Advanced Excel – Vlookup, Hlookup and Pivot Tables -Excel 2010

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General Ledger

VLookup

When you use a lookup function in Excel, you are basically saying, "Here's a value. Go to another location and find the same value. Then show me specific information related to that value."

You work for the Zoology. Zoology uses the generic activity codes in Oracle to analyze certain types of activities. You prepare some data for the department head and you would like to replace the generic Oracle activity names (e.g. Program C) with the department assigned names.

First we will need to open our data files.

1. Click on the Office Button.



2. Select *Computer*, then under *Network Location* select Classroom Share or Hearth Room Share



3. Go to the desktop and locate the folder <u>Data for Excel 2010 class</u>.

	Search Data for Excel 2010 class					
		Newfolder	25 V V7	Search Data for L		
Develoada		New Tolder		-		
Becent Places	Î	Name	Date modified	Туре		
Necent Places	h	Class Exercises	4/15/2013 2:36 PM	File folder		
🚍 Libraries		GL Data	4/16/2013 4:31 PM	File folder		
Documents		📕 Non-Financial Data	7/23/2012 4:19 PM	File folder		

4. Open the <u>GL Data Folder</u>.

Name	Date modified
Activity Codes.xlsx	8/4/2010 7:56 AM
GL Pivot Table Data.xlsx	9/24/2011 7:27 PM
Ulookup_Hlookup.xlsx	3/12/2012 1:45 PM

- 5. Open the file <u>Vlookup_Hlookup.xlsx</u>.
 - a. Be sure you on are the **VLOOKUP** tab.

146	Jul09-10	85127	OTHER TR/	062900	INTERNALL	00
146	Jul09-10	85127	OTHER TR/	062900	INTERNALL	00
146	Jul09-10	85127	OTHEI 🕸 R	062900	INTERNALL	00
146	Jul09-10	85127	OTHER TR/	062900	INTERNALL	00
146	Jul05 10	85127	OTHER TR/	062900	INTERNALL	00
VLOOP		UP / Expension	ses by Catego	ry / 🔁 /		

6. Now open <u>Activity Codes.xlsx</u>.

Name	Date modified
Activity Codes.xlsx	8/4/2010 7:56 AM
📳 GL Pivot Table Data.xlsx	9/24/2011 7:27 PM
📳 Vlookup_Hlookup.xlsx	3/12/2012 1:45 PM

7. The worksheet should look like this.

	A	В	С	D
1	Creation Date	Activity Code (Num)	Oracle Name	Department Name
2	8/1/2005	201	Program A	Ant Races
3	9/2/2006	202	Program B	Lion Leaping
4	10/1/2007	203	Program C	Monkey Business
5	10/1/2007	204	Program D	Going Gorilla
6	7/1/1999	205	Program E	Bee Buzzing
7	2/1/2008	210	Program J	Fossil Tossing
8	2/1/2008	215	Program O	Dippy Doodle
9	5/1/2004	220	Program T	Cat Care

- a. This file contains the actual Department Names associated with the generic Activity Codes from Oracle.
- 8. Go back to the <u>Vlookup_Hlookup.xlsx</u> file.
- 9. If you look at the column titled "Activity Name" you see the generic Oracle names. What we want to do is replace the generic names with the department assigned activity names.

	l. I.	J	K	
lam	Activity Number	Activity Name	nization Nur	0
сті	203	PROGRAM C	391100	Z00
сті	206	PROGRAM F	391100	Z00
сті	209	PROGRAMI	391100	Z00
сті	206	PROGRAM F	391100	Z00
сті	206	PROGRAM F	391100	Z00

- Because this worksheet contains query results extracted from the Data Warehouse, there are two formatting issues that must be resolved before doing a VLookup.
 - a. Be sure you are on the **VLOOKUP** tab in the <u>Vlookup_Hlookup.xlsx</u> file. We will be doing the VLookup in the column titled

	Activity Name	. The formatting of this column must be
	changed to General.	
b.	Highlight the column	Activity Name

c. On the Home tab, in the Number group, click on the down arrow in the field that shows "General".



d. Select "General" from the list of formats. General only shows in the panel because it is the first selection from the list.



b. The Activity number is the link between this query in the <u>Vlookup_Hlookup</u> file and the Activity Codes file. The Activity Number in both files must have the same formatting.

V	lookup_Hlookup I	File	Activity Codes File		
				В	
lam	Activity Number	Ε.	Date	Activity Code (Num)	Oracle
СТІ	203	Р	2005	201	Progra
СТІ	206	Р	2006	202	Progra
СТІ	209	Р	2007	203	Progra

i. The Activity Number in this query is text as indicated by the little diamond on the left top corner of the cell.



ii. The Activity Code in the Activity Codes file is numeric.



iii. In the **VLOOKUP** tab, place the cursor on the first activity code under *Activity Number*.



- iv. Notice the little square that appears to the left of the cell containing a diamond shape with an exclamation point inside.
- v. Highlight the rest of the column by either dragging the cursor down or clicking on the down arrow while pressing Ctrl/Shift.

	l I	J	
Nam	Activity Number	Activity Name	ani
CTI	233	SPECIAL EVENT C	39
CTI	233	SPECIAL EVENT C	39
CTI	233	SPECIAL EVENT C	39
CTI	233	SPECIAL EVENT C	39
CTI	221	PROGRAM U	39
ME	225	PROGRAM Y	39
ME	225	PROGRAM Y	39
CTI	219	PROGRAM S	39
CTI	211	PROGRAM K	39
ME	215	PROGRAM O	39
ME	215	PROGRAM O	39
CTI	221	PROGRAM U	39
СТЮ	221	PROGRAM U	39
ME	225	PROGRAM Y	39
СТЮ	221	PROGRAM U	39

vi. Use the scroll bar on the right to move back up to the top of the column. Click on the little square with the exclamation point

Н	l. I				
	am Activity Number	Activ			
INST	Number Stored as Te				
	Convert to Number	A			
	Help on this error	Al			
INST	Ignore Error	Ā			
	Edit in <u>F</u> ormula Bar	AI			
INST		IA I			
S ala at		vert to Numbe	r	antion from the l	int
Select	the	wert to Numbe	r	option from the l	ist.
Select	theI Activity Number	nvert to Numbe	r	option from the l	ist.
Select	the Cor Activity Number	er A PRC	r	option from the l	ist.
Select	the Con Activity Number 03 06	er A PRC PRC	r	option from the l	ist.
Nam JCTI 2 JCTI 2 JCTI 2	the Corrections Option	er A PRC PRC PRC	r	option from the l	ist.

- viii. The Activity Number is now numeric and the text indicators are gone.
- 11. To begin the VLookup, place the cursor in the first cell under the column heading Activity Name. The cursor is placed here because we are going to replace the generic Activity Name with a specific department assigned name.

	J	К
ar	Activity Name	anization Nu
	PROGRAM C	391100
	PROGRAM F	391100
	PROGRAM I	391100
	DDOCDAM F	201100

c⊕

- 12. Open the Formulas tab on the Ribbon.
- 13. Click on the *Lookup & Reference* Category in the Function Library.



14. A list of available functions will display. Select VLOOKUP.



16. The **Lookup_value** is the value that ties our data file to the <u>Activity Codes</u> file. The **Lookup_value** is the Activity Number because we want to retrieve the activity description for each Activity Number. The Activity Number exists in both the data file and the Activity file. Note: the column headings do not have to match.

GL Data	Activity Codes	
I.	В	
Activity Number	Activity Code (Num)	
203	201	
206	202	
209	203	
206	204	
1206	205	
200	210	
200		

17. While you cursor is in the **Lookup_value** field, click on the first under the column heading *Activity Number*. (Note: the Activity Number should be in the same row).

G	H I	J	к	The coppul	ell location will automatically ate into the Lookup_value field.
on Num Fu	b ⁱ unction Name Activity Numi INSTRUC <mark>TI¢203</mark> Inction Arguments	Activity Name	anization Murganiz	ation Na DLOGY-I	
	LOOKUP Lookup_value Table_array	12	= 203	3 d	The value in the cell location chosen is displayed.
	Col_index_num Range_lookup		🔣 = nu 🔣 = log	mber jical	

18. Click into the **Table_array** field. The table array is the table of information containing the data we want to retrieve into our worksheet.

Function Argum	ents 🛛 🗙				
VLOOKUP					
Lookup_value	I2 1 2 2 03				
Table_array	💽 = number				
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.					

- 19. The definition shown now changes to **Table_array**.
- 20. With your cursor sitting in the **Table_array** field, switch to the <u>Activity Codes</u> worksheet.

A		В		С	D
Creation	Date Acti	ity Code	(Num)	Oracle Name	Department Name
8/	1/2005		201	Program A	Ant Races
9/3	2/2006		202	Program B	Lion Leaping
10/	1/2007		203	Program C	Monkey Business
10	10 Function Argume		s		
	Lookup_	alue I2			1 = 203
	Table_	rray			🔣 = number
	Col_index	num			💽 = number
	Range_	okup			🔣 = logical
Looks for a value in the leftmost column of a table, and then returns a value in the sam 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 retriev Table_array can be a reference to a range or a range name.				en returns a value in the same row iorted in an ascending order. values, in which data is retrieved. ange or a range name.	
	Formula resu Help on this f	: = Inction			OK Cancel

- 21. The Function Arguments window remains.
- 22. The column with the Activity Code Number **must be the first column** in the array. The Activity Code is in column B in this worksheet.
- 23. Click on the column designator (B). The cursor becomes a black down arrow.



24. The department names for the activity codes are in column D. Drag the arrow to column D.

В	С	↓ D
Activity Code (Num)	Oracle Name	Department Name
201	Program A	Ant Races
202	Program B	Lion Leaping
203	Program C	Monkey Business

25. A dotted line appears around the selected data.

🗕 🗸 🗸 🖍 =VLOG	DKUP(I2,'[Activity code:	s Excel 2007.xls	sx]Sheet1'!\$B:\$D)		
В	С	D	E	F	G
Activity Code (Num) Oracle N	lame Department	Name			
5 201 Program	A Ant Races				
3 202 Program	B Lion Leaning	٦			
7 203 Program	C N Function	Arguments			
7 204 Program	D C				
) 205 Program	E E VLOOKUP				
3 210 Program	J F La	okup_value	2	(16) =	203
3 215 Program	Ο [.	Table array	007 vlavi Shaat 1'i éBréD	- 13	<i>r</i> 1
1 220 Program	т с	Table_array 2	007.XISXJSHEELI (\$6:\$0	-	2005

26. Excel places the name of the file, worksheet, and the columns selected into the Table_array field. The symbol next to the field indicates a list of values.

27. Count the number of columns from the column with the activity code numbers to the data you desire. Activity code is Column 1 in our array and Department Name is Column 3.

А	E	3	С		D		
Creation Date	Activity Co	de (Num)	Oracle Nan	ne	Department Nan	ne	
8/1/2005		201	Program A		Ant Races		
9/2/2006		202	Program B		Lion Leaping		
10/1/2007		203	Program C		Monkey Busines	s	
10/1/2007		204	Program D		Going Gorilla		
7/1/1999		205	Program E		Bee Buzzing	-3	
2/1/2008		210	Program J	_	Fossil Tossing		
2/1/2008		215	Program O	<u> </u>	Dippy Doodle		
5/1/2004	1	220	Program T		Cat Care		
2/1/2008	1	221	Program U		Cage Cleaning		
2/1/2008		225	Program Y		Banana Peeling		
2/1/2008		226	Program Z		Peanut Collectin	g	
2/2/2008		233	Special Eve	ent C	Bring your pet to	work	
2/3/2008		261	Student Act	ivities A	Carnival Petting	Zoo	
							1

- 28. Click into the Col_index_num field. Excel returns to the Vlookup worksheet.
- 29. Enter a 3 in the Col_index_num field. At this point you will know if your VLookup will be successful.

Function Arguments	2
VLOOKUP	
Lookup_value	12 💽 = 203
Table_array	2007.xlsx]Sheet1'!\$B:\$D 💽 = {}
Col_index_num	3 😿 = 3
Range_lookup	🐹 = logical
Looks for a value in the left specify. By default, the tab Col	nost column of a table, and then returns a value in the same row from a column you le must be sorted in an ascending order. 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.
Formula result = Monkey E	

- 30. Excel will preview the result for you.
- 31. Click into the Range_lookup field. The choices of entry are True (1), False (0) or omitted.
 - True (1) or Omitted if lookup value is not found in the table array, it uses the next largest value that is less than or equal to the lookup value.
 - False (0) Looks for an exact match to the lookup value. If not found, the #N/A is returned.
- 32. We want an exact match so enter the word false or the number 0 (zero).

