MS Excel

Reference Notes

Introtallent

Training | Analytics | Consulting

Helping People Decode Analytics for Business

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Content

Shortcut Keys (1/2)

Press	To
HOME	Move to the beginning of the row
CTRL+HOME	Move to the beginning of the worksheet
CTRL+END	Move to the last cell on the worksheet
CTRL+PAGE DOWN	Move to the next sheet in the workbook
CTRL+PAGE UP	Move to the previous sheet in the workbook
ALT+ENTER	Start a new line in the same cell
CTRL+ENTER	Fill the selected cell range with the current entry
SHIFT+ENTER	Complete a cell entry and move up in the selection
TAB	Complete a cell entry and move to the right in the selection
F4	Repeat the last action
SHIFT+F2	Edit a cell comment
CTRL+D	Fill down

Press	To
CTRL+R	Fill to the right
= (equal sign)	Start a formula
ALT+= (equal sign)	**Insert the AutoSum formula**
CTRL+; (semicolon)	Enter the date
CTRL+SHIFT+: (colon)	Enter the time
ALT+' (apostrophe)	Display the Style dialog box
CTRL+1	Display the Format Cells dialog box
CTRL+SHIFT+~	Apply the General number format
CTRL+SHIFT+$	Apply the Currency format with two decimal places (negative numbers appear in parentheses)
CTRL+SHIFT+%	Apply the Percentage format with no decimal places
CTRL+SHIFT+^	Apply the Exponential number format with two decimal places
CTRL+SHIFT+#	Apply the Date format with the day, month, and year

Shortcut Keys (2/2)

Press	To
CTRL+SHIFT+!	Apply the Number format with two decimal places, thousands separator, and minus sign (–) for negative values
CTRL+SHIFT+&	Apply the outline border
CTRL+SHIFT+_	Remove outline borders
CTRL+5	Apply or remove strikethrough formatting
CTRL+9	Hide rows
CTRL+SHIFT+((opening parenthesis)	Unhide rows
CTRL+0 (zero)	Hide columns
CTRL+SHIFT+) (closing parenthesis)	Unhide columns
CTRL+C	Copy the selection
CTRL+X	Cut the selection

Press	To
CTRL+Y	Redo the last action
CTRL+V	Paste the selection
CTRL+Z	Undo the last action
CTRL+PLUS SIGN	**Insert blank cells**
CTRL+SPACEBAR	Select the entire column
SHIFT+SPACEBAR	Select the entire row
CTRL+SHIFT+O (the letter O)	**Select all cells with comments**
ALT+; (semicolon)	Select only visible cells in the current selection
CTRL+~ (tilde)	Show or hide formula in the worksheet
CTRL+-(Minus sign)	Delete selected rows or columns

Text Functions (1/2)

FUNCTION	DESCRIPTION	FORMULA	REMARKS
CONCATENATE	This function is used to join two or more text strings into one string.	=CONCATENATE(B2, " ",C2) =B2&" "&C2	
EXACT	Compares two text strings and returns TRUE if they are exactly the same, FALSE otherwise. EXACT is case-sensitive but ignores formatting differences.	=EXACT(text1, text2)	
LEFT	LEFT returns the first character or characters in a text string, based on the number of characters you specify.	=LEFT(A2,4)	returns first 4 character from left in the string
RIGHT	RIGHT returns the last character or characters in a text string, based on the number of characters you specify.	=RIGHT(A2,5)	returns last 5 character in the string
LEN	LEN returns the number of characters in a text string.	=LEN(A7)	
LOWER	Converts all uppercase letters in a text string to lowercase.	=LOWER(A8)	
UPPER	Converts text to uppercase.	=UPPER(B9)	
MID	MID returns a specific number of characters from a text string, starting at the position you specify, based on the number of characters you specify.	MID(text, start_num, num_chars)	=MID(A2,3,5) Returns 5 characters from the string in A2, starting at the third character

* Some functions may not work with older version of Excel

Text Functions (2/2)

FUNCTION	DESCRIPTION	FORMULA	REMARKS
PROPER	Capitalizes the first letter in a text string and any other letters in text that follow any character other than a letter. Converts all other letters to lowercase letters.	PROPER(text) =PROPER(B11)	
SEARCH	Returns the number of the character at which a specific character or text string is first found, reading left to right (non case-sensitive).	=SEARCH(find_text, within_text, [start_num])	=SEARCH("of",B14,1)
SUBSTITUTE	Substitutes new_text for old_text in a text string. Use SUBSTITUTE when you want to replace specific text in a text string; use REPLACE when you want to replace any text that occurs in a specific location in a text string.	=SUBSTITUTE(text, old_text, new_text, [instance_num])	=SUBSTITUTE(B15,"S","Z",1)
TEXT	The TEXT function lets you change the way a number appears by applying formatting to it with format codes.	=TEXT(Value you want to format, "Format code you want to apply")	=TEXT(1234.567,"$#,##0.00") =TEXT(TODAY(),"MM/DD/YY") =TEXT(NOW(),"H:MM AM/PM")
TRIM	Removes all spaces from text except for single spaces between words.	=TRIM(text)	

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Logical Functions

FUNCTION	DESCRIPTION	FORMULA	REMARKS
AND	Use the AND function, to determine if all conditions in a test are TRUE. It returns TRUE if all the conditions are TRUE. If any condition is FALSE then it returns FALSE.	=AND(A2>1,A2<100)	=AND(A2>1,A2<100) will return TRUE if value in A2 is between 1 and 100
OR	Use the OR function, to determine if any condition in a test are TRUE. It returns TRUE if any one condition is TRUE.		
IF	It allows you to make logical comparisons between a value and what you expect. In its simplest form, the IF function says: - IF(Something is True, then do something, otherwise do something else)	=IF(logical_test,[value_if_true], [value_if_false])	=IF(A2>=0,"Positive integer", "Negative")
IFERROR	Returns a value you specify if a formula evaluates to an error; otherwise, returns the result of the formula. Use the IFERROR function to trap and handle errors in a formula.	=IFERROR(value, value_if_error)	=IFERROR(A2/B2, "Error in calculation")
IFNA	Returns the value you specify if the formula returns the #N/A error value; otherwise returns the result of the formula.	=IFNA(value, value_if_na)	=IFNA(VLOOKUP("Hello",$A$5:$B$10,0),"Not found")
IFS	The IFS function checks whether one or more conditions are met and returns a value that corresponds to the first TRUE condition. IFS can take the place of multiple nested IF statements, and is much easier to read with multiple conditions.	=IFS([Something is True1, Value if True1, [Something is True2, Value if True2],...[Something is True127, Value if True127])	=IFS(A2>=75,"Distinction", A2>=60,"1st Class",A2>=50,"2nd Class",TRUE,"Fail")

