

Course Manual:

Excel Intermediate



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1. Group work - Multi-sheet

2. Selections and moves.

2.1. Non-continuous selection

- ▶ Click on a selection tab, hold the **CTRL button** down and add the desired sheets with a click on the **tab** per sheet.

2.2. Continuous selection

- ▶ Click on the tab of the first sheet of the selection, hold the key **⇧ (Shift/Maj.)** pressed down and then **click on the last sheet** of the selection.

2.3. Select all the sheets

- ▶ Click with the right button on a sheet tab, then click **Select all sheets** in the pop-up menu.



THE TABS IN THE SELECTION WILL APPEAR IN WHITE. THE MESSAGE [GROUP] WILL APPEAR IN THE TITLE BAR. TO DISABLE A WORKING GROUP, CLICK ON A TAB THAT DOES NOT BELONG TO THE WORKING GROUP. IF ALL THE TABS ARE PART OF IT, CLICK ON ONE OF THEM, EXCEPT THE FIRST ONE.

2.4. Select multiple sheets (create a group)

Creating a group will allow changes to be applied to multiple sheets of the same workbook at the same time. The way of doing things will be somewhat different depending on whether the sheets are in continuous selection or not.

2.5. Change the color of a tab

From the **pop-up** menu obtained **by clicking with the right button** on the tab of the sheet to be changed, select the **Tab Color** option.

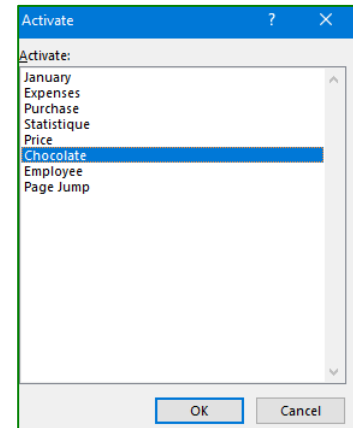


2.6. Moving from one sheet to another in a workbook

- ▶ If the **tab** or "**the sheet**" you are looking for is visible on the tab row, just click on it.
- ▶ If the workbook contains several sheets, **not all tabs may be visible**, you can click on one of the scroll buttons to the left of the tabs.



- ▶ Or right click this scroll buttons, the box will display all existing sheets in this workbook, select the desired sheet.

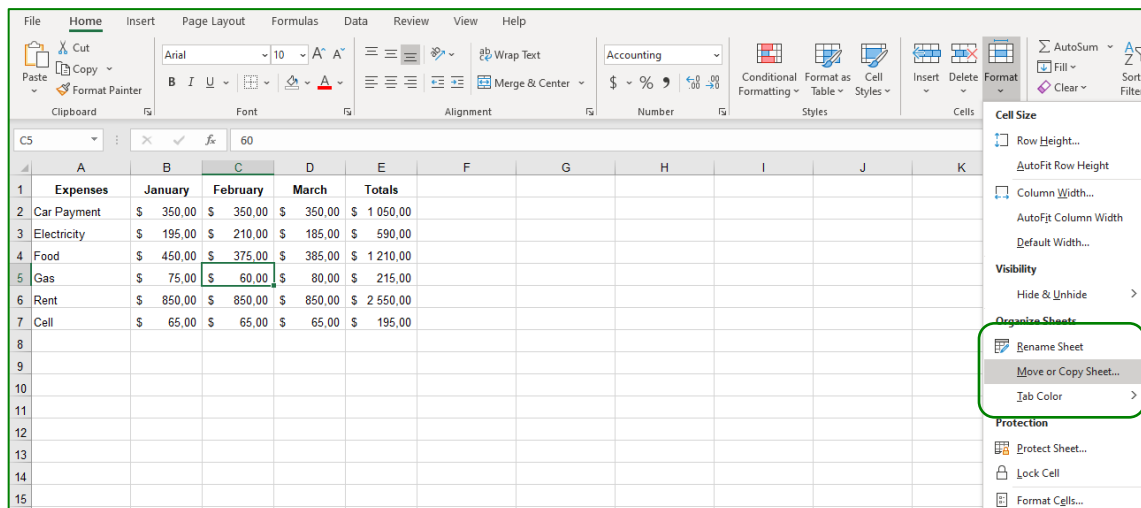


2.7. Move a sheet or copy a spreadsheet

It is possible to copy or move sheets in the same workbook or to another workbook.

You can also copy a full spreadsheet from one workbook or another workbook. This way of working is the most effective because the spreadsheet will respect the layout, i.e. the headers and foot of the page.

1. To do so, from the **Home** tab, click on the **Format** icon ➔ **Move Or copy sheet**. Or right click on the sheet.

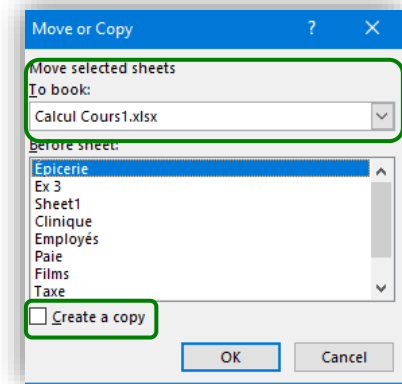


2. In the **To book** area, click on the destination workbook.
3. To move or copy selected sheets in a new workbook, click (new book).
4. In the **Before Sheet** area, click on the sheet in front of which you want to insert the moved (or copied) sheet.
5. To copy the sheets instead of moving them, **activate** the checkbox **Create a copy**.



To move sheets inside the current workbook, you can drag the selected sheets onto the row of sheet tabs. To copy sheets, hold the CTRL button down and drag them; Release the mouse button before releasing the CTRL button.

To copy sheets, hold the CTRL button down and slide; release the mouse button before releasing the CTRL button.



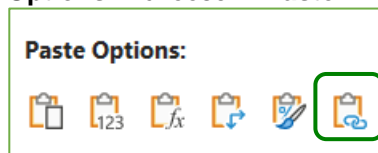
3. Copy - paste with link

You can **link multiple sheets** or workbooks with **copying - Paste with link**, how to do it?

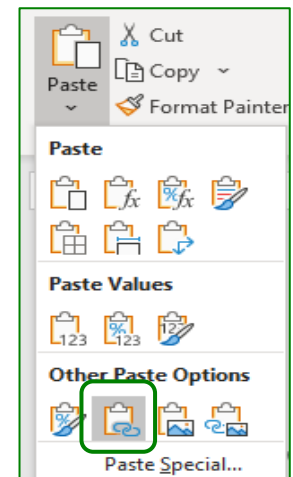
3.1. EXERCISE 1: Paste with link

You want to **copy sub-totals** from a spreadsheet to a new sheet, however, you want the **values** to be **linked** i.e. that the changes are made simultaneously, **How to do it?**

1. Open the file "**Paste Link** sheet "**Compilation**".
2. Copy cells **B14 to E14** from Sheet → **Montreal**
3. Select cell **B5** from sheet → **Compilation**.
4. From the **Home Tab** → **Group Clipboard** → **Other Paste Options** → choose → **Paste link**



5. **Repeat the steps** to insert the totals from sheet "**St-Bruno**" into sheet **Compilation**.
6. **Here is the result. Do not save and close.**



4		Quarter 1	Quarter 2	Quarter 3	Quarter 4
5	Place Versailles	7927	6657	6942	7320
6	Promenade St-Bruno	9021	9484	9569	8805



Now let's copy the same data, but in another way to better understand the absolute reference.

3.2. EXERCISE 2 Paste with link, absolute reference

1. Open file "Paste Link", sheet "Montreal".
2. Activate cell **B14** and click "Copy".
3. Select cell **B5** from sheet → **Compilation**.
4. From the **Home Tab** → **Group Clipboard** → **Paste Options** → choose → **Paste link**

Paste Options:



5. Confirm
6. Here is the answer:

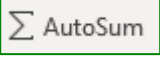
Name of the sheet	
=Montreal!\$B\$14	<p>\$ sign in front of B Means: always column B.</p> <p>\$ sign in front of 14 Means: always row 14.</p> <p>So always cell B14 of the Montreal sheet</p>
Absolute reference	

7. **Change** the **value** of cell **E5** of the Montreal sheet, which is **330**, to **1100**, note that your result has been changed on the sheet "Compilation".
8. **Save and close**.

4. Get a sum of several sheets.

You want to get the sum of the totals of each sheet of a workbook, for example: compiling sales of 12 months, **How to Do it?**

1. Open the file « **Summary** », sheet « **Summary** »
2. **Activate** cell **B4**.

3. Click the ➔ **Automatic Sum** button  on the **Home** tab or the **Formulas** tab.
4. Select sheet "**January**", click in cell **B4** which represents the **sum** of **piano** sales for the month of "**January**".
5. Hold the **SHIFT** key down and click on sheet "**December**" to select the **January to December sheets** from the workbook.
6. Validate with the **Enter** button.
7. The answer in cell B4 is 104,980 ➔ **=SUM(jan:dec!B4)**
8. **Copy** the formula from B4 to B9
9. **Repeat** the same operation in B12 and copy the formula in B 13 and B14

=SUM('Jan:Dec'!B4)

MUSJOMAC PLUS	
ANNUAL SALES AND EXPENSES FOR 2016	
SALES	AMOUNT
Acoustic guitar	17 500,00 \$
Piano	9 750,00 \$
Flute	7 500,00 \$
Electric guitar	8 500,00 \$
Violin	6 500,00 \$
Trumpet	5 000,00 \$
Total sales	54 750,00 \$
Expenses	
Instrument parts	2 750,00 \$
Labour	7 500,00 \$
Transport	1 750,00 \$
Total expenses	12 000,00 \$

MUSJOMAC PLUS	
ANNUAL SALES AND EXPENSES FOR 2016	
SALES	AMOUNT
Acoustic guitar	104 980,00 \$
Piano	
Flute	
Electric guitar	
Violin	
Trumpet	
Total sales	104 980,00 \$
Expenses	
Instrument parts	
Labour	
Transport	
Total expenses	- \$

5. Formatting - Multi-sheet

You can format all your sheets (tabs) of a workbook in a single operation.

Select all the sheets and from the "**Page Layout**" tab, make all the changes: **Orientation**, **header**, and **footer**, etc.

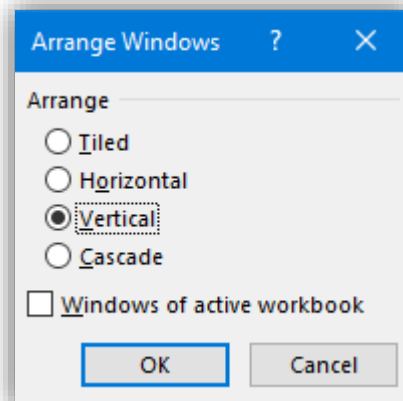
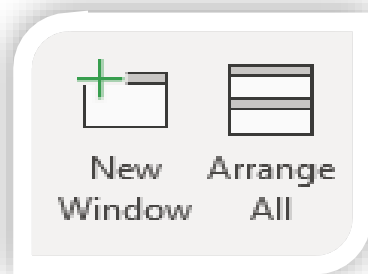
You cannot do this by going through the preview before printing.

Do not forget to leave the working group after this operation.

6. View multiple sheets on the screen.

Often, we would like to view more than one sheet on the screen, how to do it?

1. Make sure you have only one open workbook.
2. From the **View** tab, click "**New Window**".
3. Now click **Arrange All**, Choose "**Vertical**"



4. If you want a third sheet, repeat step 2 and 3.

ADDITIONAL CONCEPTS

This exercise is a supplement to working with multiple sheets or workbooks. We could call it "**COMBINE**," but EXCEL uses the term "**CONSOLIDATE**"



7. Consolidation

So far, you have worked and grouped data using multiple sheets. Now you're going to **work with multiple workbooks** while incorporating links between workbooks.

Excel offers the command "**Consolidate**" which allows you to make summaries, Example: "**Sum**", "**Average**" and others...from the **Consolidate** function. There are **2 types of consolidation, by Position and by Category**

7.1. Consolidation by Category

Unlike the Position Consolidate method, there is no need to **respect the structure of the sheets or workbooks** you want to consolidate. **Notice that the 3 workbooks have the same products, but they are not positioned in the same places.**

7.2. EXERCISE - Consolidation by category

1. Open the following files: "**Cat Laval**", "**Cat Montreal**", "**Cat Dorval**" and "**Cat Chocolate_TT**".

2. **Activate** cell **A4** of the target **workbook**, i.e. "**Cat Chocolate TT**".
3. Open the dialog box → **Consolidate** → **Data Tab** → **Select the "Sum" function** in the drop-down list → **Function**.
4. Click the button → **Reference**.
5. **Activate the Cat Montreal** workbook from → **View Tab** → **Switch Windows**
6. **Select data: A4 to F13**
7. Click **add**.
8. Click the **Reference** button again.
9. **Repeat steps 5 to 9** to enter data **A4 to F13** data from file → **Cat Dorval** and **Cat Laval** in the dialog box → **Consolidate**.

2	Laval	2	Place Vers	2	Dorval
3	PRODUCTS	3	PRODUCTS	3	PRODUCTS
4	Almond Black	4	Black Rock	4	Truffe
5	Amandine	5	Coconut	5	Almond Black
6	Black and Mint	6	Almond Black	6	Black and Mint
7	Black Rock	7	Black and Mint	7	Black Rock
8	Coconut	8	Truffe	8	Coconut
9	Fruity Night	9	Stuffed Heart	9	Fruity Night
10	Hazelnut	10	Fruity Night	10	Hazelnut
11	Stuffed Heart	11	Amandine	11	Stuffed Heart
12	Truffe	12	Hazelnut	12	Amandine
13	TOTAL	13	TOTAL	13	TOTAL

Consolidate

Function:
Sum

Reference:
\Users\murie\Desktop\Excel Anglais\EXCEL INTERMÉDIAIRE\Excel Intermédiaire\Multi-feuilles\

All references:
\Users\murie\Desktop\Excel Anglais\EXCEL INTERMÉDIAIRE\Excel Intermédiaire\Multi-feuilles\

Use labels in
☐ Top row
☒ Left column

☒ Create links to source data

OK Close

10. **Check the left column box.**
11. **Check the Create links to source data box.**

12. Click **OK**
13. **Expand column A**
14. Click in the **+** located to the cell **Coconut (Row 24)**, click in the cell representing Dorval, Laval, and Montreal. Observe the answer in the formula bar.
15. **Save and close.**


RESULT OF THE EXERCISE

	2	Montreal, Laval and Dorval					
	3	PRODUCTS	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total
	4						
+	8	Truffe	3928	3328	3612	3568	14436
+	12	Almond Black	2505	3341	3206	2063	11115
+	16	Black and Mint	2148	2960	2980	3287	11375
+	20	Black Rock	1445	1961	1826	3105	8337
+	24	Coconut	1752	1511	1376	2591	7230
+	28	Fruity Night	3254	1736	1826	2207	9023
+	32	Hazelnut	3599	2609	2156	3827	12191
+	36	Stuffed Heart	3059	3689	2276	3245	12269
+	40	Amandine	3152	3073	3331	3177	12733
+	44	TOTAL	25950	22761	23616	27070	99397

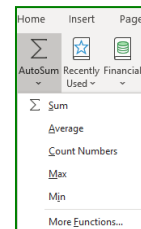
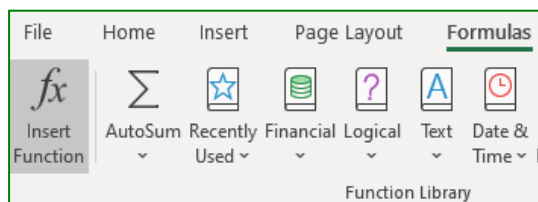
8. Using a function

FUNCTIONS ➔ SUM : HOW TO USE THEM?

