



University Information  
Technology Services

# Microsoft Excel 2010

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## Special Topics

PivotTable

IF Function

V-Lookup Function

University Information Technology Services

Training, Outreach, Learning Technologies and Video Production

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# University Information Technology Services

Microsoft Excel 2010

Special Topics

## Table of Contents

1. Introduction .....	1
2. Learning Objectives.....	1
3. Analyzing Data with Pivot Tables.....	1
4. Using the IF Function .....	5
5. Using the VLOOKUP Function .....	7
6. Getting Help .....	11

## 1. Introduction

This document will provide you with information on timesaving Excel features such as analyzing data with pivot tables, the IF Function, and the VLOOKUP Function, that will make your work easier. Additionally, you will learn the quickest way to troubleshoot problems with your spreadsheets.

## 2. Learning Objectives

- Analyzing data with pivot tables
- Utilizing the IF Function
- Utilizing the V-lookup Function

## 3. Analyzing Data with Pivot Tables

<b>Pivot Table</b>	<b>An interactive table that summarizes and analyzes data from existing lists and tables.</b>
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Figure 1 PivotTable Definition

ABC Company - Magazine Rack Sales							
Customer	Region	Month	Year	Salesrep	Quantity	Price	Sales
All About the Arts	North	Feb	2005	Westfall	252	600	151200
All About the Arts	Mid West	Jun	2006	Motaz	50	600	30000
Allendale Books	South	Jan	2005	Gorman	2	565	1130
Antonio's Music Shop	East	Jan	2005	Barone	3	595	1785
Antonio's Music Shop	East	Apr	2006	Barone	1	575	575
AppleTree Art Supplies	West	Sep	2005	Rodriquez	3	565	1695
Books About	North	Nov	2005	Tobin	3	200	600
Books About	West	May	2006	Tobin	4	555	2220
Brandt Learning Center	East	Sep	2005	McCrank	1	595	595
Caldwell's Card Shoppe	West	Jan	2005	Tobin	3	570	1710
Cards for All Occasions	South	Nov	2005	Gorman	4	565	2260
Celebration Card Shop	North	Jun	2005	Rorbach	2	600	1200
Engel's Books	Mid West	Nov	2005	Westfall	2	600	1200
Exclusively Pets	West	Apr	2005	Tobin	1	600	600
Gardening Galore	South	Feb	2005	Banks	2	595	1190
Greyson Learning Center	North	Oct	2005	Westfall	1	600	600
Greyson Learning Center	North	Feb	2006	Westfall	2	565	1130
Jamison Books	South	Apr	2005	Gorman	3	575	1725
Johnson's Drug Store	North	Feb	2005	Motaz	2	575	1150
Katie's Kraft Supplies	East	May	2005	McCrank	1	600	600
Katie's Kraft Supplies	East	Nov	2006	McCrank	3	565	1695
Mac's Music	North	Mar	2005	Westfall	1	600	600
Marlene's Magazines and Books	East	Jan	2005	McCrank	2	600	1200
Marlene's Magazines and Books	East	Oct	2006	McCrank	2	575	1150
Marlene's Magazines and Books	East	Dec	2006	McCrank	2	575	1150
Moore Music	East	Aug	2005	Barone	2	595	1190
Moore Music	East	Nov	2006	Barone	2	575	1150
S-Mart Garden Emporium	East	Mar	2005	Barone	2	565	1130
S-Mart Garden Emporium	East	Jan	2006	Barone	1	565	565
St. Agnes School	Mid West	Feb	2005	Tobin	1	550	550
St. Agnes School	West	Jun	2006	Tobin	1	550	550
The Corner Bookstore	North	Oct	2005	Motaz	6	500	3000
The Corner Bookstore	North	Jul	2006	Rorbach	6	500	3000
The Unabridged Bookstore	South	Sep	2005	Banks	4	525	2100
The Unabridged Bookstore	South	Nov	2006	Banks	2	550	1100
Towne Pet Shoppe	North	Mar	2006	Rorbach	1	600	600
Towne Pet Shoppe	North	Feb	2006	Rorbach	1	600	600
Willowridge Craft Supplies	South	Dec	2005	Gorman	2	595	1190

Figure 2 Data List

1. Select the data range that you want to analyze.
2. On the **Insert** tab in the **Tables** group, click **PivotTable**.

