#### As of 10/16/2023

#### **Table of Contents**

IF function	2
Importing and Parsing Data	
VLOOKUP (and all the lookup) functions)	
The more versatile LOOKUP function	
Pivot Tables	
Pivot Charts	
Keyboard Shortcuts	

### **Introduction**

Microsoft Excel is widely used in business to build numerical spreadsheets with calculation formulas, and to analyze data. Aside from simple math, it can do date math, manipulate text and generate pie charts, bar charts and more.

This course gives you the basics so you can build the simplest of spreadsheets and gain the base knowledge for proceeding through the intermediate and advanced Excel courses.

For this handout (in color) and more, visit my teacher's website at:

www.clearcutcomputing.com/school



The "If" Function — Easily the most popular of the conditional functions. This function applies a test to a cell or formula and allows you to apply one value if the test is successful (true) or a different value if the test fails (false). First, let's prepare our Mail Merge DB spreadsheet as follows:

1			N 2			100	())				
6.	A	В	C	D	E	F	G	H	1	J	
1	Title	First Name	Last Name	Address	City	State	Zip Code	ate of Bir	Age	Age group	
2	Mr.	Sean	Connery	123 Secret Service Rd	London	NY	12345	8/25/30	69.4		
3	Mr.	Dick	Clark	1 Times Square	New York	NY	10001	11/3	70.1		
4	Mr.	Joseph	Smith	1053 Broadway	Westbury	NY	11590	0/4/57	42.6		
5	Mr.	Robert	Dino	720 Northern Blvd	Brookville	NY	11.48	7/30/60	Ad	d this head	ling
		Entontho	fallowing	formula -(NOW() I							
				formula: =(NOW()-I							
		And cop	y it to all th	e cells below.							

We want

to test the age of each person in the list and if they are over the age of 59.5, we would like to have the Age Group say "SENIOR." Otherwise, the

function should place "Too young" in this column. The syntax for the If function is as follows:

IF(logical\_test,value\_if\_true,value\_if\_false)

Let's break down what we want for each of the three parameters:

logical value:	I2 > 59.5	{is the contents of the first age column greater than 59.5?}
value_if_true:	"SENIOR"	{if yes, enter the word "SENIOR" - be sure to include the quotes}
value_if_false:	"Too young"	{if no, enter the words "Too young" - again, with the quotes}

Put it all together, and you should have entered into cell J2: =IF(I2>59.5, "SENIOR", "Too young")

Copy the formula down into all the necessary cells below and you should see different results depending on the various age values. Try changing a few of the birth dates to make different people older that 59.5 and the Age Group value should change automatically.

We really don't need to list the non-seniors as "Too young." Let's make the Age Group cells for those people be blank. To do this, just remove the value if false component of the function - BUT LEAVE THE COMMA. Hence, chnge the formula to: =IF(I2>59.5, "SENIOR",) and copy it to the necessary cells below it.

**COMPARISON SIGNS** = is equal to > is greater than < is less than >= is greater than or equal to <= is less than or equal to not equal to NOT(test)

But this should produce zeros for the non-seniors - not exactly what we wanted. This is because of the formatting of the cell to display zero values, which is the equivalent to a False result from a logical test. To fix this, we could create a custom number format for these cells of a single "#" symbol. BUT, there is an easier way to do this within the IF function. Change the formula of the first cell to: =IF(I2>59.5, "SENIOR","") and copy it to the necessary cells below it. Notice that the value if false parameter is set to a pair of double quotes with no space in-between. This tells Excel that we want to put the NULL value in the cell.

Nesting IF functions – it is possible to create many layers of IF tests in a formula. The process is referred to as "nesting."

In our example above, we now want to display the word "Minor" in the **Age Group** for the people under 21 years old. We still want our over-59.5 folks to be shown as "SENIOR" and the rest to be blank. In words, we wish to perform the test: "if not a senior, test to see if a minor." Well, "if not a senior" the value\_if\_false would be applied. So, in place of the double-quotes, we will insert another IF function. Hence, the first cell should be as follows:

### =IF(I2>59.5, "SENIOR", IF(I2<21, "Minor", ""))

Enter this formula and copy it to the necessary cells below it. Try changing the birth dates of various people to see the effect of this function.

This tutorial used the IF function to place text in cells. It could also be used to conditionally place a numeric value. For example, if you were to insert the sales tax rate based on a State column, you could build an IF function as follows: =IF(F2="NY", 0.085, IF(F2="CT", 0.06, 0)) which simply says that if the State is "NY," put 8.5% in the target cell; if not, and the State is "CT," put 6% in the target cell; otherwise use zero (the zero is unnecessary, but helps the "readability" of the formula).

**Importing and Parsing Data** — In many job functions, you may need to bring data into Excel from an outside source. Often, other databases provide a feature to "Save as an Excel Workbook." But there are times where you may simply copy & paste data from a source (such as the internet).

Here, we need to build our lookup reference sheet.



© 2023 by Paul J. Montenero Clear-Cut Computing Corp.

paulj@clearcutcomputing.com www.clearcutcomputing.com

**The Lookup Functions** — In the sheet segment below, we are going to lookup the Zip Code in the record of row 3 and return the City.

### DATA SHEET:

E3	E3 • : $\times \checkmark f_x$ Great Neck												
	A B C D E F G H I J												
1	Title	First Name	Last Name	Address	City	State	Zip Code	DOB	Age	Name			
2	Mr.	Dick	Clark	1 Times Square	New York	NY	10001	11/30/29	93	Clark, Dick			
3	Ms.	Ronda	Tolstoy	30 Cucumber Avenue	Great Neck	NY	11020	10/10/77	45	Tolstoy, Ronda			
4	Ms.	Marilyn	Struddle	235 N. Pond Avenue	Freeport	NY	11520	2/29/80	43	Struddle, Marilyn			
5	Dr.	James	Newsworthy	2 College Way	Garden City	NY	11530	8/31/66	56	Newsworthy, James			

There are three Lookup functions in the function library:

HLOOKUP	-is a "Horizontal" lookup
LOOKUP	-is the most powerful version of the Lookup functions
VLOOKUP	-is a "Vertical" lookup and the most commonly used of the three. Your reference data must be arranged in a list
	fashion and follow strict rules. We will demonstrate this one.

The syntax for the VLOOKUP is:

#### =VLOOKUP(lookup\_value,table\_array, col\_index\_num, [range\_lookup])

An impor	tant requirement for VLOOKUP is that the r	eference		Α	В		С	D
	is ZipCodes) must have the first column be t			Code City	Town	St		County
	oking up and it must be sorted by that colum			11001 FLOF	RAL PARK	NY	(	NASSA
		iii (by the	3	11002 FLOF	RAL PARK	NY	(	NASSA
Zip Code		-	4	11003 ELMO	DNT	N	(	NASSA
	e we have reorganized the columns to put the	e Zıp	5	11010 FRAM	NKLIN SQUARE	N	(	NASSA
Codes fir	st and sorted the data by Zip Code.		6	11020 GRE/	AT NECK	N	(	NASSA
			7	11021 GRE/	AT NECK	N	(	NASSA
			8	11022 GRE/	AT NECK	N	(	NASSA
			9	11023 GRE/	AT NECK	N	(	NASSA
				11024 GRE/		N	(	NASSA
				11025 GREA		NY		NASSA
Lookup_value Table arrav	G3         1020           ZipCodesIA2:D111         1	SAU":11002."F			= the zip code of the			
Table_array	ZipCodes!A2:D111	SAU":11002."F			-			
Col_index_num	2 1 = 2			- •	The ZipCodes range	-	numm	neadir
Range_lookup	FALSE <b>1</b> = FALSE		● Col_I	ndex_nu	$\mathbf{m} =$ The list of answe	ers we want,		
	= "GREAT NECK"		• Rang	e lookun	=in this case, we wa	ant an exact n	natch	only
value in the leftmost co rted in an ascending or	lumn of a table, and then returns a value in the same row from a column you specify. By de ter. Lookup_value is the value to be found in the first column of the table, and can be a valu a text string.	e, a reference, or						omy.
	ier. Lookup_value is the value to be found in the first column of the table, and can be a value	e, a reference, or VLOOKUP	• : X •	f <sub>x</sub> =vlooku	P(G3,ZipCodesIA2:D111,2,FALSE)			
	ier. Lookup_value is the value to be found in the first column of the table, and can be a value	e, a reference, or VLOOKUP	- : × ~ B	fr =vlooku	P(G3,ZipCodes1A2:D111,2,FALSE)	E	F	G
rted in an ascending or	ler. Lookup.value is the value to be found in the first column of the table, and can be a valu a text string.	e, a reference, or VLOOKUP A 1 Title	- i × ✓ B First Name	f <sub>x</sub> =∨LOOKU C Last Name	P(G3,ZipCodes1A2:D111,2,FALSE) D Address	E _ City	F	G Zip Co
rted in an ascending or	ler. Lookup.value is the value to be found in the first column of the table, and can be a valu a text string.	e, a reference, or VLOOKUP A 1 Title 2 Mr.	→ : × → B First Name Dick	fx =vLooku C Last Name Clark	P(G3,ZipCodesIA2:D111,2,FALSE) D Address 1 Times Square	E City #N/A	F State NY	G <b>Zip Co</b> 100
tted in an ascending or	ter. Lookup.value is the value to be found in the first column of the table, and can be a valu a text string. DOKUP formula would appear as show in	e, a reference, or VLOOKUP A 1 Title 2 Mr. 3 Ms.	→ : × ✓ B First Name Dick Ronda	<i>f</i> <sub>x</sub> =∨LOOKU C Last Name Clark Tolstoy	P(G3,ZipCodesIA2:D111,2,FALSE) D Address 1 Times Square 30 Cucumber Avenue	E City #N/A D111,2,FALSE)	F State NY NY	G Zip Co 100 110
This VLC row 3 in t	ler. Lookup value is the value to be found in the first column of the table, and can be a valu a text string. DOKUP formula would appear as show in he image on the right:	e, a reference, or VLOOKUP A 1 Title 2 Mr. 3 Ms. 4 Ms.	→ : × → B First Name Dick	fx     =∨LOOKU       C     Last Name       Clark     Tolstoy       Struddle	P(G3,ZipCodesIA2:D111,2,FALSE) D Address 1 Times Square 30 Cucumber Avenue 235 N. Pond Avenue	E City #N/A D111,2,FALSE) FREEPORT	F State NY	G Zip Co 100 110 115
This VLC row 3 in t	ter. Lookup.value is the value to be found in the first column of the table, and can be a valu a text string. DOKUP formula would appear as show in	e, a reference, or VLOOKUP A 1 Title 2 Mr. 3 Ms.	→ i × ✓ B First Name Dick Ronda Marilyn	<i>f</i> <sub>x</sub> =∨LOOKU C Last Name Clark Tolstoy	P(G3,ZipCodesIA2:D111,2,FALSE) D Address 1 Times Square 30 Cucumber Avenue 235 N. Pond Avenue	E City #N/A D111,2,FALSE)	F State NY NY NY	G Zip Co 100 110 115 115
This VLC row 3 in t	ler. Lookup value is the value to be found in the first column of the table, and can be a valu a text string. DOKUP formula would appear as show in he image on the right:	e, a reference, or VLOOKUP A 1 Title 2 Mr. 3 Ms. 4 Ms. 5 Dr.	B First Name Dick Ronda Marilyn James	fr =vLookU C Last Name Clark Tolstoy Struddle Newsworthy	P(G3,ZipCodesIA2:D111,2,FALSE) D Address 1 Times Square 30 Cucumber Avenue 235 N. Pond Avenue 2 College Way	E City #N/A D111.2,FALSE) FREEPORT GARDEN CITY	F State NY NY NY NY	G Zip Co 100 110 115 115 115
This VLC row 3 in t =VLOOK	ler. Lookup value is the value to be found in the first column of the table, and can be a value a text string. DOKUP formula would appear as show in he image on the right: CUP(G3,ZipCodes!A2:D111,2,FALSE)	e a reference, or VLOOKUP A 1 Title 2 Mr. 3 Ms. 4 Ms. 5 Dr. 6 Mr.	B First Name Dick Ronda Marilyn James Walter		P(G3,ZipCodesIA2:D111,2,FALSE) D Address 1 Times Square 30 Cucumber Avenue 235 N. Pond Avenue 2 College Way 56 St Patrick Avenue	E City #N/A D111,2,FALSE) FREEPORT GARDEN CITY GARDEN CITY	F State NY NY NY NY NY	G Zip Co. 100 115 115 115 115
This VLC row 3 in t =VLOOK Here is th	<ul> <li>Lookup value is the value to be found in the first column of the table, and can be a value a text string.</li> <li>DOKUP formula would appear as show in he image on the right: LUP(G3,ZipCodes!A2:D111,2,FALSE)</li> <li>e result of the lookup, when set for an exact</li> </ul>	e, a reference, or VLOOKUP A 1 Title 2 Mr. 3 Ms. 4 Ms. 5 Dr. 6 Mr. 7 Mr.	i x v B First Name Dick Ronda Marilyn James Walter Robert	f =vLooku C Last Name Clark Tolstoy Struddle Newsworthy Smith Dino	P(G3,ZipCodesIA2:D111,2,FALSE) D Address 1 Times Square 30 Cucumber Avenue 235 N. Pond Avenue 2 College Way 56 St Patrick Avenue 720 Northern Blvd	E City #N/A D111,2,FALSE) FREEPORT GARDEN CITY GARDEN CITY GREENVALE	F State NY NY NY NY NY NY	G Zip Coo 100 115 115 115 115 115
This VLC row 3 in t =VLOOK Here is th	ler. Lookup value is the value to be found in the first column of the table, and can be a value a text string. DOKUP formula would appear as show in he image on the right: CUP(G3,ZipCodes!A2:D111,2,FALSE)	e, a reference, or VLOOKUP A 1 Title 2 Mr. 3 Ms. 4 Ms. 5 Dr. 6 Mr. 7 Mr. 8 Mr.	First Name Dick Ronda Marilyn James Walter Robert Joseph	f = vLooku C Last Name Clark Tolstoy Struddle Newsworthy Smith Dino Smith	P(G3,ZipCodesIA2:D111,2,FALSE) D Address 1 Times Square 30 Cucumber Avenue 235 N. Pond Avenue 2 College Way 56 St Patrick Avenue 720 Northern Blvd 1053 Broadway	E City #N/A D111,2,FALSE) FREEPORT GARDEN CITY GREENVALE GREENVALE	F State NY NY NY NY NY NY NY	G Zip Co 100 115 115 115 115 115 115
This VLC row 3 in t =VLOOK Here is th	<ul> <li>Lookup value is the value to be found in the first column of the table, and can be a value a text string.</li> <li>DOKUP formula would appear as show in he image on the right: LUP(G3,ZipCodes!A2:D111,2,FALSE)</li> <li>e result of the lookup, when set for an exact</li> </ul>	e, a reference, or VLOOKUP A 1 Title 2 Mr. 3 Ms. 4 Ms. 5 Dr. 6 Mr. 7 Mr. 8 Mr. 9 Ms. 10 Ms. 11 Mr.	B First Name Dick Ronda Marilyn James Walter Robert Joseph Diane	f =vLooku C Last Name Clark Tolstoy Struddle Newsworthy Smith Dino Smith Balle	P(G3,ZipCodesIA2:D111,2,FALSE) D Address 1 Times Square 30 Cucumber Avenue 235 N. Pond Avenue 2 College Way 56 St Patrick Avenue 720 Northern Blvd 1053 Broadway PO Box 11576	E City #N/A D111,2,FALSE) FREEPORT GARDEN CITY GARDEN CITY GREENVALE GREENVALE GREENVALE	F State NY NY NY NY NY NY NY NY	G Zip Co 100 115 115 115 115 115 115 115 115 115
This VLC row 3 in t =VLOOK Here is th match, it	ler. Lookup value is the value to be found in the first column of the table, and can be a value a text string. DOKUP formula would appear as show in he image on the right: CUP(G3,ZipCodes!A2:D111,2,FALSE) e result of the lookup, when set for an exact yields errors (#N/A).	e, a reference, or VLOOKUP A 1 Title 2 Mr. 3 Ms. 4 Ms. 5 Dr. 6 Mr. 7 Mr. 8 Mr. 9 Ms. 10 Ms. 11 Mr. 12 Dr.	B First Name Dick Ronda Marilyn James Walter Robert Joseph Diane Maryanne Louis John		P(G3,ZipCodesIA2:D111,2,FALSE) D Address 1 Times Square 30 Cucumber Avenue 235 N. Pond Avenue 22 College Way 56 St Patrick Avenue 720 Northern Blvd 1053 Broadway PO Box 11576 1775 E. Chestnut Street 150 Washington St. 100 Eagle Place	E City #N/A D111.2,FALSE) FREEPORT GARDEN CITY GARDEN CITY GARDEN CITY GREENVALE GREENVALE GREENVALE LONG BEACH FARMINGDALE LEVITTOWN	F State NY NY NY NY NY NY NY NY NY	G Zip Coo 1100 115 115 115 115 115 115 115 115 11
