Information Technology Module

Year 2020/2021

Excel

Text and Information Functions

Text functions

Text treatment

LOWER, UPPER, PROPER

Column A contains the text you want to format:
1. All Uppercase - UPPER (Text)
2. All in lowercase - LOWER (Text)
3. All the words start with capital letters - PROPER (Text)

	A	B	
	Texto Inicial	**Texto Alterado**	**Função**
1			
2	O programa da cadeira de TI foi bastante alterado	O PROGRAMA DA CADEIRA DE TI FOI BASTANTE ALTERADO	=UPPER(A2)
3	no ano lectivo de 2010/2011. Não era ensinado Excel	no ano lectivo de 2010/2011. não era ensinado excel	=LOWER(A3)
4	nesta cadeira, porque se assumiu que era ensinado noutras cadeiras	Nesta Cadeira, Porque Se Assumiu Que Era Ensinado Noutras Cadeiras	=PROPER(A4)
5			

TRIM (text)

Column A corresponds to the import of a text file that contains multiple spaces between words, that we intend to remove

	A	B	
	Texto Inicial	**Texto Final**	**Função**
1			
2	Este pequeno texto pretende exemplificar	Este pequeno texto pretende exemplificar	=TRIM(A2)
3	a utilização da função TRIM	a utilização da função TRIM	=TRIM(A3)
4			

The trim function (text) removes spaces in a text, leaving only one space between words

SUBSTITUTE(text; old_text; new_text; [instance_num])

Column A corresponds to the import of a text file where we want to replace the word "cadeira" with "disciplina"

A	B	Função
Texto Inicial	**Texto Alterado**	**Função**
O programa da cadeira de TI foi bastante alterado	O programa da disciplina de TI foi bastante alterado	=SUBSTITUTE(A2;"cadeira";"disciplina")
no ano lectivo de 2010/2011. Não era ensinado Excel	no ano lectivo de 2010/2011. Não era ensinado Excel	=SUBSTITUTE(A3;"cadeira";"disciplina")
nesta cadeira, porque se assumiu que era ensinado noutras cadeiras	nesta disciplina, porque se assumiu que era ensinado noutras disciplinas	=SUBSTITUTE(A4;"cadeira";"disciplina")

The function SUBSTITUTE (text; old_text; new_text; instance_num) replaces **old_text** by **new_text** in **text**.

If **instance_num** is specified, only the occurrence **instance_number** in **text** is changed;

If **instance_num** is not specified all occurrences are replaced

EXACT (text1; text2)

Column A corresponds to the import of a file, and column B to the import of another file. The aim is, for each line, to check whether the occurrences are equal

	A	B	C	
1	**Texto 1**	**Texto 2**	**Resultado**	**Função**
2	O programa da cadeira de TI	O PROGRAMA DA CADEIRA DE TI	FALSE	=EXACT(A2;B2)
3	no ano lectivo de 2010/2011. Não era ensinado Excel	no ano lectivo de 2010/2011. não era ensinado excel	FALSE	=EXACT(A3;B3)
4	nesta cadeira, porque se assumiu sê-lo noutras	nesta cadeira, porque se assumiu sê-lo noutras	TRUE	=EXACT(A4;B4)
5	123,5	123,5	TRUE	=EXACT(A5;B5)
6	20-04-2010	20-04-2010	TRUE	=EXACT(A6;B6)
7	20-07-2010	20-07-2011	FALSE	=EXACT(A7;B7)
8				

The function EXACT (text1; text2) compares two values, returning TRUE if they are exactly the same and FALSE otherwise. This function is CASE-SENSITIVE

CONCATENATE(text1; test2; [textn]; ...) or text1&test2&...[testn]

Suppose we want to prepare the references of authors of a particular book from their individual names

	A	B	
1	**Autor**	**Referência**	**Função**
2	Date, C. J.	Date, C. J., Nolan, R. and Wang, R.	=CONCATENATE(A2;", ";A3;" and ";A4)
3	Nolan, R.	Date, C. J., Nolan, R. and Wang, R.	=A2&", "&A3&" and "&A4
4	Wang, R.		
5			
6	Valores Obtidos	Valores Obtidos: 127,35 e 1024	=CONCATENATE(A6;": ";A7;" e ";A8)
7	127,35	Valores Obtidos: 127,35 e 1024	=A6&": "&A7&" e "&A8
8	1024		

The function CONCATENATE (text1; [text2]; ...) joins up to 255 strings and/or numeric values in a single string.

"&" does exactly the same.

