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MBA 614
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VBA Final Project Executive Summary

2.1 Overview

My project was to write a program that I could use at my workplace to fill out the so called "Summary sheet" that consisted of different number figures for ten different states: California, Colorado, Illinois, Indiana, Maryland, New York, Tennessee, Texas, Utah, and Washington. The number figures could be anything from Total Sales, Total Exempt Sales, etc. to Total Tax Collected and Total Retailing. Each of these ten states require the same set of numbers every month although which specific numbers are requested depend on each state.

Each month, from the 1st to the 10th, my job is to first insert into a tax worksheet a column that is next to another column called "Item_Type" and names it "Taxable v Exempt." Then, I would go ahead and start with one of the listed ten states. Let's say I start with Texas. After inserting a new column, I would look at each of the categories listed under the "Item_Type" filtered cell of all of the Texas transactions, often starting with what was called "Company Fulfillment." Then, after filtering a column called "Tax_Trans_Curr" with only the value of "0," I would decide if I should type in "Exempt," "Freight," "Exempt-b2b," or just leave it blank by looking at each of the transactions that show up and see which category its product name fit into. Next, I would move on to the second category under the "Item_Type" filtered cell. When I am done filling out the "Taxable v Exempt" column for the state, I would go ahead and do some sorting to get the numbers that I intend to get. For instance, if the Summary Sheet asks for a total exempt sale for Texas, then I would go to the tax worksheet and do some sorting, figure out that exempt number, and then copy and paste that number to the "Summary Sheet" at a specific place. When I am done filling out all of the numbers required for Texas, I would move on to a different state till I am done with all of the ten states.

This whole process is very repetitive and intimidating sometimes. It is very easy to get mixed up when it comes to deciding which status the transaction should be or sorting the transactions and filling in the blanks in the "Summary Sheet." Thus, since the first week of our VBA class, I have already thought of a way to automate my work process with the help of VBA. The code that I wrote allows me to shorten the whole process tremendously. Currently, I only need to click on a customized button and finish everything in minutes.

2.2 Implementation Documentation

While the code itself is highly documented, the following is a comprehensive yet concise explanation of the devised solution.

Record Macros

To greatly simplify my task, I recorded what I was supposed to do for each of the ten states and then came back and modified the code to make it more generally acceptable; i.e, the modified code could work on any other monthly worksheets and not just the one that I was working on.

Modify Range

With that in mind, after recording myself doing what I usually do for a specific state, I would first go ahead and change all of the specific ranges of all of the transactions to ones that were more generalized.

In fact, when filtering different values, instead of filtering on a specific range that Excel thought I intended to use, such as "Range('$A$1:$A$614900')," I substituted it for "Range('$A$1:AA' & Cells(Rows.Count, 'A').End(xlUp).Row." This substitution allowed the code to work even if I used it for worksheets that had either more or less transactions than 614900.

Likewise, after filtering a column, if I decided that all of the filtered transactions should be "exempt" under that state's law, I would need to copy and paste the word "exempt" to all of the filtered cells in the "Taxable v Exempt" column. This took me a while to figure it out because I did not know how I could have Macro choose the first filtered cell. What I ended up doing was that from the title filtered cell (the cell whose value was "Taxable v Exempt"), I offset it with one row down and zero column to the left/right. Next, I typed the word "exempt" into that cell and then select all of the blank cells below that cell and pasted that word into them all. This step did not help me to select the first filtered cell but it together with the following steps helped me to accomplish my task.