This VLC row 3 in t =VLOOK Here is th match, it We can u	<ul> <li>Lookup value is the value to be found in the first column of the table, and can be a value a text string.</li> <li>DOKUP formula would appear as show in he image on the right: CUP(G3,ZipCodes!A2:D111,2,FALSE)</li> <li>e result of the lookup, when set for an exact yields errors (#N/A).</li> <li>se an IF function to provide a more appeal-</li> </ul>	e, a reference, or VLOOKUP A 1 Title 2 Mr. 3 Ms. 4 Ms. 5 Dr. 6 Mr. 7 Mr. 8 Mr. 9 Ms. 10 Ms. 11 Mr. 12 Dr. 13 Dr.	i × ✓ B First Name Dick Ronda Marilyn James Walter Robert Joseph Diane Maryanne Louis John Andrew		P(G3,ZipCodesIA2:D111,2,FALSE) D Address 1 Times Square 30 Cucumber Avenue 235 N. Pond Avenue 2 College Way 56 St Patrick Avenue 720 Northern Blvd 1053 Broadway PO Box 11576 1775 E. Chestnut Street 150 Washington St. 100 Eagle Place 100 Stewart Ave.	E City #N/A D111,2,FALSE) FREEPORT GARDEN CITY GARDEN CITY GREENVALE GREENVALE GREENVALE LONG BEACH FARMINGDALE LEVITTOWN LEVITTOWN	F State NY NY NY NY NY NY NY NY NY NY	G Zip Coo 100 115 115 115 115 115 115 115 115 117 117
This VLC row 3 in t =VLOOK Here is th match, it We can u	ler. Lookup value is the value to be found in the first column of the table, and can be a value a text string. DOKUP formula would appear as show in he image on the right: CUP(G3,ZipCodes!A2:D111,2,FALSE) e result of the lookup, when set for an exact yields errors (#N/A).	e, a reference, or VLOOKUP A 1 Title 2 Mr. 3 Ms. 4 Ms. 5 Dr. 6 Mr. 7 Mr. 8 Mr. 9 Ms. 10 Ms. 11 Mr. 12 Dr. 13 Dr. 14 Mr.	i x ✓ B First Name Dick Ronda Marilyn James Walter Robert Joseph Diane Maryanne Louis John Andrew Pete		P(G3,ZipCodesIA2:D111,2,FALSE) D Address 1 Times Square 30 Cucumber Avenue 235 N. Pond Avenue 2 College Way 56 St Patrick Avenue 720 Northern Blvd 1053 Broadway PO Box 11576 1775 E. Chestnut Street 150 Washington St. 100 Eagle Place 100 Stewart Ave. 4925 Mexico Road	E City #N/A D111,2,FALSE) FREEPORT GARDEN CITY GARDEN CITY GREENVALE GREENVALE GREENVALE LONG BEACH FARMINGDALE LEVITTOWN LEVITTOWN	F State NY NY NY NY NY NY NY NY NY NY NY	G Zip Coo 1000 115 115 115 115 115 115 115 115 11
This VLC row 3 in t =VLOOK Here is th match, it We can u	<ul> <li>Lookup value is the value to be found in the first column of the table, and can be a value a text string.</li> <li>DOKUP formula would appear as show in he image on the right: CUP(G3,ZipCodes!A2:D111,2,FALSE)</li> <li>e result of the lookup, when set for an exact yields errors (#N/A).</li> <li>se an IF function to provide a more appeal-</li> </ul>	e, a reference, or VLOOKUP A 1 Title 2 Mr. 3 Ms. 4 Ms. 5 Dr. 6 Mr. 7 Mr. 8 Mr. 9 Ms. 10 Ms. 11 Mr. 12 Dr. 13 Dr. 14 Mr. 15 Mr.	B First Name Dick Ronda Marilyn James Walter Robert Joseph Diane Maryanne Louis John Andrew Pete Ken		P(G3,ZipCodesIA2:D111,2,FALSE) D Address 1 Times Square 30 Cucumber Avenue 235 N. Pond Avenue 2 College Way 56 St Patrick Avenue 720 Northern Blvd 1053 Broadway PO Box 11576 1775 E. Chestnut Street 150 Washington St. 100 Eagle Place 150 Stewart Ave. 4925 Mexico Road 200 Jerusallem Ave.	E City #N/A D111,2,FALSE) FREEPORT GARDEN CITY GARDEN CITY GREENVALE GREENVALE GREENVALE LONG BEACH FARMINGDALE LEVITTOWN LEVITTOWN LEVITTOWN	F State NY NY NY NY NY NY NY NY NY NY NY NY	G Zip Coo 100 115 115 115 115 115 115 115 115 117 117
This VLC row 3 in t =VLOOK Here is th match, it We can u	<ul> <li>Lookup value is the value to be found in the first column of the table, and can be a value a text string.</li> <li>DOKUP formula would appear as show in he image on the right: CUP(G3,ZipCodes!A2:D111,2,FALSE)</li> <li>e result of the lookup, when set for an exact yields errors (#N/A).</li> <li>se an IF function to provide a more appeal-</li> </ul>	e, a reference, or VLOOKUP A 1 Title 2 Mr. 3 Ms. 4 Ms. 5 Dr. 6 Mr. 7 Mr. 8 Mr. 9 Ms. 10 Ms. 11 Mr. 12 Dr. 13 Dr. 14 Mr. 15 Mr. 16 Ms.	B First Name Dick Ronda Marilyn James Walter Robert Joseph Diane Maryanne Louis John Andrew Pete Ken Betty		P(G3,ZipCodesIA2:D111,2,FALSE) D Address 1 Times Square 30 Cucumber Avenue 235 N. Pond Avenue 2 College Way 56 St Patrick Avenue 720 Northern Blvd 1053 Broadway PO Box 11576 1775 E. Chestnut Street 150 Washington St. 100 Eagle Place 100 Stewart Ave. 4925 Mexico Road 200 Jerusallem Ave. 2345 South Service Road	E City #N/A D111,2,FALSE) FREEPORT GARDEN CITY GARDEN CITY GARDEN CITY GREENVALE GREENVALE GREENVALE LONG BEACH FARMINGDALE LEVITTOWN LEVITTOWN LEVITTOWN LEVITTOWN	F State NY NY NY NY NY NY NY NY NY NY NY NY NY	G Zip Coc 100 115 115 115 115 115 115 115 115 115
This VLC row 3 in t =VLOOK Here is th match, it We can u	<ul> <li>Lookup value is the value to be found in the first column of the table, and can be a value a text string.</li> <li>DOKUP formula would appear as show in he image on the right: CUP(G3,ZipCodes!A2:D111,2,FALSE)</li> <li>e result of the lookup, when set for an exact yields errors (#N/A).</li> <li>se an IF function to provide a more appeal-</li> </ul>	e, a reference, or VLOOKUP A 1 Title 2 Mr. 3 Ms. 4 Ms. 5 Dr. 6 Mr. 7 Mr. 8 Mr. 9 Ms. 10 Ms. 11 Mr. 12 Dr. 13 Dr. 14 Mr. 15 Mr. 16 Ms. 17	B First Name Dick Ronda Marilyn James Walter Robert Joseph Diane Maryanne Louis John Andrew Pete Ken Betty Geogian		P(G3,ZipCodesIA2:D111,2,FALSE) D Address 1 Times Square 30 Cucumber Avenue 235 N. Pond Avenue 2 College Way 56 St Patrick Avenue 720 Northern Blvd 1053 Broadway PO Box 11576 1775 E. Chestnut Street 150 Washington St. 100 Eagle Place 100 Stewart Ave. 4925 Mexico Road 200 Jerusallem Ave. 2345 South Service Road 50 Roosevelt Drive	E City #N/A D111,2,FALSE) FREEPORT GARDEN CITY GARDEN CITY GARDEN CITY GREENVALE GREENVALE LONG BEACH FARMINGDALE LEVITTOWN LEVITTOWN LEVITTOWN LEVITTOWN PLAINVIEW PLAINVIEW	F State NY NY NY NY NY NY NY NY NY NY NY NY NY	G Zip Coo 100 115 115 115 115 115 115 115 115 115
This VLC row 3 in t =VLOOK Here is th match, it We can u	<ul> <li>Lookup value is the value to be found in the first column of the table, and can be a value a text string.</li> <li>DOKUP formula would appear as show in he image on the right: CUP(G3,ZipCodes!A2:D111,2,FALSE)</li> <li>e result of the lookup, when set for an exact yields errors (#N/A).</li> <li>se an IF function to provide a more appeal-</li> </ul>	e, a reference, or VLOOKUP A 1 Title 2 Mr. 3 Ms. 4 Ms. 5 Dr. 6 Mr. 7 Mr. 8 Mr. 9 Ms. 10 Ms. 11 Mr. 12 Dr. 13 Dr. 14 Mr. 15 Dr. 16 Ms. 11 Mr. 12 Dr. 13 Dr. 14 Mr. 15 Mr. 16 Ms. 17 18 Mr.	B First Name Dick Ronda Marilyn James Walter Robert Joseph Diane Maryanne Louis John Andrew Pete Ken Betty Geogian Sean		P(G3,ZipCodesIA2:D111,2,FALSE) D Address 1 Times Square 30 Cucumber Avenue 235 N. Pond Avenue 235 N. Pond Avenue 2 College Way 56 St Patrick Avenue 720 Northern Blvd 1053 Broadway PO Box 11576 1775 E. Chestnut Street 150 Washington St. 100 Eagle Place 100 Stewart Ave. 4925 Mexico Road 200 Jerusallem Ave. 2345 South Service Road 50 Roosevelt Drive 123 Secret Service Rd	E City #N/A D111.2,FALSE) FREEPORT GARDEN CITY GARDEN CITY GARDEN CITY GREENVALE GREENVALE GREENVALE GREENVALE LONG BEACH FARMINGDALE LEVITTOWN LEVITTOWN LEVITTOWN LEVITTOWN LEVITTOWN PLAINVIEW PLAINVIEW #N/A	F State NY NY NY NY NY NY NY NY NY NY NY NY NY	G Zip Coo 100 115 115 115 115 115 115 115 117 117 117
This VLC row 3 in t =VLOOK Here is th match, it We can u	<ul> <li>Lookup value is the value to be found in the first column of the table, and can be a value a text string.</li> <li>DOKUP formula would appear as show in he image on the right: CUP(G3,ZipCodes!A2:D111,2,FALSE)</li> <li>e result of the lookup, when set for an exact yields errors (#N/A).</li> <li>se an IF function to provide a more appeal-</li> </ul>	e, a reference, or VLOOKUP A 1 Title 2 Mr. 3 Ms. 4 Ms. 5 Dr. 6 Mr. 7 Mr. 8 Mr. 9 Ms. 10 Ms. 11 Mr. 12 Dr. 13 Dr. 14 Mr. 15 Mr. 16 Ms. 17	B First Name Dick Ronda Marilyn James Walter Robert Joseph Diane Maryanne Louis John Andrew Pete Ken Betty Geogian		P(G3,ZipCodesIA2:D111,2,FALSE) D Address 1 Times Square 30 Cucumber Avenue 235 N. Pond Avenue 2 College Way 56 St Patrick Avenue 720 Northern Blvd 1053 Broadway PO Box 11576 1775 E. Chestnut Street 150 Washington St. 100 Eagle Place 100 Stewart Ave. 4925 Mexico Road 200 Jerusallem Ave. 2345 South Service Road 50 Roosevelt Drive	E City #N/A D111,2,FALSE) FREEPORT GARDEN CITY GARDEN CITY GARDEN CITY GREENVALE GREENVALE LONG BEACH FARMINGDALE LEVITTOWN LEVITTOWN LEVITTOWN LEVITTOWN PLAINVIEW PLAINVIEW	F State NY NY NY NY NY NY NY NY NY NY NY NY NY	G Zip Co 10 11 11 11 11 11 11 11 11 11 11 11 11