Function Argum	ents	
VLOOKUP		
Lookup_value	I2	1 = 203
Table_array	Excel 2003.xls]Sheet1'!\$B:\$D	1 = {}
Col_index_num	3	1 = 3
Range_lookup	0	E FALSE
Looks for a value in from a column you s Range_lookup	the leftmost column of a table, and then pecify. By default, the table must be sor is a logical value: to find the closest mate ascending order) = TRUE or omitted; find	 "Monkey Business" returns a value in the same row ted in an ascending order. th in the first column (sorted in d an exact match = FALSE.
Formula result =	Monkey Business	
Help on this function	1	OK Cancel

33. Click on the \bigcirc button.

1		J	K
	Activity Number	Activity Name	Organization Number
	203	Monkey Business	391100
	206	PROGRAM F	391100
	209	PROGRAM I	391100

34. The generic activity name has been replaced. Look at the formula bar to see the calculation created using the arguments entered.

=VLOOKUP(I2,'[Activity codes Excel 2007.xlsx]Sheet1'!\$B:\$D,3,0)

35. The next step is to copy the formula down the column for all rows.

- I	J	K
Activity Number	Activity Name	Organization Number
203	Monkey Business	391100
206	#N/A	391100
209	#N/A	391100
206	#N/A	391100

- 36. What do you suppose #N/A means? That is an indication that Excel was unable to find a match in the Activity Codes file. In the screenshot above, we have an N/A for both activity 206 and 209. Two reasons could explain why this happened.
 - a. Someone used the wrong activity code.

b. The activity code was not added to the activity codes file.

37. Switch to the <u>Activity Codes</u> file.

A	B	C	D
Creation Date	Activity Code (Num)	Oracle Name	Department Name
8/1/2005	201	Program A	Ant Races
9/2/2006	202	Program B	Lion Leaping
10/1/2007	203	Program C	Monkey Business
10/1/2007	204	Program D	Going Gorilla
7/1/1999	205	Program E	Bee Buzzing
2/1/2008	210	Program J	Fossil Tossing
2/1/2008	215	Program O	Dippy Doodle
5/1/2004	220	Program T	Cat Care
2/1/2008	221	Program U	Cage Cleaning
2/1/2008	225	Program Y	Banana Peeling
2/1/2008	226	Program Z	Peanut Collecting

- 38. As you can see from the <u>Activity Codes</u> file, activity code 206 is missing. Let's add it. Since our VLookup searches for an exact match we can add the new activity code to the bottom of the list in the Activity Codes files.
- 39. Add the following to the Activity Codes list
 - c. Creation Date **Today's date**
 - d. Activity Code 206
 - e. Oracle Name Program F
 - f. Department Name Lion Taming

A	В	С	D
Creation Date	Activity Code (Num)	Oracle Name	Department Name
8/1/2005	201	Program A	Ant Races
9/2/2006	202	Program B	Lion Leaping
10/1/2007	203	Program C	Monkey Business
10/1/2007	204	Program D	Going Gorilla
7/1/1999	205	Program E	Bee Buzzing
2/1/2008	210	Program J	Fossil Tossing
2/1/2008	215	Program O	Dippy Doodle
5/1/2004	220	Program T	Cat Care
2/1/2008	221	Program U	Cage Cleaning
2/1/2008	225	Program Y	Banana Peeling
2/1/2008	226	Program Z	Peanut Collecting
2/2/2008	233	Special Event C	Bring your pet to work
2/3/2008	261	Student Activities A	Carnival Petting Zoo
3/17/2010	206	Program F	Lion Taming

40. Go back to the **VLOOKUP** worksheet.

	J	К	
ber	Activity Name	anization Nur	Orga
	Monkey Business	391100	ZOOLO
	Lion Taming	391100	ZOOLO
	#N/A	391100	ZOOLO
	Lion Taming	391100	ZOOLO
	Lion Taming	391100	ZOOLO
	Lion Taming	391100	ZOOLO
	Lion Taming	391100	ZOOLO

- 41. The VLookup Function is a formula so it will automatically update when you make changes.
- 42. Go ahead and close the Activity codes file. Don't save.

HLookup

HLookup provides the same function as VLookup, that is, it allows you to merge data from one file into another file as we did in the VLookup, or from one worksheet to another as we will do in this example. With HLookup we will be doing a horizontal lookup (in a row) whereas with VLookup we did a vertical lookup (in a column).

	Open the	Expenses b	y Category 🖉	tab.		Object Co Va	ode Parent lues
	Organization	A8400	A8580	A8600	A8700	A8910	Total
	391100	788,341.81	91,253.73	46,635.80	61,000.	.80 141,587.3	7 1,128,819.51
Organization	391101	62,969.89	59,758.50	16,304.01	407.	.40 18,077.6	3 157,517.43
Numbers	391102	39,525.43	3,510.05	7,936.98	-	101,631.7	0 152,604.16
	Grand Total	890,837.13	154,522.28	70,876.79	61,408.	.20 261,296.7	0 1,438,941.10

We are still working with our <u>Vlookup_Hlookup</u>.xlsx file.

This worksheet contains summary data by organization across Object Code rollups. If you are familiar with object codes you should recognize the values in the column headings are Parent values because they begin with a letter.

Now open the tab

This tab contains part of a report and we've been asked to provide the amounts. This example is quite simplistic but hopefully you will understand HLookup when complete.

		391100	391101	391102	
OC Rollup	Expense Category	Zoology	Anthropology	Paleontology	Total
A8400	Supplies & Services				-
A8580	Other Operating Expenses				-
A8600	Occupancy and Utilities				-
A8700	Capital Expenditures				-
A8910	Facilities & Administration				-
		-	-	-	-

In this worksheet the Organizations are in the columns and the Object Code Parent values are in the rows. Calculations have been inserted for the totals. We are going to use HLookup to complete this worksheet.

1. Be sure you are still on the **HLOOKUP** tab. Place your cursor on the first cell under the column heading for Zoology.

		391100	39
OC Rollup	Expense Category	Zoology	Anthr
A8400	Supplies & Services		
A8580	Other Operating Expenses		

- 2. Open the **Formulas** tab on the Excel ribbon.
- 3. Click on the *Lookup & Reference* category in the **Function Library.**



4. Select **HLOOKUP** from the list of functions.

		θ	
Loo Refe	kup & N rence * &	⁄lath Trig ≁ I	More Functior
	ADDRES	s	
_	AREAS		
	сноозе		
	COLUMI	I I	
3	COLUMI	15	
	GETPIVO	TDATA	E E
	HLOOKL	IP	
_	HYPERLI	NK	-
-	INDEX		
-	INDIREC	т	
	LOOKUP		
	MATCH		
-	OFFSET		-
-	ROW		
-	ROWS		
	RTD		
_	TRANSPO	DSE	
_	VLOOKU	IP	-
f.	Insert <u>F</u> u	unction	

5. The Function Arguments window opens.

OC Rol	lup	Expense Category		39110 Zoology	00 391101 Anthropology	391102 Paleontology	Total
A8400		Supplies & Services	(=HLOOKUP()			-
A8580 A8600 A8700	Fun	ction Arguments					? 🛛
A8910		Lookup_value			🌆 = ang	7	
		Table_array			🔝 = nu	mber	
		Row_index_num			🎼 = nu	mber	
		Range_lookup			💽 = log	ical	
	Look you :	s for a value in the top ro specify. Look	w of a tab up_valu	e is the value to b reference, or a	= as and returns the vo the found in the first r text string.	alue in the same colun ow of the table and c	nn from a row an be a value, a
	Form	nula result =					
	<u>Help</u>	on this function				ОК	Cancel

- 6. Look familiar? The Function Arguments is the same except the field Col_index_num is **Row_index_num** for HLookup. Look at the beginning of the formula displayed in the cell. It begins with HLookup.
- 7. With the cursor in the Lookup_value field, click on the parent value A8400.

				391100	391101	391102	
OC Rol	lup Exp	ense Category		Zoology	Anthropology	Paleontology	Total
A8400	Sup	plies & Services		=HLOOKUP(A4)			-
A8, 80	Functio	n Arguments					? 🗙
A8000	HLOOKU	P					
A8910		Lookup_value	A4		📧 = "A8	400"	
		Table_array			🔝 = nu	mber	

Note: The Lookup value should be in the same row as the calculation.

- 1. The cell address has been placed in the Look_up field and to the right the actual value is displayed. Also notice that the cell address has been inserted into the formula.
- 8. Click into the **Table_array** field.
- 9. With the cursor still in the Table_array field, open the tab
 Expenses by Category

Or	ganization	A8400	A8580	A8600	A8700	A8910	Total		
	391100	788,341.81	91,253.73	46,635.80	61,000.80	141,587.37	1,128,819.5		
	391101	62,969.89	59,758.50	16,304.01	407.40	18,077.63	157,517.43		
	391102	39,525.43	3,510.05	7,936.98	-	101,631.70	152,604.10		
Gr	and Total	890,837.13	154,522.28	70,876.79	61,408.20	261,296.70	1,438,941.10		
	Function .	Arguments					? 🛛		
	HLOOKUP-								
	1	.ookup_value	A4		🔨 = "A8400	r"			
		Table_array	Expenses by Cate	gory'! (•				
	Roy	w_index_num		(🔨 = numb	er			
-		Range_lookup		(🔨 = logica	I			
	= Looks for a value in the top row of a table or array of values and returns the value in the same column from a row you specify. Table_array is a table of text, numbers, or logical values in which data is looked up. Table_array can be a reference to a range or a range name.								
-	Formula result =								
	Help on this	function				ОК	Cancel		

- 1. The Function Arguments window should still be visible. Excel places the name of the tab 'Expenses by Category' in the field.
- 10. So with VLookup we highlight our Table_array by columns. In HLookup, we are going to do it by rows. Remember the look_up value must be in both worksheets/files and for HLookup, it must be the first row in the array. In this example, the Lookup_value happens to be in the first row of the worksheet.
- 11. Click on the row 1 designator at the left.

/		А	В	С	D	E	F	G
(4	Organization	A8400	A8580	A8600	A8700	A8910	Total
	2	391100	788,341.81	91,253.73	46,635.80	61,000.80	141,587.37	1,128,819.5
	3	391101	62,969.89	59,758.50	16,304.01	407.40	18,077.63	157,517.4
	4	391102	39,525.43	3,510.05	7,936.98	-	101,631.70	152,604.1
	5	Grand Total	890,837.13	154,522.28	70,876.79	61,408.20	261,296.70	1,438,941.1
	6							
	7	Function	Arguments					
	8	HLOOKUP						
	9		Lookup_value	A4	ĺ	🛐 = "A8400		
	10		Table_array	Expenses by Cate	gory'!1:1	🔨 = {"Orgai	nization Number",'	"A8400","A858(
	A 4							

- 1. When you hover over the row one designator, the cursor becomes a very small black arrow and dotted lines appear around the first row.
- 2. When you see the arrow, press on your mouse and drag it down to row 4.

	Loa	kup_value A4			= "A8400"		
	Function /	Arguments					? 🛛
Gra	nd Total	890,837.13	154,522.28	70,876.79	61,408.20	261,296.70	1,438,94
	391102	39,525.43	3,510.05	7,936.98	-	101,631.70	152,6
	391101	62,969.89	59,758.50	16,304.01	407.40	18,077.63	157,5
ł	391100	788,341.81	91,253.73	46,635.80	61,000.80	141,587.37	1,128,8
Org	anization	A8400	A8580	A8600	A8700	A8910	Total

- 3. Dotted lines will appear around the rows and Excel places the designation of 1:4 into the field which means rows 1 through 4.
- 12. Before we click into the **Row_index_num** field, let's determine what number should be there.
- 13. The first column in our report is for organization 391100.

			\frown			
		-(391100		391101	391102
OC Rollup	Expense Category	Zo	ology	h	thropology	Paleontology
A8400	Supplies & Services					
A8580	Other Operating Expenses					
A8600	Occupancy and Utilities					
A8700	Capital Expenditures					
A8910	Facilities & Administration					

14. In our Expenses by Category it is on the second row. Remember the first row is the row that has the Lookup_value in the table array.