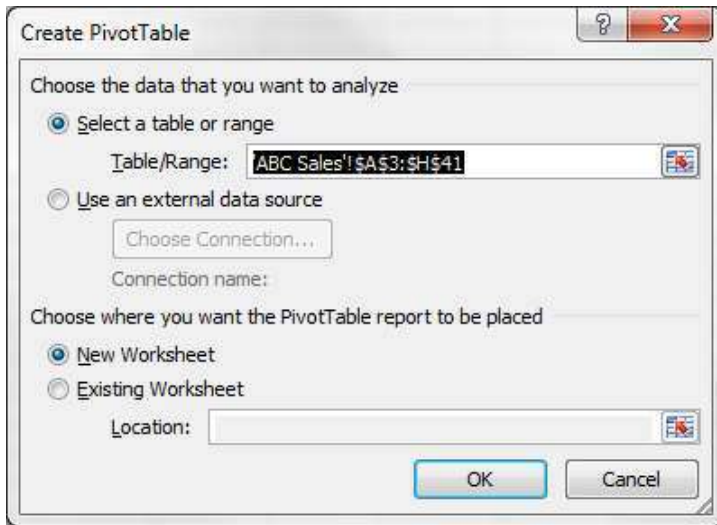


Figure 3 Create PivotTable Dialog Box

3. In the **Create PivotTable** dialog box, confirm that the data range displayed in the **Table/Range** box is correct.
4. Select where you want the PivotTable report to be placed.
5. Click **OK**. The PivotTable area appears in the location that you selected.

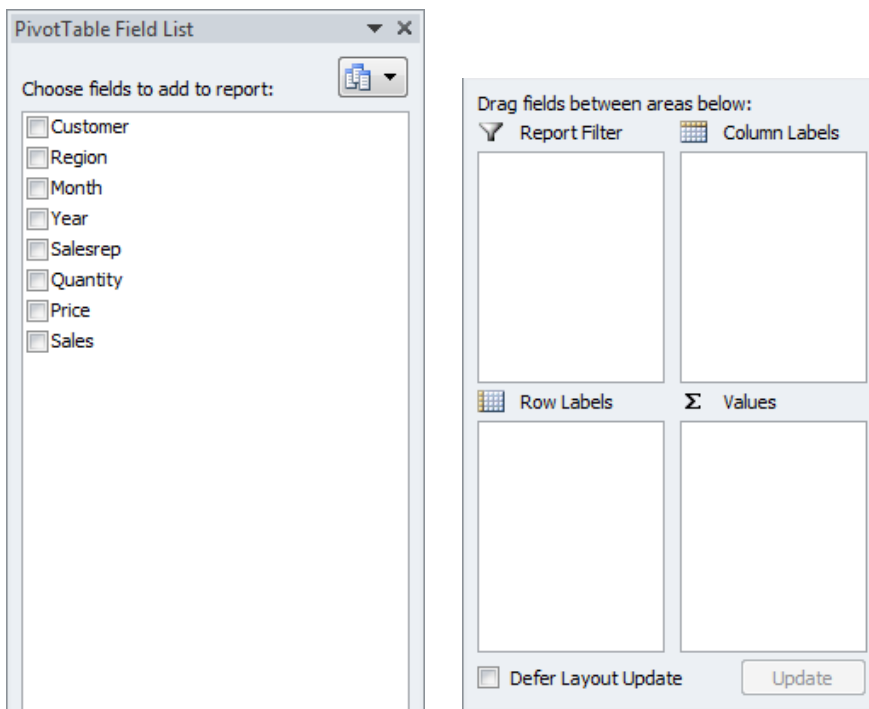


Figure 4 PivotTable Field List and Layout Areas

On the right-hand side of the PivotTable area you have a list of fields from the data range that you selected, and four areas where you can arrange the fields to create the PivotTable Report. You can quickly move fields in and out of these areas to view your data in different ways.

