



University Information
Technology Services

Using Excel 2011® at Kennesaw State University

*Pivot Tables
VLOOKUP Function
IF Function*

University Information Technology Services

Training, Outreach, Learning Technologies and Video Production

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Introduction

Office 2011® has been designed specifically for the Mac® computer. Each Mac at Kennesaw State University includes the following *Office 2011* products: *Word*®, *Excel*®, and *PowerPoint*®. These packages will help you to develop useful documents, manage data, and create powerful presentations. This booklet, recommended for intermediate-level Macintosh® users, has been developed to help you understand Pivot Tables, the VLOOKUP Function, and the IF Function in Excel 2011.

Learning Objectives

The learning objectives in this document include:

- Understanding how to use Pivot Tables
- Knowing how to use the VLOOKUP Function
- Being able to use the IF Function

PivotTables

A PivotTable is an excellent tool to analyze data. For example, suppose that you have the following spreadsheet that contains data about sales for your organization.

	A	B	C	D	E
1	Store	Sales Rep	Quota	YTD Sales	
2	Decatur	Smith	50000	35000	
3	Decatur	Johnson	50000	28000	
4	Decatur	Reed	50000	15000	
5	Marietta	Watson	60000	8000	
6	Marietta	Knight	60000	9000	
7	Dunwoody	Cook	40000	19000	
8	Dunwoody	Payne	40000	18000	
9	Dunwoody	Gillis	40000	17000	
10	Douglasville	Williams	70000	25000	
11	Douglasville	Cox	70000	26000	
12	Atlanta	Allen	80000	32000	
13	Atlanta	Sutton	80000	34000	
14	Atlanta	Webb	80000	31000	
15					

Figure 1 – Sales Data in a Spreadsheet

A PivotTable could be created for the spreadsheet above to help you to better analyze the numbers. The following explains how to create a PivotTable.

1. Click to select any cell that has data within the spreadsheet (see *Figure 2*).



The image shows a spreadsheet with a callout box on the left that says "Select Any Cell". An arrow points from this box to the cell containing "Dunwoody" in row 7, column A. The spreadsheet data is as follows:

	A	B	C	D	E
1	Store	Sales Rep	Quota	YTD Sales	
2	Decatur	Smith	50000	35000	
3	Decatur	Johnson	50000	28000	
4	Decatur	Reed	50000	15000	
5	Marietta	Watson	60000	8000	
6	Marietta	Knight	60000	9000	
7	Dunwoody	Cook	40000	19000	
8	Dunwoody	Payne	40000	18000	
9	Dunwoody	Gillis	40000	17000	
10	Douglasville	Williams	70000	25000	
11	Douglasville	Cox	70000	26000	
12	Atlanta	Allen	80000	32000	
13	Atlanta	Sutton	80000	34000	
14	Atlanta	Webb	80000	31000	
15					

Figure 2 – Select a Cell in the Spreadsheet

2. Click the *Data* tab (see *Figure 3*).

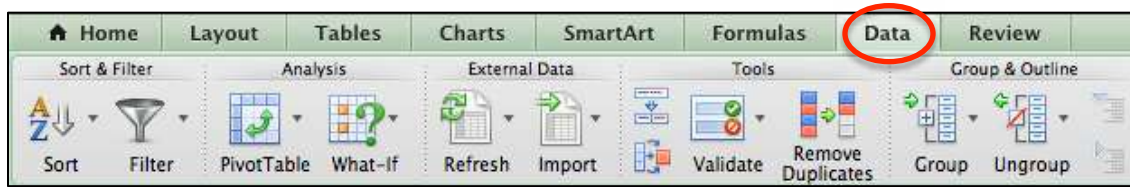


Figure 3 – Data Tab

3. Click the arrow next to the *PivotTable* button, which is located in the *Analysis* group (see *Figure 4*).

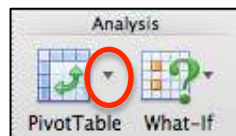


Figure 4 – Arrow for Pivot Table

4. In the menu that appears, select *Create Manual PivotTable*.
5. In the *Create PivotTable* window that appears, click *New worksheet* (see *Figure 5*). Then, click the *OK* button.