			Lo	Lookup values				
Org	1	Organization	A8400	A8580	A8600			
	2	391100	788,341.81	91,253.73	46,635.80			
	3	391101	62,969.89	59,758.50	16,304.01			
	4	391102	39,525.43	3,510.05	7,936.98			

- 1. In this example, row two of the array is also row 2 of the worksheet.
- 15. Click into the **Row_index_num** field. Excel returns us to the HLookup worksheet.

			391100	391:	101	391102	
DC Roll	up Expense Catego	y	Zoology	Anthro	pology	Paleontology	Total
48400	Supplies & Servi	ces	tegory'!1:4)				
\8580 \8600	Function Arguments			-			?
8700	HLOOKUP						
\8910	Lookup_value	A4		=	"A8400	۳	
	Table_array	'Expenses by	Category'!1:4	=	{"Orga	nization Number","A8	400","A858(
_	Row_index_num	Row_index_num					
_	Range_lookup			=	logica		
	= Looks for a value in the top row of a table or array of values and returns the value in the same column from a row you specify. Row_index_num is the row number in table_array from which the matching value should be returned. The first row of values in the table is row 1.						
	Formula result =						
	Help on this function					ОК	Cancel

16. Type the number 2 into the **Row_index_num**.

			391100	391101	391102	
OC Rol	Ilup Expense Category		Zoology	Anthropology	Paleontology	Total
48400	Supplies & Servi	ces	gory'!1:4,2)			
48580 48600	Function Arguments					
A8700	HLOOKUP					
A8910	Lookup_value	A4		💽 = "A8400)"	
	Table_array	'Expenses by	Category'!1:4	💽 = {"Orga	nization Number","A	8400","A858(
_	Row_index_num	2		i i = 2		
_	Range_lookup			📧 = logica		
	Looks for a value in the top row of a table or array of values and returns the value in the same column from a row you specify. Row_index_num is the row number in table_array from which the matching value should be returned. The first row of values in the table is row 1.					
	Formula result =				_(788,341.81
	Help on this function				ОК	Concol

- 17. At this point, we can see that our HLookup will produce result as Excel display a preview of the Formula result.
- 18. Click into the **Range_lookup** field. This field works exactly the same way as it does in VLookup. We want an exact match so enter a zero into the field.

Function Arguments			? 🛛		
HLOOKUP					
Lookup_value	A4 💽	=	"A8400"		
Table_array	'Expenses by Category'!1:4	=	{"Organization Number","A8400","A858(
Row_index_num	2 💽	=	2		
Range_lookup	0 💽	=	FALSE		
= 788341.81 Looks for a value in the top row of a table or array of values and returns the value in the same column from a row you specify. Range_lookup is a logical value: to find the closest match in the top row (sorted in ascending order) = TRUE or omitted; find an exact match = FALSE.					
Formula result =			788,341.81		
Help on this function			OK Cancel		

19. Click on the **button**.

		391100	391101	391102	
OC Rollup	Expense Category	Zoology	Anthropology	Paleontology	Total
A8400	Supplies & Services	788,341.81			788,341.81
A8580	Other Operating Expenses		T		-
A8600	Occupancy and Utilities				-
A8700	Capital Expenditures				-
A8910	Facilities & Administration				-
	Grand Total	788,341.81	-	-	788,341.81

- 1. The amount is brought into the field and reflected in the total calculations.
- 20. What happens if we copy this formula to the next field?

		391100	391101	391102	
OC Rollup	Expense Category	Zoology	Anthropology	Paleontology	Total
A8400	Supplies & Services	788,341.81	#N/A		#N/A
A8580	Other Operating Expenses				-
10000	A				

- 21. So that doesn't work. I guess we could create the formula in every cell that could be cumbersome and time consuming if we were working with a lot of data. Instead let's go back and adjust our formula.
- 22. Be sure you cursor in the cell that contains the HLookup formula.

C4	+HLOOKUP(A4, 'Expenses by Category'!1:4,2,0)				
А	В	С	D	E	F
		391100	391101	391102	
OC Rollup	Expense Category	Zoology	Anthropology	Paleontology	Total
A8400	Supplies & Services	788,341.81	#N/A		#N/A
A8580	Other Operating Expenses				-
A8600	Occupancy and Utilities				-

23. Click on the f preceding the formula on the formula bar. This will open the Function Arguments window with entries still in it. We are going to modify the entries somewhat using the function key **F4** on your keyboard.

Function Arguments	
HLOOKUP	
Lookup_value	A4 (14) = "A8400"
Table_array	'Expenses by Category'!1:4 💽 = {"Organization Number","A8400","A8
Row_index_num	2 💽 = 2
Range_lookup	0 FALSE
Looks for a value in the top ro you specify. Look	 788341.81 w of a table or array of values and returns the value in the same column from a row cup_value is the value to be found in the first row of the table and can be a value, a reference, or a text string.
Formula result = Help on this function	788,341.81

1. Let's start with the **Lookup_value**. In the field we have A4. Aren't all the lookup values in column A?

A	В
OC Rollup	Expense Category
A8400	Supplies & Services
A8580	Other Operating Expenses
A8600	Occupancy and Utilities
A8700	Capital Expenditures
A8910	Facilities & Administration
	Grand Total

2. As we copy the formula across the columns, we want Excel to always look in Column A for the value, but as we copy the formula down we want Excel to increment the row. Therefore we want to make the column absolute or as I like to say 'anchor' the column. Click into the **Lookup_value** field.

Lookup_value	A4	1	=	"A8400"
• –				

i. Press the F4 function key on your keyboard.

Lookup_value	\$A\$4	=
	****	()

- ii. A dollar sign appears in front of the column and the row. The dollar sign changes the designation to an absolute address, that is, it won't change when it is copied to other cells. Having both dollar signs means that one cell is absolute so no matter where you copy the formula, Excel will look only in A4 for the value. This is not what we want.
- iii. Press F4 a second time.

Lookup_value	A\$4	

- iv. Now the \$ sign only precedes the row. That means the row is absolute. That is still not what we want.
- v. Press **F4** a third time.

Lookup_value	\$A4		=	"A8400"
		_		

- vi. Now the \$ sign is only in front of the column which indicates the column is absolute but the rows are relative which means they will increment as the formula is copied down the column.
- 3. So to recap, the function key **F4** is used to change a relative cell address to an absolute cell address as follows:
 - i. Press F4 once both column and row are absolute.
 - ii. Press F4 twice column is relative and row is absolute.
 - iii. Press F4 three times column is absolute and row is relative.
- 4. Click into the **Table_array.** Press **F4** once.

Lookup_value	\$A4		=
Table_array	'Expenses by Category' \$1:\$4	+ 📧	=

- i. All rows are absolute which is what we want because all the data is in those 4 rows.
- 5. Click into the **Row_index_num** field.

- i. Now this is something we cannot make absolute. If we copy the formula the row index will remain the same. Let's have Excel help us out there.
- ii. Click on the **OK** button to close the *Function Arguments* window with our changes.
- 24. Go to the Expense by Category tab.

1	Organization	A8400
2	391100	788,341.81
3	391101	62,969.89
4	391102	39,525.43
5	Grand Total	890,837.13

- 6. Organization 391100 is on row 2; 391101 is on row 3; and 391102 is on row 4.
- 25. Let's go back to our Hlookup.
 - 1. The first row in this worksheet is blank.
 - 2. Organization 391100 is on row 2 in the array table so type a 2 in the blank cell above org 391100. Type 3 and 4 above the other orgs as shown.

		2	3	4	
		371100	371101	371102	
OC Rollup	Expense Category	Zoology	Anthropology	Paleontology	Total
A8400	Supplies & Services	788,341.81	#N/A		#N/A
A8580	Other Operating Expenses				-
A8600	Occupancy and Utilities				-
A8700	Capital Expenditures				-
A8910	Facilities & Administration				-
	Grand Total	788,341.81	#N/A	-	#N/A

- 26. Place your cursor again on the first cell under Zoology where the Lookup formula currently resides.
- 27. Click on the f_{k} again to open the formula once more.

Function Arguments			? 🔀
HLOOKUP			
Lookup_value	\$A4 💽	=	"A8400"
Table_array	'Expenses by Category'!\$1:\$4 🛛 📧	=	{"Organization Number","A8400","A8
Row_index_num	2	=	2
Range_lookup	0 📧	=	FALSE
Looks for a value in the top ro you specify. Look	w of a table or array of values and retur up_value is the value to be found in t reference, or a text string.	= nstl	788341.81 he value in the same column from a row irst row of the table and can be a value, a
Formula result =	788,341.81		
Help on this function			OK Cancel

- 28. Delete the number 2 in the **Row_index_num** field.
- 29. With the cursor still in the **Row_index_num** field, click on the number 2 in the field above organization 371100.

		A	В		С	D	E	F
1						3	4	
2					391100	391101	391102	
3	OC R	ollup	Expense Category	,	Zoology	Anthropology	Paleontology	Total
4	A840	0	Supplies & Servio	es	!\$1:\$4,C1,0)	#N/A		#N/A
5	A858	Func	tion Arguments					2
6	A860	1 dillo	tion in Ballion to					
7	A870	HLOO	OKUP					
8	A891		Lookup_value	\$A4		[🔣 = "A84I	00"	
9			Table_array	'Expenses b	y Category'!\$1:\$4	[🔣 = {"Org	janization Number","/	A8400","A8
10			Row_index_num	C1		1 = 2		
11			Range lookup	0		FALS	E	
12							-	
13		Looks	for a value in the top ro	w of a table	or array of values an	d returns the value	341.8099999999} .e in the came colum	n from a row
14		you sp	ecify.			a recarris che vali	de in the same column	innoin a row
15			Row in	idex num	is the row number in	table, array from	which the matching	value should be
16					returned. The first r	ow of values in th	e table is row 1.	
17								
18		Formu	la recult -					700 241 01
19		ronnu	Formula result = 788,341.81					/00,341.01
20		Help on this function OK Cancel					Cancel	
21								

- 30. The location of the cell is placed into the field.
- 31. Let's think about this. As we copy the formula across we want Excel to select the cell above the organization to get the correct row in the array table. As copy the formula down, we want Excel to always look in the Excel row one. That means we want the row to be absolute and the column to be relative.
- 32. Press the function **F4** on your keyboard twice.

			2	3	4	
		3911	LOO 39	1101	391102	
OC Rollup	Rollup Expense Category		Anthr	opology	Paleontology	Total
A8400	Supplies & Service	es \$1:\$4,C\$1,0)	#	N/A		#N/A
A858 A860 Function Arguments						? 🛛
A870 HLOO	OKUP					
A891	Lookup_value	\$A4	1	= "A840	00"	
	Table_array	'Expenses by Category'!\$1:\$:4 📧	= {"Org	anization Number","	A8400","A8

33. Now click on the **OK** button to close the *Function Arguments* window with our additional change.

C4	▼ (LOOKUP(\$A4,'Ex	penses by Cat	egor <mark>,'</mark> !\$1:\$4,C\$1	,0)
А	В	С	D		F
		2	3	4	
		391100	391101	391102	
OC Rollup	Expense Category	Zoology	Anthropology	Paleontology	Total
A8400	Supplies & Services	788,341.81	#N/A		#N/A
A8580	Other Operating Expenses				-
A8600	Occupancy and Utilities				-
A8700	Capital Expenditures				-
A8910	Facilities & Administration				-
	Grand Total	788,341.81	#N/A	-	#N/A

- 34. The formula now reflects the changes we made.
- 35. The last task is to copy the formula to all the applicable cells. Be sure not to overwrite the total calculation.

Α	В	С	D	E	F
		2	3	4	
		391100	391101	391102	
OC Rollup	Expense Category	Zoology	Anthropology	Paleontology	Total
A8400	Supplies & Services	788,341.81	62,969.89	39,525.43	890,837.13
A8580	Other Operating Expenses	91,253.73	59,758.50	3,510.05	154,522.28
A8600	Occupancy and Utilities	46,635.80	16,304.01	7,936.98	70,876.79
A8700	Capital Expenditures	61,000.80	407.40	-	61,408.20
A8910	Facilities & Administration	141,587.37	18,077.63	101,631.70	261,296.70
	Grand Total	1,128,819.51	157,517.43	152,604.16	1,438,941.10

36. The grand total on this worksheet should match the grand total on the *Expenses by Category* tab.

А	В	С	D	E	F	G
Organization	A8400	A8580	A8600	A8700	A8910	Total
391100	788,341.81	91,253.73	46,635.80	61,000.80	141,587.37	1,128,819.51
391101	62,969.89	59,758.50	16,304.01	407.40	18,077.63	157,517.43
391102	39,525.43	3,510.05	7,936.98	-	101,631.70	152,604.10
Grand Total	890,837.13	154,522.28	70,876.79	61,408.20	261,296.70	1,438,941.10

37. Close the file Vlookup_Hlookup.xlsx.

Pivot Table

A Pivot Table enables you to summarize large amounts of data in a matter of minutes. You can transform endless rows and columns of numbers into a meaningful presentation of the data.

