Excel

Must-knows

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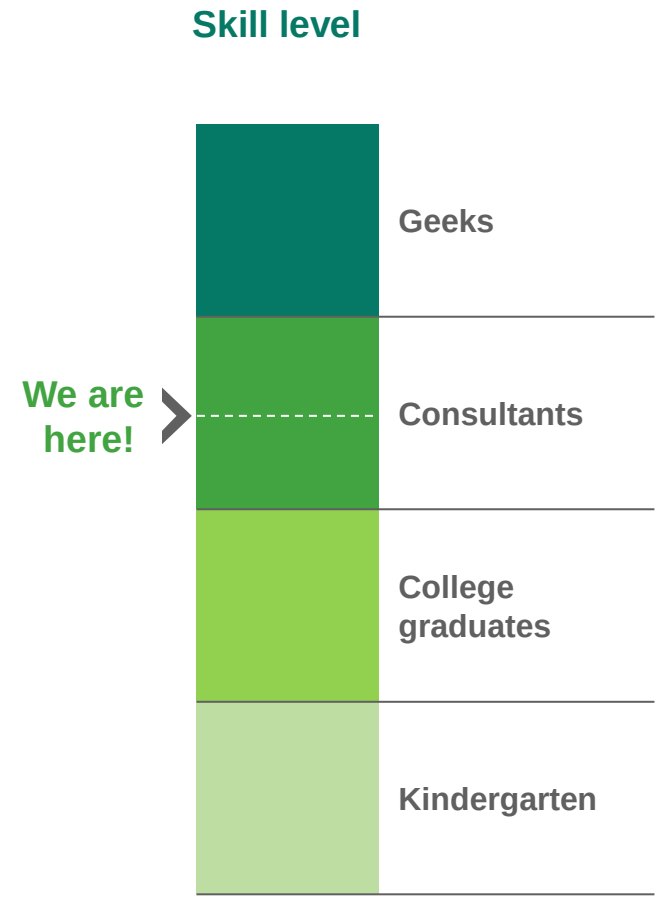
Before everything
Excel is a powerful tool, and there is a lot more to discover

The document will NOT cover
- Basic skills of excel (save a document, etc.)
- Introduction of basic functions (1+2=3, etc.)
- Other kindergarten stuffs

Neither
- Macro & VBA & Programming
- Statistics tools
- Static graphs (let's do that in ppt)
- Array functions
- A « user friendly » control panel with 1000 choices and a short flash movie that a normal people will destroy it in 30 seconds
- All geek stuffs

The document will cover
- Some most used short-cuts
- A few powerful functions
- Simple data base
- Pivot table
- Conditional formatting
- How to make beautiful excel files



Agenda

1. **Try use your mouse for 20% of the time**
2. **Powerful functions**
3. **Database & pivot table**
4. **Formatting : making beautiful excel files**

Excel short cuts

More short cuts are available on internet, however you will not need all of them

Ctrl +	Insérer une ligne / une colonne
Ctrl -	Supprimer une ligne / une colonne
Ctrl ↖	Aller à la cellule A1
Ctrl ↑	Aller à la 1ère cellule du haut
Ctrl ↓	Aller à la dernière cellule occupée de la colonne
Ctrl ←	Aller à la 1ère cellule de la ligne
Ctrl →	Aller à la Dernière cellule occupée de la ligne
Alt + PgDn	Aller à la page suivante à droite
Alt + PgUp	Retourner à la page précédente à gauche
PgDn	Aller à la page suivante en bas
PgUp	Retourner à la page précédente en haut
Ctrl + PgDn	Aller à la feuille suivante
Ctrl + PgUp	Aller à la feuille précédente
F2	Aller dans le formule de la cellule
F4	Mettre « $ »

Ctrl + F	Pour trouver une chaîne de caractères ou de chiffres
Ctrl + B	Recopie au-dessous les cellules sélectionnées
Ctrl + A	Sélectionne toute la feuille de calcul
Ctrl + C	Copier
Ctrl + X	Couper
Ctrl + V	Coller
Ctrl + Z	Annuler
Ctrl + Y	Recommencer
Ctrl + F	Rechercher un texte, une formule,…
Ctrl + H	Changer un texte, une formule,… par un autre texte, formule,…
Ctrl + Espace	Sélectionner toute la colonne
Shift + Espace	Sélectionner toute la ligne
Alt + Entrée	Commence une nouvelle ligne dans la même cellule
Ctrl + S	Sauvegarder
Ctrl + P	Imprimer

Agenda

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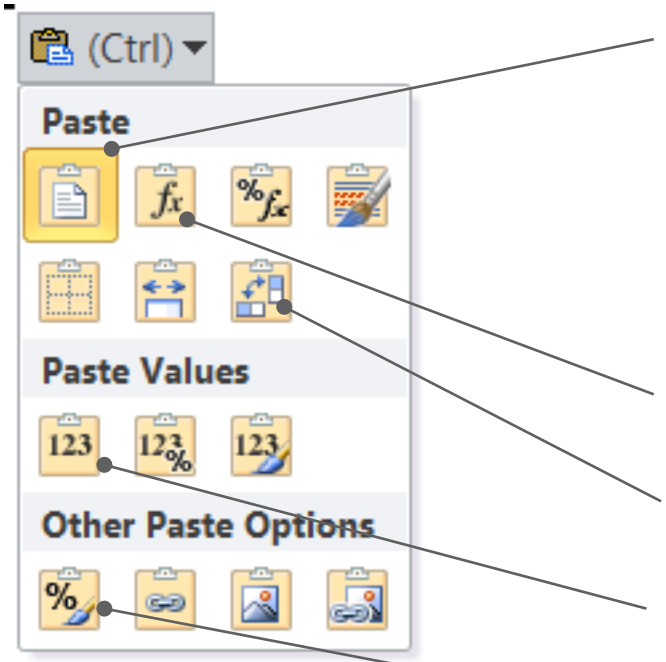
3. Database & pivot table
4. Formatting : making beautiful excel files

Before functions: copy-paste in Excel
This is the most powerful but as well a misleading tool

After « Ctrl V », press a second time « Ctrl »

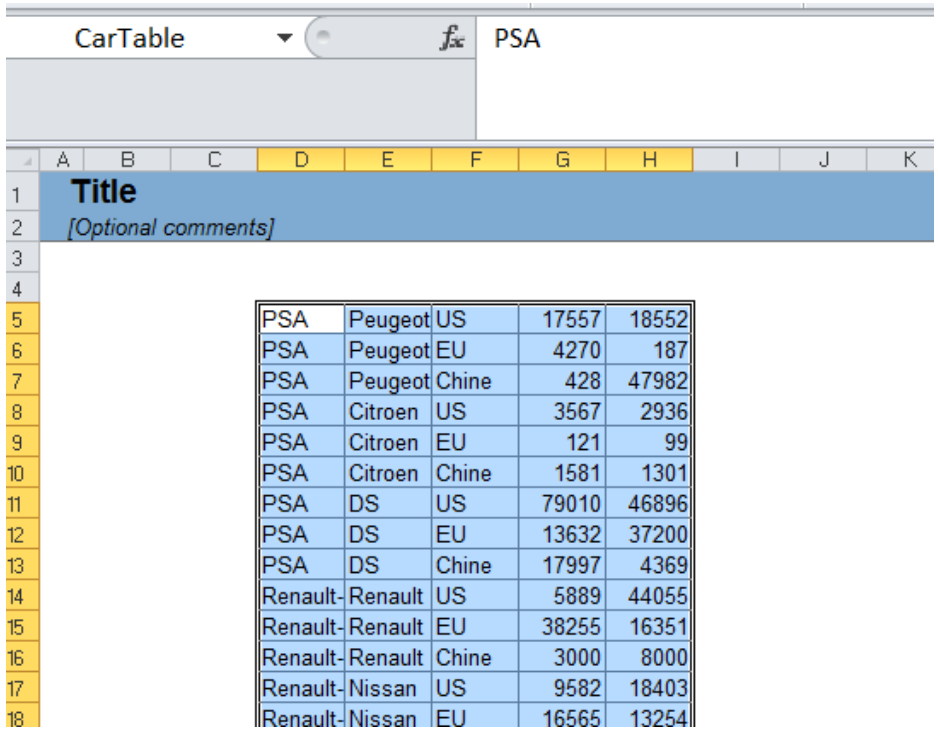
- You can chose the type of « copy » you want



