
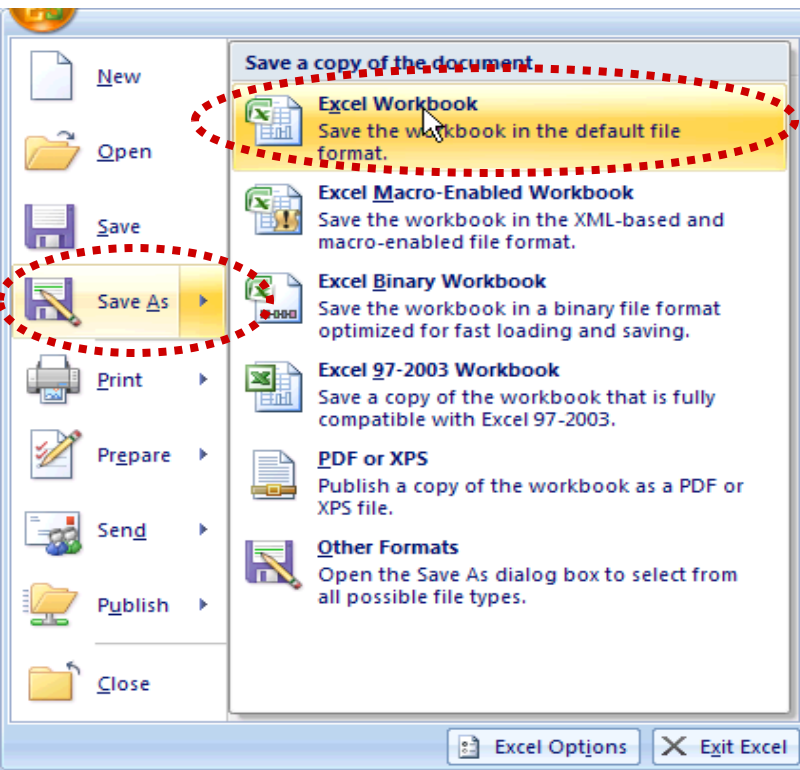


Basic Operations

► Creating a **workbook**:

- The first action should always be to give your workbook a name and save it on your computer.
- There are several ways of doing this. One of them is to go to the “office button”  on the upper left hand corner of your application window and select by left mouse click (LC):

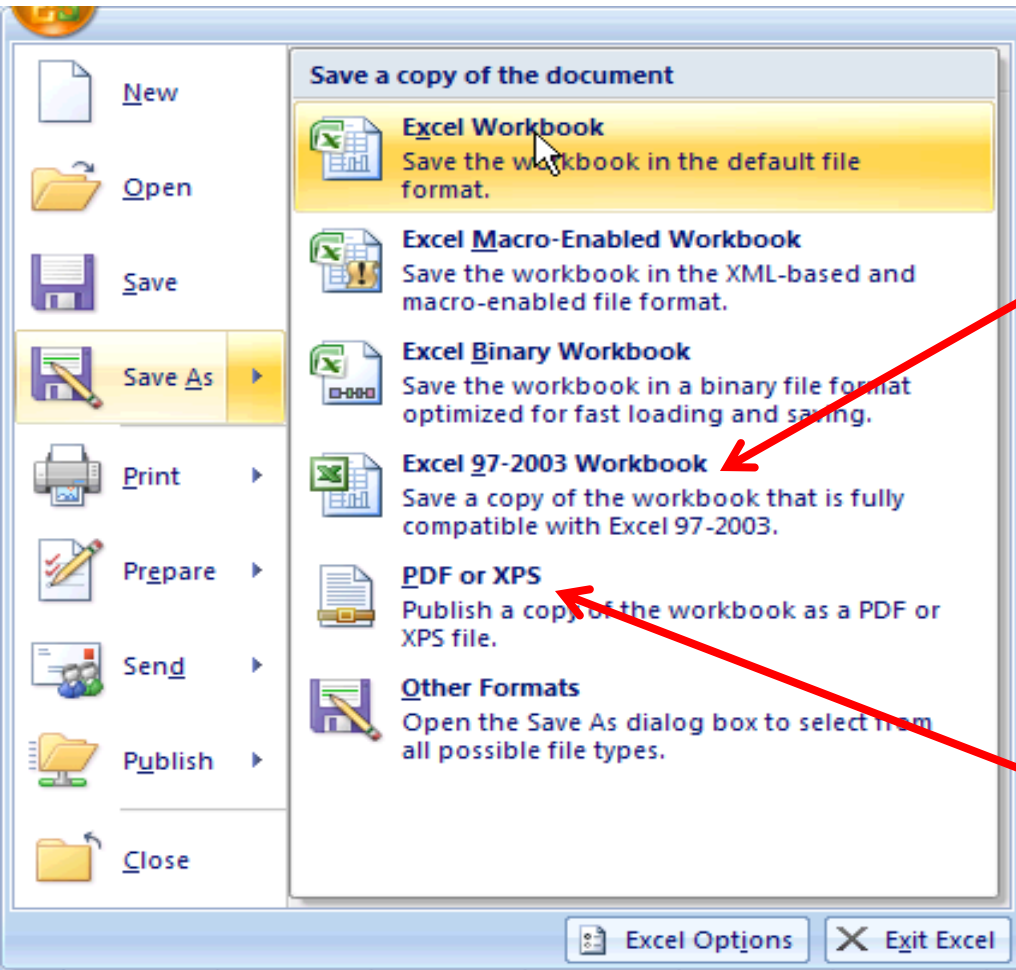


Save As → Excel Workbook



- This is the default file type and the files saved as Excel Workbooks will have the extension “.xlsx”.
- In our example the file is called **example-lecture-2.xlsx**


- Files can also be saved in other interesting formats.



• This allows you to save your files in a format that is compatible with older versions of Excel.

• In previous versions of Excel files will have extensions **“.xls”** instead of **“.xlsx”**

You can also save your workbook as a **“.pdf”** file which can be accessed by any computer (even if it does not have a windows operative system!)

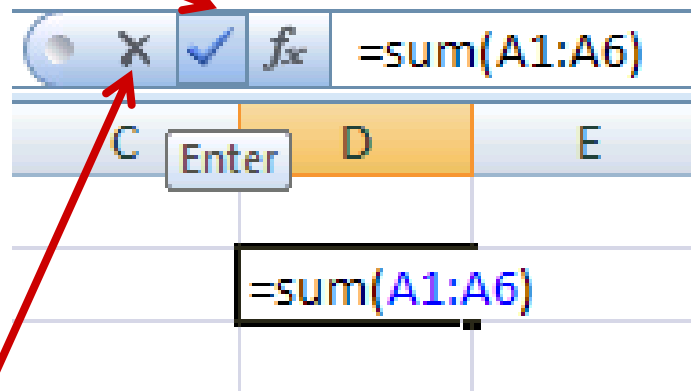
- Organize your Excel files (in fact like all other ones) in folders.
- While editing save your file once in a while just by LC on save , or by **Ctrl** + **s**. This way you do not loose data in a crash.

