Refresh of Excel basics

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1. Purpose

- This lesson will focus on teaching you how to use the most popular formulas and functions in excel to get you up to speed with basic functionality, before moving to more complicated materials. As you'll see later, even Macros have similar logic as Excel formulas and functions and for that reason it is beneficial to get familiar with them.
- Don't despair if you won't understand all from just reading. We highly suggest to test out the content by trying to use it as you progress through the lesson.
- The lesson should take approximately 1h to finish.

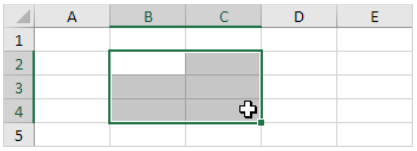
2. Definition

- Range - A range in Excel is a collection of two or more cells.
- Formula - A formula is an expression which calculates the value of a cell.
- Functions - Functions are predefined formulas and are already available in Excel

3. Content

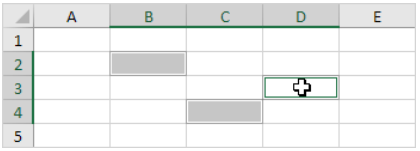
3.1. Example and use of range

3.1.1. Range



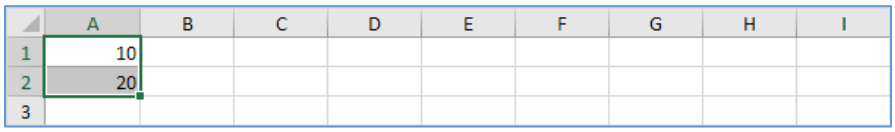
3.1.2. Range of individual cells

- hold down CTRL and click on each cell that you want to include in the range

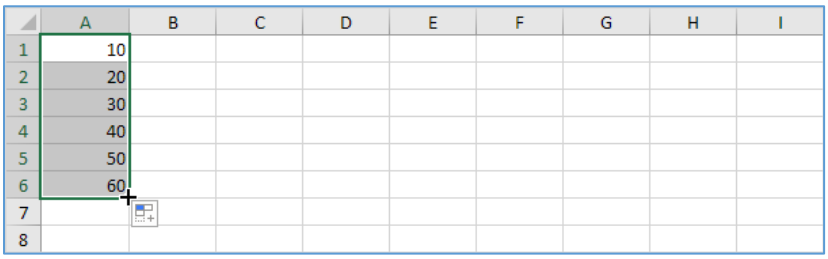


3.1.3. AUTOFILL RANGE

- Autofill function allows you to fill in sequences (days, dates, numbers, etc.)
- For example, enter the value 10 into cell A1 and the value 20 into cell A2.

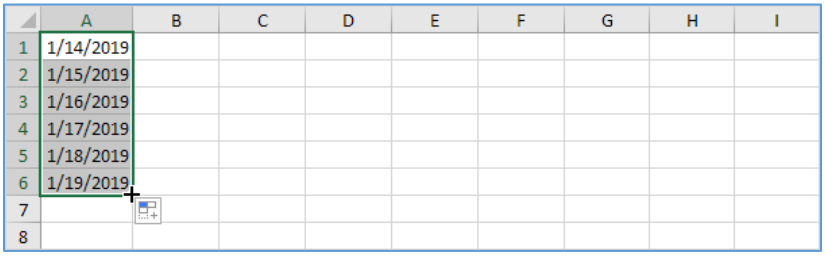


- Select cell A1 and cell A2 and drag the fill handle down (small green square dot in right corner).

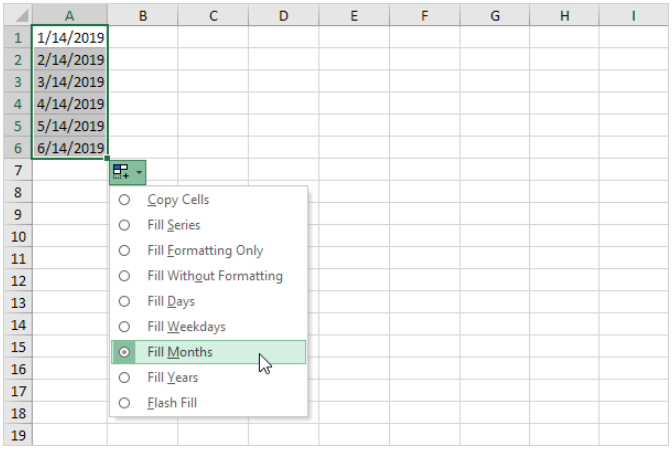


AutoFill automatically fills in the numbers based on the pattern of the first two numbers

- Now autofill days

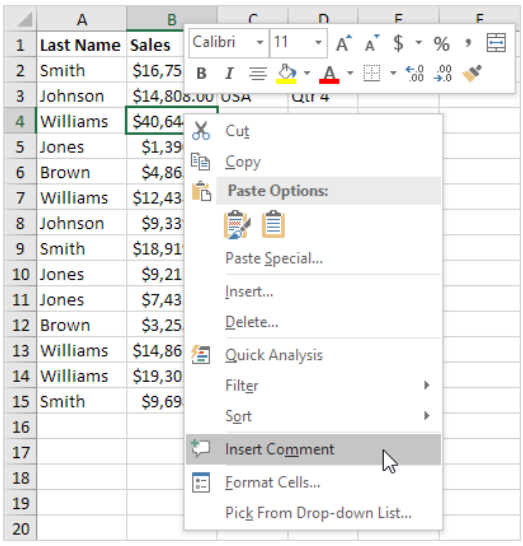


- Instead of filling in days, use the **AutoFill options** highlighted below(which appears when you autofill) to fill in weekdays (ignoring weekend days), months (see example below) or years



3.1.4. COMMENTS

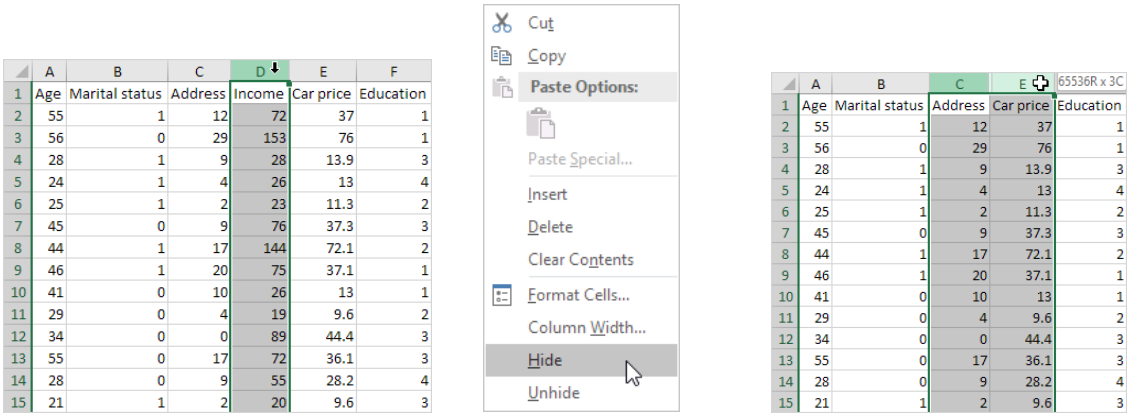
- Right click, and then click Insert Comment.



- Hover over the cell to view the comment
- Right click on commented cell, and then click **Edit Comment** to change content or **Delete Comment** to delete
- By default, a comment is only visible when you hover over the cell that contains the comment. To keep a comment visible all the time do the following.
  - Select commented cell and on the Review tab, in the Comments group, click Show/Hide Comment

3.1.5. HIDE/UNHIDE

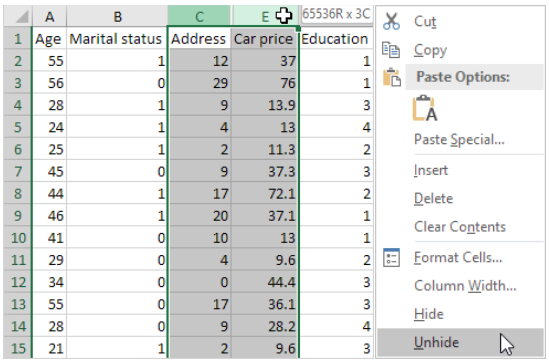
- Select a column (by clicking on the letter), right click, and then click Hide



	A	B	C	D	E	F
1	Age	Marital status	Address	Income	Car price	Education
2	55	1	12	72	37	1
3	56	0	29	153	76	1
4	28	1	9	28	13.9	3
5	24	1	4	26	13	4
6	25	1	2	23	11.3	2
7	45	0	9	76	37.3	3
8	44	1	17	144	72.1	2
9	46	1	20	75	37.1	1
10	41	0	10	26	13	1
11	29	0	4	19	9.6	2
12	34	0	0	89	44.4	3
13	55	0	17	72	36.1	3
14	28	0	9	55	28.2	4
15	21	1	2	20	9.6	3

	A	B	C	E	65536R x 3C
1	Age	Marital status	Address	Car price	Education
2	55	1	12	37	1
3	56	0	29	76	1
4	28	1	9	13.9	3
5	24	1	4	13	4
6	25	1	2	11.3	2
7	45	0	9	37.3	3
8	44	1	17	72.1	2
9	46	1	20	37.1	1
10	41	0	10	13	1
11	29	0	4	9.6	2
12	34	0	0	44.4	3
13	55	0	17	36.1	3
14	28	0	9	28.2	4
15	21	1	2	9.6	3

- To **unhide** select the columns on both sides of the hidden column, right click, and then click Unhide

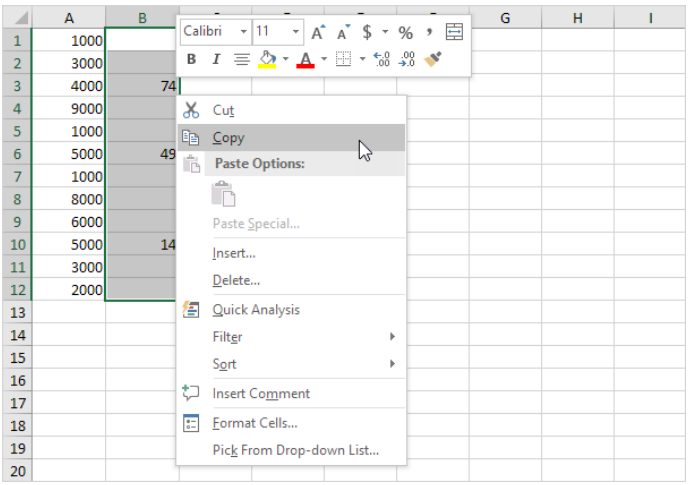


	A	B	C	E	65536R x 3C
1	Age	Marital status	Address	Car price	Education
2	55	1	12	37	1
3	56	0	29	76	1
4	28	1	9	13.9	3
5	24	1	4	13	4
6	25	1	2	11.3	2
7	45	0	9	37.3	3
8	44	1	17	72.1	2
9	46	1	20	37.1	1
10	41	0	10	13	1
11	29	0	4	9.6	2
12	34	0	0	44.4	3
13	55	0	17	36.1	3
14	28	0	9	28.2	4
15	21	1	2	9.6	3