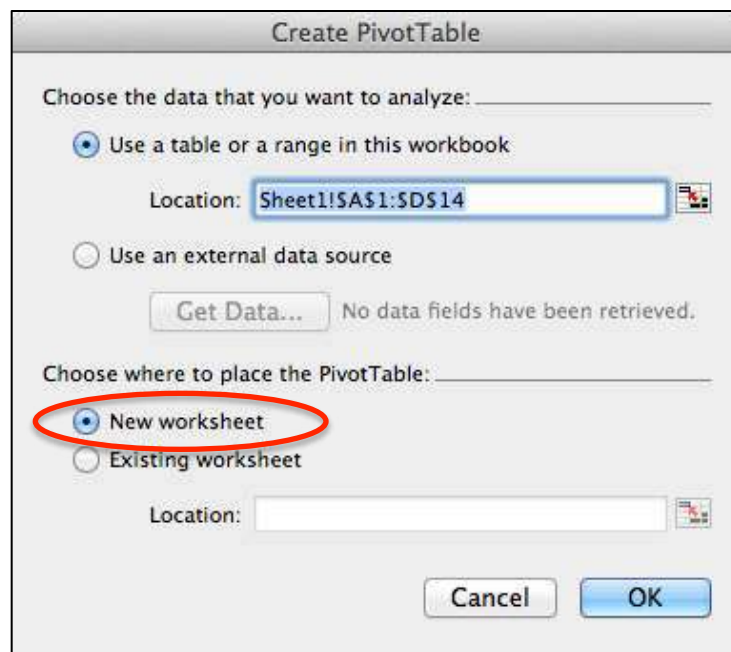


Figure 5 – Creating a PivotTable in a New Worksheet

6. An empty PivotTable and the PivotTable Builder will appear on your screen (see *Figure 6* and *Figure 7*).

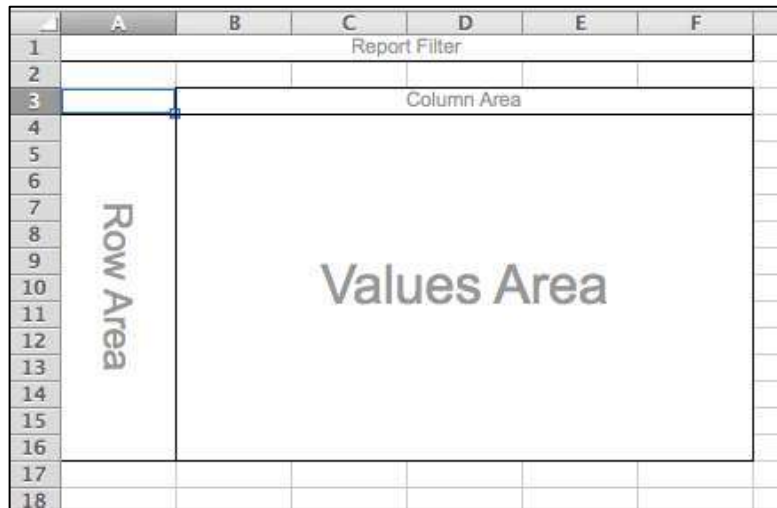


Figure 6 – Empty PivotTable

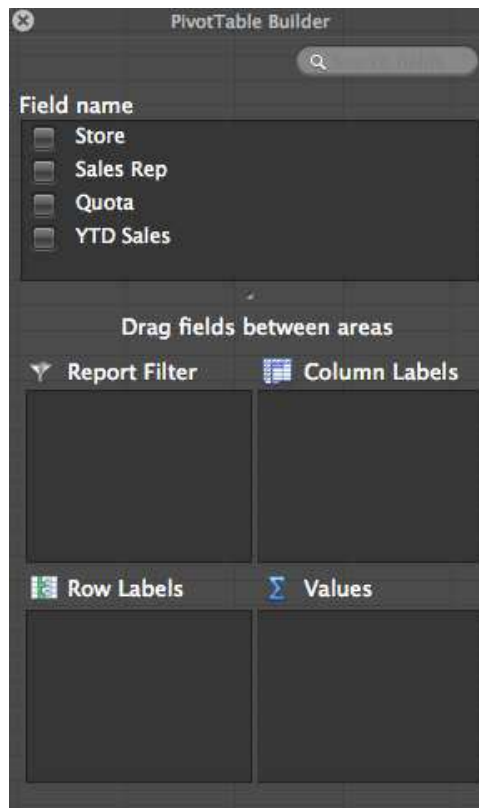


Figure 7 – PivotTable Builder

7. You may now begin building your PivotTable. For example, if you wanted to see the total sales that each store has, you could do the following.
 - a. Drag *Store* to *Row Labels* (see *Figure 8*).
 - b. Drag *YTD Sales* to *Values* (see *Figure 9*).

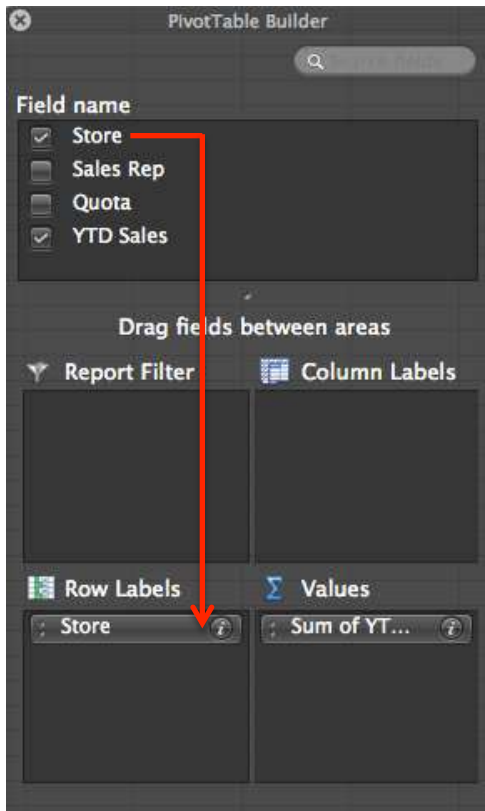


Figure 8 – PivotTable Builder



Figure 9 – PivotTable Builder

This would result in a new sheet appearing as indicated in *Figure 10*.

	A	B
1		
2		
3	Sum of YTD Sales	
4	Row Labels	Total
5	Atlanta	97000
6	Decatur	78000
7	Douglasville	51000
8	Dunwoody	54000
9	Marietta	17000
10	Grand Total	297000
11		

Figure 10 – PivotTable Builder