Functions are programmed computational operations. They allow complex calculations to be made. All functions are identified by keywords.

To insert a **function**, press  button called **"Automatic Sum or Sigma Icon"**. This option gives you access to the more commonly used functions: **automatic sum, average, minimum, maximum, counter**.

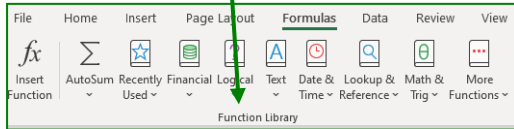
The option **"More functions"** will open the dialog **"Insert function "**.



8.1. New method with new versions

From **THE FORMULAS TAB**

In the **Function Library Group**, click into the desired **function**, the **Function Arguments** window will appear.



8.2. Formula Assistant

THIS EXERCISE AIMS TO HELP YOU WITH THE USE OF FUNCTIONS AND ASSISTANT FUNCTIONS

1. Type in the text below:

	A	B
1	Participants	Exam 1
2	Corinne Paris	74
3	Pierrette Paquin	70
4	Andre Dupuis	69
5		
6	Ave=AVERAGE(B2:B4)	
7		AVERAGE(number

2. Activate cell **B6** to get the average of "exam 1 ".
3. Type "**=**", type "**AVERAGE**", type parenthesis "(" + the cells containing the results of "**Exam 1**" **=AVERAGE(B2:B4)**, the **result is "71"**
4. If you want to get the "**Maximum**" rating, **you will type "MAX"** or for the "**Minimum**" rating, you will **type "MIN"**.

8.3. Definition of some basic functions.

FUNCTIONS	EXPLANATION
SUM	Adds all the numbers in a range of cells.
MAX	Returns the largest value in a set of values. Ignores logical values and text.
MIN	Returns the smallest number in a set of values. Ignores logical values and text.
AVERAGE	Returns the average (arithmetic mean) of its arguments, which can be numbers or names, arrays, or references that contain numbers.
COUNT	Counts the number of cells in a range that contain numbers.
COUNTA	Counts the number of cells in a range that are not empty.

9. RELATIVE OR ABSOLUTE ADDRESSES

9.1. Relative address:

- ▶ Whose formula adjusts during a copy.

9.2. Absolute address:

- ▶ Fixed address, it does not change during a copy.

9.3. Mixed address:

- ▶ Relative column and absolute line: **B\$2**. Row 2 stays fixed, while the column adjusts when copying. In our case below, by copying the formula to the right, Excel calculates the timelines of each row from the deadlines located only in row 2 for each column.
- ▶ Absolute column and relative row: **\$A3**. Column A remains fixed while the row adjusts when copying. In our case below, by copying the formula down, Excel calculates the timelines of each row from the dates located only in column A.

9.4. F4 key, to get absolute reference

- ▶ The cell chosen to perform the formula remains the same. Excel returns to the same column and row when copying.

EXAMPLE OF RELATIVE ADDRESSES:

	A	B	C	D
1	Quantity	Description	Price	Total
2	20	Cell	200	=A2*C2
3	25	DVD	275	=A3*C3
4	15	Radio	95	=A4*C4

EXAMPLE OF ABSOLUTE ADDRESSES:

	A	B	C	D
1	Description	Price	GST	QST
2			5%	9,975%
3	Cell	200	=B3*\$C\$2	=B3*\$D\$2
4	DVD	275	=B4*\$C\$2	=B4*\$D\$2
5	Radio	95	=B5*\$C\$2	=B5*\$D\$2

EXAMPLE OF MIXED ADDRESSES:

	A	B	C	D	E
1	Billing date	DEADLINE 1	DEADLINE 2	DEADLINE 3	DEADLINE 4
2		30	60	90	360
3	2023-08-15	=A3+B\$2	=A3+C\$2	=A3+D\$2	=A3+E\$2
4	2023-07-24	=A4+B\$2	=A4+C\$2	=A4+D\$2	=A4+E\$2
5	2023-07-29	=A5+B\$2	=A5+C\$2	=A5+D\$2	=A5+E\$2

10. INSERT DATE

10.1. Option 1: STATIC DATE, Date that will not be updated

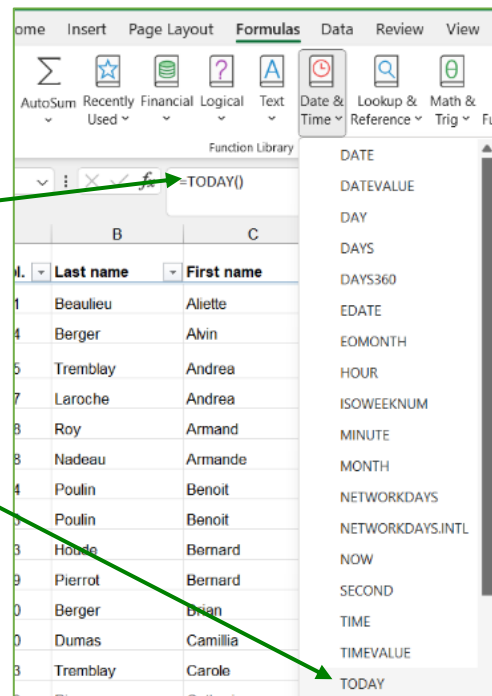
- ▶ Activate the destination cell to insert the date of the day.
- ▶ Press the "CTRL" button, then the "semicolon key" ";"
- ▶ Today's date appears. "CTRL + "

10.2. Option 2: Date to be updated

Insert a date that will be updated for future use of the workbook. How do I do that?

Activate the destination cell, **type:** The sign = and type **TODAY**, add an opening and closing parenthesis (). Confirm with **Enter** ↵

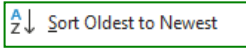
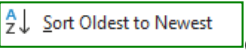
=TODAY()

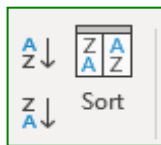


11. Sorting data

Unlike filtering, which momentarily hides lines containing unselected data, the sorting function reorganizes data from the selected range according to the "Smallest to largest or Largest to smallest" selection criteria.

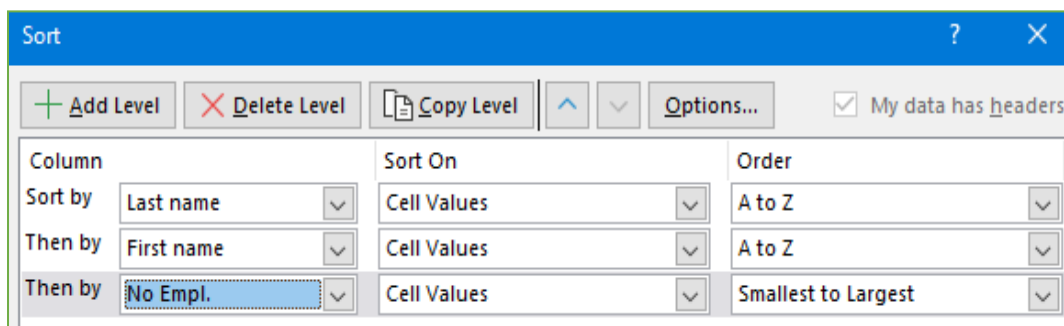
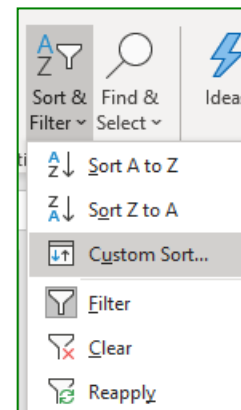
HOW DO I DO THAT?

1. Open the **"Calculation intermediate"** file, **"Subtotal"** sheet.
2. Activate a single cell of the column that you want to get sorted.
3. From the Home tab, click ➔ Sort and filter from the Editing group then on to sort in  ascending order, or on to sort in  descending order.
4. You can also sort from the Data tab



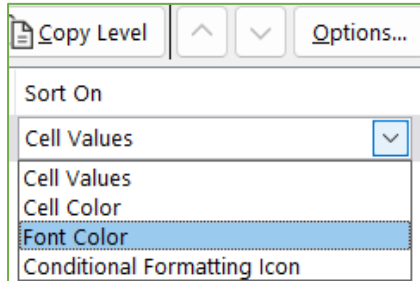
11.1. Sort by multiple columns

- ▶ Open the **"Calculation intermediate"** file, **"Subtotal"** sheet.
- ▶ Activate a cell in the table.
- ▶ In the **Home** tab, click on ➔ **Sort and Filter** from the **Editing** Group
- ▶ Choose **"Custom Sort "**
- ▶ Sort by ➔ Choose ➔ Example: Last name.
- ▶ In the **Sort** dialog box, click ➔ Add Level ➔ then by ➔ "First Name".
- ▶ Add a third level: ➔ Then by ➔ "#No."
- ▶ Click OK

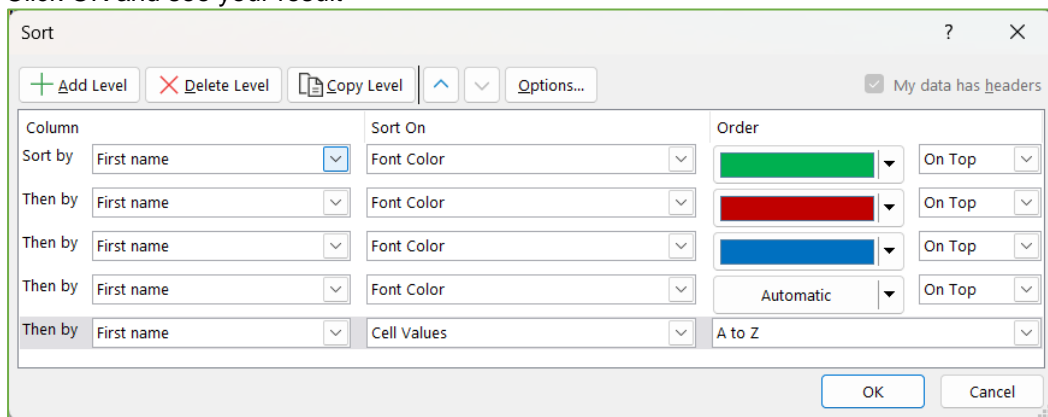


11.2. Sort by color

- ▶ Open the "**Calculation intermediate**" file, "**Employee**" sheet.
- ▶ Activate a cell
- ▶ On the Home tab, click Sort and Filter
- ▶ Choose "**Custom Sort...**" from ➔ "**Group Editing** "
- ▶ Sort by ➔ choose ➔ First Name
- ▶ In the "**Sort On**" box, choose ➔ **Font Color**



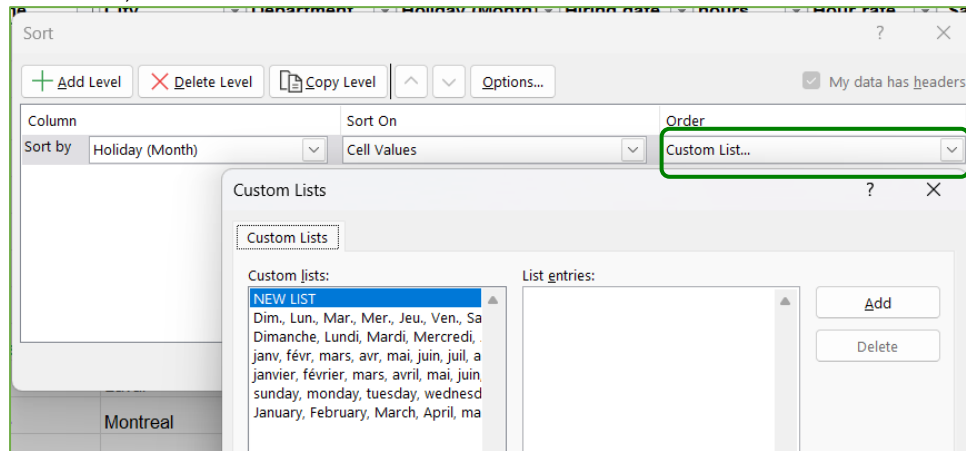
- ▶ Box "**Order** " ➔ Choose a color
- ▶ Tab "**Copy Level**" three times
- ▶ Check the result, the colors are grouped together, but are not in alphabetical order
- ▶ Go back to the dialog box again and add a level
- ▶ Keep the color "Automatic" last
- ▶ This must be last and "**Then by**" to be able to sort with each color
- ▶ Click OK and see your result



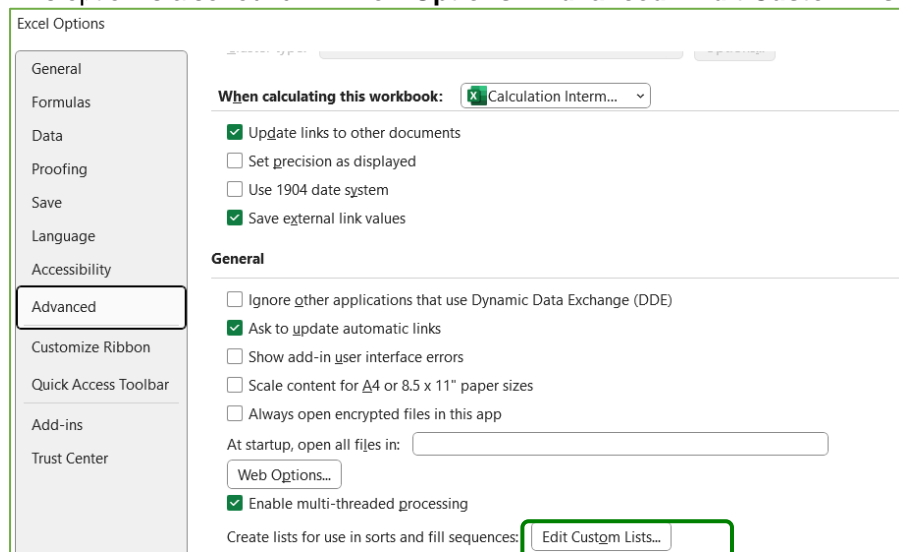
11.3. Sort using a custom list

- ▶ If necessary, open the " **Calculation intermediate** " file ➔ sheet "**Employee**"
- ▶ On the **Home** tab, click Sort & Filter from the ➔ **Group Editing**
- ▶ Choose "Custom sort..." »

- ▶ Sort by ► choose ► **Holidays (Months)**
- ▶ In the "**Sort to**" box, choose ► **Cell Value**►
- ▶ In "Order", choose "**Custom List**"



- ▶ Then choose the right date format: day or month (whole or diminutive)
- ▶ It is from this dialog box that you can add other lists according to your needs, example: a list in French.
- ▶ This option is also found in "**File**" "**Options**" "**Advanced**" "**Edit Custom Lists**"



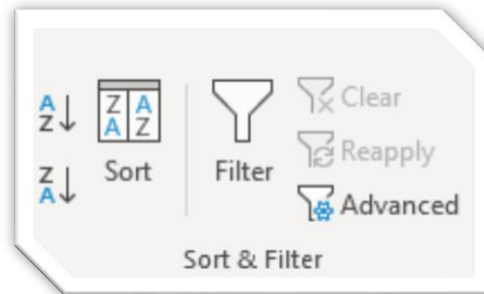
Note:

12. Filtering data in a range or table

Data filtering is a quick and easy way to search for and manipulate a subset of data from a cell range or table. For example, you can filter to show only the values you specify, to view the higher or lower values, or to quickly display duplicate values.

