Workspaces, Dropdown Lists, and VLOOKUP

by Dick Evans

When working with multiple workbooks, it is necessary to open all the needed workbooks. To make this job easier, Excel lets us group two or more workbooks together in a workspace. This exercise build multiple workbooks that use data from each sheet. Those workbooks are saved as one entity in a workspace.

This exercise will build two worksheets, one to hold a table of sales tax rates, and the second a calculator to enter state code and amount of sale. The entering of the state code will use a drop down list to insure the correct codes are used. The calculation will use that code to lookup the correct tax rate from the first worksheet, calculate the amount of tax to charge and the total amount due.

1. Start Excel

	A	B
1	CT	6.00%
2	MA	5.00%
3	ME	5.00%
4	NH	0.00%
5	RI	7.00%
6	VT	6.00%
7		

2. Build a single sheet workbook with the above data. Save it as **ne_sales_tax**

3. **Ctrl+N** to open a second workbook

	A	B	C
1	Sales Tax Calculaor		
2			
3	State		
4	Amount Sold		
5	Sales Tax		
6	Total Due		
7			

4. Build a single sheet workbook with the above data. Save it as **ne_calc**

Creating a Dropdown List
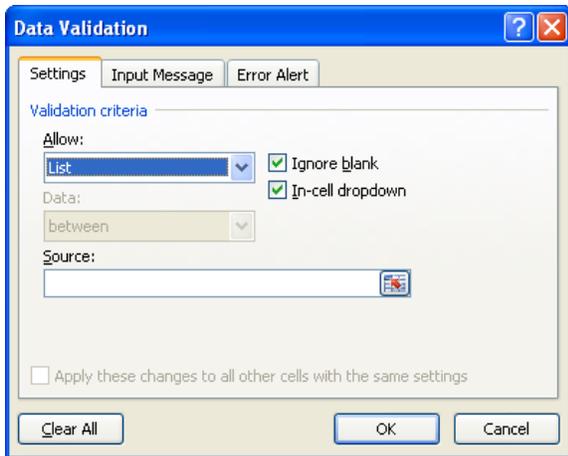
5. Rename the worksheet as **Calculator**, and Sheet2 as **States**. Delete Sheet3. Then inter the New England state codes in the first column.

6. Select the entered cells, then in the Name Box type **StateCodes** to name the range of cells, and then press **Enter**
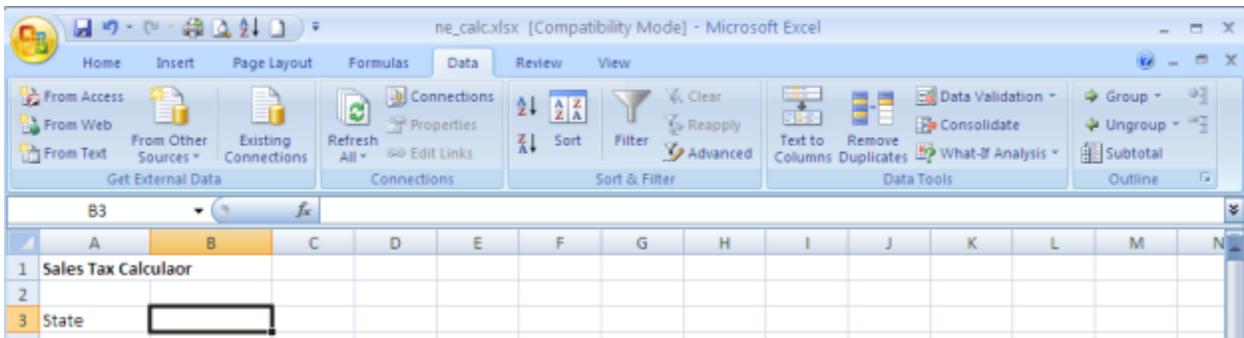
7. Return to the Calculator sheet, select the State Code entry cell (B3), then **Data > Data Tools > Data Validation**

8. In the Data Validation dialog box, on the Settings tab, **Allow List**, and then click the **Source button**

9. Type **=** followed by the **name** you gave the range on the States sheet. Click the **Enter** box to the right of the data just typed, then on the dialog box, click **OK**.