► Entering data onto a **worksheet**:

- Data can be entered onto the worksheet either by typing into the active cell or by typing into the formula bar.
- Cell entries may be completed in various ways, e.g. complete C8.
 - a) Enter → moves to the next cell in the same column, e.g. C9.
 - b) Shift+Enter → moves to previous cell in the column, e.g. C7.

c) Cursors ←, → ↑, ↓ → move to the cell in the direction indicated, e.g. B8, D8, C6, C9.

d) Enter button in the formula bar → completes but does not move to a new cell.




e) Esc → does not move and cancels all modification done after the last completion of the type a), b), c) or d).

f) Cancel button → has the same effect as e). Also (Undo)

💣 Do not finish the entry by clicking with the pointer onto a new cell as this will produce wrong results for formulae. 4

► **Modifying** entered data:

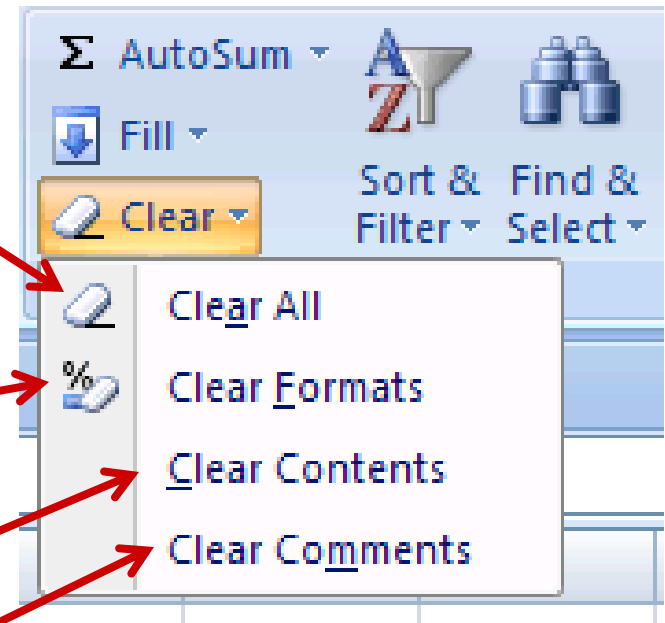
- Use “delete“ or “backspace“ (←) to delete right or left from the insertion point, respectively.
- LC on a cell (or formula bar) with some old entry and overtype it.
- In the formatting toolbar (the editing part) select →  Clear ▾

Clear All: deletes all informations related to the cell (formats, contents and comments)

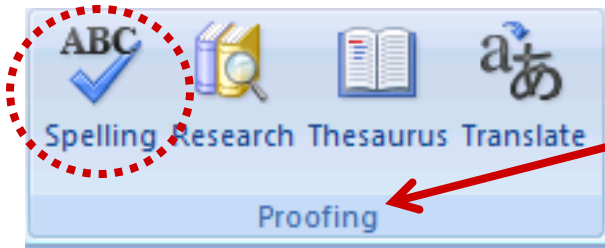
Clear Formats: deletes any formats of the cell that are not the default ones (see later)

Clear Contents: deletes only the content of the cell

Clear Comments: deletes any comments attached to the cell (see later)



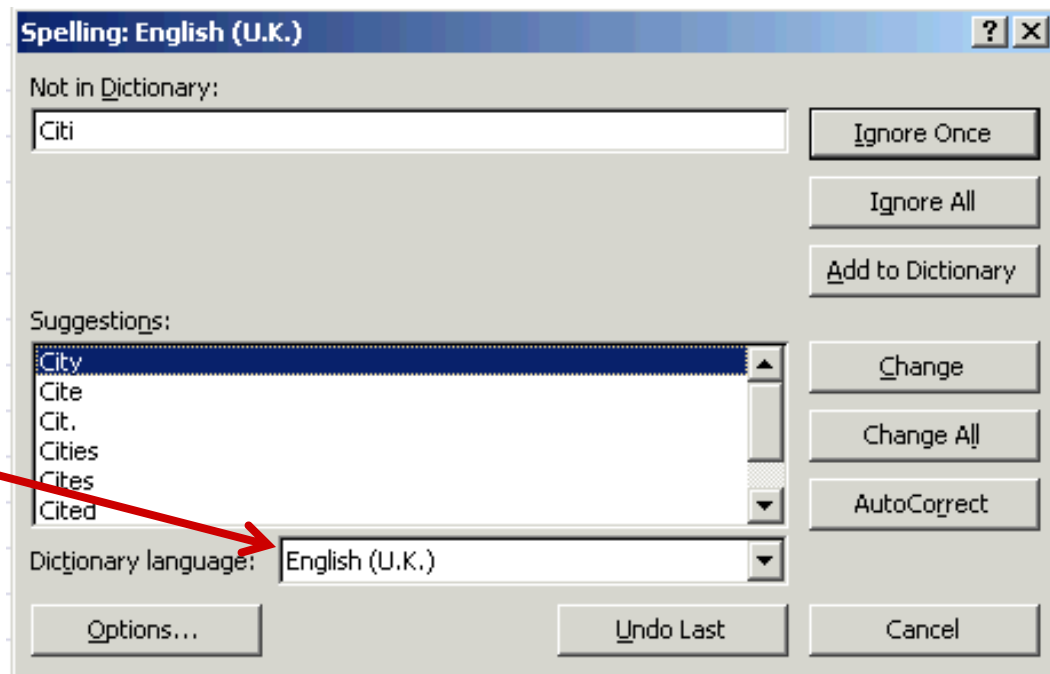
- Excel also has a spelling tool that allows you to correct typos.
- In order to use it, select **Review** in the menu bar and then choose



in the “Proofing” menu.