Once you've filtered data in a cell range or in a table, you can either reapply a filter for up-to-date results, or erase a filter to review all the data.

To use filtering without delay, select at least one cell in a range or excel table, then click the **Filter** button (Data tab, **Sort & Filter** group).





Filtered data only shows rows that meet the specified criteria and hides those you don't want to see. Once the data is filtered, you can copy, edit, format, graph and print without reorganizing or moving it.

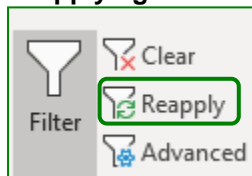
You can also filter the data in multiple columns. Filters are additive, i.e. each additional filter is based on the active filter, further reducing the subset of data displayed.

12.1. The three types of filters

- ▶ Text
- ▶ Number
- ▶ Date

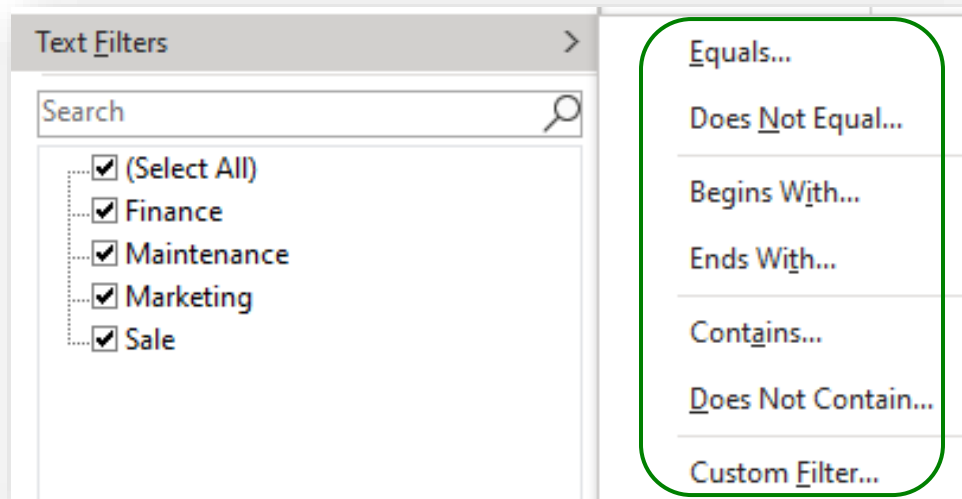
12.2. To undo a filter or reapply the filter


- ▶ A drop-down filtering list  indicates that filtering is enabled, but not applied.
- ▶ A Filter button  indicates that a filter is being applied. If you want to undo the filter, the option Clear Filter is in the drop-down menu.
- ▶ Data has been added, deleted, or modified in the cell range or table column.
- ▶ **Reapplying the filter** means that it will filter again with our last command.



12.3. Filter text

Selecting values from a list and searching are the fastest filtering methods. When you click the arrow in a column that is filtered, all the values in that column appear in a list. The following illustration shows three methods of rapid data filtering.




- ▶ Use the **Search** area to enter text or numbers to search for.
- ▶ Select and deselect checkboxes to see the values in the data column.
- ▶ Use the advanced criteria to find values that meet specific criteria.
- ▶ Select a range containing alphanumeric data.
- ▶ Under the **Data** tab, in the **Sort & Filter** group, click **Filter**.
- ▶ Click on the arrow  in the column header.
- ▶ In this list, click or unclick the checkbox of one or more text values to filter.

12.4. Criterion: Custom filter.

- ▶ In the area on the right of the **Custom Automatic Filter** dialog box, type text or select the appropriate text value from the list.
- ▶ To filter the table column or selection so that both criteria are checked, select **And**.
- ▶ To filter the table column or selection so that one or both criteria are checked, select **Or**.

12.5. To filter numbers

1. Take one of the following actions:
 2. Select a range containing digital data.
 3. Under the **Data** tab, in the **Sort & Filter** group, click **Filter**.
- ▶ Make sure the active cell is in a table column containing digital data.
 - ▶ Click on the arrow  in the column header.

- ▶ In this list, select or deselect the numbers to be checked.
- ▶ The list can contain up to 10,000 numbers. If it contains a lot of numbers, turn off the checkbox **(Select All)** at the top and select the numbers on which the filter should be applied.
- ▶ To filter the data by above-average numbers, click **Above average** or **Below Average**.


12.6. Criterion: Custom filter. (Numbers)

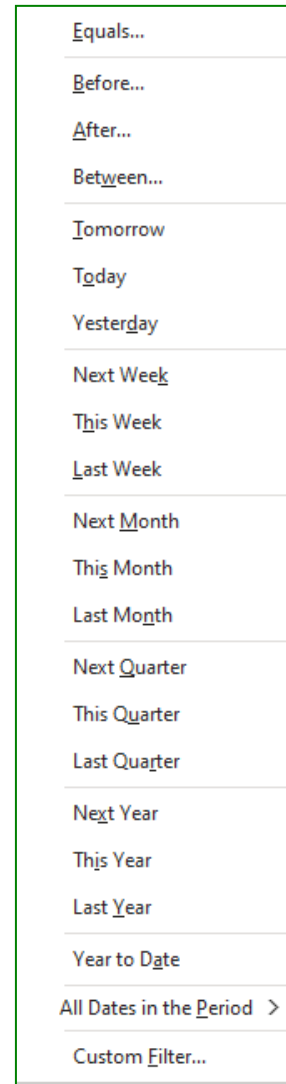
FOR EXAMPLE, TO FILTER THE NUMBERS ACCORDING TO UPPER AND LOWER LIMITS, CLICK BETWEEN.

- ▶ In the area or areas displayed on the right of the Custom Automatic Filter dialog box, type numbers or select them from the list.
for example, to filter the numbers between 25 and 50.

- ▶ You can also add one or more filtering criteria.

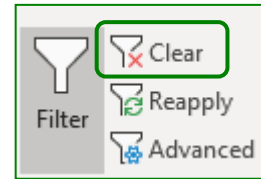
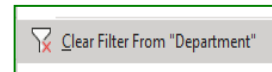
12.7. Filter dates or times

1. Take one of the following actions:
2. Under the **Data** tab, in the **Sort & Filter** group, click **Filter**.
3. Make sure the active cell is in a table column with dates or times.
4. Click on the arrow  in the column header.
5. Point to **Date Filters** and do one of the following:
 - ▶ Click on one of the comparison operators (**Equals**, **Before**, **After** or **Between**) or on **Custom Filter**.
 - ▶ In the area on the right of the **Custom Automatic Filter** dialog box, enter a date or time, select a date or time from the list, or click the **Calendar** button to search for a date and enter it.
 - ▶ For example, to filter all dates according to the date of the day, select **Today** or to filter based on the following month, select **Next Month**.
 - ▶ The menu **All dates of the Period**, such as **January** or **Quarter2**, filter by period, regardless of the year. This type of filtering can be useful, especially when comparing sales by period over several years.
 - ▶ **This Year** and **Year to date** orders differ in the way future dates are processed. **This Year** returns future dates for the current year, while **Year to Date** only returns dates up to and including the current date.



12.8. Delete all filters

1. To view all the data, click **Clear** from the **Data** tab.
2. Or if you want to erase the Montreal filter only and keep the other filters (other columns), In the column city, press ➔ **Clear the filter "Department."**
3. To **remove** all filtering arrows, click on **FILTER** from the **Data** tab



12.9. Advanced filter

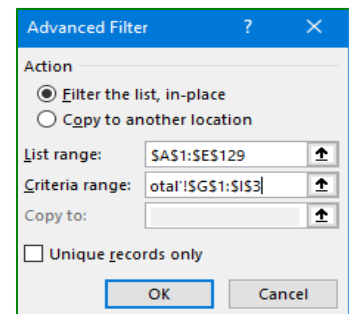
Sometimes, you cannot do what you need with regular filter. We will have to use a ➔ **Advanced Filter**.

Also use ➔ **Advanced Filter** to create a list of unique items, or to extract specific items to a different worksheet.

1. Open "**Calculation Intermediate**" file, "**Sub-total**" sheet

Department	Salary	City
Maintenance	>40000	Laval
Finance	<40000	Laval

2. Once the criteria area is created, (See above) you can start the filter.
3. Make sure the list is continuous and contains unique column labels.
4. Place the cell pointer anywhere in the list.
5. Choose the Data tab ➔ Sort & FILTER ➔ **SELECT "ADVANCED"** The following dialog box appears:



6. Make sure the "List range" area covers the full extent of the list you want to analyze.
7. Enter the address of your search criteria in the "Criteria range" area.

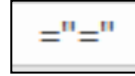
8. See your result including **Laval** and **Lavaltrie**

Last name	First name	City	Department	Salary
Poulin	Benoit	Laval	Maintenance	51 300 \$
Chang	Michael	Laval	Maintenance	42 000 \$
Henault	Ginette	Laval	Maintenance	44 250 \$
Paradis	Rene	Laval	Maintenance	41 500 \$
Karif	Sylvia	Lavaltrie	Maintenance	54 900 \$
Doyon	Maurice	Laval	Finance	39 000 \$
Brière	Marie	Lavaltrie	Maintenance	61 000 \$
Jobin	Chantal	Lavaltrie	Finance	38 500 \$
Tremblay	David	Lavaltrie	Maintenance	56 100 \$

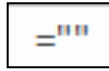
12.10. See the exception Rule - Advanced Filter

12.11. Empty field, non-empty field in advanced filter

To filter out fields with **empty content**, type in the criterion area:



To filter out **non-empty** content: type

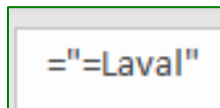


12.12. Other exceptions

The following criteria allow you to find **Laval employees**, working in finance with a salary of **less than 40,000** and in **maintenance earning more than 40,000**.

Department	Salary	City
Maintenance	>40000	=Laval
Finance	<40000	=Laval

If we don't pay attention to Laval, we'll also get "Lavaltrie".




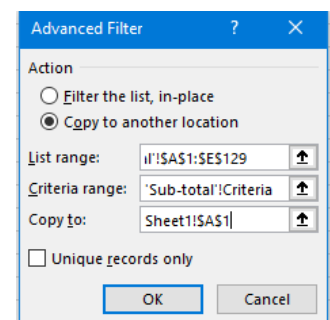
To filter out → **Laval only** content: type

Also if you want all cities, but "not Laval" « <> »

12.13. Copy to another sheet.

Normally, you choose the **COMMAND DATA, SORT & FILTER, ADVANCED** when the sheet containing the list to be analyzed is active. *Excel* then allows you to copy to another location in the same sheet records that meet the stated criteria. You can "bypass" *Excel* with the following procedure if you want the search result to appear on a different sheet.

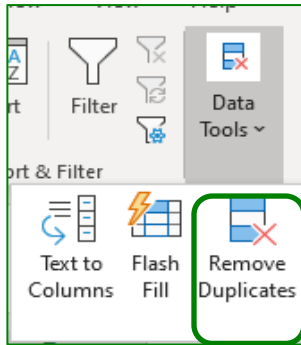
1. Place the cell pointer on the sheet where you want the search result to be displayed.
2. Choose the **COMMAND DATA, SORT & FILTER, ADVANCED**
3. Choose "Copy to another location."
4. Select your data → **List range**.
5. Select → **Criteria range**.
6. **Copy to** → Click in your cell, click the  button to validate your order.



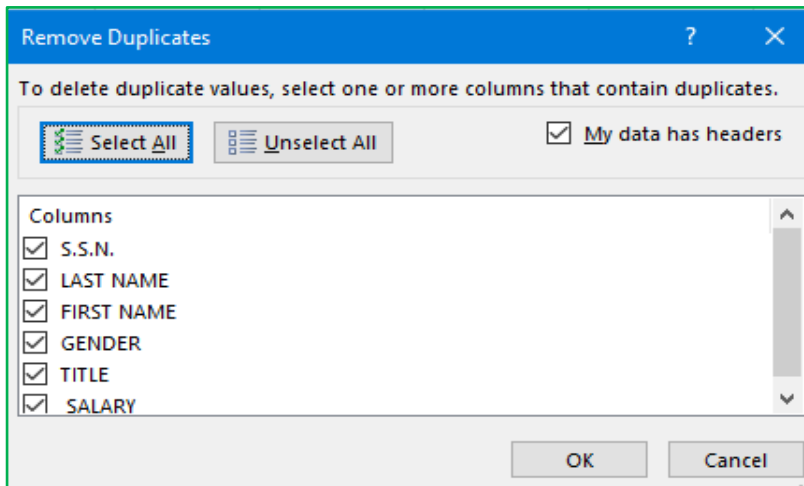
13. Removing duplicates

If there are rows with identical data, Excel can find and delete them.

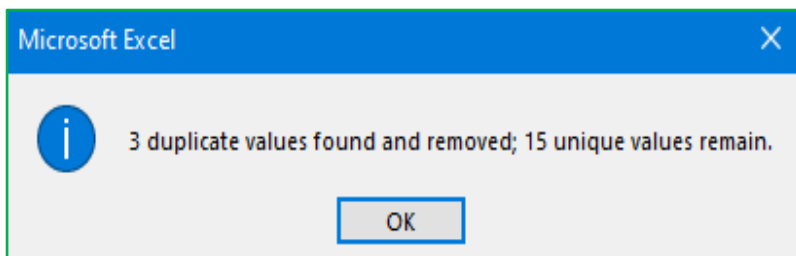
1. Positioning yourself in the table
2. In the **Data** tab, use "**Remove duplicates**".



3. Select fields to be verified and click OK.



4. A message will indicate the number of duplicates found and their removal.



14. Data validation

Data validation controls the type of data and values enter in a cell. For example, you may want to restrict data entry to a certain range of dates, limit the choices available by using a list, or make sure that only whole numbers have entered.

This article describes how data validation works in Excel and presents the different techniques available. It does not address cell protection, that is, the feature that allows you to "lock" or hide certain cells in a spreadsheet to prevent data from being changed or replaced.

14.1. What is validation?

Data validation is an Excel feature that sets restrictions on the type and values of data allowed in a cell. You can set up data validation to prevent users from entering data that is not valid. If you prefer, you can allow users to enter invalid data but notify them when they type it into cells. You also can display messages detailing the type of input expected for cells, as well as instructions to help users correct errors.

If users ignore this message and type invalid data into the cell, such as a two or five digit number, you can display an error message.



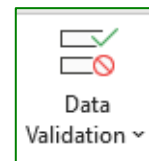
DATA VALIDATION COMMANDS ARE LOCATED UNDER THE DATA TAB IN THE DATA TOOLS GROUP.

DO NOT FORGET TO RESPECT THE CASE - UPPERCASE OR LOWERCASE

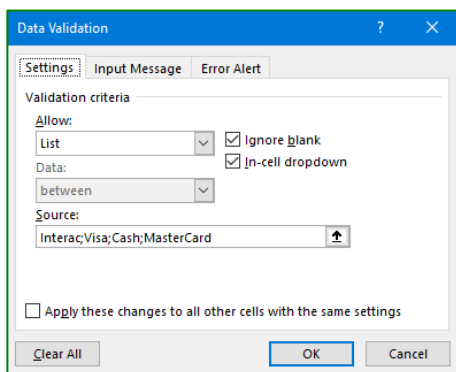
14.2. When to use data validation?

