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ICT-TEX course on Digital skills

Topic 2: Basic digital tools and skills

The course is developed under Erasmus+ Program Key Action 2:
Cooperation for innovation and the exchange of good practices Knowledge Alliance

ICT IN TEXTILE AND CLOTHING HIGHER EDUCATION AND BUSINESS

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2.2. ELECTRONIC TABLES

Back to Contents

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These slides are part of the Topic 2 on *"Basic digital skills and tools"* of the course on Digital skills in Textile and clothing industry.

Check also the other themes in this topic:

- 2.1. Text formatting
- 2.3. Working with presentations
- 2.4. Working with macros

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Contents

Electronic tables

- An electronic table is a software application that enables a management of data arranged in rows and columns.
  - Microsoft Excel, and its online free version provided by Office 365 is example of such software application.
- Electronic tables application also provide some text formatting functionality (like font type and size), however it is much simpler than in document management software like Word
- Focus on electronic tables is on data and its interpretation and management

Electronic tables

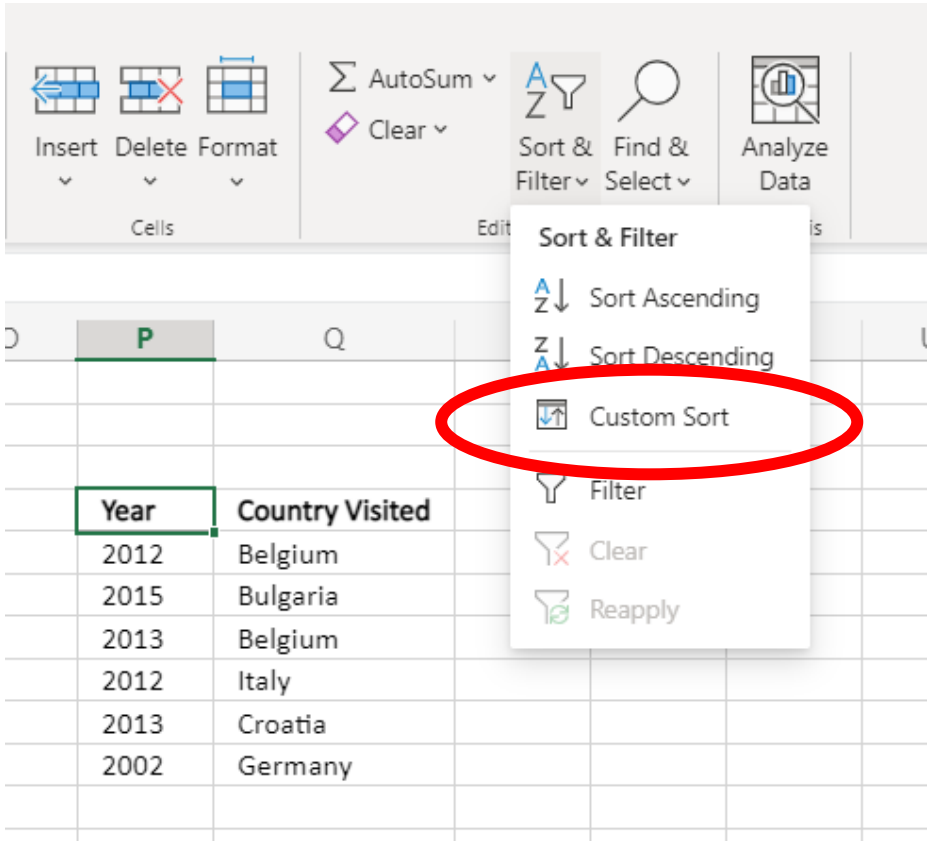
- Each electronic table file (a workbook) may contain one or more worksheets
- Worksheet represents a table where you may input data
- Worksheets have the following components:
  - cell - a table entry.
  - row – a set of cells, aligned horizontally.
  - column – a set of cells, aligned vertically.
  - range - a set of cells (range may spread over multiple rows and/or columns).
  - function – data that represents an operation applied to a range of cells.
    - Functions always begin with the "=" sign.
- Main benefit of electronic tables is that all data is automatically recalculated (or updated) when the contents of a given cell changes.

