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One Lookup Value to Return Multiple Items: Array Formula with INDEX, AGGREGATE, ROW, ROWS and IF functions.

Formula:

```
=IF(ROWS(E$11:E11)>$E$8,"",INDEX($B$5:$B$11,AGGREGATE(15,6,{1;2;3;4;5;6;7}/($A$5:$A$11=$E$5),ROWS(E$11:E11))))
```

• Example:

	A	B	C	D	E	F	G	H	I	J
1	Highline Excel 2016 Class 13: One Lookup Value to Return Multiple Items: Array Formula									
2										
3										
4	Server Name	Event	Status		Server Name					
5	N-987-HQ5SSD	EVENT-2	1/2 Stage Complete		N-987-HQ5SSD					
6	ZZR45678A	EVENT-1	Complete							
7	BBT5643BG	EVENT-1	Complete		Count					
8	N-987-HQ5SSD	EVENT-1	Incomplete		2					
9	BBT5643BG	EVENT-2	Not Yet Reviewed							
10	BBT5643BG	EVENT-3	Not Yet Reviewed		Events					
11	ZZR45678A	EVENT-2	Review		=IF(ROWS(E\$11:E11)>\$E\$8,"",INDEX(\$B\$5:\$B\$11,AGGREGATE(15,6,(ROW(\$A\$5:\$A\$11)-ROW(\$A\$5)+1)/(\$A\$5:\$A\$11=\$E\$5),ROWS(E\$11:E11))))					
12										
13										
14										

How Formula Calculates in cell E11:

- 1) =IF(ROWS(E\$11:E11)>\$E\$8,"",INDEX(\$B\$5:\$B\$11,AGGREGATE(15,6,(ROW(\$A\$5:\$A\$11)-ROW(\$A\$5)+1)/(\$A\$5:\$A\$11=\$E\$5),ROWS(E\$11:E11))))
- 2) =IF(ROWS(E\$11:E11)>\$E\$8,"",INDEX(\$B\$5:\$B\$11,AGGREGATE(15,6,(**ROW(\$A\$5:\$A\$11)-ROW(\$A\$5)+1**)/(\$A\$5:\$A\$11=\$E\$5),ROWS(E\$11:E11))))
 - ROW(\$A\$5:\$A\$11)-ROW(\$A\$5)+1 = Formula element to generate an array of all the relative positions in the data set.
 - ROW(\$A\$5:\$A\$11)-ROW(\$A\$5)+1 → {1;2;3;4;5;6;7}
- 3) =IF(ROWS(E\$11:E11)>\$E\$8,"",INDEX(\$B\$5:\$B\$11,AGGREGATE(15,6,**{1;2;3;4;5;6;7}**)/(\$A\$5:\$A\$11=\$E\$5),ROWS(E\$11:E11))))
 - {1;2;3;4;5;6;7}/(\$A\$5:\$A\$11=\$E\$5) = Formula element to filter Relative Positions by the Server Name.
 - {1;2;3;4;5;6;7}/(\$A\$5:\$A\$11=\$E\$5) → {#DIV/0!;#DIV/0!;3;#DIV/0!;5;6;#DIV/0!}
- 4) =IF(ROWS(E\$11:E11)>\$E\$8,"",INDEX(\$B\$5:\$B\$11,AGGREGATE(**15,6**,{#DIV/0!;#DIV/0!;3;#DIV/0!;5;6;#DIV/0!},ROWS(E\$11:E11))))
 - The function number 15 in AGGREGATE tells AGGREGATE to calculate like the SMALL function.
 - The 6 in the options argument tells AGGREGATE to ignore the ;#DIV/0! errors.
- 5) IF(ROWS(E\$11:E11)>\$E\$8,"",INDEX(\$B\$5:\$B\$11,AGGREGATE(15,6,{#DIV/0!;#DIV/0!;3;#DIV/0!;5;6;#DIV/0!},**ROWS(E\$11:E11)**)))
 - ROWS(E\$11:E11) = Formula element that “increments sequential numbers, like 1, 2, 3... as the formula gets copied down across the rows.