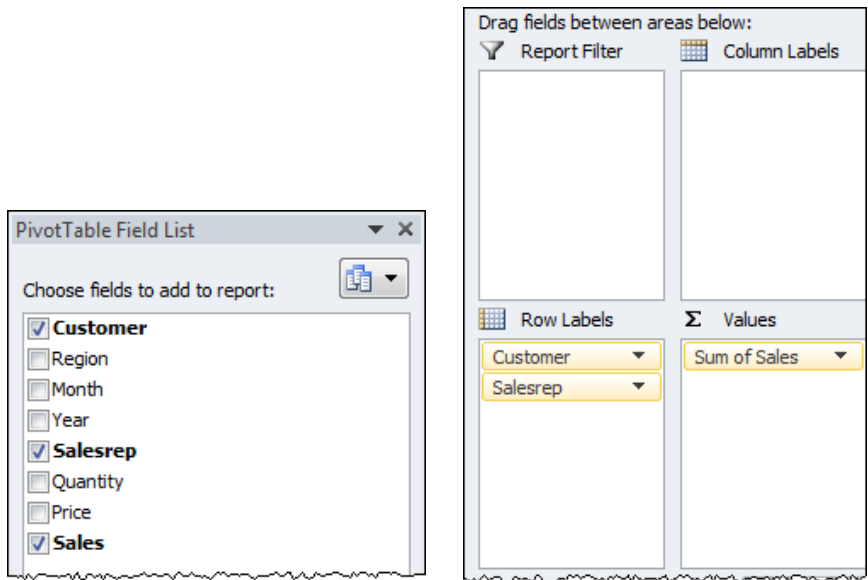


Figure 5 Fields Added to Layout Areas

- In the **PivotTable Field List**, click the check box of each field that you want to add to the report. Excel places the fields into appropriate areas. This selection of fields will show the total sales made by each salesrep to each customer.

3	Sum of Sales		
4	Customer	Salesrep	Total
5	All About the Arts	Motaz	30000
6		Westfall	151200
7	All About the Arts Total		181200
8	Allendale Books	Gorman	1130
9	Allendale Books Total		1130
10	Antonio's Music Shop	Barone	2360
11	Antonio's Music Shop Total		2360
12	AppleTree Art Supplies	Rodriquez	1695
13	AppleTree Art Supplies Total		1695
14	Books Abound	Tobin	2820
15	Books Abound Total		2820

Figure 6 PivotTable Report

The image at the left shows a portion of the resulting PivotTable Report.

The image below shows how the PivotTable Report changes when we drag the **Salesrep** field from the **Row Labels** area to the **Column Labels** area.

Sum of Sales	Salesrep				
Customer	Banks	Barone	Gorman	McCrank	Motaz
All About the Arts					30000
Allendale Books			1130		
Antonio's Music Shop		2360			
AppleTree Art Supplies					
Books Abound					
Brandt Learning Center				595	
Caldwell's Card Shoppe					
Cards for All Occasions			2260		

Figure 7 PivotTable Report (Alternate Layout)

## 4. Using the IF Function

<b>IF Function</b>	<b>Returns one value if a condition you specify evaluates to TRUE and another value if it evaluates to FALSE.</b>
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Figure 8 IF Function Definition