Sorting rows

- An important feature of electronic table is that it allows sorting of data by columns according to rules defined by the user
- Sorting may be performed for entire rows
- You may define multiple levels of rules if you want an additional sorting criteria to be applied when values for the main rule are equal

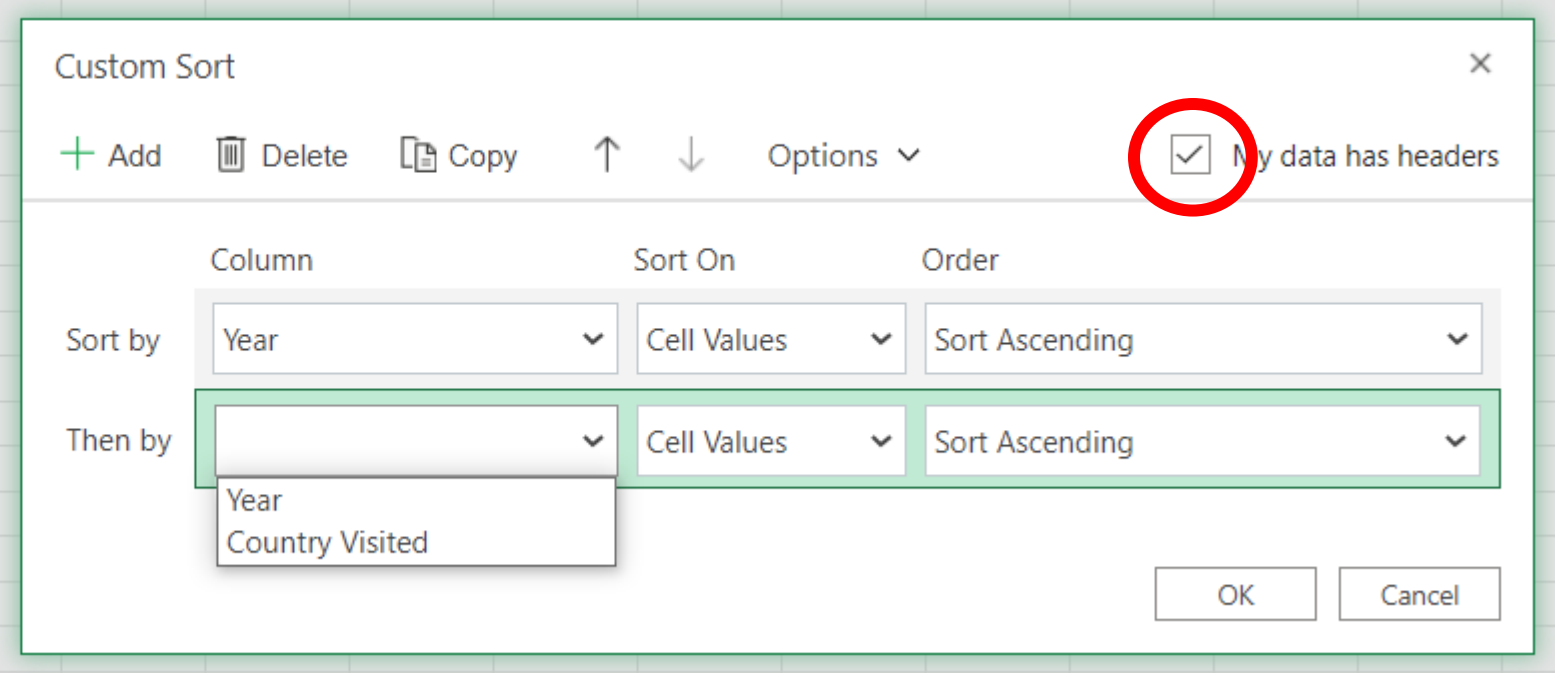
Sorting rows

- Although you may do simple sort, more flexibility is added by the *Custom sort* option



Sorting rows

Year	Country Visited
2012	Belgium
2015	Bulgaria
2013	Belgium
2012	Italy
2013	Croatia
2002	Germany



Sorting rows

- In previous slide, first rule says that data in the table should be sorted in ascending order according to first the years in first column
- Second rule may be defined to determine what to do in case of two values are the same
- Check "My data has headers" in order to use the top row as a header when denoting column names
  - In this case the top row will be excluded from the sorting