S	T	U	V	W	X	Y	Z	AA
TRANSI ▼	SKU ▼	SKU_DE ▼	ITEM_TYPE ▼	Taxable v Exempt ▼	COMPA ▼	TAX_GL ▼	Orginal ▼	Orginal ▼
USD	4946	FTM 2012	COMPANY FULFILLMENT	Exempt	10	20820	US	TX
USD	4572	MC Recor(	COMPANY FULFILLMENT	Exempt	10	20820	US	TX
USD	5118	FTM 2012	COMPANY FULFILLMENT	Exempt	10	20820	US	TX
USD	5118	FTM 2012	COMPANY FULFILLMENT	Exempt	10	20820	US	TX
USD	4948	Beyond th	COMPANY FULFILLMENT	Exempt	10	20820	US	TX
USD	4515	MC Family	COMPANY FULFILLMENT	Exempt	10	20820	US	TX
USD	4942	FTM 2012	COMPANY FULFILLMENT	Exempt	10	20820	US	TX
USD	4845	FTM Mac 2	COMPANY FULFILLMENT	Exempt	10	20820	US	TX
USD	4943	FTM 2012	COMPANY FULFILLMENT	Exempt	10	20820	US	TX
USD	4948	Beyond th	COMPANY FULFILLMENT	Exempt	10	20820	US	TX
USD	4582	MC Book -	COMPANY FULFILLMENT	Exempt	10	20820	US	TX
USD	4474	MC Book -	COMPANY FULFILLMENT	Exempt	10	20820	US	TX
USD	4942	FTM 2012	COMPANY FULFILLMENT	Exempt	10	20820	US	TX
USD	4474	MC Book -	COMPANY FULFILLMENT	Exempt	10	20820	US	TX
USD	4573	MC Book -	COMPANY FULFILLMENT	Exempt	10	20820	US	TX
USD	4571	MC Recor(	COMPANY FULFILLMENT	Exempt	10	20820	US	TX
USD	5118	FTM 2012	COMPANY FULFILLMENT	Exempt	10	20820	US	TX
USD	4726	MCBook ¿	COMPANY FULFILLMENT	Exempt	10	20820	US	TX
USD	4946	FTM 2012	COMPANY FULFILLMENT	Exempt	10	20820	US	TX
USD	4457	MC Book -	COMPANY FULFILLMENT	Exempt	10	20820	US	TX
USD	4474	MC Book -	COMPANY FULFILLMENT	Exempt	10	20820	US	TX
USD	5118	FTM 2012	COMPANY FULFILLMENT	Exempt	10	20820	US	TX

Select All Blank Cells
In order to paste any information to the whole filtered column, I needed to figure out a way to select all of the blank cells up to the last filtered transaction. How could I do that? Normally, if the cells were not blanks, typing in "Selection.End(xlDown).Select" would allow me to select the last non-blank cells in the long range of transactions. However, the above combination did not work if the cells were blanks, since Excel would select all of the blank cells along that column; it simply did not know where to end. Thus, what I did after copying the info was that I selected the cell that was next to the first filtered cell by using the Offset function. Then, I would go to the last cell of the range of this column by typing in the above End(xlDown) code. Next, I would select the cell that was next to the right of the last cell of the

range I just chose using the Offset function again. Finally, I would select all of the cell that was above that currently selected cell by typing in "Range(Selection, Selection.End(xlUp)).Select." This whole process allowed me to successfully select all of the blank cells up to the last filtered transaction in seconds.

