Status				
	Game 1	8-Oct	Completed				
	Game 2	10-Dec	Coming soon				
	Game 3	27-Nov	Coming soon				
	Game 4	10-Nov	Completed				
	Game 5	17-Nov	Completed				
	Game 6	6-Dec	Coming soon				
	Game 7	3-Nov	Completed				
	Game 8	22-Dec	Coming soon				
	Game 9	27-Nov	Coming soon				

If a game was played before Nov-11, the formula returns "Completed", otherwise it returns "Coming soon".

Example 2. IF formulas with TODAY() function

In case you base your condition on the current date, you can use the **TODAY() function** in the logical_test argument of your IF formula. For example:

=IF(C2<DATEVALUE("11/19/2014"), "Completed", "Coming soon")

Naturally, the Excel IF function can understand more complex logical tests, as demonstrated in the next example.

Example 3. Advanced IF formulas for future and past dates

Suppose, you want to mark only the dates that occur in more than 30 days from now. In this case, you can express the logical_test argument as A2-TODAY()>30. The complete IF formula may be as follows:

=IF(A2-TODAY()>30, "Future date", "")

To point out past dates that occurred more than 30 days ago, you can use the following IF formula:

=IF(TODAY()-A2>30, "Past date", "")

A	B	C
Date	Future dates	Past dates
	=IF(A2-TODAY()>30, "Future date", "")	=IF(TODAY()-A2>30, "Past date", "")
8-Oct		Past date
31-Dec	Future date	
27-Nov		
11-Sep		Past date
29-Dec	Future date	
6-Sep		Past date
3-Sep		Past date
22-Dec	Future date	
27-Dec	Future date	

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If you want to have both indications in one column, you will need to use a nested IF function like this:

=IF(A2-TODAY()>30, "Future date", IF(TODAY()-A2>30, "Past date", ""))

Excel IF examples for blank, non-blank cells

If you want to somehow mark your data based on a certain cell(s) being empty or not empty, you can either:

- Use the Excel IF function in conjunction with ISBLANK, or

- Use the logical expressions ="" (equal to blank) or <>"" (not equal to blank).

    The table below explains the difference between these two approaches and provides formula example.

	Logical test	Description	Formula Example
Blank cells	=""	Evaluates to TRUE if a specified cell is visually empty, including cells with **zero length strings**. Otherwise, evaluates to FALSE.	**=IF(A1="", 0, 1)** Returns 0 if A1 is visually blank. Otherwise returns 1. If A1 contains an empty string, the formula returns 0.
	ISBLANK()	Evaluates to TRUE is a specified cell contains **absolutely nothing** - no formula, no empty string returned by some other formula. Otherwise, evaluates to FALSE.	**=IF(ISBLANK(A1), 0, 1)** Returns the results identical to the above formula but treats cells with zero length strings as non-blank cells. That is, if A1 contains an empty string, the formula returns 1.
Non-blank cells	<>""	Evaluates to TRUE if a specified cell contains some data. Otherwise, evaluates to FALSE. Cells with **zero length strings** are considered **blank**.	**=IF(A1<>"", 1, 0)** Returns 1 if A1 is non-blank; otherwise returns 0. If A1 contains an empty string, the formula returns 0.
	ISBLANK()=FALSE	Evaluates to TRUE if a specified cell is not empty. Otherwise, evaluates to FALSE. Cells with **zero length strings** are considered **non-blank**.	**=IF(ISBLANK(A1)=FALSE, 0, 1)** Works the same as the above formula, but returns 1 if A1 contains an empty string.
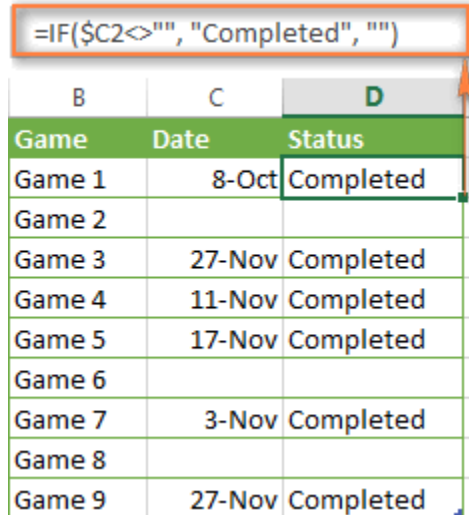
The following example demonstrates blank / non-blank logical test in action.

Suppose, you have a date in column C only if a corresponding game (column B) was played. Then, you can use either of the following IF formulas to mark completed games:

=IF($C2<>"", "Completed", "")

=IF(ISBLANK($C2)=FALSE, "Completed", "")

Since there are no zero-length strings in our table, both formulas will return identical results:

	=IF($C2<>"", "Completed", "")	
B	**C**	**D**
Game	Date	Status
Game 1	8-Oct	Completed
Game 2		
Game 3	27-Nov	Completed
Game 4	11-Nov	Completed
Game 5	17-Nov	Completed
Game 6		
Game 7	3-Nov	Completed
Game 8		
Game 9	27-Nov	Completed

Hopefully, the above examples have helped you understand the general logic of the IF function. In practice, however, you would often want a single IF formula to check multiple conditions, and our next article will show you how to tackle this task. In addition, we will also explore nested IF functions, array IF formulas, IFEFFOR and IFNA functions and more. Please stay tuned and thank you for reading!

Further learning:

- Nested IF formulas with multiple AND / OR conditions
- Using logical functions in Excel: AND, OR, XOR and NOT
- Excel logical operators: equal to, not equal to, greater than, less than

Conditional formats

Applying conditional formatting to data can help you, at a glance, quickly identify variances in a range of values. Some of the rules that are available with conditional formatting include the following.

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Rule	Options
Highlight Cells Rules	Highlight cells based on values, such as cells that are greater than, less than, in between, or equal to a specific value.
Top/Bottom Rules	Highlight cells based on the highest, lowest, or average values.
Data Bars	Create bars in cells based on the highest and lowest values in the range.
Color Scales	Color cells based on the highest, lowest, and midpoint values in the range.
Icon Sets	Insert icons in cells based on cell values greater than, less than, or in between a specified value.