Data validation is particularly useful when sharing a workbook with others in your organization, for which you want the data entered to be accurate and consistent.

You can use data validation to perform, among other things, the following tasks:



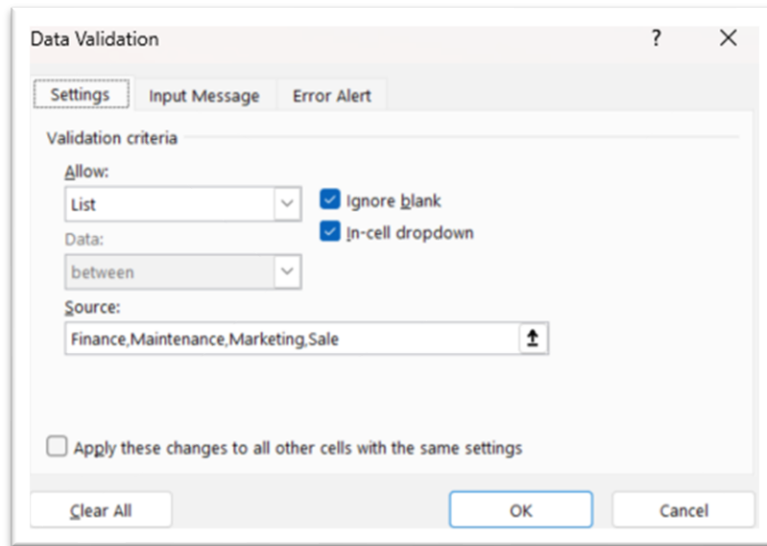
14.3. Limit data with a list



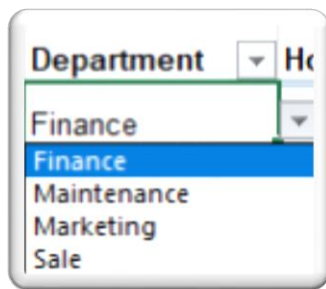
HERE'S AN EXAMPLE TO LIMIT THE LIST AMONG A SELECTED ONE SUCH AS:

14.4. Limit with little data

1. Open **Calculation Intermediate** workbook, Sheet → **Employee**
2. Select **Column E → Department**, then go to the **Data Validation** box.
3. Select → **List** → in **Validation criteria** → **Allow**
4. In **SOURCE**, type: Don't forget the → **Coma** or **Semicolon** between data Finance,Maintenance,Marketing,Sale.



5. Click **OK**
6. Watch the drop-down menu in the cell



14.5. Other method to limit with a list

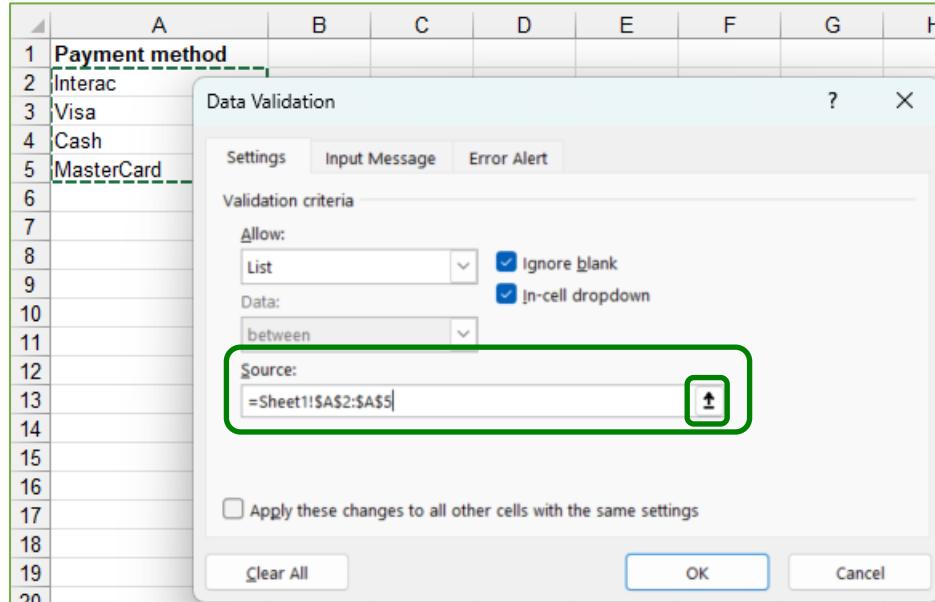
EXAMPLE: TO CREATE A LIST IN SHEET "PAYMENT", COLUMN "G"

1. In a **new sheet** → in **Calculation Intermediate** workbook, insert the column **Payment method** into **A1**.
2. Type the text below

	A
1	Payment method
2	Interac
3	Visa
4	Cash
5	MasterCard

3. Choose sheet "**Payment**" to create your validation in column "**G**".
4. Select your data **G2 to G12**
5. Go to the **Data Validation** box.
6. Choose → **List** → in **Validation criteria** → **Allow**.

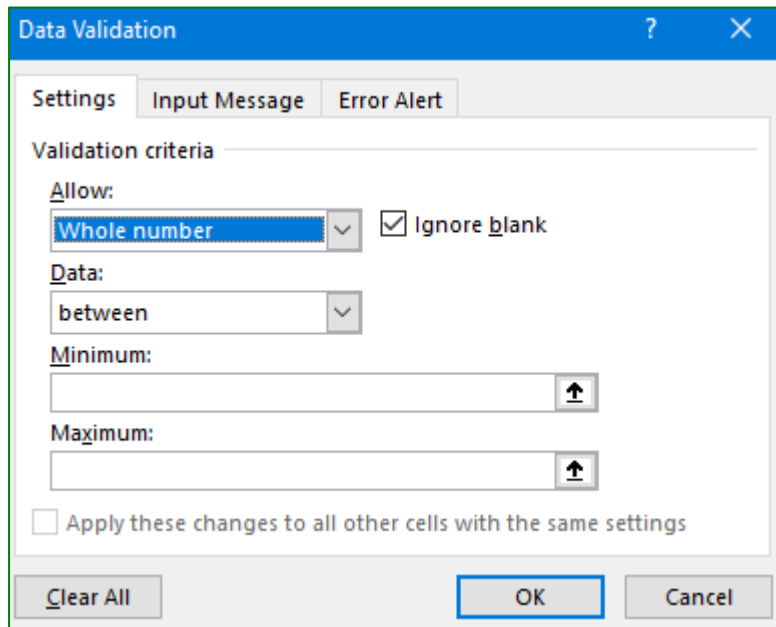
7. In "**Source**," click on the reference  and select the data from the new sheet



8. In "**Source**," click on the reference and select the data from → **New sheet**.
9. See your result and save.

14.6. Limit numbers outside of a specified range

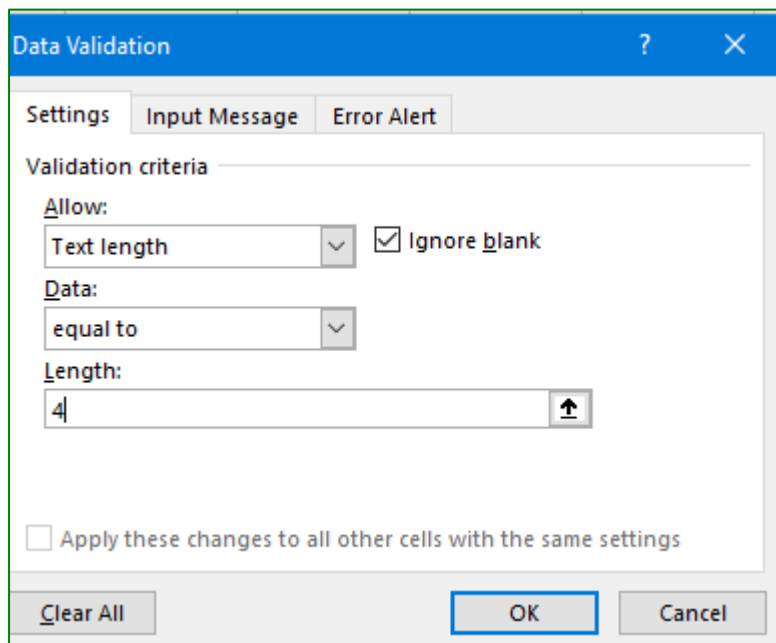
In a particular cell, you can specify a minimum or maximum limit.



The image shows the 'Data Validation' dialog box in Excel. The 'Settings' tab is selected. Under 'Validation criteria', the 'Allow' dropdown is set to 'Whole number'. The 'Ignore blank' checkbox is checked. The 'Data' dropdown is set to 'between'. The 'Minimum' and 'Maximum' fields are empty, each with an upward arrow icon to its right. At the bottom, there is a checkbox labeled 'Apply these changes to all other cells with the same settings' which is unchecked. The 'Clear All', 'OK', and 'Cancel' buttons are at the bottom.

14.7. Limit the number of text characters

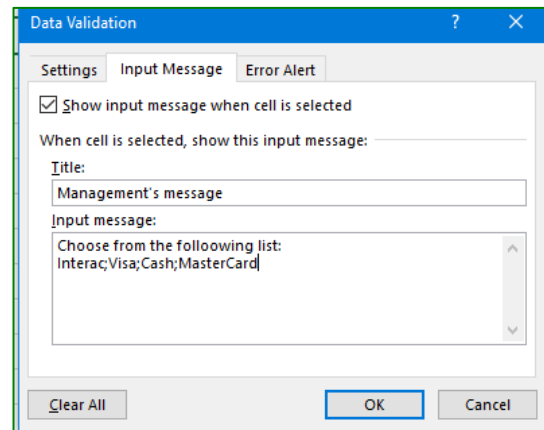
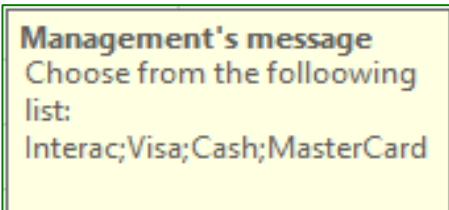
You can limit the authorized text in a cell to 10 characters or less. Similarly, you can set the specific length of the number or text so that it corresponds to the length, **example:** Maximum of 4 characters.



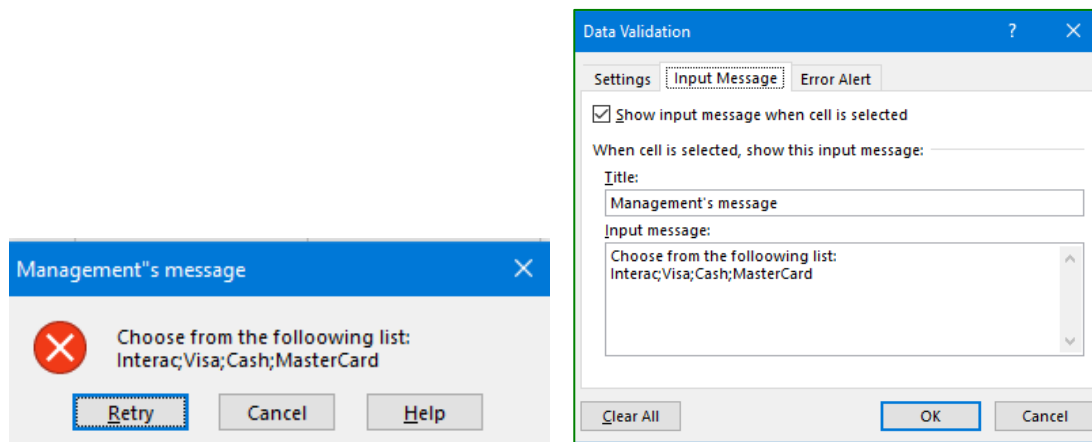
The image shows the 'Data Validation' dialog box in Excel. The 'Settings' tab is selected. Under 'Validation criteria', the 'Allow' dropdown is set to 'Text length'. The 'Ignore blank' checkbox is checked. The 'Data' dropdown is set to 'equal to'. The 'Length' field contains the number '4', with an upward arrow icon to its right. At the bottom, there is a checkbox labeled 'Apply these changes to all other cells with the same settings' which is unchecked. The 'Clear All', 'OK', and 'Cancel' buttons are at the bottom.

14.8. Data validation messages

What users see when they enter invalid data into a cell depends on how you set up data validation. You can choose to display an *input message* when the user selects the cell. Input messages are generally used to offer users advice on the type of data that can be entered into the cell. You can move this message if you wish. It then remains displayed until you move to another cell or press Esc.



14.9. View an error message for invalid data.



14.10. There are 3 types of error message:

Icon	Type	Use to
	Stop	Prevent users from entering invalid data into a cell. A Stop Alert offers two options: Retry or Cancel .
	Warning	Warns users that the data entered is not valid, without preventing them from entering it. When a Warning message appears, users can click Yes to accept the invalid entry, no to change the invalid entry, or Cancel to delete the invalid entry.
	Information	Informs users that the data entered is not valid, without preventing them from entering it. This type of error message is the most flexible. When an Information message appears, users can click OK to accept the value or Cancel to opt out.

14.11. Steps to create a drop-down list

WE WILL CREATE A LIST WITH THE CITIES, HOW TO DO IT?

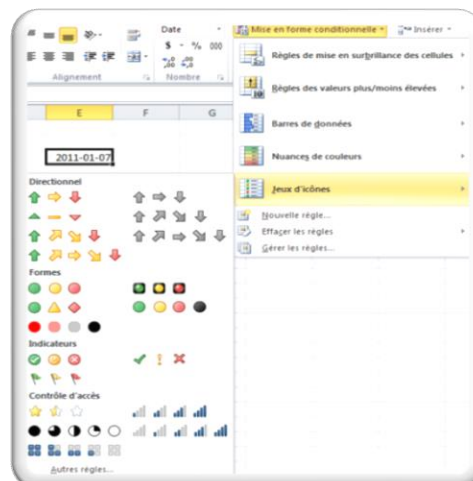
We will use the Workbook **Calculation Intermediate** ➔ sheet **"Employee "**

- Step 1.** Select the cities in **"Column D "**
- Step 2.** Copy your data **"CTRL + C "**
- Step 3.** Create a new sheet and rename it **"Validation"**
- Step 4.** Paste values into the new sheet
- Step 5.** Remove duplicates (Function also located in **"Data Tools"**
- Step 6.** Go back to the **"Employee"** sheet and reselect the column if necessary
- Step 7.** You are ready to insert the drop-down list, so click on **"Validation"**
- Step 8.** Choose ➔ **"List"**
- Step 9.** Click in the **"Reference"** and select the cities that are in the **"Validation"** sheet
- Step 10.** If you have selected the entire column, do not forget to remove this validation in the title **"D1 " ➔ "City"**
- Step 11.** Also, if the list is very large, it would be wise to sort your data

15. Conditional formatting

Conditional formatting can be used to visually annotate data for presentation or analysis purposes. To easily detect exceptions and identify important data trends, several conditional formatting rules can be applied and managed that apply to visual formatting in the form of color gradients, data bars and icons.

- Color Scales
- Icon sets
- Search for duplicates, etc.



By applying conditional formatting to your data, you can quickly identify deviations within a range of values.

Place the mouse pointer above the color scale icons to get an overview of the data with conditional formatting.

