Excel Reference Sheet

Contents

Introduction:

In Excel, like many things in life, there are often multiple ways to get to a destination. There is no path that is more correct than others. An example of the are Hot Key/Keyboard Shortcuts. Some people will use Ctrl+C to copy a cell, and other people will select the cell and right click with the mouse and select copy. This document is a reference to aide in gathering information.

Keyboard Shortcuts

Keyboard shortcuts can be useful in nearly all Microsoft programs, as well as most browsers in Windows. *The alignment hot keys (Center, Left, and Right) do not function in Excel.*

Ctrl + Z = Undo

Ctrl + X = Cut

Ctrl + C = Copy

Ctrl + V = Paste

Ctrl + B = Bold

Ctrl + I = Italicize

Ctrl + U = Underline

Ctrl + F = Find text on a document/page

Ctrl + E = Center text

Ctrl + R = Align text to the right

Ctrl + L = Align test to the left

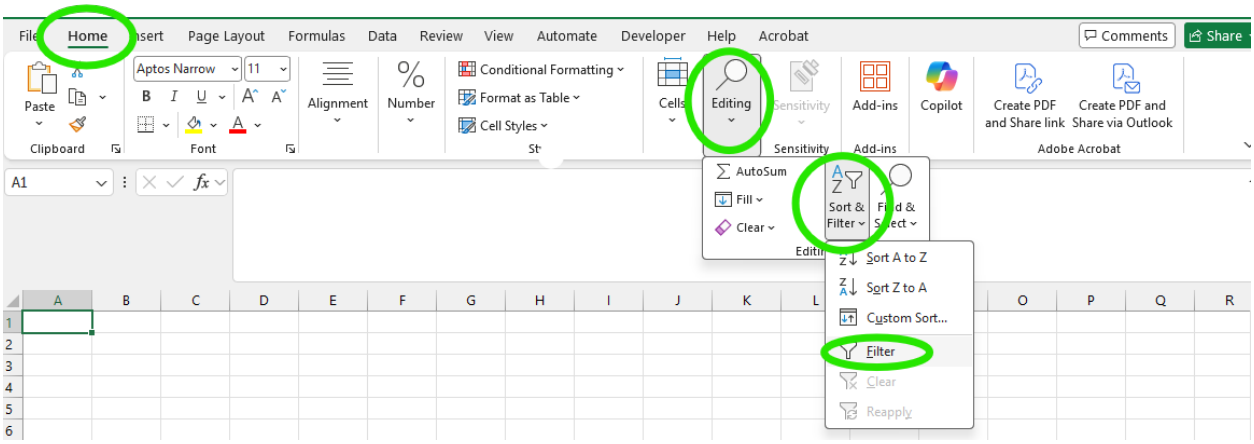
F7 = Spell Check

F12 = Save As

Filters:

To add filters to a data set without creating a table:

Home -> Editing -> Sort & Filter -> Filter



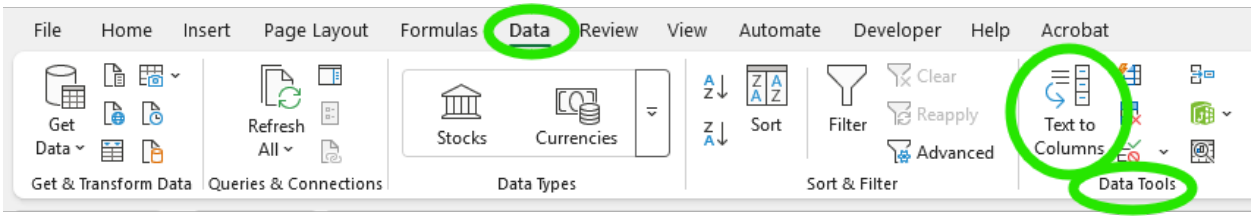
This adds drop down filters without having the data set up as a table.

Text to Columns:

Where there are multiple pieces of information in a cell it can be very helpful to be able delimit the information to separate cells.