Two features of conditional formatting that were improved in Excel 2010 are the data bars and icon sets. You can now use data bars to highlight negative values. And you can customize icon sets to provide greater visibility into your data.

To use custom data bars to highlight negative values:

1. Select the cells that you want to format.

2. On the **Home** tab, in the **Styles** group, click **Conditional Formatting**, click **Data Bars**, and then click **More Rules**.

3. In the **New Formatting Rule** dialog box, in the **Edit the Rule Description** section:

    a. Under **Format all cells based on their values**, define the criteria for how minimum and maximum data bars will appear.

    b. Under **Bar Appearance**, define the way that color will be applied to the data bars.

    c. Under **Bar Appearance**, click **Negative Value and Axis**.

    d. In the **Negative Value and Axis Settings** dialog box, define the color for displaying negative values and define the axis position in the data bar, click **OK**, and then click **OK** again.
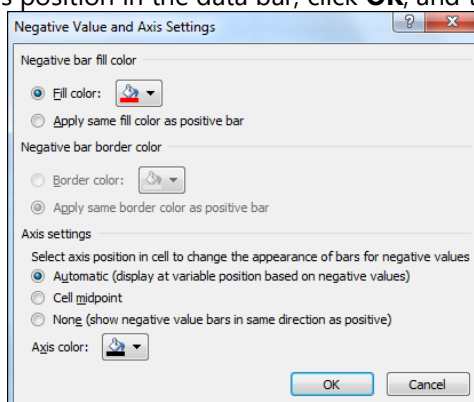
Control Worksheets

You can group worksheets if you want to edit multiple worksheets at the same time. Our workbook contains 3 similar worksheets (North, Mid and South) and a blank fourth worksheet.

1. To group worksheets, hold down CTRL and click the sheet tabs of the sheets you want to group.

	A	B	C	D	E	F	G	H	I
1		Quarter 1	Quarter 2	Quarter 3	Quarter 4				
2	Coffee	$2,128	$3,486	$5,904	$9,400				
3	Tea	$4,939	$2,148	$3,918	$5,921				
4	Milk	$1,423	$4,234	$5,336	$1,535				
5									

North / Mid / South / Sheet4

2. Release CTRL.

Now you can edit multiple worksheets at the same time.

3. For example, on the North sheet, change the value of cell B2 to $1000 and delete row 4.

	A	B	C	D	E	F	G	H	I
1		Quarter 1	Quarter 2	Quarter 3	Quarter 4				
2	Coffee	$1,000	$3,486	$5,904	$9,400				
3	Tea	$4,939	$2,148	$3,918	$5,921				
4									
5									

North / Mid / South / Sheet4

4. Go to the other two worksheets and you'll see that these worksheets have been edited as well.

	A	B	C	D	E	F	G	H	I
1		Quarter 1	Quarter 2	Quarter 3	Quarter 4				
2	Coffee	$1,000	$3,546	$7,019	$8,761				
3	Tea	$1,398	$5,209	$6,738	$1,816				
4									
5									

North | Mid / South / Sheet4

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4. To ungroup, right click one of the sheet tabs and click Ungroup Sheets or click any sheet tab outside the group. For example, the sheet tab of Sheet4.

Find And Replace

You can use Excel's Find and Replace feature to quickly find specific text and replace it with other text. You can use Excel's Go To Special feature to quickly select all cells with formulas, comments, conditional formatting, constants, data validation, etc.
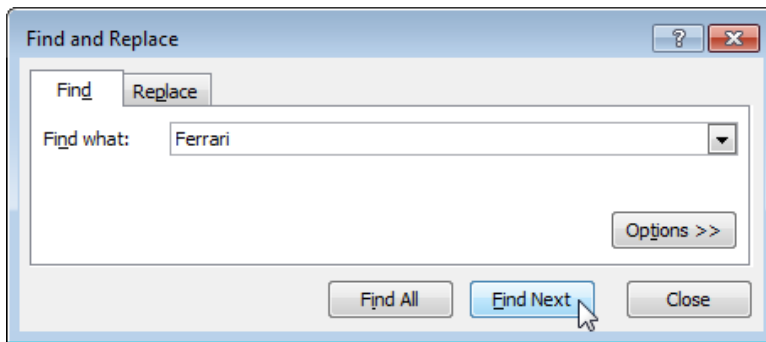
Find

To quickly find specific text, execute the following steps.

1. On the Home tab, click Find & Select, Find...
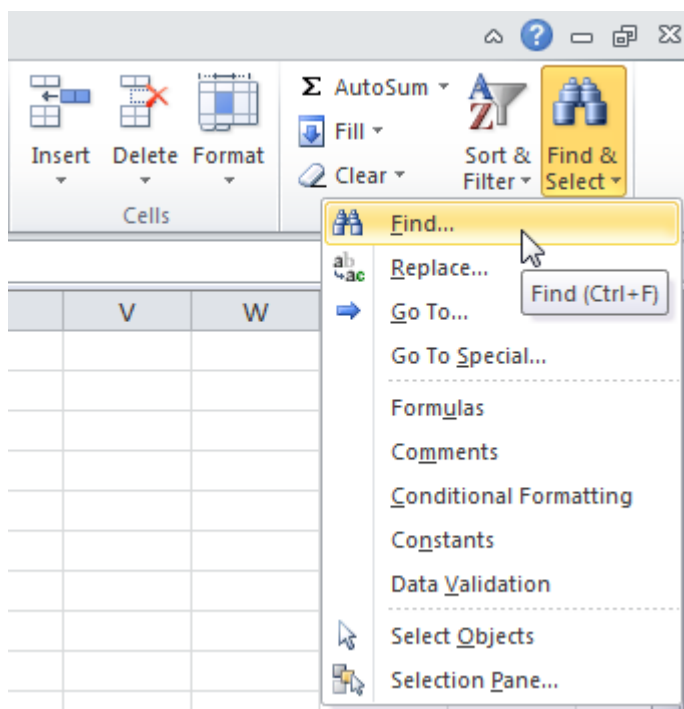
The 'Find and Replace' dialog box appears.