Marion

Dick

Eberthal

Clark

PO Box 9999

1 Times Square

20 Mrs.

21 Mr.

NY TBA

NY

10001

#N/A

#N/A

.

### The more versatile, but complex, LOOKUP function

- a very powerful set of functions are the LOOKUP functions. This enables you to create a separate table of values to use as a source, and automatically fill in values on another sheet based on this table. Typical applications are price lists and zip codes. We'll design a lookup for our Mail Merge DB spreadsheet.



Now let's return to the **RawDB** tab. Delete all of the values in the **Zip Code** column, and select the first cell under the **Zip Code** heading (cell G2 in the diagram below). Now choose **Insert** Function from the menu (or click the function button: fx). In the Paste Function window, select the *Function category* : Lookup & Reference; then select the *Function name*: LOOKUP.

Click OK and you should have the Select Arguments window on the next page.

X	licro	osoft Excel	- Mail Mer	ge DB.xls					_ 5	₹ N
	<u>E</u> ile	e <u>E</u> dit <u>V</u> ie	w <u>I</u> nsert F	F <u>o</u> rmat <u>T</u> ools <u>D</u> ata <u>V</u>	<u>V</u> indow <u>H</u> el	р			_ 5	7 ×
0	🗃	8 5 4 3	۵ 🗈 🖌	🗄 🝼 🏎 🖘 🍓 🏘	$\Sigma f_x \stackrel{A}{=} \downarrow$	KI 🛍	👮 🛷 100% 💌 📿			
Ari	al	•	10 <b>• B</b>	/ U ≣≣≣ ■ 9	3 % , t.º	00 🗐	律 🛛 • 🕭 • 🗛 •			
	G2	<b>•</b>	× 🗸 = 😑							
2. 	A	В	С	D	E	F	G H	1	J	
1		First Name		Address	City	State	Zip Code ate of Bir	Age	Age Group	-
_	Mr.	Sean	Connery	123 Secret Service Rd	London	NY	= 8/25/30		SENIOR	
	Mr.	Dick	Clark	1 Times Square	New York	NY	11/30/29		SENIOR	
	Mr.	Joseph	Smith	1053 Broadway	Westbury	NY	6/4/57	42.6		
and the second second	Mr.	Pohert	Dino	720 Northern Blvd	Brookville ? X	NY	7/30/60	39.4		
and the second second	Mr.	Paste Fu	ncuon		<u> </u>	NY	1/15/56	44.0		
	Ms.	Function cate	egory:	Function <u>n</u> ame:		NY	2/29/80	19.8		
	Mr.	Most Recent	ly Used	ADDRESS		NY	12/25/74	25.0 22.2		
	Ms. Dr.	All	1.0	AREAS		NY	5/20/79	22.2		
100 C 100 C 100 C 100 C	Mr.	<ul> <li>Financial</li> <li>Date &amp; Time</li> </ul>		CHOOSE		NY	9/29/65	20.6		
	Ms.	Math & Trig		COLUMNS		NY	3/15/67	32.8		
and the second second	Mr.	Statistical		HLOOKUP		NY	4/24/72	27.7		
	Mrs.	Lookup & Re	terence	HYPERLINK	[	NY	11/22/62	37.1		
and a state of the	Dr.	Text		INDIRECT		NY	8/31/66	33.3		
	Dr.	Logical			-	NY	11/8/71	28.1		
17		/ Information				NY	4/1/81	18.7		
	Ms.	LOOKUP()				NY	6/30/61	38.5		
	Mr.	Returns a val array.	lue either from a	a one-row or one-column range or	from an	NY			SENIOR	
20	Ms.	E				NY	9/4/59	40.3		
21					C					
22		2		OK	Cancel					
23										-
K	• •	N Raw D	B / Sheet2	/ Sheet3 /					Þ	
D	raw •	• 🗟 🙆 A	<u>u</u> toShapes	• \ \ 🗆 🗆 🔮 4	3 - 1 - A	• = :				
Edit								NU	M	

The Select Arguments windows offers you a choice of two kinds of LOOKUP functions.

