Information Technology Module
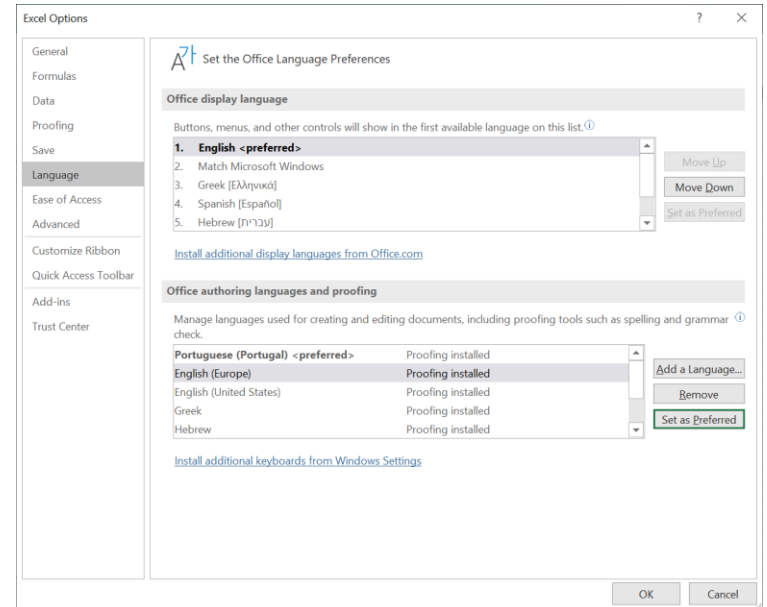
Year 2020/2021