Expl.: Assume a cell has the entry “Citi. Then the following window opens:

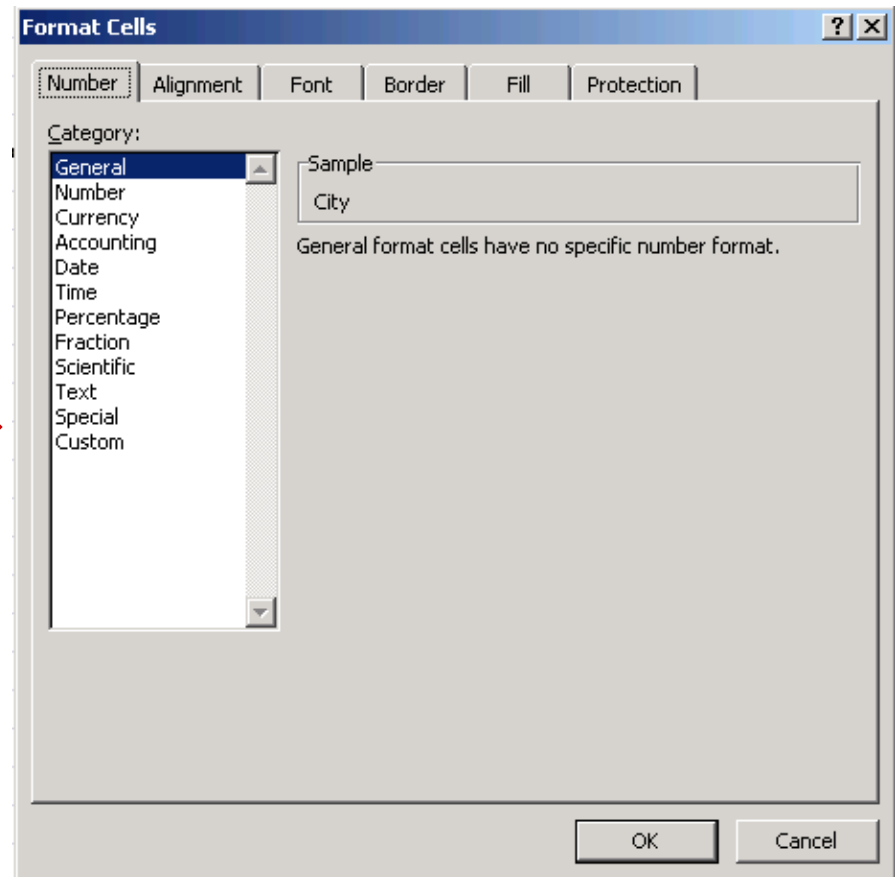
The spelling tool is available in lots of different languages!





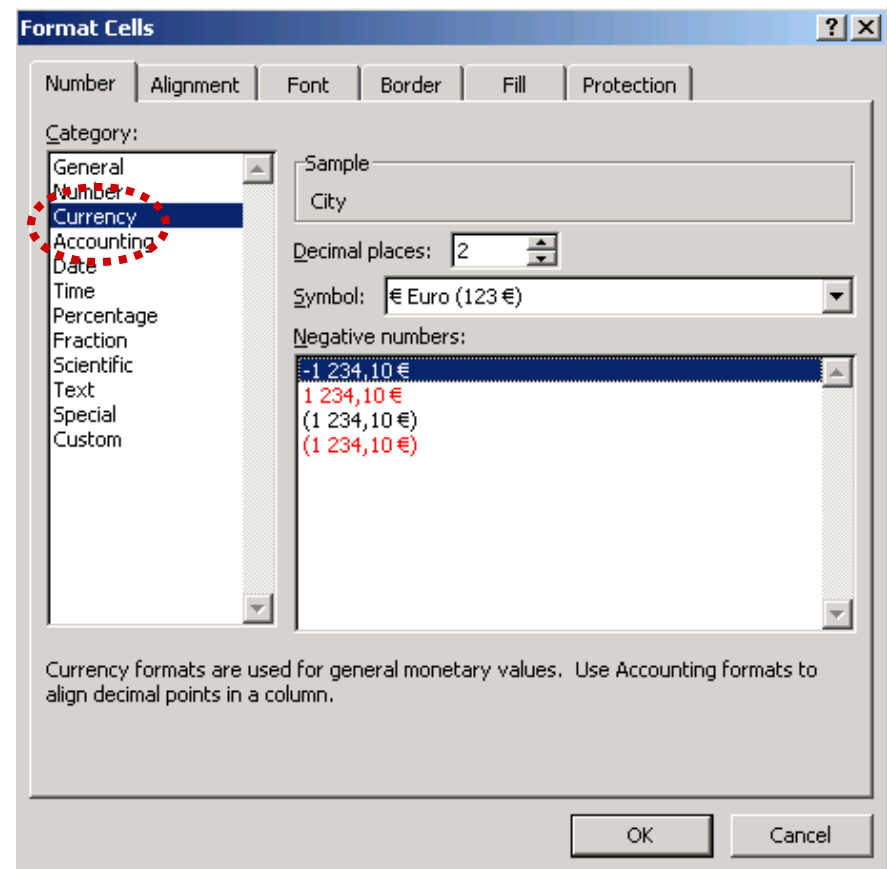
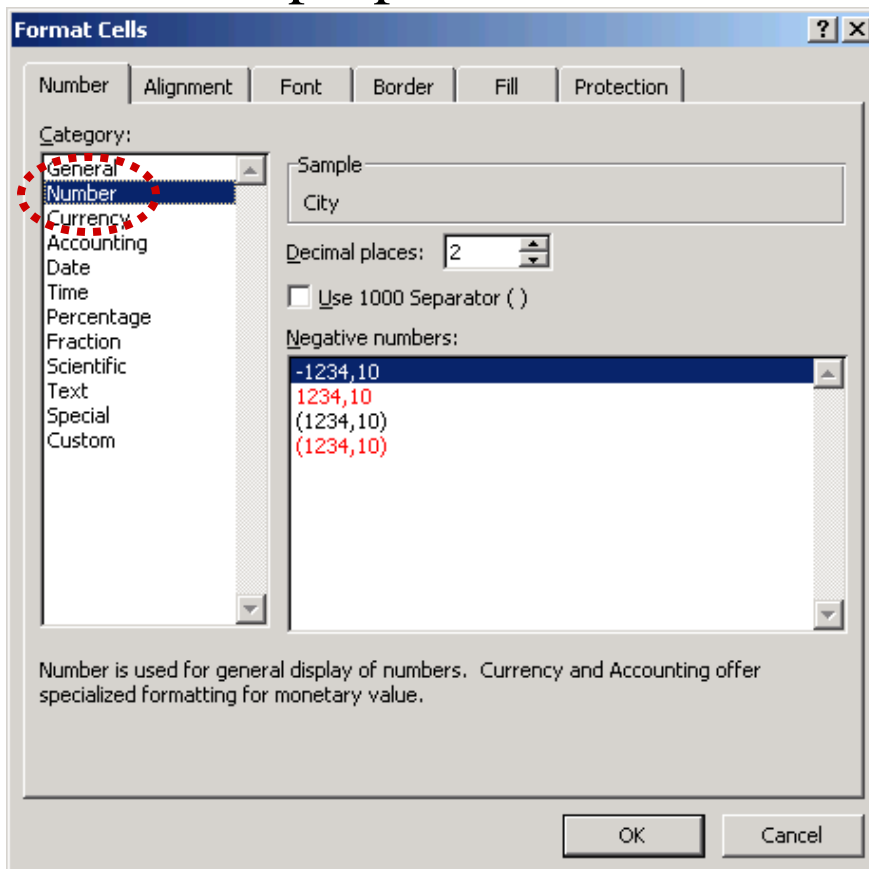
► **Formatting** the cell entries:

- For asthetic/practical reasons you may want to change the format in which cell entries are displayed.
- You can change the default properties of cells by selecting the

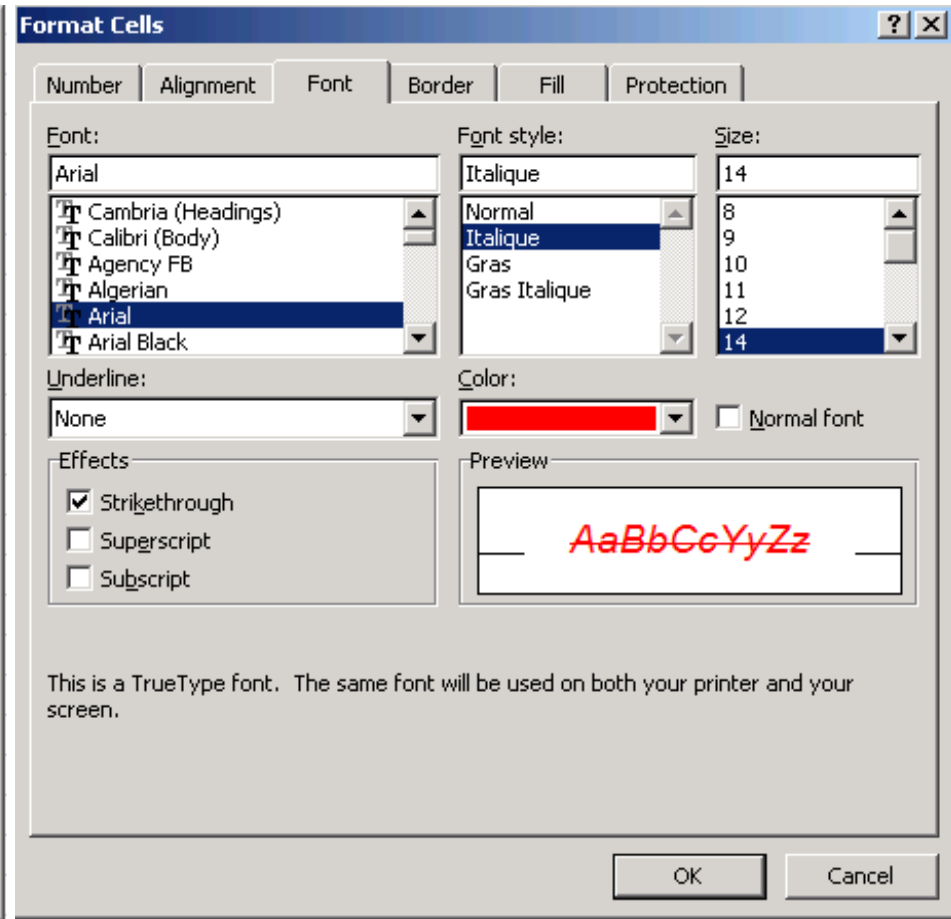
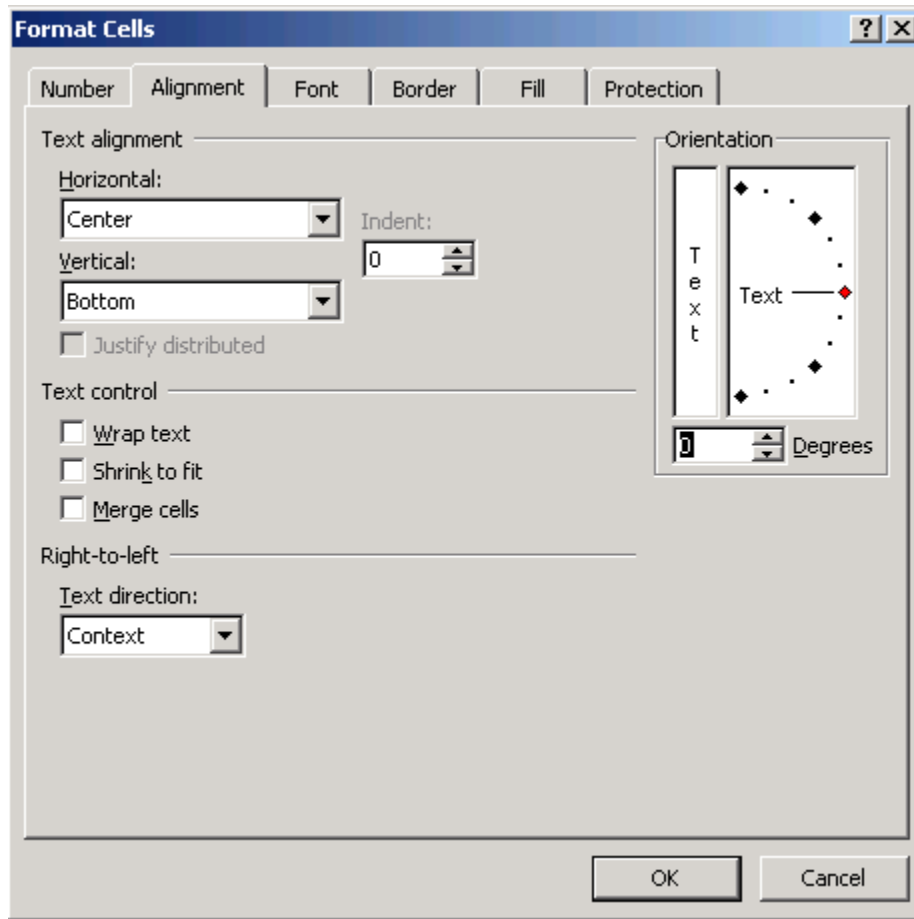
Home window from the menu bar, and then



- As you can see, the “format cells” window contains many sub-windows or **tabs** ()
- By using the options contained under those tabs you can change all possible features of a particular cell or set of cells
- In the  tab you can change the **category** (type of data) and its associated properties.