Select Arguments		? ×
LOOKUP		
This function has multiple argument lists. Please select	one of them.	
Arguments:		1
lookup_value,lookup_vector,result_vector lookup_value,array		
2	ОК	Cancel

The second one, "Lookup\_value, array," is a simple version which is easy to use, but has, among its limitations, the requirement of a list with no more than two columns.

We'll focus on the more versatile: "Lookup\_value, lookup\_vector,result\_vector."

Click on the **OK** button above, to reveal the

function editor window show below (yours might be in the upper left corner of your sheet, to move it, click on a dead area and drag it to a more appropriate location). There are three fields to fill out:

11					3	7 99   H	+				
	LOOK	UP 🔽 🕽	🗙 🗸 = 💷 =LC	OKUP(E2,Sheet2!A2:A16,	Sheet2!C2:C1	6)					
	Α	В	С	D	E	F	G	Н	1	J	
1	Title	First Name	Last Name	Address	City	State	Zip Code	ate of Bir	Age	Age Group	
2	Mr.	Sean	Connery	123 Secret Service Rd	London	NY	02:016)	8/25/30	69.4	SENIOR	
3	Mr.	Dick	Clark	1 Times Square	New York	NY		11/30/29	70.1	SENIOR	
4	Mr.	Joseph	Smith	1053 Broadway	Westbury	NY		6/4/57	42.6		
5	Mr.	Robert	Dino ,	720 Northern Blvd	Brookville	NY		7/30/60	39,4		
6	Mr.	Louis	Hues						0		
7	Ms.	Marilyn	Struddle	Lookup_value  E2			🏊 = "Lor	ndon"	.8		
8	Mr.	Walter	Palmer	Lookup_vector Sheet2!A2:	A16		💽 = {"Br	ookville";"Fari			
9	Ms.	Ronda	Tolstoy	Denuk werten Ister Louise	<u></u>		<b>N</b> = {11!	E40.1170E.11	.521 2		
10	Dr.	John	Egon	Result_vector Sheet2!C2:	C16		<b>1</b> = {11:	548;11735;11	.521		
11	Mr.	Ken	Wilton				= 123	45	.3		
12	Ms.	Maryanne	Northrup	Returns a value either from a or	ne-row or one-col	umn range			.8		
13	Mr.	Pete	Gwangi						.7		
14	Mrs.	Marion	Eberthal	Lookup_value is a value th	at LOOKUP searc t, a logical value,				<sup>a</sup> 1		
15	Dr.	James	Newsworthy		in i	or a fidilite		-	1 3		
16	Dr.	Andrew	Milner	Formula result = 12	:345		OK	Can	icel 1		
17		Geogian	Krespe <sup>L</sup>	50 Roosevelt Drive	Plainview	NY		4/1/81	18.7		
18	Ms.	Diane	Balle	PO Box 11576	Roslyn	NY		6/30/61	38.5		

- Lookup\_value: is the cell or value you want the function to use when it refers to the lookup list. In the figure above, you want to take "London" (the contents of cell E2) and go find it in the lookup list on Sheet2.
- Lookup\_vector: is the range of cells in the lookup list that the function will try to find match with the Lookup value you specified. In

this example, click on **Sheet2**, and select the range of cells containing the city names as shown on the right.

	LOOKUP	X 🗸 =	=LOOKUP(E	2,Sheet	2!A2:A16,Sh	eet2!C2:C	16)				
	A	В	С	D	E	F	G	Н	1	J	К
1	City	State	Zip Code								_
2		NY	11548								
3		NY	11735								
4		NY	11520								
		NY									
		NY	LOOKUP								
		NY	Looku	ip_value	E2			🔣 = "Lond	on"		
		NY	Looku	_vector	Sheet2!A2:A16	5		💽 = {"Bro	okville";"Farmii	n 📗	
		NY	Dec	ult vector	Sheet2!C2:C16				8;11735;1152	21	
		NY	i i i i i i i i i i i i i i i i i i i	alc_voccor	Joneers ics. cri	, ,		<u> </u>	0,11755,1152		
		NY						= 12345	5		
		NY	Returns a	a value eith	ner from a one-r	ow or one-co	olumn range o	or from an arra	ay.		
		NY									
		NY	LOOKU		is a range that ( logical values, p			ne column or	text, numbers	s, or	
15	Seaford	NY					naing oraci i				
16	Westbury	NY	2	Formul	a result =12345	j.		OK	Cance		
17											
18	-										
19											
20											
21											
22											
23											
M	▲ ▶ ▶ A Raw	DB <b>\ She</b>	e <b>t2</b> / She	et3 /			•				

• **Result\_vector**: is the range of cells containing the value that should be returned when a match is found

between the Lookup\_value and the Lookup\_vector. In the figure below, you can see that the entire range of data in the Zip Code column is what must be selected.

A	В	C	DE	F	G	Н	1	J	К
1 City	State	Zip Code							
2 Brookville	NY	11548							
3 Farmingdale	NY	11735							
4 Freeport	NY	11520							
5 Garden City	NY	11530							
6 Great Neck	NY	11020	LOOKUP	<u></u>					1
7 Levittown	NY	11756	Lookup_value	E2			🏊 = "Lon	don"	
8 London	NY	12345	Lookup_vector	Sheet21A2:/	A16		<b>™</b> = {"Bro	ookville";"Farm	n
9 Long Beach	NY	11561							
10 Massapequa	NY	11758	Result_vector	[Sheet2]C2:0	-16		<u></u> = {118	548;11735;115	21
11 New York	NY	10001					= 1234	45	
12 Plainview	NY	11803	Returns a value eit	her from a on	e-row or one-	-column range			
13 Rockville Cente	er NY	11571							
14 Roslyn	NY	11576	Result_vector	is a range the Lookup_vect		nly one row or	r column, the s	ame size as	
15 Seaford	NY	11783						_	
	NY	11590	😨 Formu	la result =12	345		OK	Canc	el
16 Westbury		States and the state							
17									
17 18									
17 18 19									
17 18 19 20									
17 18 19 20 21									
17 18 19 20									

Click the **OK** button and the resulting formula will be placed in our cell: G2.

### =LOOKUP(E2,Sheet2!A2:A16,Sheet2!C2:C16)

Before we copy this formula into all the appropriate cells below it, let's stop and think about what will happen. Remember that the cell references will update as we copy it to a new location. Thus, if we copy this formula from G2 to G3, the **Lookup\_value** of E2 will become E3 – just like we want. However, the **Lookup\_vector** range will also increment by one from Sheet2!A2:A16 to Sheet2!A3:A17 – ruining our formula! To prevent this from occurring, we must employ absolute cell references to the portion of the formula that we want to hold steady. Hence:

#### =LOOKUP(E2,Sheet2!\$A\$2:\$A\$16,Sheet2!\$C\$2:\$C\$16)

Now it's safe to copy this formula into all the necessary cells below it. When you do, you should see that the zip codes from the list in **Sheet2** are returned for all rows.

Try changing a city name in the **RawDB** sheet. You should see the zip code change as soon as you complete entry on the city cell (by hitting the Tab, Enter or arrow keys). BUT BEWARE, if you type a city that is NOT in the list, the **Result\_vector** value of the next nearest match is used. Try typing "Mexico" into a city cell; you'll see the zip code for "Massapequa" displayed! To fix this, you could try modifying the formula so it first tests the comparison to see if an exact match is found. To do this, you could employ the **IF** function, MATCH function and the **ISNA** function to create a formula as shown below:

#### =IF(ISNA(MATCH(E2,Sheet2!\$A\$2:\$A\$16,0)),"not listed",LOOKUP(E2,Sheet2!\$A\$2:\$A\$16,Sheet2!\$C\$2:\$C\$16))

The **MATCH** function, as shown, tests the comparison to see if an exact match exists (the last zero is the key to this). If an exact match does not exist, this function returns a value of "#NA" - which we test for using the **ISNA** function. Putting it all together with the **IF** function tells instructs our formula to:

- 1. See if the result of the **MATCH** is the value "#NA"
- 2. If it is, enter the text "not listed" into the zip code cell
- 3. If it isn't, then an exact match was found and display the matching zip code

### **PivotTables**

PivotTables can be a powerful way to analyze data in Excel. As with all data functions in Excel, it is key that you have your data set up properly. Don't skip rows (just to make it look nice) and try not to skip columns. The first row (and only the first row) should have your column headings in it.