3.1.6. SKIP BLANKS

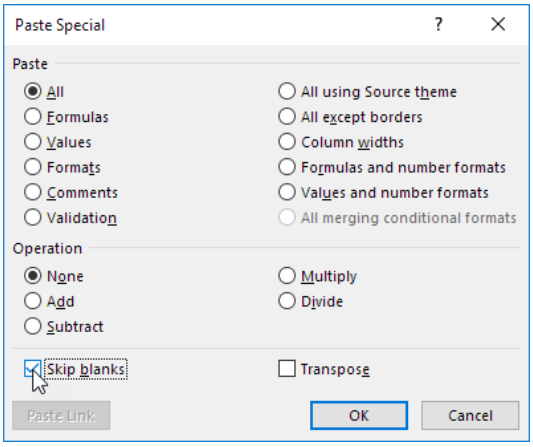
When pasting you can use Skip Blanks, so that if you have any blank cells they will be skipped and only cells with values will be copied (example below)

- Copy the range from column B

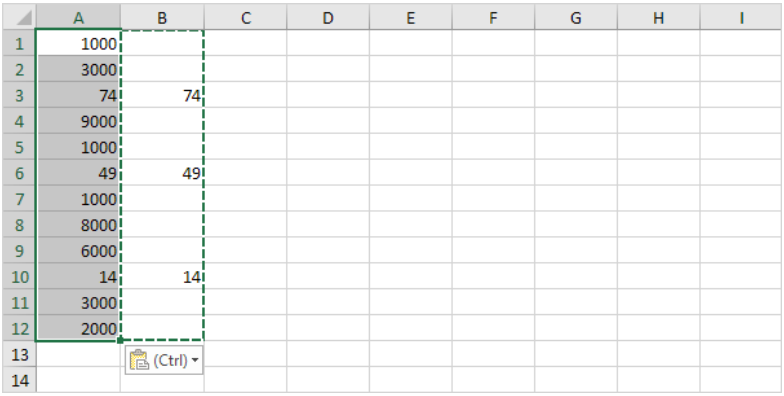


	A	B	G	H	I
1	1000				
2	3000				
3	4000	74			
4	9000				
5	1000				
6	5000	49			
7	1000				
8	8000				
9	6000				
10	5000	14			
11	3000				
12	2000				
13					
14					
15					
16					
17					
18					
19					
20					

- Right click on cell where you want the values to be pasted: A1 in this example, and then click Paste Special



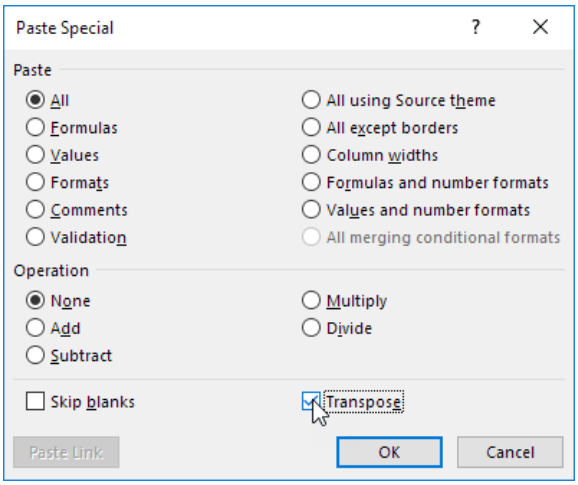
- Click OK

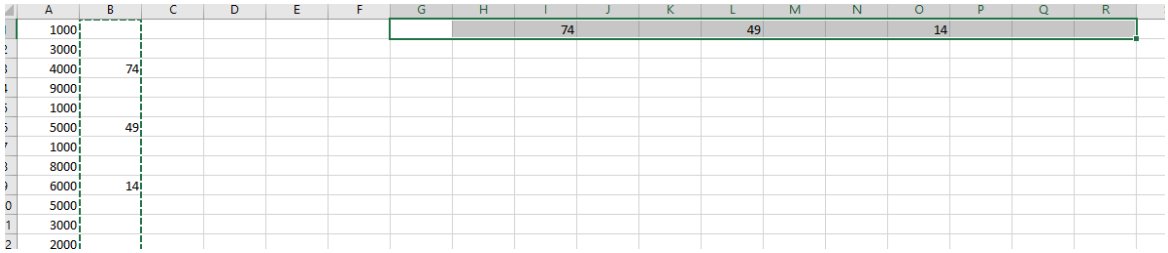


3.1.7. TRANSPOSE

- To transpose means to switch rows to columns or columns to rows (example below)

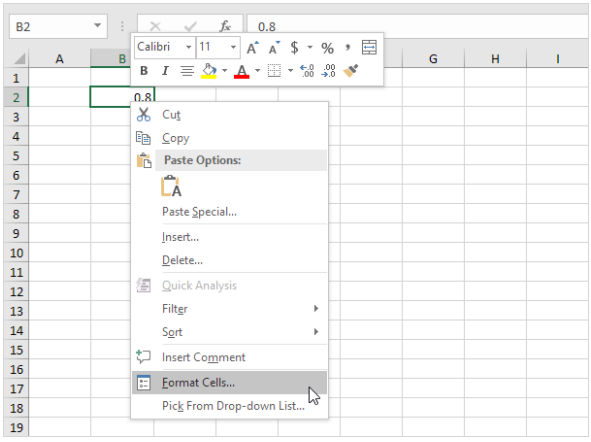
  - Copy the range you want to transpose
  - Right click on the cell where you want the result to be pasted, G1 in this example, and then click Paste Special

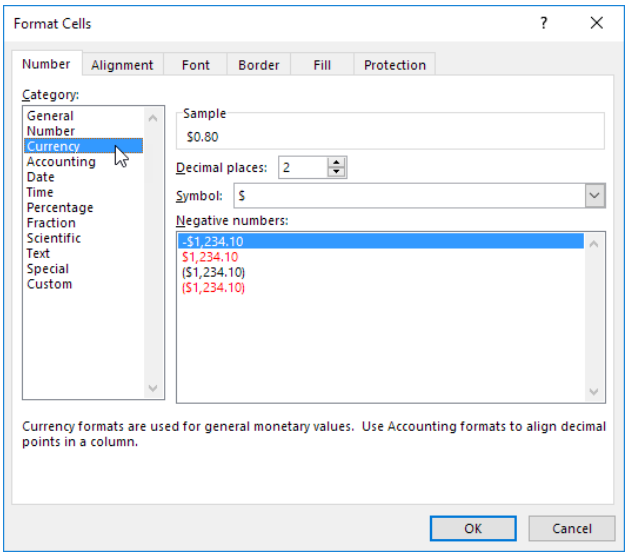




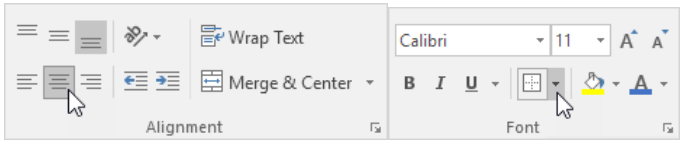
3.1.8. FORMAT CELLS

- Select cell and right click
- Format cells

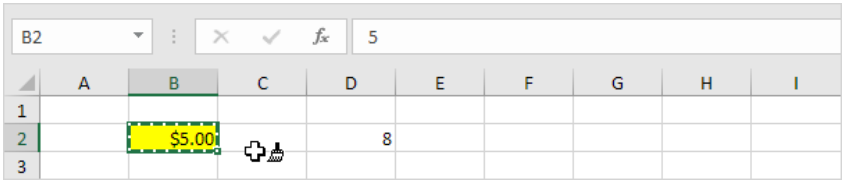


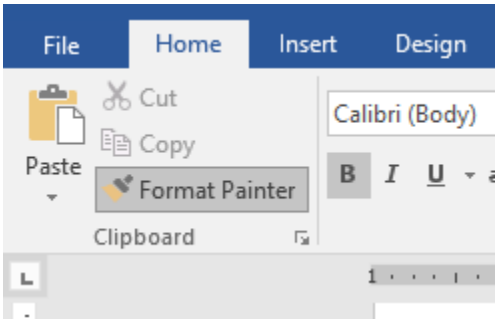


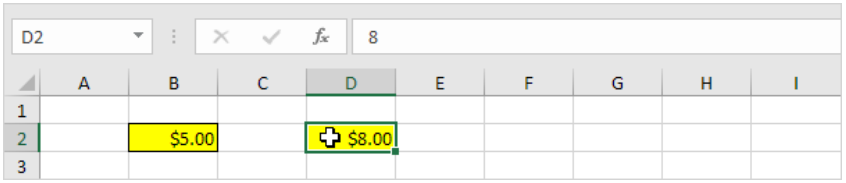
- Alignment/Color/Font



- Format Painter - The Format Painter copies formatting from one place and applies it to another



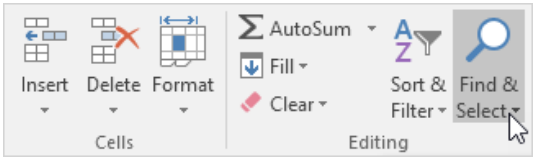




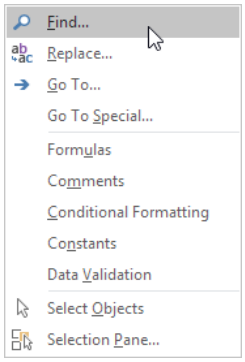
3.1.9. FIND & SELECT

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

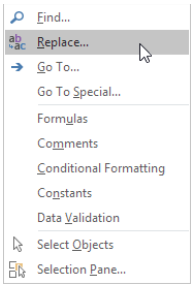
- **Find**
  - quickly find specific text (CTRL+F)