- 6) `IF(ROWS(E$11:E11)>$E$8,"",INDEX($B$5:$B$11,AGGREGATE(15,6,{#DIV/0!;#DIV/0!;3;#DIV/0!;5;6;#DIV/0!},ROWS(E$11:E11))))`
- The AGGREGATE and its array calculation deliver the relative position of the server names as the formula is copied down across the rows.
- 7) `=IF(ROWS(E$11:E11)>$E$8,"",INDEX($B$5:$B$11,3))`
- AGGREGATE delivers the first relative position: 3.
- 8) `=IF(ROWS(E$11:E11)>$E$8,"",INDEX($B$5:$B$11,3))`
- In the logical_test argument of the IF function, ROWS(E\$11:E11)>\$E\$8 checks to see if the formula is down past the row which is greater than the count of server names.
 - If the formula is NOT past the row which is greater than the count of server names, the INDEX Array Formula is run.
 - If the formula IS past the row which is greater than the count of server names, the IF function dumps a zero-length text string into the cell rather than running the whole INDEX & AGGREGATE Array Formula.

Don't Use IFERROR

- It is important to use the IF with a logical test rather than the IFERROR function so that formula calculation time for the Excel workbook file is minimized. The drawback to using IFERROR is that every cell would have to run the big array formula. For spreadsheets with large lookup tables and many array formulas that calculate over large ranges of cells, formula calculation time and be significant. By using an alternative logical test to either run the INDEX & AGGREGATE Array Formula or dump a zero-length text string into the cell can help reduce calculation time.
- 9) `=IF(TRUE,"",INDEX(B5:B11,3))`
- 10) `=IF(TRUE,"",INDEX(B5:B11,3))`
- 11) The formula delivers the first event for the server name, which is: **EVENT-1**

Cumulative List of Keyboards Throughout Class:

- 1) **Esc Key:**
 - i. Closes Backstage View (like Print Preview).
 - ii. Closes most dialog boxes.
 - iii. If you are in Edit mode in a Cell, Esc will revert back to what you had in the cell before you put the Cell in Edit mode.
- 2) **F2 Key** = Puts formula in Edit Mode and shows the rainbow colored Range Finder.
- 3) **SUM Function: Alt + =**
- 4) **Ctrl + Shift + Arrow** = Highlight column (Current Region).
- 5) **Ctrl + Backspace** = Jumps back to Active Cell
- 6) **Ctrl + Z** = Undo.
- 7) **Ctrl + Y** = Undo the Undo.
- 8) **Ctrl + C** = Copy.
- 9) **Ctrl + X** = Cut.
- 10) **Ctrl + V** = Paste.
- 11) **Ctrl + PageDown** = expose next sheet to right.
- 12) **Ctrl + PageUp** = expose next sheet to left.
- 13) **Ctrl + 1** = Format Cells dialog box, or in a chart it opens Format Chart Element Task Pane.
- 14) **Ctrl + Arrow:** jumps to the bottom of the "**Current Region**", which means it jumps to the last cell that has data, right before the first empty cell.
- 15) **Ctrl + Home** = Go to Cell A1.
- 16) **Ctrl + End** = Go to last cell used.
- 17) Alt keyboards are keys that you hit in succession. Alt keyboards are keyboards you can teach yourself by hitting the Alt key and looking at the screen tips.
 - i. Create PivotTable dialog box: **Alt, N, V**
 - ii. Page Setup dialog box: **Alt, P, S, P**
 - iii. Keyboard to open Sort dialog box: **Alt, D, S**
- 18) **ENTER** = When you are in Edit Mode in a Cell, it will put thing in cell and move selected cell DOWN.
- 19) **CTRL + ENTER** = When you are in Edit Mode in a Cell, it will put thing in cell and keep cell selected.
- 20) **TAB** = When you are in Edit Mode in a Cell, it will put thing in cell and move selected cell RIGHT.
- 21) **SHIFT + ENTER** = When you are in Edit Mode in a Cell, it will put thing in cell and move selected cell UP.
- 22) **SHIFT + TAB** = When you are in Edit Mode in a Cell, it will put thing in cell and move selected cell LEFT.
- 23) **Ctrl + T** = Create Excel Table (with dynamic ranges) from a Proper Data Set.
 - i. Keyboard to name Excel Table: **Alt, J, T, A**
 - ii. **Tab** = Enter Raw Data into an Excel Table.
- 24) **Ctrl + Shift + ~ (`)** = General Number Formatting Keyboard.
- 25) **Ctrl + ;** = Keyboard for hardcoding today's date.
- 26) **Ctrl + Shift + ;** = Keyboard for hardcoding current time.
- 27) **Arrow Key** = If you are making a formula, Arrow key will "hunt" for Cell Reference.
- 28) **Ctrl + B** = Bold the Font
- 29) **Ctrl + * (on Number Pad) or Ctrl + Shift + 8** = Highlight Current Table.
- 30) **Alt + Enter** = Add Manual Line Break (Word Wrap)
- 31) **Ctrl + P** = Print dialog Backstage View and Print Preview
- 32) **F4 Key** = If you are in Edit mode while making a formula AND your cursor is touching a particular Cell Reference, F4 key will toggle through the different Cell References:
 - i. **A1** = Relative
 - ii. **\$A\$1** = Absolute or "Locked"