Excel

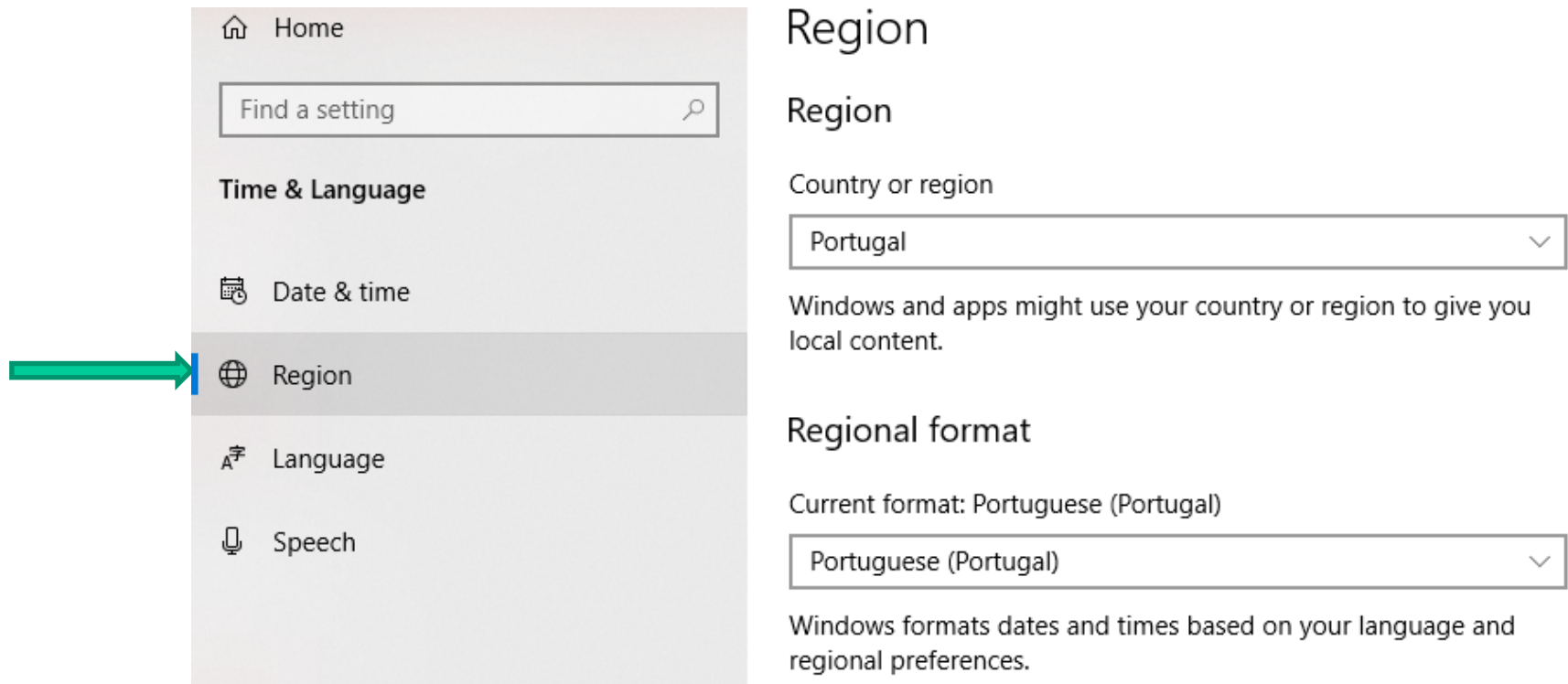## Review of basic functionalities

Computer Configurations

- Students are encouraged to bring their own laptop computers for the Excel Exercises. In that case, for the correct usage of the Excel formulas, the computers must have MS Office 365 installed with the following configuration:

  – Excel must be installed in English:

  – Menu "File / Options / Language":

Computer Configurations (cont)

- "International Settings" computer configuration:

Concepts

Spreadsheet

- Electronic equivalent to the spreadsheets used in accounting maps for analysis

- Allows the organization of data in tables (rows and columns)

- Each cell on the table contains either a data element or a formula

- The formulas perform calculations and/or use functions based on data from other cells

Spreadsheet

Example problem: We want to analyse a table showing the monthly cost of groceries, with a total per month and per item.

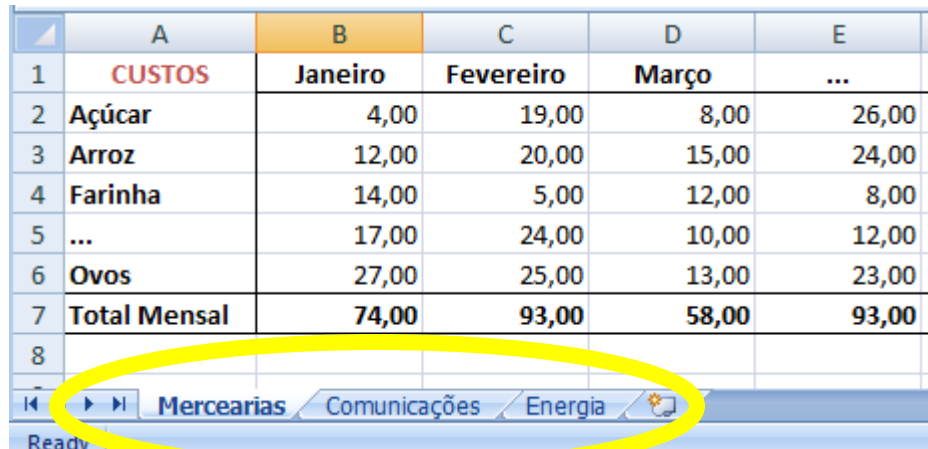|	A	B	C	D	E	F	G
1	CUSTOS	Janeiro	Fevereiro	Março	...	Dezembro	Total Anual
2	Açúcar	4,00	19,00	8,00	26,00	14,00	71,00
3	Arroz	12,00	20,00	15,00	24,00	21,00	92,00
4	Farinha	14,00	5,00	12,00	8,00	26,00	65,00
5	...	17,00	24,00	10,00	12,00	35,00	98,00
6	Ovos	27,00	25,00	13,00	23,00	21,00	109,00
7	Total Mensal	74,00	93,00	58,00	93,00	117,00	

Totals per column

Totals per row

The power of spreadsheets is that, by changing any cell, the content of its dependents are immediately changed.