- By default: copy “function & formatting”, the cell without « $ » in the Functions will shift, the part with « $ » will stay the same. E.g from A1 to B2:
  - A1->B2
  - A$1->B$1
  - $A1->$A2
  - $A$1->$A$1
- Copy only functions
- Copy, then transpose
- Copy only value (the Functions will be removed)
- Copy only formatting

You might as well directly press Ctrl + Alt + V, or Alt + E + S

Before functions: name a cell / an array / a table
This is the most ignored practice which will change your life of Excel programming



5	PSA	Peugeot	US	17557	18552
6	PSA	Peugeot	EU	4270	187
7	PSA	Peugeot	Chine	428	47982
8	PSA	Citroen	US	3567	2936
9	PSA	Citroen	EU	121	99
10	PSA	Citroen	Chine	1581	1301
11	PSA	DS	US	79010	46896
12	PSA	DS	EU	13632	37200
13	PSA	DS	Chine	17997	4369
14	Renault-	Renault	US	5889	44055
15	Renault-	Renault	EU	38255	16351
16	Renault-	Renault	Chine	3000	8000
17	Renault-	Nissan	US	9582	18403
18	Renault-	Nissan	EU	16565	13254

- You can name ANYTHING: Cell / array / table
- When you need to cite it again, just enter its name.

- **Example:**

- Name **$A$1:$C$10** as **CarTable**
- Then
- You can use

vlookup(40; CarTable; 3; FALSE)

- Instead of

vlookup(40; $A$1:$C$10; 3; FALSE)

Functions Covered
The MS help document is very helpful, otherwise, we have Google

- **Basics**
  - &

A1	A2	=A1&A2	=A1&", ZZ"&A2
XX	YY	XXYY	XX, ZZYY

  - ^

A1	A2	=A1^A2
3	5	243

(A1 power A2)

  - Sum / count / average

A1	A2	A3
3	5	1

C1	C2
2	4

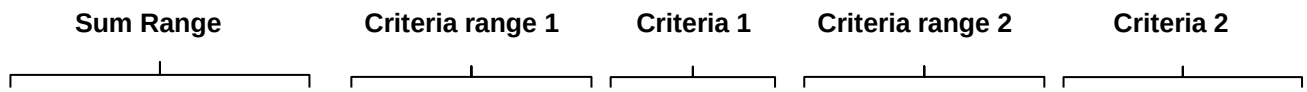
15	=sum(A1:A3;C1:C2)
5	=count(A1:A3;C1:C2)
3	=average(A1:A3;C1:C2)

  - If / and / or / not (logical functions)

- **Conditioned calculation**
  - Sumifs / countifs
  - Sumproduct
- **Lookup functions**
  - Vlookup / Hlookup
  - Index & match
- **Dynamic lookup**
  - Indirect
  - Address
  - Offset

Conditioned calculation

When you only want to sum/count data that fulfills a certain condition…



=sumifs($A$1:$A$99; B$1:B$99; “>0”; C$1:C$99; “=“&$F$5)

Sumifs= $\sum_{i=1}^{99} A_i \ (if\ B_i > 0\ and\ C_i = \$F\$5)$

- Countifs is similar

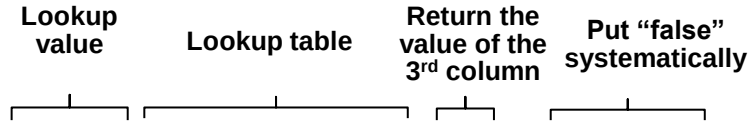
=sumproduct($A$1:$A$99; B$1:B$99; C$1:C$99)

Sumproduct= $\sum_{i=1}^{99} A_i\ * B_i * C_i$

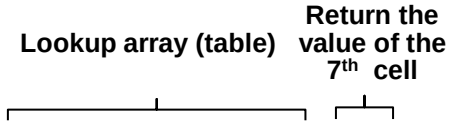
=sumproduct($F$5* ($A$1:$A$99) *($B$1:$B$99>0) *($C$1:$C$99=$D$1:$D99))

Sumproduct= $\$F\$5 * \sum_{i=1}^{99} A_i\ \ (if\ B_i > 0\ and\ C_i = D_i)$

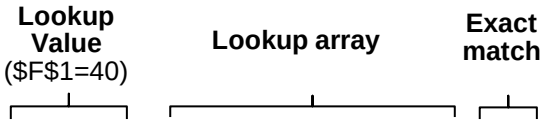
Lookup functions
When you only want to find / match a name by its reference



vlookup(40; $A$1:$C$10; 3; FALSE) =Gerhard Goeschl



index($C$1:$C$10; 7)=Gerhard Goeschl



match($F$1; $A$1:$A$10; 0) = 7

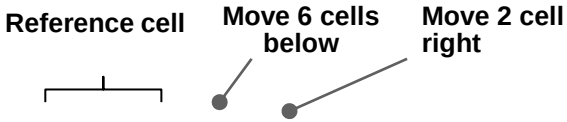
	A	B	C
1	Employee ID	Department	Full Name
2	35	Sales	Yossi Banai
3	36	Production	Nicole Bousseau
4	37	Sales	Aik Chen
5	38	Operations	Axel Delgado
6	39	Sales	Suroor Fatima
7	40	Production	Gerhard Goeschl
8	41	Sales	Andreas Hauser
9	42	Operations	Nattorn Jayanama
10	43	Production	Jim Kim

index($C$1:$C$10; match($F$1; $A$1:$A$10; 0)) =Gerhard Goeschl

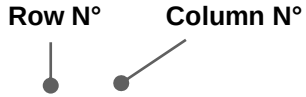
The calculation of Index-match is faster than vlookup.

Dynamic lookup

When you only want to find / match a name by its reference in a more flexible way



Offset($A$1; 6; 2)=Gerhard Goeschl



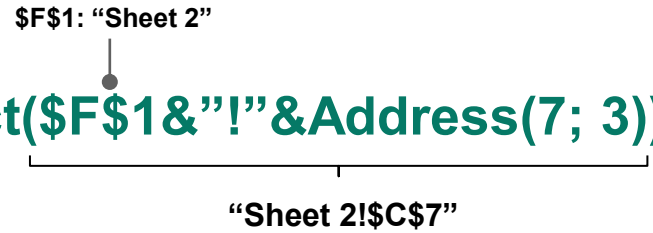
Address(7; 3)=$C$7

Sheet 2

	A	B	C
1	Employee ID	Department	Full Name
2	35	Sales	Yossi Banai
3	36	Production	Nicole Bousseau
4	37	Sales	Aik Chen
5	38	Operations	Axel Delgado
6	39	Sales	Suroor Fatima
7	40	Production	Gerhard Goeschl
8	41	Sales	Andreas Hauser
9	42	Operations	Nattorn Jayanama
10	43	Production	Jim Kim

Indirect(Address(7; 3))= Gerhard Goeschl

- Indirect(ref) shows the value in the cell with the name « ref »



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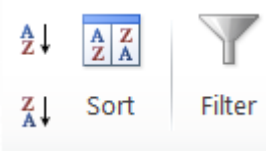
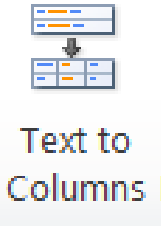
Database: Basics

After converting an txt file to excel file, filter and sort tools are most used for data base