Filtering data

- You may filter some of data in your table by filtering out some of its values.
- Let's say that in previous table we don't want to see data for year 2012

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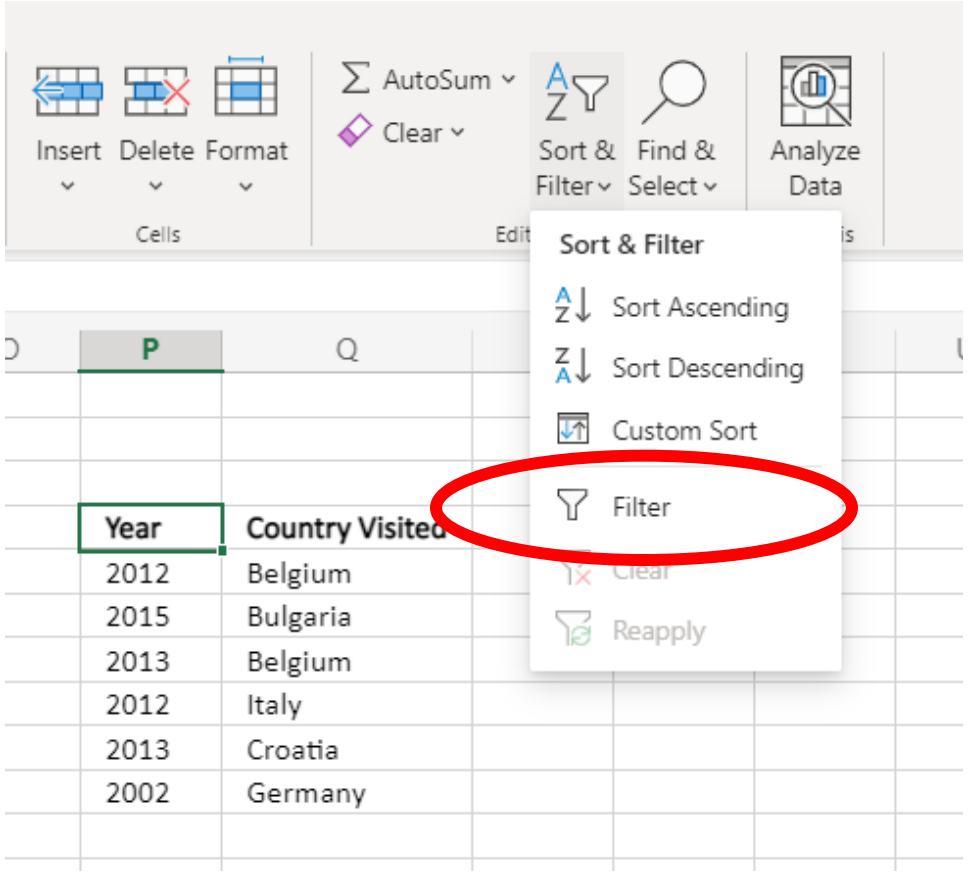
Filtering data