10. A dropdown box appears; **click the arrow** and select one of the valid state codes.

11. Enter an amount sold in B4 and add a formula in B6 to add up B4+B5

Using VLOOKUP

Based on the state code selected in the dropdown list, the sales tax formula needs to look at the table of tax rates in the ne_sales_tax workbook and determine the correct percentage to use. This is done using the VLOOKUP function.
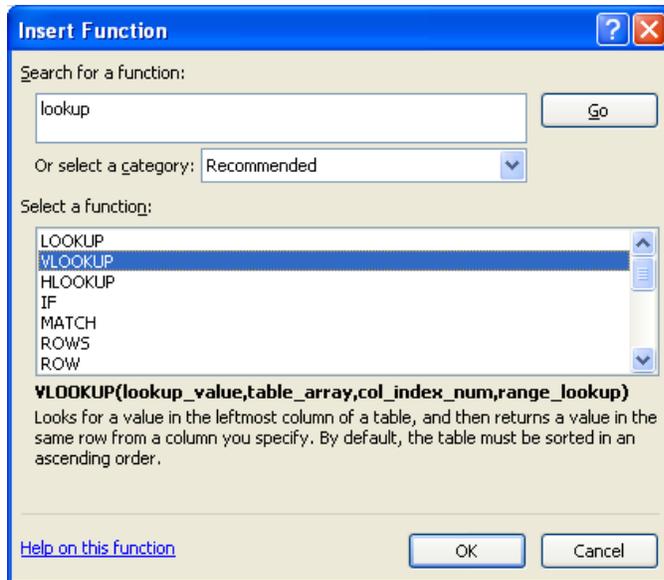
12. First use VLOOKUP to find the sales tax rate, then modify the formula to include the tax calculation once the VLOOKUP is performing correctly. On the formula bar, click the **function button**, locate the **VLOOKUP** function, and then click **OK**.

13. The Lookup_value is the state code in B3. Click **B3**

| | VLOOKUP | | ▼ | × | ✓ | fx | =VLOOKUP(B3,[ne_sales_tax.xlsx]Sheet1!$A$1:$B$6) | | | |

Function Arguments dialog:

VLOOKUP

Lookup_value	B3 = "RI"
Table_array	:.xlsx]Sheet1!$A$1:$B$6 = {"CT",0.06;"MA",0.05;"ME",0.05;"NH...
Col_index_num	= number
Range_lookup	= logical

=

Looks for a value in the leftmost 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 an ascending order.

Table_array is a table of text, numbers, or logical values, in which data is retrieved. Table_array can be a reference to a range or a range name.

Formula result =

Help on this function   OK   Cancel

14. The Table_array is the range of cells to be looked at. Switch to the **ne_sales_tax workbook**, select the range of data desired (**A1:B6**), then press **Enter**.

Function Arguments

VLOOKUP

Lookup_value	B3 = "RI"
Table_array	:.xlsx]Sheet1!$A$1:$B$6 = {"CT",0.06;"MA",0.05;"ME",0.05;"NH",0
Col_index_num	2 = 2
Range_lookup	FALSE = FALSE

= 0.07

Looks for a value in the leftmost 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 an ascending order.

Range_lookup is a logical value: to find the closest match in the first column (sorted in ascending order) = TRUE or omitted; find an exact match = FALSE.

Formula result =   0.07

Help on this function   OK   Cancel

15. Col_index_num is the column in the lookup table that contains the value to be used. In this case it is column **2** containing the tax rate.

16. Range_lookup should be **FALSE** for an exact match or TRUE to find the closest match. We want an exact match in this example.

17. Click **OK**

	A	B
1	Sales Tax Calculaor	
2		
3	State	RI
4	Amount Sold	1,000.00
5	Sales Tax	0.07
6	Total Due	1,000.07
7		

The correct sales tax rate for RI appears. Try changing the state code and see what happens to the tax rate. Of course, we do not want the tax rate. We want the tax charged using this rate. Our formula must multiply the rate times the amount sold.

`=VLOOKUP(B3,[ne_sales_tax.xlsx]Sheet1!$A$1:$B$6,2,FALSE)*B4`

18. On the formula bar, add ***B4** to the end of the current formula. This tells Excel to take the value obtained from the lookup and multiply it by the value in B4.