2. Type the text you want to find. For example, type Ferrari.

3. Click 'Find Next'.

Excel selects the first occurrence.

	A	B	C	D	E
1	Car	Model	Price	Top Speed	
2	Porsche	Carrera	$593	288	
3	Aston Martin	Vanquish	$1,397	267	
4	Ferrari	Spider	$448	363	
5	Lamborghini	Gallardo	$2,569	342	
6	Maybach	Exelero	$2,638	256	
7	Ferrari	Enzo	$223	359	
8	Ferrari	F50	$1,553	296	
9	Lamborghini	Veneno	$891	321	
10	Aston Martin	One	$1,675	273	
11	Porsche	Cayenne	$929	253	
12	Porsche	911	$2,669	263	
13	Lamborghini	Aventador	$732	292	
14	Ferrari	Maranello	$666	336	
15	Bugatti	Veyron	$1,642	375	
16					
17		Average	$1,330	306	
18					
19					

4. Click 'Find Next' to select the second occurrence.

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A7			f_x	Ferrari		

	A	B	C	D	E
1	Car	Model	Price	Top Speed	
2	Porsche	Carrera	$593	288	
3	Aston Martin	Vanquish	$1,397	267	
4	Ferrari	Spider	$448	363	
5	Lamborghini	Gallardo	$2,569	342	
6	Maybach	Exelero	$2,638	256	
7	Ferrari	Enzo	$223	359	
8	Ferrari	F50	$1,553	296	
9	Lamborghini	Veneno	$891	321	
10	Aston Martin	One	$1,675	273	
11	Porsche	Cayenne	$929	253	
12	Porsche	911	$2,669	263	
13	Lamborghini	Aventador	$732	292	
14	Ferrari	Maranello	$666	336	
15	Bugatti	Veyron	$1,642	375	
16					
17		Average	$1,330	306	
18					
19					

5. To get a list of all the occurrences, click 'Find All'.

Find and Replace

Find   Replace

Find what: Ferrari

Options >>

Find All   Find Next   Close

Book	Sheet	Name	Cell	Value	Formula
find-select.xls	Sheet1		A4	Ferrari	
find-select.xls	Sheet1		A7	Ferrari	
find-select.xls	Sheet1		A8	Ferrari	
find-select.xls	Sheet1		A14	Ferrari	

4 cell(s) found
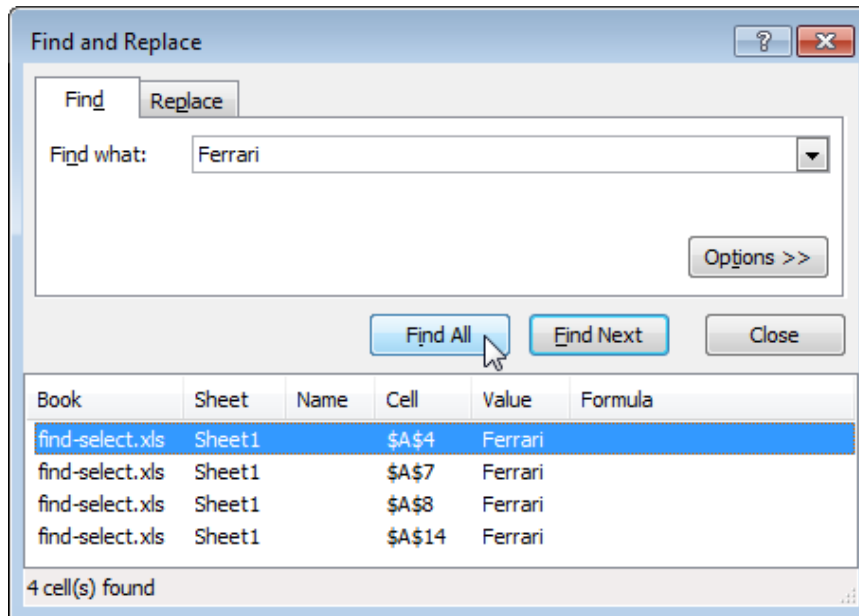
Replace

To quickly find specific text and replace it with other text, execute the following steps.

1. On the Home tab, click Find & Select, Replace...
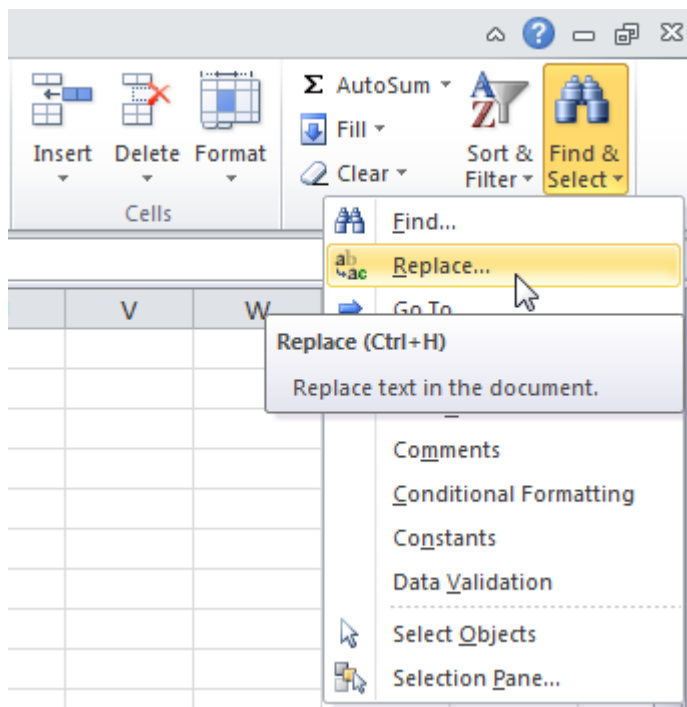
The 'Find and Replace' dialog box appears (with the Replace tab selected).