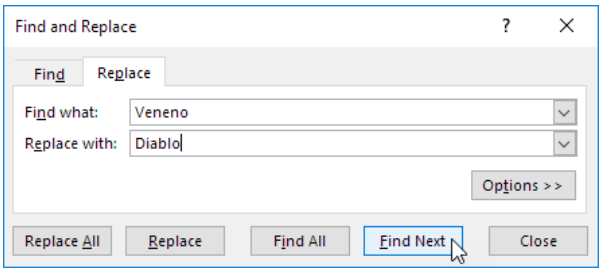
  - The 'Find and Replace' dialog box appears



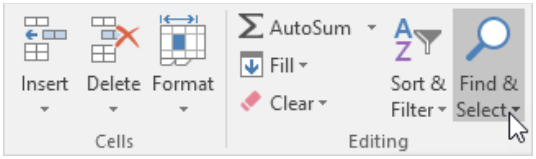
- **Replace**
  - find specific text and replace it with other text (CTRL + H)

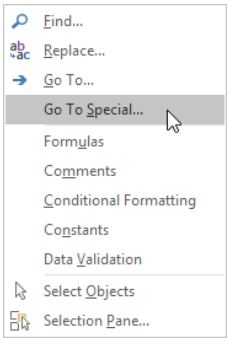


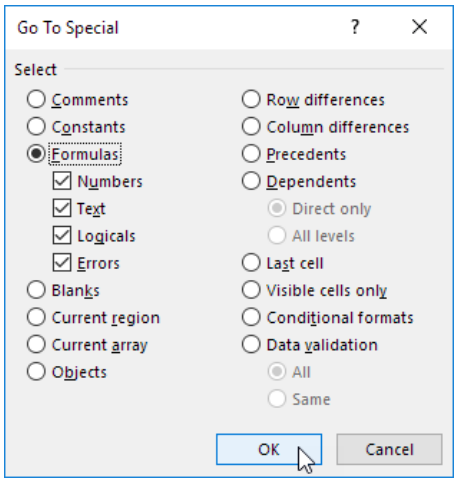
  - The 'Find and Replace' dialog box appears (with the Replace tab selected)
    - Type the text you want to find (Veneno in the example) and replace it with what you need (Diablo in the example)
    - Replace All – replace all occurrence in selected range or entire sheet
    - Replace – replace single cell occurrence



- **Go To Special**
  - Excel's Go To Special feature to quickly select all cells with formulas, comments, conditional formatting, constants, data validation, etc.

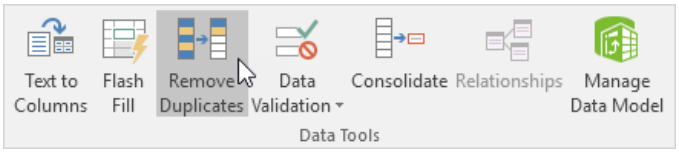




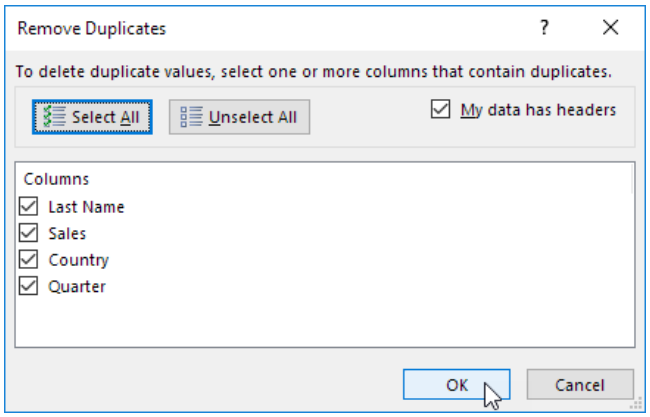


3.1.10. REMOVE DUPLICATE

- Duplicates based on row
  - Click any single cell inside the data set
  - On the Data tab, in the Data Tools group, click Remove Duplicates



  - Leave all check boxes checked and click OK



  - Result. Excel removes all identical rows (blue) except for the first identical row found (yellow)

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

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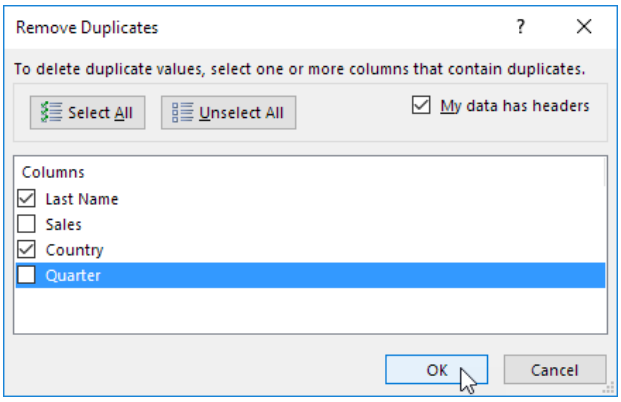
6	Brown	$4,865.00	USA	Qtr 4
7	Williams	$12,438.00	UK	Qtr 1
8	Johnson	$9,339.00	UK	Qtr 2
9	Smith	$18,919.00	USA	Qtr 3
10	Jones	$9,213.00	USA	Qtr 4
11	Jones	$7,433.00	UK	Qtr 1
12	Brown	$3,255.00	USA	Qtr 2
13	Williams	$14,867.00	USA	Qtr 3
14	Williams	$19,302.00	UK	Qtr 4
15	Smith	$9,698.00	USA	Qtr 1
16	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

  - Duplicates based on column (choose which ones you want to compare)



- Result. Excel removes all rows with the same Last Name and Country (blue) except for the first instances found (yellow).

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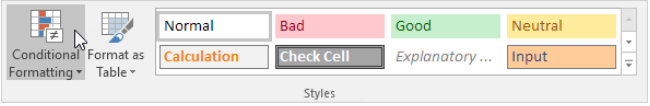
16				
17				
18				

	A	B	C	D
1	**Last Name**	**Sales**	**Country**	**Quarter**
2	Smith	$16,753.00	UK	Qtr 3
3	Johnson	$14,808.00	USA	Qtr 4
4	Williams	$10,644.00	UK	Qtr 2
5	Jones	$1,390.00	USA	Qtr 3
6	Brown	$4,865.00	USA	Qtr 4
7	Johnson	$9,339.00	UK	Qtr 2
8	Smith	$18,919.00	USA	Qtr 3
9	Jones	$7,433.00	UK	Qtr 1
10	Williams	$14,867.00	USA	Qtr 3
11				
12				
13				
14				
15				
16				
17				
18				

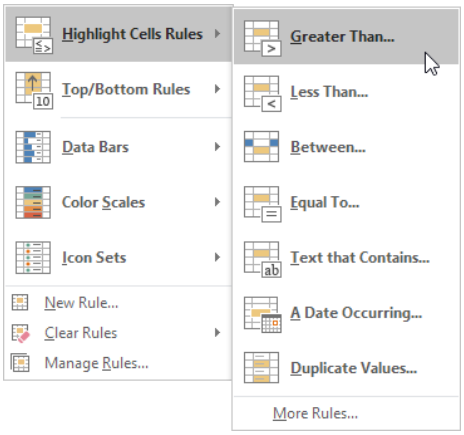
- Duplicates in range(Row/cells/column)
  - Select concerned range and use Remove Duplicate

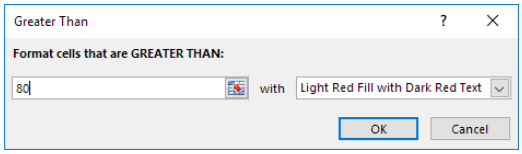
3.1.11. CONDITIONAL FORMATTING

- Conditional formatting in Excel enables you to highlight cells with a certain color, depending on the cell's value
- **Create rule**
  - Select the range
  - On the Home tab, in the Styles group, click Conditional Formatting



- Highlight Cells Rules, Greater Than

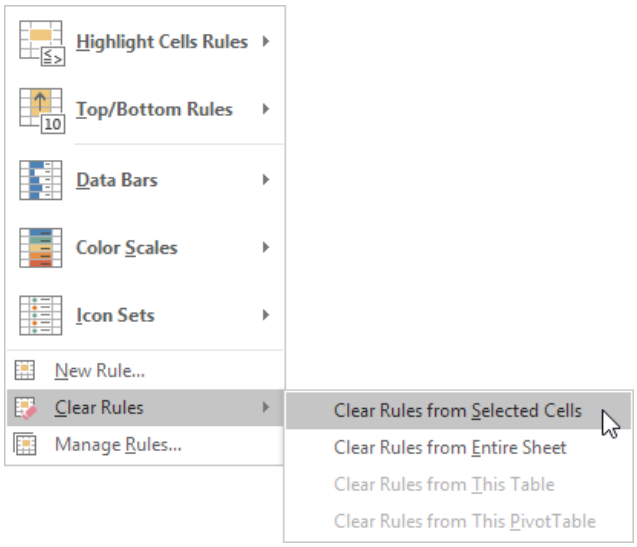




- Result. Excel highlights the cells that are greater than 80.