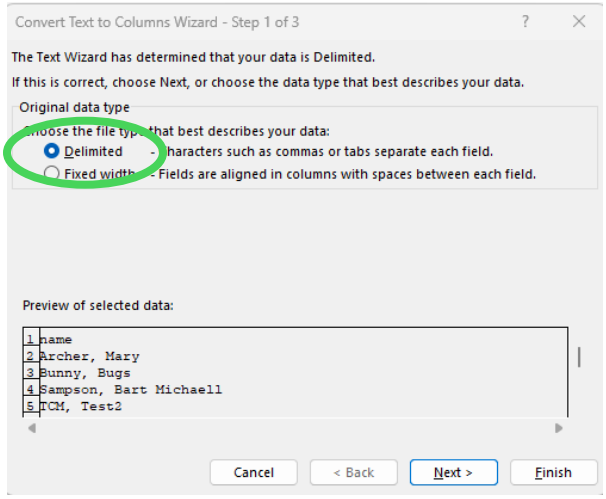
Before separating out the information in the cells, make sure there are either blank columns or you are okay with the columns following your selection being overwritten.

While highlighting the column to be split out, go to Data -> Data Tools -> Text to Column



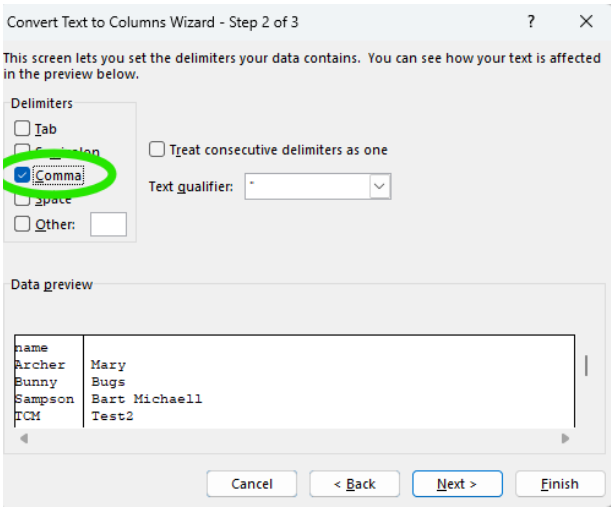
A pop up window will open to select options to convert text into columns.

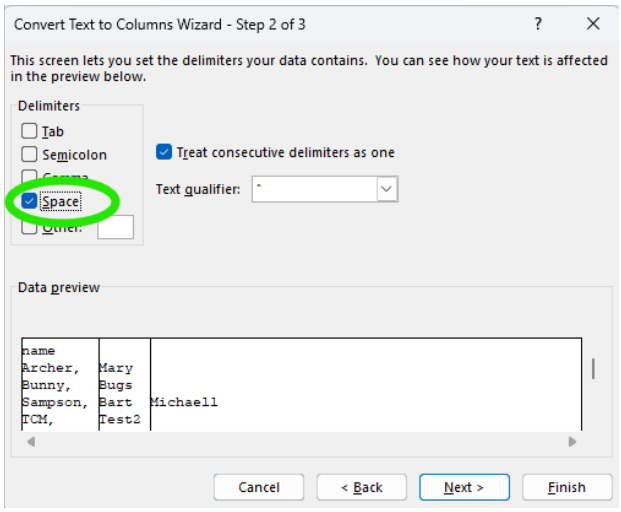
First, make sure Delimited is selected.



Click, next. Then select the character that will act as a column break.

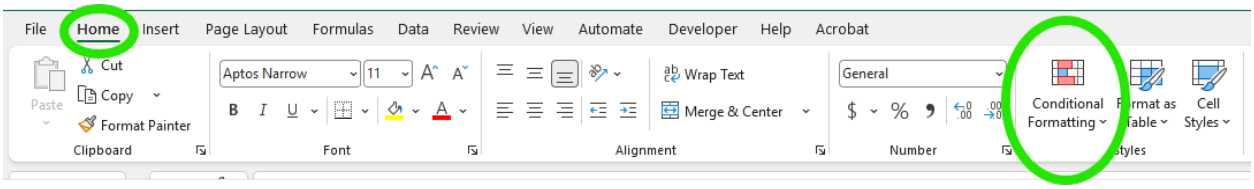
- Tab, Semicolon, Comma, Space and
- Other can be any single character, make sure you indicated which character to use in the box next it if you select other.