2. Type the text you want to find (Veneno) and replace it with (Diablo).

3. Click 'Find Next'.
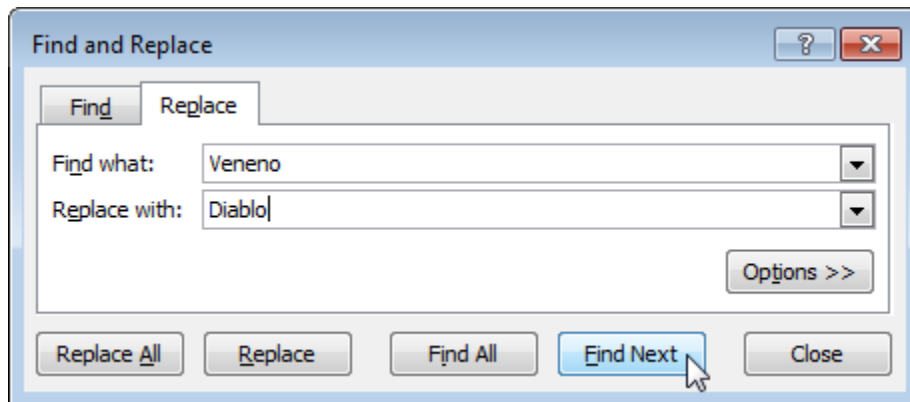
Excel selects the first occurrence. No replacement has been made yet.

B9   ▾   *fx*   Veneno

	A	B	C	D	E
1	Car	Model	Price	Top Speed	
2	Porsche	Carrera	$593	288	
3	Aston Martin	Vanquish	$1,397	267	
4	Ferrari	Spider	$448	363	
5	Lamborghini	Gallardo	$2,569	342	
6	Maybach	Exelero	$2,638	256	
7	Ferrari	Enzo	$223	359	
8	Ferrari	F50	$1,553	296	
9	Lamborghini	Veneno	$891	321	
10	Aston Martin	One	$1,675	273	
11	Porsche	Cayenne	$929	253	
12	Porsche	911	$2,669	263	
13	Lamborghini	Aventador	$732	292	
14	Ferrari	Maranello	$666	336	
15	Bugatti	Veyron	$1,642	375	
16					
17		Average	$1,330	306	
18					
19					

4. Click 'Replace' to make a single replacement.

B9   ▾   *fx*   Diablo

	A	B	C	D	E
1	Car	Model	Price	Top Speed	
2	Porsche	Carrera	$593	288	
3	Aston Martin	Vanquish	$1,397	267	
4	Ferrari	Spider	$448	363	
5	Lamborghini	Gallardo	$2,569	342	
6	Maybach	Exelero	$2,638	256	
7	Ferrari	Enzo	$223	359	
8	Ferrari	F50	$1,553	296	
9	Lamborghini	Diablo	$891	321	
10	Aston Martin	One	$1,675	273	
11	Porsche	Cayenne	$929	253	
12	Porsche	911	$2,669	263	
13	Lamborghini	Aventador	$732	292	
14	Ferrari	Maranello	$666	336	
15	Bugatti	Veyron	$1,642	375	
16					
17		Average	$1,330	306	
18					
19					

Note: use 'Replace All' to replace all occurrences.

Go To Special

You can use Excel's Go To Special feature to quickly select all cells with formulas, comments, conditional formatting, constants, data validation, etc. For example, to select all cells with formulas, execute the following steps.

1. Select a single cell.

2. On the Home tab, click Find & Select, Go To Special...
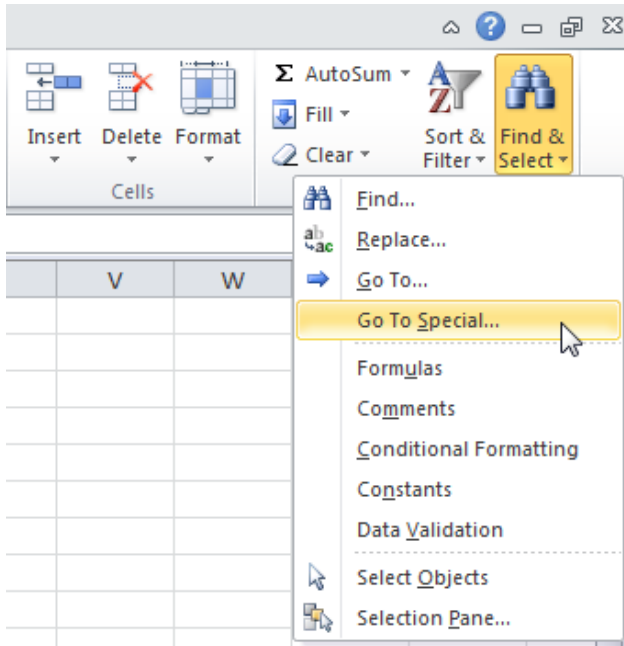
Note: Formulas, Comments, Conditional formatting, Constants and Data Validation are shortcuts. They can also be found under Go To Special.

3. Select Formulas and click OK.
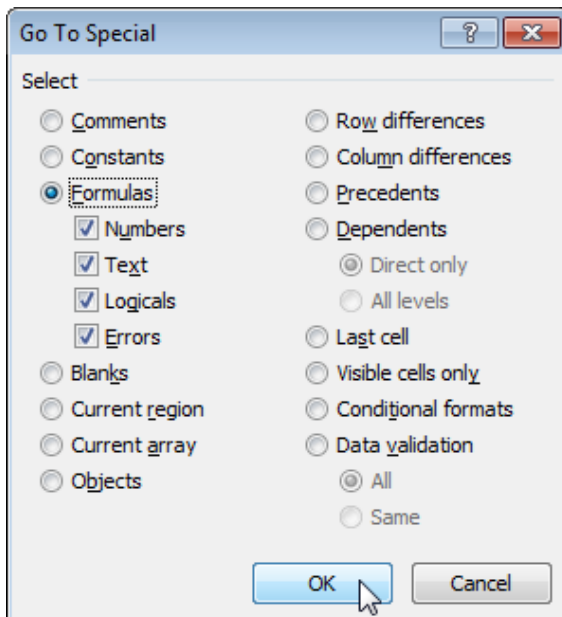
Note: you can search for cells with formulas that return Numbers, Text, Logicals (TRUE and FALSE) and Errors. These check boxes are also available if you select Constants.

