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HelpSheet: VLOOKUP (Multiple Columns) Function

Introduction

Background

Many of the Functions contained in Excel are only partially used. Consequently their effect is diluted and the reports which use them are not as powerful as they should be.

Hit The Ground Sprinting are producing a series of videos which, when used in conjunction with a Helpsheet such as this, will fully explore not only individual Excel Functions but will also examine how different Functions can be combined for even more effective reporting and the introduction of End User interactivity.

If you have not read the Helpsheet How Single Functions Work we suggest you do so before commencing this Helpsheet, as the theory behind how Functions work will help your understanding of the process.

Introduction

This helpsheet should be used in conjunction with the video produced by Hit The Ground Sprinting details of which can be found at www.hitthegroundsprinting.com

Function Purpose

The Function VLOOKUP can be adapted to lookup multiple criteria.

Video Commentary

Watch the Video, read the Helpsheet. Watch the Video again and do examples.

This Video explains how to use VLOOKUP using more than one column as a search criteria.

It is commonly assumed that VLOOKUP can take place with the search being conducted on only one column.

Anyone with no knowledge of VLOOKUP Functions is advised NOT to start here before viewing our other Video VLOOKUP (Details Explained) about the basics of VLOOKUP, details of which can be found at www.hitthegroundsprinting.com

The box to the right of the VLookup Function defines it as 'Looks for a value in the left hand column of a table, and then returns a value in the same row from a column you specify. By default the table must be sorted in ascending order'

Looking at the data it does not appear to be suitable for VLOOKUP because there are duplicates in columns 'C', 'D' and 'E'.

	A	B	C	D	E	F	G	H	I	J	K
1			VLOOKUP Demonstration						www.hitthegroundsprinting.com		
2											
3			Country	Name	Food	Quantity					
4			France	Andrew	Apples	1					
5			France	Belinda	Bananas	2					
6			France	Colin	Pears	3					
7			Germany	Denise	Plums	4					
8			UK	Colin	Apples	5					
9			UK	Freda	Pears	6					
10			UK	Graham	Plums	7					
11				Totals		28					
12											

However if a combination of the columns were to be taken in to consideration duplicate records do occur.

The solution therefore is to create another column of data to the left of our current data (insert rows if necessary) which combines the columns we wish to use VLOOKUP on.

If necessary insert extra columns to the left or take a copy of the data on a different tab and insert the extra columns there.

The video goes to cell 'B4' and creates a Formula, '=c4&d4'.

This will cause a concatenation of cells 'C4' and 'D4' in cell 'B4' (in other words it will combine them in to one cell, there will be no space between them).

	A	B	C	D	E	F	G	H	I	J	K
1			VLOOKUP Demonstration						www.hitthegroundsprinting.com		
2											
3			Country	Name	Food	Quantity					
4		=c4&d4	France	Andrew	Apples	1					
5			France	Belinda	Bananas	2					
6			France	Colin	Pears	3					
7			Germany	Denise	Plums	4					
8			UK	Colin	Apples	5					
9			UK	Freda	Pears	6					
10			UK	Graham	Plums	7					
11				Totals		28					
12											

Notice the following three things.

- 1) 'c4' is blue in the Formula, and the borders of cell 'C4' are also blue, showing they are linked.
- 2) Similarly with 'd4' and the border of cell 'D4', except they are green.
- 3) There is an ampersand, '&', between 'c4' and 'd4', not a '+' sign (we are combining the cells, not adding them together).

Pressing 'Enter' populates cell 'B4' with 'FranceAndrew'.

There is no space between 'France' and 'Andrew' in our example.

This is combining the contents of cells 'C4' and 'D4'

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The formula in cell 'B4' is then repeated down to cell 'B10' by returning to cell 'B4' with the cursor, then going to the bottom right of the cell where there is a small oblong, whose colour will change depending upon the background it appears on (it is usually black but in this case it is white and we have highlighted it in a red box).

VLOOKUP Demonstration					www.hitthegroundsprinting.com
	Country	Name	Food	Quantity	
4	France	Andrew	Apples	1	[Yellow Box]
5	France	Belinda	Bananas	2	
6	France	Colin	Pears	3	
7	Germany	Denise	Plums	4	
8	UK	Colin	Apples	5	
9	UK	Freda	Pears	6	
10	UK	Graham	Plums	7	
		Totals		28	

Putting the cursor over this oblong makes the cursor become a cross.

Right click the cursor and drag the contents of the cell down to cell 'B10', when cell 'B10' is reached release the cursor.

This will copy the formula down to all the cells in between cell 'B4' and 'B10' (including 'B10').

VLOOKUP Demonstration					www.hitthegroundsprinting.com
	Country	Name	Food	Quantity	
4	France	Andrew	Apples	1	[Yellow Box]
5	France	Belinda	Bananas	2	
6	France	Colin	Pears	3	
7	Germany	Denise	Plums	4	
8	UK	Colin	Apples	5	
9	UK	Freda	Pears	6	
10	UK	Graham	Plums	7	
		Totals		28	

We will now go to cell 'H5' and put in the Function.

Instead of putting in the table array as 'c4:f10' we include the new data range we have included in column 'B'.

Therefore the 'table_array' is 'b4:f10'

Our full Function will be as below.

VLOOKUP Demonstration				
Country	Name	Food	Quantity	
France	Andrew	Apples	1	
France	Belinda	Bananas	2	
France	Colin	Pears	3	
Germany	Denise	Plums	4	
UK	Colin	Apples	5	
UK	Freda	Pears	6	
UK	Graham	Plums	7	
Totals			28	

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`=vlookup(h3,b4:f10,5,false)`

A quick reminder

'h3' is the value we are looking up. It is blue and the borders of cell 'H3' is blue because this part of the formula is linked to the cell.

'b4:f10' are the range of cells we are using to look up the value from (from the left hand column of this range). 'b4:f10' and cells 'B4' to 'F10' are linked for the same reason.

'5' is the column where the results will come from (the fifth column from the left of the range, column 'B' is '1', column 'C' is '2' ... column 'F' is '5').

'false' is so only values which exist in the left hand column return values.

If 'Enter' is pressed cell 'H5' has a value of '#N/A' in it, because cell 'H3' is blank.

Entering 'francecolin' returns '3' because the looked up value in cell 'B6' corresponds to the value in column 'F' (the 'col_index_num'), so the value in column 'F' is returned.

Changing the value in 'H3' to 'ukfreda' similarly returns a '6'

Continuing from this it is possible to combine columns of data in the left hand column which are not adjacent in the data table.

Changing the Formula in 'B4' to '=c4&e4' and dragging it down combines columns 'C' and 'E'.

Of course when this happens cell 'H5', which contains our VLOOKUP Function becomes '#N/A' because cell 'H3' still contains 'ukfreda'.

Changing cell 'H3' to 'GermanyPlums' returns '4' as we would expect.

As practice makes perfect apply the above at every practical opportunity

Finally

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