



Co-funded by the
Erasmus+ Programme
of the European Union



SOFIA UNIVERSITY
"ST. KLIMENT OHRIDSKI"
EST. 1888



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

Project Nr. 612248-EPP-1-2019-1-BG-EPPKA2-KA

The information and views set out in this publication are those of the authors and do not necessarily reflect the official opinion of the European Union. Neither the European Union institutions and bodies nor any person acting on their behalf may be held responsible for the use which may be made of the information contained therein.



Co-funded by the
Erasmus+ Programme
of the European Union



SOFIA UNIVERSITY
"ST. KLIMENT OHRIDSKI"
EST. 1888



2.2. ELECTRONIC TABLES

[Back to Contents](#)



Co-funded by the
Erasmus+ Programme
of the European Union



SOFIA UNIVERSITY
"ST. KLIMENT OHRIDSKI"
EST. 1888



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



Co-funded by the
Erasmus+ Programme
of the European Union



SOFIA UNIVERSITY
"ST. KLIMENT OHRIDSKI"
EST. 1888



Contents

- [Electronic tables](#)
- [Sorting rows](#)
- [Filtering data](#)
- [Number formatting](#)
- [Functions](#)



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

The screenshot shows the Microsoft Excel ribbon with the 'Sort & Filter' group selected. The 'Sort & Filter' dropdown menu is open, and the 'Custom Sort' option is highlighted with a red oval. Below the ribbon, a table is visible with the following data:

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



Sorting rows

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

Custom Sort

+ Add Delete Copy ↑ ↓ Options

My data has headers

Column	Sort On	Order
Sort by: Year	Cell Values	Sort Ascending
Then by: [dropdown]	Cell Values	Sort Ascending

Year
Country Visited

OK Cancel

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



Filtering data

The screenshot shows the Microsoft Excel ribbon with the 'Sort & Filter' group selected. The 'Filter' icon is highlighted with a red circle. Below the ribbon, a data table is visible with columns 'Year' and 'Country Visited'.

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



Filtering data

Select filter

Year	Country Visited
2012	
2015	
2013	
2012	
2013	
2002	

Context menu for the 'Year' filter:

- Sort Smallest to Largest
- Sort Largest to Smallest
- Custom Sort
- Sheet View
- Clear Filter from 'Year'
- Number Filters
- Filter...**

Check/uncheck values

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

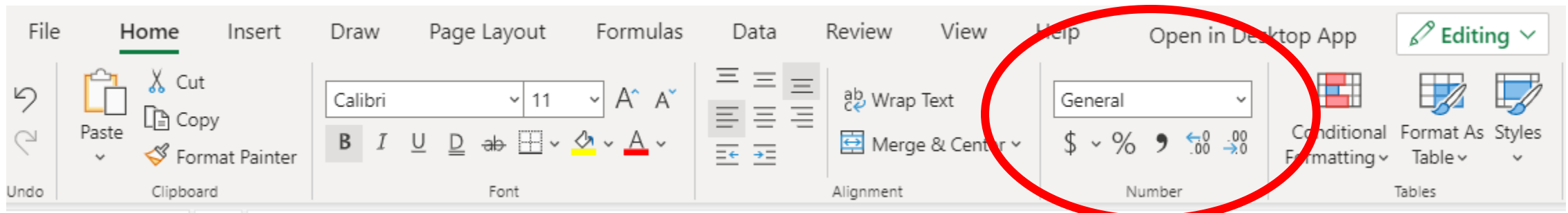
Filter dialog box:

Select item:

- (Select All)
- 2002
- 2012
- 2013
- 2015

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.

The screenshot shows a spreadsheet interface with a formula bar and a grid. The formula bar displays `=SUM(B2:B4)` and the active cell B5 contains the result 400. The grid shows columns A through E and rows 1 through 5. The data in the grid is as follows:

	A	B	C	D	E
1	Name	Monday	Tuesday	Wednesday	
2	Shine	100	150	150	
3	Balaji	100	150	150	
4	Bharath	200	250	250	
5		400	550	550	

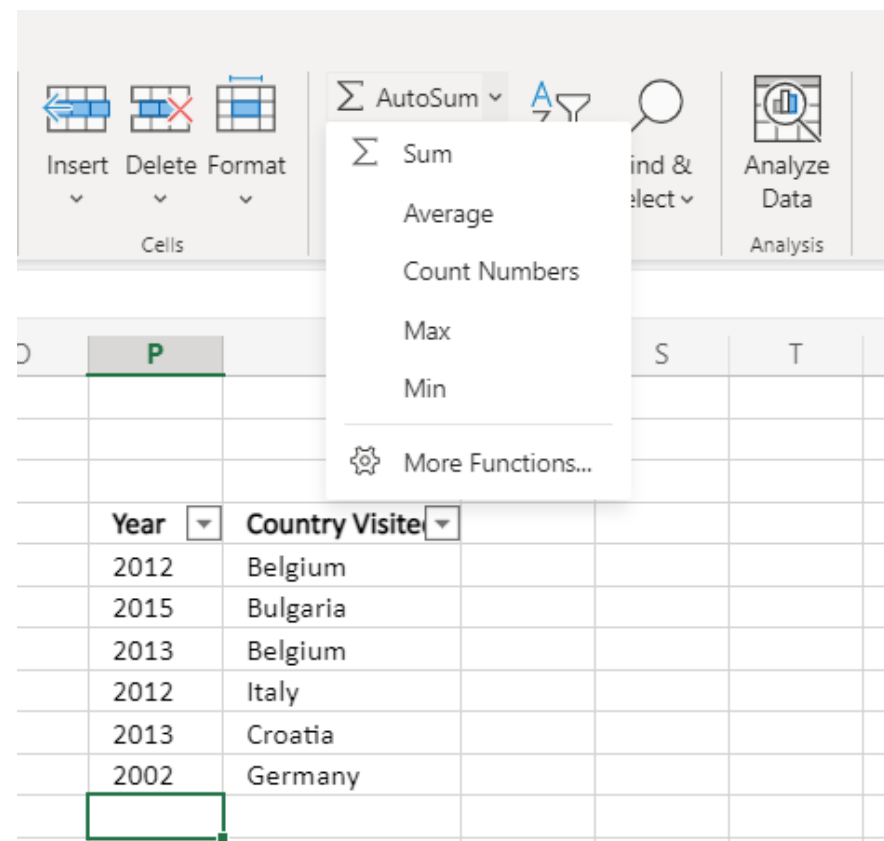
Formulas

- 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`



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>

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



Co-funded by the
Erasmus+ Programme
of the European Union

KNOWLEDGE ALLIANCE

ICT-TEX

ICT IN TEXTILE AND CLOTHING
HIGHER EDUCATION AND BUSINESS

These slides and the materials included in these slides (including references) are for educational purposes only. The use of slides should be done with correct citation and only for educational purposes.

The information and views set out in this publication are those of the authors and do not necessarily reflect the official opinion of the European Union. Neither the European Union institutions and bodies nor any person acting on their behalf may be held responsible for the use which may be made of the information contained therein.