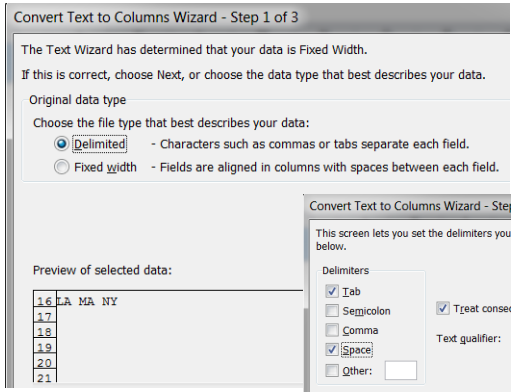


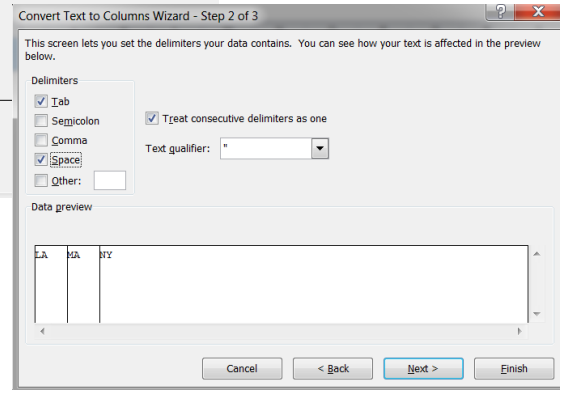
- Sort / filters will sort /filter **continued** rows/columns
- By default, it will only influence the cells in the sqare

AA	BB	CC	DD
fhz	3	10	8
fhjz	2	7	2
fzk	1	4	1
Sum	6	21	

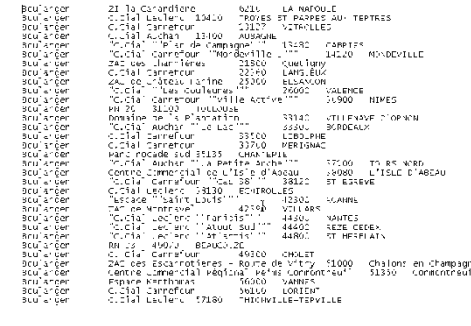


- If the database is in *txt or other forms, this tool could help to convert to excel files

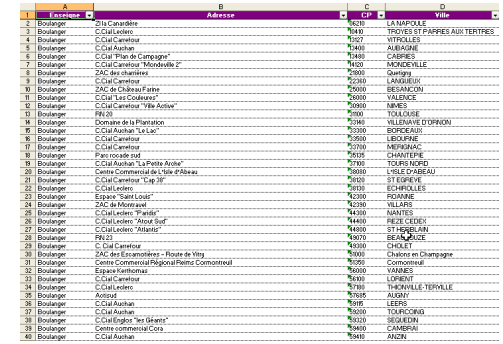




Original data (*txt)



Treated data in excel



Database: what if the database is… disgusting

The purpose of the actions is to create a good and right database, ready to be easily analysed by “filter” “sort” and “pivot table”

Killer tools for disgusting database

1

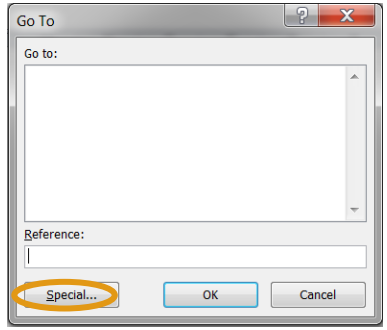
Replacing (Ctrl+H) -> Replace all

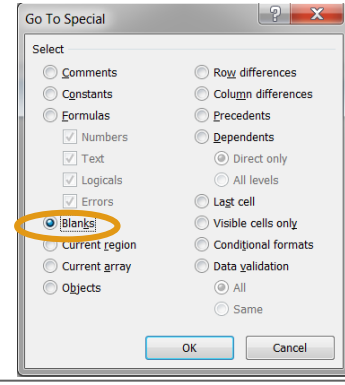
- Repair recurrent typos / faults
- Convert between “,” and “.” if you need to deal with both French and Chinese

2

GoTo (Ctrl+G) -> Special -> Blanks -> “= the cell above” -> Ctrl + Enter

- If you have a database with a lot of blanks that need to be filled
- A database need to be all filled so you use “filter” and “pivot table”





3

Match function

- Check if there is duplicate / strange lines

Original Data

Non-treatable by pivot table

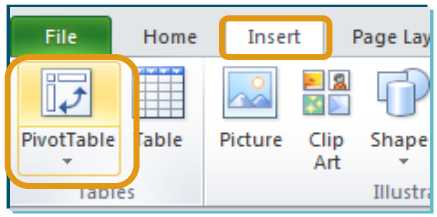
PSA	Peugeot	US	17557	18552
		EU	4270	187
		Chine	428	47982
	Citroen	US	3567	2936
		EU	121	99
		Chine	1581	1301
	DS	US	79010	46896
		EU	13632	37200
		Chine	17997	4369
Renault-Ni	Renault	US	5889	44055
		EU	38255	16351
		Chine	3000	8000
	Nissan	US	9582	18403
		EU	16565	13254
		Chine	4668	19139
		Japan	5	44
	Infiniti	US	52900	1220

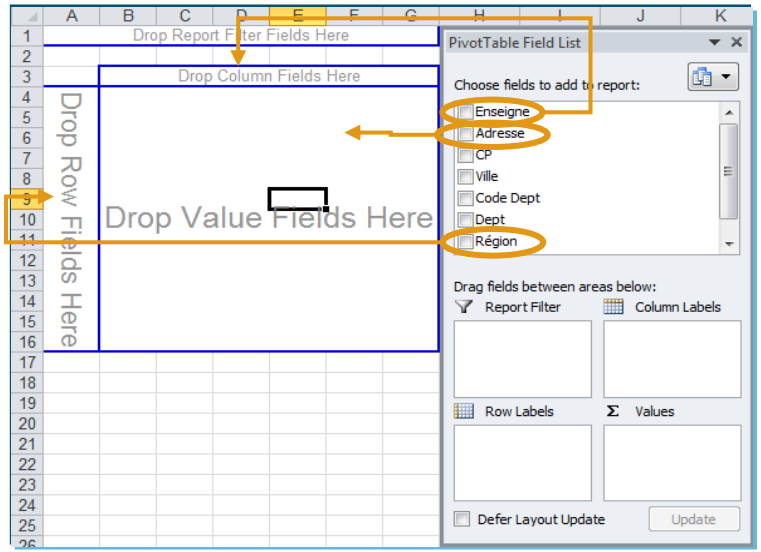
Filled database

PSA	Peugeot	US	17557	18552
PSA	Peugeot	EU	4270	187
PSA	Peugeot	Chine	428	47982
PSA	Citroen	US	3567	2936
PSA	Citroen	EU	121	99
PSA	Citroen	Chine	1581	1301
PSA	DS	US	79010	46896
PSA	DS	EU	13632	37200
PSA	DS	Chine	17997	4369
Renault-Ni	Renault	US	5889	44055
Renault-Ni	Renault	EU	38255	16351
Renault-Ni	Renault	Chine	3000	8000
Renault-Ni	Nissan	US	9582	18403

Pivot table: Creation
Pivot table is a powerful tool to treat database

Create a pivot table





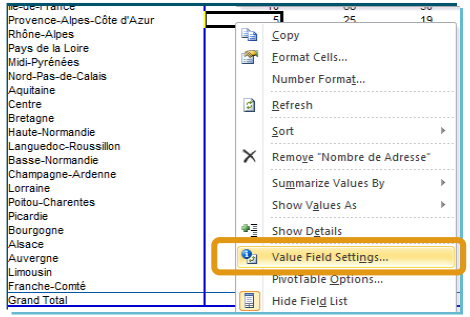
Result

Nombre de Adresse	Enseigne	
Région	Boulanger	Boutiques FT
Ile-de-France	10	68
Provence-Alpes-Côte d'Azur	5	25
Rhône-Alpes	7	19
Pays de la Loire	8	26
Midi-Pyrénées	2	26
Nord-Pas-de-Calais	10	3
Aquitaine	4	14
Centre	1	29
Bretagne	4	14
Haute-Normandie		27
Languedoc-Roussillon	1	7
Basse-Normandie	1	9
Champagne-Ardenne	3	15
Lorraine	2	8
Poitou-Charentes	1	12
Picardie	3	7
Bourgogne	2	8

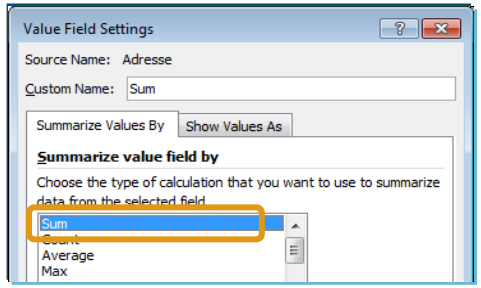
Pivot table: Choose the calculation method of your model
Sum / count / average/ etc.