- Next, you may want to format the *Total* column. For example, you may want to make the numbers in the *Total* column appear as currency. To do this, allow your mouse pointer to hover over *Sum of YTD Sales* that is located in cell A3 (see *Figure 11*) and double-click.

	A	B
1		
2		
3	Sum of YTD Sales	
4	Row Labels	Total
5	Atlanta	97000
6	Decatur	78000
7	Douglasville	51000
8	Dunwoody	54000
9	Marietta	17000
10	Grand Total	297000
11		

Figure 11 – Formatting

- The *PivotTable Field* window will appear on your screen. To format the numbers so that they appear as currency, click the *Number* button (see *Figure 12*).

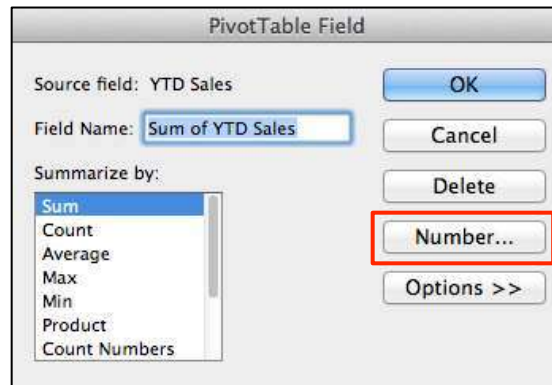


Figure 12 – Formatting

- The *Format Cells* window will appear on your screen. Under the *Category* column, select *Currency*. Then, click the *OK* button to close the window.
- Next, in the *PivotTable Field* window, click the *OK* button. The formatting will be applied to the *Total* column.