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Date Functions

FUNCTION	DESCRIPTION	FORMULA	REMARKS
DATE	Returns the serial number of a particular date	=DATE(year,month,day)	=DATE(2017,5,11)
DATEVALUE	Converts a date in the form of text to a serial number	=DATEVALUE(text)	=DATEVALUE("26-Sep-2007")
DAYS360	Calculates the number of days between two dates based on a 360-day year	=DAYS360(StartDate,End Date)	=DAYS360("11-5-2017","6-12-2017")
NETWORKDAYS	Returns the number of whole workdays between two dates. Doesn't include weekends while counting days. Weekend days and any days that are specified as holidays are not considered as workdays.	=NETWORKDAYS(StartDate,EndDate,Holidays)	List all holidays dates in one column and give a reference of that column for holidays
TODAY	Returns current system date.	=TODAY()	
NOW	Returns current system date with time.	=NOW()	
MONTH	Returns month serial number from a date.	=MONTH(serial_number)	=MONTH("11-5-2017")
YEAR	Returns year serial number from a date.	=YEAR(serial_number)	=YEAR("11-5-2017")

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Statistical Functions

FUNCTION	DESCRIPTION	FORMULA	REMARKS
AVERAGE	Returns the average (arithmetic mean) of numeric arguments in the selected range	=AVERAGE(number1,[number2],[…])	You can also select the range
AVERAGEA	Returns the average (arithmetic mean) arguments and includes evaluation of text and logical arguments	=AVERAGEA(value1,[value2],[…])	You can also select the range
AVERAGEIF	Returns the arithmetic mean of all the cells in a range that meet a given criteria	=AVERAGEIF(range, criteria, [average_range])	
CORREL	Returns the correlation coefficient between two arrays of data	=CORREL(array1,array2)	
COUNT	Counts the number of cells that contain numbers	=COUNT(range)	
COUNTA	Counts the number of non-empty cells and the values within the list of up to 255 arguments	=COUNTA(range)	
COUNTIF	Counts the number of cells that meet the criteria specified in the argument	=COUNTIF(range,criteria)	
COUNTBLANK	Counts the number of blank cells in the range.	=COUNTBLANK(range)	
LARGE	Returns the kth largest value in a data set	=LARGE(array,k)	

* Some functions may not work with older version of Excel

Statistical Functions

FUNCTION	DESCRIPTION	FORMULA	REMARKS
LARGE	Returns the kth largest value in a data set	=LARGE(array,k)	
MAX	Returns the maximum value in a list of arguments ignoring logical values and text	=MAX(range)	
MAXA	Returns the maximum value in a list of arguments including logical values and text	=MAXA(range)	
MIN	Returns the minimum value in a list of arguments ignoring logical values and text	=MIN(range)	
MINA	Returns the minimum value in a list of arguments including logical values and text	=MINA(range)	
FREQUENCY	Counts how often values occur within given ranges of values and returns those counts as a vertical array of numbers	=FREQUENCY(data_array, bins_array)	
MEDIAN	Returns the median of the given numbers	=MEDIAN(range)	

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Math Functions

FUNCTION	DESCRIPTION	FORMULA	REMARKS
AGGREGATE	Returns an aggregate in a list or database. The AGGREGATE function can apply different aggregate functions to a list or database with the option to ignore hidden rows and error values.	=AGGREGATE(function_num, options, range)	
INT	Rounds a number down to the nearest integer	=INT(3.5)	Output will be 3
RANDBETWEEN	Returns a random number between the given range.	=RANDBETWEEN(10,100)	Generates a random number between 10, 100
ROUND	Rounds a number to a specified number of digits.	=ROUND(3.237,2)	Result: 3.24
SUM	Adds all the numbers in a range of cells	=SUM(range)	=SUM(A2:A15)
SUMIF	Adds the cells specified by a given condition or criteria.	=SUMIF(range,criteria,sum_range)	
SUBTOTAL	Returns a subtotal in a list or database.	=SUBTOTAL(function_num, range)	=SUBTOTAL(3,I4:J6)
SUMPRODUCT	Returns sum of the products of corresponding ranges or arrays.	=SUMPRODUCT(array1, array2)	=SUMPRODUCT(I4:I6,J4:J6)

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Lookup and Reference Functions

FUNCTION	DESCRIPTION	FORMULA	
HLOOKUP	Looks in the top row of a table or array and returns the value of the indicated cell	=HLOOKUP(lookup_value,table_array,row_index_num, [range_lookup])	
VLOOKUP	Locates a specified value in the leftmost column of a specified table, and returns the value in the same row from a specified column in the table	"=VLOOKUP(lookup_value,table_array,col_index_num, [range_lookup])"	
LOOKUP	1) Vector form looks up values in a one row or column range and returns a value in a second one row or column range. 2) Array form looks in the first row or column of an array for the specified value and returns a value from the same position in the last row or column of the array.	=LOOKUP(lookup_value,lookup_vector,[result_vector]) =LOOKUP(lookup_value,array)	
MATCH	Returns the relative position of an item in an array that matches a specified value in a specified order.	=MATCH(lookup_value,lookup_array,[match_type])	
OFFSET	Returns a reference to a range that is a specified number of rows and columns from a cell or range of cells. Volatile.	=OFFSET(reference,rows,cols,[height],[width])	

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Information Functions

FUNCTION	DESCRIPTION	FORMULA	REMARKS
COUNTBLANK	Counts the number of blank cells in the range.	=COUNTBLANK(range)	
ISBLANK	Returns TRUE if the value is blank.	=ISBLANK(value)	
ISERROR	Returns TRUE if the value is any error value.	=ISERROR(value)	
ISNUMBER	Returns TRUE if the value is a number	=ISNUMBER(value)	
ISNA	Returns TRUE if the value is the #N/A error value	=ISNA(value)	

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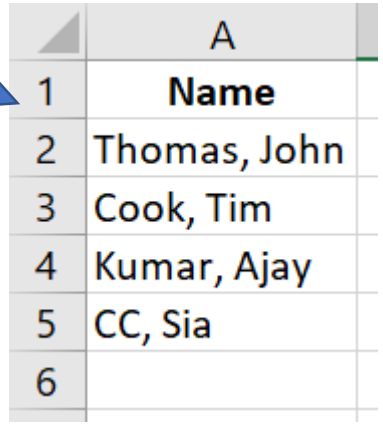
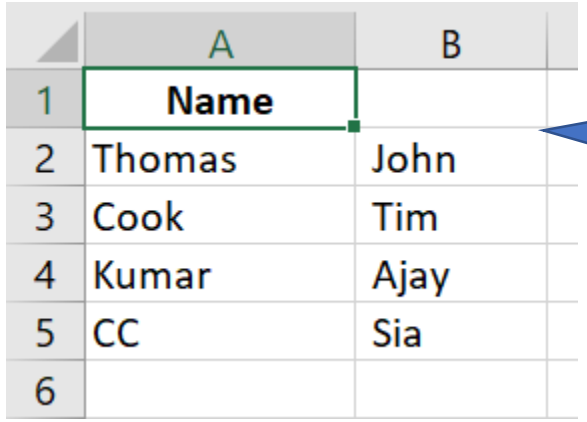
Text to Columns