CONCAT (text1, [text2, ... text_n])

Suppose we want to compose the name of a person from their individual characters and from the individual names of their birth city

	A	B	C	D
1	Letras do nome	Nomes da cidade de nascimento	Nome completo, naturalidade	Função
2	J	New	John, New York	=CONCAT(A2:A5; ", ";B2; " "; B3)
3	o	York		
4	h			
5	n			

The function CONCAT (text1, [text2, ... text_n]) concatenates a list or range of text strings.

Text Functions

Character Location and Extraction

LEN (text)

We want to count the number of characters in a string

	A	B	
1	**Texto**	**Nº de Caracteres**	**Função**
2	ISEG	4	=LEN(A2)
3	R Quelhas 6	11	=LEN(A3)
4	1200-781 LISBOA	15	=LEN(A4)
5	123,5	5	=LEN(A5)
6			

The LEN (text) returns the number of characters in a string

LEFT (text; numchar) e RIGHT (text; numchar)

Extract *numchar* characters from *text* starting from the **LEFT** or from the **RIGHT**.

	A	B	C	D	E
1	Dados	LEFT	Função LEFT	RIGHT	Função RIGHT
2	Preço de Venda	Preço	=LEFT(A2;5)	Venda	=RIGHT(A2;5)
3	Lisboa, Portugal	Lisboa	=LEFT(A3;6)	Portugal	=RIGHT(A3;8)
4					

FIND (find_text; within_text; [start_num])

This function searches the string **find_text** inside another string **within_text** and returns the position where it was found. It starts searching from position **start_num** (1 if omitted)

	A	B	C	D	E
1	**Dados**	**FIND**	**Função FIND**	**LEFT**	**Função LEFT**
2	Preço de Venda	6	=FIND(" ";A2)	Preço	=LEFT(A2;FIND(" ";A2)-1)
3	Lisboa, Portugal	7	=FIND(",";A3)	Lisboa	=LEFT(A3;FIND(",";A3)-1)
4					
5					

MID (text; start_num; num_chars)

Returns a specific number of characters from **text**, starting at **start_num**, with length **num_chars**.

	A	B	C	D	E
1	Nome Completo	Nome Próprio	Função	Apelido	Função
2	José Silva	José	=MID(A2;1;FIND(" ";A2)-1)	Silva	=RIGHT(A2;LEN(A2)-FIND(" ";A2))
3	Marta Ribeiro	Marta		Ribeiro	
4	Joana da Costa	Joana		da Costa	
5					
6					

Functions MID, LEFT, RIGHT, LEN, and FIND, when applied together, allow a reasonable ability to manipulate characters in Excel.

Text Functions

Converting data types

Text functions

They are used normaly **to manipulate data imported from external sources**

- Converting data types (eg text to numeric)

- Change data format (eg convert text to uppercase)

- String manipulation (eg, replace the date of "28.07.2015" to "07/27/2015")

http://office.microsoft.com/en-us/excel-help/list-of-worksheet-functions-by-category-HP010079186.aspx#BMtext_functions

VALUE (text)

Column A corresponds to the import of a file in text format.
It is intended to obtain from this text the numeric numeric value
and put it in column B

	A	B	
1	Text	Number	function used
2	Price: 123,45€	123,45	=VALUE(MID(A2;8;6))
3	Price: 034,56€	34,56	=VALUE(MID(A2;8;6))
4	Price: 348,03€	348,03	=VALUE(MID(A2;8;6))
5	Price: 009,43€	9,43	=VALUE(MID(A2;8;6))
6			

The function VALUE (text) takes a set of characters in numerical value. If the text is not "convertible" is returnes #VALUE!

TEXT (value; format_text)

Column A corresponds to a numeric value and a date.
It is intended to convert these numeric values in a more readable format

	A	B	C
1	Number	Text	Function used
2	241,5384	241,54€	=TEXT(A2; "000,00€")
3	22/11/2019	sexta-feira, 22 - novembro - 2019	=TEXT(A3;"dddd, dd - mmmm - aaaa")
4	43791	sexta-feira, 22 - novembro - 2019	=TEXT(A4;"dddd, dd - mmmm - aaaa")

TEXT function (value, Format_text) converts numeric values in a set of characters in the specified format

DOLLAR (number; decimals)

Column A contains a **number**, that we need to transform into **text formatted as** *currency* with 2 decimal places.

	A	B	C
1	NUMBER	TEXT	Função utilizada
2	132,5	132,50 €	=DOLLAR(A2;2)
3			
4			

The DOLLAR (number,decimals) function converts a numeric value into a money format, with the given number of decimal places.