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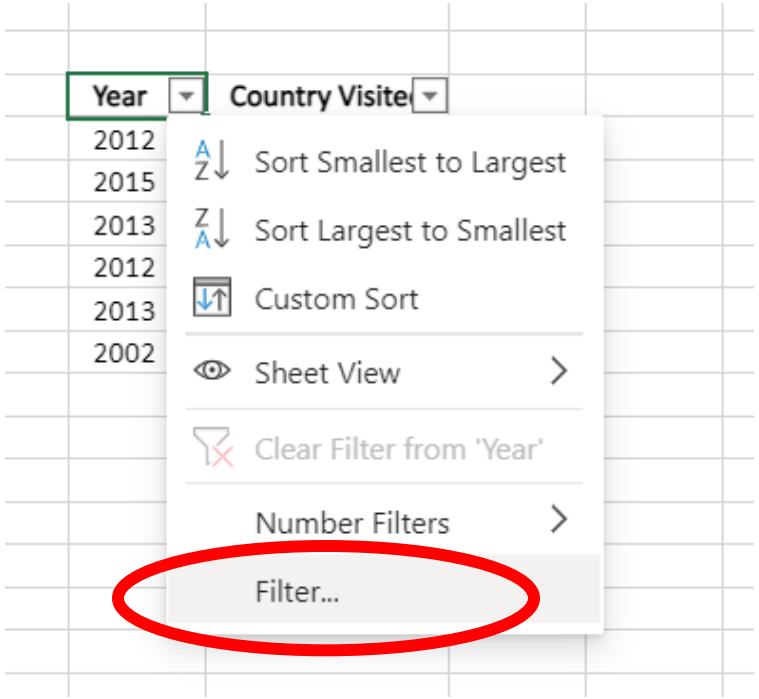
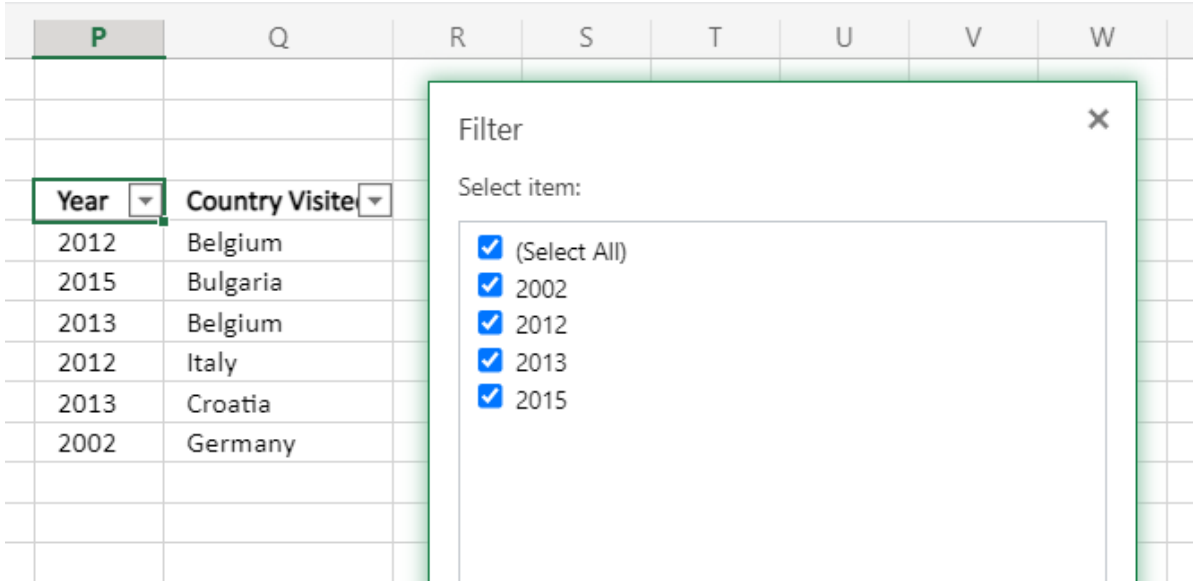
Filtering data

Select filter

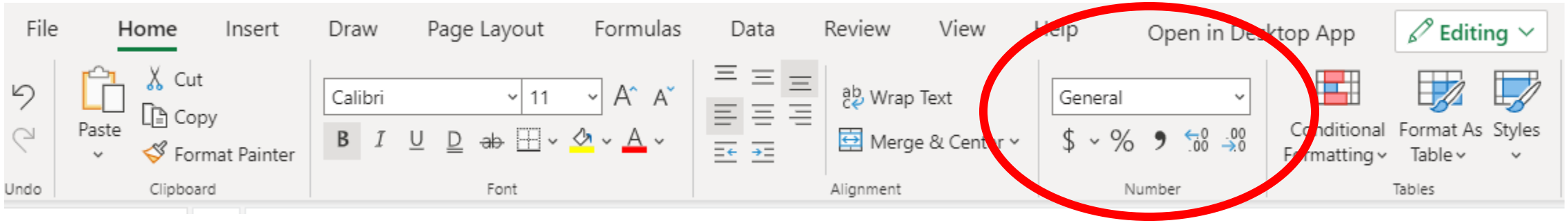


Check/uncheck values



Number formatting

- You may select different predefined ways on how to present data
- For example, when selecting *currency* it is possible to make the program show specific currency symbols, while still treating values as numbers
  - (if you write the symbol into the cell, it will become text and cannot take part into algebraic formulas)