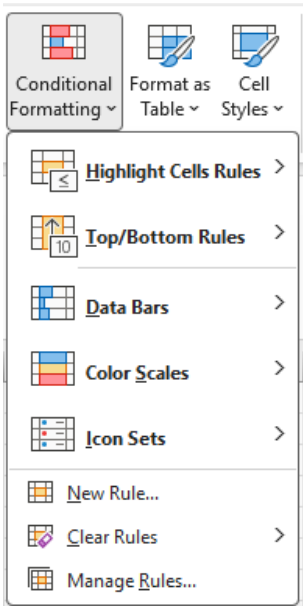




Conditional Formatting:

Conditional Formatting changes the look of a cell or range of cells based on the contents of the cell.





Common Conditional Formatting, greater than, less than, duplicates, etc are under highlight cell rules.

Data bars format the cell similar to a bar chart, filling the cell based value of the cell.

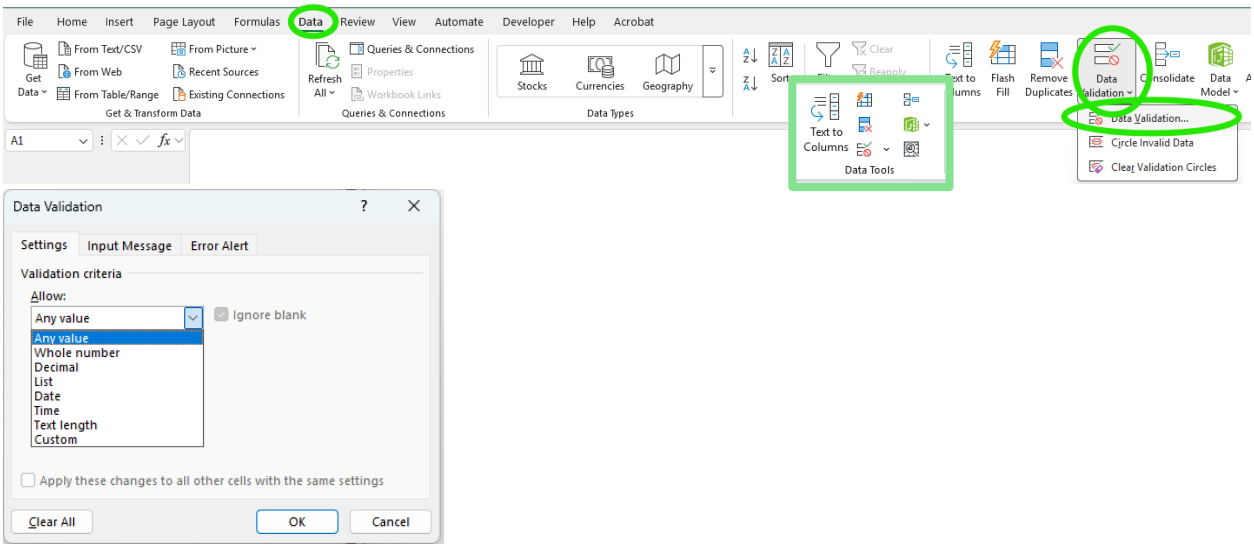
Icon Sets add i

Use Manage Rule to change formatting specifics on any and all conditional formatting rules.

Data Validation:

Data Validation can limit the contents of a cell or a range of cells to specific text, or a specific type of format.

Data -> Data Tools -> Data Validation -> Data Validation



Most options are self explanatory (Any value -> No Validation)

List is probably the most common, as it creates a dropdown of specific options in a cell.

- The options can be a referenced cell range, or a typed list separated by commas.
- Having predetermined options for cell can be especially helpful with IF formulas.