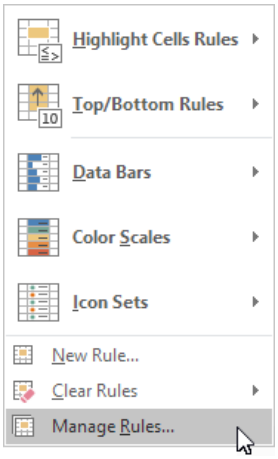
	A	B
1	14	
2	6	
3	39	
4	43	
5	2	
6	95	
7	5	
8	11	
9	86	
10	57	
11		

- **Clear rule**
  - Select the range
  - Clear Rules, Clear Rules from Selected Cells

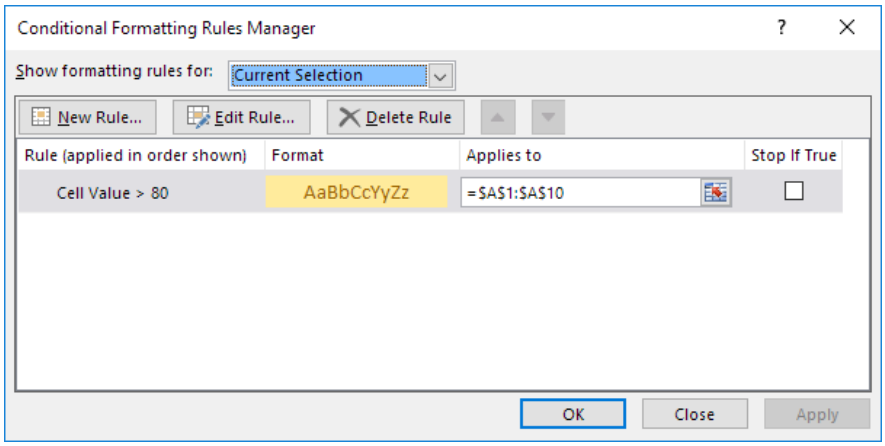


- **Manage rules** - To view all conditional formatting rules in a workbook, use the **Conditional Formatting Rules Manager**. You can also use this screen to create, edit and delete rules

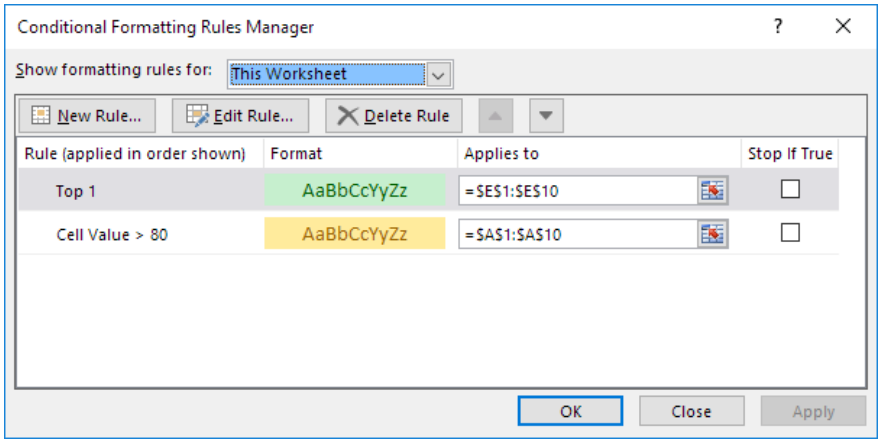
    - Select cell
    - Manage Rules



    - The Conditional Formatting Rules Manager appears
    - Because we selected cell A1, Excel shows the rule applied to the range

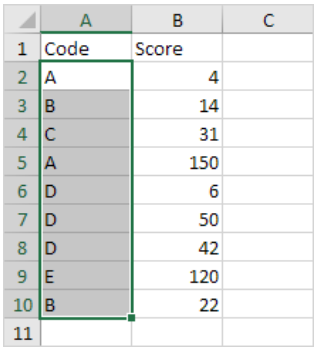


- From the drop-down list, change Current Selection to This Worksheet, to view all conditional formatting rules in your worksheet.
- click New Rule, Edit Rule and Delete Rule to create, edit and delete rules

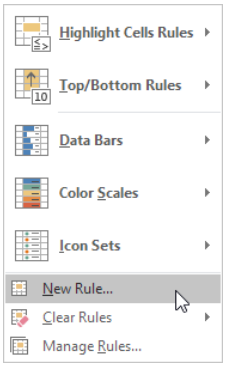


- **New Rule** - If the Highlight Cells Rules, Top/Bottom Rules, Data Bars, Color Scales and Icon Sets are not sufficient, you can create a **new rule**.

  - highlight the codes below that occur more than once in the range A2:A10 and have a score greater than 100

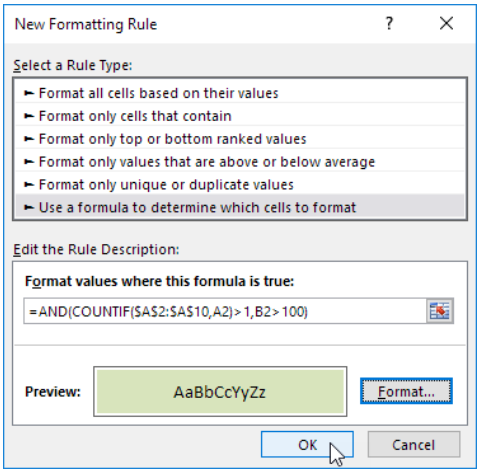


	A	B	C
1	Code	Score	
2	A	4	
3	B	14	
4	C	31	
5	A	150	
6	D	6	
7	D	50	
8	D	42	
9	E	120	
10	B	22	
11			



- Select 'Use a formula to determine which cells to format
- Enter the formula =AND(COUNTIF($A$2:$A$10,A2)>1,B2>100)

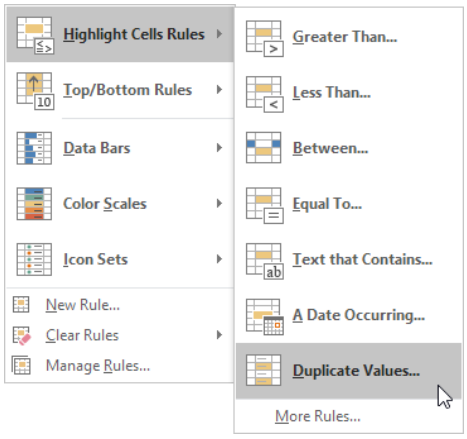
NOTE: *Don't worry if the formula doesn't tell you much, as on each individual part there will be stronger emphasis later on. For now, think of it as formula with multiple conditions.*



Result. Excel highlights cell A5 in color, because **Code** A occurs more than once in the range A2:A10 and the **Score** 150 in cell B5 is greater than 100.

	A	B	C
1	Code	Score	
2	A	4	
3	B	14	
4	C	31	
5	A	150	
6	D	6	
7	D	50	
8	D	42	
9	E	120	
10	B	22	
11			

- **Duplicates** - how to find duplicates
  - Select the range/column/row
  - Highlight Cells Rules, Duplicate Values



- Result

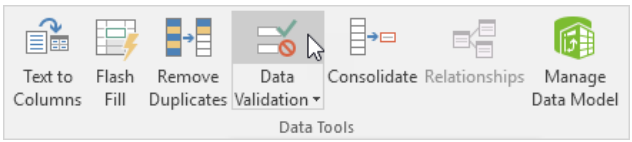
	A	B	C	D
1	Sierra	Tango	Charlie	
2	Kilo	Bravo	Yankee	
3	Golf	Mike	Delta	
4	Juliet	Alpha	Foxtrot	
5	Papa	X-ray	November	
6	Zulu	Sierra	Whiskey	
7	Romeo	Echo	Quebec	
8	India	Oscar	Delta	
9	Sierra	Lima	Uniform	
10	Hotel	Juliet	Victor	
11				

3.1.12. DATA VALIDATION

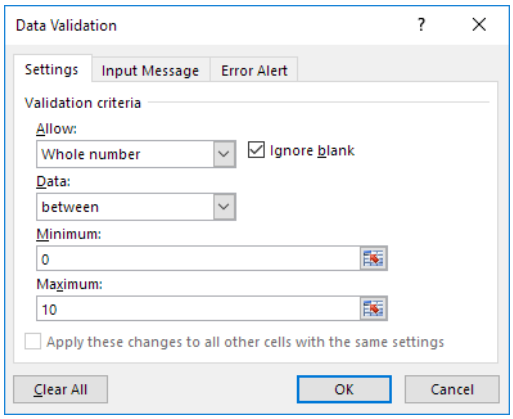
- Use **data validation** in Excel to make sure that users enter certain values into a cell

Example – input

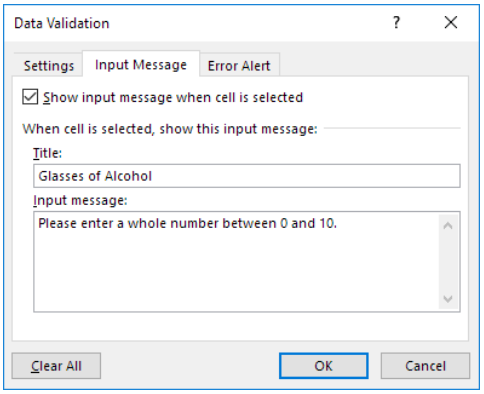
- restrict users to enter a whole number between 0 and 10
- Select cell



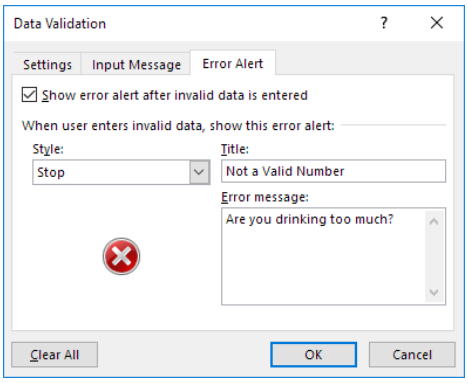
- Settings tab



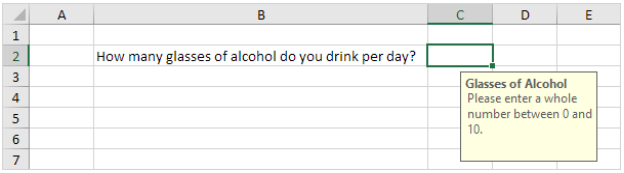
- Input messages appear when the user selects the cell and tell the user what to enter

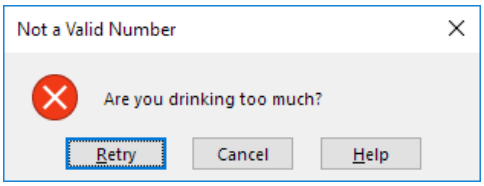


- If users ignore the input message and enter a number that is not valid, you can show them an error alert



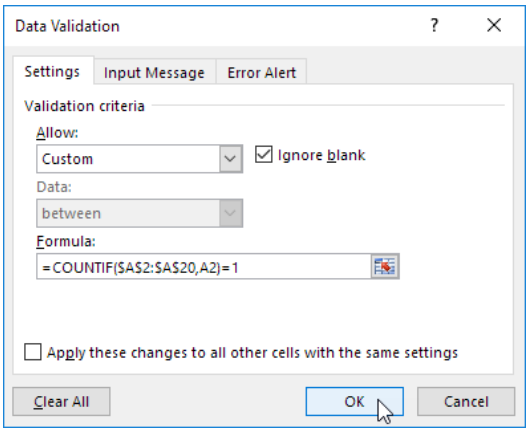
- Result





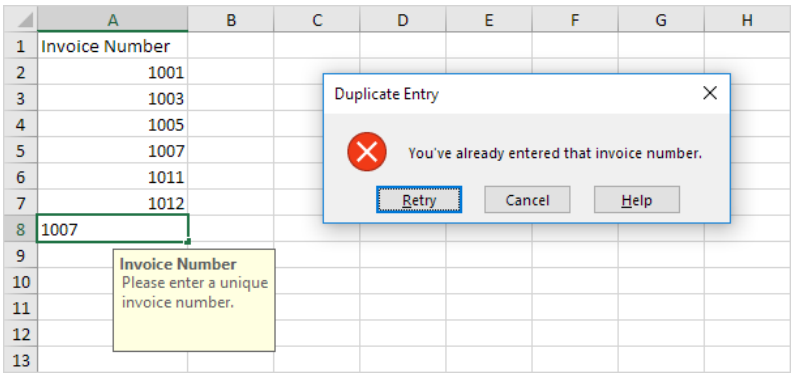
Example – duplicate

- Select the range
- Select custom option



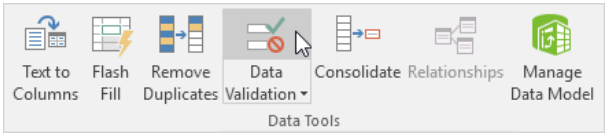
The COUNTIF function takes two arguments. =COUNTIF($A$2:$A$20,A2) counts the number of values in the range A2:A20 that are equal to the value in cell A2. This value may only occur once (=1) since we don't want duplicate entries. Because we selected the range A2:A20 before we clicked on Data Validation, Excel automatically copies the formula to the other cells.