12. Perhaps, you want to see other data in the PivotTable in addition to Totals. For example, you may want to see the Average sales for each store location. To display the Average for each store location, drag another *YTD Sales* field to the *Values* window (see *Figure 13*).

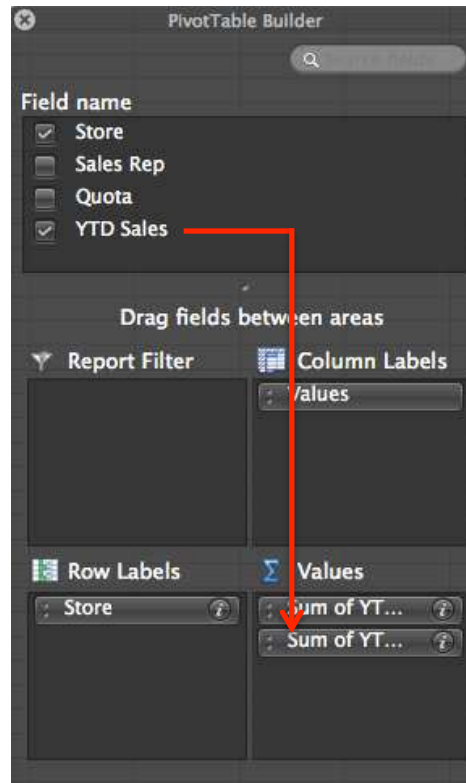


Figure 13 – PivotTable Builder

13. Double-click the column heading for the second column that appears on the spreadsheet (see *Figure 14*).

	A	B	C	D
1		Report Filter		
2				
3		Values		
4	Row Labels	Sum of YTD Sales	Sum of YTD Sales2	
5	Atlanta	\$97,000.00	97000	
6	Decatur	\$78,000.00	78000	
7	Douglasville	\$51,000.00	51000	
8	Dunwoody	\$54,000.00	54000	
9	Marietta	\$17,000.00	17000	
10	Grand Total	\$297,000.00	297000	
11				

Figure 14 – Creating an Average Column

14. The *PivotTable Field* window will appear. To find the average, click *Average* as indicated in *Figure 15*.

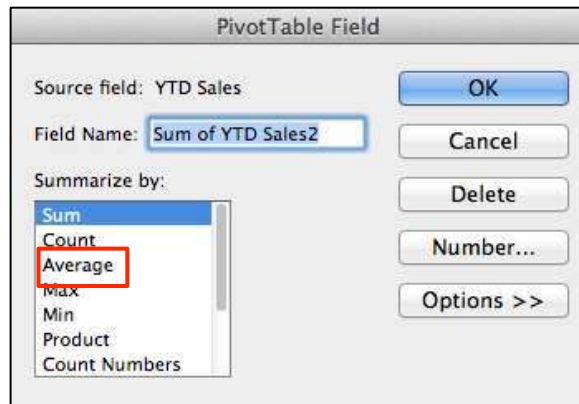


Figure 15 – Finding the Average

15. To allow the numbers to appear as the *Currency* format, click the *Number* button (see *Figure 16*).

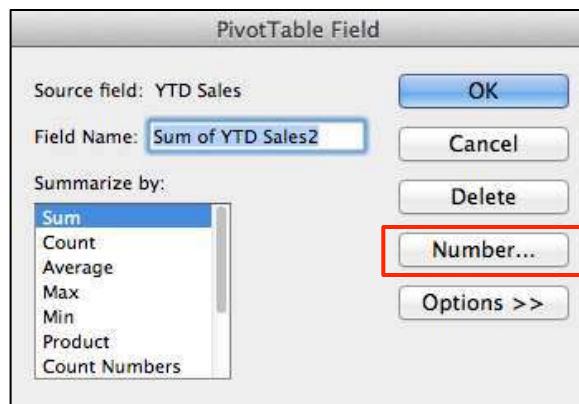
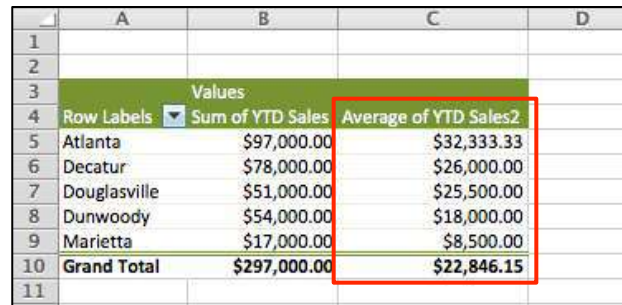