Formulas:

To start any formula, use equal sign [=]. If formulas are nested, with one or more formulas inside of another, only the initial formula needs the =.

Cell references can be specific cell ranges (A2:A17) or (B3:D17), entire Columns (A:A), or entire Rows (2:2). When specific text, instead of a cell reference, is used in a formula the text needs to be

in "quotations". The asterisk [*] is Excel's wildcard and can be used to place of any other character before or after specific text.

Below are commonly used symbols, to use them put them in quotes and add and ampersand to link it to a value. (See example in COUNTIFS)

- = equal to, <> not equal to
- < less than, <= less than or equal to
- > greater than, >=greater than or equal to

When formulas get long, they can become hard to read. A simple way to help with that is using Alt+Enter to add a return within the formula to start a section of it on a new line.

Locking Reference Cells

When a cell is referenced in a formulas and the cell the formulas is in is copy and pasted over the few cells the referenced cells move the same amount but you can keep that from happening.

If you add the dollar sign ($) to either the column reference or the row reference is will not move when the cell is.

Example 1: =$A1, will always reference column A, but will reference different rows.

Example 2: =A$1, will always reference row 1, but will reference different columns.

Example 3: =$A$1 will always reference column A, row 1.

Example 4: =A1 will move reference to different columns and rows.

IF/IFS

The IF and IFS formulas allow you to instruct excel what needs to be done depending on if conditions are met.

	A	B	C
1	1	2	3
2	4	5	6
3	7	8	9
4			

IF has 3 parts, IF(a logical statement, what to do if that logical statement is true, and what to do if the logical statement is false).

Example 1: IF(B2>B1,"Correct", "Incorrect") returns Correct.

Example 2: IF(B1>B2, "Correct", "Incorrect") returns Incorrect.

IFS has a minimum of 2 parts, but can have almost any even number of parts. =IFS(logical statement 1, value if true 1, logical statement 2, value if true 2 ...) The order your logical statements are in matters, as the formula will return the value for the first true logical statement.

Example 1: =IFS(C1<A1,"Simple",B1<B2,"Example",C1<B2,"Here") returns Example.

Example 2: =IFS(C1<A1,"Simple",C1<B2,"Here",B1<B2,"Example") returns Here.

COUNTIF/COUNTIFS

The COUNTIF and COUNTIFS formulas allow you to count how many cells meet a specific criteria, or a set of multiple criteria.

	A	B	C
1	**Fruit Bag**	**Cost**	
2	Apple	$3.12	
3	Apple	$2.76	
4	Orange	$1.60	
5	Banana	$0.80	
6	Apple	$2.30	
7	Banana	$0.40	
8			

COUNTIF has 2 parts a range and criteria, where to look and what to look for.

Example 1: =COUNTIF(A2:A7,"Apple") returns 3.

COUNTIFS has a minimum of 2 parts but can have any even number of parts, each range's criteria immediately follows the range. To be counted all criteria must be met.
=COUNTIFS(range 1, criteria 1, range 2, criteria 2, etc)

Example 2: =COUNTIFS(A:A, "Apple", B:B,"<="&3) returns 2.

SUMIF/SUMIFS

The SUM and SUMIFS formulas works similarly to COUNTIF. The biggest difference is adding an additional range to sum. =SUM(range, criteria, sum range) Sum range is only needed if it is different from the range.

	A	B	C
1	**Fruit Bag**	**Cost**	
2	Apple	$3.12	
3	Apple	$2.76	
4	Orange	$1.60	
5	Banana	$0.80	
6	Apple	$2.30	
7	Banana	$0.40	
8			

Example: =SUMIF(A2:A7,"Apple",B2:B7) returns $8.18.

SUMIFS changes things a little more. SUMIFS starts with the range to be added. SUMIFS(sum range, range 1, criteria 1, range 2, criteria 2, etc)

Example: =SUMIFS(B2:B7,A2:A7,"Apple",B2:B7,"<="&3) returns $5.06.