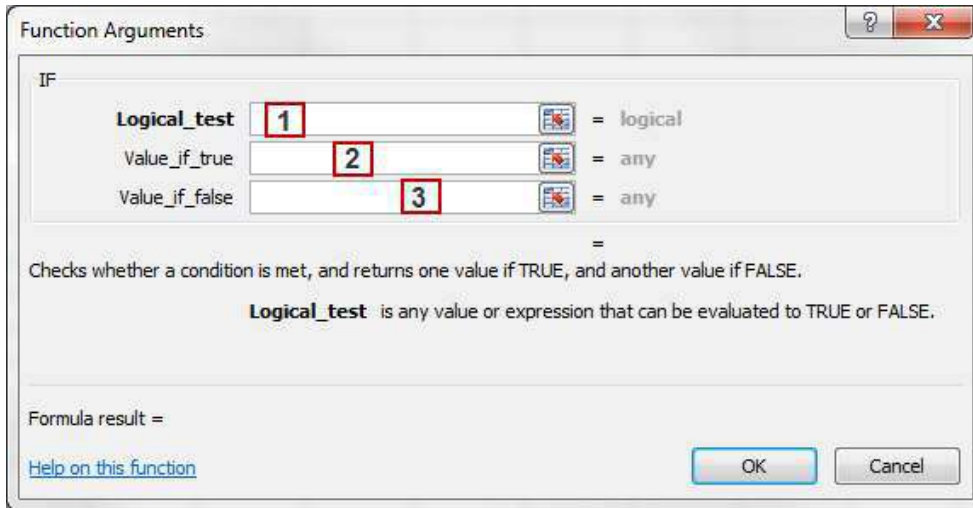


Figure 9 IF Function Arguments Dialog Box

1. Logical Test: Any Value or expression that can be evaluated to TRUE or FALSE. Example: A5=100  
True or False?
2. Value\_if\_True: Value that is returned if logical\_test is TRUE.
3. Value\_if\_False: Value that is returned if logical\_test is FALSE.

	A	B	C
1	<b>Exam Grades</b>		
2			
3	90		
4	83		
5	79		
6	68		
7	92		
8	86		
9	82		
10	75		
11	85		
12	61		

Figure 10 Data List

In the data list at the left, cells A3 through A12 contain exam grades. We can use the IF Function to create a formula in cells B3 through B12 that will indicate if the corresponding grade is a "Pass" or a "Fail".