Workbook

To organize in a single file the various costs (Ex: Grocery, Communications, Energy), Excel allows storing in a single file, a set of worksheets: **Workbook → Set of Worksheets (spreadsheets)**

	A	B	C	D	E
1	CUSTOS	Janeiro	Fevereiro	Março	...
2	Açúcar	4,00	19,00	8,00	26,00
3	Arroz	12,00	20,00	15,00	24,00
4	Farinha	14,00	5,00	12,00	8,00
5	...	17,00	24,00	10,00	12,00
6	Ovos	27,00	25,00	13,00	23,00
7	Total Mensal	74,00	93,00	58,00	93,00
8					

Mercearias Comunicações Energia

Ready

- Switching between the sheets is done in the tabs at the bottom of the book.
- The worksheets can be renamed by right clicking on the tab.
- To change the order of a worksheet, simply drag it with the mouse to the new position.

Absolute and relative cell references

Excel cells can contain formulas. The formulas use data from other cells, so they refer to address (row / column) of data :

	A	B	C	D	E	
1	**Artigo**	**Preço Base**	**% Desconto**	**Taxa IVA**	**Preço Total**	
2	Artigo A	581	10%	21%	632,71	=B2*(1-C2)*(1+D2)
3	Artigo B	272	5%	21%	312,66	=B3*(1-C3)*(1+D3)
4	Artigo C	768	10%	21%	836,35	=B4*(1-C4)*(1+D4)
5	Artigo D	945	15%	21%	971,93	=B5*(1-C5)*(1+D5)
6	Artigo E	150	5%	21%	172,43	=B6*(1-C6)*(1+D6)

These formulas use relative references

To add a new article ("Artigo F"), you can copy the formula from one of the existing lines. Excel automaticaly modifies the corresponding addresses:

	A	B	C	D	E	
1	**Artigo**	**Preço Base**	**% Desconto**	**Taxa IVA**	**Preço Total**	
2	Artigo A	581	10%	21%	632,71	=B2*(1-C2)*(1+D2)
3	Artigo B	272	5%	21%	312,66	=B3*(1-C3)*(1+D3)
4	Artigo C	768	10%	21%	836,35	=B4*(1-C4)*(1+D4)
5	Artigo D	945	15%	21%	971,93	=B5*(1-C5)*(1+D5)
6	Artigo E	150	5%	21%	172,43	=B6*(1-C6)*(1+D6)
7	Artigo F	345	25%	21%	313,09	=B7*(1-C7)*(1+D7)
8						

Absolute and relative cell references

If we want to isolate the rate of VAT (IVA) to be the same for all products, we would have:

	A	B	C	D	
1		Taxa de IVA:	21%		
2					
3					
4	**Artigo**	**Preço Base**	**% Desconto**	**Preço Total**	
5	Artigo A	581	10%	632,71	=B5*(1-C5)*(1+$C$1)
6	Artigo B	272	5%	312,66	=B6*(1-C6)*(1+$C$1)
7	Artigo C	768	10%	836,35	=B7*(1-C7)*(1+$C$1)
8	Artigo D	945	15%	971,93	=B8*(1-C8)*(1+$C$1)
9	Artigo E	150	5%	172,43	=B9*(1-C9)*(1+$C$1)
10	Artigo F	345	25%	313,09	=B10*(1-C10)*(1+$C$1)

By preceding the cell address with the dollar sign ("$"), the reference becomes absolute

- In absolute references, Excel keeps the address unchanged when copying a formula from one cell to another, i.e. fixes the address of the cell.
- You can fix
  - Only the row: C$1
  - Only the column: $C1
  - The row and the column: $C$1

Formatting cells

Suppose we want to view data in Excel for better presentation and understanding. For example, to format values like "EURO":

Formatting zone

Clicking the arrow, opens the formatting menu

Formatting options

Attention!
formatting ≠ rounding !!!

	A	B
1	Number not formated	62,14286
2	Same number with Euro format	62,14 €

Formatting Tables

We want to format a table with data. Excel has a pre-set of table formats that can be used immediately.