PRODUCTS	January	February	March	April	May	June
Black Rock	200	201	202	203	204	205
Coconut	150	308	152	153	154	155
Almond Black	304	206	302	303	304	305
Black and Mint	250	504	252	253	254	204
Truffe	500	501	502	303	504	255

This chart shows temperature data with a conditional formatting that uses a color scale to differentiate high, medium, and low values. The following procedure uses this data.

15.1. How to create a conditional formatting – Color scales

Select the data you want to apply conditional formatting to

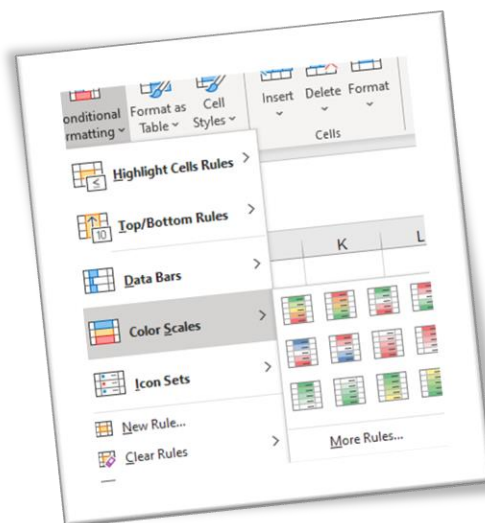
January	February	March	April	May
200	201	202	203	204
150	308	152	153	154
304	206	302	303	304
250	504	252	253	254
500	501	502	303	504
350	351	352	353	354

Apply conditional formatting.

Under the **Home** tab, in the **Styles** group, click the arrow next to **Conditional Formatting**, then on **Color Scales**.

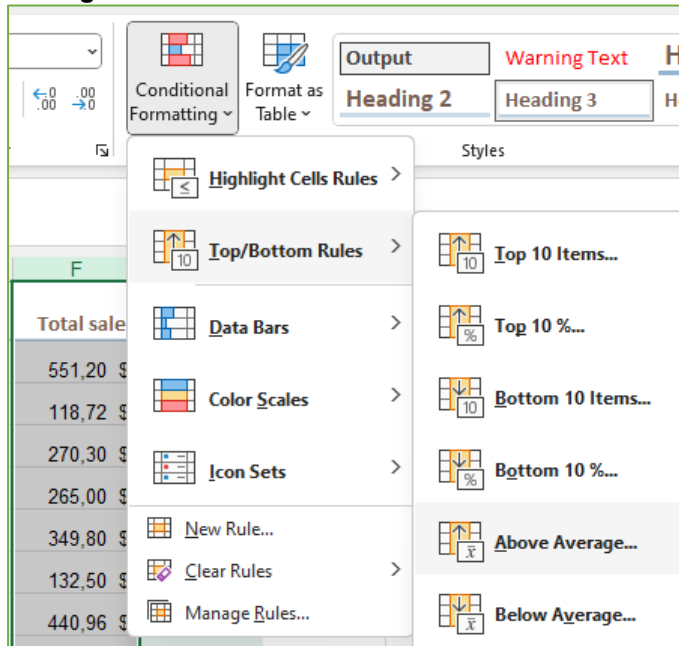
Place the mouse pointer above the color scale icons to get an overview of the data with conditional formatting.

	A	B	C	D	E
1	Group EXCEL Beginner				
2	Participants	Exam 1	Exam 2	Exam 3	Exam 4
3	Corinne Paris	74	65	73	81
4	Pierrette Paquin	70	74	63	67
5	André Dupuis	69	63	70	74
6	Martine Gendron	66	56	64	59
7	Pascal Dubois	52	60	58	55
8	Nicole Richard	61	68	65	70

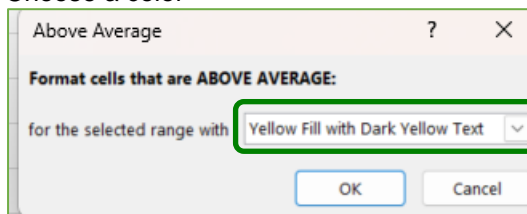


15.2. Example :

- ▶ Open "Calculation Intermediate" → sheet "Payment"
- ▶ Select "Total Sales" Column "F"
- ▶ In "Conditional Formatting" → choose → Top/Bottom Rules → then → Above Average...



- ▶ Choose a color



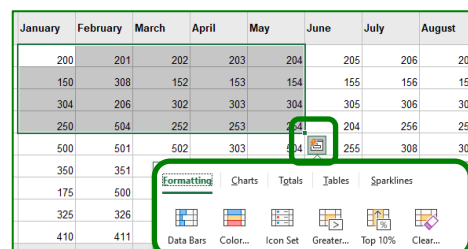
- ▶ Return In "Conditional Formatting" → choose → Top/Bottom Rules → then → Below Average...
- ▶ Choose a different color.
- ▶ Click "OK"

15.3. Conditional formatting – Quick analysis

Select the data you want to apply conditional formatting to apply conditional formatting.

If you click → Quick analysis →  you will get this box to help you with Conditional formatting

Under the Home tab, in the Styles group, click the arrow next to **Conditional Formatting**, then on **Color Scales**.



15.4. Icon sets

1. Open the "Chart " sheet of the **Calculation Intermediate** workbook and select all exam notes.
2. Apply conditional formatting **Icon sets/Indicators** (Circled) to your selection.



3. Manage the rules in order to get color "**green** " all notes **above or equal to 70**, in **yellow** the notes between **70 and 60** and in **red** the notes below 60.
4. Verify if you want "**Type** " in "**Percentage**" or "**Number**".
5. You also able to "**Reverse Icon Order** "
6. And decide to "**Show Icon Only** "
7. And change the style of the **Icon** at the bottom

Edit the Rule Description:

Format all cells based on their values:

Format Style: **Icon Sets** Reverse Icon Order

Icon Style: Show Icon Only

Display each icon according to these rules:

Icon	when value is	Value	Type
	when value is	\geq 70	Number
	when < 70 and	\geq 60	Number
	when < 60		

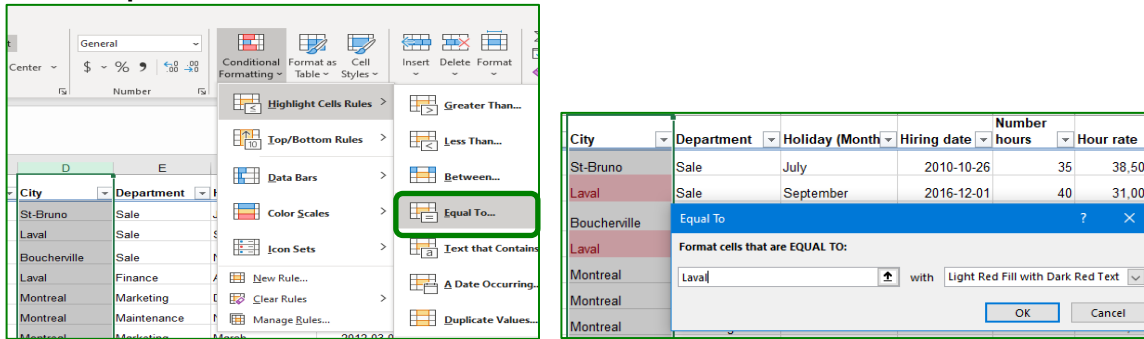
OK Cancel

8. See the result

Exam 1		Exam 2		Exam 3		Exam 4	
✔	74	⚠	65	✔	73	✔	81
✔	70	✔	74	⚠	63	⚠	67
⚠	69	⚠	63	✔	70	✔	74
⚠	66	✖	56	⚠	64	✖	59
✖	52	⚠	60	✖	58	✖	55
⚠	61	⚠	68	⚠	66	✔	75

15.5. Simple Conditional formatting

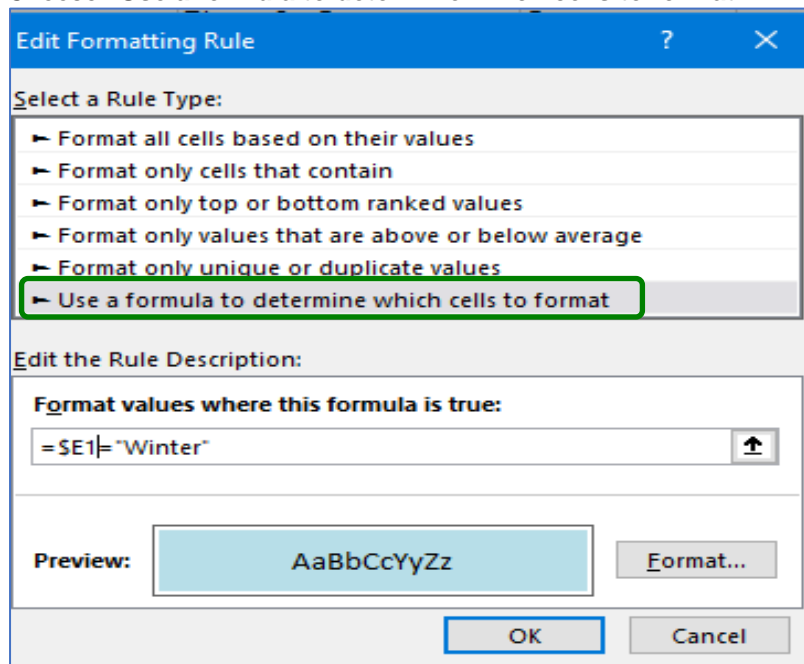
1. Open the **Employee** sheet of the **Calculation Intermediate** workbook and select **column D**.
2. Under the **Home** tab, in the **Styles** group, click the arrow next to **Conditional Formatting**, then on **Equal to**.



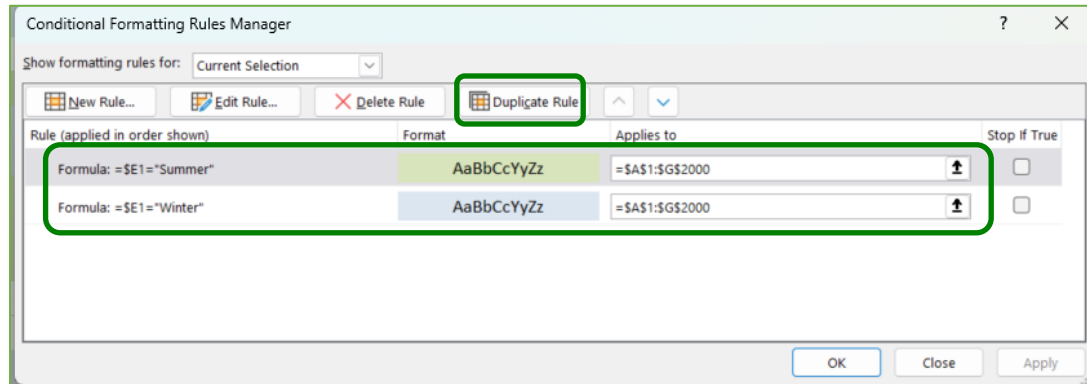
3. Type **Laval**
4. Click **OK**

15.6. Conditional Formatting with Simple Formula

- ▶ Open "Excel_In_Classe" → "Registration" sheet
- ▶ SELECT ALL DATA (Not the sheet)
- ▶ Click on "Manage Rules" Then "New Rule"
- ▶ Choose "Use a formula to determine which cells to format "



- ▶ In "Format values where this formula is true:
Type → **=E1= "Winter"**
- ▶ This means "search for Winter in column "E" and apply formatting to all selected cells ".
- ▶ Increase the "APPLIES TO"



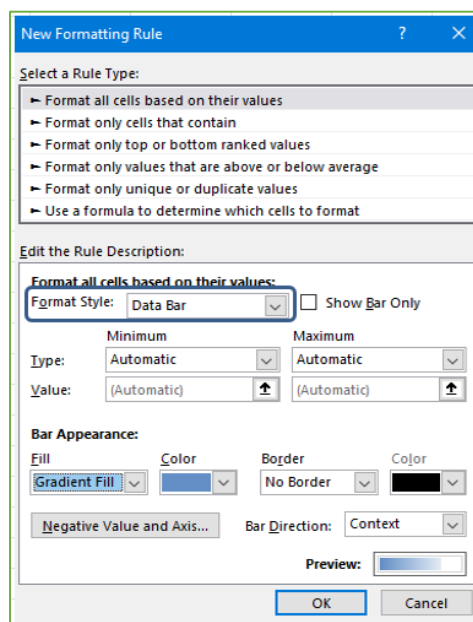
- ▶ You can click on "Duplicate rule" and **change the color and season** to avoid retyping the formula.

15.7. Conditional formatting with positive and negative values

- ▶ Open "Excel_In_Classe ", "MEFC" sheet
- ▶ If necessary, insert the formula in "B3" to get the amount in loss or savings per month on the food budget

=SC\$1-B3

- ▶ Select the data and choose "New Rule" Choose "Data Bar" in "Formatting Style"



DIFFERENCE	
(150,00) \$	
25,00 \$	
(75,00) \$	
35,00 \$	
(45,00) \$	
(30,00) \$	
35,00 \$	
55,00 \$	
150,00 \$	
(35,00) \$	
- \$	
(100,00) \$	


- ▶ Change the color if necessary.
- ▶ See your result, nice and look like a chart design.

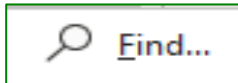
16. Find - Replace

The **Find and Replace** dialog box offers several options to modify **text** in a workbook. The main objectives of the search are to correct **errors**, to modify a word, to change a formula in a **sheet or workbook**.

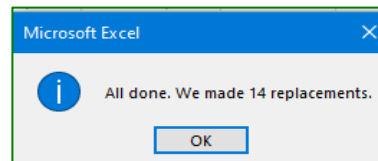
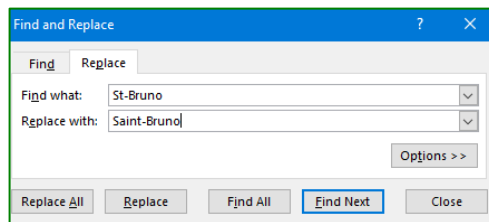
1. Open the **Calculation Intermediate** file, "**Employee**" sheet.
2. **Observe the error** in the word "**St-Bruno**". To correct all the words in the sheet,

HOW DO YOU DO THAT?

1. From the **Home** tab, click  → Find → from the **Editing** group

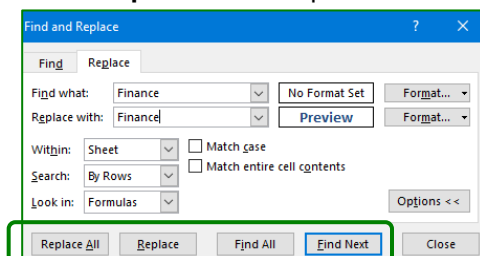


2. Type "**St-Bruno**," select the "**Replace**" tab, type "**Saint-Bruno**,"
3. Choose "**Replace All**" in the dialog box.