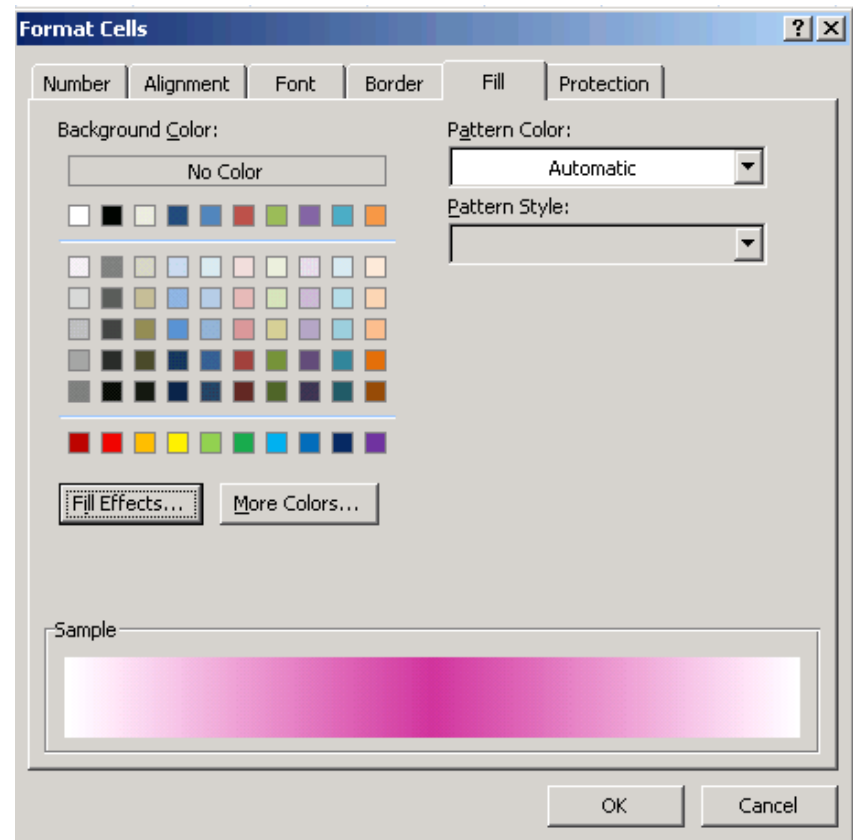
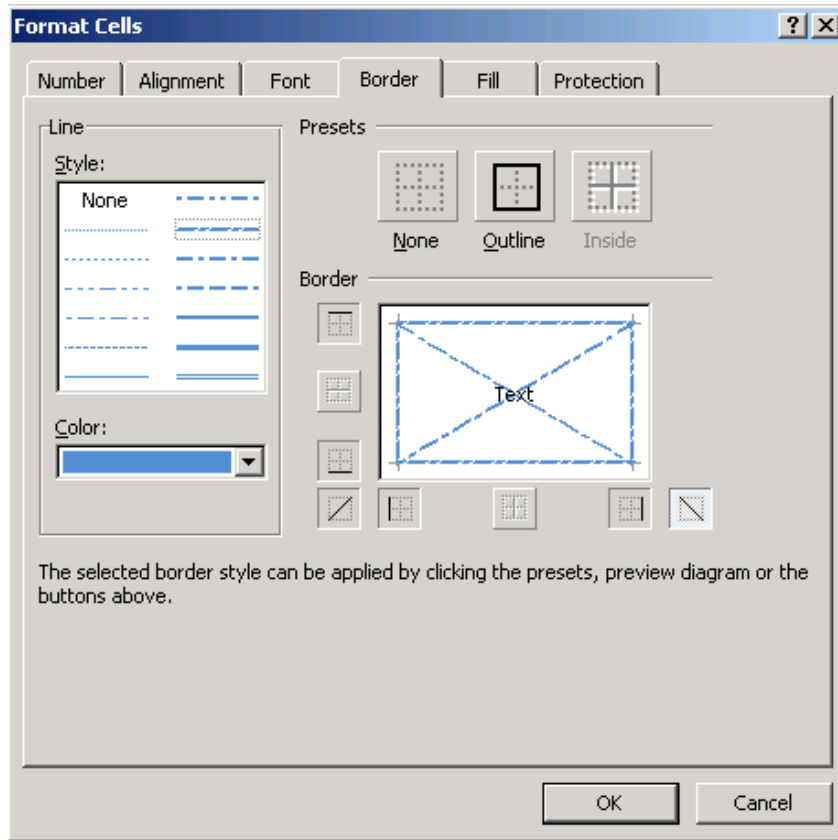


- The **Alignment** tab allows to change the horizontal or vertical position the orientation of the text in cells



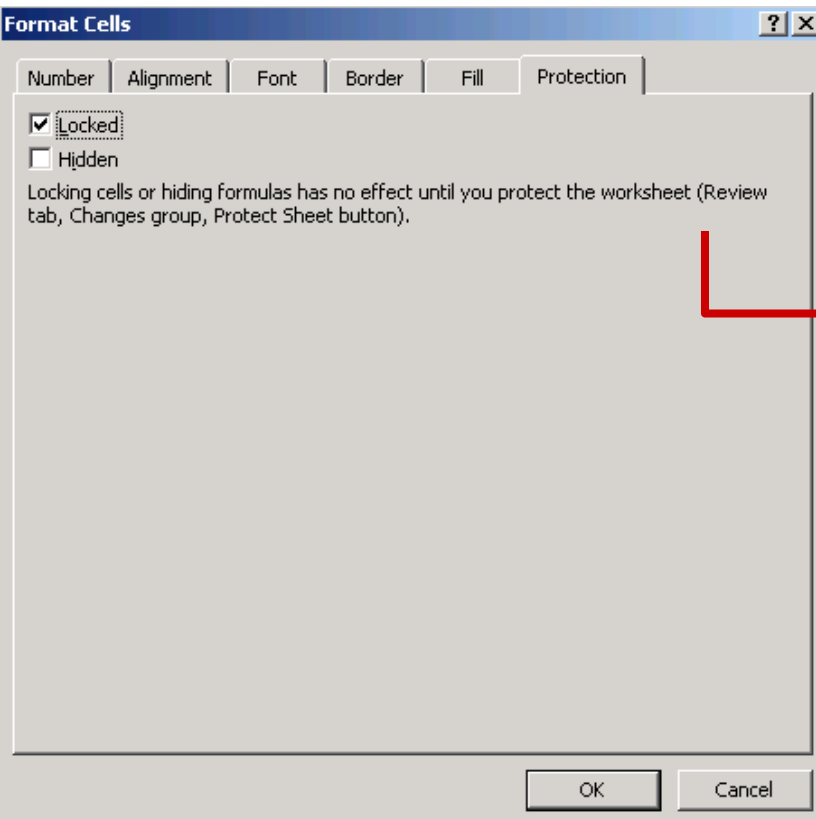
- The **Font** tab allows to change the typeface and the colour of the content of the selected cell(s).

- The **Border** tab allows you to change the style of the frame surrounding the selected cell(s).