Choose the calculation method

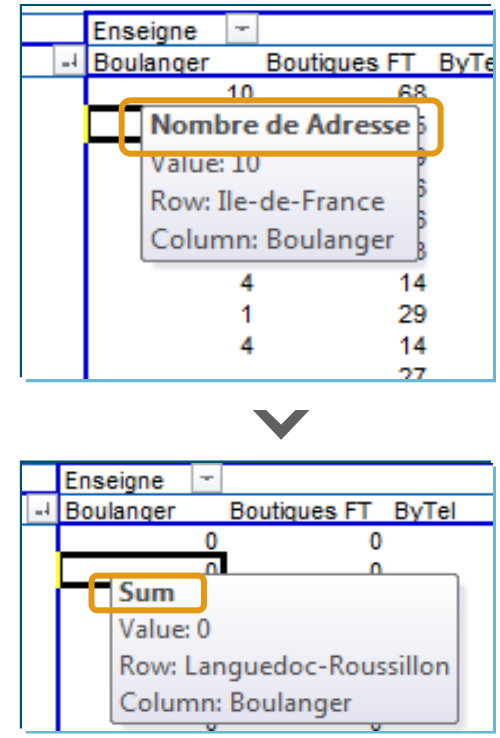
1 **Right click on the name of the panel**



2 **Choose the calculation method**

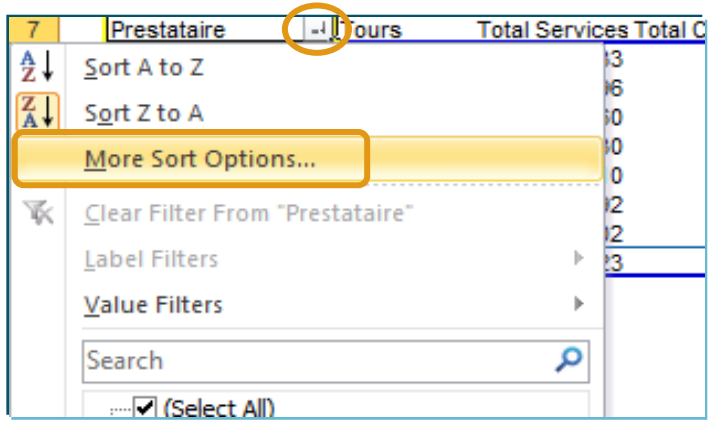


Result



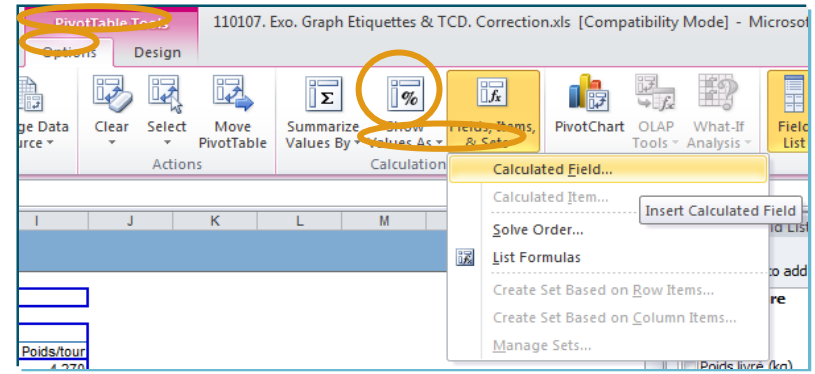
Pivot table: Some advanced tools and notes
Be sure to update you pivot table if you have changed your database

Advanced sort



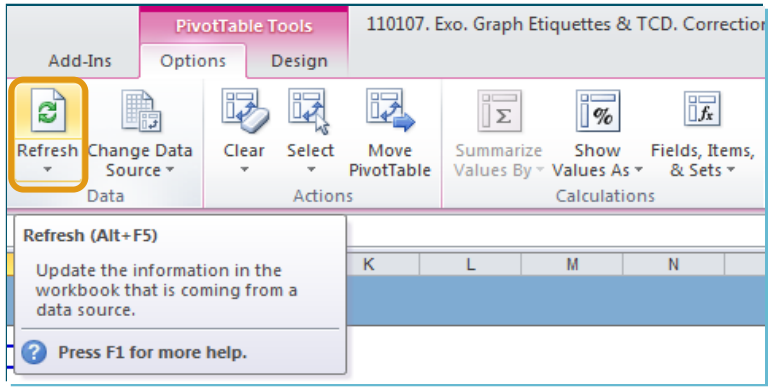
Customized calculation method

Pivot Table Tools ->options->Fields, Items & Sets->Calculated Field



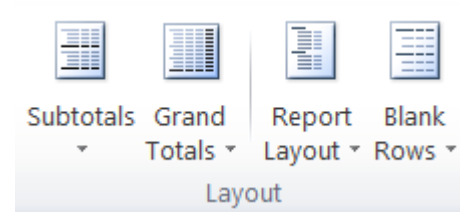
Update your pivot table

Pivot table tools -> Options->Refresh



Design of pivot table

Pivot table tools -> Design



Agenda

1. Try use your mouse for 20% of the time
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3. Database & pivot table
4. **Formatting : making beautiful excel files**

Basic formatting
The basics are always the most important things

Table tools (Ctrl + t)
The automatic formatting is quite beautiful

Company	Brand	Country	2009	2010
PSA	Peugeot	US	17557	18552
PSA	Peugeot	EU	4270	187
PSA	Peugeot	Chine	428	47982
PSA	Citroen	US	3567	2936
PSA	Citroen	EU	121	99
PSA	Citroen	Chine	1581	1301
PSA	DS	US	79010	46896
PSA	DS	EU	13632	37200
PSA	DS	Chine	17997	4369

Or you can do it manually
Borders / fillings / bold

Company	Brand	Country	2009	2010
PSA	Peugeot	US	17557	18552
PSA	Peugeot	EU	4270	187
PSA	Peugeot	Chine	428	47982
PSA	Citroen	US	3567	2936
PSA	Citroen	EU	121	99
PSA	Citroen	Chine	1581	1301
PSA	DS	US	79010	46896
PSA	DS	EU	13632	37200
PSA	DS	Chine	17997	4369
Total			**138163**	**159522**

The tabs of Excel could be coloured (right click the name -> Tab Colour)

Overview and Manual | **Cockpit** | Schedule | NHC | Central Service | New Build | SLC Model | S

- A manual is important for other people to understand your file

- Colour Code is always help to distinguish input/output

//Source TBD

III. Methodology of calculating the final staffing levels

A. Calculation of Effective Staffing

A1. NHC / Central Service / Fuel

1.1 Management	Maximum 1 person per position
1.2 Team	Sum of FTE required at each gate (FTE for 1st unit +FTE for
1.3 Year 2013	Manual input
1.4 Assistant	# Executive + # VP
Rational:	*FTE in NHC, the central services, and the fuel company dep*
	The number of employees at the NHC is not growing as fast

A2. New Build

2.1 Management	Maximum 1 person per position
2.2 Team (G1-G4)	Sum of FTE required at each gate (FTE for 1 unit * **(# Std. 1s**
	***Std: Standard unit number = # Turn Key Unit + # Split F**
2.3 Team (G5)	FTE for 1st unit +FTE for 1 unit*(1-scale economy factor)*(#