Let's assume you work for the Zoology department at Carnegie Mellon. The Zoology department consists of 3 organizations: Zoology, Anthropology and Paleontology. The department head has asked you to analyze how the department's money was spent on operating expenses for Fiscal Year 2011.

Starting with a blank Pivot Table

1. Open the file <u>GL Pivot Table Data.xlsx</u>. The worksheet has a query containing FY11 expenses from the Financial Data Warehouse.

	А	В	С	D	E	
1	^p eriod Number	Period Name	ect Code Num	Object Code Name	ding Source Nur	Funding.
2	159	Jul10-11	84104	COMPUTING SUPPLIES	062900	INTERNALLY FUNDED PF
3	159	Jul10-11	84106	OFFICE SUPPLIES	000001	GENERAL UNRESTRICTE
4	159	Jul10-11	84108	PAPER SUPPLIES	000001	GENERAL UNRESTRICTE
5	159	Jul10-11	84108	PAPER SUPPLIES	000001	GENERAL UNRESTRICTE
6	159	Jul10-11	84108	PAPER SUPPLIES	000001	GENERAL UNRESTRICTE
7	159	Jul10-11	84108	PAPER SUPPLIES	000001	GENERAL UNRESTRICTE
8	159	Jul10-11	84110	CLEANING/CUSTODIAL SUPPLIES	000001	GENERAL UNRESTRICTE

- 2. Place you cursor on any cell in the data.
 - a. Important: Ensure your data is in a tabular layout and there are no blank rows or columns. Also, every column must have a unique heading that is one row high.
- 3. Go to the ribbon and open the Insert tab.

Home Insert	
PivotTable Table Pictur	The Tables grouping includes PivotTable.
Tables	
a. Click on the	e down arrow to get a list of options.
PivotTable I	
Pivot_Chart	
b. Select Pivot l'able. –	JK-

- c. Click directly on the PivotTable icon to bypass the list of options.
- 4. The Create PivotTable window opens.



- a. Excel populates the Table/Range automatically.
- b. The default is New Worksheet under where to place the PivotTable
- 5. Accept the defaults by clicking on the OK button.
- 6. Excel inserts a new worksheet and places in it the tools you need to create your customized pivot table.

1 ProtTable Field List 2 ProtTable Field List 4 Choose fields to add to report: 5 PrivotTable1 6 To build a report, choose 7 fields from the PrivotTable 0 Object Code Number 0 Object Code Name	
2 PivotTable Field List 3 Choose fields to add to report: 4 PivotTable1 6 To build a report, choose 7 fields from the PivotTable 0 Object Code Number 0 Object Code Number	
3 Choose fields to add to report: 4 PrivotTable1 5 Do build a report, choose 7 fields from the PrivotTable 0 Object Code Number 0 Object Code Nume	
Field List Funding Source Number Funding Source Number Funding Source Number Function Number	
12 □Activity Number 14 □Activity Number 15 □Activity Number 16 □Pray fields between areas below: 17 □Pray fields between areas below: 18 □Pray fields between areas below: 17 □Pray fields between areas below: 18 □Pray fields between areas below: 17 □Pray fields between areas below: 18 □Pray fields between areas below: 19 □Pray fields between areas below: 10 □Pray fields between areas below: 17 □Pray fields between areas below: 18 □Pray fields between areas below: 19 □Pray fields between areas below: 10 □Pray fields between areas below:<	
13 Defer Layout Update	Update

7. Now look at the ribbon on top and to the right.

	PivotTable To	ools	
-Ins	Options	Design	

- a. Two new tabs have appeared under PivotTable Tools; Options and Design. These tabs contain functions specific to Pivot Tables. The tabs are only visible when you are in the Pivot Table.
- 8. Let's rename the worksheet tab for our Pivot Table.
 - a. Right click on the sheet name.

Sheet2 Sheet1 🖉	2
-----------------	---

b. Select *Rename* from the list of options that appear.



- c. The sheet name will become highlighted.
- d. Type the label Pivot Table into the tab.



- e. Click anywhere in the worksheet to exit the tab.
- 9. During this class we will be working on the PivotTable Field List but also in the Pivot Table itself.

Pivot Table Field List

- 10. Let's take a closer look at the PivotTable Field List.
 - a. The top window contains all the column headings from the query. To choose a field for the PivotTable, you click into the box next to the field name.



b. The four smaller panes represent locations on the PivotTable.

Drag fields between areas below: V Report Filter	Column Labels
Row Labels	Σ Values

c. The button at the top right gives you an option to change the configuration of the PivotTable field list.

- 11	
	Fields Section and Areas Section Stacked
	Fields Section and Areas Section Side-By-Side
	Fields Section Only
	Areas Section Only (2 by 2)
	Areas Section Only (1 by 4)

i. The default is the Fields and Areas sections stacked.



ii. Fields and Areas Sections Side-by-Side.



iii. Fields section only.



iv. Area Section only (2 by 2).

PivotTable Field List Drag fields between areas below:		▼ ×
Report Filter	Column Labels	
142		
Row Labels	Σ Values	
Defer Layout Update		Update

v. Area Section only (1 by 4).

PivotTable Field List	▼ ×
Drag fields between areas below: Y Report Filter	•
Row Labels	
k, −	
Column Labels	
Σ Values	
Defer Layout Update	Update

d. For class today, we will use the Fields and Areas Sections Side-by-Side, so we can see more of the field names.



Creating a Simple Pivot Table

- Let's start with a simple pivot table. Let's summarize total expenses by Object Code Number. Click on the box next to the Object Code Number.
 Object Code Number
- 2. Selecting the Object Code Number caused the following to occur:
 - a. The field name became bold as shown above.
 - b. The field moved into the window pane named Row Labels.



a. A distinct list of object code numbers was placed in our PivotTable.

	Row Labels 💌
	84104
	84106
	84108
	84110
	84112
	84202
)	84302
L	84402
2	84404
3	84406
ŧ.	84408
5	84504
5	84506
7	84602
3	84604
9	84606
)	84612

- 2. Row Labels, Column Labels and the Report Filter typically are used for descriptive data.
- 3. To remove a field from the Pivot Table, I simply uncheck the box next to the field. Let's check the box once again next to Object Code Number.

4. Let's add some numeric data. Scroll down the list of field names and select Functional Net Activity.

Row Labels 💌	Sum of Functional Net Acti	vity								
84104	46719.63		Pivot	Table Field	List					• × ×
84106	7530.57		char							
84108	6656.32		Choo	ose neids to ad	id to report:		١.		-1.	
84110	119.52		F	unding Source	Number	<u>^</u>		Y Report F	iter	
84112	4982.93			unding Source	Name					
84202	1252.37			unction Numb	er					
84302	18648.6			ctivity Numbe						
84402	2853.82			ctivity Name				Column L	abels.	
84404	818.25			, Organization N	umber					
84406	142.33)rganization N	ame					
84408	504.91		E	intity Number						
84504	2		E	intity Name		•	ł	Row Lab	els	
84506	117.34		E	ffective Date		=		Object Code	Number	-
84602	8.48			E Line Descrip	tion					
84604	9643.07			ournal Source	Name					
84606	450			P Invoice Nun E Ratch Namo	iber		2	Σ Values		
84612	14.34			atch Category	,			Sum of Fund	tional Net A	cti 🔻
84614	336			et of Books N	ame					
84702	314.95		П	ransaction Cu	rrency					
84804	-200		F	unctional Debi	it Amount	~		Defer Lay	o U	pdate
01006	21.26									

- a. Functional Net Activity dropped to the values pane. This is numeric data which can be used in calculations such as summing. Summing is the Excel default because it is the most widely used.
- 3. Let's format the dollar amounts so they are easier to read.
 - a. Place the cursor on any dollar amount.

Row Labels 💌	Sum of Functional Net Activ
84104	46719.63
84106	7530.57
84108	6656.32
84110	119.52
84112	4982.93
84202	1252.37
84302	18648.6
84402	2853.82

b. Right click on your mouse. Select Number Format.

7530.57 6656.32	Choose fields to add to report:
11 498	$ri v 11 v A^{*} A^{*} v \% v $
125	
18648.6	
285	<u>C</u> opy
81 🚰	Format Cells
14	Number Forma <u>t</u>
50 🛃	<u>R</u> efresh
11	Sort >
- X	Remove "Sum of Functional Net Activity"
964	Summarize Data By
• <u>=</u>	Show D <u>e</u> tails
1 🧕	Value Field Settings
	PivotTable Options
31	Hide Fiel <u>d</u> List

c. The Format Cells window opens. Select the Number Category.

General Number Currency Accounting Date Time	Sample 3,152.22 Decimal places: 2 Ulse 1000 Separator (,)	
Percentage Fraction Scientific Text Special Custom	Negative numbers: -1,234.10 (1,234.10 (1,234.10)	
lumber is used for <u>o</u> pecialized formattin	eneral display of numbers. Currency and Accounting of monetary value.	offer

- d. Format numbers as shown above. Click on the $\bigcirc K \bigcirc$ button.
- e. All amounts will be formatted.

Row Labels 💌 Sum of Functional Net Activity	
84104	46,719.63
84106	7,530.57
84108	6,656.32
84110	119.52
84112	4,982.93
84202	1,252.37
84302	18,648.60
84402	2,853.82
84404	818.25

You've completed your first analysis with a very simple pivot table. You now know how much your department has spent on operating expenses by object code. If you want to show this to your department head, he/she may not be familiar with the object code numbers. Let's add a little more information to this table. This table might be more meaningful if we add the object code name.

Adding another field to the Rows

1. Select the Object Code Name by clicking on the box next to it.

Row Labels	Sum of Functional Net Activity
■ 84104	46,719.63
COMPUTING SUPPLIES	46,719.63
■ 84106	7,530.57
OFFICE SUPPLIES	7,530.57
■84108	6,656.32
PAPER SUPPLIES	6,656.32
■84110	119.52
CLEANING/CUSTODIAL SU	P 119.52
■84112	4,982.93
OTHER SUPPLIES	4,982.93

2. The object code name is now in the table.

Removing Subtotaling

As fields are added to the pivot table automatic subtotaling occurs. We can easily remove any level of subtotaling. For example, let's remove the subtotaling by Object Code Number.

1. Right click on any Object Code Number.



2. Uncheck Subtotal "Object Code Number" by clicking into the check box which removes the check.

Row Labels	Sum of Functional Net Activity
■84104	
COMPUTING SUPPLIES	46,719.63
■84106	
OFFICE SUPPLIES	7,530.57
■ 84108	
PAPER SUPPLIES	6,656.32
■84110	
CLEANING/CUSTODIAL SUPPLIES	119.52
■84112	

3. Object Code Number subtotaling has been removed.

Not show subtotals

Instead of removing the subtotals every time we add a field, we can elect to have the subtotals not show. Then we can individually select the fields on which we want to see the subtotals.

1. Go to the Pivot Table Tools on the Excel Ribbon and open the Design tab.



2. Layout is the first grouping on the Design tab.



3. Click on the little down arrow under the function Subtotals.


- 4. Select the option 'Do Not Show Subtotals'.
- 5. Let's add another field. Add Funding Source Number.

Row Labels	Sum of Functional Net Activity
■84104	
COMPUTING SUPPLIES	
000001	37,503.88
061000	1,642.76
062900	7,097.72
066053	28.00
071000	116.00
072000	331.27
84106	
OFFICE SUPPLIES	

- 5. The subtotaling moves down to the Funding Source.
- 6. Remove the Funding Source Number from the Pivot Table by unselecting it.