By clicking **Options** in the "**Find and Replace**" dialog box, more options become available and allow to change the word with a new **Font, Border or Fill**

4. To change the word "**finance**" to get in **Bold and Blue**, in "**Replace with**" click in "**Format**" and in the **Font** tab, choose **Bold** and **Blue**
5. If you **don't want to change all the words "Finance"**, click "**Find Next**" to switch to the **next** word "Finance," click "**Replace**" to change, otherwise move on to the next one until the search is **complete**. You can also click "**Replace All**".
6. Click "**Replace All**" to replace all the words "**Finance**" in **bold and blue**"



16.1. Search for part of a word or for a sentence:

GENERIC CHARACTER, FUNCTION AND EXAMPLE

- ? Replaces a single character:
Ex. ?o Search « go » « to » « do »
- * Replaces one or more characters at the indicated position:
Ex. c*r « car » « cancer » replaced by « cutter »
- * Replaces all characters placed before or after the entry value

16.2. Why use "Search" instead of "Filter"



SOMETIMES IT IS FASTER TO USE THE "SEARCH" FUNCTION RATHER THAN THE FILTER.

SEARCH FOR A CODE, A PRODUCT NUMBER IN A DATABASE WITH A LOT OF LINES, YOU TYPE THE VALUE AND CLICK ON "NEXT"

17. Format as table

All these changes are interesting but require a lot of time (and sometimes imagination), so why not let Excel do some work for us.

1. Select the cell or cell range in the table to which you want to apply a table format.
2. In the **Home** tab, click **Format as Table**.
3. Click on the desired table style.
4. Select a cell in your data.
5. Select **Home**, **Styles** Group, **Format as Table**.
6. Choose a style for your table.



7. In the **Format as Table** dialog Box, set the cell range.
8. Check this option if your chart has headers. Select OK.

You can also adjust the layout of the table by choosing the Table Style Options for elements of the table, such as **Header Row**, **Total Row**, **First Column**, **Last Column**, **Banded Rows** and **Banded Columns** or **Filter Button**.

When you use the **Format as Table** option, Excel automatically converts your data range into a table. If you no longer want to manipulate your data in a table, you can **Convert to Range**, while keeping the format. You'll find this option in the **"Table Design"** tab.

	B	C	D	E	F	G	H
	Product	Category	Farm	Amount sold (kg)	Unit price	Total sale	
2	Fine Herbs	Biological	Boisclair Farm	10	55,12 \$	551,20 \$	
3	Vegetables	Biological	Santé Plus	8	14,84 \$	118,72 \$	
4	Vegetables	Biological	Santé Plus	10	27,03 \$	270,30 \$	
5	Vegetables	Biological	Santé Plus	10	26,50 \$	265,00 \$	
6	Vegetables	Biological	Boisclair Farm	11	31,80 \$	349,80 \$	
7	Fruits	In transition	Boisclair Farm	5	26,50 \$	132,50 \$	
8	Fruits	In transition	Boisclair Farm	8	55,12 \$	440,96 \$	
9	Herbs	In transition	Santé Plus	6	33,92 \$	203,52 \$	
10	Fine Herbs	In transition	Boisclair Farm	9	34,98 \$	314,82 \$	
11	Fine Herbs	Regular	Boisclair Farm	8	26,50 \$	212,00 \$	
12	Fine Herbs	Regular	Boisclair Farm	12	63,60 \$	763,20 \$	

17.1. Be careful to convert to range

Once you've converted your table to a range and made a change (Example: Sorting on another column), formulas already inserted in the table will no longer be sorted.

We're going to have to start all your formulas over again.

17.2. Here is a solution to fix the problem:

- ▶ Removing the background color
- ▶ **Replacing the sheet name with the Find & Replace command**

18. Subtotal

IMPORTANT MESSAGE

The **Subtotal** command appears grayed out if you are using a Microsoft Excel table. To add subtotals to a table, you must first convert the table to a range.

Subtotals are calculated with a synthesis function, such as **Sum** or **Average**, using the SUBTOTAL function. You can view several types of synthesis functions for each column.

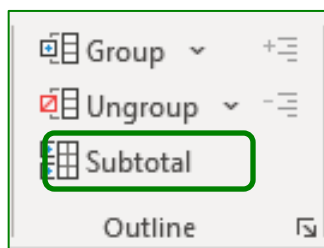
If the workbook is set up to automatically calculate the formulas, the **Subtotal** command automatically recalculates the subtotal and total values as soon as you change the data. The **Subtotal** command also displays a data synthesis function, details "in outline mode" to allow you to view or hide the row details of each sub-total.

18.1. Insert subtotals

1. Type in the text below

	A	B	C
1	Number	Department	Income Week
2	MR-1246	Maintenance	985,00 \$
3	MR-1248	Maintenance	1 075,00 \$
4	MR-1249	Maintenance	1 025,00 \$
5	MR-1250	Maintenance	995,00 \$
6	MR-1245	Finance	1 350,00 \$
7	MR-1247	Finance	1 150,00 \$
8	MR-1251	Sale	1 100,00 \$
9	MR-1252	Sale	950,00 \$

2. Select a single cell in the **Department** column.
3. To sort the column that contains the data to be grouped, you must sort the **data**.
4. In the group **Sort & Filter**, click **Sort A to Z** or **Sort Z to A**.
5. Under the **Data** tab, in the **Outline** group, click **Subtotal**.



6. The **Subtotal** dialog box /appears.

7. In the area ➔ **At each change in**, click on the column for which you want to calculate the subtotal. In the example above, you need to select **Department**.
8. In the **Use function** area, click on the synthesis function you want to use to calculate subtotals. In the example above, you need to select **Sum**.
9. In the **Add subtotal to**, activate the checkbox of each column containing the values for which you want to calculate the subtotal. In the example above, you need to select **Weekly income**.
10. To set an automatic page break after each sub-total, activate the checkbox **Page break between groups**.
11. To specify a summary line above the row of details, deactivate the checkbox **Summary below data**. To specify a summary line below the detail list, activate the checkbox **Summary below data**. In the example above, you need to deactivate the checkbox.
12. You have the possibility, as an option, to reuse the **Subtotal** command several times, up to seven consecutive times, to add other subtotals with different synthesis functions. To prevent the existing subtotals from being crushed, deactivate the checkbox **Replace current subtotals**.
13. Click **Ok** and here is your **result**:
14. To see subtotals only, click on the number **2** at the top left.

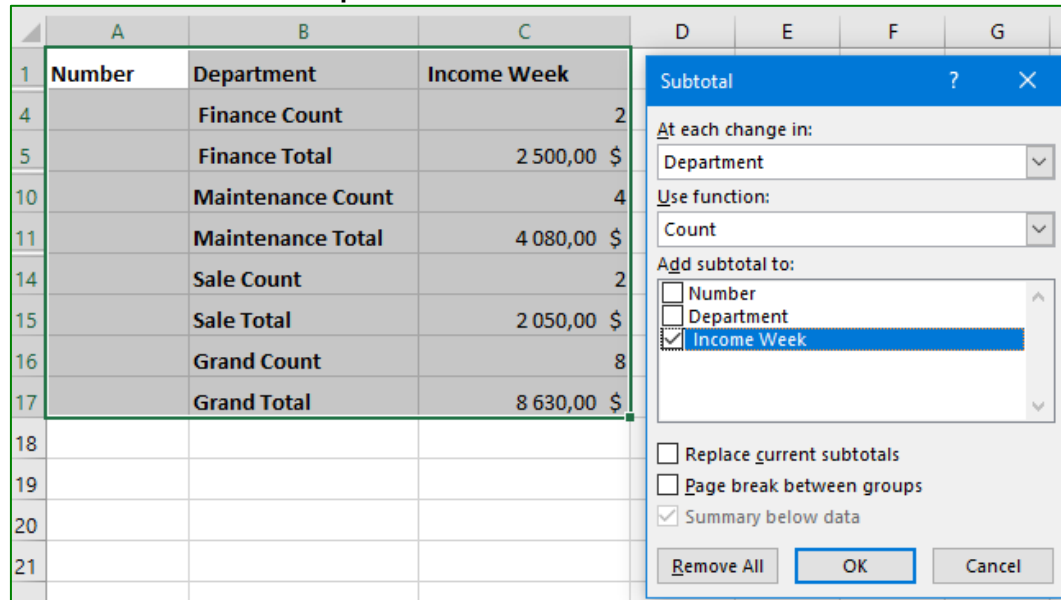
1	2	3	A	B	C
1			Number	Department	Income Week
2			MR-1245	Finance	1 350,00 \$
3			MR-1247	Finance	1 150,00 \$
4				Finance Total	2 500,00 \$
5			MR-1246	Maintenance	985,00 \$
6			MR-1248	Maintenance	1 075,00 \$
7			MR-1249	Maintenance	1 025,00 \$
8			MR-1250	Maintenance	995,00 \$
9				Maintenance Total	4 080,00 \$
10			MR-1251	Sale	1 100,00 \$
11			MR-1252	Sale	950,00 \$
12				Sale Total	2 050,00 \$
13				Grand Total	8 630,00 \$

18.2. Use more than one function in subtotals

Example: to obtain the number of people per department while keeping the sum of salaries per department.

1. Click **Subtotal**
2. In the area ➔ **At each change in**, we keep **Department**.
3. In the area **Use function**, choose **Count**.

- Deactivate the checkbox **Replace current subtotals**.



18.3. Delete subtotals

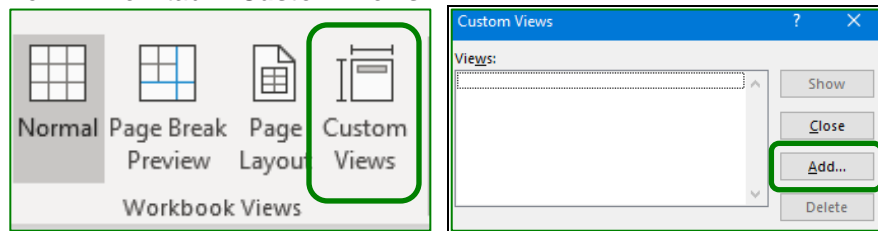
- ▶ Select a cell in the range that contains subtotals.
- ▶ Under the **Data** tab, in the **Outline** group, click **Subtotal**.
- ▶ In the **Subtotal Dialog** box, click **Remove All**.

19. Custom Views

When you work on a spreadsheet, you want to view this sheet in different ways. For example, the sheet includes several columns with sub-totals, and you need to view or print sub-totals only. **How do I do that?**

19.1. How to Create a Custom View

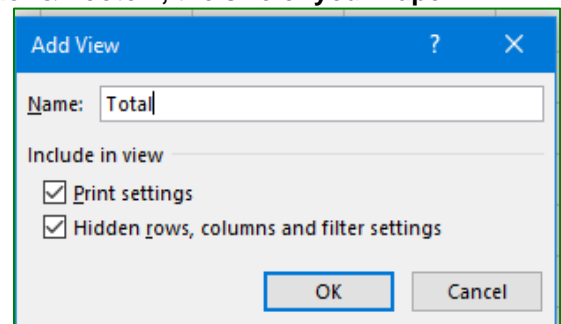
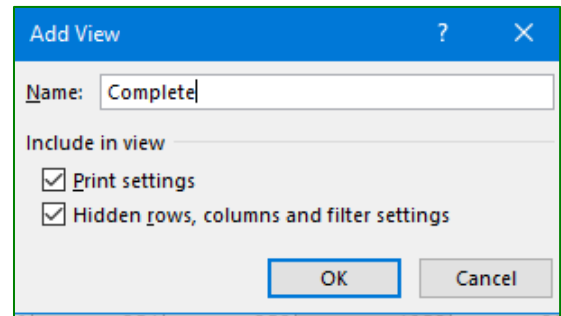
- First thing to do is your ➔ **Page Layout** and ➔ **Header & footer**
- From ➔ **View** tab ➔ **Custom Views**



- Click the button ➔ **Add**.
- Enter the name you want to give to the display in the text box.
- In ➔ **Include in view**, make sure you have the checkmark in the following 2 options: ➔ **Print settings** and **Hidden rows, columns, and filter settings**.
- Click **OK**

19.2. EXERCISE: Custom views

1. Open the file "Calculation Intermediate"
→ sheet "Montreal AP".
2. Select cell A1.
3. From the **View** tab, then "Custom Views"
→ click **Add**.
4. Type "complete"
5. Make sure you have the 2 boxes checked in the window.
6. Click **OK**
7. Hide columns "B C D F G H J L N O P".
8. Prepare your "Page Layout", change "Header & Footer", the size of your Paper
9. From the **View** tab, then "Custom Views"
→ click **Add** → Type "Total".
10. Click **OK**
11. To get the "complete" view you've created, from the → **Custom Views** menu bar → choose the "complete" view of the dialog box or to get totals view only, choose "Total".
12. This option will allow you to view or print totals and sub-totals in the future without having to hide columns.



19.3. What is very importance to understand?



IN A YEAR OR MORE, YOU WILL HAVE MORE DATA.

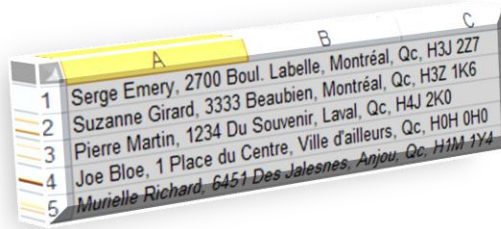
YOU DO NOT HAVE TO ALWAYS HIDE ROW AND COLUMN.

HEADER AND FOOTER FOLLOW, DATA ALSO

Note:

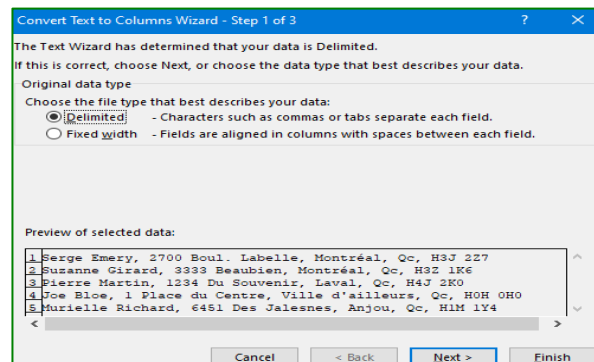
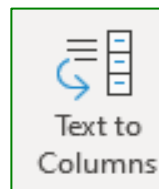
20. Convert Data "Text to Columns "

This function allows us to separate the text of a cell into several columns. Or for example, to convert a date that is in TEXT format into a DATE format.