E.g.: Data table unformatted:

	A	B	C	D	E	F	G	H
1	CUSTOS	Janeiro	Fevereiro	Março	...	Dezembro	Total Anual	
2	Açúcar	4,00	19,00	8,00	26,00	14,00	71,00	
3	Arroz	12,00	20,00	15,00	24,00	21,00	92,00	
4	Farinha	14,00	5,00	12,00	8,00	26,00	65,00	
5	...	17,00	24,00	10,00	12,00	35,00	98,00	
6	Ovos	27,00	25,00	13,00	23,00	21,00	109,00	
7	Total Mensal	74,00	93,00	58,00	93,00	117,00		
8								

Formatting Tables

Access the menu option and choose a format
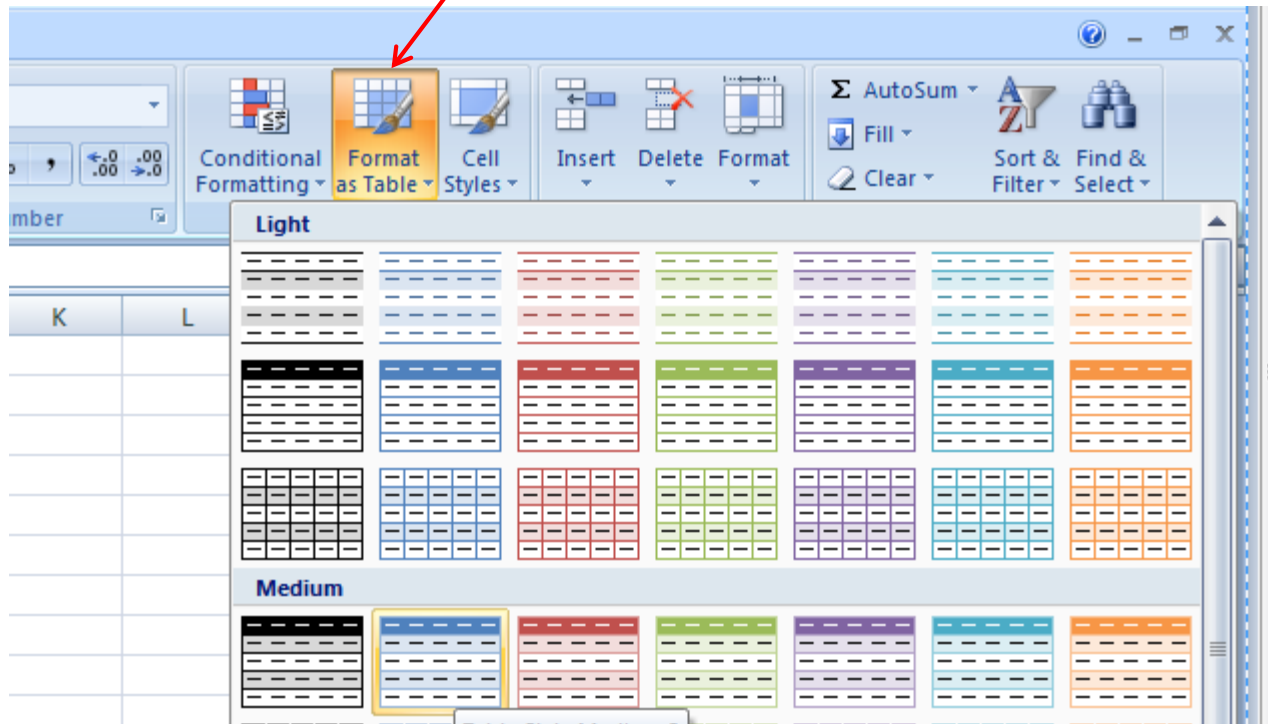
Formatting Tables - Result

⬛	A	B	C	D	E	F	G	H
1	CUSTOS ▼	Janeiro ▼	Fevereiro ▼	Março ▼	... ▼	Dezembro ▼	Total Anual ▼	
2	Açúcar	4,00	19,00	8,00	26,00	14,00	71,00	
3	Arroz	12,00	20,00	15,00	24,00	21,00	92,00	
4	Farinha	14,00	5,00	12,00	8,00	26,00	65,00	
5	...	17,00	24,00	10,00	12,00	35,00	98,00	
6	Ovos	27,00	25,00	13,00	23,00	21,00	109,00	
7	Total Mensal	74,00	93,00	58,00	93,00	117,00		
8								