Moving Fields

1. Let's add the Organization Number to our Pivot Table. Click on the box to the left of Organization Number

	С	D	E	F		G	Н	1	
Y	Sum of Organization Number								
3	44041927	PivotTable	Field List					•	х
3	44041927								ר
7	32938939	Choose fiel	ds to add to r	eport:					
7	32938939	Period N	lumber		^	Y Rep	ort Filter		
2	16654502	Period N	lame						
2	16654502	✓ Object	Code Numb	er					
2	2220600	Object	Code Name	2					
2	2220600		Source Name)er		🛄 Colu	ımn Labels		
3	12213303		n Number	-		Σ Valu	ies	-	
3	12213303	Function	n Name						
7	5551504	Activity	Number		-				
7	5551504	Activity	Name			Row	Labels		
0	16284448	🔽 Organi	zation Num	ber		Object	Code Number	-	
0	16284448	Organiz	ation Name			Object	Code Name	•	
2	33679116	Entity N	umber						
2	33679116	Entity N	ame - Data			Σ Valu	es		
5	4441201	IE Line	e Date Description			Sum of	Functional Ne	t Activity 🔻	ור
5	4441201	Journal	Source Name			Sum of	Organization I	Number 🔹	
3	4811311	AP Invo	ice Number						
3	4811311	JE Batd	n Name			Defer	Lavout	Undate	
1	1480401						Layout III		

- 2. The Organization Number in our data is a numeric field. Excel places all numeric fields automatically into the Values pane and sums it. Of course, this is not meaningful data for our analysis.
- 3. Let's move the Organization Number to the Row Labels.
 - a. You can Drag/Drop the Organization Number from the Values pane to the Row labels

-Or-

b. Go to the Organization Number in the Values pane and click on the down arrow to the right.



c. Select "Move to Row Labels" from the options available.



d. Organization Number is now in the Pivot Table.

Row Labels	Sum of Functional Net Activity
■ 84104	46,719.63
COMPUTING SUPPLI	ES
370100	44,550.16
370101	1,607.48
370102	561.99
84106	7,530.57
OFFICE SUPPLIES	
370100	6,723.84
370101	581.20

- 4. I may want my dollars summarized by Organization first then Object code.
 - a. Go to the Row Labels pane on the Field List.

Row Labels		
Object Code Number	•	^
Object Code Name	•	
Organization Number	•	~

b. Click on the down arrow next to Organization Number. Select "Move to Beginning" from the available options.

Org	anization Number	•
	Move Up	
	Move <u>D</u> own	
	Move to Beginning	
	Move to End	
Y	Move to Report Filter	
	Move to Row Labels	_
	Move to Column Labels	
Σ	Move to Values	
×	Remove Field	ate
0	Field Settings	

c. Organization Number is now at the top of the list and our Pivot Table looks like this:

Row Labels	Sum of Functional Net Activity
= 370100	
■ 84104	
COMPUTING SUPPLIES	44,550.16
■ 84106	
OFFICE SUPPLIES	6,723.84
■ 84108	
PAPER SUPPLIES	6,562.69

- 5. I would think we would want subtotaling for the organization.
 - a. Right-click on the Organization Number.



b. Click on Subtotal "Organization Number" to turn subtotaling on.

Row Labels	Sum of Functional Net Activity
	1,146,744.12
■84104	
COMPUTING SUPPLIES	44,550.16
■84106	
OFFICE SUPPLIES	6,723.84
■84108	
PAPER SUPPLIES	6,562.69
■84110	

Pivot Table Formats

Excel 2010 offers three different Pivot Table layouts.

1. Click on the **Design** tab under PivotTable Tools on the Excel ribbon.





2. In the Layout group, click on Report Layout .

	Home	Insert	Page I	Layout	Formulas	Data	Review	View	Add-Ins	Options	Design	
Subtota	Is Grand Totals •	Report Layout *	Blank Rows •	<table-cell> Rov</table-cell>	w Headers umn Headers	BandeBande	d Rows d Columns					
	Lay	ut			PivotTable	Style Optior	ns				PivotTable	Styles

3. The Layout choices will display.



4. The Pivot Table layout defaults to the Compact Form. In this layout, totals are displayed first and the detail follows.

Row Labels	Sum of Functional Net Activity
	1,146,744.12
■ 84104	
COMPUTING SUPPLIES	44,550.16
■ 84106	
OFFICE SUPPLIES	6,723.84
■ 84108	
PAPER SUPPLIES	6,562.69
■ 84110	
CLEANING/CUSTODIAL SUPPLIES	119.52
_	

5. Select the second layout – "Show in Outline Form". This format also displays totals first and then detail.

Organization Numb€ Object Code Numl ▼	Object Code Name	Sum of Functional Net Activity
		1,146,744.12
⊟ 84104		
	COMPUTING SUPPLIES	44,550.16
⊟ 84106		
	OFFICE SUPPLIES	6,723.84
	PAPER SUPPLIES	6,562.69
⊟ 84110		
_	CLEANING/CUSTODIAL SUPPLIES	119.52
= \$/112		

6. Now let's look at it in the Tabular Form. This form looks more like an Excel worksheet. The detail displays and then the totals.

Drganization Nu	🚽 Object Code Numl 💌	Object Code Name	-	Sum of Functional Net Activity
	■88830	IC MAILING SERVICES-UR		4,510.21
	■ 88835	IC PRINTING SERVICES		1,800.50
	89000	FACILITIES & ADMINISTRATION		141,587.37
	89301	TRANSFER TO CLOSE SP DIRECT		5,609.48
	B9302	TRANSFER TO CLOSE SP F&A		12,315.13
	■ 89502	COST SHARING-DIRECT		0.00
370100 Total				1,146,744.12

7. As you work with Pivot Tables, you'll decide which layout you like to use. For now, let's return to the Compact Form.

Expanding/Collapsing Fields

In the Pivot Table you can display as much or as little detail as you want. Suppose we are sending a copy of this PivotTable to a select group, however, not everyone needs all the levels.

1. Place the cursor on any Object Code Number.

Row Labels	Sum of Functional Net Activity
■ 370100	1,146,744.12
■ 84104	
COMPUTING SUPPLIES	44,550.16
■ 84106	
OFFICE SUPPLIES	6,723.84
■ 84108	
PAPER SUPPLIES	6,562.69
■84110	
CLEANING/CUSTODIAL SUPPLIES	119.52
■84112	
OTHER SUPPLIES	4,815.87

2. Open the Options tab under PivotTable Tools.

Active Field:	1	Notice the name of the field is displayed.
Active Field		

- 3. In the Active Field Group, click on Collapse Entire Field.
- 4. Results:

Row Labels 💌 Sum of Functional Net Activity			
∃ 370100	1,146,744.12		
±84104	44,550.16		
± 84106	6,723.84		
± 84108	6,562.69		
± 84110	119.52		

5. To see the detail again, click on Expand Entire Field

Row Labels	Sum of Functional Net Activity
■ 370100	1,146,744.12
84104	
COMPUTING SUPPLIES	44,550.16
■84106	
OFFICE SUPPLIES	6,723.84
■84108	
PAPER SUPPLIES	6,562.69

6. We can do the same with the Organization. Place the cursor on an Organization Number.

Row Labels	-	Sum of Functional Net Activity
■ 370100		1,146,744.12
■ 84104		-
COMPUTING SUPPLIES		44,550.16
■84106		
OFFICE SUPPLIES		6,723.84

7. Click on Collapse Entire Field

Row Labels 💌	Sum of Functional Net Activity
370100	1,146,744.12
370101	151,847.79
··· 370102	157,517.43
Grand Total	1,456,109.34

8. To expand, click on Expand Entire Field

Row Labels	Sum of Functional Net Activity
■ 370100	1,146,744.12
■ 84104	-
COMPUTING SUPPLIES	44,550.16
■ 84106	
OFFICE SUPPLIES	6,723.84

- 9. You can also expand or collapse individual items within a field.
 - a. Next to each item in a field is Code Number 84108.

Row Labels	Sum of Functional Net Activity
	1,146,744.12
■84104	
COMPUTING SUPPLIES	44,550.16
■84106	
OFFICE SUPPLIES	6,723.84
■84108	<u> </u>
PAPER SUPPLIES	6,562.69

10. The individual field item collapsed.

Row Labels	Sum of Functional Net Activity
370100	1,146,744.12
■84104	
COMPUTING SUPPLIES	44,550.16
■84106	
	6 723 84
⊞ 84108	6,562.69
■84110	
CLEANING/CUSTODIAL SUPPLIE	S 119.52

11. The icon changes to . The amount becomes bold indicating a subtotal. Just click on the plus icon to expand it again.

Adding a field to the Columns

Let's say we want to see the charges for each object code across periods. Period needs to be in the columns.

1. Select Period Name from the Field List. Period Name

Row Labels	Sum of Functional Net Activity	PivotTable Field List		▼ ×
370100	1,146,744.12			A
■84104		Choose fields to add to report:		
COMPUTING SUPPLIES		Period Number	^	Y Report Filter
Apr11-11	3,725.74	Period Name		
Aug10-11	4,802.95	Object Code Number		
Dec10-11	5,369.04	Object Code Name		
Feb11-11	488.48	Funding Source Number		Column Labels
Jan11-11	1.423.61	Funding Source Name		
Jun11-11	694.34	Function Number		
Mar11-11	4,602,25	Activity Number		
Mav11-11	2,712.41	Activity Name		Row Labels
Nov10-11	6,466.49	Organization Number		
Oct10-11	2.801.10	Organization Name		Object Code Number
Sep10-11	11.463.75	Entity Number		Period Name
■84106		Entity Name		
		Traffic attack Data		

2. Since period name is a text/character, it automatically moves to the Row Labels. Click on the down arrow next Period Name in the Row Labels.

Row Labels		
Object Code Number	•	^
Object Code Name		
Period Name		~

3. Select "Move to Column Labels" from the list.

	Move <u>U</u> p	
	Move <u>D</u> own	
	Move to Be <u>g</u> inning	
	Move to <u>E</u> nd	
\mathbf{A}	Move to Report Filter	
	More to Rom Labels	
	Move to Column Labels	
	Move to Column Labels	
	Move to Column Labels Move to Values Remove Field	

4. The Period Name is now in the columns.

Sum of Functional Net Activit	y Column L 💌)			
Row Labels	🔽 Apr11-11	Aug10-11	Dec10-11	Feb11-11	Jan11-11
∃ 370100	121,367.05	194,042.16	59,761.98	68,859.18	54,260.96
■84104					
COMPUTING SUPPLIES	3,725.74	4,802.95	5,369.04	488.48	1,423.61
■ 84106					
OFFICE SUPPLIES	300.46	423.13	1,284.60	507.56	40.51
■ 84108					
PAPER SUPPLIES	268.30	998.90	100.61	631.48	736.16

5. The periods are in alphabetical order and we want them in Fiscal Year Order. To correct the order let's add Period Number. Note: Period Number only applies to data from a query in the Data Warehouse.



6. Period Number is numeric so it will automatically move to the Values pane. Click on the down arrow to select "Move to Column Labels". Once it is in the Column Labels, be sure to move it up to the top.

Column Labels				
Period Number 🔻				
Period Name 🔻				

7. Results:

Sum of Functional Net Activity	Column	ĺ					
	= 159	□ 160	□ 161	□ 162	□ 163	⊡164	= 165
Row Labels	🔽 Jul10-11	Aug10-11	Sep10-11	Oct10-11	Nov10-11	Dec10-11	Jan11-11
■ 370100	69,999.75	194,042.16	99,083.25	71,724.17	71,885.60	59,761.98	54,260.96
■ 84104							
COMPUTING SUPPLIES		4,802.95	11,463.75	2,801.10	6,466.49	5,369.04	1,423.61
≡ 84106							
OFFICE SUPPLIES	5.49	423.13	2,100.47	528.95	270.92	1,284.60	40.51
■ 84108							
PAPER SUPPLIES	291.10	998.90	1,342.05	315.47	394.25	100.61	736.16

Pivot Table Styles Options

1. We have good information here, but it is hard to follow all these numbers. Let's see how we can make reading the Pivot Table a little easier.



3. In PivotTable Style options, click into the box next to Banded Columns.

Row Headers 🔲 Banded Row	WS
🔽 Column Headers 📝 Banded Col	umns
PivotTable Style Options	

4. Even columns are formatted differently from odd columns.

Sum of Functional Net Activity	Column 💌]			
	□ 159	□ □ 160	□161	□ 162	⊡ 163
Row Labels	🔽 Jul10-11	Aug10-11	Sep10-11	Oct10-11	Nov10-11
∃ 370100	69,999.75	194,042.16	99,083.25	71,724.17	71,885.60
■84104					
COMPUTING SUPPLIES		4,802.95	11,463.75	2,801.10	6,466.49
■84106					
OFFICE SUPPLIES	5.49	423.13	2,100.47	528.95	270.92
■84108					
PAPER SUPPLIES	291.10	998.90	1,342.05	315.47	394.25

5. If you prefer, you can select Banded Rows instead.

Banded Rows

Sum of Functional Net Activity	Column 💌				
	□ 159	□ 160	□ 161	□ 162	□ 163
Row Labels	🔽 Jul10-11	Aug10-11	Sep10-11	Oct10-11	Nov10-11
∃ 370100	69,999.75	194,042.16	99,083.25	71,724.17	71,885.60
■84104					
COMPUTING SUPPLIES		4,802.95	11,463.75	2,801.10	6,466.49
■84106					
OFFICE SUPPLIES	5.49	423.13	2,100.47	528.95	270.92
■84108					
PAPER SUPPLIES	291.10	998.90	1,342.05	315.47	394.25

6. For this PivotTable, Banded Columns may be preferred.

Pivot Table Styles

1

New EwotTable Style 10 Clear

Just like any Excel table, you can change the table style on a Pivot Table.