- iii. **A\$1** = Mixed with Row Locked (Relative as you copy across the columns AND Locked as you copy down the rows)
 - iv. **\$A1** = Mixed with Column Locked (Relative as you copy down the rows AND Locked as you across the columns)
- 33) **Ctrl + Shift + 4** = Apply Currency Number Formatting
- 34) **Tab key** = When you are selecting a Function from the Function Drop-down list, you can select the function that is highlighted in blue by using the Tab key.
- 35) **F9 Key** = To evaluate just a single part of formula while you are in edit mode, highlight part of formula and hit the F9 key.
- i. If you are creating an Array Constant in your formula: Hit F9.
 - ii. If you are evaluating the formula element just to see what that part of the formula looks like, REMEMBER: to Undo with Ctrl + Z.
- 36) **Alt, E, A, A** = Clear All (Content and Formatting)
- 37) Evaluate Formula One Step at a Time Keyboard: **Alt, M, V**
- 38) Keyboard to open Sort dialog box: **Alt, D, S**
- 39) **Ctrl + Shift + L** = Filter (or **Alt, D, F, F**) = Toggle key for Filter Drop-down Arrows
- 40) **Ctrl + N** = Open New File
- 41) **F12** = Save As (Change File Name, Location, File Type)
- 42) Import Excel Table into Power Query Editor: **Alt, A, P, T**
- 43) **Ctrl + 1 (When Chart element in selected)**: Open Task Pane for Chart Element
- 44) **F4 Key** = If you are in Edit mode while making a formula AND your cursor is touching a particular Cell Reference, F4 key will toggle through the different Cell References:
- i. **A1** = Relative
 - ii. **\$A\$1** = Absolute or "Locked"
 - iii. **A\$1** = Mixed with Row Locked (Relative as you copy across the columns AND Locked as you copy down the rows)
 - iv. **\$A1** = Mixed with Column Locked (Relative as you copy down the rows AND Locked as you across the columns)
- 45) Keyboard to open Scenario Manager = **Alt, T, E**
- 46) **Ctrl + Tab** = Toggle between Excel Workbook File Windows
- 47) **Ctrl + Shift + F3** = Create Names From Selection
- 48) **Ctrl + F3** = open Name Manager
- 49) **F3** = Paste Name or List of Names
- 50) **Alt + F4** = Close Active Window
- 51) **Window Key + Up Arrow** = Maximize Active Window
- 52) **Ctrl + Shift + Enter** = Keystroke to enter Array Formulas that: 1) have a function argument that requires it, or 2) whether or not you are entering the Resultant Array into multiple cells simultaneously.
- 53) **Ctrl + /** = Highlight current Array

New In This Video:

54) None