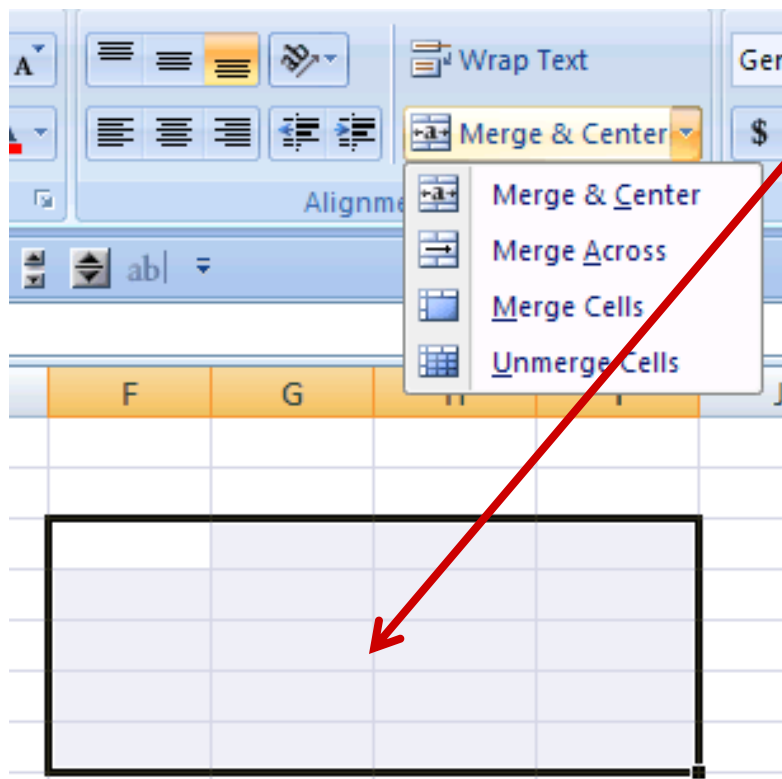
- The **Fill** tab allows you to change the background of the selected cell(s).

- Finally, the **Protection** tab allows you to protect cells from being changed (for example, if you want to show your work to someone else and you wish that they can read but not modify it)

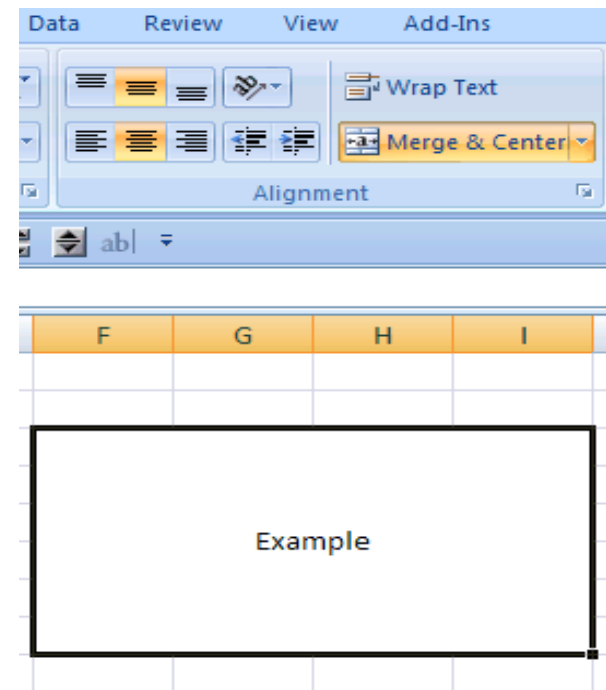
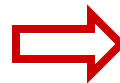


► Merging cells:

- One can merge a range of cells into one single cell. This is useful for instance for large titles.
- To do this select the range (set of cells) and then LC on the “Merge and Center” button in the “Alignment menu” of the formatting toolbar (Home tab).

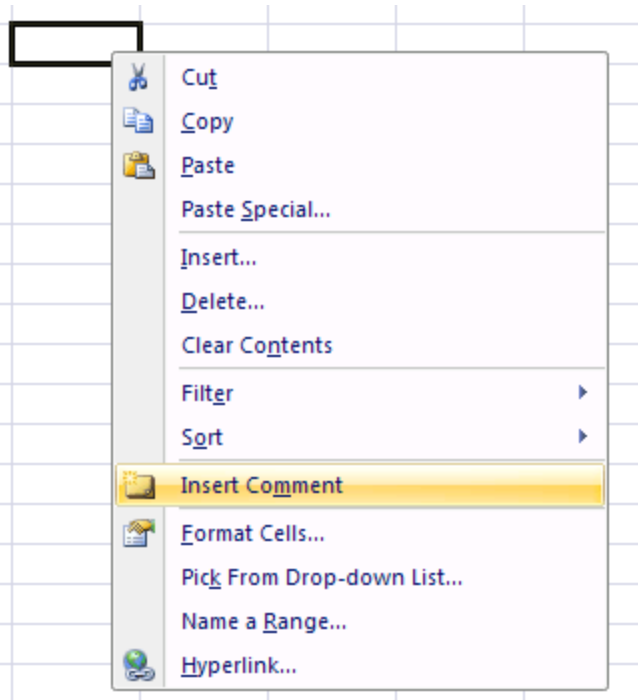


In this case we selected the range F3:I7

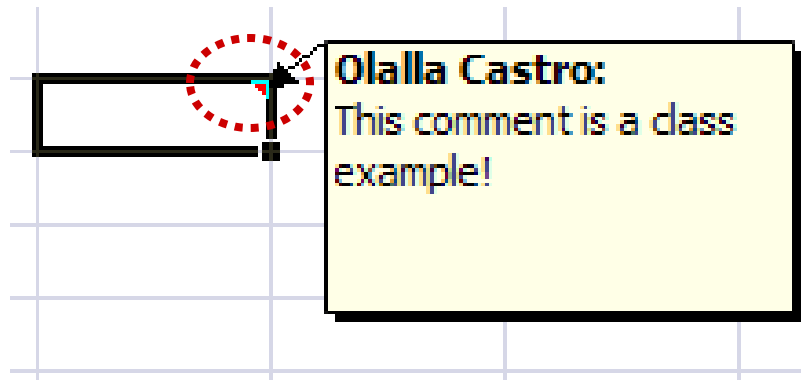


► Adding **comments** to a cell:

- Sometimes it is useful to add some additional information to a cell which should not be visible on the WS for some reason.
- This is done by RC on top of the cell. A menu appears



- A cell which has a comment attached to it is marked in the top right corner by a red triangle.



- The comment is made visible by pointing on top of the cell.
- The comment is removed by RC on the cell and choosing “Delete comment”

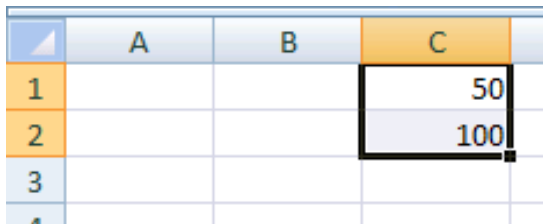
► The **Autofill** function:

- The Autofill function determines automatically the entries (content) of some cells given some starting values. It avoids lots of typing!