Conditional Formatting

We want to highlight cells that have a cost over € 20.00

	A	B	C	D	E	F	G
1	CUSTOS	Janeiro	Fevereiro	Março	...	Dezembro	Total Anual
2	Açúcar	7,78	42,54	6,45	41,08	5,60	103,45
3	Arroz	31,01	10,44	37,73	49,37	31,68	160,23
4	Farinha	34,99	32,87	23,78	40,84	16,76	149,24
5	...	39,04	6,50	22,34	41,61	19,85	129,34
6	Ovos	39,41	10,01	40,02	5,70	7,00	102,14
7	Total Mensal	152,23	102,36	130,32	178,60	80,89	
8							

Select the cells to format

Conditional Formatting - Result
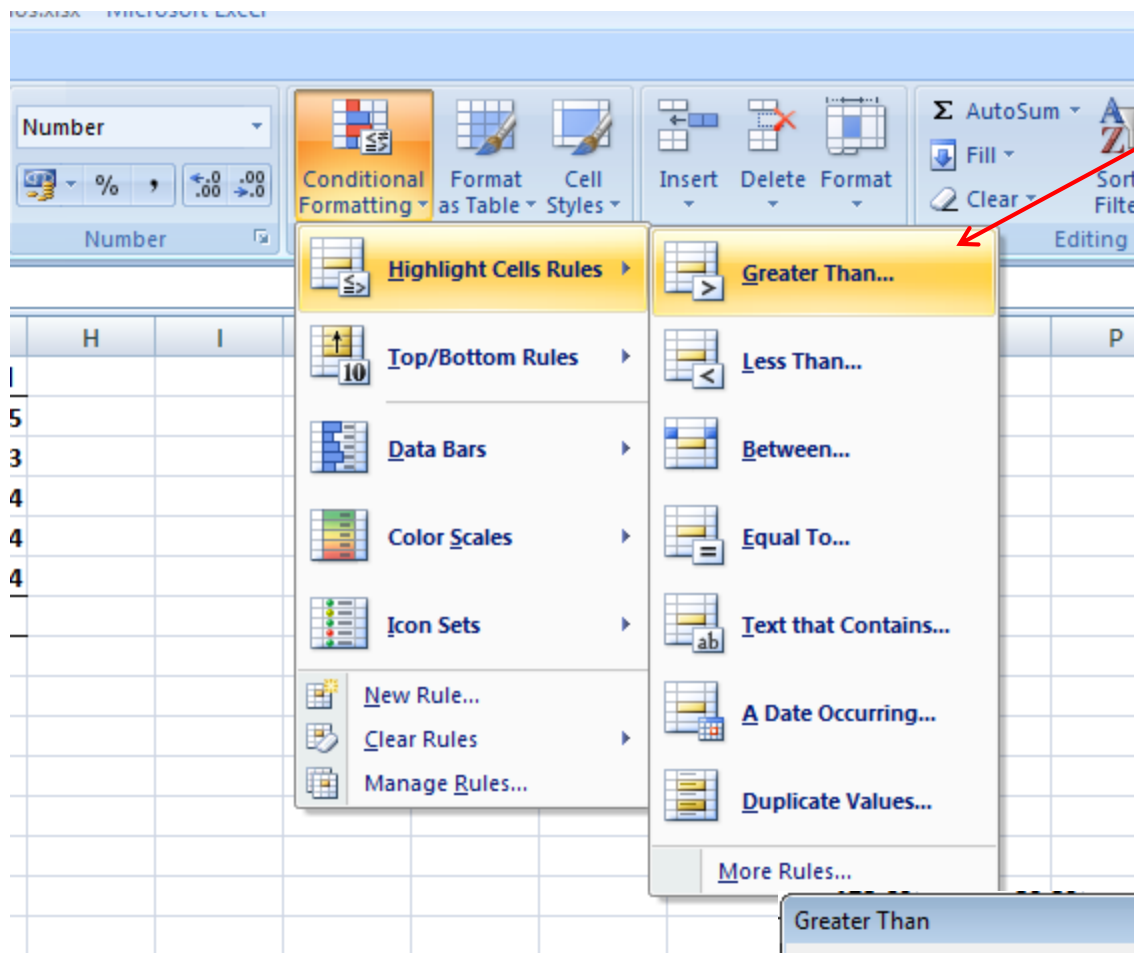
Choose option