AND & OR

AND is a formula that is nested inside other formulas when 2 or more conditions need to be true. OR is a formula that is nested inside other formulas when only 1 of multiple conditions need to be true.

AND(logical 1, logical 2, logical 3, etc) all need to be true to return TRUE.

OR(logical 1, logical 2, logical 3, etc) only 1 logical statement needs to be true to return as TRUE.

	A	B	C	D	E
1	**Vegetable**	**Form**	**AveragePricePerCupEquivalent**		
2	Acorn squash	Fresh	$1.22		
3	Artichoke	Fresh	$2.08		
4	Artichoke	Canned	$2.58		
5	Asparagus	Fresh	$2.58		
6	Asparagus	Canned	$2.24		
7	Asparagus	Frozen	$2.60		
8	Avocados	Fresh	$0.98		
9	Beets	Canned	$0.73		
10	Black beans	Canned	$0.78		

Example 1: =IF(AND(B:B="Fresh", B:B="Frozen"),"True", "False") returns False.

Example 2: =IF(OR(B:B="Fresh", B:B="Frozen"),"True", "False") returns True.

AND and OR can nest in each other as well and as well as IF. For formulas such as SUMIF or COUNTIF, all criteria must be met to be included so AND is unnecessary, for OR the least complicated way is to add is to add multiple versions of a formula.

Example 3: =SUMIFS(C:C, A:A, "Asparagus", B:B,"Frozen")+ SUMIFS(C:C, A:A, "Asparagus", B:B,"Canned") returns $4.84.

Breaking this down, the first half of the formula alone would return the amount for Frozen Asparagus ($2.60) and the second half of the formula alone would return the amount for Canned Asparagus ($2.64).

ROUNDDOWN

The ROUNDDOWN formula, rounds a value down to a specified degree, it can have a value reference, or have a formula that generates a value nested inside it. ROUNDDOWN has 2 parts, ROUNDDOWN(Value, number of digits to round). The number of digits to round counts the number of digits below or above 0, with 0 being a whole number, positive numbers being decimal places and negative numbers being larger integers. The table below uses 1,234.567 as an example.

Example Formula	Result
=ROUNDDOWN(1,234.567,**2**)	1,234.56
=ROUNDDOWN(1,234.567,**1**)	1,234.5
=ROUNDDOWN(1,234.567,**0**)	1,234
=ROUNDDOWN(1,234.567,**-1**)	1,230
=ROUNDDOWN(1,234.567,**-2**)	1,200

Age Calculation: =ROUNDDOWN(([DATE] - [DOB])/365,0) will give the whole number age as of [DATE].

XLOOKUP

The XLOOKUP is able to pull information from elsewhere as long as there is match between the data sets. XLOOKUP works best when both data sets share a unique variable. XLOOKUP does not function nested inside most other formulas, however, other formulas can nest inside XLOOKUP in the {return value is missing from look up} section of the formula.

XLOOKUP(lock up value [cell reference], look up array [column reference], return array [column to pull data from], {return value if missing from look up}, {match mode}, {search mode})

Items with { } are optional, and do not need to be entered for the formula to function.

Match mode indicates how closely item need to match. Using exact match is best practice.

Search mode indicates the order the data is look it, if there care multiple matches only the first match will be returned.

	A	B	C
1	**Program**	**Client**	**Start Date**
2	Program A	Client 1	7/4/2024
3	Program B	Client 1	8/1/2025
4	Program A	Client 2	6/7/2025
5	Program A	Client 3	9/20/2025
6	Program C	Client 3	9/20/2025
7	Program D	Client 4	10/7/2026
8	Program A	Client 5	12/14/2025
9	Program C	Client 5	3/1/2026
10			

Example: =XLOOKUP("Client 4",B:B,C:C) returns 10/7/2026.

XLOOKUP with Multiple Variables

One option is using helper column, this is a column that combines values of different column to create a unique identifier. To create a helper column use & or CONCAT to combine cell values.