Excel selects all cells with formulas.

C17	fx	=AVERAGE(C2:C15)		
	A	B	C	D	E
1	Car	Model	Price	Top Speed	
2	Porsche	Carrera	$593	288	
3	Aston Martin	Vanquish	$1,397	267	
4	Ferrari	Spider	$448	363	
5	Lamborghini	Gallardo	$2,569	342	
6	Maybach	Exelero	$2,638	256	
7	Ferrari	Enzo	$223	359	
8	Ferrari	F50	$1,553	296	
9	Lamborghini	Diablo	$891	321	
10	Aston Martin	One	$1,675	273	
11	Porsche	Cayenne	$929	253	
12	Porsche	911	$2,669	263	
13	Lamborghini	Aventador	$732	292	
14	Ferrari	Maranello	$666	336	
15	Bugatti	Veyron	$1,642	375	
16					
17		Average	$1,330	306	
18					
19					

General note: if you select a single cell before you click Find, Replace or Go To Special, Excel searches the entire worksheet. To search a range of cells, first select a range of cells.

Sort Data Lists

Custom sorting

Sometimes you may find that the default sorting options can't sort data in the order you need. Fortunately, Excel allows you to create a custom list to define your own sorting order.

To create a custom sort:

In our example below, we want to sort the worksheet by T-Shirt Size (column D). A regular sort would organize the sizes alphabetically, which would be incorrect. Instead, we'll create a custom list to sort from smallest to largest.

1.   Select a **cell** in the column you want to sort by. In our example, we'll select cell **D2**.

2. Select the **Data** tab, then click the **Sort** command.

3. The **Sort** dialog box will appear. Select the **column** you want to sort by, then choose **Custom List...** from the**Order** field. In our example, we will choose to sort by **T-Shirt Size**.
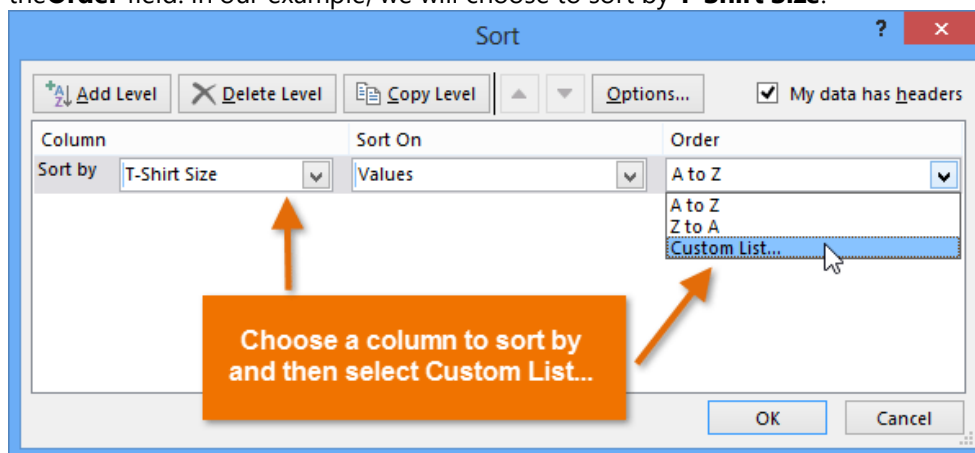

4. The **Custom Lists** dialog box will appear. Select **NEW LIST** from the **Custom Lists:** box.
5. Type the items in the desired custom order in the **List entries:** box. In our example, we want to sort our data by T-shirt size from **smallest** to **largest**, so we'll type **Small**, **Medium**, **Large**, and **X-Large**, pressing **Enter** on the keyboard after each item.
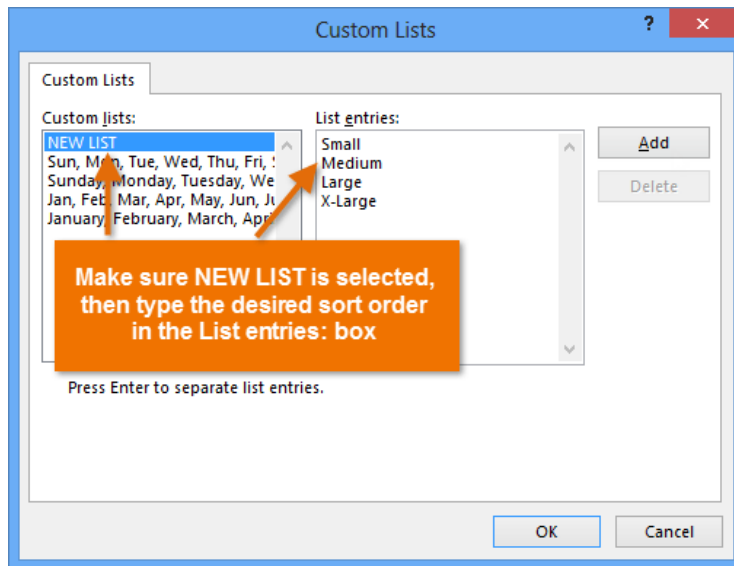
6. Click **Add** to save the new sort order. The new list will be added to the **Custom lists:** box. Make sure the new list is **selected**, then click **OK**.
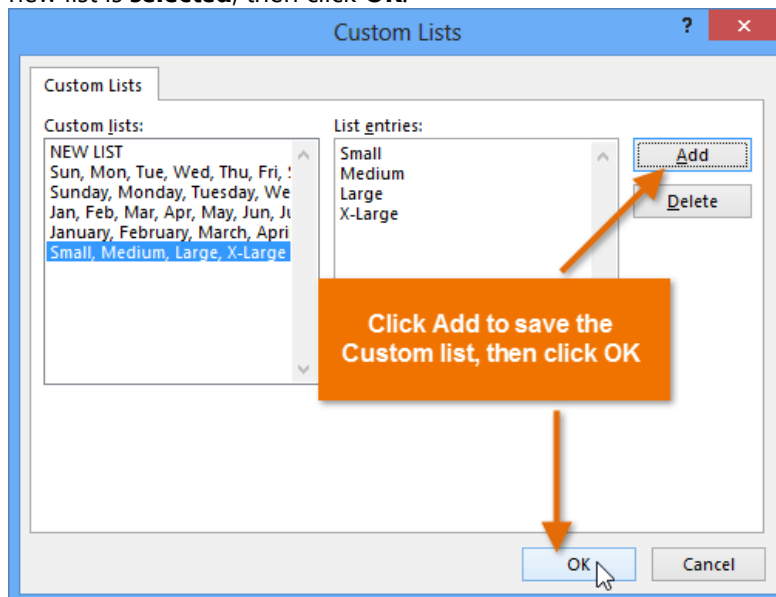
7. The **Custom Lists** dialog box will close. Click **OK** in the **Sort** dialog box to perform the custom sort.
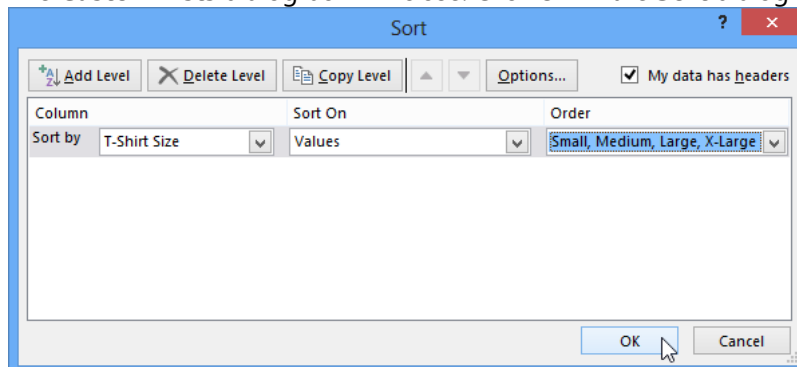
8. The worksheet will be **sorted** by the custom order. In our example, the worksheet is now organized by T-shirt size from smallest to largest.