7. Click in cell B3.



Figure 11 Function Icon

8. Click the **Insert Function (fx)** icon on the **Formula Bar**.

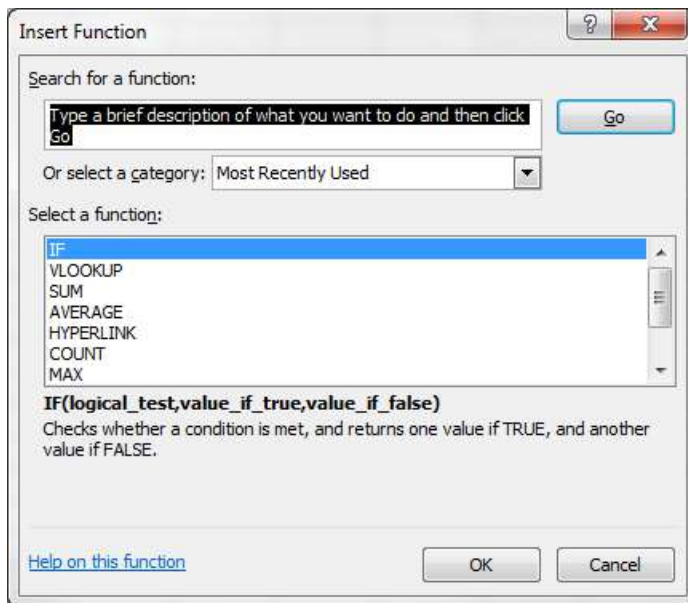


Figure 12 Insert Function Dialog Box

9. Find and select the **IF** function in the **Insert Function** dialog box.

10. Click **OK**. The Function Arguments dialog box opens.

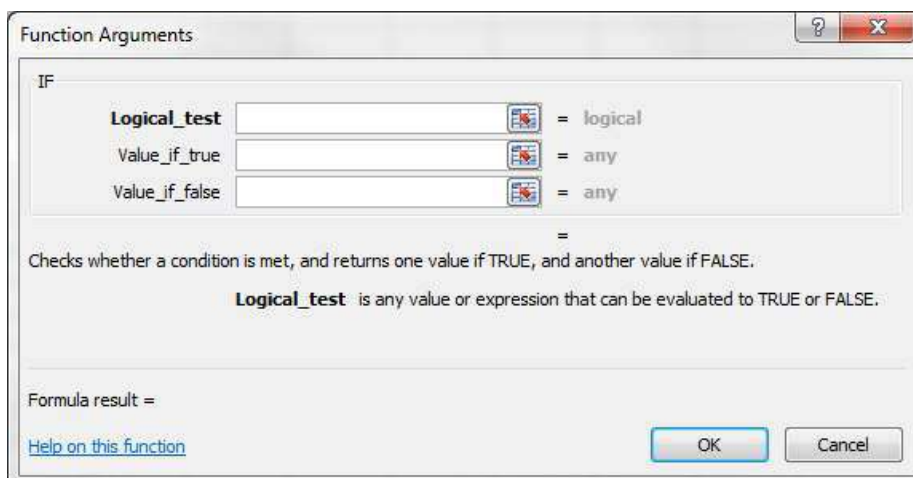


Figure 13 Function Arguments Dialog Box

11. Type "A3>=70" in the **Logical\_test** argument box.

12. Type "Pass" in the **Value\_if\_true** argument box.

13. Type "Fail" in the **Value\_if\_false** argument box.
14. Click **OK**. The word "Pass" now appears in cell B3, and the following formula appears in the Formula Bar: `=IF(A3>=70,"Pass","Fail")`
15. Copy the formula in cell B3 to cells B4 through B12.

Exam Grades	
90	Pass
83	Pass
79	Pass
68	Fail
92	Pass
86	Pass
82	Pass
75	Pass
85	Pass
61	Fail

Figure 14 Data List with IF Function

The IF Function now displays "Pass" or "Fail" for each grade in the list.

## 5. Using the VLOOKUP Function

<b>VLOOKUP Function</b>	<b>VLOOKUP (Vertical Lookup) function searches for a value in the leftmost column of a table, and returns a value in the same row from a column you specify in another table.</b>
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Figure 15 VLOOKUP Function Definition

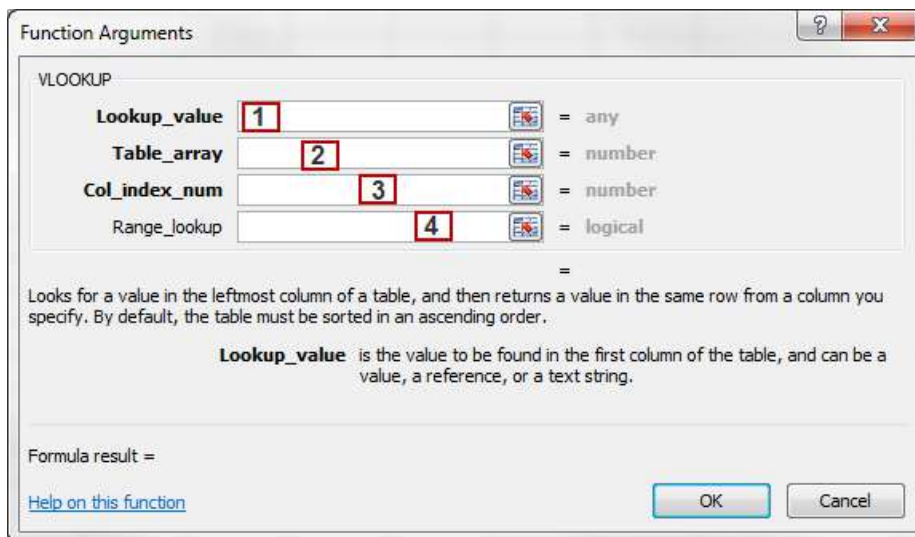


Figure 16 VLOOKUP Function Arguments Dialog Box

- 1. Lookup\_Value:** Is the value to be found in the first column of the table, and can be a value, a reference, or a text string.
- 2. 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.
- 3. Col\_index\_num:** Is the column number in table\_array from which the matching value should be returned. The first column of values in the table is column 1.
- 4. Range\_lookup (optional):** 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.