Figure 16 – Formatting

16. The *Format Cells* window will appear. Under *Category*, click *Currency*. Then, click the *OK* button to close the window.
17. For the *PivotTable* field window, click the *OK* button to close the window.

18. Another column will appear with the average sales for each store (see *Figure 17*).



	A	B	C	D
1				
2				
3		Values		
4	Row Labels	Sum of YTD Sales	Average of YTD Sales2	
5	Atlanta	\$97,000.00	\$32,333.33	
6	Decatur	\$78,000.00	\$26,000.00	
7	Douglasville	\$51,000.00	\$25,500.00	
8	Dunwoody	\$54,000.00	\$18,000.00	
9	Marietta	\$17,000.00	\$8,500.00	
10	Grand Total	\$297,000.00	\$22,846.15	
11				

Figure 17 – Finding the Average

19. To return to the worksheet containing the original data, click the *Sheet1* tab in the lower-left area of the window (see *Figure 18*).

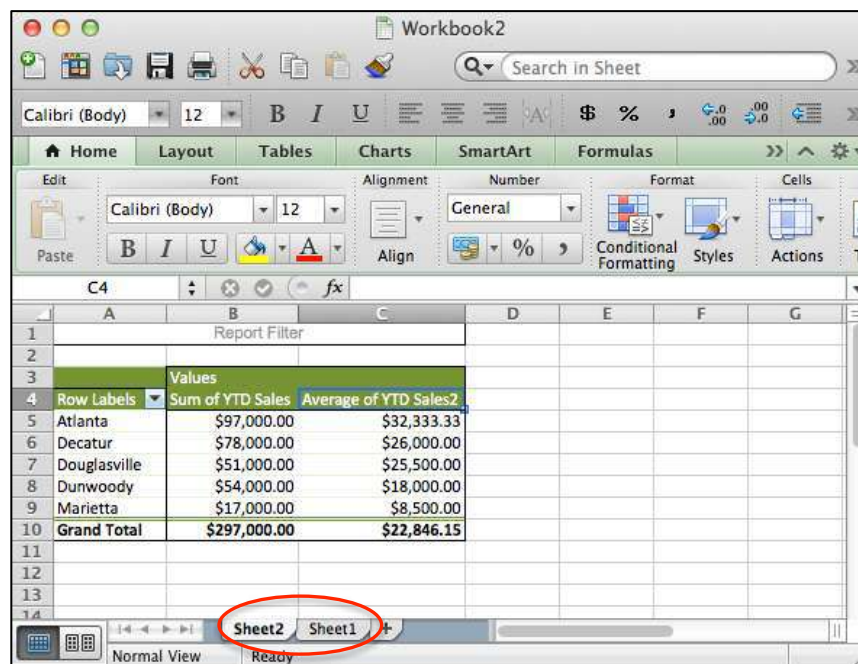


Figure 18 – Sheet1 and Sheet2 Tabs

VLOOKUP Function

The VLOOKUP Function in Word 2011 is a great tool to use when you need to look up specific information in tables. The following explains how to use the VLOOKUP Function.

1. As an example, suppose that in *Figure 19* we needed to find the letter grade for each student. The VLOOKUP Function would be perfect for this situation.

	A	B	C
1	Name	Grade	Letter
2	Watson	95	
3	Cook	88	
4	Samples	75	
5	Smith	62	
6	Johnson	90	

Figure 19 – Student Grades

2. First, you would build your table in a remote location on your spreadsheet. *Figure 20* shows an example of a table that can be used to determine the letter grade for students in the class.