- Result

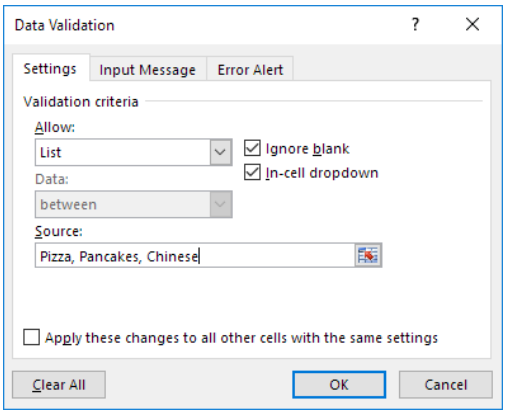


- **Drop down list** - Drop-down lists in Excel are helpful if you want to be sure that users select an item from a list, instead of typing their own values.

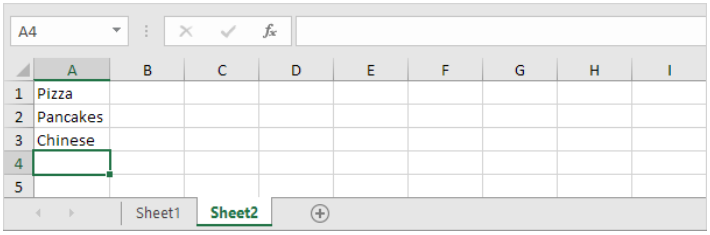
  - List can be Either directly created in the data validation option or from range



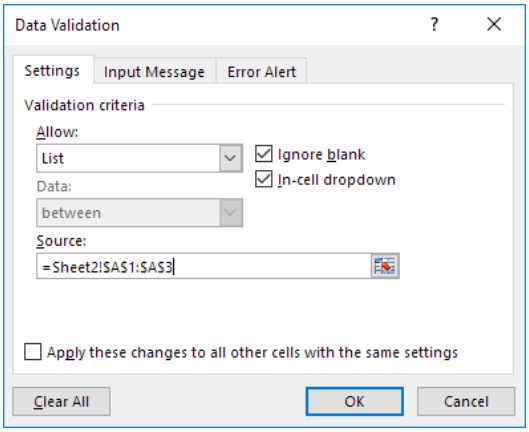
- Select cell where you want to have the dropdown menu
- **Directly**



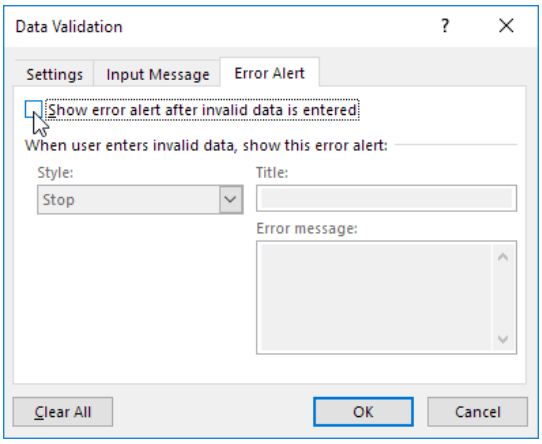
- **From range** – range created in different sheet



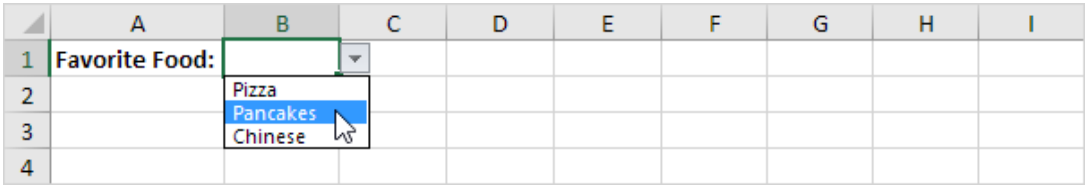
Click in the Source box and select the range A1:A3 on Sheet2



- If you want custom Error message in case user inputs incorrect data

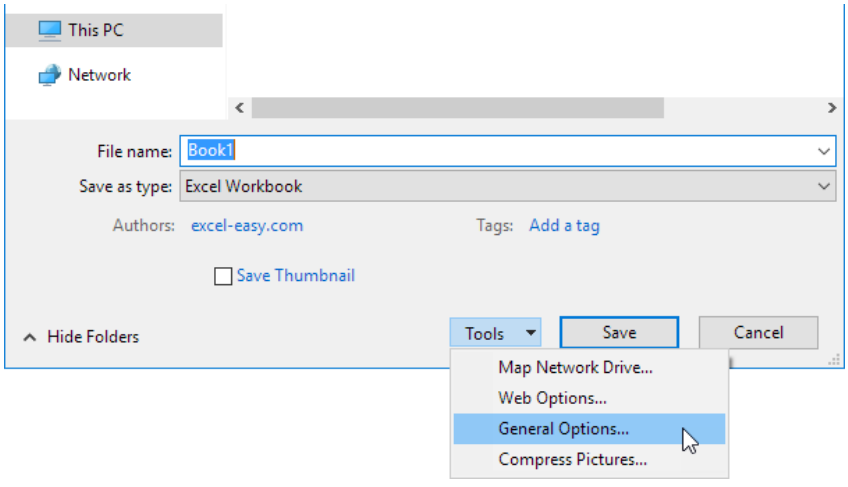


- Result

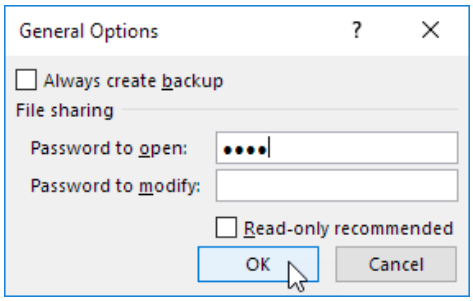


3.1.13. How to protect sheet/ File

- **Protect -** Encrypt an **Excel file** with a password so that it requires a **password to open** it
  - Use Save As

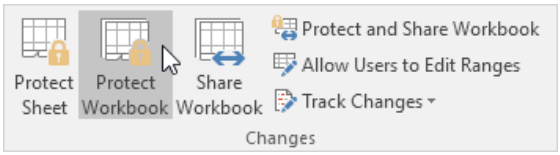


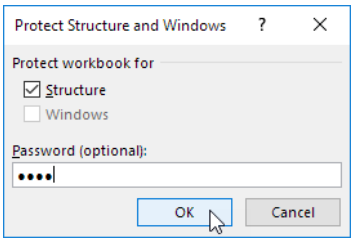
- General option



This feature also encrypts your Excel file. If you lose or forget the password, it cannot be recovered.

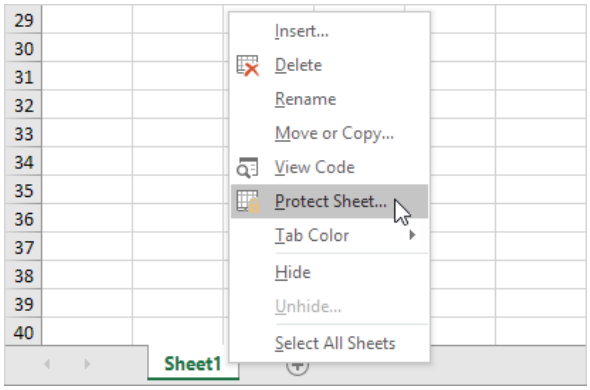
- **Workbook**
  - On the Review tab, in the Changes group, click Protect Workbook



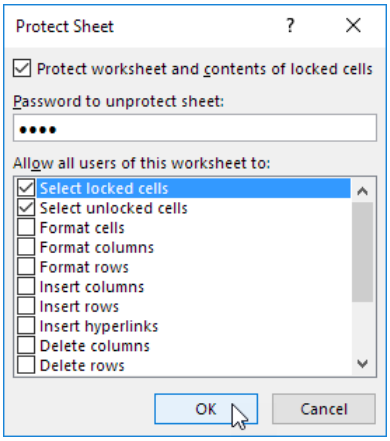


Users cannot insert, delete, rename, move, copy, hide or unhide worksheets anymore.

- **Sheet**



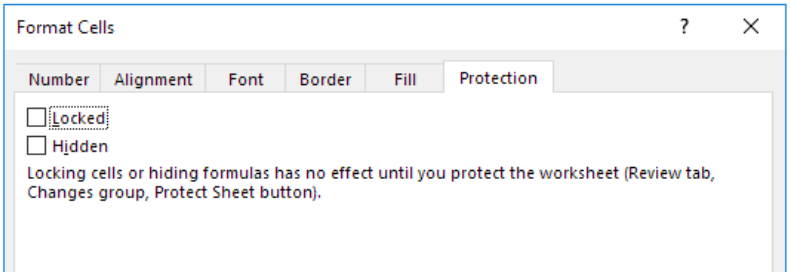
- Check the actions you allow the users of your worksheet to perform



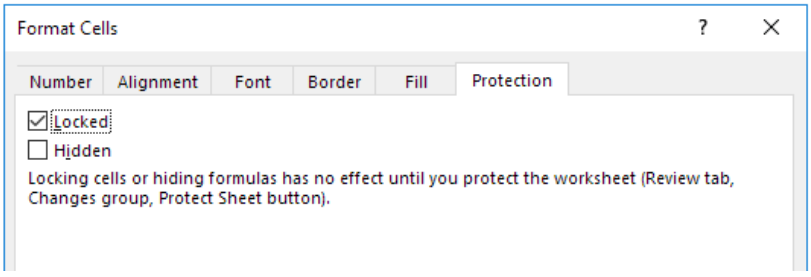
Your worksheet is protected now. To unprotect a worksheet, right click on the worksheet tab and click Unprotect Sheet.