(	1.2	) 🖬 🤊	• (H • 🖸			_	_				-	_	MOR-BR -Piv	ot Tables.xls	[Compatib	oility M
		Home	Insert	Page La	ayout Fo	ormulas	Data Review	v View	Add-Ins	Quick	Books					
(	I.	J 🏢			0 7		j 🕅 🖉	1	<b>(</b>	Ö		Α	A			Ω
	vot	tTable Tabl ▼	e Picture	Clip Sł Art	hapes Smart/	Art Column	n Line Pie	Bar /	Area Scatter	Other Charts *	Hyperlink		ader WordA ooter *	rt Signature Line -	Object Syr	mbol
		Tables		Illustrat	tions			Charts		G	Links			Text		
		L17	<b>•</b>	•	<i>f</i> ∗ BRA	NCH										
	4	Α	В		С	D	E	F	G	Н		J	K	L	М	
1	E	3ldg Code	Branch Nan	ne	Branch Nu	Bldg Name	Address 1 No	Address 7	1 Address 2	City	State	Country	ZIP	Bldg Prima	Bldg Area	a Floo
2	2	99	BORO PAR	K	76		5424	13TH AVE	ENUE	BROOKL	YNY	USA	11219	BRANCH	(	0
3	3	99	BORO PAR	K	76		5424	13TH AVE	ENUE	BROOKL	YNY	USA	11219	BRANCH		)
4	L.	99	BORO PAR	K	76		5424	13TH AVE	ENUE	BROOKL	YNY	USA	11219	BRANCH		0
5	_		BORO PAR		76			13TH AVE		BROOKL		USA		BRANCH	-	) G
6			MONTAGUE			MONTAGL			UE STREET			USA		BRANCH		0
7			MONTAGUE			MONTAGL			UE STREET			USA		BRANCH		0
8	3	102	MONTAGUE	-	51	MONTAGL	181	MONTAG	UE STREET	BROOKL	YNY	USA	11201	BRANCH	(	0

Before you get started, simply click on any cell inside the data range that you want to use. Then, on the Insert tab of the ribbon, click the top of the PivotTable button to start the process inserting a PivotTable (if you want a PivotChart, the bottom half of that button in choosing from the short menu that appears). The window to the right should appear with the range predetermined based on Excel's artificial intelligence in the cell that you clicked on in the data range. At the bottom you can choose to insert the PivotTable into a new worksheet or into the existing one and you have the data on.

Create PivotTable	8 ×							
Choose the data that you	u want to analyze							
Select a table or range								
Table/Range:	MOR-BR'!\$A\$1:\$AI\$614							
Use an external data source								
Choose Connection								
Connection nam	ie:							
Choose where you want	the PivotTable report to be placed							
New Worksheet								
Existing Worksheet								
Location:								
	OK Cancel							

### Turning on the Drag-And-Drop Version of the PivotTable Tool

If the PivotTable tool does not look like the illustration on the right, below, then you must set it for PivotTable table input from the PivotTable options. To access the PivotTable options, point to the toolbox on the left, below, and right-click. Then choose PivotTable options for the menu. On the window that appears, click on the display tab and check off the box pointed to below.



paulj@clearcutcomputing.com www.clearcutcomputing.com

Let us discuss the data that we will be using in this document. Is a list of branches for a major banking corporation. The data spans multiple cities in multiple states and shows occupied square footage as well as rental cost.

We will start with a simple example. Let's summarize the occupied square footage by State and break it down by "Flr Use."



© 2023 by Paul J. Montenero Clear-Cut Computing Corp.

paulj@clearcutcomputing.com www.clearcutcomputing.com

Page – 9 (516) 845-4081x1

Mode] - Mic	rosoft Excel	PivotTak	ole Tools	
/ Add-In	ns QuickBoo	ks Option	ns Design	@ _ = ×
	ieneral \$ • % • 5 Number	0 .00 Cond	itional Format tting ← as Table ← Styles	Cell Insert Delete Format Cells Cells Editing
				*
F Here	G	Н	1	J PivotTable Field List V X Choose fields to add to report:
FICE	STORAGE	UNKNOWN	(blank) 6083	Grand Total         Floor           306013         Stack           1 Arial         10         A <sup>*</sup> \$ * % ,
7524 6474				6 B I ≡ . · 3 · A · *.8 ∞ ⊡ 22000 · · · · · · · · · · · · · · · · ·
14083 3430 28427		3191	28341	52422 (Copy         Bank Group         ≡           212#5 Eormat CellsG/S         1358600         Number Formatic
59938	4209	3191		2437082 Befresh Trn Sequence ID
				Sort         Tm User Tm ID         ▼           X         Remove "Sum of Occ Area"         Trag fields between areas below:           Summarze Data By trifter         Column Labels
				Image: Show Details     Image: Show Details       Image: Show Details     Fir Use       Image: Show Details     Image: Show Details       Image: Show Details     Image: Show Details
				Pivot Table Optie0% tabels ∑ Values Hide Field Listate ▼ Sum of Occ A ▼
	•			Defer Layout Update     Update

Formatting the Numbers in the PivotTable To format the numbers on the page for commas at the thousand separators, it is best to click on any number inside the data and right -click, then choose number format from the menu. Using this method will format all of the numbers in the data section. If you used the buttons on the ribbon, it would only format the one cell that you had selected.

#### "Drilling Down" on the Data

Another interesting feature on this right-click menu is that if you click on a number (for example the total of 61,782 for DC) and choose show details, a new sheet will be added showing the data that makes up that number.

<u> </u>			-							
	A	В	С	D	E	F	G	Н	1	
1	Bldg Code	Branch Name	Branch Number	Bldg Name	Address 1 No	Address 1	Address 2	City	State	ο Οοι
2	4256	PALISADES	905		5250	MACARTHUR BLVD NW		WASHINGTON	DC	USA
3	4256	PALISADES	905		5250	MACARTHUR BLVD NW		WASHINGTON	DC	USA
4		EAST RIVER PARK	922			MINNESOTA AVENUE, N.E.		WASHINGTON		USA
5		EAST RIVER PARK	922		3917	MINNESOTA AVENUE, N.E.	SUITE 200	WASHINGTON	DC	USA
6		ADAMS MORGAN		COLUMBIA ROAD SHOPPING CENTER		COLUMBIA ROAD, N.W.		WASHINGTON		USA
7		DUPONT CIRCLE		1225 CONNECTICUT AVENUE		CONNECTICUT AVENUE, N.W.		WASHINGTON		USA
8		MCPHERSON SQUARE	912			VERMONT AVENUE, N.W.		WASHINGTON		USA
9		CHEVY CHASE	903			& 5704 CONNECTICUT AVENU		WASHINGTON		USA
10		BROOKLAND	909			12TH STREET NE		WASHINGTON		USA
11		FRIENDSHIP HEIGHTS	908			WISCONSIN AVENUE		WASHINGTON		USA
12		FRIENDSHIP HEIGHTS	908			WISCONSIN AVENUE		WASHINGTON		USA
13		FARRAGUT NORTH	904			CONNECTICUT AVENUE		WASHINGTON		USA
14		FEDERAL TRIANGLE	907			PENNSYLVANIA AVENUE, N.W		WASHINGTON		USA
15		METROPOLITAN SQUARE	911			G STREET, N.W.		WASHINGTON		USA
16		GEORGETOWN NORTH	923			WISCONSIN AVENUE, NW		WASHINGTON		USA
17		GEORGETOWN NORTH	923			WISCONSIN AVENUE, NW		WASHINGTON		USA
18		HECHINGER MALL		HECHINGER MALL		BENNING ROAD, N.E.		WASHINGTON		US/
19		PALISADES	905			MACARTHUR BLVD NW		WASHINGTON		US/
20	4256	PALISADES	905		5250	MACARTHUR BLVD NW		WASHINGTON	DC	US/
21										
22										
23										
24										
25										
26										
14	→ → Shee	t2 Sheet1 MOR-BR					1		in the second se	•
Rea				A	erage: 14738.0616	2 Count: 655 Sum: 5084631.26	田口口 10	0% 🕞 🗸 🗸	j	-+
								······································		



#### Multi-Level Analysis

Now let's further breakdown each state to show all the cities within the State. Simply drag the City field down to the "Row Labels" box, below the State field, which is already there. Instantly the added level of breakdown

is displayed.