1. Open the design tab under PivotTable Tools.



- a. The styles are divided into Light, Medium and Dark. You'll have to scroll down to see the Dark styles.
- b. As you hover on each style, Excel will preview the style on your pivot table.

Sum of Functional Net Activity	Column 💌			
	= 159	= 160	= 161	= 162
Row Labels	v Jul10-11	Aug10-11	Sep10-11	Oct10-11
= 370100	69,999.75	194,042.16	99,083.25	71,724.17
■ 84104				
COMPUTING SUPPLIES		4,802.95	11,463.75	2,801.10
■84106				
OFFICE SUPPLIES	5.49	423.13	2,100.47	528.95
∃84108				
PAPER SUPPLIES	291.10	998.90	1,342.05	315.47
■84110				
CLEANING/CUSTODIAL SUPPL	LIE 11.50	74.90	5.52	
∃84112				
OTHER SUPPLIES		100.80	1,444.70	425.26

c. You can enhance the style by using the Banded Rows or Banded Columns. Below I've elected to use Banded Columns.

Sum of Functional Net Activity	Column 💌			
	= 159	= 160	= 161	= 162
Row Labels 🛛 🔽	Jul10-11	Aug10-11	Sep10-11	Oct10-11
a 370100	69,999.75	194,042.16	99,083.25	71,724.17
∃ 84104				
COMPUTING SUPPLIES		4,802.95	11,463.75	2,801.10
∃ 84106				
OFFICE SUPPLIES	5.49	423.13	2,100.47	528.95
∃ 84108				
PAPER SUPPLIES	291.10	998.90	1,342.05	315.47
∃84110				
CLEANING/CUSTODIAL SUPPLIES	11.50	74.90	5.52	
∃84112				
OTHER SUPPLIES		100.80	1,444.70	425.26

Adding a field to the Report Filter

1. Perhaps we would like a separate pivot report for each organization. We can accomplish that with the Report Filter. Move the Organization Number to the Report Filter. How do I do that?

A	В		
Organization Number	(AII) 🔽	Choose fields to add to report:	
		Period Number	Y Report Filter
Sum of Functional Net Activity	Column Lal 🔽	Period Name	Organization Number 🔻
	= 146	✓ Object Code Number	
Row Labels	Jul09-10 A	✓ Object Code Name	
		Euroding Source Number	

- 2. Once the Organization Number is moved to the Report Filter, (All) displays in the filtered field. This indicates that the amounts in the PivotTable are summaries of all the organizations.
- 1. As mentioned before, all work can be done in the PivotTable field list. Let's select a single organization.
 - a. Go to the Organization Number field in the Field List and click on the down arrow to the right of the field name.



b. The Organization filter will open.



c. Highlight organization 370100 and click on the button.

Organization Number		370100		◀	_	I
Sum of Functional Net Activity		Column La	ibels 💌			
			= 159	= 160	= 16:	L
Row Labels	- E	Jul10-11		Aug10-11	Sep10-11	
8 4104						
COMPUTING SUPPLIES				4,802.95	11,463.75	
8 4106						
OFFICE SUPPLIES			5.49	423.13	2,100.47	
8 4108						
PAPER SUPPLIES			291.10	998.90	1,342.05	
■ 84110						
CLEANING/CUSTODIAL SUPPLIES			11.50	74.90	5.52	

- a. The amounts now reflect only the organization selected. The icon in the Report Filter field changed to indicating a value was selected.
- b. In addition, a filter icon appears next to the Organization number in the PivotTable field list.



- d. Let's change the filter back to include all the Organizations.
- e. Open the filter again by clicking on the down arrow to the right of the field name.



f. Select (All) by clicking on it which highlights it.

(All)
370100
370102
Select Multiple Items
OK Cancel

- g. Click on the **OK** button.
- 2. The Report Filter once again displays an (All) in the value field.

Organization Number	(AII)
Sum of Functional Net Activity	Column Labels 💌
	= 159
Row Labels	🔽 Jul10-11

3. You can also use the Report Filter to select a single organization. Click on the filter icon to the right of All.

Organization Number	(All)
Sum of Functional Net Activity Row Labels	(Al) - 370100 - 370101 - 370102
■84104	
COMPUTING SUPPLIES	
■ 84106	
OFFICE SUPPLIES	
■ 84108	
PAPER SUPPLIES	Select Multiple Items
■ 84110	OK Cancel
CLEANING/CUSTODIAL SU	Currect

The same Organization Number filter displays. Select organization 370100 and click on the ok button.

1	Organization Number	370100 📝	PivotTable Field List
2			Channe fields to add to report.
3	Sum of Functional Net Activity	Column Labels 💌	
4		= 159	Period Number
5	Row Labels	Jul10-11	Period Name
6	■ 84104		Object Code Number
7			Object Code Name
/	COMPOTING SUPPLIES		Funding Source Number
8	8 4106		Funding Source Name
9	OFFICE SUPPLIES	5.49	Function Number
10	8 4108		Function Name
11	PAPER SUPPLIES	291.10	Activity Number
12	8 4110		Activity Name
13	CLEANING/CUSTODIAL SUPPLIES	11.50	Organization Number

5. The amounts in the Pivot Table only reflect Organization 370100 and the filter icon appears next to organization number in the field list.

6. Open the filter and select All again.

	~	0	product a bill of the bill of
1	Organization Number	(AII) 🔽	Plyot l'able Field List
2			Change fields to add to report.
3	Sum of Functional Net Activity	Column Labels 🔽	
4		= 159	Period Number
-		- 100	Period Name
5	Row Labels 🗾	Jul10-11	Object Code Number
6	8 4104		✓ Object Code Name
7	COMPUTING SUPPLIES	15.00	Funding Source Number
8	8 4106		Funding Source Name
9	OFFICE SUPPLIES	5.49	Function Number
.0	8 4108		Function Name
1	PAPER SUPPLIES	291.10	Activity Number
2	■ 84110		Activity Nume
2		11 50	Organization Number

- 7. The filter now says all again and the icon no longer displays next to Organization Number on the Field List.
- 8. Suppose you want to be able to see a pivot table for each organization simultaneously. You want to do some comparisons.
- 9. Open the options tab and click on the Options function in the Pivot Table grouping.



10. Three options will display.



11. Select the option "Show Report Filter Pages...".

12. The **Show Report Filter Pages** opens displaying all the fields currently in my report filter. In this example I have only one field, Organization Number.



- 13. Click on the \bigcirc button.
- 14. Excel creates a pivot table for each of the Organizations and places them in individual worksheets.

M 370100 370101 370102 Pivot Table

- 15. The worksheet tabs will be labeled accordingly.
- 16. Go back to your 370100 tab.

	\sim
Organization Number	370100 📝
Sum of Functional Net Activity	Column Labels 🔽
-	= 159
Row Labels	🛛 Jul10-11

17. Notice you still have the filter available you can filter on another organization without switching tabs.

More Filtering for the Pivot Table

- 1. We can narrow down the information we see by filtering on another field in the PivotTable Field List.
- 2. For this example, let's retrieve all Object Code Numbers that begin with 85.
- 3. Go to Object Code number in the PivotTable Field List.



4. Click on the down arrow to open the Object Code Number filter.



- 5. The Object Code Number is in the Row Labels on the Pivot Table so we want to use the Label Filters.
- 6. We want to get all the Object Codes that begin with 85, so we'll select the filter operator "Begins with..."

Label Filter (Object Code Number)	? 🛛
Show items for which the label	
begins with 💙 85	
Use ? to represent any single character Use * to represent any series of characters	
	OK Cancel

7. Enter 85 in the field to the right of the Filter Operator and click on the

ok button.

8. Only Object Code Numbers beginning with 85 are in the PivotTable.

Operation that Newsley	0704.00	7			
Organization Number	370100	-M			
Sum of Functional Net Activity	Column L	abels 💌			
		= 159	= 160	■161	= 162
Row Labels	Jul10-11		Aug10-11	Sep10-11	Oct10-11
■85111					
AIRFARE-DOMESTIC-USA		139.40	1,261.65	268.40	1,167.20
■85113					
LODGING-DOMESTIC-USA		470.00	950.90	62.69	7,384.55
8 5115					

9. Perhaps we only want to see the 2nd quarter which consists of Oct, Nov and Dec.

10. For this one, let's use the **Column Labels T** filter. Click on it.

let A	Activity Column Labels 💌		
Select field:			
Per	iod Number 🖌 🗸		
₽↓	Sort Smallest to Largest		
Ă↑	Sort Largest to Smallest		
	More Sort Options		
\mathbb{X}	Clear Filter From "Period Number"		
	Label Filters		
	Value Filters		
	(Select All)		
	····▼ 160		
	162		
	163		
	✓ 104		
	167		
	OK Cancel		

- a. There are multiple fields in the columns so at the top you would select a field. The field we want is already selected Period Number.
- b. Our field is in the Column Labels so we are going to use Label Filters to narrow down our search. Click on Label Filters.

I Net /	l Net Activity Column Labels 🔽						
Sel	ect field:				= 160	■161	= 162
Per	riod Number	•	~	Aug	10-11	Sep10-11	Oct10-11
VIE⊉↓	Sort I argest to	Largest		1,2	261.65	268.40	1,167.20
M N	More Sort Optio	ins		9	950.90	62.69	7,384.55
- K	<u>C</u> lear Filter From	"Period Number"					
LS	Label Filters		•	\mathbb{K}	<u>C</u> lear F	ilter	
EL	Value Filters) _	•		<u>E</u> quals Does <u>N</u>	 <u>I</u> ot Equal)
DC	 ✓ 160 ✓ 161 				Begins Does N	W <u>i</u> th Io <u>t</u> Begin Wit	} h
ER					Ends V Does N	Vi <u>t</u> h Jot End With.)
El	✓ 164 ✓ 165				Cont <u>a</u> i	ns	
RE	167				Does N	lot Contain	
					<u>G</u> reate	r Than	
LS	S OK Cancel		٦		Greate	al To	
			.:		<u>L</u> ess Th	ian	
EL FOR	EIGN	169.	26		Less Th	ian Or E <u>q</u> ual 1	ю
					Bet <u>w</u> e	en	
FOREIC	GN				Not <u>B</u> e	tween	

a. Selecting between would allow us to enter the beginning and ending period number for the 2nd quarter. I can look at the top of my columns in the Pivot Table and see that the Period Numbers for the 2nd quarter are 162 (Oct10-11) through 164 (Dec10-11).



b. Results: Only three periods are now included in the Pivot Table.

Sum of Functional Net Activity	Column Labels 🜌			
	= 162	= 163	= 164	Grand Total
Row Labels 🛛 🖓	Oct10-11	Nov10-11	Dec10-11	
■85111				
AIRFARE-DOMESTIC-USA	1,167.20	691.25	1,714.45	3,572.90
8 5113				
LODGING-DOMESTIC-USA	7,384.55	2,940.33	1,704.25	12,029.13
■ 85115				
TRAVEL MEALS DOMESTIC-USA	2,084.61	117.16	396.32	2,598.09

- 11. Another option is to filter on a period name.
- 12. Let's clear the filter on the Period Number first. Click on the Column Label Filter.
- 13. Click on Label Filters.



a. Select Clear Filter.

Sum of Functional Net Activity	Column Labels 💌		
	= 159	= 160	= 161
Row Labels 🛛 🖓	Jul10-11	Aug10-11	Sep10-11 (
= 85111			
AIRFARE-DOMESTIC-USA	139.40	1,261.65	268.40
= 85113			
LODGING-DOMESTIC-USA	470.00	950.90	62.69
= 85115			
TRAVEL MEALS DOMESTIC-USA	480.00	284.00	804.13
8 5117			
OTHER TRAVEL-DOMESTIC-USA	1,225.22	2,828.00	(6,372.14)

- b. Columns are no longer filtered.
- 14. Now let's filter on Period Name.
 - a. Open the Column Labels
 - b. Click on the filter icon for the Field.