Information functions

Information functions

Are routinely used **to validate the contents of a cell**

Consider the following student assessment table

	A	B	C	D	E
1		40%	60%		
2	**Name**	**1st Test**	**2nd Test**	**Final**	**Result**
3	Ann	12,9	9	10,56	Approve
4	John	13		-----	Fail
5	Louis	1,6	14	-----	Fail
6	Mary	11	9	9,8	Approve
7					
8	Rules to be approved				
9	1st test >= 9,5				
10	2nd test >= 8,5				
11	Final (= 40% 1st + 60% 2nd) >= 9,5				

http://office.microsoft.com/en-us/excel-help/list-of-worksheet-functions-by-category-HP010079186.aspx#BMinformation_functions

ISBLANK (value)

Suppose we want to fill the column "Final" with the string "-----" if the cell "2nd test" is blank or to leave it blank otherwise

	A	B	C	D	E	F
1		40%	60%			
2	**Name**	**1st Test**	**2nd Test**	**Final**	**Result**	
3	Ann	12,9	9			=IF(ISBLANK(C3);"-----";"")
4	John	13		-----		
5	Louis	1,6	14			
6	Mary	11	9			
7						
8	Rules to be approved					
9	1st test >= 9,5					
10	2nd test >= 8,5					
11	Final (= 40% 1st + 60% 2nd) >= 9,5					

Function ISBLANK (value) returns TRUE if the cell is empty and FALSE otherwise

ISBLANK (value)

Now we want to fill the column "Final" with "-----" in case of cell "2nd test" is blank or "1st Test" <9.5. Otherwise,
Final =40%*ALS+60%*Exame

	A	B	C	D	E	F
1		40%	60%			
2	**Name**	**1st Test**	**2nd Test**	**Final**	**Result**	
3	Ann	12,9	9	10,56		=IF(OR(ISBLANK(C3);B3<9,5);"-----";B3*40%+C3*60%)
4	John	13		-----		
5	Louis	1,6	14	-----		
6	Mary	11	9	9,8		
7						
8	Rules to be approved					
9	1st test >= 9,5					
10	2nd test >= 8,5					
11	Final (= 40% 1st + 60% 2nd) >= 9,5					

ISTEXT(value)

Now we want to fill the column "Result" with the string "Fail" if "Final" is a string and leave it blank otherwise

	A	B	C	D	E	F
1		40%	60%			
2	Name	1st Test	2nd Test	Final	Result	
3	Ann	12,9	9	10,56		=IF(ISTEXT(D3);"Fail";"")
4	John	13		-----	Fail	
5	Louis	1,6	14	-----	Fail	
6	Mary	11	9	9,8		
7						
8	Rules to be approved					
9	1st test >= 9,5					
10	2nd test >= 8,5					
11	Final (= 40% 1st + 60% 2nd) >= 9,5					

Function ISTEXT (value) returns TRUE if value is a text and FALSE otherwise

ISNUMBER(value)

Now we want to fill the column "Result" with "Approved" if "Final" is a number >= 9.5 and "Fail" otherwise

	A	B	C	D	E	F
1		40%	60%			
2	**Name**	**1st Test**	**2nd Test**	**Final**	**Result**	
3	Ann	12,9	9	10,56	Aprove	=IF(AND(ISNUMBER(D3);D3>=9,5);"Aprove";"Fail")
4	John	13		-----	Fail	
5	Louis	1,6	14	-----	Fail	
6	Mary	11	9	9,8	Aprove	
7						
8	Rules to be approved					
9	1st test >= 9,5					
10	2nd test >= 8,5					
11	Final (= 40% 1st + 60% 2nd) >= 9,5					

Function ISNUMBER (value) returns TRUE if value is a number and FALSE otherwise

ISERROR(value)
IFERROR(value; value_if_error)

▲	A	B	C	D	E
1					
2	X	6,86	0	4,18	abc
3	Y	3,14	9,58	0	8,72
4	X/Y	2,184713376	0	#DIV/0!	#VALUE!
5	=IF(ISERROR(X/Y);"Got an Error";X/Y)	2,184713376	0	Got an Error	Got an Error
6	=IFERROR(B2/B3;"Got na Error")	2,184713376	0	Got na Error	Got na Error

Function **ISERROR(value)** returns **TRUE** if there is an error
(#N/A, #VALUE!, #REF!, #DIV/0!, #NUM!, #NAME?, Or #NULL!)
And **FALSE** otherwise
Function **IFERROR(value; value_if_error)** returns **value** or, if
value contains na error, returns **value_if_error**

Contributors

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