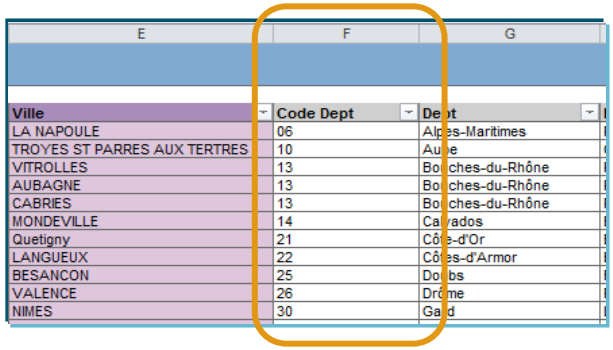
0. Overview of colour code, definitions and sheet functions

1. Color code:

Orange: Parameter that can be adapted
Blue: Definition / Description
Green: Staffing level input data
White-Grey: Calculated Data

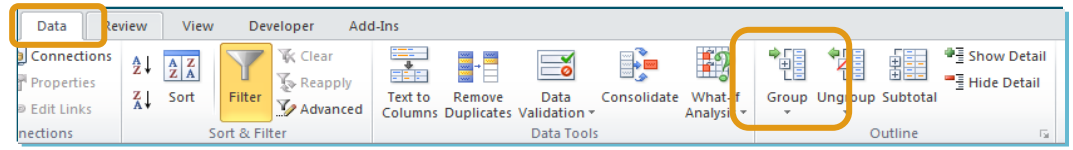
Group
Show / hide the column / rows

1 Select a column

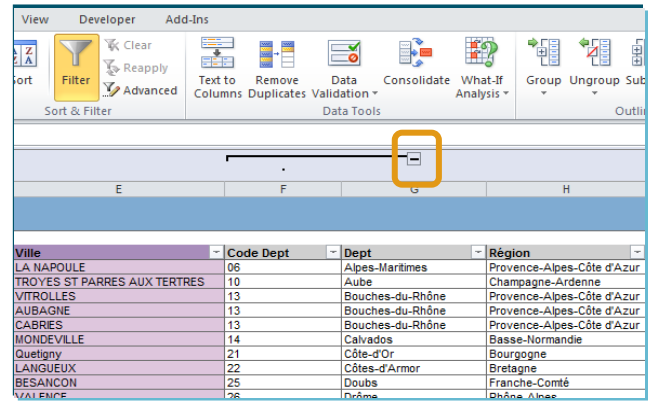


Ville	Code Dept	Dept
LA NAPOULE	06	Alpes-Maritimes
TROYES ST PARRES AUX TERTRES	10	Aube
VITROLLES	13	Bouches-du-Rhône
AUBAGNE	13	Bouches-du-Rhône
CABRIES	13	Bouches-du-Rhône
MONDEVILLE	14	Calvados
Quetigny	21	Côte-d'Or
LANGUEUX	22	Côtes-d'Armor
BESANCON	25	Doubs
VALENCE	26	Drôme
NIMES	30	Gard

2 Data->Group

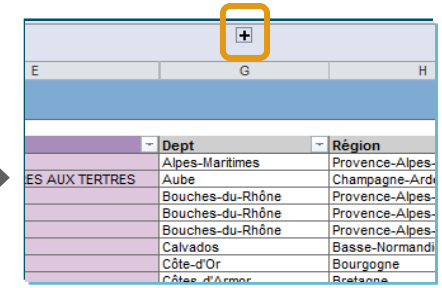


3 Click « - » to hide



Ville	Code Dept	Dept	Région
LA NAPOULE	06	Alpes-Maritimes	Provence-Alpes-Côte d'Azur
TROYES ST PARRES AUX TERTRES	10	Aube	Champagne-Ardenne
VITROLLES	13	Bouches-du-Rhône	Provence-Alpes-Côte d'Azur
AUBAGNE	13	Bouches-du-Rhône	Provence-Alpes-Côte d'Azur
CABRIES	13	Bouches-du-Rhône	Provence-Alpes-Côte d'Azur
MONDEVILLE	14	Calvados	Basse-Normandie
Quetigny	21	Côte-d'Or	Bourgogne
LANGUEUX	22	Côtes-d'Armor	Bretagne
BESANCON	25	Doubs	Franche-Comté

4 Click « + » to unhide



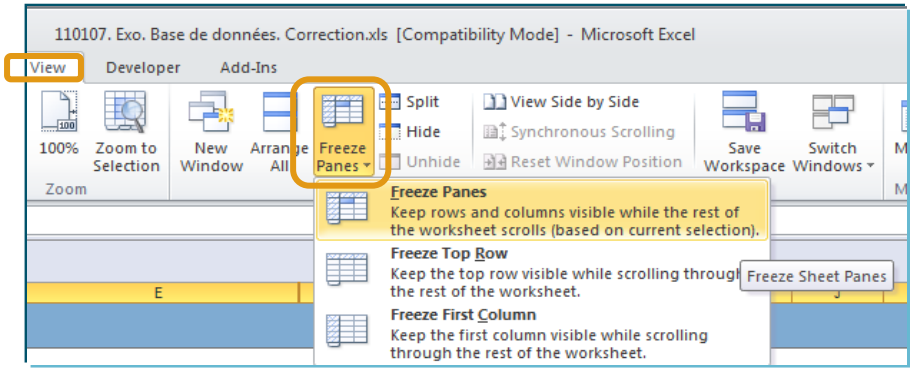
	Dept	Région
	Alpes-Maritimes	Provence-Alpes-
ES AUX TERTRES	Aube	Champagne-Ard
	Bouches-du-Rhône	Provence-Alpes-
	Bouches-du-Rhône	Provence-Alpes-
	Bouches-du-Rhône	Provence-Alpes-
	Calvados	Basse-Normandi
	Côte-d'Or	Bourgogne
	Côtes-d'Armor	Bretagne

Freeze Panes
So that the fist lines/columns could be always seen

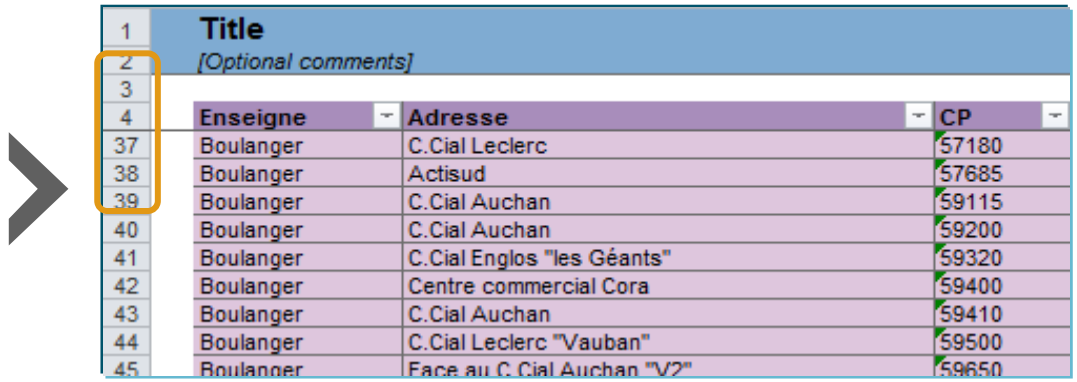
1 **Select the 1st line which could be scrolled away**

	A	B	C
1		**Title**	
2		*[Optional comments]*	
3			
4		Enseigne	Adresse
5		Boulanger	ZI la Canardière
7		Boulanger	C.Cial Carrefour
8		Boulanger	C.Cial Auchan
9		Boulanger	C.Cial "Plan de Campagne"
10		Boulanger	C.Cial Carrefour "Mondeville 2"
11		Boulanger	ZAC des charrières
12		Boulanger	C.Cial Carrefour
13		Boulanger	ZAC de Château Farine