- **Lock cells -** You can **lock cells** in **Excel** if you want to protect cells from being edited.

  - Before you start: by default, all cells are **locked**. However, locking cells has no effect until you protect the worksheet. So when you protect a worksheet, all your cells (=worksheet) will be locked. As a result, if you want to lock a cell, you have to unlock all cells first, lock a cell, and then protect the sheet.
  - Select all cells
  - Right click, and then click Format Cells
  - On the Protection tab, uncheck the Locked check box and click OK



  - Right click cell that you want to lock, and then click Format Cells



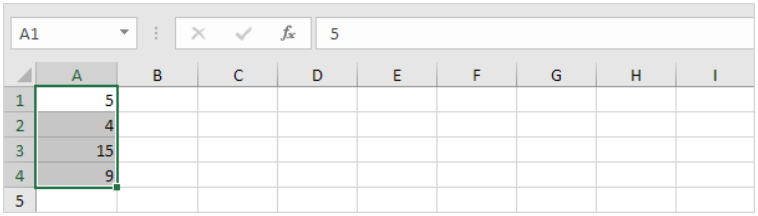
  - Protect the sheet or workbook

3.2. EXAMPLE AND USE OF NUMBER OF FORMULAS

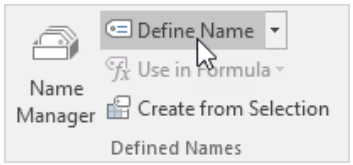
3.2.1. NAME RANGE

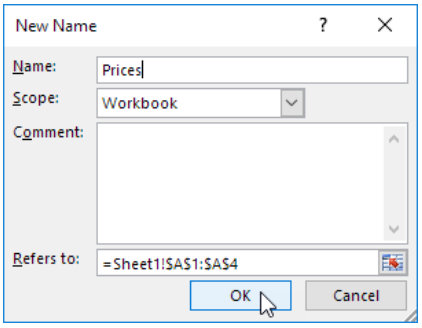
- Create a **named range** or a **named constant** and use these names in your formulas. This way you can make your formulas easier to understand.

  - Select the range A1:A4



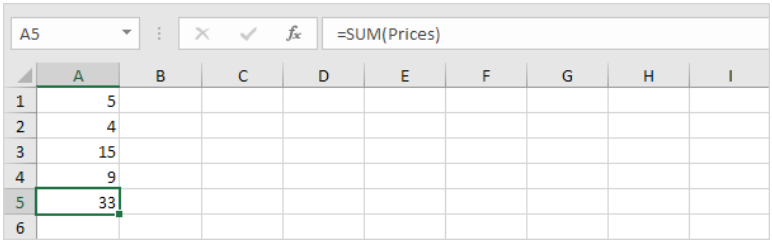
  - **1- option** - On the Formulas tab, in the Defined Names group, click **Define Name**





  - **2- option** - On the Formulas tab, in the Defined Names group, click **Define Name**

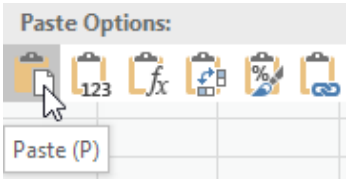
EXAMPLE



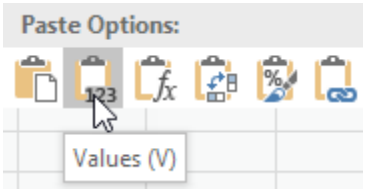
3.2.2. PASTE

– copy cells and try different Paste options

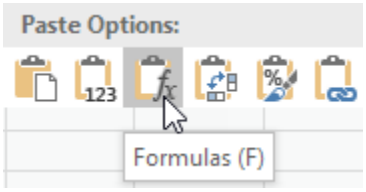
- **Paste**
  - **Pastes** everything



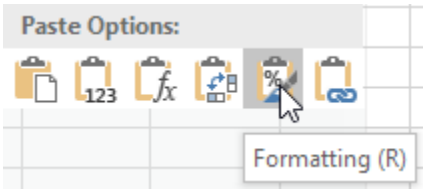
  - **Values** option pastes the result of the formula



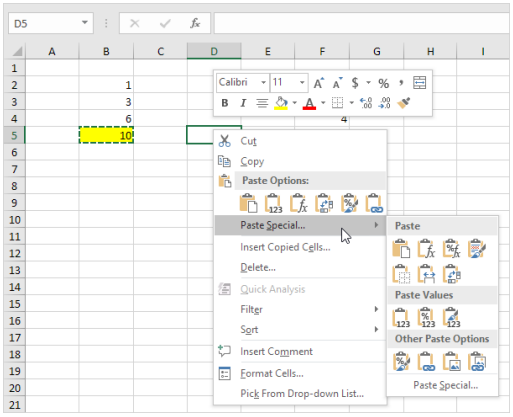
  - **The Formulas** option only pastes the formula



  - **The Formatting** option only pastes the formatting

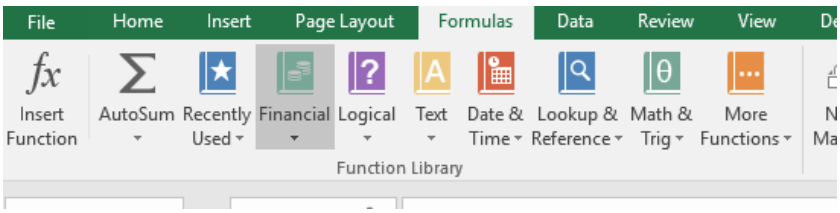


  - The Paste Special dialog box offers many more paste options. To launch the Paste Special dialog box, execute the following steps



3.3. EXAMPLE AND USE OF NUMBER OF FUNCTIONS

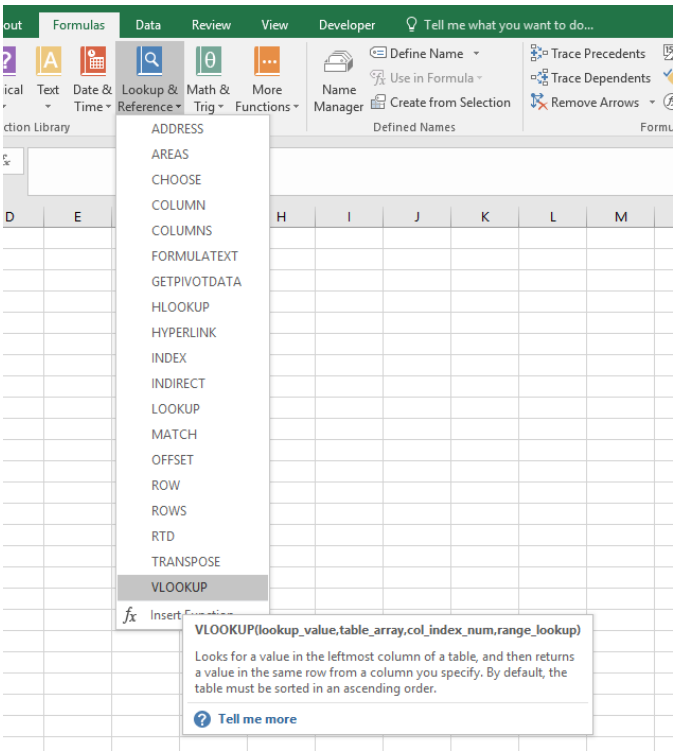
- All formulas and uses can be found in Formulas. We will focus on the most used ones.

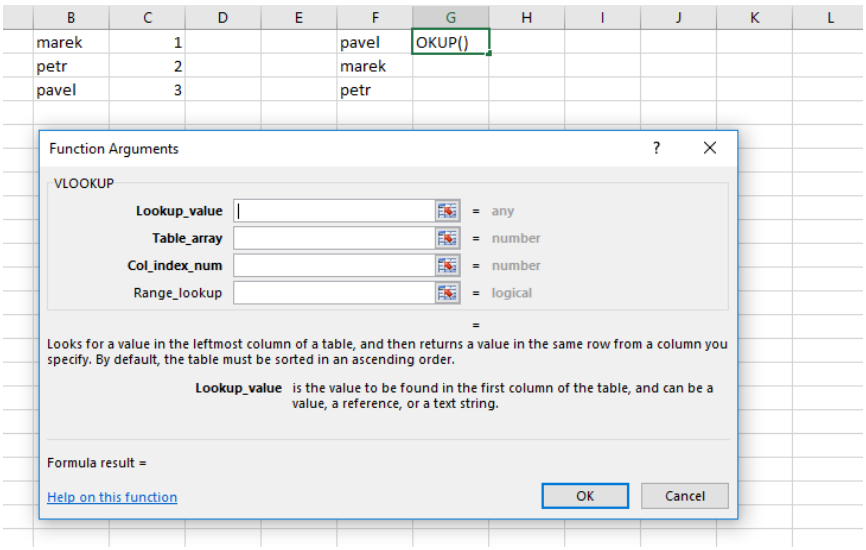


- All formulas can be either used through Formulas as an input box or by writing directly into the cells.
- In Vlookup section below you'll be shown both ways of using formula, continuing further it will be only focused on the written version of formulas, as you will discover, they are faster to use.
- All formula tools have description of each part that will assist with use of the formula, each written version has short description.