We can show more than one data value. Let's drag the "Branch Number" field down to the values (below the one it's their already: "Occupied Area"). You will see that Excel automatically assumes that you want to do a count of these branches - which is what we want. But the heading of the column, "Count of Branch Number" is a bit large for our liking. So, let's click the pulldown in this newly added field and choose "Value Field Settings" again. In the field labeled, "Custom Name," change the text to simply read, "# Loc." This will make the column widths narrower.

Changing the Formula

Maybe we don't want the total (Sum) of the square footage shown in the PivotTable. There are four boxes at the bottom of the PivotTable field list. This allows us to customize what information is shown. To change the number calculation, click on the "Sum of Occ Area" in the Values box. In the pulldown menu that appears, click on "Value Field Settings" and choose "Average" in the lower half of that window. Note that you can also click the "Number Format" button and format the numbers from this window.

Value Field Settings
Source Name: Occ Area
Custom Name: Average of Occ Area
Summarize by Show values as
<u>S</u> ummarize value field by
Choose the type of calculation that you want to use to summarize the data from selected field
Sum
Average E
Min
Product
Number Format         OK         Cancel



	· (□ · 🛕 🔲 = 🕴 🚺	MOR-BR -Pivot Tables.xls	[Compatibility Me	ode] - Microsoft	Excel Pivo	otTable Tools		
Home	Insert Page Layout	Formulas Data	Review View	Add-Ins	QuickBooks O	ptions Design		@ _ = X
	Arial $\cdot$ 10 $\cdot$ $A^{\circ}$ A <b>B</b> $I$ $\underline{U}$ $\cdot$ $\underline{H}$ $\cdot$ $\underline{A}^{\circ}$ $\underline{A}^{\circ}$ Font		Wrap Text			conditional Format formatting * as Table * Styles		Delet Format Cells Cells 2 - 27 m 2 -
G8	$ f_x$							*
A	В	С	D	E	F	G	Н	PivotTable Field List 🔹 💌
65 ⊟DC 66 DC Total	WASHINGTON	54,258 54,258	17 17					Choose fields to add to report:
67 BFL	BOCA RATON	15,576	3					Choose fields to add to report:
68	COCONUT CREEK	4,030	1					Branch Number
69	CORAL GABLES	25,962	3					Bldg Name
70	CORAL SPRINGS	8,480	2					Address 1 No
71	DANIA	17,689	1					Address 1
72	DEERFIELD BEACH	2,500	1					Address 2
73	DELRAY BEACH	3,180	1					City
74	FORT LAUDERDALE	15,869	2			2,000		≡ <b>⊽</b> State
75	HOLLYWOOD	9,125	2					Country
76	KEY BISCAYNE	5,636	2					ZIP
77	KEY LARGO	800	1					Bldg Primary Use
78	MARGATE	3,134	1					
79	MIAMI	43,247	10			2.000		Bldg Area
80	MIAMI BEACH	27,953	5					Floor
81	NORTH MIAMI BEACH.	10,692	2					Drag fields between areas below:
82	PALM BEACH GARDENS	5,137	1					Column Labels
83	PLANTATION	5.346	1					
84	POMPANO BEACH	4,400	2					Fir Use 🔻
85	SURFSIDE	4,355	1					∑ Values ▼
86	TAMARAC	5,346	1					
87 FL Total		218,457	43			4,000		Row Labels <b>Σ</b> Values
88 BIL	ALGONQUIN	1.526	1			1,000		State   Sum of Occ A
89	ARLINGTON HEIGHTS	46.090	6					City 💌 #Loc. 💌
90	BLOOMINGDALE	5.416	1					
91	BROOKEIELD	17 280						Defer Layout Update     Update
I4 4 ▶ ▶I Sh	eet2 Sheet1 MOR-BR			I <b>4</b>	Ш		•	
Ready								🔲 🔲 100% 😑 —— 🗸 —— 🕂 ,;;
-								

paulj@clearcutcomputing.com www.clearcutcomputing.com

Page – 11 (516) 845-4081x1

#### FILTERING THE PIVOTTABLE

There are two ways we can filter a PivotTable.

<u>First</u>- you may have noticed the report filter box on the bottom of the field list. Let's drag the State field from the row labels to the report filter. This results in the State field now being shown on the left above the actual PivotTable. You can click the pulldown arrow on the second column and choose which State you want to show the data for.

<u>Second</u>- in the City heading, you could click the pulldown in the column on the left and check off exactly which cities you want to show in your table.

A	В	С	D	E	F	G	Н	PivotTable Field List 🔹 💌 🗙
	(All)							
2								Choose fields to add to report:
	Flr Use 💽 💌 Da							
	BRANCH		CITISTATION		DRIVE-UP		KIOSK	Branch Number
	Sum of Occ Area	# Loc.	Sum of Occ Area	# Loc.	Sum of Occ Area	# Loc.	Sum of Oc	Bldg Name
6 ALAMEDA	6,932	1						Address 1 No
7 ALBANY	3,857	1					_	Address 1
8 ALBERTSON	4,000	1					_	Address 2
9 ALGONQUIN	1,526	1						City
10 ANTIOCH	4,200	1						✓ State
11 ARLETA	4,450	1						Country
12 ARLINGTON HEIGHTS	46,090	6						ZIP
13 ARMONK	4,520	1						Bldg Primary Use
14 ASTORIA	6,160	2					_	Bldg Area
15 BALTIMORE	13,992	6					_	Floor
16 BAYSHORE	2,400	1					_	
17 BAYSIDE	11,900	4						Drag fields between areas below:
18 BEDFORD HILLS			2,000		1			Report Filter Column Labels
19 BEDFORD VILLAGE	4,200	1						State T Fir Use
20 BERKELEY	8,000	1						Σ Values
21 BLOOMINGDALE	5,416	1						∑ values
22 BOCA RATON	15,576	3						Row Labels <b>Σ</b> Values
23 BRONX	81,489	26						
24 BRONXVILLE	8,352	2						City   Sum of Occ A
25 BROOKFIELD	17,280	4						# Loc. 🔻
26 BROOKLYN	104,188	35						
27 BLIFFALO II ↓ ▶ II Sheet2 Sheet1	17 859 MOR-BR	5					► 1	Defer Layout Update Update
	MOK-BK / CJ							
Ready								<b>I</b> I 100% - V (+)

	· /							-	_
A	В	С	D	E	F	G		PivotTable Field List	▼ ×
1 State	FL 🖓								
2		_						Choose fields to add to report:	<b>1</b> •
		Data						Branch Number	
	BRANCH		DRIVE-UP		OFFICE		Total Sum		
5 City	Sum of Occ Area		Sum of Occ Area	# Loc.	Sum of Occ Area	# Loc.		Bldg Name	
6 BOCA RATON	15,576							Address 1 No	=
7 COCONUT CREEK	4,030							Address 1	
8 CORAL GABLES	25,962							Address 2	
9 CORAL SPRINGS	8,480							City	
10 DANIA	17,689							✓ State	Y
11 DEERFIELD BEACH	2,500							Country	
12 DELRAY BEACH	3,180							ZIP	
13 FORT LAUDERDALE	15,869		2,000		1			Bldg Primary Use	
14 HOLLYWOOD	9,125							Bldg Area	
15 KEY BISCAYNE	5,636							Floor	-
16 KEY LARGO	800							-	
17 MARGATE	3,134							Drag fields between areas below:	
18 MIAMI	43,247	10	2,000		1			🝸 Report Filter 🛛 🗰 Colur	nn Labels
19 MIAMI BEACH	27,953				6,474	2		State  Fir Use	•
20 NORTH MIAMI BEACH,	10,692							Σ. Value	- <b>-</b>
21 PALM BEACH GARDENS	5,137							Z Vulu	
22 PLANTATION	5,346	1						Row Labels <b>Σ</b> Value	es
23 POMPANO BEACH	4,400	2						City Sum of C	Occ A 🔻
24 SURFSIDE	4,355				-			#Loc.	×
25 TAMARAC	5,346		4 000		0 0 474	2		# LOC.	
26 Grand Total	218,457	43	4,000		2 6,474	2	<u>ا</u>	Defer Layout Update	Update
II I I I Sheet2 Sheet1	MOR-BR			14			► I	e perer cayout opuate	
Ready								<b>III</b> 100% (=)	+ .:
	_								

© 2023 by Paul J. Montenero Clear-Cut Computing Corp.

paulj@clearcutcomputing.com www.clearcutcomputing.com

Page - 12 (516) 845-4081x1

Changing the Type of Values Displayed Suppose we want to change the values of the "Sum of percentages of the total? Right-click on the column h Occ Area," and click the tab labeled "Show values as. pulldown under "Show values as" and select choose ' All the sums are now shown as percentages.