Actual data before applying Text to Columns



	A
1	**Name**
2	Thomas, John
3	Cook, Tim
4	Kumar, Ajay
5	CC, Sia
6	



	A	B
1	**Name**	
2	Thomas	John
3	Cook	Tim
4	Kumar	Ajay
5	CC	Sia
6		

New data after applying Text to Columns

Steps to use "Text to Columns"

1) Select the column where you want to apply "Text to Columns"
2) Go to "Data" menu and click on "Text to Columns"
3) Choose the type that best describes your data (i.e. Delimited or Fixed width)
4) Choose the delimiter that is used to separate (like comma in the example above)
5) Click "Finish"

Remove Duplicates

Actual data before. Having duplicate entries

	A
1	**Name**
2	Thomas, John
3	Cook, Tim
4	Kumar, Ajay
5	CC, Sia
6	Cook, Tim
7	Kumar, Ajay
8	Thomas, John
9	Cook, Tim

	A
1	**Name**
2	Thomas, John
3	Cook, Tim
4	Kumar, Ajay
5	CC, Sia

New data after removing duplicates

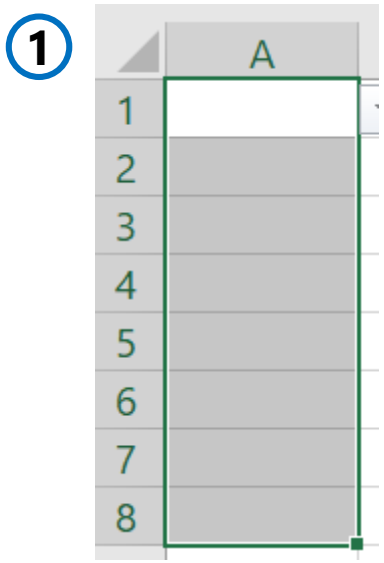
Steps to "Remove Duplicate entries"

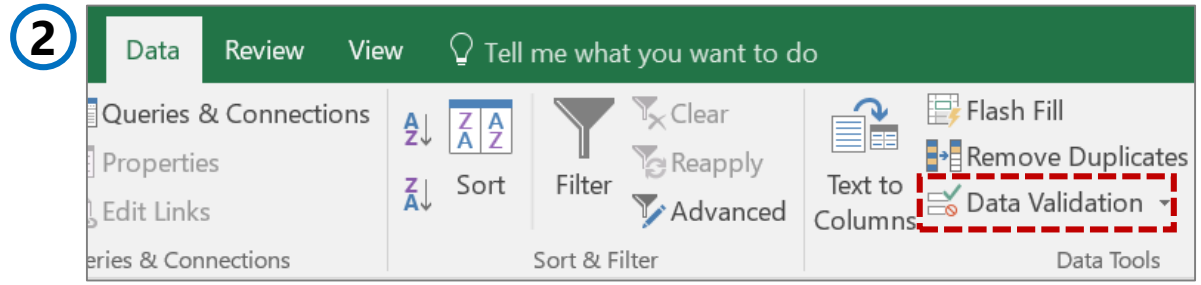
1) Select the column(s) where you want to remove duplicate entries
2) Go to "Data" menu and click on "Remove Duplicates"
3) Remove Duplicate box will appear. Click the checkbox "My data has headers", if you have header in your data
4) Click OK to remove duplicate entries

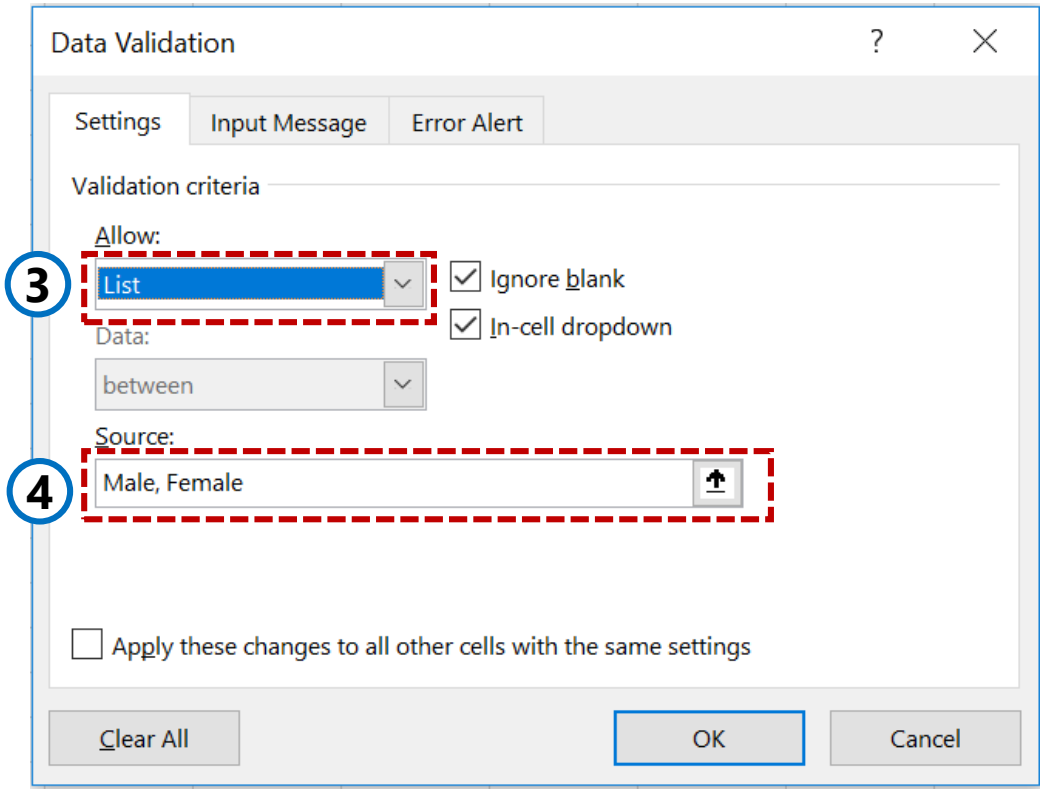
Data Validation

Steps to create list ("Data Validation")

1) Select the cell range where you want to create list
2) Go to "Data" menu and click on "Data Validation"
3) Select "List" under Validation criteria
4) Enter list item in the Source
5) Click OK







Cells and Range References

Cell reference come in four styles:

1) **Relative Reference:** The reference is fully relative. When the formula is copied, the cell reference adjusts to its new location. Example (=A1)