The VLOOKUP example below demonstrates how to convert numeric grades into letter grades. Follow the example and the steps in the next page to understand how the VLOOKUP function works.

1. Open a blank worksheet and copy the data below

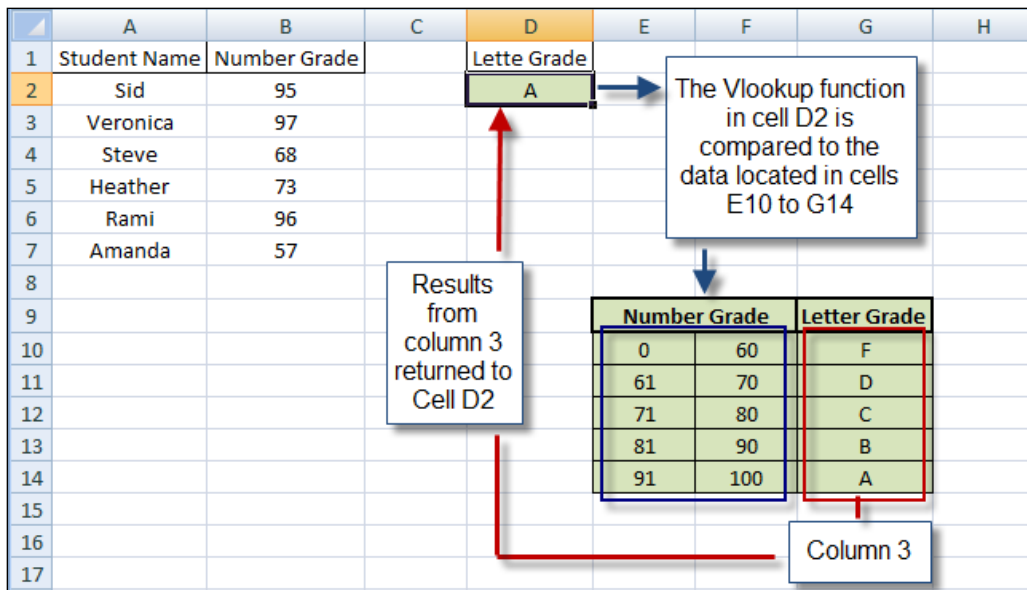


Figure 17 VLOOKUP Example

2. Select cell D2 to enter the VLOOKUP function
3. Select the **Formulas** tab and click on **Insert Function** icon

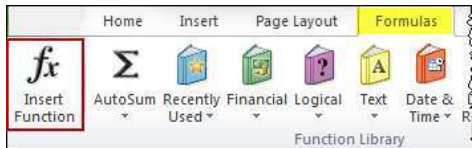


Figure 18 Insert Function Icon

4. From the **Insert Function** window, select the **VLOOKUP** function

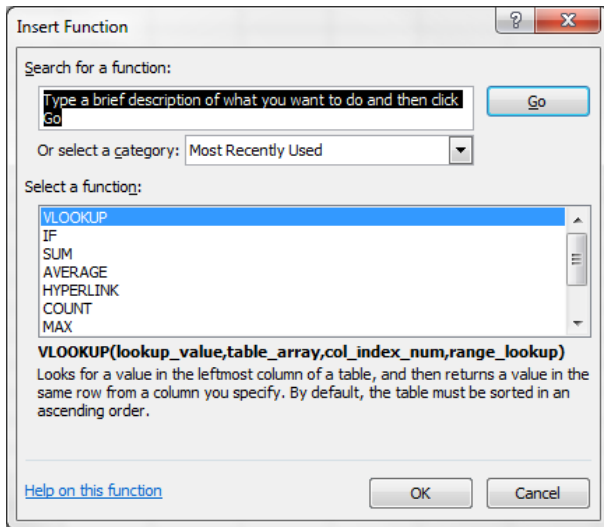


Figure 19 Insert Function Dialog Box

5. Click **OK**; the **Function Arguments** dialog box appears.

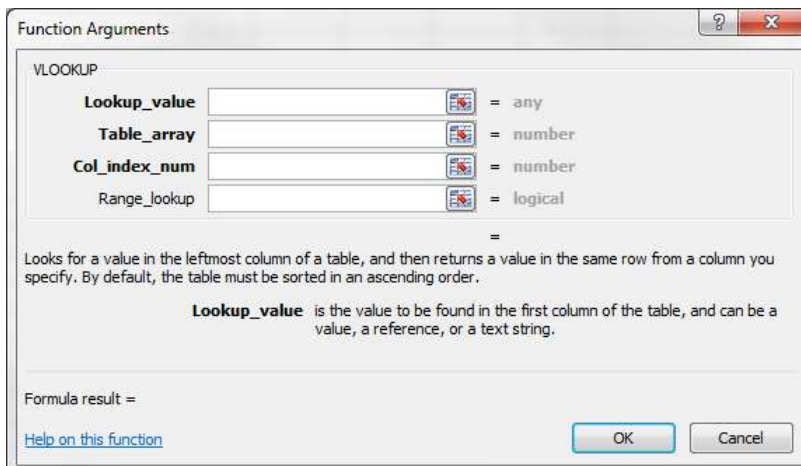


Figure 20 VLOOKUP Function Arguments Dialog Box

6. In the **Lookup\_Value** field, enter B2 (The first number grade you want to evaluate)

	A	B	C	D
1	Student Name	Number Grade		Lette Grade
2	Sid	95		
3	Veronica	97		

Figure 21 First Number to Evaluate

7. Click in the **Table\_Array** field, and then select the table you want to compare the letter grade to.

**Note:** Do not include the table column headings with your selection.

Number Grade	Letter Grade	
0	60	F
61	70	D
71	80	C
81	90	B
91	100	A

Figure 22 Comparison Table

8. In the **Table\_Array** field, add a dollar sign (\$) before every column letter and before every cell number.

Table\_array  =