2 **View->Freeze Panes**



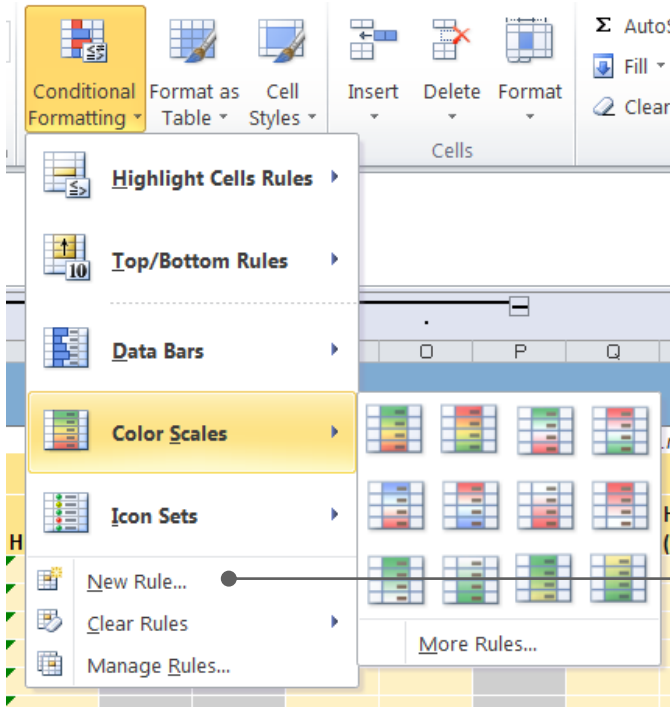
3 **Scroll down, the title stays!**



1	**Title**		
2	*[Optional comments]*		
3			
4	**Enseigne**	**Adresse**	**CP**
37	Boulanger	C.Cial Leclerc	57180
38	Boulanger	Actisud	57685
39	Boulanger	C.Cial Auchan	59115
40	Boulanger	C.Cial Auchan	59200
41	Boulanger	C.Cial Englos "les Géants"	59320
42	Boulanger	Centre commercial Cora	59400
43	Boulanger	C.Cial Auchan	59410
44	Boulanger	C.Cial Leclerc "Vauban"	59500
45	Boulanger	Face au C.Cial Auchan "V2"	59650

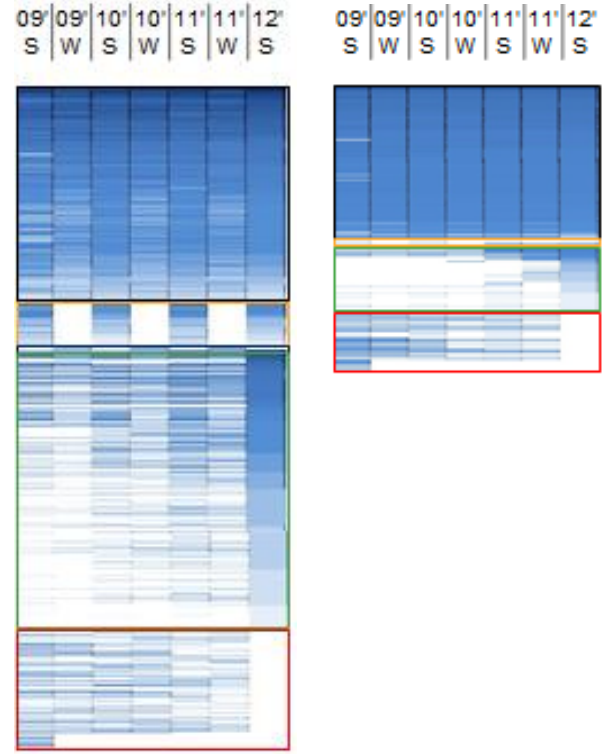
Conditional formatting
Cells format will be automatically set according to a given set of rules

Conditional formatting is a very powerful tool to show your data in an active way



Use “New Rules” to define your personalized formatting rules

Example:
Flight capacity change for AirXXX and AirYYY



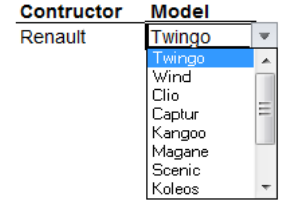
Conditional formatting > Manual formatting

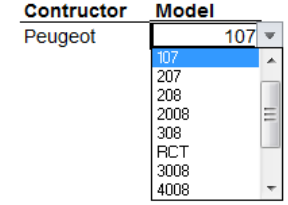
Drop-down list

You may choose the constructor then choose its models with a multi-degree drop-down list

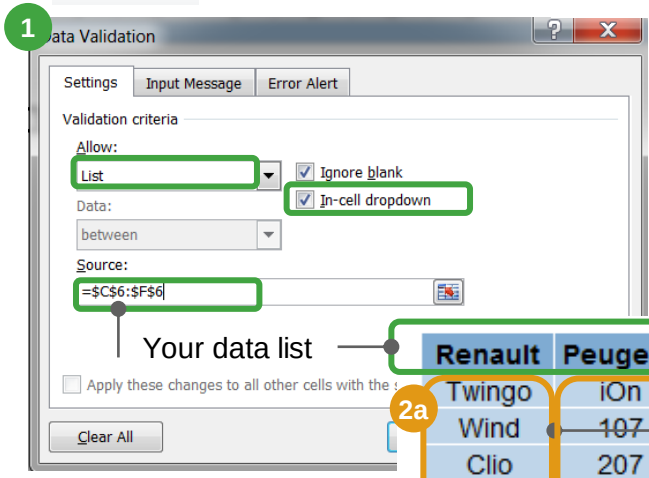
Simple drop down list

Multi-degree drop down list





1



Your data list

2a

Renault	Peugeot	Citoen	DS
Twingo	iOn	C0	DS1
Wind	107	C1	DS3
Clio	207	C2	DS5
Captur	208	C3	
Kangoo	2008	C4	
Magane	308	C5	
Scenic	RCT	C8	
Koleos	3008	Nemo	
Latitude	4008	Berlingo	
Espace	5008	Jumpy	
Trafic	508	Jumper	
	80		

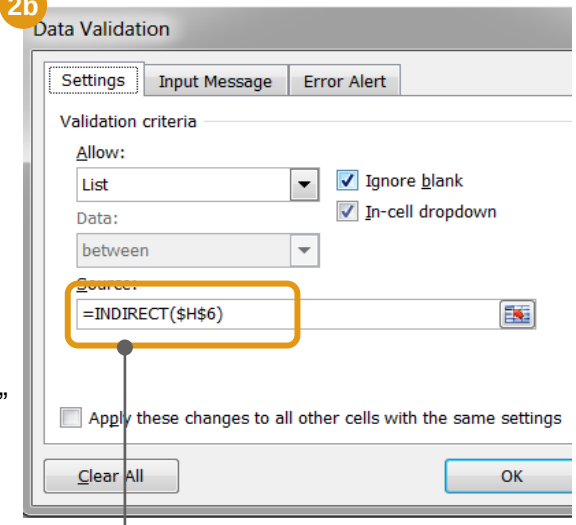
Name as “Renault”

Name as “Peugeot”

Name as “Citroen”

Name as “DS”

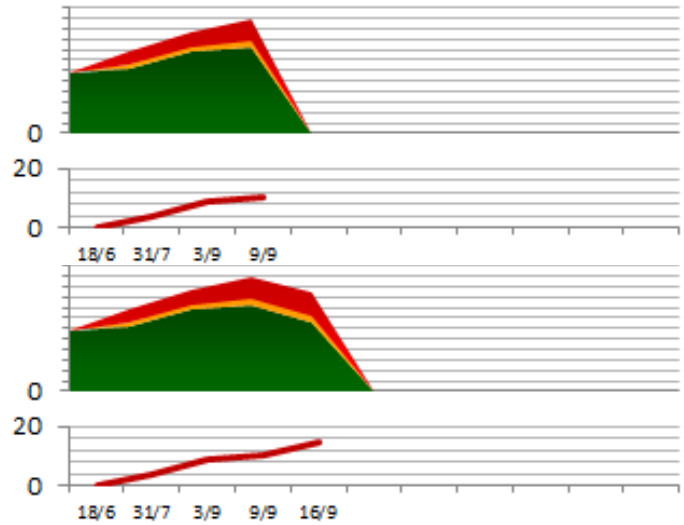
2b



=Indirect(cell of the simple drop-down list)