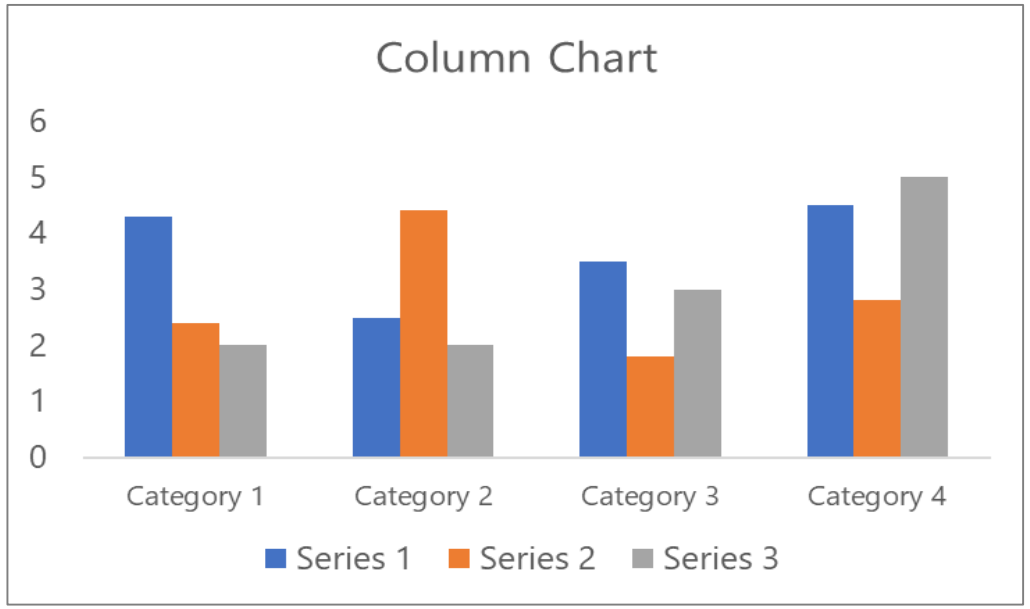
2) **Absolute Reference**: The reference is fully absolute. When the formula is copied, the cell reference does not change. Example (=$A$1)

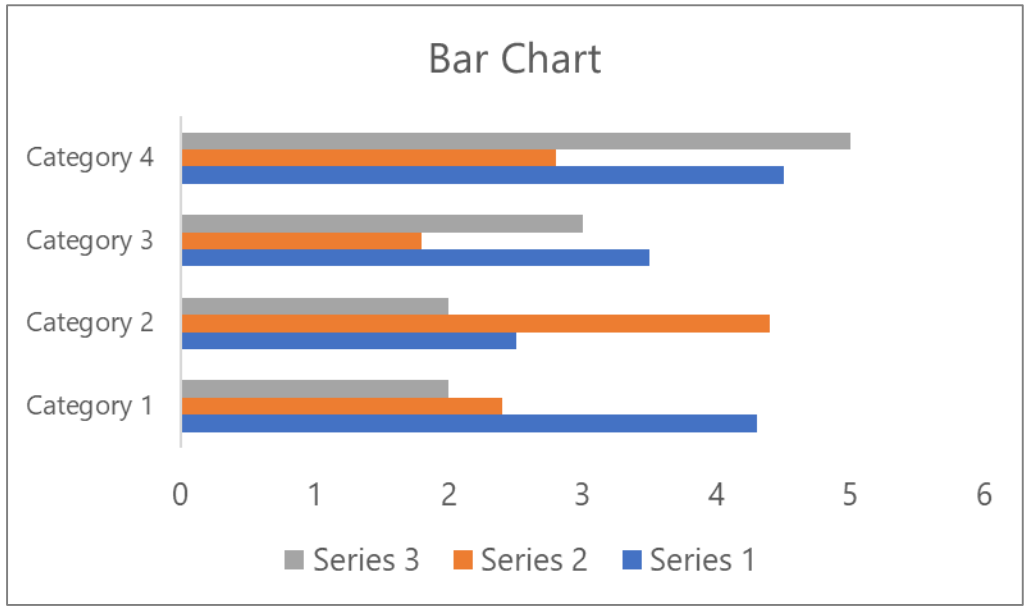
3) **Row Absolute**: The reference is partially absolute. When the formula is copied, the column part adjusts, but the row part does not change. Example (=A$1) Or (=$A1)

Data Visualization: Choosing right charts

Column Chart

- Use column chart to visually compare values across a few categories.
- Use it when the order of category is not important





Bar Chart

- Use column chart to visually compare values across a few categories.

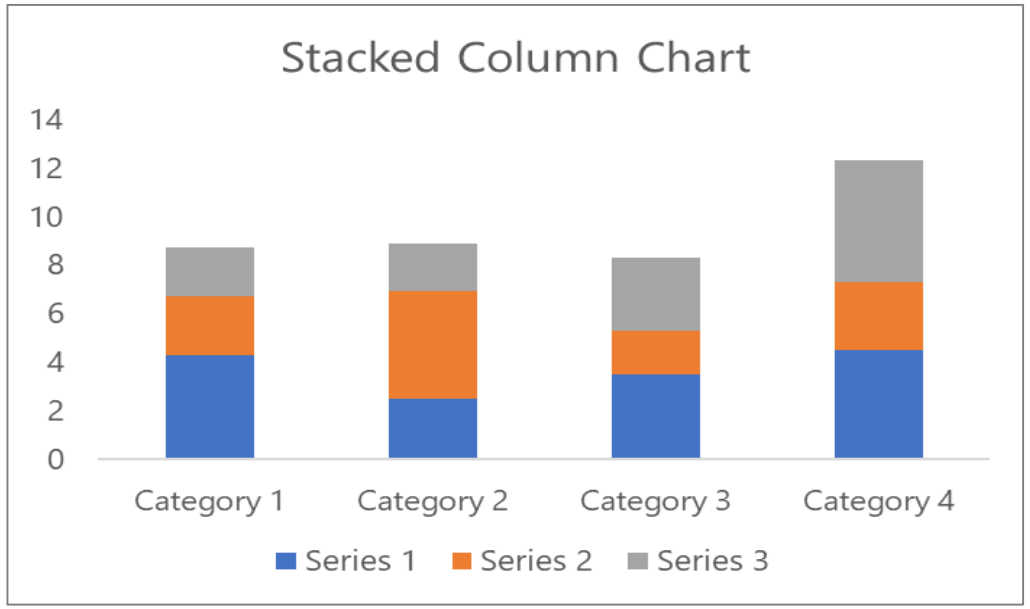
Use it when:

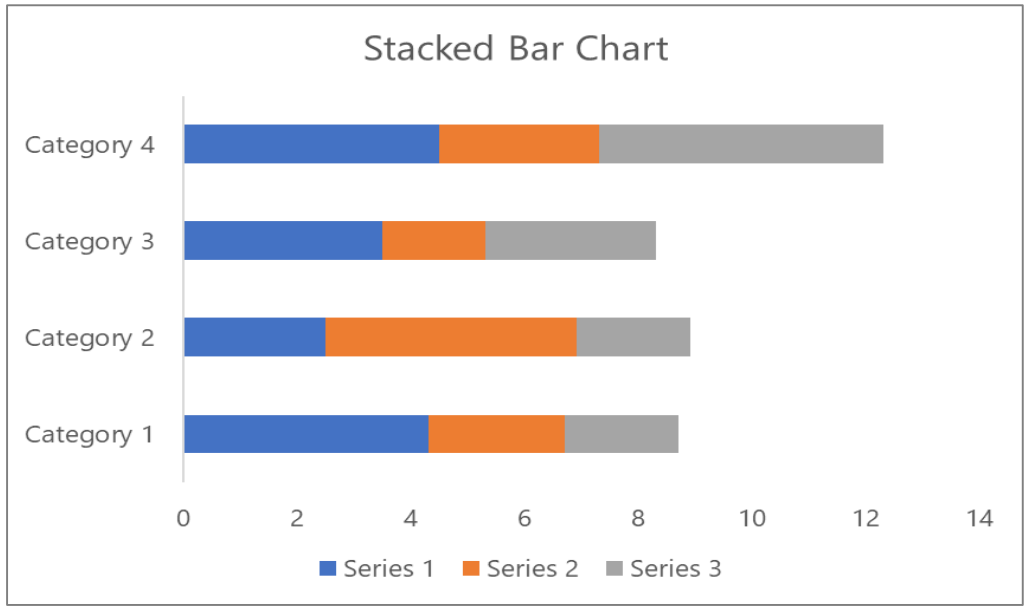
- the chart shows duration
- The category text is long

Data Visualization: Choosing right charts

Stacked Column Chart

- Use this chart to compare part of a whole
- To show how parts of a whole change over time





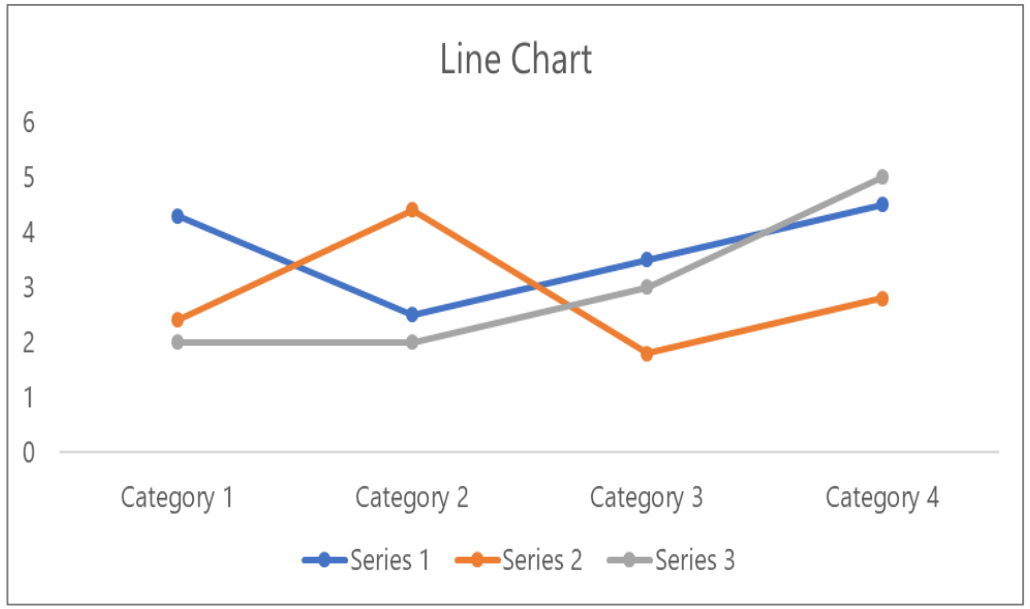
Stacked Bar Chart

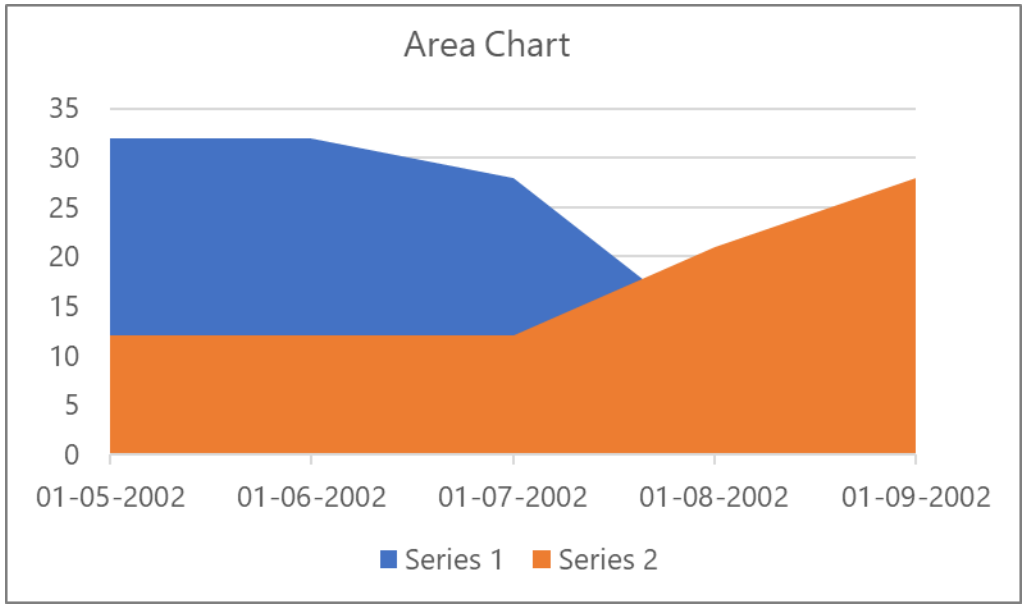
- Use this chart to compare part of a whole
- To show how parts of a whole change over time

Data Visualization: Choosing right charts

Line Chart

- Use this chart type to show trends over time (year, month, and days) or categories.