	G	H	I
1	0	59	F
2	60	69	D
3	70	79	C
4	80	89	B
5	90	100	A

Figure 20 – Student Grade Table

3. Click to select the location where you want the letter grade to appear. In *Figure 19*, you would select cell C2.
4. From the ribbon, click the *Formulas* tab. Then, click the *Formula Builder* button (see *Figure 21*).



Figure 21 – Formula Builder Button

5. In the *Formula Builder* window, as indicated in *Figure 22*, enter the following in the search box: **VLOOKUP**

Then, press the *Return* key on your keyboard.

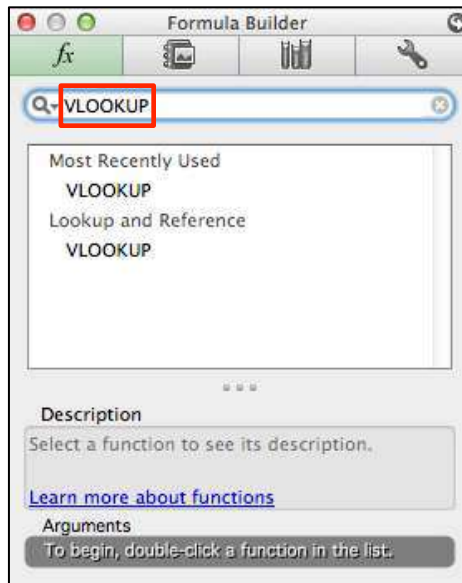


Figure 22 – Formula Builder Search Box

6. In the *Formula Builder* window, double-click *VLOOKUP* (see *Figure 23*).

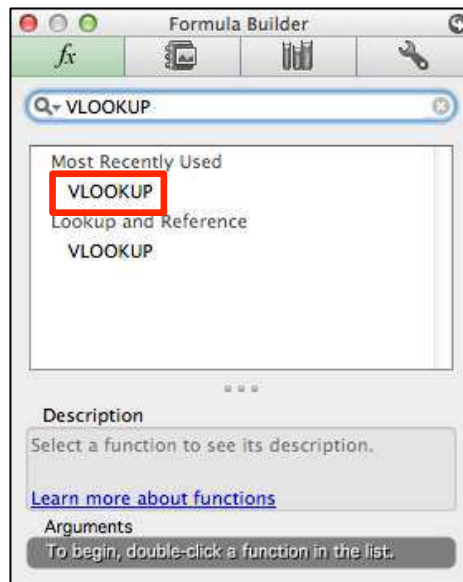


Figure 23 – Formula Builder Search Box

7. At the bottom of the *Formula Builder* window, you will see text boxes that will allow you to create a VLOOKUP on your spreadsheet (see *Figure 24*).

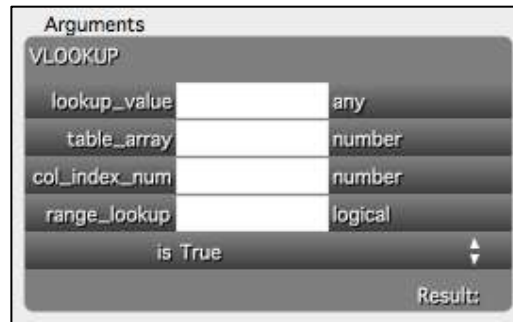


Figure 24 – Formula Builder Search Box

The following explains what values you will need to enter into these text boxes.

lookup_value = Enter the location of the value that you want to lookup. In the *Figure 19* example, you would enter B2.

table_array = Enter the cell locations for the table to be searched. First, you would enter the location for the upper-left cell (in *Figure 20*, this would be cell G1). Then, you would enter the location for the lower-right cell (in *Figure 20*, this would be I5).

When you enter the cell locations, place the “\$” symbol before each letter and number (please see the note below for an explanation), as indicated in the following: **\$G\$1:\$I\$5**

col_index_num = Enter the number of columns in the table. For the example in *Figure 20*, you would enter 3.