To sort by cell formatting:

You can also choose to sort your worksheet by **formatting** rather than cell content. This can be especially helpful if you add color coding to certain cells. In our example below, we'll sort by **cell color** to quickly see which T-shirt orders have outstanding payments.

1. Select a **cell** in the column you want to sort by. In our example, we'll select cell **E2**.

2. Select the **Data** tab, then click the **Sort** command.

3. The **Sort** dialog box will appear. Select the column you want to sort by, then decide whether you'll sort by **Cell Color**, **Font Color**, or **Cell Icon** from the **Sort On** field. In our example, we'll sort by **Payment Method** (column **E**) and **Cell Color**.

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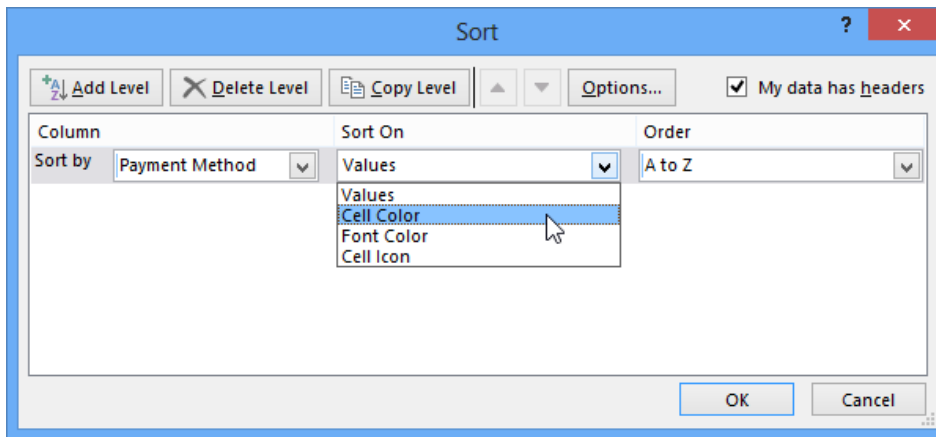
4. Choose a **color** to sort by from the **Order** field. In our example, we'll choose **light red**.
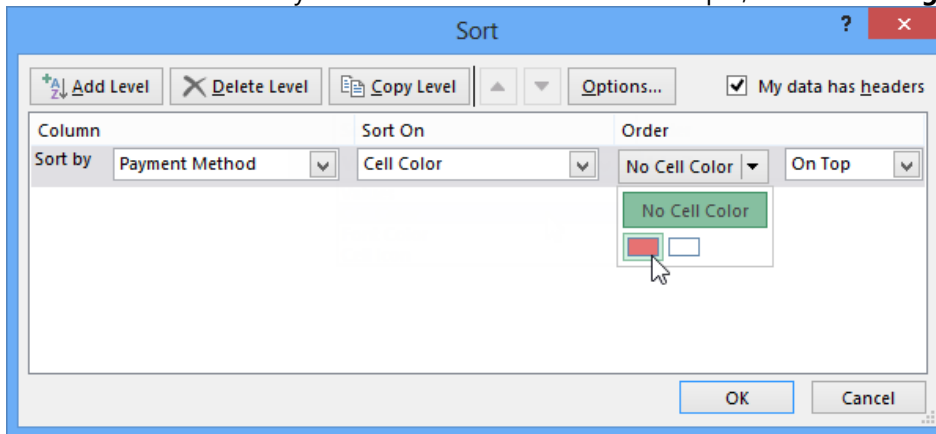
5. Click **OK**. In our example, the worksheet is now sorted by **cell color**, with the light red cells on top. This allows us to see which orders still have outstanding payments.

Filtering Lists

When you use the Advanced Filter, you need to enter the criteria on the worksheet. Create a Criteria range (blue border below for illustration only) above your data set. Use the same column headers. Be sure there's at least one blank row between your Criteria range and data set.
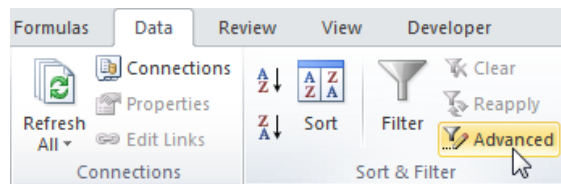**And Criteria**

To display the sales in the USA <u>and</u> in Qtr 4, execute the following steps.