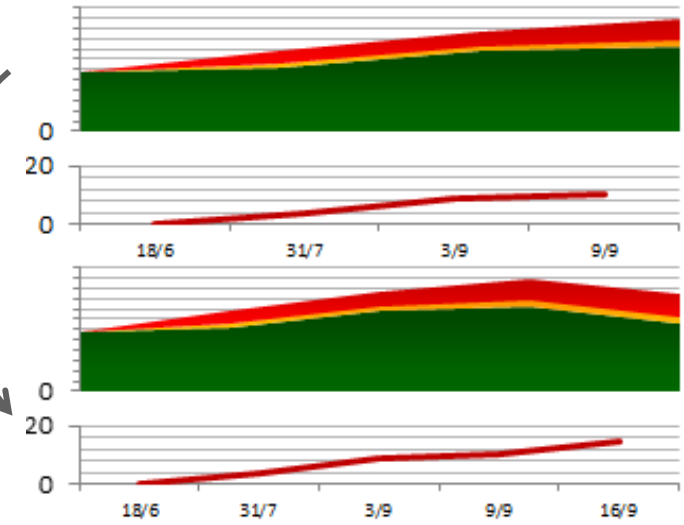
Name management: its application to dynamic charts
Create charts with FINITE (and fixed !) size, but INFINITE data source

Old-school static chart
30% of available data -> 70% of useless space on the chart



New Point

Dynamic chart
Automatically adapts source range to available data



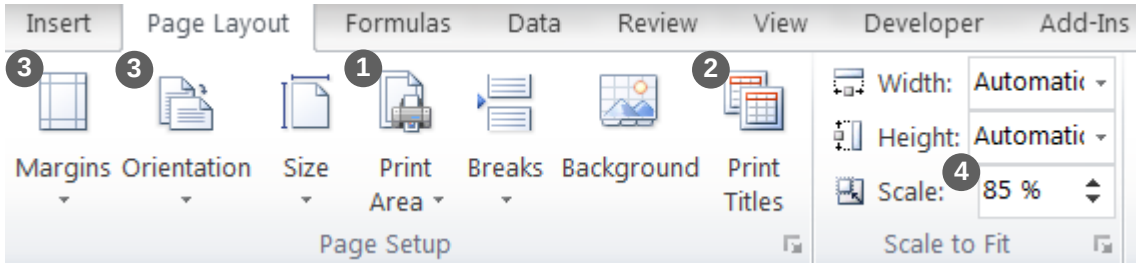
- ✘ Rather **unreadable** chart
- ✘ **Ugly** convergence point (area chart)
  or
- ✘ Fairly **laborious** maintenance

- ✓ **Optimized** display
  and
- ✓ **Convenient** data update

Tip: date-scale charts are always dynamic: no need to go through the trouble of COUNTA's!

Print

You may control many things when you print so that to put everything in one page



1. Choose your print area
2. If you have **titles** of the table you can set here so that it will **appear in every page**
3. Adapt “margin” and “orientation”
4. Change scale to make a good fit

Last word:

Excel files should not exceed
a painful

20M

Reducing the maximum row and column number, and making full use of every cell.

About author

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Bureau member of AFCP[2]

Contact:

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1. Oliver Wyman is a global strategy consulting firm
2. AFCP: Association amicale Franco Chinoise de Paristech

Annex | List of Functions

Information Functions

CELL	Returns information about the formatting, location, or contents of a cell
ERROR.TYPE	Returns a number corresponding to an error type
INFO	Returns information about the current operating environment
ISBLANK	Returns TRUE if the value is blank
ISERR	Returns TRUE if the value is any error value except #N/A
ISERROR	Returns TRUE if the value is any error value
ISEVEN	Returns TRUE if the number is even
ISLOGICAL	Returns TRUE if the value is a logical value
ISNA	Returns TRUE if the value is the #N/A error value
ISNONTEXT	Returns TRUE if the value is not text
ISNUMBER	Returns TRUE if the value is a number
ISODD	Returns TRUE if the number is odd
ISREF	Returns TRUE if the value is a reference
ISTEXT	Returns TRUE if the value is text
N	Returns a value converted to a number
NA	Returns the error value #N/A
TYPE	Returns a number indicating the data type of a value

Date and Time Functions

DATE	Returns the serial number of a particular date
DATEVALUE	Converts a date in the form of text to a serial number
DAY	Converts a serial number to a day of the month
DAYS360	Calculates the number of days between two dates based on a 360-day year
EDATE	Returns the serial number of the date that is the indicated number of months before or after the start date
EOMONTH	Returns the serial number of the last day of the month before or after a specified number of months
HOUR	Converts a serial number to an hour
MINUTE	Converts a serial number to a minute
MONTH	Converts a serial number to a month
NETWORKDAYS	Returns the number of whole workdays between two dates
NOW	Returns the serial number of the current date and time
SECOND	Converts a serial number to a second
TIME	Returns the serial number of a particular time
TIMEVALUE	Converts a time in the form of text to a serial number
TODAY	Returns the serial number of today's date
WEEKDAY	Converts a serial number to a day of the week
WEEKNUM	Converts a serial number to a number representing where the week falls numerically with a year
WORKDAY	Returns the serial number of the date before or after a specified number of workdays
YEAR	Converts a serial number to a year
YEARFRAC	Returns the year fraction representing the number of whole days between start_date and end_date

Logical Functions

AND	Returns TRUE if all of its arguments are TRUE
FALSE	Returns the logical value FALSE
IF	Specifies a logical test to perform
NOT	Reverses the logic of its argument
OR	Returns TRUE if any argument is TRUE
TRUE	Returns the logical value TRUE

Lookup and Reference Functions

ADDRESS	Returns a reference as text to a single cell in a worksheet
AREAS	Returns the number of areas in a reference
CHOOSE	Chooses a value from a list of values
COLUMN	Returns the column number of a reference
COLUMNS	Returns the number of columns in a reference
GETPIVOTDATA	Returns data stored in a PivotTable
HLOOKUP	Looks in the top row of an array and returns the value of the indicated cell
HYPERLINK	Creates a shortcut or jump that opens a document stored on a network server, an intranet, or the Internet
INDEX	Uses an index to choose a value from a reference or array
INDIRECT	Returns a reference indicated by a text value
LOOKUP	Looks up values in a vector or array
MATCH	Looks up values in a reference or array
OFFSET	Returns a reference offset from a given reference
ROW	Returns the row number of a reference
ROWS	Returns the number of rows in a reference
RTD	Retrieves real-time data from a program that supports COM automation
TRANSPOSE	Returns the transpose of an array
VLOOKUP	Looks in the first column of an array and moves across the row to return the value of a cell

Math and Trigonometry Functions

ABS	Returns the absolute value of a number
ACOS	Returns the arccosine of a number
ACOSH	Returns the inverse hyperbolic cosine of a number
ASIN	Returns the arcsine of a number
ASINH	Returns the inverse hyperbolic sine of a number
ATAN	Returns the arctangent of a number
ATAN2	Returns the arctangent from x- and y-coordinates
ATANH	Returns the inverse hyperbolic tangent of a number
CEILING	Rounds a number to the nearest integer or to the nearest multiple of significance
COMBIN	Returns the number of combinations for a given number of objects
COS	Returns the cosine of a number
COSH	Returns the hyperbolic cosine of a number
DEGREES	Converts radians to degrees
EVEN	Rounds a number up to the nearest even integer
EXP	Returns *e* raised to the power of a given number
FACT	Returns the factorial of a number
FACTDOUBLE	Returns the double factorial of a number
FLOOR	Rounds a number down, toward zero
GCD	Returns the greatest common divisor
INT	Rounds a number down to the nearest integer
LCM	Returns the least common multiple
LN	Returns the natural logarithm of a number
LOG	Returns the logarithm of a number to a specified base
LOG10	Returns the base-10 logarithm of a number
MDETERM	Returns the matrix determinant of an array
MINVERSE	Returns the matrix inverse of an array
MMULT	Returns the matrix product of two arrays