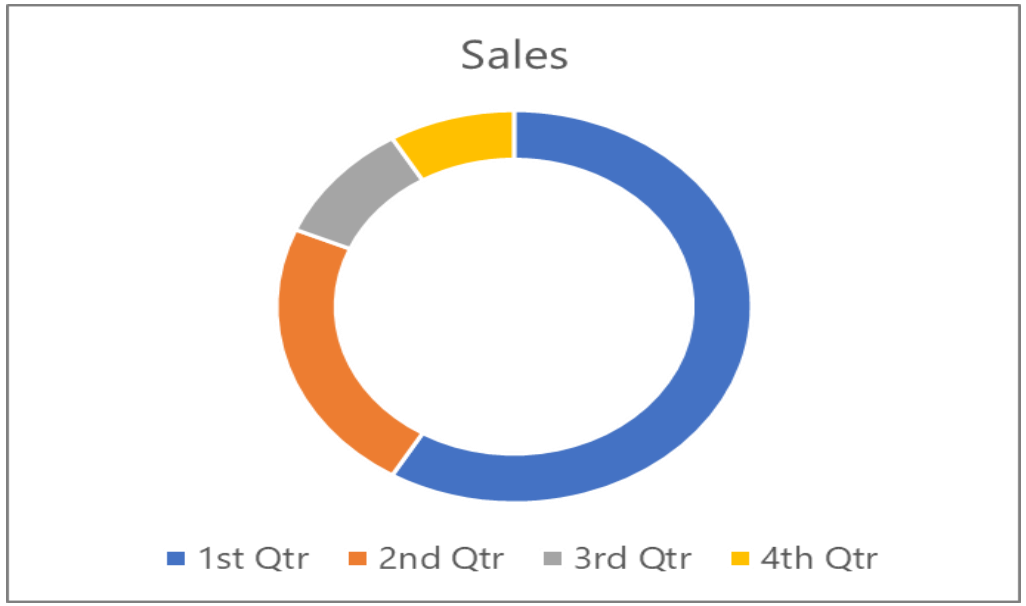
Area Chart

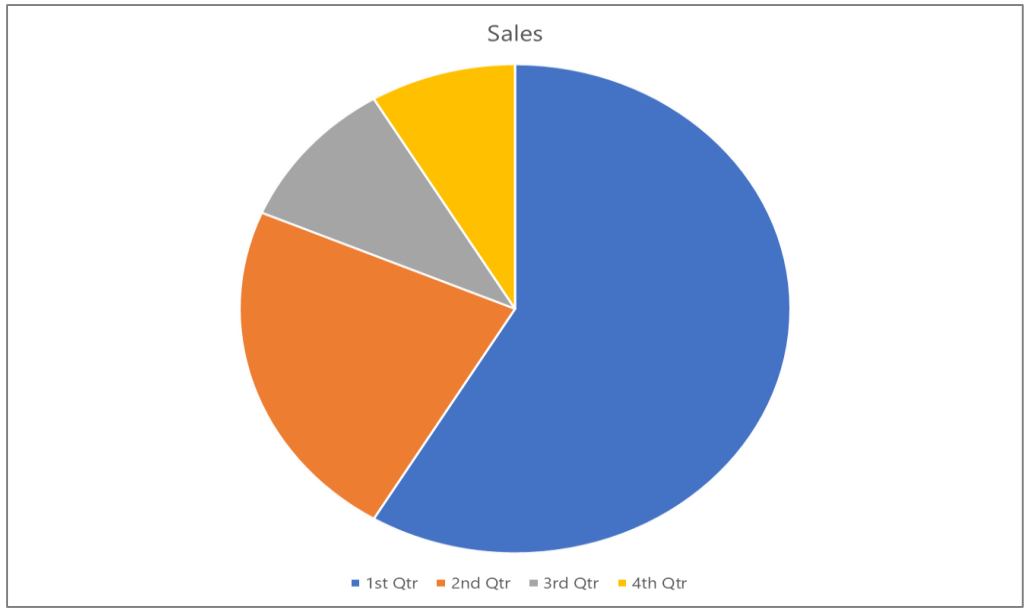
- You may also use Area chart in place of line char to show trends over time

Data Visualization: Choosing right charts

Doughnut Chart

- Use Doughnut chart in place of a pie to show the proportion of a whole





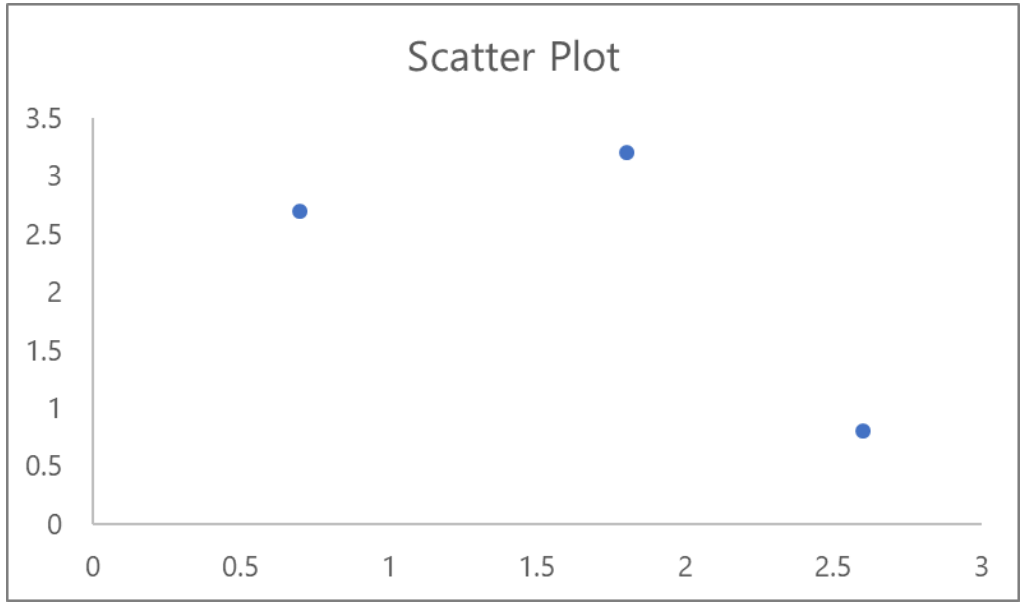
Pie Chart

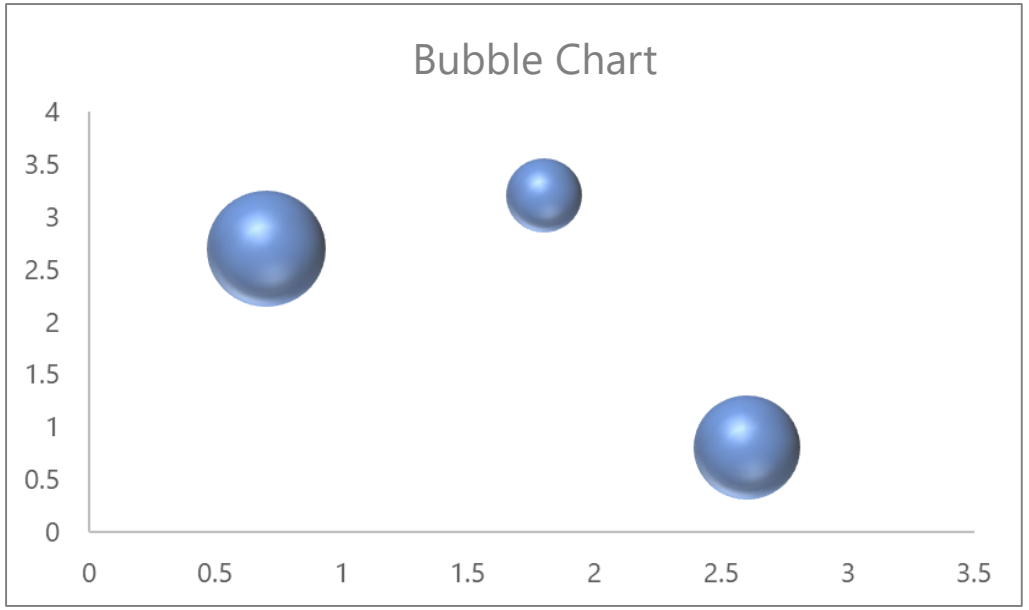
- Use this chart type to show the proportion of a whole