1. Enter the criteria shown below on the worksheet.

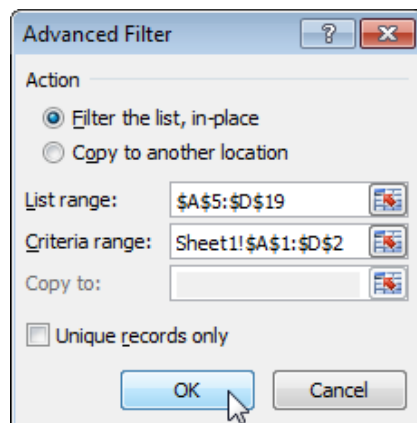|	A7	▾	fx	Johnson	
	A	B	C	D	E
1	Last Name	Sales	Country	Quarter	
2			USA	Qtr 4	
3					
4					
5	Last Name	Sales	Country	Quarter	
6	Smith	$16,753.00	UK	Qtr 3	
7	Johnson	$14,808.00	USA	Qtr 4	
8	Williams	$10,644.00	UK	Qtr 2	
9	Jones	$1,390.00	USA	Qtr 3	
10	Brown	$4,865.00	USA	Qtr 4	
11	Williams	$12,438.00	UK	Qtr 1	
12	Johnson	$9,339.00	UK	Qtr 2	
13	Smith	$18,919.00	USA	Qtr 3	
14	Jones	$9,213.00	USA	Qtr 4	
15	Jones	$7,433.00	UK	Qtr 1	
16	Brown	$3,255.00	USA	Qtr 2	
17	Williams	$14,867.00	USA	Qtr 3	
18	Williams	$19,302.00	UK	Qtr 4	
19	Smith	$9,698.00	USA	Qtr 1	
20					
21					

2. Click any single cell inside the data set.

3. On the Data tab, in the Sort & Filter group, click Advanced.

4. Click in the Criteria range box and select the range A1:D2 (blue).

5. Click OK.

Notice the options to copy your filtered data set to another location and display unique records only (if your data set contains duplicates).
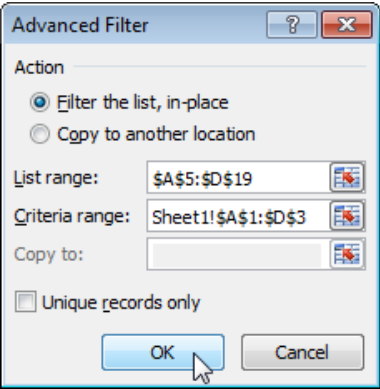
Result.

	A	B	C	D	E
1	Last Name	Sales	Country	Quarter	
2			USA	Qtr 4	
3					
4					
5	Last Name	Sales	Country	Quarter	
7	Johnson	$14,808.00	USA	Qtr 4	
10	Brown	$4,865.00	USA	Qtr 4	
14	Jones	$9,213.00	USA	Qtr 4	
20					
21					

No rocket science so far. We can achieve the same result with the normal filter. We need the Advanced Filter for Or criteria.

Or Criteria

To display the sales in the USA in Qtr 4 or in the UK in Qtr 1, execute the following steps.

6. Enter the criteria shown below on the worksheet.

7. On the Data tab, click Advanced, and adjust the Criteria range to range A1:D3 (blue).

8. Click OK.

Result.

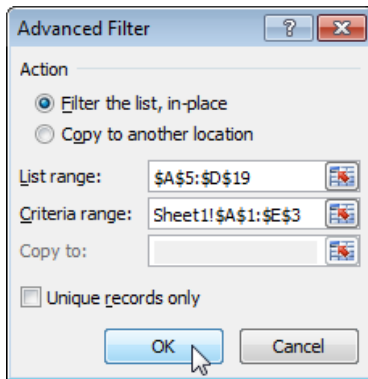|	A	B	C	D	E
1	Last Name	Sales	Country	Quarter	
2			USA	Qtr 4	
3			UK	Qtr 1	
4					
5	Last Name	Sales	Country	Quarter	
7	Johnson	$14,808.00	USA	Qtr 4	
10	Brown	$4,865.00	USA	Qtr 4	
11	Williams	$12,438.00	UK	Qtr 1	
14	Jones	$9,213.00	USA	Qtr 4	
15	Jones	$7,433.00	UK	Qtr 1	
20					
21					

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Formula as Criteria

To display the sales in the USA in Qtr 4 greater than $10.000 <u>or</u> in the UK in Qtr 1, execute the following steps.

9. Enter the criteria (+formula) shown below on the worksheet.

10. On the Data tab, click Advanced, and adjust the Criteria range to range A1:E3 (blue).

11. Click OK.

Result.

	A	B	C	D	E	F
1	Last Name	Sales	Country	Quarter		
2			USA	Qtr 4	TRUE	
3			UK	Qtr 1		
4						
5	Last Name	Sales	Country	Quarter		
7	Johnson	$14,808.00	USA	Qtr 4		
11	Williams	$12,438.00	UK	Qtr 1		
15	Jones	$7,433.00	UK	Qtr 1		
20						
21						

E2 = B6>10000

Note: always place a formula in a new column. Do not use a column label or use a column label that is not in your data set. Create a relative reference to the first cell in the column (B6). The formula must evaluate to TRUE or FALSE.

Creating Charts
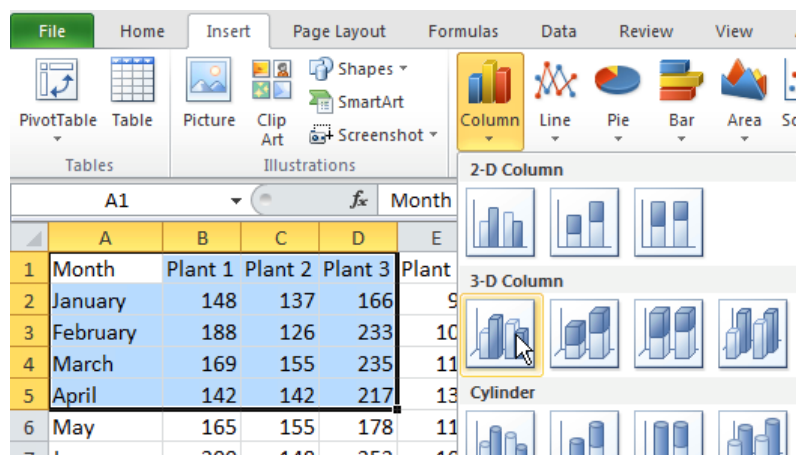
To insert a chart, select the date you wish to appear in the chart, and then go to the Insert Ribbon (if the data is noncontiguous, you can select one set, then hold down the Control key on the keyboard to select the second set). In the Charts Group, choose the type of chart you'd like. Click on the arrow below the type icon to see the sub-types.