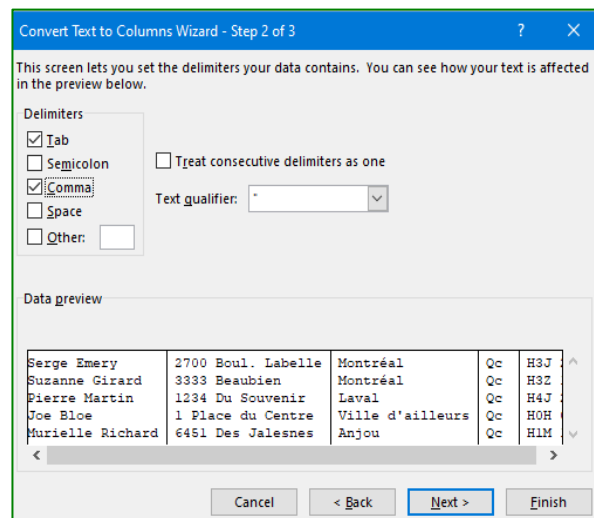


20.1. Convert text

1. Open Calculation Intermediate workbook → sheet **Text to column**
2. Select **A1 to A5**
3. From the **Data** tab
4. Click in **Text to columns**
5. Choose **Delimited** in **Step 1 of 3**

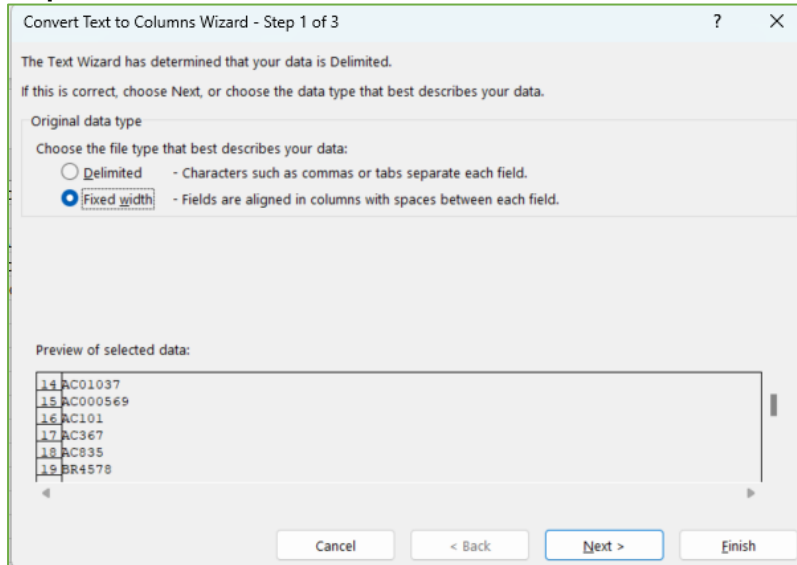


6. Go to **Step 2 out of 3**.
7. Choose the **comma**.
8. View the result in the **Data preview**.
9. Click **Finish**

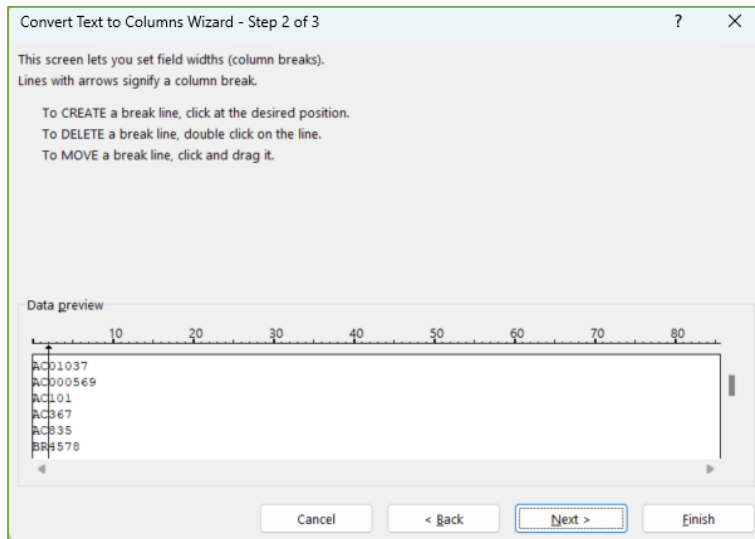


20.2. Separate data with nothing in between

1. Open " **Calculation Intermediate** " → " **Text to Columns** " sheet
2. Select from **A14 to A22**
3. From " **Data tab** " → " **Data tools** " choose → " **Text to Columns** "
4. **Step 1** → choose → " **Fixed width** " → " **Next** "

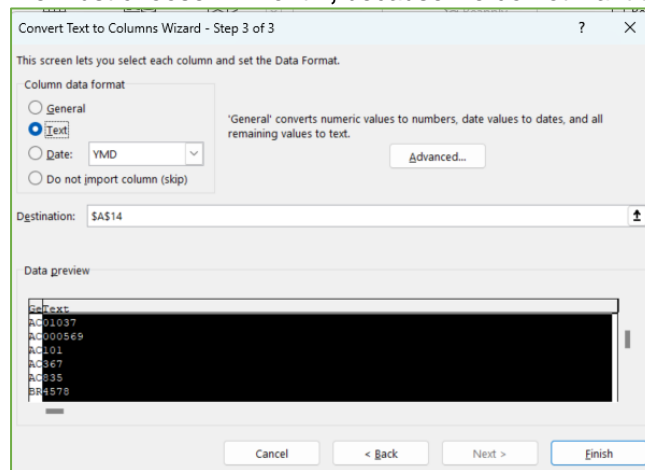


5. **Step 2** → Click where is necessary to separate the two first letters from the numbers
→ **Next**



6. **Step 3** → First column is " **General** ", this is correct

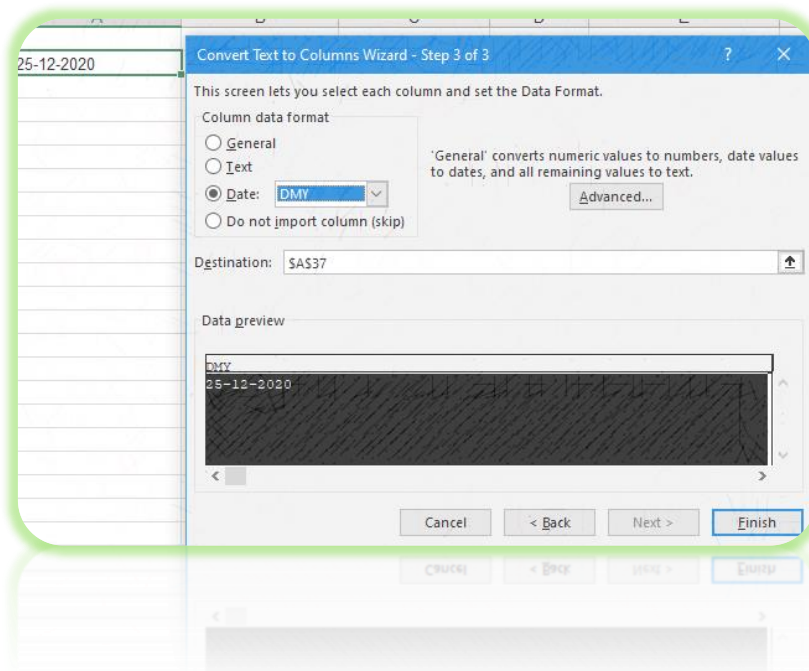
7. Click in the second column
8. We must choose ➔ **"Text"**, because we do not want to lose the **"ZEROS"**



14	AC	01037
15	AC	000569
16	AC	101
17	AC	367
18	AC	835
19	BR	4578
20	BR	6779
21	BR	8980
22	BR	0013382

20.3. Convert a date, but in TEXT format

1. Type a date like this: (DD-MM-YYYY), 25-12-2020.
2. Notice that EXCEL does not recognize this date.
3. Click **Text to Columns**
4. Immediately move to **Step 3 of 3**
5. Choose: **DATE**
6. Choose from the drop-down list the date format we typed: **DMY**.
7. Click **Finish**



21. Charts

A chart is a visual element that facilitates the understanding of numerical or statistical data. It quickly illustrates trends, compares data with each other, and highlights the relationships between elements.

A chart has many elements. Some of them are displayed by default, others can be added as needed. You can change the view of elements in a chart by moving them to other locations in the chart, resizing them, or changing the layout. You can also remove chart items you do not want to see.

21.1. Creating a chart

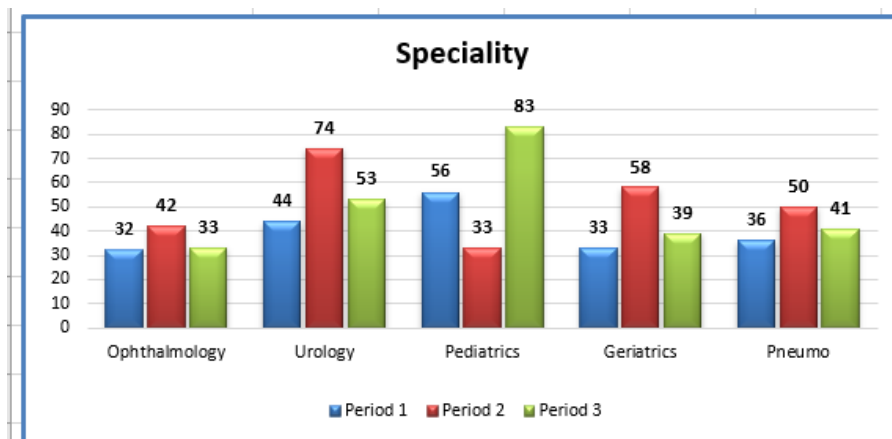
A chart is generated from the data on a spreadsheet.
Open workbook **"Calculation intermediate"**, sheet **"Clinical"**

	A	B	C	D
1	Speciality	Period 1	Period 2	Period 3
2	Ophthalmology	32	42	33
3	Urology	44	74	53
4	Pediatrics	56	33	83
5	Geriatrics	33	58	39
6	Pneumo	36	50	41

The selection of data is very important. Generally, the first column and row of a data range are used to describe the "X" axis (abscissa) and the legend. Excel interprets it very well when the first column and the first row of the block are text. **Empty rows or columns should not be included.** If a non-continuous range is to be used, make sure that each range represents at least one set of data.

To avoid having too large scales, it is best not to take columns and rows with totals.

The easiest way to produce a chart after selecting the data is to press the **F11** button. The result (below) will appear in a new window.



21.2. Know the elements of a chart

A chart has many elements. Some of these items appear by default, while others can be added as needed. You can change the view of the graphic elements by moving them inside the chart, resize them, or change their layout. You can also remove graphic items you don't want to see.

1. Chart area (chart area: whole chart and constituent elements.) of the chart.
2. Plot area (plot area: in a 2D chart, area bounded by axes, and which includes all data sets. In a 3D chart, an area defined by the axes, which includes all data sets, category names, graduation labels and axis titles.) of the chart.
3. Data points (data points: individual values plotted in a chart and represented by bars, columns, lines, sectors, rings, points, and various other forms called data markers. Data markers of the same color constitute a data series.) data series (data series: linked data points, plotted in a chart. Each of the data series in a chart has a unique color or pattern and is represented in a graphic legend. You can plot one or more series of data in a chart. The pie charts have only one series of data.) traced in the chart.
4. Axes (axis: line bordering the plot area of the chart and serving as a reference for measurement. The ordinate axis (Y) is generally vertical and contains data. The abscissa axis (X) is usually the horizontal axis and contains categories.) horizontal (abscissa) and vertical (ordinate) along which the data is traced in the chart.
5. Legend (legend: area identifying patterns or colors assigned to data series or categories in a chart.) of the chart.
6. Title (titles in charts: descriptive text automatically aligned to an axis or centered at the top of a chart.) of the chart and axis that can be used in the chart.
7. Data label (data label: a label that provides additional information about a data marker representing a data point or value from a spreadsheet cell.) to identify the details of a data point in a data series.

21.3. Changing a basic chart to suit needs

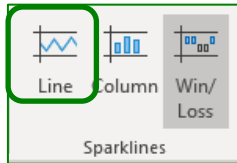
Once you've created a chart, you can edit any of its elements. For example, you can change the way axes are displayed, add a title, view, or hide the caption, or show more graphics.

TO EDIT A CHART, YOU CAN DO ONE OR MORE OF THE FOLLOWING:

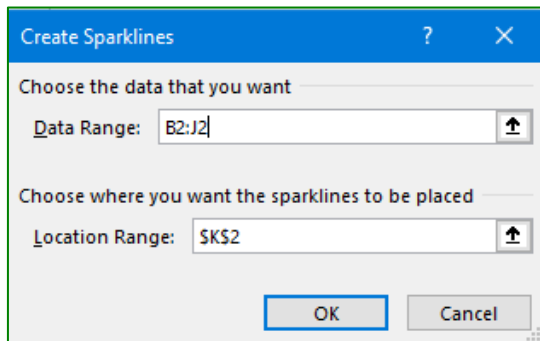
- ▶ **Change the axes display of the chart.** You can specify the scale of the axes and adjust the interval between the values or categories displayed. To make your chart more readable, you can also add tick marks (tick marks and tick labels: tick marks are small measurement lines that look like the divisions of a ruler and are located on an axis. Tick mark labels identify abscissa, ordinate, or chart series.) to an axis and specify the interval at which they should appear.
- ▶ **Add titles and data tags to a chart** To clarify the information presented in your chart, you can add a title, axis titles and data tags.
- ▶ **Add a legend or a data table.** You can view or hide a legend, move it, or change its elements. In some charts, you can also view a data table that displays legend symbols (legend symbols: symbols in legends that show patterns and colors assigned to a chart's data series (or categories). Legend symbols appear on the left of the legend elements. The layout assigned to a legend symbol is also applied to the data mark associated with it.) and the values presented in the chart.

21.4. Sparkline

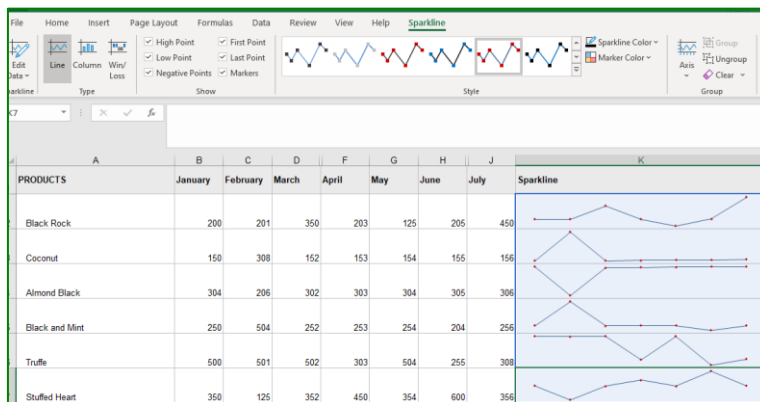
1. Open file: **Calculation Intermediate**, sheet « **Sparkline** »
2. Select cell ➔ **K2**.
3. From the **Insert Tab - Sparkline** - choose "Line"



4. Location Range: select **from B2 to J12** and click OK.



5. Copy from cell **K2 to K8**
6. **See your result**

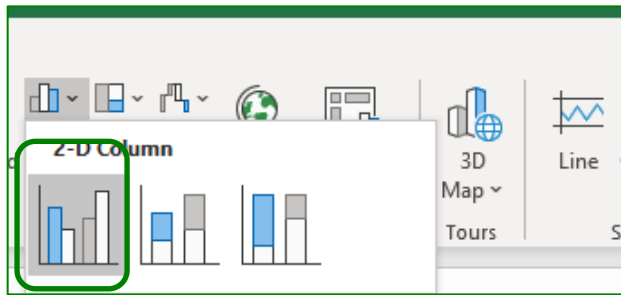


21.5. Other options - Chart

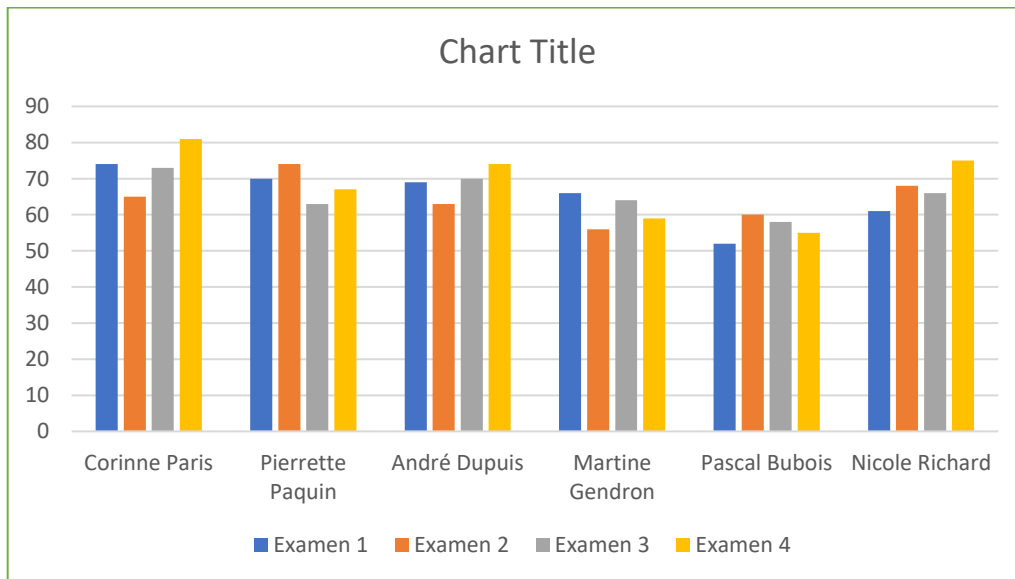
The purpose of this exercise is to demonstrate how to create a **chart** integrated into an **Excel** spreadsheet.