Expl.: Fill the column C1-C20 with 50-1000 in steps of 50, i.e.

50 → C1, 100 → C2, 150 → C3, 1000 → C20

- fill in at least two starting values: 50 → C1, 100 → C2
- select the range of the starting values C1:C2




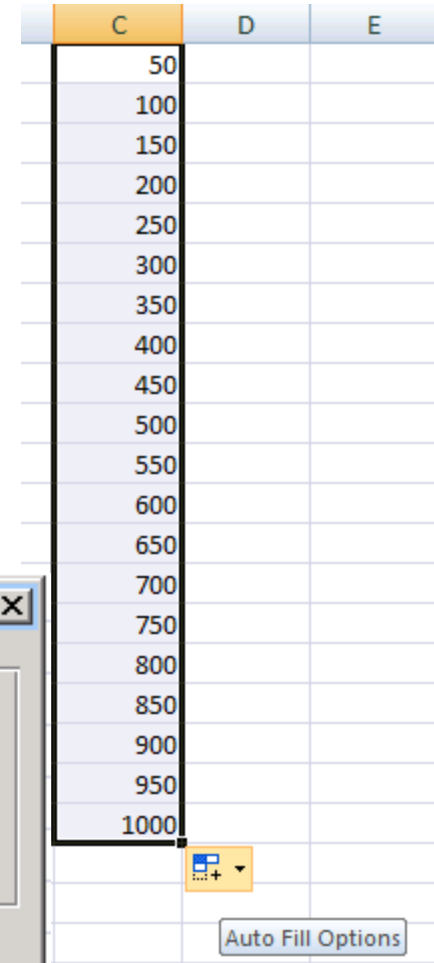
	A	B	C
1			50
2			100
3			
4			

- while on top of the selected area the cursor will be **+**
- move the cursor to the lower right corner of the selection, until the cursor changes from a white cross **+**

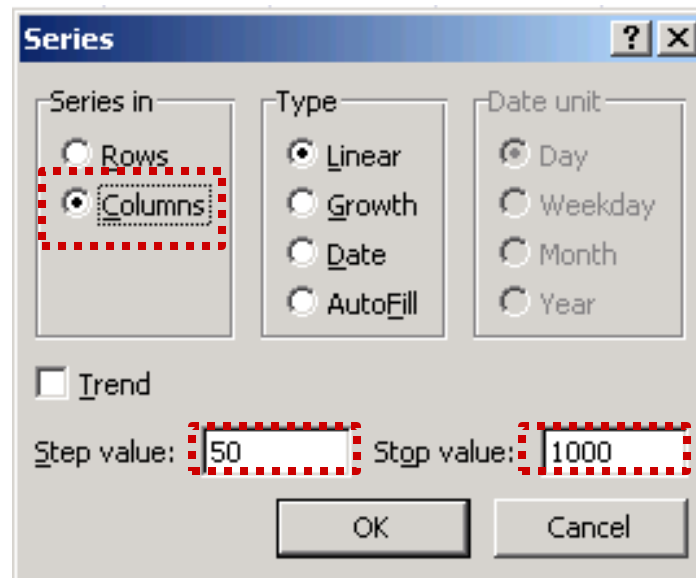
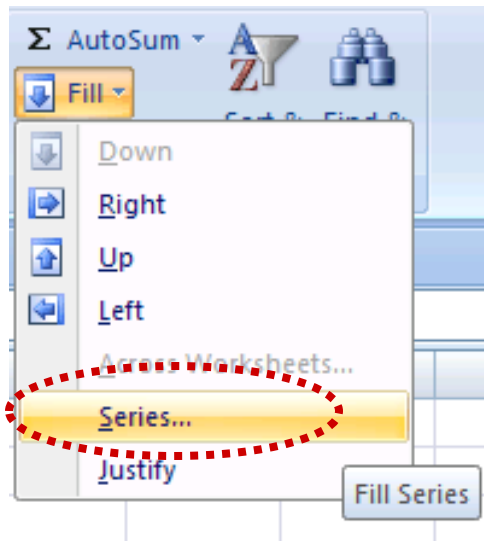
- Once this change happens, drag the “fill handle“ down (or to the right) and the new cells will be filled based on the initial selection, e.g. 150 → C3,...

- You should always verify that Excel really filled in the sequence of values that you wanted!!!

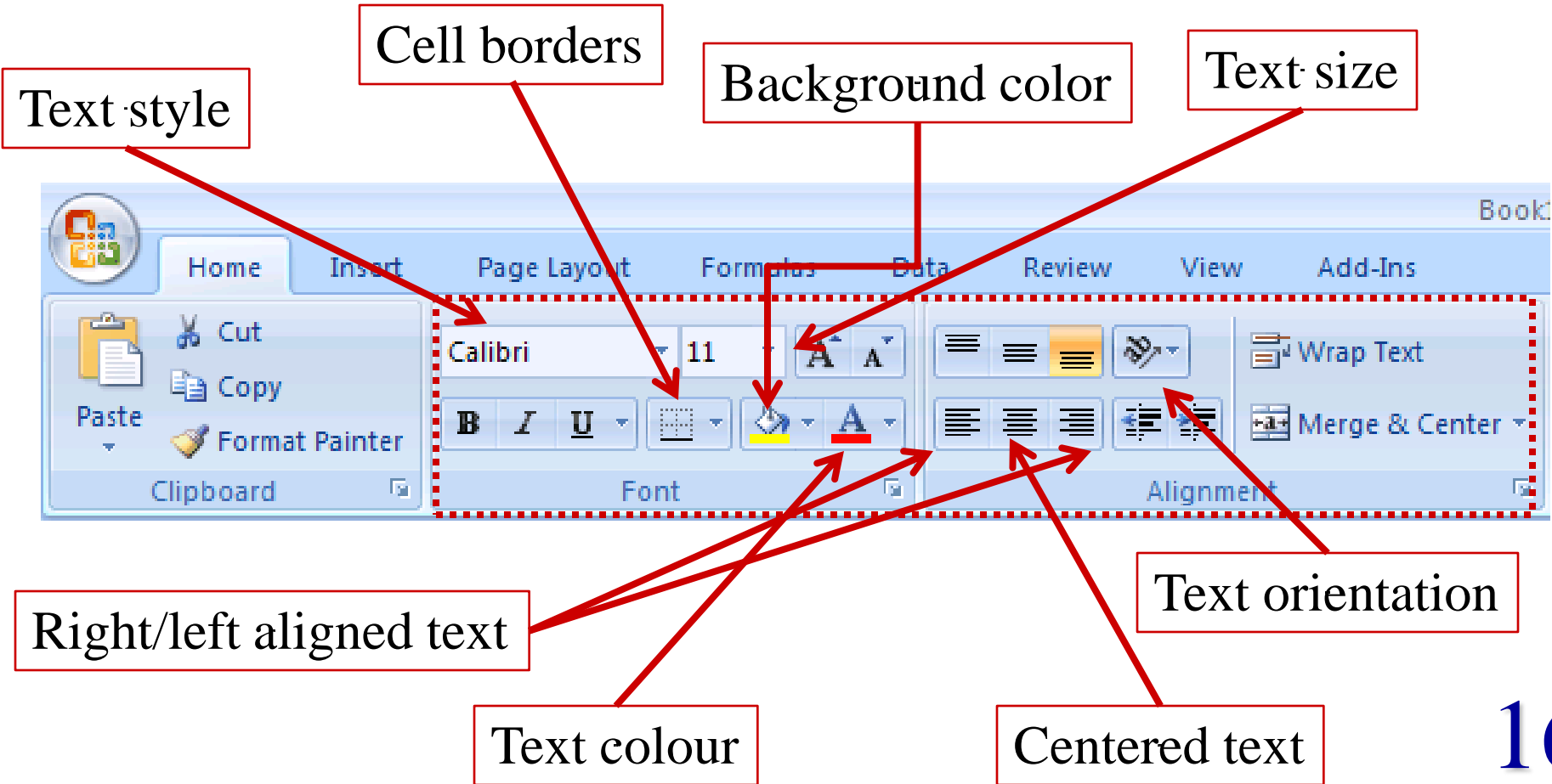
- Another way of doing the same is to write just 50 into C1 and then click on  Fill on the Home tab, Editing menu.