By default, the chart will appear directly on the spreadsheet where your data is; when the chart is selected, you will see additional Ribbons. In Excel 2010, you have the Design, Layout, and Format Ribbons.

Format Charts

Once your chart appears in Excel, there are many ways to modify the way it looks and its location. A few ways are described below, but explore to find more! In all cases, you have to select the chart first to see the context sensitive Ribbons (Design, Layout, and Format.

- To add any labels (for example, for the title or axes), use the Chart Tools Layout Ribbon.
- To change the chart type, data, or location, use the Chart Tools Design Ribbon.
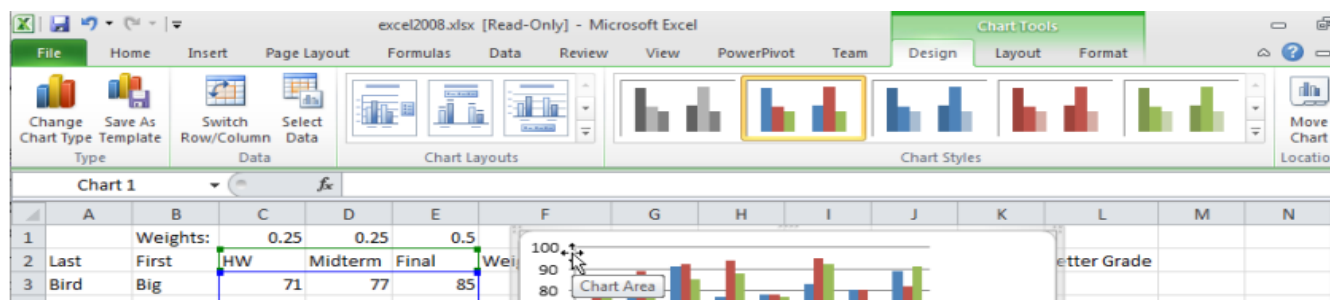
From either the Chart Tools Layout Ribbon or the Chart Tools Format Ribbon, you can select an element on the chart (for example, a series), then choose the Format Selection icon in the Current Selection Group. In the Format [Selected item] dialog box, you can change the shape, style and color.

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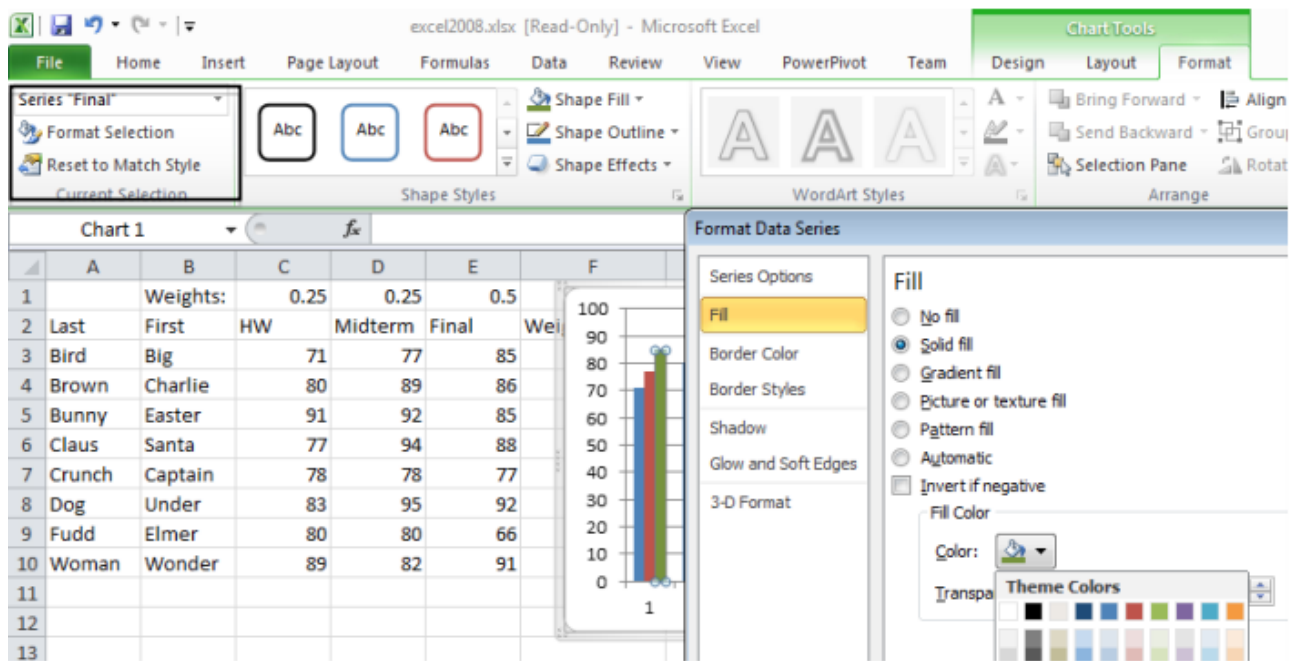
For more information

That's it! Thank you for reading to the end. Let me know if I didn't manage to cover all the questions and issues you have and I'll be happy to help you. Just drop me a line in the comments in the Tech4Good website below.

Be happy and excel in Excel! ☺

Tech4Good website (more tips & tricks and cheat sheets on Microsoft products!)
http://tech-for-good.github.io/index.html

Modern IT Experience featuring IT Showcase
http://microsoft.com/microsoft-IT

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