	A	B
1	Sales Tax Calculaor	
2		
3	State	RI
4	Amount Sold	1,000.00
5	Sales Tax	70.00
6	Total Due	1,070.00

The correct sales tax is calculated and displays in B5. Try different states and amounts.
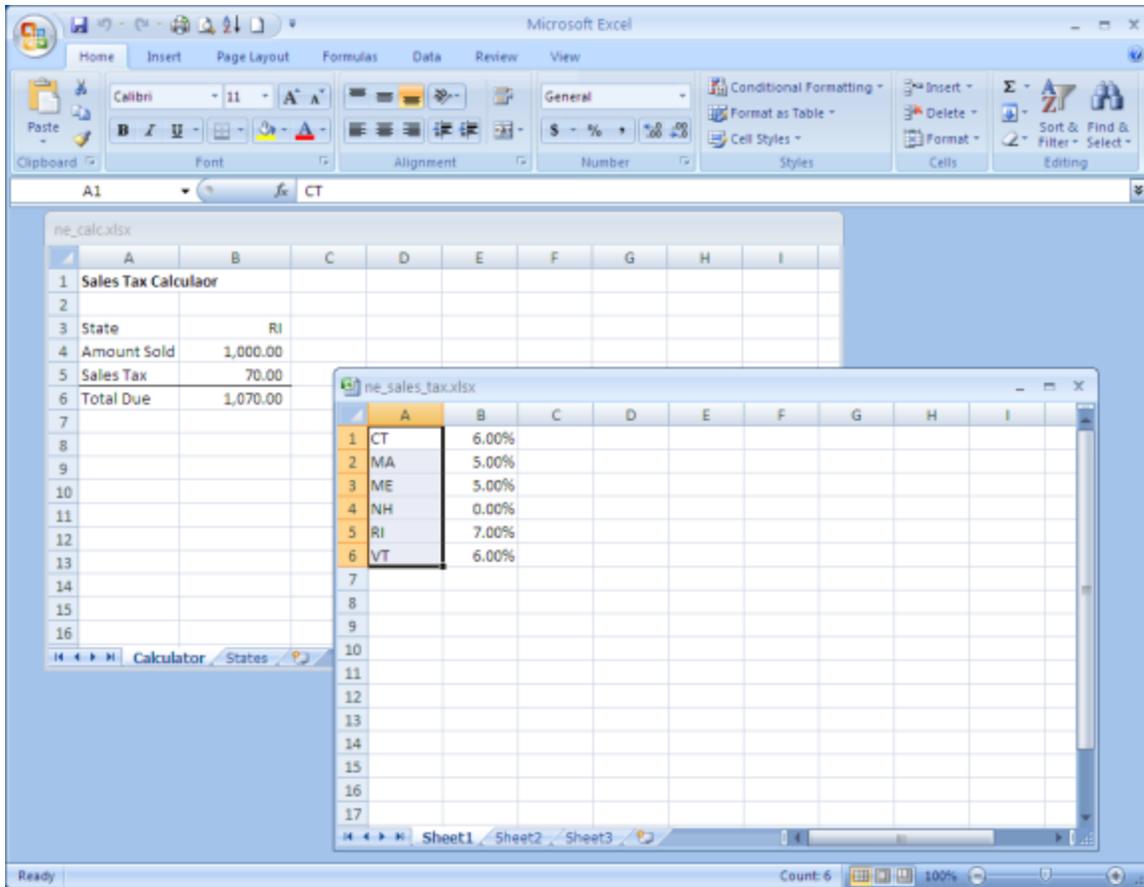
Saving the Workspace
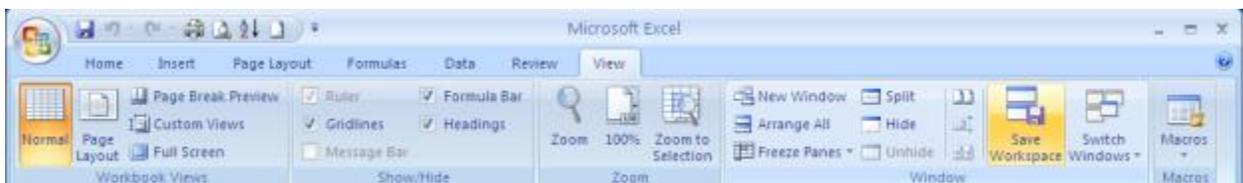
19. View > Window > Save Workspace

File name:	calculator.xlw	
Save as type:	Workspaces (*.xlw)	

[Save] [Cancel]

20. Give the workspace a name, and then click **Save**
21. The workspace is saved as an XLW file. It contains all the associated workbooks. Close the open workbooks, then locate the workspace file and double-click to open the workspace.

Change and entry in the sales tax table for the selected state and see the change in the calculation.