Other cell options

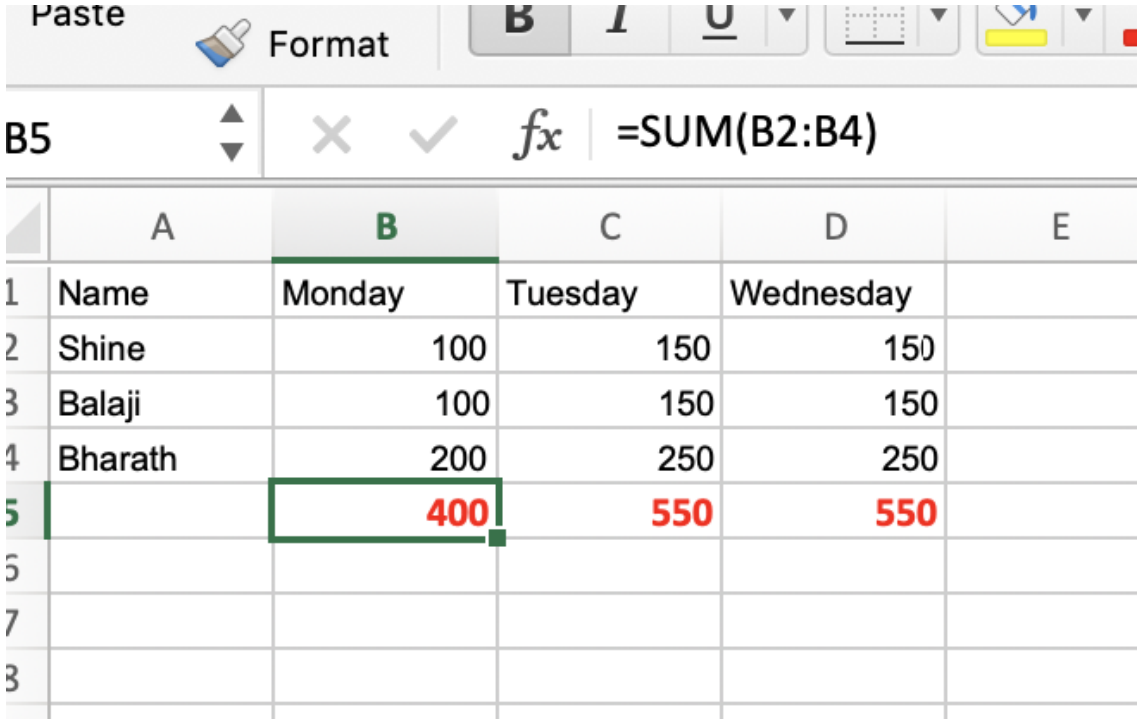
- Select Wrap text to make the program automatically split long texts into multiple lines and resize the row height accordingly
- Select merge cells to combine multiple cells into one bigger cell

Functions

- A function is a predefined formula that makes calculations over cell values.
- Excel have a large number of embedded functions, including statistical, engineering, logical, etc.)
- Most common functions are included for quick use in the *Home* tab

Formulas

- In order to work correctly, a function must be written a specific way, which is called the syntax.
- The basic syntax for a function starts with an equals sign (=), then the function name (SUM, for example), and one or more arguments.
  - Arguments represent the information you want to calculate. The function in the example here, would add the values of the cell range A1:A20.



Formulas

- Arguments can refer to both individual cells and cell ranges and must be enclosed within parentheses.
- You can include one argument or multiple arguments, this depends on the syntax required for the function.
- For example, the function ’=AVERAGE(B1:B9)’ would calculate the average of the values in the cell range B1:B9. This function contains only one argument.
- Multiple arguments must be separated by a comma. For example, the function =SUM(A1:A3, C1:C2, E2) will add the values of all cells in the three arguments`