Net Activity 🔹 Column Labels 🔽					
Sel	ect field:				
Pe	riod Number	*	I		
Per	riod Number		l		
Per ⊼↓	iod Name S <u>o</u> rt Largest 1	to Smallest			
	More Sort Op	otions	l		

c. Select Period Name.

Select field:				
Period Name				
Az↓	Sort A to Z			
Ă↑	S <u>o</u> rt Z to A			
	More Sort Options			
K	Clear Filter From "Period Name"			
	Label Filters			
	Value Filters			
	(Select All)			
	Aug10-11			
	✓ Dec10-11			
	Jan11-11			
	✓ Jul10-11			
	🚽 Jun11-11			
	••••• May11-11			
	OK Cancel			

- d. The list is now by Period Name.
- e. Now you can select each month individually but first you must unselect All by unchecking the box for (Select All).

Select field:					
Per	Period Name 💌				
A↓	Sort A to Z				
Ă↑	Sort Z to A				
	More Sort Options				
$\overline{\mathbb{K}}$	Clear Filter From "Period Name"				
	Label Filters				
	Value Filters				
	(Select All)				
	Apr 11-11				
	□ Dec10-11				
	Jan11-11				
	Jul 10-11				
	Mar 11-11				
	OK Cancel				

- f. Click on the box next to each period you want to retrieve. For the 2nd Qtr, select Oct10-11, Nov10-11 and Dec10-11.
- g. Click on the **OK** button.

Sum of Functional Net Activity	Column Labels 🗸	1		
_	⊟1 62	2 = 163	■164	Grand Total
Row Labels 🚽	Oct10-11	Nov10-11	Dec10-11	
8 5111				
AIRFARE-DOMESTIC-USA	1,167.20	691.25	1,714.45	3,572.90
■ 85113				
LODGING-DOMESTIC-USA	7,384.55	2,940.33	1,704.25	12,029.13
■ 85115				
TRAVEL MEALS DOMESTIC-USA	2,084.61	117.16	396.32	2,598.09

15. So we've narrowed down our data to one organization, which is 370100, object codes that start with 85 and the timeframe is the 2nd quarter. So in my analysis, I'm looking at the numbers to see if there is anything that requires further inspection.

Sum of Functional Net Activity	Column Labels 🜌			
	■162	= 163	■164	Grand Total
Row Labels 🍡 🖓	Oct10-11	Nov10-11	Dec10-11	
TRAVEL LOCAL-US DOMESTIC	332.85	1,837.00	439.00	2,608.85
■85162				
REFRESHMENTS	2,213.00	371.74	8,094.80	10,679.54
05010				

16. So I've scrolled down and found Object Code 85162 to be a rather large number in Dec10-11. How can I find out what is included in that amount?

Drilling to the Detail

1. I can choose to retrieve the detail for an individual period such as Dec10-11 or I can retrieve the detail for all three periods. Why don't we go for all three periods? Double-click on the Grand Total amount of 10,679.54.

Α	В	С	E	G	1	К	L	М	N	0	р	Y
Peric	Period Na	Object Co💌	Funding Sour	Funct 💌	Activi 💌	Organizat	Organizatic	Ent 💌	Entity Name 💌	Effective D	JE Line Desc💌	Functional N
164	Dec10-11	85162	062900	001	221	370100	ZOOLOGY	01	GENERAL	12/10/2010	EXPENSES FOR	46.00
164	Dec10-11	85162	061000	005	000	370100	ZOOLOGY	01	GENERAL	12/22/2010	Refreshments	108.35
164	Dec10-11	85162	061000	005	000	370100	ZOOLOGY	01	GENERAL	12/20/2010	Refreshments	37.06
164	Dec10-11	85162	061000	005	000	370100	ZOOLOGY	01	GENERAL	12/13/2010	Refreshments	44.44
164	Dec10-11	85162	061000	005	000	370100	ZOOLOGY	01	GENERAL	12/9/2010	Refreshments	189.59
164	Dec10-11	85162	000001	720	002	370100	ZOOLOGY	01	GENERAL	12/14/2010	CATERING OF	2,294.81
164	Dec10-11	85162	000001	200	261	370100	ZOOLOGY	01	GENERAL	12/6/2010	Refreshments	182.12
164	Dec10-11	85162	000001	001	233	370100	ZOOLOGY	01	GENERAL	12/6/2010	Refreshments	29.16

2. Excel extracts the appropriate transactions and places them in a separate worksheet. I've hidden most of the columns here. You can instantly have the detail to any amount on the PivotTable.

Close all files before proceeding to the next section. Don't save.

Non-Financial Data

VLookup and Pivot Tables can also be used for Non-Financial Data. For non-financial data a different type of VLookup may be applicable.

Let's open the folder titled Non-Financial Data. In it is one Excel workbook titled <u>Non</u> <u>Financial Data.xlsx.</u> Open this workbook.

In this file are two worksheets, **Potential Donor Listing** Gift Groupings. This data is from the Advance system and is information about potential donors.

Open the Potential Donor Listing Tab **Potential Donor Listing**. The worksheet looks like this:

	А	В	С	D	E	F
	DONER	RATING	STAGE	CLAN_REGI	NETWORTH	PROSPECT
	ID_NBR			ON		MANAGER
1						
	92	N1: \$50K-\$99.9K	1-Qualification	NY - New York		Maggie Murph
2				City		
3	102	N1: \$50K-\$99.9K	1-Qualification		\$10,000 - \$24,999	Nancy Johnson
4	143	P1: \$10K-\$24.9K	2-Cultivation		\$500,000 - \$999,999	Ben Dover
5	296	O1: \$25K-\$49.9K	1H-HEP Qualifica	tion	\$25,000 - \$49,999	Sam E William
6	733	N1: \$50K-\$99.9K	1H-HEP Qualifica	tion	GREATER THAN \$1	Sam E William
7	805	O1: \$25K-\$49.9K	2-Cultivation		\$1,000,000 - \$1,999	Ben Dover
	1015	N1: \$50K-\$99.9K	2-Cultivation	IN -	\$250,000 - \$499,999	Ben Dover
8				Indianapolis		

Each year a rating called EVI is calculated for each potential donor. Scroll to the right to

EVI YEARLY RATING 1-100

see the column ______. The number in this column can be anything from 1 to 100. We want to place these potential donors in the following groupings called UA Group;

- o D = 90-100
- o C = 80-89
- o B = 70-79
- o A = 1-69

Switch to the tab labeled Gift Groupings Gift Groupings. The worksheet looks like this:

	A	В	С	D	E	F	G	Н	J	K	L
1	Avg. Amount	Grouping		Total Amt	Grouping		VOL_COUNT	Grouping	EVI Start	EVI End	UA GROUP
2	1.00	1Avg: 1 - 999		1.00	Tot: 1 - 999		1	Vol: 1 - 4	1	69	A
3	1,000.00	2Avg: 1,000 - 2,999		1,000.00	Tot: 1,000 - 2,999		5	Vol 5 - 9	70	79	В
4	3,000.00	3Avg: 3,000 - 4,999		3,000.00	Tot: 3,000 - 4,999		10	Vol 10+	80	89	C
5	5,000.00	4Avg: 5,000 - 9,999		5,000.00	Tot: 5,000 - 9,999				90	100	D
6	10,000.00	5Avg: 10,000 - 19,999		10,000.00	Tot: 10,000 - 24,999						
7	20,000.00	6Avg: 20,000 - 29,999		25,000.00	Tot: 25,000 - 49,999						
8	30,000.00	7Avg: 30,000 - 39,999		50,000.00	Tot: 50,000 - 99,999						
9	40,000.00	8Avg: 40,000 - 49,999		100,000.00	Tot: 100,000 - 499,9	99					
10	50,000.00	9Avg: 50,000 - 99,999		500,000.00	Tot: Over 500,000						
11	100,000.00	10Avg: Over 100,000									

This worksheet has several groupings. The group we are interested in, is the last grouping on the right. Instead of having an exact match for our VLookup we will be using a range; therefore it will be an approximate match.

VLookup (for a range)

- 1. Go back to the Potential Donor Listing. Insert a column to the right of EVI_YEARLY RATING 1-100.
 - a. Highlight the column next to EVI_YEARLY RATING 1-100 titled COLLEGE1, column N.
 - Insert Cells
 - b. On the tab, click on the cells grouping.
 - c. Select "Insert Sheet Columns"



2. Title column N "UA GROUP".

М	N	0
EVI YEARLY RATING 1-100	UA GROUP	COLLEGE 1
76		CIT
66		CIT
93		CIT
71		CIT

- 3. Click into the first cell in the new column (UA GROUP).
- 4. Open the Formulas tab.



5. This time open the Recently Used category.



- 6. Functions that you've used are placed in the recently used. Since we just used VLOOKUP, it is at the top of the list.
- 7. The Function Arguments form will open.

	L	М	N	0	Р				
UNT	VOL_COUNT	EVI YEARLY	UA GROUP	COLLEGE	COLLEGE1				
	GROUPING	RATING 1-100		1	_DESC				
0	#N/A	76		CIT	Carnegie Inst				
			=VLOOKUP()	ļ					
0	#N/A	66		CIT	Carnegie Inst				
0	#N/A	93		CIT	Carnegie Inst				
Fund	ction Arguments			2	8 23				
VL	OOKUP								
	Lookup_value		💽 = any						
	Table_array		💽 = numl	ber					
	Col_index_num		🎫 = numl	ber					
	Range_lookup		🎼 = logic	al					
Loo spe	= 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. 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.								
For	mula result =								
Help	o on this function			ОК	Cancel				

8. The Lookup value will be the first value in the EVI YEARLY RATING 1-100 column. Click on that first value.

	L	М	N	0	Р
JN1	VOL_COUNT	EVI YEARLY	UA GROUP	COLLEGE	COLLEGE1
	GROUPING	RATING 1-100		1	_DESC
0	#N/A	76		CIT	Carnegie Inst
			=VLOOKUP(M2)		
Fun	ction Arguments				8 23
VL	OOKUP				
	Lookup_value	M2	= 76		

9. A dotted line appears around the cell containing the value. The location of the cell is placed in the Lookup_value field. The value in the cell is displayed to the right of the field.

unction Arguments	MUA.	80.	8 23
VLOO (UP Lookup_value	M2	E = 76	
Table_array		Esa = numb	er
Col_index_num		🔣 = numb	er
Range_lookup		🔚 = logica	I
ooks for a value in the left pecify. By default, the tab Lo	most column of a table, and the le must be sorted in an ascendii rokup_value is the value to b value, a referen	n returns a value in t ng order. De found in the first c nce, or a text string.	the same row from a column you olumn of the table, and can be a
-ormula result =			
Help on this function			OK Cancel

10. Click in the Table_array field, then open the worksheet tab

Cift	Groupings	4
Girc	Groupings	_

	Α	В	С	D	E	F	G	Н	J	K	L
1	Avg. Amount	Grouping		Total Amt	Grouping		VOL_COUNT	Grouping	EVI Start	EVI End	UA GROUP
2	1.00	1Avg: 1 - 999		1.00	Tot: 1 - 999		1	Vol: 1 - 4	1	69 A	A
3	1,000.00	2Avg: 1,000 - 2,999		1,000.00	Tot: 1,000 - 2,999		5	Vol 5 - 9	70	79 E	3
4	3,000.00	3Avg: 3,000 - 4,999		3,000.00	Tot: 3,000 - 4,999		10	Vol 10+	80	89 (2
5	5,000.00	4Avg: 5,000 - 9,999		5,000.00	Tot: 5,000 - 9,999				90	100 [)
6	10,000.00	5Avg: 10,000 - 19,999		10,000.00	Tot: 10,000 - 24,999						
7	20,000.00	6Avg: 20,000 - 29,999		25,000.00	Tot: 25,000 - 49,999						
8	30,000.00	7Avg: 30,000 - 39,999		50,000.00	Tot: 50,000 - 99,999						
9	40,000.00	8Avg: 40,000 - 49,999		100,000.00	Tot: 100,000 - 499,9	99					
10	50,000.00	9Avg: 50,000 - 99,999		500,000.00	Tot: Over 500,000						
11	100,000.00	10Avg: Over 100,000									

11. Go to the EVI Start. This grouping starts all the way over in Column J.

J	K	L
EVI Start	EVI End	UA GROUP
1	69	A
70	79	В
80	89	С
90	100	D

12. Our Lookup value in this file will be the *EVI Start* value, therefore the start value must be our first column in the Table_array.