1. To **generate** your chart, you need to select data. **Excel** accepts continuous or discontinuous selections for charts. The first row and column may contain text.
2. Open file: "**Calculation Intermediate**", Select cells "**A2 to E8**" of the **GRAPHIC** sheet.

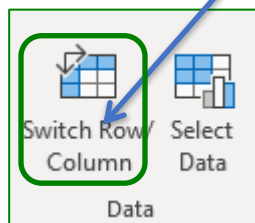
3. Click on ➔ **Column ➔** of the Insert Tab



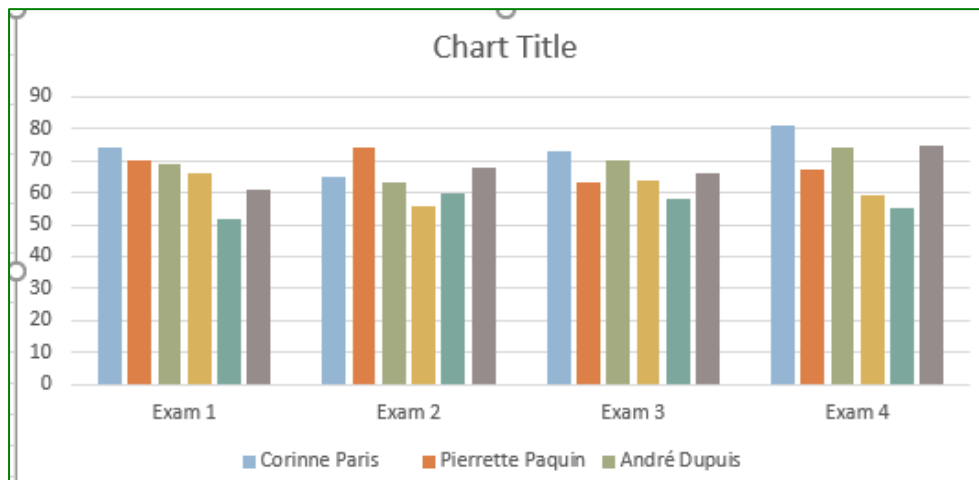
4. Choose the first **option** of the chart: **2-D column**
Here's the result.



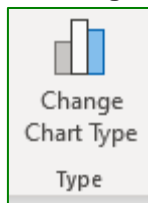
5. Click in **Switch Row/Column**, from the Design tab to change the look of the chart based on the data.



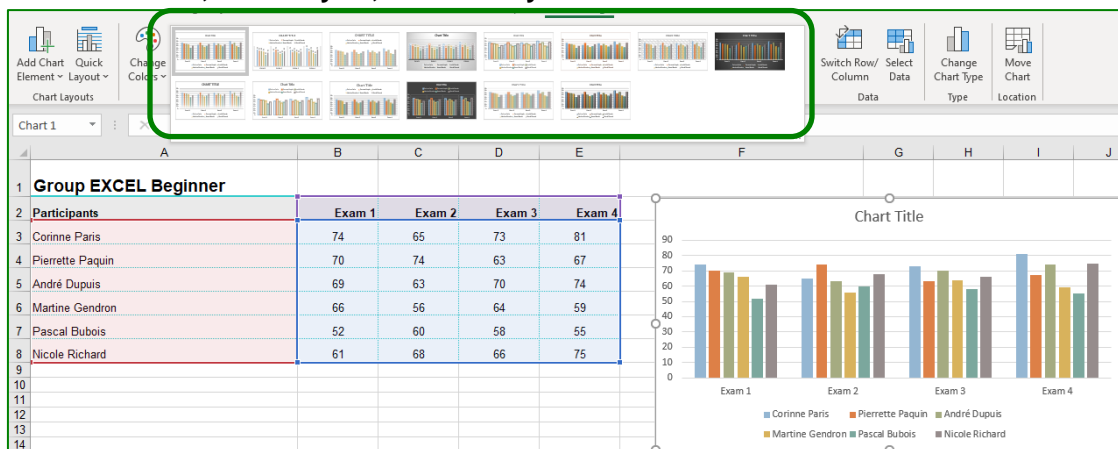
See the result and the difference in your chart (Next page)



6. To change the type of chart

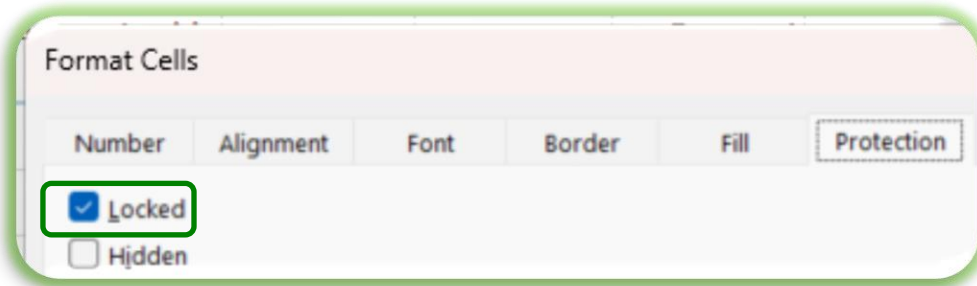


7. To **change the format of the chart**, make sure to drop the cursor in the chart, then from the **Creation** tab, **Chart Styles**, choose a **style**:



22. Cell protection

By default, all cells in a sheet are locked. You will find this option in → **Format Cells** → Group **Cells** → **Protection** Tab

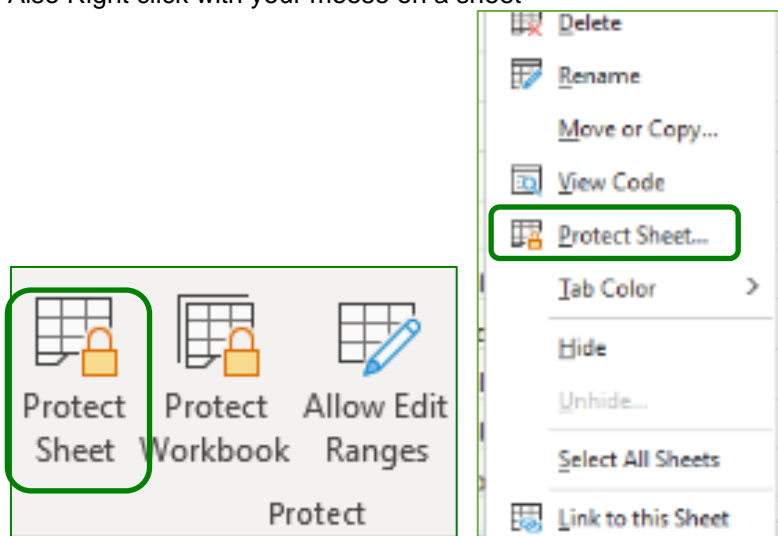


It is important to protect cells to avoid mistakenly removing sometimes complex formulas. **This is done in two steps.** First, you must **unlock every cell** you want to access, only the cells that have been unlocked will be accessible. The second step is to protect the **sheet** with or without a password. You can do this step in → **Review** tab → **Protect Sheet**.

22.1. Sheet protection

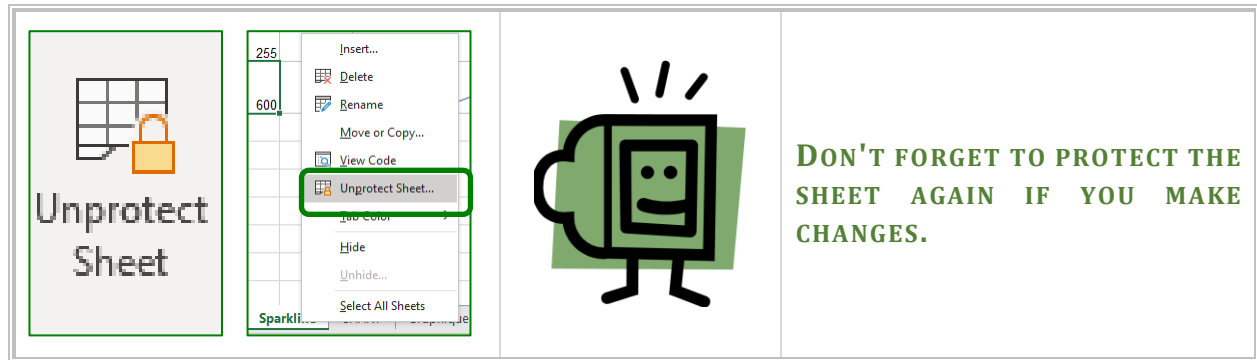
HOW TO PROTECT THE SHEET

1. From → **Review** tab → **Protect Sheet**.
2. Activate options you do not want to protect.
3. Enter a **password** (you can leave this area empty)
4. Click **OK**
5. Protection can also be found in the «**Format icon**» of the "**Cells**" group.
6. Also Right click with your mouse on a sheet



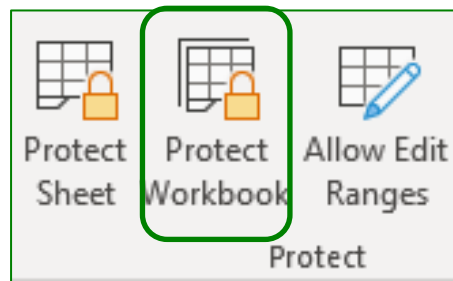
22.2. To remove the protection

If you want to change the contents of a locked cell or hidden formulas, you should disable the protection of the sheet. Select ➔ **Unprotect Sheet** ➔ **Review** tab.



22.3. Protect Workbook

WHY SHOULD WE PROTECT WORKBOOK?



THIS OPTION IS IN "REVIEW TAB " GROUP "PROTECT "



WE WILL PROTECT THE STRUCTURE TO PREVENT SHEETS FROM MOVING DUE TO THE FORMULAS

ALSO, TO PREVENT HIDING OR UNHIDING SHEETS.

23. Exercise 1 – Paste with link.

Open workbook "School statistics link" , in the "Multi-sheet" folder
1. Insert the average into the 3 sheets for groups A-B and C
2. Compile the result of groups A B and C in the "Summary" sheet, using "Paste link"
3. Hide the "Summary" sheet

24. Exercise 2 - Paste with link.

Open the "Chocolate" workbook in the "Multi-Sheet" folder
1. Insert the sum into the 4 sheets for quarters 1 - 2 - 3 - 4 <u>In a single operation.</u> <ul style="list-style-type: none"> ◆ Compile the data with link in the "Annual summary" sheet
2. Compile quarterly results in the "Annual summary" sheet, using "Paste link"
3. Format all sheets <ul style="list-style-type: none"> ◆ Format: Landscape ◆ Align horizontally and vertically. ◆ File name on the left, date in the center, sheet name on the right ◆ Change the titles of row 2 to read: Sale for the year 202X instead of: Place Versailles ◆ Tab color on the sheet created on all sheets. ◆ Protect the "Annual summary" sheet in writing

25. Review - Formulas

Open the "Exercise" workbook
1. Insert formulas in sheets "Employees" and "Supermarket" .
2. Sheet "Deadline" <ul style="list-style-type: none"> ◆ Insert today date in Cell "A9". ◆ Insert the formulas from B3 to E9

26. Exercise 1 - Sub-totals

Open the " Exercise " workbook
1. Sheet: "Employees" <ul style="list-style-type: none"> ◆ We want to see the sum of salaries per department. ◆ And the number of employees per department

27. Exercise 2 - Sub-totals

Open the " Exercise " workbook
1. Sheet: "Supermarket" <ul style="list-style-type: none"> ◆ We want to see the sum of sales per Farm. ◆ And the sum of sales per product
2. Sheet: "Boutique" <ul style="list-style-type: none"> ◆ Sum of sales per year ◆ And the sum of sales per season

28. Exercise - Conditional formatting

Open the " Exercise " workbook
1. Sheet: "Employees" <ul style="list-style-type: none"> ◆ Conditional formatting If the person lives in: Montreal (Please do not use the same color) if the salary is more than 1 000
2. Sheet: "Boutique" <ul style="list-style-type: none"> ◆ Conditional formatting if the category is: Girl ◆ Column F (Sales), choose: Color scales

29. Exercise - Custom sort

Open the " Exercise " workbook
1. Sheet: "Employees", column: First name <ul style="list-style-type: none"> ◆ Sort by font color "Blue - Green - Red - Automatic" ◆ Make sure each color is also in alphabetical order

30. Exercise - Custom Views

Open the " Exercise " workbook	
1.	Sheet: " RV " <ul style="list-style-type: none"> ◆ Layout: Landscape ◆ Make sure the sheet is adjusted to a page in width. ◆ Footer to be created (Your choice) ◆ Create a custom view, name it: Complete
2.	Create a new custom view to get a list of patients who will undergo surgery next month. <ul style="list-style-type: none"> ◆ Hide a few columns. ◆ This sheet must be in "Portrait" mode. ◆ Header: List of surgical patients for next month ◆ Create a custom view, name it: Surgery
3.	Create a new custom view to get the doctor's patient list: Lori Price <ul style="list-style-type: none"> ◆ Hide the columns: B - E and H ◆ Header: List of patients in "Gynecology" for next week ◆ Create a custom view, name it: Lori Price

31. Exercise - Validation

Open the " Exercise " workbook	
1.	Sheet: " RV " <ul style="list-style-type: none"> ◆ Column: Sex ◆ Message: Enter F for Female or M for Men
2.	Sheet: " Employees " <ul style="list-style-type: none"> ◆ Limit value to 4 digits ◆ Title: Message from Management Message: Enter a 4-digit number
3.	Sheet: " Boutique " <ul style="list-style-type: none"> ◆ Season: Spring - Summer - Autumn - Winter ◆ Category: Girl - Women - Boy - men

32. Exercise - Advanced Filter

Open the " Exercise " workbook	
1.	Filters to be applied in the " Boutique " sheet. <ul style="list-style-type: none">◆ Filter the women list for the Spring season◆ And the men list for the Fall season
2.	Repeat the same exercise by copying your data into a new sheet
3.	Rename the sheet: " Advanced Filter "

33. Exercise - Chart

Open the " Summary " workbook in the "Multi Sheets" folder	
2.	Sheet: " Jan " <ul style="list-style-type: none">◆ Select cells from A3 to B9◆ Create a "3D Section" chart (Pie)◆ Insert a Title to your chart.◆ Insert percentage value.◆ Make changes and explore