Data Visualization: Choosing right charts

Scatter Plot

- Use Scatter plot when you need to compare at least two sets of values or pairs of data
- To show relationships between sets of values





Bubble Chart

- In addition to Scatter plot, you have a third value in this chart that can be used to determine the relative size of the bubble

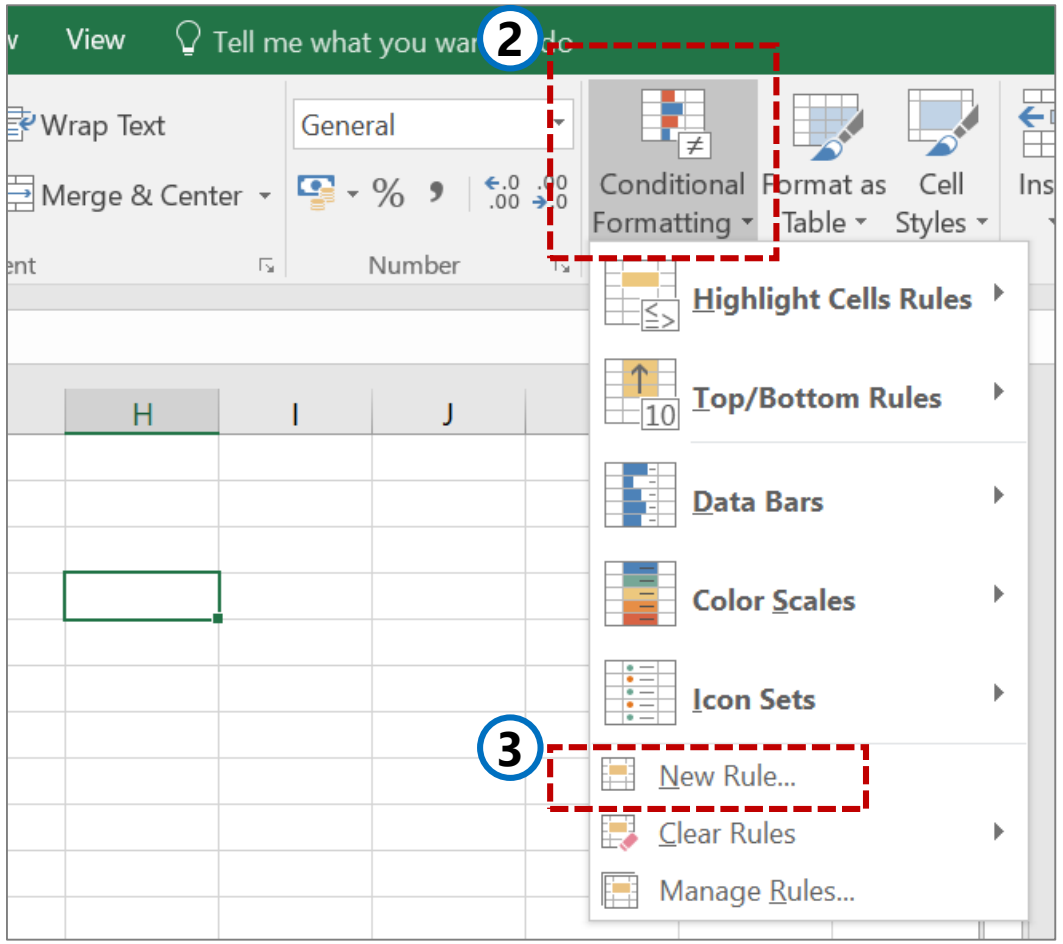
Heatmap and Conditional Formatting

Heatmap

A heatmap is a graphical representation of data that uses a system of color-coding to represent different values.

Steps for Conditional formatting

1) Select cells to apply conditional formatting
2) Go to "Home" menu and click on Conditional Formatting
3) Click on "New Rule…" to set rules (color codes)
4) Click OK



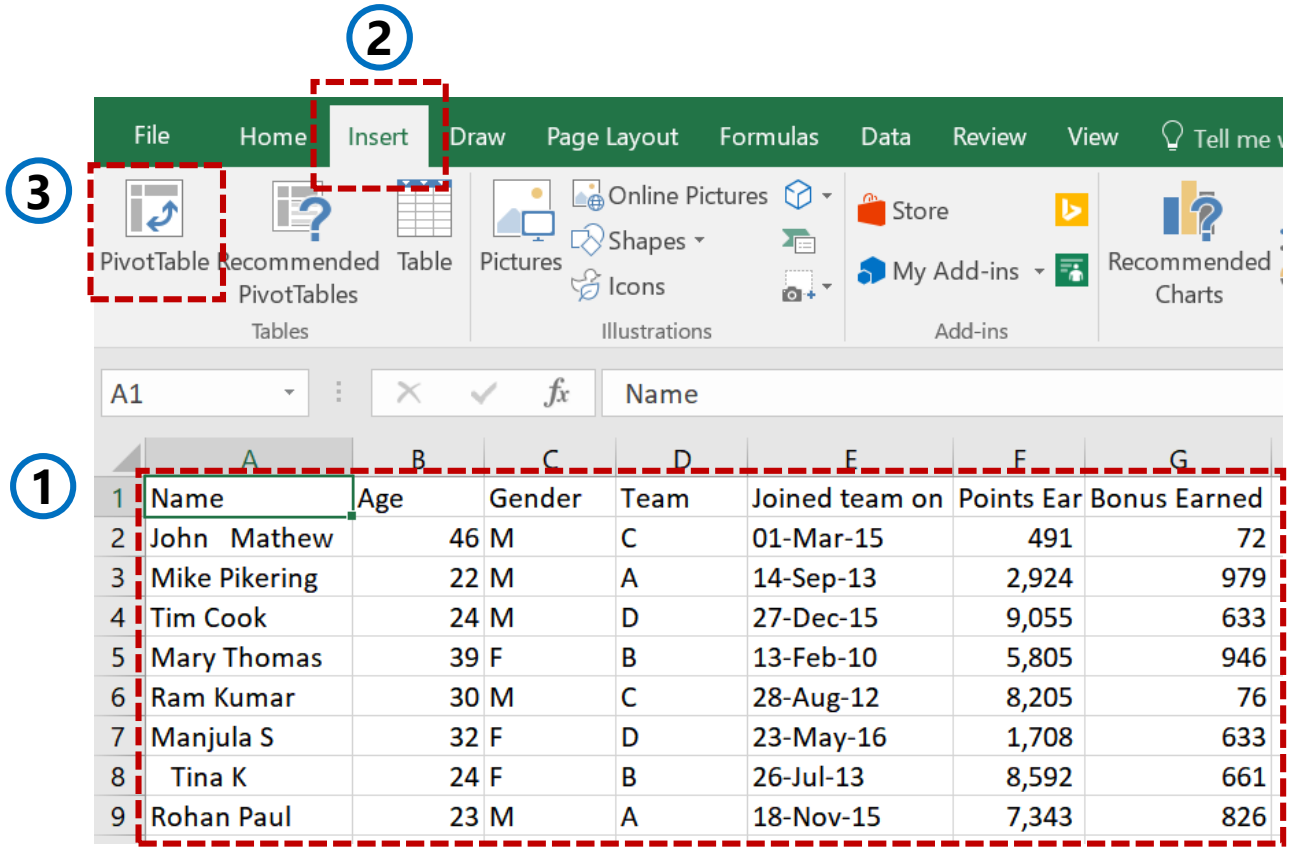
Example:

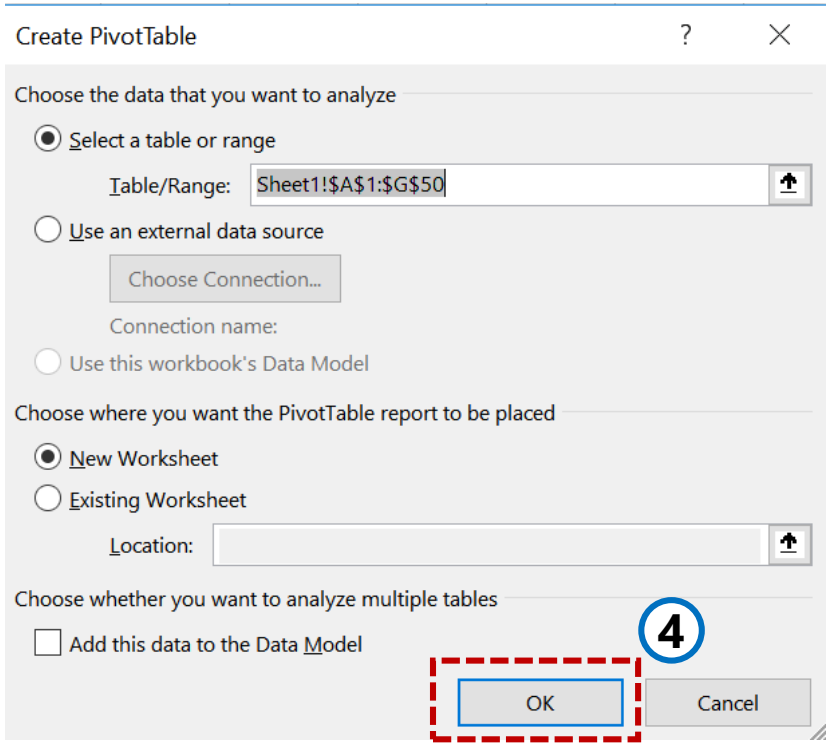
Sales Attainment	Conditional Formatting
>=80%	
60-80%	
<60%	

Analyze Data: Pivot Table

How to create a pivot table?

1) Select data range
2) Click on “Insert” menu
3) Click “PivotTable” in the ribbon
4) Click “OK”

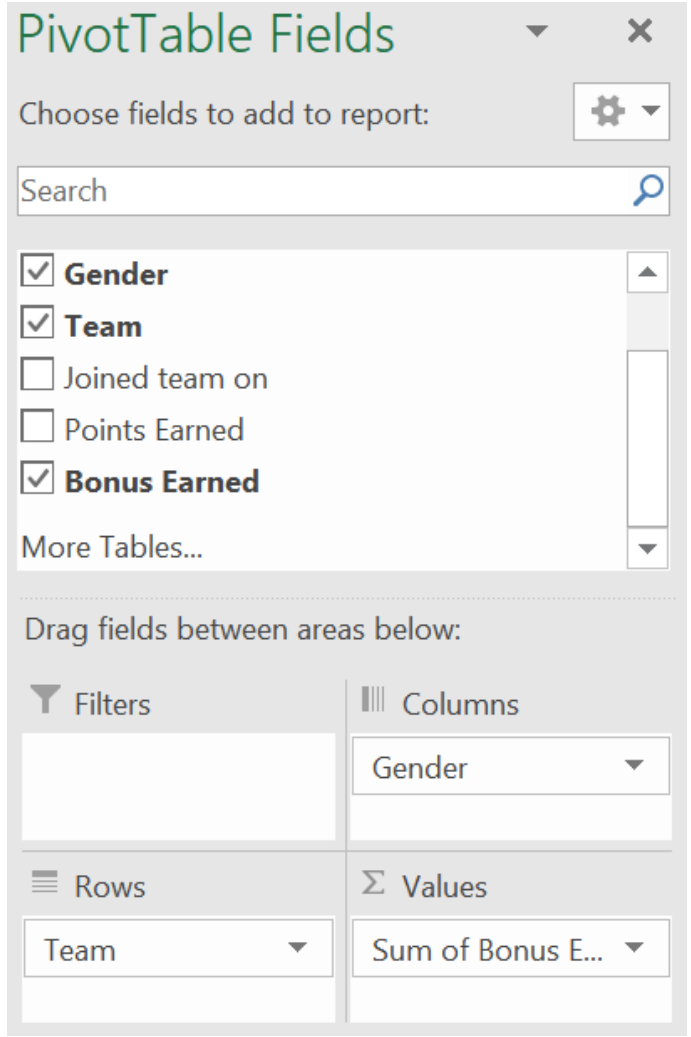




Analyze Data: Pivot Table

Analyze data using pivot table:

1) Drag and drop desired fields from PivotTable Fields to respective area (as shown in fig 1 to the right)
2) Read and Analyze data from PivotTable once ready



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Pivot Table

Sum of Bonus Earned	Column Labels		
Row Labels	F	M	Grand Total
A	823	4656	5479
B	3114	3637	6751
C	3929	1216	5145
D	2573	4981	7554
Grand Total	**10439**	**14490**	**24929**

We would love to hear back!

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