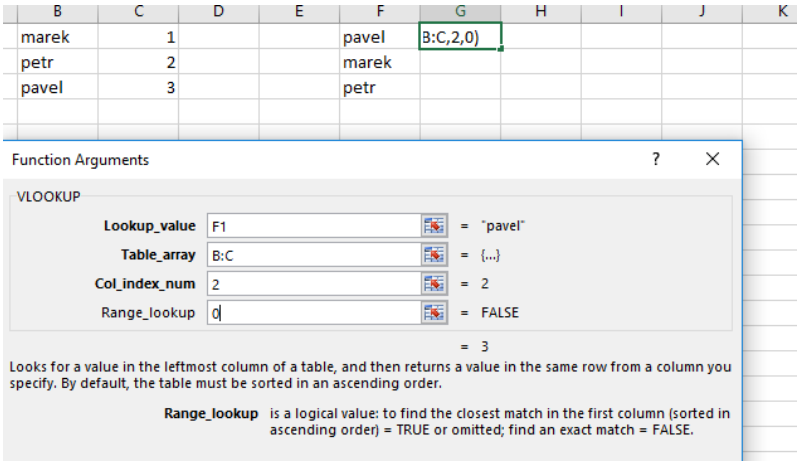
3.3.1. VLOOKUP

- **Vlook_up** is a formula that allows you to look up value/text against reference. Best example of vlook use is looking for names, dates, etc. which are related to employee ID without the need for tedious search with Ctrl+F.
- **Formula tool**
    - Select cell where you want to input the formula(G1)
    - Select Lookup&reference and click on vlookup

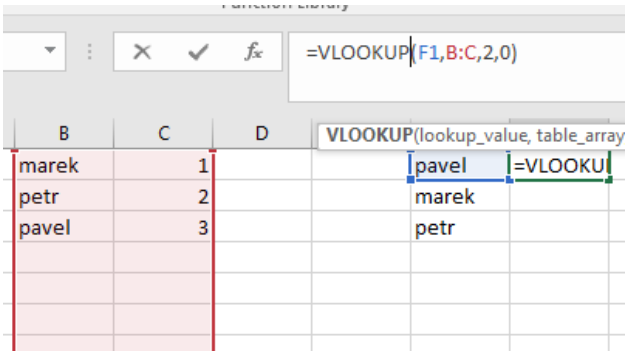




- Lookup_Value – what is the value that you want to look for
- Table_Array – where are we trying to find the value
  - 1st column has to be the one that contains the value you're looking for
- Col_index_num – from which column are we taking the look up result
- Range_lookup
  - 0 or false – exact match (99% of the time you want to use this)
  - 1 or true - closest match, first in the order of column

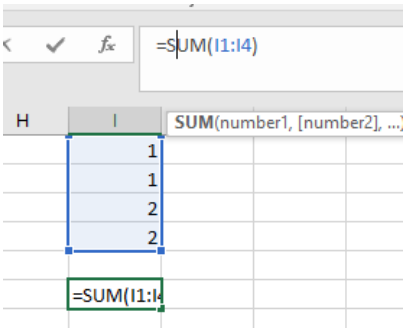


- **Directly written formula**
  - Select cell where you want the formula
  - And type =VLOOKUP(F1,B:C,2,0)
    *(Lookup_Value, Table_Array, Col_index_num, Range_lookup)

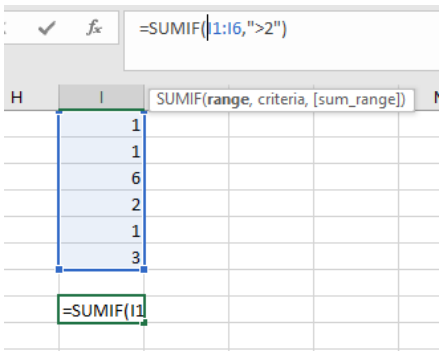


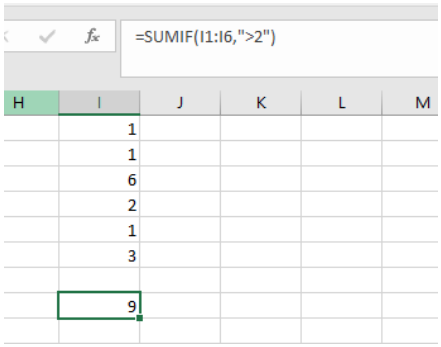
3.3.2. SUM/ SUMIF

- **Sum/SumIf** formula are best applied in cases where you have to get summed of value of range of cells or in case of SumIf summed up value of range which meets user defined condition.
- **Sum** - select cell where you want to have the formula
  - =SUM(I1,I2,I3,I4) –sum of separate cells
  - =SUM(I1:I4) – sum of range of numbers



- **SumIf**
  - =SUMIF(I1:I6,”>2”) –sum the numbers if they are larger than 2



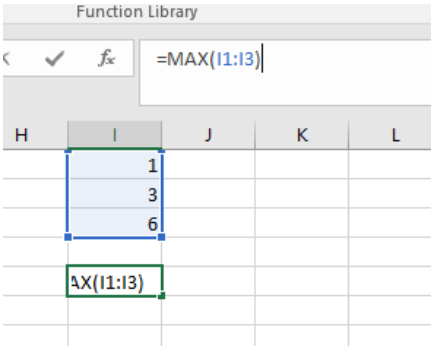


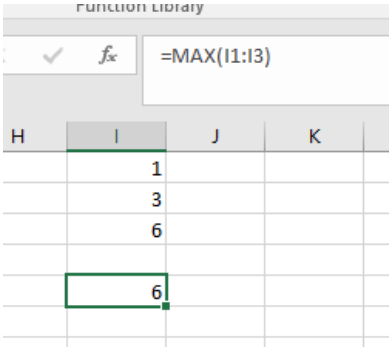
3.3.3. MAX/MIN

- **MAX/MIN** as the name suggest allows you to gain largest and smallest number in the selected range. Best example for its use is in case where you work with large quantity of dates and you need to know the latest one (dates in excel are number that have been formatted).

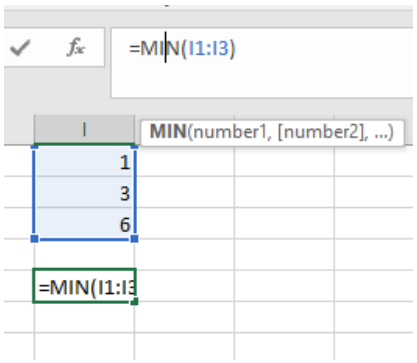
1/1/2019	=	43466

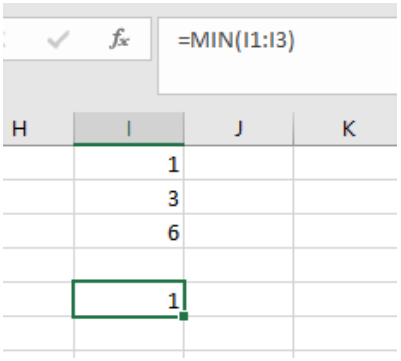
- **MAX**
  - =MAX(I1:I3) – largest number in range(ignores formula and text format)





- **MIN**
  - =MIN(I1:I3)

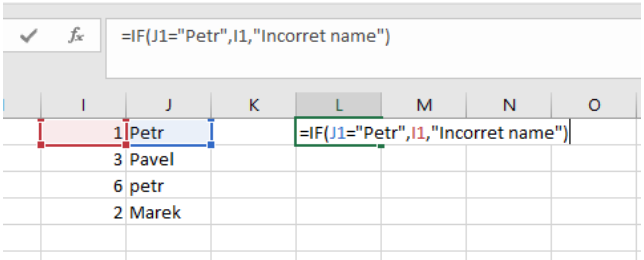


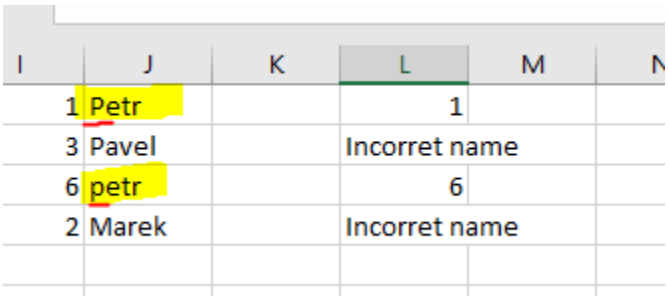


3.3.4. IF/ IFNA/ IFERROR

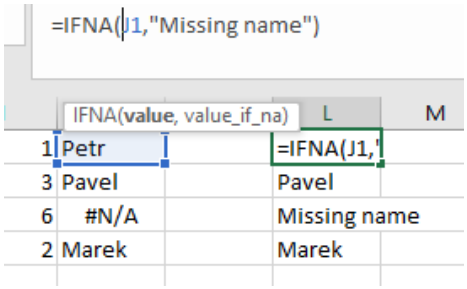
- **IF/IFna/IFerror,** as its name suggest, are conditions that are specified by user. Together with vlookup, they are one of the most powerful and used formulas, as they allow you to get different outcome depending on conditions that have been set. Imagine that you need to check whether an employee is eligible for raise of pay rate depending on their tenure. You can set up the If formula where if the tenure is larger than 10 months, formula will give you result "eligible" if not, then "not eligible".

- **IF**
  - =IF(J1="Petr",I1,"Incorrect name") – if cell J1 contains word Petr then return value from cell I1, if not then return word Incorrect name
    - Notice that the formula ignores capital/small letters

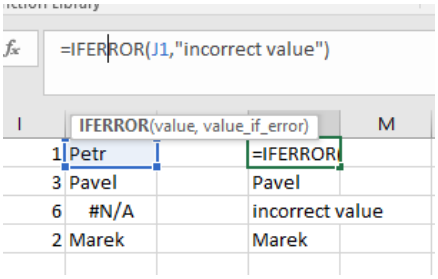




- **IFNA**
  - =IFNA(J1,"Missing name") – if cell J1 contains #N/A then return word Missing name else write out value from J1

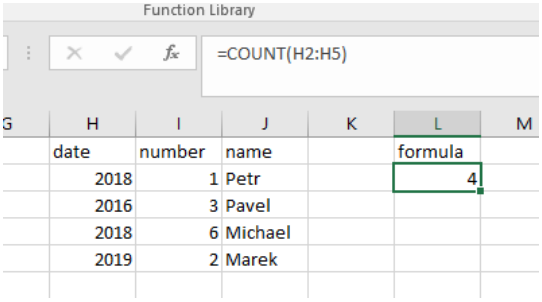


- **IFERROR**
  - =IFERROR(J1,"Missing name") – if cell J1 is error value then return word incorrect value else return value from J1

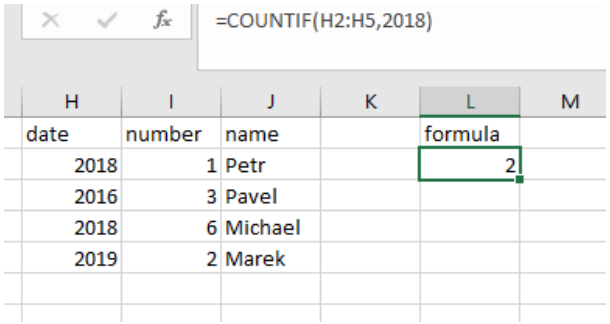


3.3.5. *COUNT/ COUNTIF*

- **Count/CountIf** as you might have guessed counts predefined range of cells. Similarly, to it countIf counts if condition is met, which might be quiet useful if you need to know how many times value that you're interested in exists in the range.
- **Count**
  - =COUNT(H2:H5) – count how many cells are populated in a range H2:H5