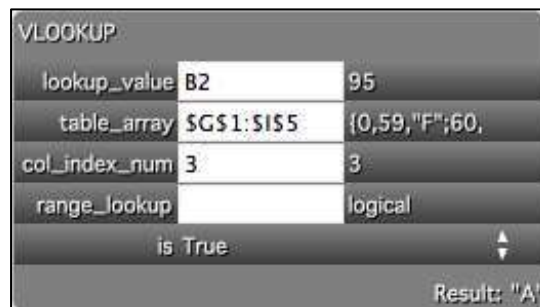


Figure 25 – Formula Builder Search Box

NOTE: Using the \$ symbol creates an *Absolute* cell reference (opposed to a *Relative* cell reference). When the *Absolute* cell reference is copied, it will continue to refer to the table and provide valid results. Otherwise, if you used the *Relative* cell reference, you would receive invalid results.

8. Press the *Return* key on the keyboard and the correct result from the table will appear within cell C2, as indicated in *Figure 26*.

	A	B	C
1	Name	Grade	Letter
2	Watson	95	A
3	Cook	88	
4	Samples	75	
5	Smith	62	
6	Johnson	90	
7			

Figure 26 – VLOOKUP Result in Cell C2

9. Copy the results in cell C2 throughout the remainder of the “C” column (please see below to learn how to copy a cell). Upon doing this, the results will appear as indicated in *Figure 27*.

	A	B	C
1	Name	Grade	Letter
2	Watson	95	A
3	Cook	88	B
4	Samples	75	C
5	Smith	62	D
6	Johnson	90	A
7			

Figure 27 – Cell C2 Formula Copied From C3 to C6

Copying Cells: An Explanation

The following explains how to copy the formula to the other cells within the same column.

- Select the cell that contains the formula. In *Figure 26*, you would select C2.
- Allow your mouse pointer to hover over the bottom-right corner of the cell (see *Figure 28*).

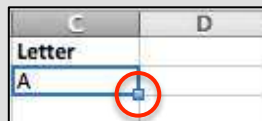


Figure 28 – Cell Fill Handle

- When your cursor appears as a black plus sign, hold down the left mouse button and drag to the last cell in the column (in *Figure 26*, you would drag until cell C6).
- The formula will be copied to the other cells.

IF Function

The IF function will test a specific cell location and return one value if TRUE and another value if FALSE.

For example, suppose that students taking a test need to make a 70 or higher to pass. The following shows the logic of such a scenario using the IF function:

Logical_test: Test Score >= 70

Value_if_true: PASS

Value_if_false: FAIL

Figure 29 contains test scores that students received on a test. The following shows how to use the IF function in Excel 2011 to determine if students pass or fail the test (The students must earn a 70 or higher to pass this test).

	A	B	C
1	Last Name	Test Score	
2	Allen	75	
3	Baker	62	
4	Cook	95	
5	Hastey	96	
6	Johnson	88	
7	Reed	88	
8	Stephenson	65	
9			

Figure 29 – Test Scores

1. Place your cursor in cell C2.
2. From the *Formulas* tab, click *Formula Builder* (see Figure 30).

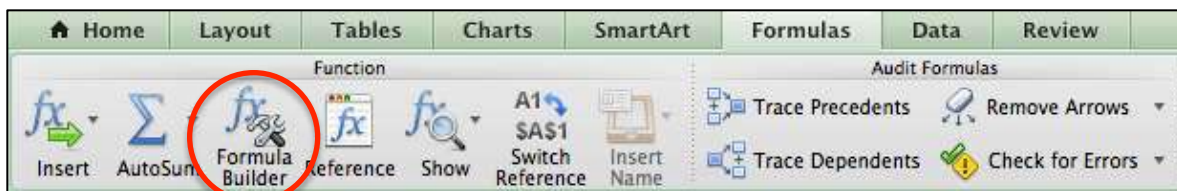


Figure 30 – Formula Builder

3. The *Formula Builder* window will appear. In the search box, type *IF* (see Figure 31).

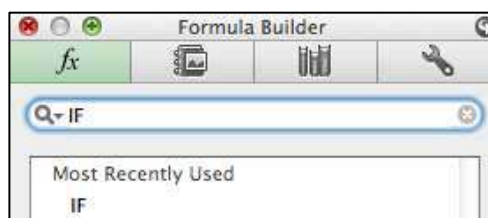


Figure 31 – Formula Builder

- As indicated in *Figure 32*, double-click the IF that appears in the search window (see *Figure 32*).

