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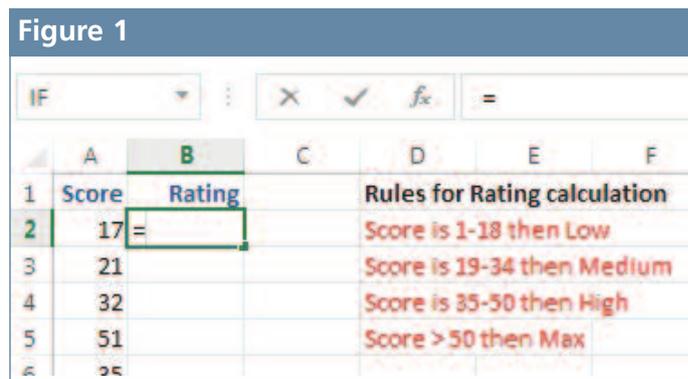
By Bill Jelen

Nested Functions and the Function Arguments Dialog Box

When you have to build formulas that contain nested functions, the Function Arguments dialog box is particularly useful for ensuring that you end up with matching sets of parentheses. Let's assume that you need to assign a rating of Low, Medium, High, or Max to various numeric scores. One method is to use a formula with three nested IF functions.

In Figure 1, column A contains the numeric scores. The rating of each score will go in column B. Column D shows the rules for the four ratings. To simplify the process of entering the formula in column B, type an equals sign (=) in cell B2, as shown. Now look at the Name Box, which is to the left of the Formula bar. It shows you the last function you used. As you can see, the last formula I used was IF, so I simply clicked on the Name Box to open the Function Arguments dialog box. If I had used something else, such as VLOOKUP, I would have had to use the dropdown arrow on the Name Box to select IF from the list.

Once you select the IF function in the Name Box, Excel will open the Function Arguments dialog box. This will be for the initial IF function in the formula. Enter `A2<19` as the Logical_Test and Low



as the Value_if_True. Tab into the Value_if_False box. At this point, you need to launch into the second IF function.

While the cursor is in the Value_if_False box, use the mouse to click on the Name Box again (see Figure 2). While the existing formula remains in the formula bar, the Function Arguments dialog is reset to blank. This will allow you to build the second IF function. This time, the Logical_Test is `A2<35`, and the Value_if_True is Medium. As before, tab into the Value_if_False box and click on the Name Box one final time. This again empties the Function Arguments dialog. Build the final condition: The Logical_Test is `A2<51`, the Value_if_True is High, and the Value_if_False is Max. Click OK.

Mixing Functions

When you click OK to close the third Function Arguments dialog, the formula added to cell B2 is: `=IF(A2<19,"Low",IF(A2<35,"Medium",IF(A2<51,"High","Max")))`. That works fine in this case because the formula is complete, but there are times when it would be better if Excel allowed you to return from the nested Function Arguments dialog box (i.e., the second box) to the original Function Arguments dialog box.

What if you needed to nest an OR function inside an IF function? Start with the Function Arguments dialog for the IF function. If possible, fill in the Value_if_True and Value_if_False boxes first. Then use SHIFT+TAB to get back to the Logical_Test box. Now

Figure 2

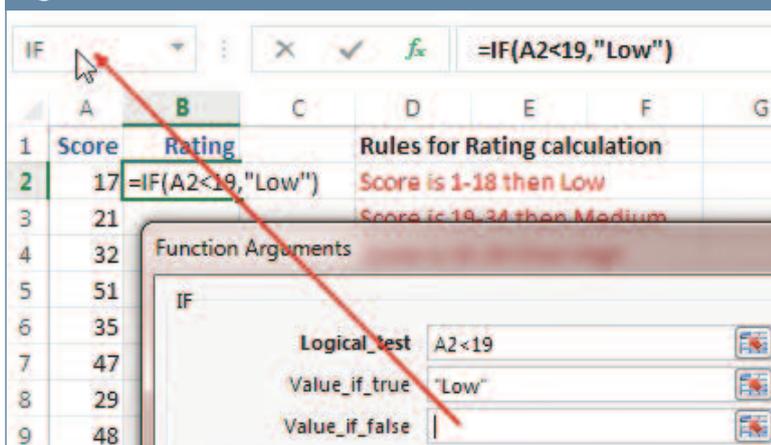
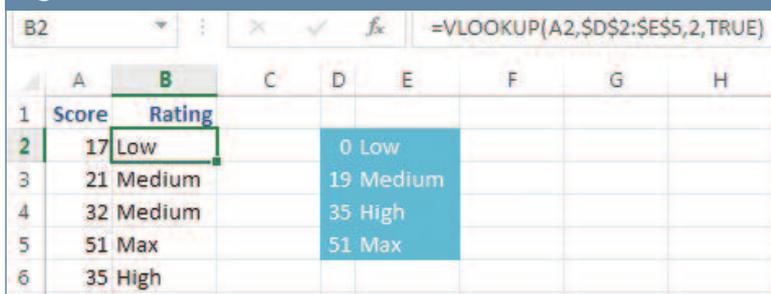


Figure 3



click on the dropdown arrow next to the Name Box. Since OR isn't a common function, it usually won't be in the list of popular functions. Choose

More Functions from the bottom of the list and navigate to the Logical Function group. Choose OR, and you will have a new Function Arguments

dialog box for OR. Complete the OR function, click OK, and the formula will be complete.

Alternate Ways to Solve This Problem

If you find yourself nesting too many IF functions, you might choose to switch over to the rare form of VLOOKUP where the final argument is TRUE instead of FALSE. This version will find where a value falls within a range of values. In Figure 3, the lookup table at D2 shows the starting point for each rating. Scores of 0 and above are rated Low, unless the score is at 19 or above as indicated in D3. Anything equal to or larger than the final lookup value of 51 will be rated Max.

Remember to replace the final FALSE in the VLOOKUP formula with TRUE to indicate that you are using the range match option of VLOOKUP. This is a case where the lookup table has to be sorted. **SF**

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