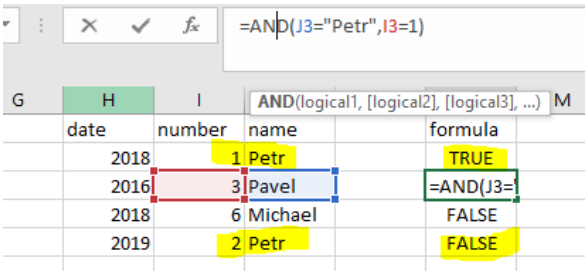


- **CountIF**
  - =COUNTIF(H2:H5,2018) – count how many times 2018 is in range H2:H5

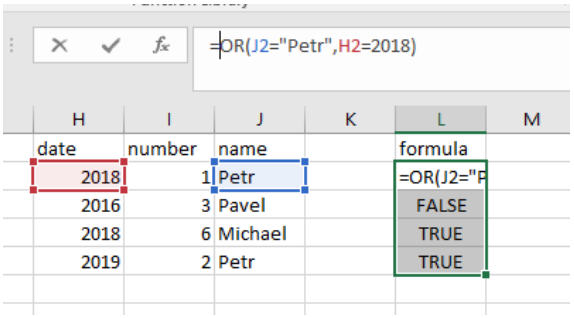


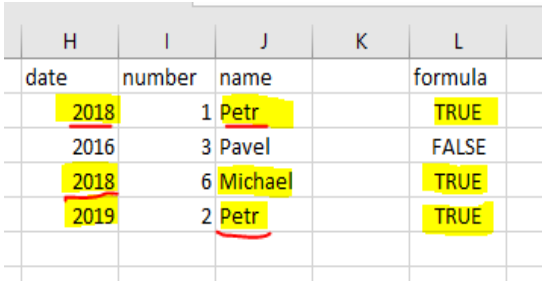
3.3.6. AND/ OR

- **And/Or** most often used in combination with **IF** provide you with an option to set two or more conditions at once. For example, if someone started to work in 2018 **AND** is lvl 2, more on the use below.
- **AND**
  - =AND(J3="Petr",I3=1) – returns TRUE or FALSE if all arguments are true= J3 is word petr AND value in I3 is 1



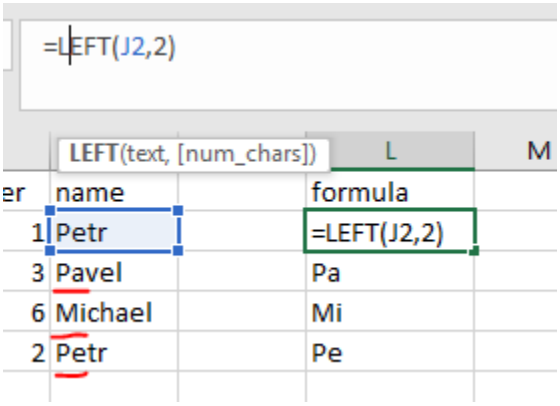
- **OR**
  - =OR(J2="Petr",H2=2018) – returns TRUE of FALSE if one of the arguments is true= J2 is word Petr OR H2 is 2018



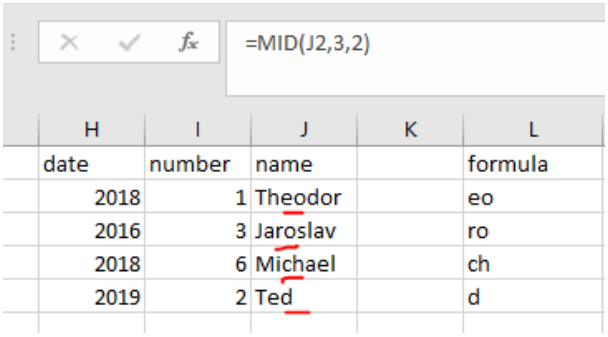


3.3.7. LEFT/ RIGHT/ MID

- **Left/Right/Mid** are functions that enable you to separate part of text. Quite often you might end up using this function when you try to get first three letters of a month (November -> Nov).
- **LEFT**
  - =LEFT(J2,2) returns 2 characters from left(right has the same logic but returns from right, so last characters)

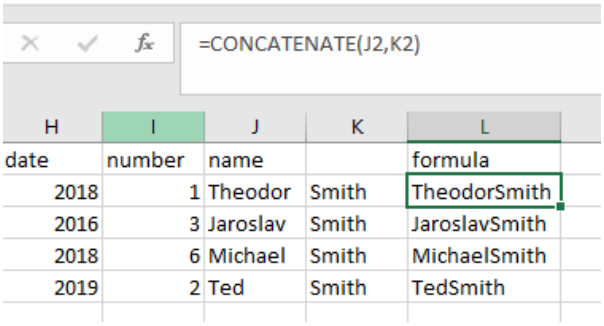


- **MID**
  - =MID(J2,3,2) returns 2 characters from within the text, starting on 3 character



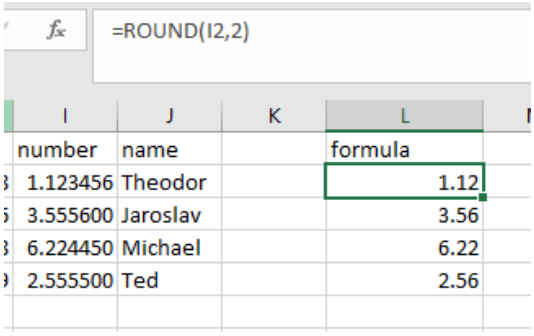
3.3.8. CONCATENATION

- **CONCATENATION** is quite often used when you have a name or an address split into separate columns but for the given case you need to have them together.
- **CONCATENATION**
  - =CONCATENATE(J2,K2) join word from J2 and K2



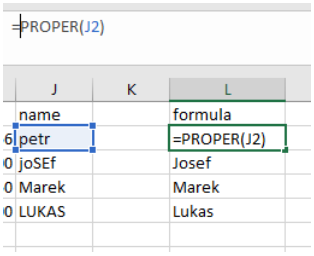
3.3.9. ROUND

- Function **ROUND** is very helpful if you're calculating numbers that often end up with number of decimal places for example salary/pay rate.
- **ROUND**
  - =ROUND(I2,2) round the number in cell I2 for 2 decimals



3.3.10. PROPER

- In case where you download report filled with text or names that was filled by hand, there is a chance that people mistyped capital and small letters or just simply forgot to switch off caps lock, with **PROPER** you can easily clean the text.
- **PROPER**
  - =PROPER(J2) – corrects word to have first letter capital rest small



3.3.11. TODAY/NOW

- **TODAY**
  - =TODAY() todays date 2/26/2019
- **NOW**
  - =NOW() todays date and time 2/26/2019 15:37

3.3.12. TRIM

- Removes spaces at the begging and the end and also removes unnecessary spaces (leaving only 1 space between words in case there was more)
  - =TRIM() John_____Smith_ -> John_Smith

3.3.13. TIME FUNCTIONS

- WEEKNUM() is used to get the particular number of the week at a particular date.
- WORKDAY() gives the date of the working day when number of days is specified.
- NETWORKDAYS() gives the number of working days between two supplied dates by excluding the weekends and holidays.
- YEARFRAC() allows a user to find out the number of days between the two dates are supplied.
- EDATE() gives the specific date with addition or indicated amount of months (date index, without date formatting)

Please note that formulas can be combined.

=IF(AND(C2>=C4,C2<=C5),C6,C7)

4. Closing Exercise

Complete exercise using below steps and requirements.

- Use the source file provided.

1) Remove duplicates in emp ID.
2) Highlight duplicates in cad_id.
3) Correct formatting for all columns containing dates to have format English(UK) DD MMMM YYYY.
4) In case that address contains N/A, replace with 0.
5) Create new column(pay_confimation), create conditional formatting in each cell of this column with option Yes or No. Add info message and warning message that would say "choose from dropdown".
6) Create new column (phone_num) and get phone numbers from (Phone_num sheet), in case that the phone number is not available have the formula write in “missing phone number”.
7) Create column (consol_amount) which would show how much the AA will be paid(salary+bonus-overpay) BONUS WILL BE APPLICABLE ONLY IF THE EMPPLOYEE WORKS 40H/WEEK.
8) Create column (start_year) that would show year when the AA started.
9) Create column(elig_check) that would check whether the AA is full time or Intern and is active and started before year 2016.
10) Create column(lvl_check) that would check that AA is NOT level 99,1,2,5.
11) Filter elig_check to show true.
12) Filter lvl_check to show true.
13) Filter all duplicates in cad_ID so they are not visible.
14) Hide column elig_check, lvl_check.
15) Create new sheet named results, color the tag of sheet as is done for Phone_num sheet.
16) Copy the filtered out data in Sheet1 and paste into cell B3 of new sheet.
17) Protect ONLY the filled in cells in your resulting sheet. Not filled in cells should be possible to change.

5. Additional knowledge

- functions - https://exceljet.net/excel-functions
- formulas - https://exceljet.net/formulas
- keyboard shortcuts - https://exceljet.net/keyboard-shortcuts

- **Most common keyboard shortcuts for excel**

Ctrl + S	Save the active workbook.
Ctrl + W	Close the active workbook.
Ctrl + C	Copy the contents of the selected cells.
Ctrl + X	Cut the contents of the selected cells.
Ctrl + V	Insert the copied/cut content into the selected cell(s).
Ctrl + Z	Undo your last action. Panic button :)
Ctrl + Shift + Z	Undo the Undo.
Ctrl + F	Display the "Find" dialog box.
Ctrl + H	Replace text.
Ctrl + Space	Select the entire column.
Shift + Space	Select the entire row.
Ctrl + A	Select the entire worksheet. If the cursor is currently placed within a table, press once to select the table, press one more time to select the whole worksheet.
Ctrl + *dir. Arrow*	Move in the direction of the arrow.
Ctrl + Shift +*dir. Arrow*	Select the range in the direction of the arrow.
Ctrl + B	Change formatting to **Bold**
Ctrl + I	Change formatting to *Italic*
Ctrl + U	Change formatting to underline