Figure 23 Table\_array Field

9. In the **Col\_index\_num** field, enter the column number for which the matching value should be returned.

- In our example, we want to return the letter grade, which is column number 3.

10. Click **OK**.

11. Based on the student's Number Grade, the system will return the matching Letter Grade

	A	B	C	D
1	Student Name	Number Grade		Lette Grade
2	Sid	95		A
3	Veronica	97		

Figure 24 Letter Grade Result

12. To copy the formula to the other cells within the same column:

- Select the cell that contains the formula. ( D2 )

- B. Position (hover) the mouse pointer on top to the Fill Handle (black square) at the bottom right corner of cell D2.

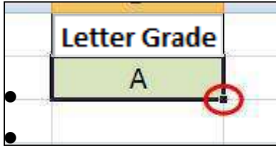


Figure 25 Cell Fill Handle

- C. When you see the black plus sign, left click and hold the left click.
- D. Drag to the last cell in the column where you have data.

The VLOOKUP function will be copied to the other cells.

	A	B	C	D	E	F	G
1	Student Name	Number Grade		Letter Grade			
2	Sid	95		A			
3	Veronica	97		A			
4	Steve	68		D			
5	Heather	73		C			
6	Rami	96		A			
7	Amanda	57		F			
8							
9							
10						Number Grade	Letter Grade
11						0	60
12						61	70
13						71	80
14						81	90
15						91	100

Figure 26 VLOOKUP Function Copied

## 6. Getting Help

Contact the Service Desk with any questions/problems:

Email:

[service@kennesaw.edu](mailto:service@kennesaw.edu)

Phone: (470) 578-6999