Example 1: =B2&C2 returns Program AClient 1

Example 2: =CONCAT(B2,C2) returns Program AClient 1

	A	B	C	D
1	**Program**	**Client**	**Start Date**	**Helper**
2	Program A	Client 1	7/4/2024	Program AClient 1
3	Program B	Client 1	8/1/2025	Program BClient 1
4	Program A	Client 2	6/7/2025	Program AClient 2
5	Program A	Client 3	9/20/2025	Program AClient 3
6	Program C	Client 3	9/20/2025	Program CClient 3
7	Program D	Client 4	10/7/2026	Program DClient 4
8	Program A	Client 5	12/14/2025	Program AClient 5
9	Program C	Client 5	3/1/2026	Program CClient 5
10				

The helper column can be created on both data sets and used as a unique identifier for a typical XLOOKUP.

Example: =XLOOKUP("Program AClient 1",D:D,C:C) returns 7/14/24.

Reminder, anything in quotes must be character perfect, including spaces.

Alternatively, XLOOKUP can be used with multiple variables, replace the lookup value with a 1, and the look up array with: (lookup array=X)*(lookup array 2 =Y). More variables can be added with adding an additional, *(lookup array3=Z) etc. Note using (X=lookup array) will not work, the lookup array must be first.

=XLOOKUP(1,(A:A="Program B")*(B:B="Client 1"),C:C) returns 8/1/2025.

Dynamic Data

When the data range contains value determined by formulas – the graphs update as it the data does.

Dynamic Charts

Use a Data Validation list to allow users to select different variables that changes the values of the that are being graphed. Coloring in the cells where the drop downs are located can be helpful.

An example of when you would want to use this if you have a report or spreadsheet that has due dates of specific tasks for multiple clients and multiple programs and/or case managers. The case manager names could be a drop down to show how many actions of different types are coming due, an additional drop down could be used for the program.

	A	B	C	D	E
1	**Client Name**	**Program**	**Worker Name**	**Number of Past Due events**	**Type of Event**
2	Test 1	Program C	Worker 1	1	Plan
3	Test 1	Program A	Worker 1	2	Visit
4	Test 2	Program B	Worker 1	1	Plan
5	Test 3	Program B	Worker 2	1	Plan
6	Test 2	Program C	Worker 2	2	Visit
7	Test 1	Program A	Worker 1	4	External Docuemnts
8	Test 2	Program C	Worker 1	3	External Docuemnts
9	Test 1	Program B	Worker 2	2	External Docuemnts
10	Test 3	Program A	Worker 2	6	External Docuemnts
11					
12					

	L	M	N	O
1	**Worker name drop down**	Plan	Visit	External Docuemnts
2	Program A	#	#	#
3	Program B	#	#	#
4	Program C	#	#	#
5				

Getting dynamic data from the top table to the bottom table, it would be set up as follows.

L1 would add Data Validation (Data Validation -> List -> Source $C$2:$C$10)

M2 would have a formula like: =SUMIFS($D:$D, $C:$C, $L$1, $E:$E, M$1,$B:$B,$L2) to fill in the # in the chart. Changing the worker name in L1 updates the formulas. Strategic cell references lets the formula be written once, and copied from M2 through O4.

Dynamic Graphs

Graphs can't specifically change color, but the set up can cause the graph to appear to change color. The way to do that is to use formulas – specifically IF or IFS to only have the series (color) you want to show values is specific criteria are met.

	A	B	C
1	**Program**	**Case Record Review Score**	**Quarter**
2	Program A	91%	Quarter 1
3	Program A	87%	Quarter 2
4	Program A	92%	Quarter 3
5	Prorgam B	75%	Quarter 1
6	Prorgam B	78%	Quarter 2
7	Prorgam B	80%	Quarter 3
8	Program C	56%	Quarter 1
9	Program C	65%	Quarter 2
10	Program C	60%	Quarter 3
11			

	F	G	H	I
1	Quarter 1	Exceeding Expectations	Meeting Expectations	Below Expectations
2	Program A	91%		
3	Prorgam B			75%
4	Program C			56%

Using the Data in the first table, to complete the dynamic data in the second. 3 different formulas are used.