13. Click into the Column J designator to see the cursor change into a black down arrow.

J	K	L
EVI Start	EVI End	UA GROUP
1	69	A
70	79	В
80	89	C
90	100	D

14. Hold the mouse key down and move to column L.

	J		K						
E\	/I St	art	EVI End			UA GROUP		UP	
		1			69	А			
	1	70			79	В			
	1	80		2	89	С		3	
		90			100	D			

- 15. The data we want is in the 3rd column of our Table_array.
- 16. Click into the Col_index_num field. Enter a 3.

inction Arguments	#12A	10	8 23
VLOOKUP			
Lookup_value	M2	=	76
Table_array	'Gift Groupings'!J:L	=	{}
Col_index_num	3	=	3
Range_lookup		=	logical
		=	3
ooks for a value in the lef pecify. By default, the tal Col	most column of a table, and then re le must be sorted in an ascending or _index_num is the column numbe should be returned.	= turns a v rder. er in table The first	3 value in the same row from a column you e_array from which the matching value t column of values in the table is column 1.
ooks for a value in the lef pecify. By default, the tal Col ormula result = 3	most column of a table, and then re le must be sorted in an ascending or index_num is the column numbe should be returned.	= turns a v rder. er in table The firs	3 value in the same row from a column you e_array from which the matching value t column of values in the table is column 1.

17. Click in the Range_lookup field.

unction Arguments	etch.		Ċ	8	23
VLOOKUP					
Lookup_value	M2	1	=	76	
Table_array	'Gift Groupings'! J:L		=	{}	
Col_index_num	3	15	=	3	
Range_lookup	1		=	TRUE	
			_	3	
ooks for a value in the lef specify. By default, the ta	tmost column of a table, and ble must be sorted in an asce	then returns nding order.	a v	value in the same row from a colum	n you
Looks for a value in the lef specify. By default, the ta R	tmost column of a table, and ble must be sorted in an asce ange_lookup is a logical v ascending o	then returns inding order. alue: to find t rder) = TRUE	a v he or	value in the same row from a colum closest match in the first column (s omitted; find an exact match = FA	in you sorted ir ALSE.
Looks for a value in the lef specify. By default, the ta R Formula result = 3	tmost column of a table, and ble must be sorted in an asce ange_lookup is a logical v ascending o	then returns inding order. alue: to find t rder) = TRUE	a v he or	value in the same row from a colum closest match in the first column (s omitted; find an exact match = F.A	in you sorted ir ALSE.

18. Our result should be **"B"** for the EVI YEARLY RATING 1-100

М	N
EVI YEARLY	UA GROUP
RATING 1-100	
76	В
	,

19. In this case, we are not searching for an exact value, so you can leave the field blank, enter the word true or enter a 1 (as shown here) which translates to true.



- 20. Copy the formula down the rows in the column.
- 21. If you need to enter a new range in the UA Group, the Lookup value column (in this example, EVI Start) must be in order (numeric/character). For instance, let's say we add a new range of 60-69 = E, the file should look like this:

J	K	L
EVI Start	EVI End	UA GROUP
1	59	A
60	69	E
70	79	В
80	89	С
90	100	D

22. The Lookup value is in numerical order. Now look at the UA GROUP column in the Potential Donor Listing worksheet.



Pivot Table

Now let's look at how Pivot Tables might be used with non-financial data.

Do you remember how to start the Pivot Table?

Starting the PivotTable

- 1. Click anywhere in the data.
- 2. Go to the ribbon and open the Insert tab. Click on the PivotTable icon.



3. Accept the defaults on the Create PivotTable form by clicking on the button.

Create PivotTable
Choose the data that you want to analyze
Select a table or range
Table/Range: Potential Donor Listing'!\$A\$1:\$AA\$1845
Use an external data source
Choose Connection
Connection name:
Choose where you want the PivotTable report to be placed
New Worksheet
Existing Worksheet
Location:
OK Cancel

- PivotTable Field List ▼ X **(** • Choose fields to add to report: DONOR ID NBR Report Filter RATING STAGE To build a report, choose fields CLAN_REGION from the PivotTable Field List NETWORTH PROSPECT MANAGER PRIORITY_RANKING record type desc1 last_gift_date Column Labels last_gift_amt VOL_COUNT VOL_COUNT GROUPING EVI YEARLY RATING 1-100 UA GROUP COLLEGE 1 COLLEGE 1_DESC GRADYEAR 1 Row Labels COLLEGE2 COLLEGE2_DESC COLLEGE22 COLLEGE2 DESC2 GRADYEAR2 GIFT_COUNT AVG GIFT AVG_GIFT GROUPING Σ Values CAG_TOTAL CAG_TOT GROUPING 📃 Defer Layout Up... Update
- 4. Excel opens a new worksheet so we can begin creating our Pivot Table.

Creating a Simple Pivot Table

When dealing with non-financial data, rather than summarizing the data, the analysis is more geared to counting.

For instance, in the file are potential donors, in fact there are 1,844 potential donors. Each donor has a unique ID number. Each donor is assigned to a prospect manager. Suppose we wanted to see how many donors each manager has.

1. Select the Prospect Manager by clicking in the box to the left of Prospect Manager in the PivotTable Field List.

PROSPECT MANAGER

2. Prospect Manager is a character field so Excel placed it in the Row Labels and the Prospect Manager is now in the Pivot Table.

L	М	N	PivotTable Field List	▼ X
L Ben Dover Maggie Murph Nancy Johnson Sam E Williams Scott E. Dawg Tina Tartan Grand Total	M	N	PivotTable Field List Choose fields to add to report: DONER ID_NBR RATING STAGE CLAN_REGION NETWORTH PROSPECT HANAGER PRIORITY_RANKING record_type_desc1 last_gift_date last_gift_date last_gift_date Last_gift_date Last_gift_date COLMT GROUPING EVI YEARLY RATING 1-100 UA GROUP COLLEGE1 COLLEGE1_DESC CREDEXCADE	
			COLLEGE1_DESC GRADYEAR1 COLLEGE2 COLLEGE2_DESC COLLEGE22	Row Labels PROSPECT MANAGER

- We want to know how many donors each Prospect Manager has. Let's select the field DONOR ID_NBR. ON DONOR ID_NBR
- 4. Selecting the **DONOR ID_NBR** caused the following to happen:

ivotTable Field List	
mose fields to and to report:	_
	Report Filter
CLAN REGION	
PROSPECT MANAGER	
PRIORITY RANKING	
 record_type_desc1	
last_gift_date	Column Labels
VOL_COUNT	
VOL_COUNT GROUPING	
EVI YEARLY RATING 1-100	
UA GROUP	
COLLEGE1	
COLLEGE1_DESC	
GRADYEAR1	Row Labels
COLLEGE2	PROSPECT MANAGER
COLLEGE2_DESC	intest communication
COLLEGE22	
COLLEGE2_DESC2	
GRADYEAR2	
GIFT_COUNT	
AVG_GIFT	
AVG_GIFT GROUPING	Σ Values
CAG_TOTAL	Sum of DONOR ID_NBR
CAG_TOT GROUPING	

- a. The field name became bold as shown above.
- b. Because DONOR ID_NBR is numerical, Excel dropped the field into the Values pane.

c. Excel also summed the DONOR ID NBR for each Prospect Manager as shown in the Pivot Table.

Row Labels 💌	Sum of DONOR ID_NBR
Ben Dover	14555677
Maggie Murph	36476813
Nancy Johnson	31565079
Sam E Williams	36302379
Scott E. Dawg	13880988
Tina Tartan	12745191
Grand Total	145526127

- 5. The summing function is not meaningful to this data. We really want to count the number of donors each prospect manager has.
- 6. In the Values pane, click on the down arrow to the right of the Sum of DONOR ID_NBR



7. A list of options for this field will display.



8. Select Value Field Settings...

Fig	eld Name	
Value Field Settings		
Source Name: DONOR ID_NBR		
Custom Name: Sum of DONOR ID_NBR	Excel Custon	n Name
Summarize Values By Show Values As		
Choose the type of calculation that you want to use to summarize data from the selected field Sum Count Average Max Min Product	ulations	
Number Format OK Cancel		

9. From the list of available calculations, highlight *Count*.

Sum	~
Count	
Average	
Max	
Min	_
Product	×

10. Click on the **OK** button.

Row Labels < Count of DONOR ID	NBR
Ben Dover	277
Maggie Murph	251
Nancy Johnson	347
Sam E Williams	534
Scott E. Dawg	268
Tina Tartan	167
Grand Total	1844

11. We now know how many donors assigned to each manager.

Adding Another Field

12. Let's add the UA GROUP to the Pivot Table.

UA GROUP

Row Labels	Count of DONOR ID_NBR
Ben Dover	277
A	69
В	35
С	30
D	126
E	11
#N/A	6
■ Maggie Murp	h 251
Α	45
В	48

13. The UA GROUP now appears in the Pivot Table.

14. Let's move the UA GROUP to the Column Label. Do you remember how?

Count of DONOR ID_NBR	Colum 🔻						
Row Labels	A E	3 (C I	D	E	#N/A	Grand Total
Ben Dover	69	35	30	126	11	6	277
Maggie Murph	45	48	55	62	17	24	251
Nancy Johnson	87	80	70	76	31	3	347
Sam E Williams	133	54	111	203	21	12	534
Scott E. Dawg	52	30	36	126	20	4	268
Tina Tartan	20	19	25	93	8	2	167
Grand Total	406	266	327	686	108	51	1844

- 15. The #N/A column consists of donors that had a zero in the EVI YEARLY RATING 1-100 column. Perhaps for this analysis we want to exclude the #N/A column.
 - a. Go to the PivotTable Field List click the down arrow to the right of the field name UA GROUP.

A Z↓ Z↓ A↓	<u>S</u> ort A to Z S <u>o</u> rt Z to A
	More Sort Options
$\overline{\mathbb{K}}$	<u>C</u> lear Filter From "UA GROUP"
	Label Filters
	<u>V</u> alue Filters ►
	Search 🔎
	(Select All) ♥A ♥A ♥C ♥D ♥E ♥#N/A
	OK Cancel

b. Click in the box next to #N/A to unselect it.

Az↓	Sort A to Z	
ZA↓	S <u>o</u> rt Z to A	
	More Sort Options	
\mathbb{K}	<u>C</u> lear Filter From "UA GROUP"	
	Label Filters	►
	<u>V</u> alue Filters	►
	Search	Q
	·····································	
	OK Cancel	

- c. Notice that the box preceding (Select All) is automatically unchecked.
- d. Click on the button.

Count of DONOR ID_NBR	Column Labels 🖵					
Row Labels 🔻	Α	В	C	D	E	Grand Total
Ben Dover	69	35	30	126	11	271
Maggie Murph	45	48	55	62	17	227
Nancy Johnson	87	80	70	76	31	344
Sam E Williams	133	54	111	203	21	522
Scott E. Dawg	52	30	36	126	20	264
Tina Tartan	20	19	25	93	8	165
Grand Total	406	266	327	686	108	1793

- e. The #N/A column is gone and the totals are adjusted.
- f. The filter icon appears next to the UA GROUP field. \Box UA GROUP \Box

16. Let's take a look at the potential donors under Maggie Murph. Do you remember how to view the details that make up 227 in the Grand Total?

DONOR ID NBR 🗙 RATING 💌 STAGE 💌 CLAN REGION 💌	NETWORTH V PROSPECT MANAGER	PRIORITY RANKING v record type desc1 v	last gift date 🔻	last gift amt 🔻 VOL COUN	T 🔻 \	OL COUNT GROUPING
191026 P1: \$10K-\$21-Qualificat PA - Pittsburgh	Maggie Murph	Alumni		0	0	#N/A
107421 O1: \$25K-\$-1H-HEP QINC - Raleigh	GREATER THAI Maggie Murph	99 Alumni		0	0	#N/A
88699 O1: \$25K-\$+1-Qualification	\$250,000 - \$499 Maggie Murph	99 Alumni	12/29/2008	50	0	#N/A
213433 P1: \$10K-\$/1-Qualifical PA - Pittsburgh	Maggie Murph	Alumni		0	0	#N/A

Thank you for attending the Excel Advanced Training. For additional training opportunities, please visit https://www.cmu.edu/finance/training/index.html