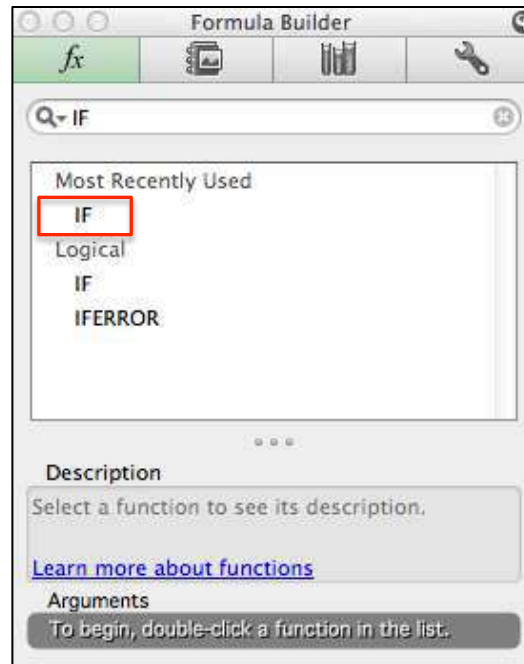


Figure 32 – Formula Builder

- Three text boxes will appear at the bottom of the *Formula Builder* window (see *Figure 33*). For the example in *Figure 29*, you would enter the following:

value1: $B2 \geq 70$
then: *Pass*
else: *Fail*

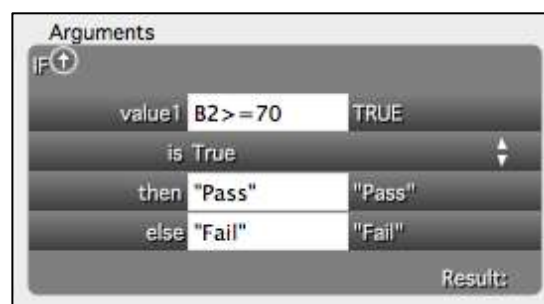


Figure 33 – Arguments for example in *Figure 29*

- Press the *Return* key on your keyboard.

7. Copy the results in cell C2 throughout the remainder of the “C” column (please see below to learn how to copy a cell). Upon doing this, the results will appear as indicated in *Figure 34*.

	A	B	C
1	Last Name	Test Score	
2	Allen	75	Pass
3	Baker	62	Fail
4	Cook	95	Pass
5	Hastey	96	Pass
6	Johnson	88	Pass
7	Reed	88	Pass
8	Stephenson	65	Fail

Figure 34 – Cell C2 Formula Copied From C3 to C8

Copying Cells: An Explanation

The following explains how to copy the formula to the other cells within the same column.

- Select the cell that contains the formula. In *Figure 34*, you would select C2.
- Allow your mouse pointer to hover over the bottom-right corner of the cell (see *Figure 35*).

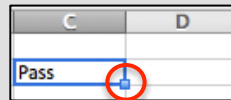


Figure 35 – Cell Fill Handle

- When your cursor appears as a black plus sign, hold down the left mouse button and drag to the last cell in the column (in *Figure 34*, you would drag until cell C8).
- The formula will be copied to the other cells.

Additional Support

If you have questions that arise as you work with Excel 2011, the UITs department at KSU has a service desk that will provide you with technical support. The KSU Service Desk may be contacted in the following ways:

Telephone for Staff: 470 578-6999

Telephone for Students: 470 578-3555

Email Support: service@kennesaw.edu

Additional information about the KSU Service Desk can be found at the following website:

<http://uits.kennesaw.edu/helpdesk/index.htm>