С

#1 oc

**7** 

7.13%

1.84%

11.88%

3.88%

8.10%

1.14%

1.46%

7.26%

4 18%

2 58%

0.37%

1.43%

19.80%

12.80%

4 89%

2.35%

2.45%

2.01%

1.99%

2.45%

100.00%

💌 Data

Flr Use

BRANCH

Sum of Occ Area

			Value Field Set	tings		l	? <mark>x</mark>
	cc Area" to		Source Name:	Occ Area			
	ling, "Sum Then click		Custom Name:	Sum of Occ /	Area		
	of column.		Summarize b	y Show valu	ies as		
	or conumn		Show value	s as			
			% of column				
			Difference F				
			% Of				_
			% Difference				=
			Running Tota % of row				
			% of column				+
			Address 1 N		-		-
	E						
			Number Form	at		Ж	Cancel
)		OFFIC	E		Total Sum of	f Occ Area	Total # Loc.
cc Area	# Loc.	Sum o	f Occ Area	# Loc.			
0.00%			0.00%			6.80%	3
0.00%			0.00%			1.76%	1
0.00%			0.00%			11.34%	3
0.00%			0.00%			3.70%	2
0.00%			0.00%			7.73%	1
0.00%			0.00%			1.09%	1
0.00%			0.00%			1.39%	1
50.00%	1		0.00%			7.81%	3
0.00%			0.00%			3.99%	2
0.00%			0.00%			2.46%	2
0.00%			0.00%		-	0.35%	1
0.00%	1		0.00%		-		11
50.00%	1		0.00%	2		19.76% 15.04%	11
0.00%			100.00%	2	-	4.67%	2
0.00%			0.00%			4.67%	2
0.00%			0.00%		-	2.24%	1
0.00%		-	0.00%			2.34%	2
0.00%		-	0.00%			1.92%	2
0.00%		-	0.00%			2.34%	1
0.00%			0.00%			2.34%	1

### Special Value Calculations

27 20 State

City

10 DANIA

BOCA RATON

COCONUT CREEK

CORAL GABLES

11 DEERFIELD BEACH

13 FORT LAUDERDALE

9 CORAL SPRINGS

12 DELRAY BEACH

14 HOLLYWOOD

16 KEY LARGO

19 MIAMI BEACH

22 PLANTATION

24 SURFSIDE

25 TAMARAC

26 Grand Total

23 POMPANO BEACH

20 NORTH MIAMI BEACH

21 PALM BEACH GARDENS

17 MARGATE

18 MIAMI

15 KEY BISCAYNE

Λ

5

6

8

Before you setup the next PivotTable, you must add a column to the data sheet to pull out the Year of the"Current Term End." Be sure to refresh the PivotTable. Once you setup the PivotTable below, click the pulldown on the "Sum of Bldg

D

100.00%

DRIVE-UP

2

2

10

5

2

43

Sum of Occ A

Area" and choose "Value Field Settings." Set the parameters as shown (on the left) on the "Show values as" tab. This shows the difference in the building area from the previous year-in essence how much the area has changed as each year passes.



	A	В	С	D	E	F	G	PivotTable Field List
1			Drop Pag	e Fields H	ere			
2								Choose fields to add to report:
3	Sum of Bldg Area							
4			CITIB	INFRA	PBG	(blank)	Grand Total	Bldg Primary Use
5	1900							Bldg Area
6	1997	455516		0	0	0		Floor
7	1998	633162	-210923	0	0	1500		Stack
8	1999	-706139	-131472	0	0	-1500		Flr Use
9	2000	-181011	635480	0	0	0		Fir Area
10	2001	2819476	-767547	0	0	610842		
11	2002	-3040215	1345116	0	0	-605842		Occ Cost Center
12	2003		-1280031	0	0	25540		Department
13	2004	-760676	31885	0	0	-30540	-759331	Bank Group
14	2005	520265	6720	0	0	0	526985	<b>▼</b> G/S
15	2006	-511313	10864	0	0	0		Legal Vehicle
16	2007	68311	-71235	0	0	0		Occ Area
17	2008	286990	-55479	0	0	0		
18	2009	-363285	0	0	0	0		Drag fields between areas below:
19	2010	-13400	0	0	0	0		Report Filter Column Labels
20	2011	0	0	0	0	0	-	G/S 🔻
21	2012	42500	0	0	0	0	42500	
22	2013	-42500	135000	0	0	31000	123500	
23	2014	0	-135000	0	0	-31000	-166000	Row Labels <b>Σ</b> Values
24	2018	0	0	0	0	0	0	
25	2048	5612	0	0	0	0	5612	YEAR ▼ Sum of Bldg A ▼
26	Grand Total							
27								
28	► ► Sheet2	Sheet1	Chaot2	MOR-BR				Defer Layout Update Update

100.00%

© 2023 by Paul J. Montenero Clear-Cut Computing Corp.

paulj@clearcutcomputing.com www.clearcutcomputing.com

Page - 13 (516) 845-4081x1

100.00%

2

47

### **PivotCharts**

Go back to our original data and click the bottom half of the PivotTable button on the Insert tab of the ribbon, but this time let's choose PivotChart. A new sheet will be created with the controls and it to build our chart. If we don't want column chart (the default) we can click "Change Chart Type" on the left of the ribbon. Screen below shows what you should have.



Let's drag the same three fields into the chart area: State, Flr Use and Occ Area. If they don't produce the chart that you have below, drag the fields into the right boxes at the bottom of the field list. The numbers for "Branch" may be too big to allow the other numbers to show well enough on our chart. So let's change the value format of the number to compute the averages. When you're done your chart should look like the one on the right.



paulj@clearcutcomputing.com www.clearcutcomputing.com

Page – 14 (516) 845-4081x1

### Some Useful Keyboard Shortcuts

FORMATTING	
Cut	Ctrl+X
Сору	Ctrl+C
Paste	Ctrl+V
Bold text	Ctrl+B
Italic text	Ctrl+I
Underline text	Ctrl+U
Open Format Font Window	Ctrl+Shift+P
Format as currency (with red negatives)	Ctrl+Shift+\$
Format as a percent	Ctrl+Shift+%
INSERTING	
Insert today's date	Ctrl+;
Invoke the SUM function	Alt+=
Insert a Function	Shift+F3
MOVING AROUND	
Move one cell <b>down</b> (unless program options changed)	Enter key
Move one cell <b>up</b>	Shift+Enter
Move one cell to the <b>right</b>	Tab key
Move one cell to the <b>left</b>	Shift+Tab
Go to cell A1 (or to the top left of the worksheet)	Ctrl+Home
Go to the lower right of Overall worksheet size	Ctrl+End
Move to the first column in the current row	Home
Skip over blank or filled cells	Ctrl+ <arrow></arrow>
Move one screen downward	Ctrl+Page Down
Move one screen upward	Ctrl+Page Up
MISCELLANEOUS	
HIDE the current ROW	Ctrl+9
HIDE the current COLUMN	Ctrl+0
SELECT the entire ROW	Shift+Spacebar
SELECT the entire COLUMN	Ctrl+Spacebar
Select the Entire sheet	Ctrl+A
Undo the last action	Ctrl+Z
Redo the last Undo action	Ctrl+Y
Display FORMAT CELLS Window	Ctrl+1
Print Preview	Alt+Ctrl+I or Ctrl+P
Save the Spreadsheet	Ctrl+S
To enter "In-Cell Editing"	F2