Math and Trigonometry Functions (Continued)

MOD	Returns the remainder from division
MROUND	Returns a number rounded to the desired multiple
MULTINOMIAL	Returns the multinomial of a set of numbers
ODD	Rounds a number up to the nearest odd integer
PI	Returns the value of pi
POWER	Returns the result of a number raised to a power
PRODUCT	Multiplies its arguments
QUOTIENT	Returns the integer portion of a division
RADIANS	Converts degrees to radians
RAND	Returns a random number between 0 and 1
RANDBETWEEN	Returns a random number between the numbers you specify
ROMAN	Converts an Arabic numeral to roman, as text
ROUND	Rounds a number to a specified number of digits
ROUNDDOWN	Rounds a number down, toward zero
ROUNDUP	Rounds a number up, away from zero
SERIESSUM	Returns the sum of a power series based on the formula
SIGN	Returns the sign of a number
SIN	Returns the sine of the given angle
SINH	Returns the hyperbolic sine of a number
SQRT	Returns a positive square root
SQRTPI	Returns the square root of (number * pi)
SUBTOTAL	Returns a subtotal in a list or database
SUM	Adds its arguments
SUMIF	Adds the cells specified by a given criteria
SUMPRODUCT	Returns the sum of the products of corresponding array components
SUMSQ	Returns the sum of the squares of the arguments
SUMX2MY2	Returns the sum of the difference of squares of corresponding values in two arrays
SUMX2PY2	Returns the sum of the sum of squares of corresponding values in two arrays
SUMXMY2	Returns the sum of squares of differences of corresponding values in two arrays
TAN	Returns the tangent of a number
TANH	Returns the hyperbolic tangent of a number
TRUNC	Truncates a number to an integer

Statistical Functions

AVEDEV	Returns the average of the absolute deviations of data points from their mean
AVERAGE	Returns the average of its arguments
AVERAGEA	Returns the average of its arguments, including numbers, text, and logical values
BETADIST	Returns the beta cumulative distribution function
BETAINV	Returns the inverse of the cumulative distribution function for a specified beta distribution
BINOMDIST	Returns the individual term binomial distribution probability
CHIDIST	Returns the one-tailed probability of the chi-squared distribution
CHIINV	Returns the inverse of the one-tailed probability of the chi-squared distribution
CHITEST	Returns the test for independence
CONFIDENCE	Returns the confidence interval for a population mean
CORREL	Returns the correlation coefficient between two data sets
COUNT	Counts how many numbers are in the list of arguments
COUNTA	Counts how many values are in the list of arguments
COUNTBLANK	Counts the number of blank cells within a range
COUNTIF	Counts the number of nonblank cells within a range that meet the given criteria
COVAR	Returns covariance, the average of the products of paired deviations
CRITBINOM	Returns the smallest value for which the cumulative binomial distribution is less than or equal to a criterion value
DEVSQ	Returns the sum of squares of deviations
EXPONDIST	Returns the exponential distribution
FDIST	Returns the F probability distribution
FINV	Returns the inverse of the F probability distribution
FISHER	Returns the Fisher transformation
FISHERINV	Returns the inverse of the Fisher transformation
FORECAST	Returns a value along a linear trend
FREQUENCY	Returns a frequency distribution as a vertical array
FTEST	Returns the result of an F-test
GAMMADIST	Returns the gamma distribution
GAMMAINV	Returns the inverse of the gamma cumulative distribution
GAMMALN	Returns the natural logarithm of the gamma function, Γ(x)

Statistical Functions (Continued)

GEOMEAN	Returns the geometric mean
GROWTH	Returns values along an exponential trend
HARMEAN	Returns the harmonic mean
HYPGEOMDIST	Returns the hypergeometric distribution
INTERCEPT	Returns the intercept of the linear regression line
KURT	Returns the kurtosis of a data set
LARGE	Returns the k-th largest value in a data set
LINEST	Returns the parameters of a linear trend
LOGEST	Returns the parameters of an exponential trend
LOGINV	Returns the inverse of the lognormal distribution
LOGNORMDIST	Returns the cumulative lognormal distribution
MAX	Returns the maximum value in a list of arguments
MAXA	Returns the maximum value in a list of arguments, including numbers, text, and logical values
MEDIAN	Returns the median of the given numbers
MIN	Returns the minimum value in a list of arguments
MINA	Returns the smallest value in a list of arguments, including numbers, text, and logical values
MODE	Returns the most common value in a data set
NEGBINOMDIST	Returns the negative binomial distribution
NORMDIST	Returns the normal cumulative distribution
NORMINV	Returns the inverse of the normal cumulative distribution
NORMSDIST	Returns the standard normal cumulative distribution
NORMSINV	Returns the inverse of the standard normal cumulative distribution
PEARSON	Returns the Pearson product moment correlation coefficient
PERCENTILE	Returns the k-th percentile of values in a range
PERCENTRANK	Returns the percentage rank of a value in a data set
PERMUT	Returns the number of permutations for a given number of objects

Statistical Functions (Continued)

POISSON	Returns the Poisson distribution
PROB	Returns the probability that values in a range are between two limits
QUARTILE	Returns the quartile of a data set
RANK	Returns the rank of a number in a list of numbers
RSQ	Returns the square of the Pearson product moment correlation coefficient
SKEW	Returns the skewness of a distribution
SLOPE	Returns the slope of the linear regression line
SMALL	Returns the k-th smallest value in a data set
STANDARDIZE	Returns a normalized value
STDEV	Estimates standard deviation based on a sample
STDEVA	Estimates standard deviation based on a sample, including numbers, text, and logical values
STDEVP	Calculates standard deviation based on the entire population
STDEVPA	Calculates standard deviation based on the entire population, including numbers, text, and logical values
STEYX	Returns the standard error of the predicted y-value for each x in the regression
TDIST	Returns the Student's t-distribution
TINV	Returns the inverse of the Student's t-distribution
TREND	Returns values along a linear trend
TRIMMEAN	Returns the mean of the interior of a data set
TTEST	Returns the probability associated with a Student's t-test
VAR	Estimates variance based on a sample
VARA	Estimates variance based on a sample, including numbers, text, and logical values
VARP	Calculates variance based on the entire population
VARPA	Calculates variance based on the entire population, including numbers, text, and logical values
WEIBULL	Returns the Weibull distribution
ZTEST	Returns the one-tailed probability-value of a z-test

Text Functions

ASC	Changes full-width (double-byte) English letters or katakana within a character string to half-width (single-byte) characters
BAHTTEXT	Converts a number to text, using the ß (baht) currency format
CHAR	Returns the character specified by the code number
CLEAN	Removes all nonprintable characters from text
CODE	Returns a numeric code for the first character in a text string
CONCATENATE	Joins several text items into one text item
DOLLAR	Converts a number to text, using the $ (dollar) currency format
EXACT	Checks to see if two text values are identical
FIND, FINDB	Finds one text value within another (case-sensitive)
FIXED	Formats a number as text with a fixed number of decimals
JIS	Changes half-width (single-byte) English letters or katakana within a character string to full-width (double-byte) characters
LEFT, LEFTB	Returns the leftmost characters from a text value
LEN, LENB	Returns the number of characters in a text string
LOWER	Converts text to lowercase
MID, MIDB	Returns a specific number of characters from a text string starting at the position you specify
PHONETIC	Extracts the phonetic (furigana) characters from a text string
PROPER	Capitalizes the first letter in each word of a text value
REPLACE, REPLACEB	Replaces characters within text
REPT	Repeats text a given number of times
RIGHT, RIGHTB	Returns the rightmost characters from a text value
SEARCH, SEARCHB	Finds one text value within another (not case-sensitive)
SUBSTITUTE	Substitutes new text for old text in a text string
T	Converts its arguments to text
TEXT	Formats a number and converts it to text
TRIM	Removes spaces from text
UPPER	Converts text to uppercase
VALUE	Converts a text argument to a number