In the next window, enter the reference value and the format to stress
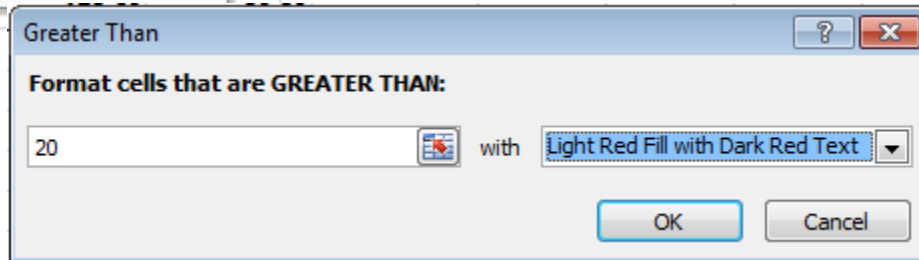
Conditional Formatting - Result

	A	B	C	D	E	F	G	H
1	CUSTOS	Janeiro	Fevereiro	Março	...	Dezembro	Total Anual	
2	Açúcar	7,78	42,54	6,45	41,08	5,60	103,45	
3	Arroz	31,01	10,44	37,73	49,37	31,68	160,23	
4	Farinha	34,99	32,87	23,78	40,84	16,76	149,24	
5	...	39,04	6,50	22,34	41,61	19,85	129,34	
6	Ovos	39,41	10,01	40,02	5,70	7,00	102,14	
7	Total Mensal	152,23	102,36	130,32	178,60	80,89		
8								

Formatting Print

We want to print the grade report in the following format:

Formatting Print

Use the "Page Setup" on "Header / Footer" buttons "Custom Header" and "Custom Footer" to create headers and footers.

The remaining options allow several configurations for printing
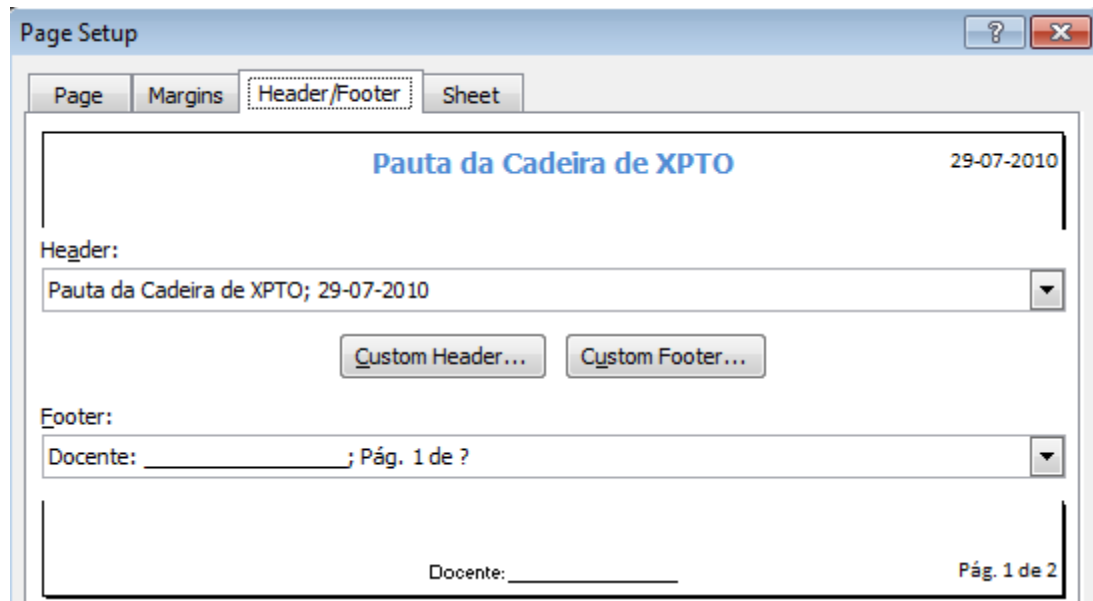
Contributors

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