Column G: =IFS(SUMIFS($B$2:$B$10,$C$2:$C$10,$F$1,$A$2:$A$10,$F2)>=0.9, SUMIFS($B$2:$B$10,$C$2:$C$10,$F$1,$A$2:$A$10,$F2), SUMIFS($B$2:$B$10,$C$2:$C$10,$F$1,$A$2:$A$10,$F2)<0.9,"")

To break down the formula working from the inside out:

- The highlighted expression adds the values in column B, when column C says Quarter 1 (value of F1), and column A is Program A (Value of F2)
    - This is because only 1 value meets the qualifications, the sum of the that value is the value.
- This expression is used 3 times in the larger formula.
- The rest says if the highlighted expression is above or equal to 0.9 (90%), return the value, if it is less return blank ("").

Column H: =IFS(AND(SUMIFS($B$2:$B$10,$C$2:$C$10,$F$1,$A$2:$A$10,$F2)<0.9,
SUMIFS($B$2:$B$10,$C$2:$C$10,$F$1,$A$2:$A$10,$F2)>=0.8),
SUMIFS($B$2:$B$10,$C$2:$C$10,$F$1,$A$2:$A$10,$F2),
SUMIFS($B$2:$B$10,$C$2:$C$10,$F$1,$A$2:$A$10,$F2)<0.8,"",SUMIFS($B$2:$B$10,$C$2:$C$10,$F$1,$A$2:$A$10,$F2)>=0.9,"")

Breaking down the second formula:

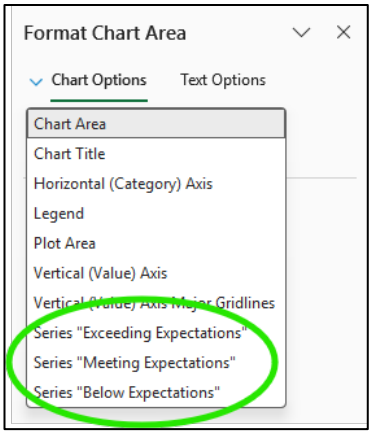
- The formula for column H is so much longer because it looks for values in the middle of a section. Notice, SUMIF is used to get a single number, the sum of a single value is the same as the value itself.
- The highlighted expression is used 5 times. It is the same expression form the first formula.
- This formula indicates if the value of the expression is less than 0.9 (90%) AND greater than or equal to 0.8 (80%) then show the result of the expression. If the expression is less than 0.8 (80%) then return blank ("") or if the expression is more then or equal to 0.9 (90%) then return blank ("").

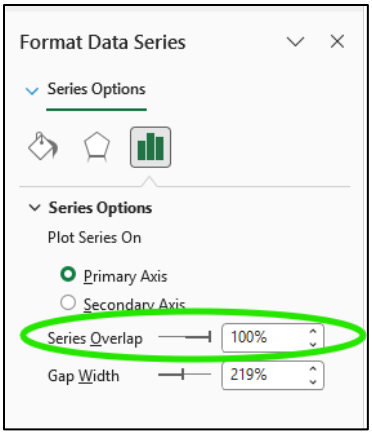
Column I: =IFS(SUMIFS($B$2:$B$10,$C$2:$C$10,$F$1,$A$2:$A$10,$F2)<0.8,
SUMIFS($B$2:$B$10,$C$2:$C$10,$F$1,$A$2:$A$10,$F2),
SUMIFS($B$2:$B$10,$C$2:$C$10,$F$1,$A$2:$A$10,$F2)>=0.8,"")

Breaking down the last formula:

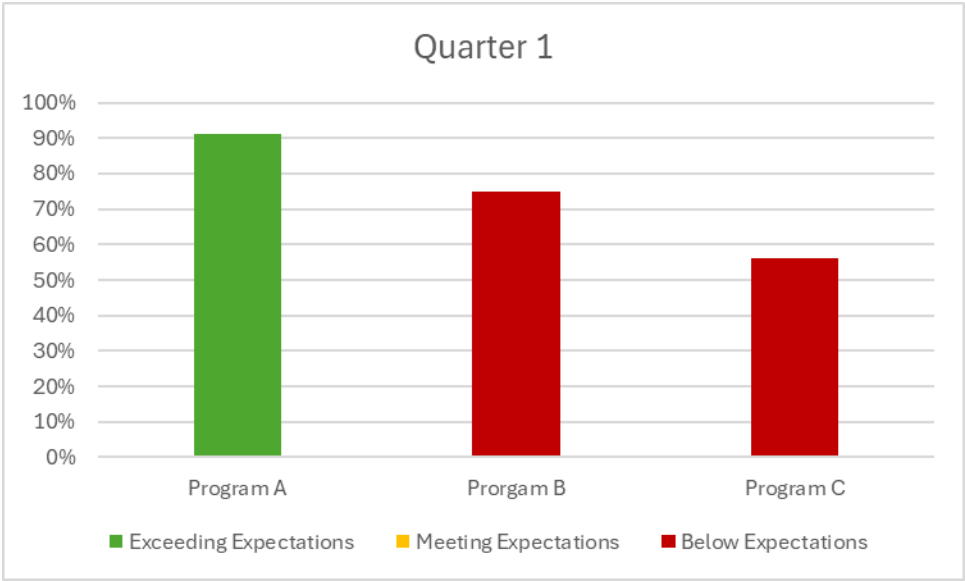
- The highlighted expression is used 3 times. It is the same expression form the first formula.
- This formula indicates if the expression is less than 0.8 (80%), then show the value, and if the value is greater than or equal to 0.8 (80%) then return blank ("")

If you graph F1:I4 in a bar chart, reference F1 for the chart title and format the bars so they overlap 100%. *Formatting the graph can be done by double clicking on the background of the graph and in the right side menu selecting a data series then series options. (Format Data Series -> Series Options)*

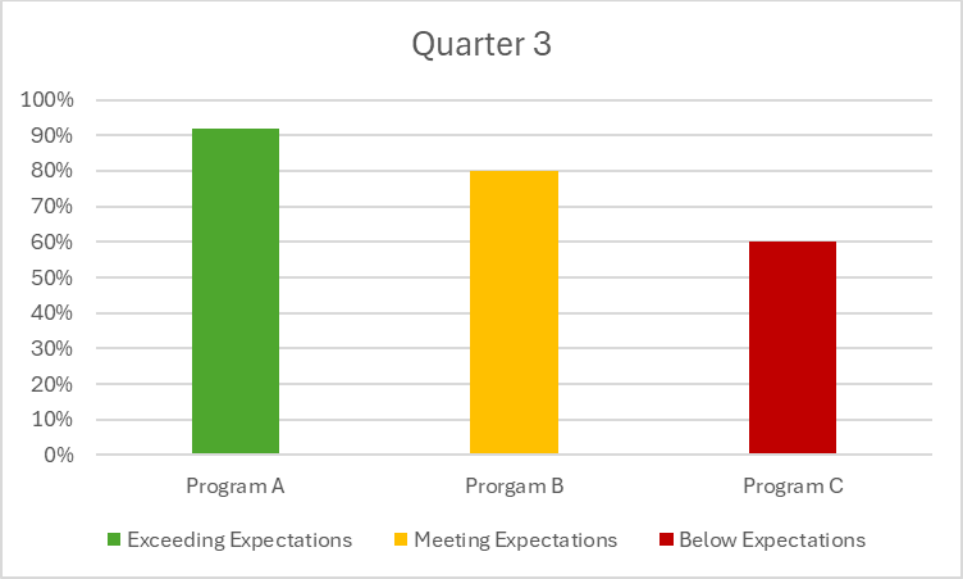




You will get the following graph.



Selecting Quarter 3, in F1 will change the graph to the below graph without making any other changes.



Closing

Take the information in this document and apply it to your work, so you can add efficiency and remove manual processes when and where you can.