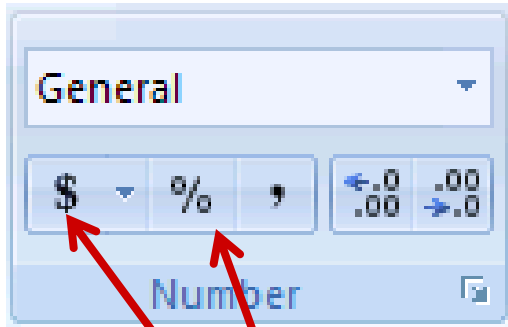
C	D	E
50		
100		
150		
200		
250		
300		
350		
400		
450		
500		
550		
600		
650		
700		
750		
800		
850		
900		
950		
1000		




- ▶ Different types of data (text, numbers & formulae):
 - **text** is left adjusted by default, use the format toolbar to change the adjustment, text format, indent or colour (see pages 9 & 10)
 - However, some simple properties of text can be modified directly by using the relevant buttons that appear in the home tab toolbar:



- **numbers** are right adjusted by default, use the format toolbar to change the format as for text.
- As for text, there is also a particular toolbar in the Home tab that allows you to adjust certain properties of numbers very easily:



 changes the style of the cell to “accounting” style, without a currency symbol and leaving a “thousands” separator

Example:

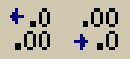
1234	1 234,00
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Choose currency type

Standard style

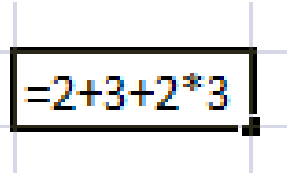
 style

Express number as a percentage

 in/decrease decimal → in/decreases the number of decimal points *displayed*, e.g. π will be written as 3.14 or 3.1415

- **formulae** are expressions which tell Excel to perform operations
- In Excel all formulae begin with an “=”-sign followed by some arithmetic expression.

Example:



- A formula may contain numeric values, cell references and arithmetic operators. It is important to note the difference between the formula inside a cell and the numerical value which is displayed on the cell.

Example: In the cell C5 write **=A1 +A2+A3**. This will add the three cells A1, A2 and A3 and display the result in C5. Now, when you alter the content of A1, A2 or A3, the value of C5 will change automatically

- In Excel and other major programming languages, arithmetic expressions are evaluated following a specific order of precedence for the arithmetic operators.
- The order is:
 - negation: “-”
 - exponentiation: “^”
 - multiplication and division: “*”, “/”
 - addition and subtraction: “+”, “-”
- The order of precedence can be overwritten by parentheses.

Example: $-4^2 \rightarrow 16$
 $-(4^2) \rightarrow -16$
 $3*(5+6) \rightarrow 33$
 $3*5+6 \rightarrow 21$
 $3^2+7 \rightarrow 16$
 $3^(2+7) \rightarrow 19683$

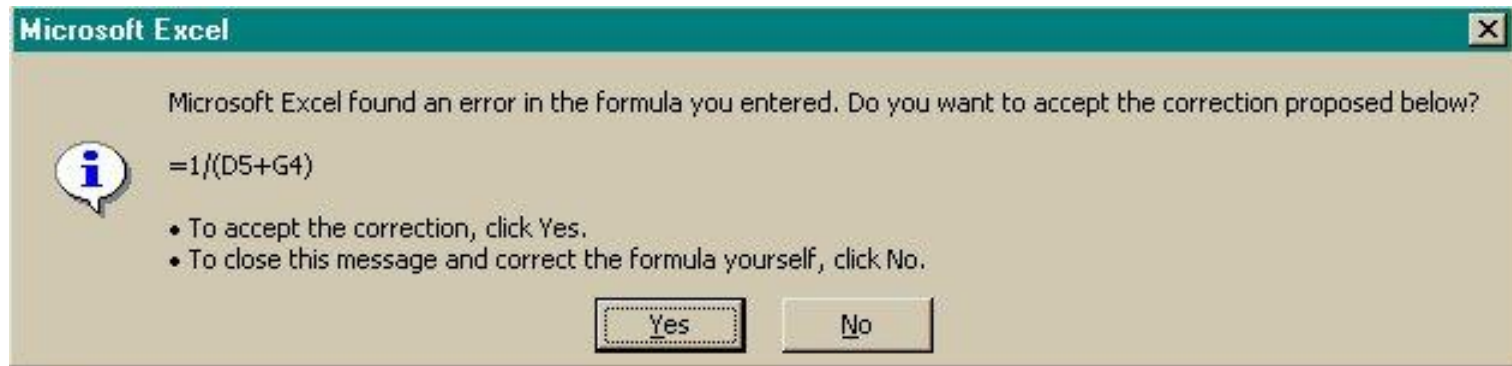
- Formulae can be entered by means of **pointing**, that means instead of typing the cell reference one can simply LC on the appropriate cell.

Example: Enter the formula $=1/(D5+G4)$ into B4

→ type $=1/($ into B4 → LC on D5 → type $+$

→ LC on G4 → type $)$ → complete the entry

- in case you entered a formula incorrectly Excel offers a corrected version, e.g. you entered $=1/(D5+G4$ →



- in case you select “No “ Excel tells you your mistake