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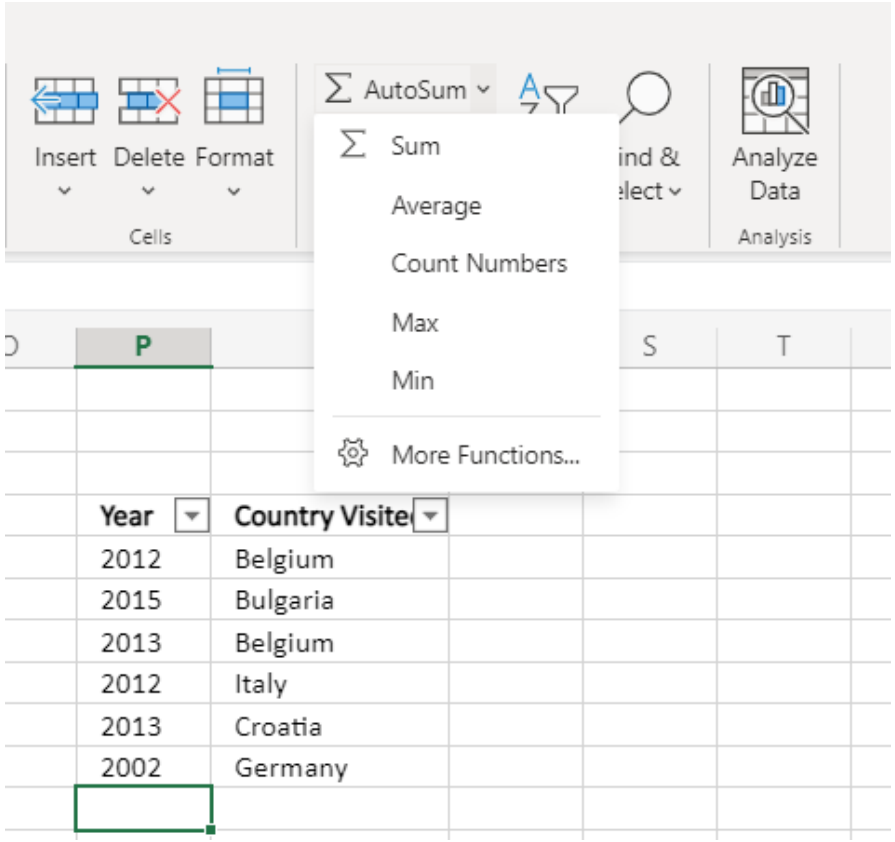
Most common Excel functions

- SUM() – adds all values of the cells in the arguments
- AVERAGE() – calculates the average of all values included in the arguments
- COUNT() – counts the number of cells with numerical data in the argument.
- MAX() – determines the highest cell value included in the arguments.
- MIN() – determines the lowest cell value included in the argument



Excercise

- Fill in a table with data (may be completely random) and check out and try the following functions:
  - COUNT()
  - AVERAGE().
  - IF()
  - SUMIF()
  - COUNTIF()
  - MAX() & MIN()

Nested formulas

- One formula may include multiple functions and each of them may take functions as arguments
- For example
  - '=AVERAGE(SUM(R4:R11), SUM(S4:S11),SUM(T4:T10))'
- Functions in formulas have high priority and are calculated before other operators, like multiplication and division

References

- 10 Simple Design Rules for Professional Microsoft Word Documents, https://www.makeuseof.com/tag/design-rules-word-documents/
- Excel formulas – introduction (tutorial), https://edu.gcfglobal.org/en/excelformulas/functions/1/
- Tips for Creative Effective Powerpoint Presentations, https://www.unl.edu/gradstudies/connections/tips-creative-effective-powerpoint-presentations
- How to Write Macros in Excel, https://www.guru99.com/introduction-to-macros-in-excel.html

All were last visited in April 2021

CONTACTS

Coordinator:
Technical University of Sofia

Project coordinator:
assoc. prof. Angel Terziev, PhD
aterziev@tu-sofia.bg

Web-site: ICT-TEX.eu

Author:
Assoc. professor Aleksandar Dimov
Sofia University "St. Kliment Ohridski"
aldi@fmi.uni-sofia.bg

Contributors:
Reni Radkova, Radostina Mihaleva
Sofia University "St. Kliment Ohridski"
{renird, rimihaleva}@fmi.uni-sofia.bg

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