Step 1

Q	R	S	T	U	V	W	X
353,212.69	32,181,218.20						
353,212.69	32,181,218.20						
AX_TRAN ▼	INV_LINE_TOT ▼	TRANS ▼	SKU ▼	SKU_DE ▼	ITEM_TYPE ▼	Taxable v Exempt ▼	COMPA ▼
0	155.4	USD		4218 Annual US	DIGITAL SUBSCRIPTION		10
0	29.95	USD		4204 Monthly V	DIGITAL SUBSCRIPTION		10
0	34.95	USD		4204 Monthly V	DIGITAL SUBSCRIPTION		10
0	29.95	USD		4204 Monthly V	DIGITAL SUBSCRIPTION		10
0	34.95	USD		4204 Monthly V	DIGITAL SUBSCRIPTION		10
0	29.95	USD		2545 MyFamily	DIGITAL SUBSCRIPTION		10
0	29.95	USD		4204 Monthly V	DIGITAL SUBSCRIPTION		10
0	29.95	USD		4204 Monthly V	DIGITAL SUBSCRIPTION		10
0	29.95	USD		4204 Monthly V	DIGITAL SUBSCRIPTION		10
0	34.95	USD		4204 Monthly V	DIGITAL SUBSCRIPTION		10
0	0	USD		4426 6 Month U	DIGITAL SUBSCRIPTION		10
0	29.95	USD		4204 Monthly V	DIGITAL SUBSCRIPTION		10
0	29.95	USD		4204 Monthly V	DIGITAL SUBSCRIPTION		10
0	34.95	USD		4204 Monthly V	DIGITAL SUBSCRIPTION		10
0	34.95	USD		4204 Monthly V	DIGITAL SUBSCRIPTION		10
0	29.95	USD		4204 Monthly V	DIGITAL SUBSCRIPTION		10
0	34.95	USD		4204 Monthly V	DIGITAL SUBSCRIPTION		10
0	34.95	USD		4206 Monthly V	DIGITAL SUBSCRIPTION		10
0	34.95	USD		4204 Monthly V	DIGITAL SUBSCRIPTION		10
0	-77.7	USD		4426 6 Month U	DIGITAL SUBSCRIPTION		10
0	-34.95	USD		4204 Monthly V	DIGITAL SUBSCRIPTION		10

Step 2

Q	R	S	T	U	V	W	X
0	-77.7	USD		4426 6 Month U	DIGITAL SUBSCRIPTION		1
0	77.7	USD		4426 6 Month U	DIGITAL SUBSCRIPTION		1
0	34.95	USD		4204 Monthly V	DIGITAL SUBSCRIPTION		1
0	77.7	USD		4426 6 Month U	DIGITAL SUBSCRIPTION		1
0	29.95	USD		4204 Monthly V	DIGITAL SUBSCRIPTION		1
0	-34.95	USD		4204 Monthly V	DIGITAL SUBSCRIPTION		1
0	-0.96	USD		4163 Exchange	OTHER MISC		1
0	-22.95	USD		4214 Monthly L	DIGITAL SUBSCRIPTION		1
0	299.4	USD		4205 Annual W	DIGITAL SUBSCRIPTION		1
0	77.7	USD		4426 6 Month U	DIGITAL SUBSCRIPTION		1
0	29.95	USD		4204 Monthly V	DIGITAL SUBSCRIPTION		1
0	34.95	USD		4204 Monthly V	DIGITAL SUBSCRIPTION		1
0	34.95	USD		4204 Monthly V	DIGITAL SUBSCRIPTION		1
0	34.95	USD		4204 Monthly V	DIGITAL SUBSCRIPTION		1
0	83.85	USD		4428 3 Month V	DIGITAL SUBSCRIPTION		1
0	19.95	USD		4214 Monthly L	DIGITAL SUBSCRIPTION		1
0	34.95	USD		4204 Monthly V	DIGITAL SUBSCRIPTION		1
0	29.95	USD		4204 Monthly V	DIGITAL SUBSCRIPTION		1
0	29.95	USD		4204 Monthly V	DIGITAL SUBSCRIPTION		1
0	149.7	USD		4430 6 Month V	DIGITAL SUBSCRIPTION		1
0	77.7	USD		4426 6 Month U	DIGITAL SUBSCRIPTION		1
0	29.95	USD		4204 Monthly V	DIGITAL SUBSCRIPTION		1
0	19.95	USD		4214 Monthly L	DIGITAL SUBSCRIPTION		1
0	29.95	USD		4204 Monthly V	DIGITAL SUBSCRIPTION		1
0	29.95	USD		4204 Monthly V	DIGITAL SUBSCRIPTION		1

Step 3

R	S	T	U	V	W	X	Y
-77.7	USD	4426	6 Month U	DIGITAL SUBSCRIPTION		10	2082
77.7	USD	4426	6 Month U	DIGITAL SUBSCRIPTION		10	2082
34.95	USD	4204	Monthly V	DIGITAL SUBSCRIPTION		10	2082
77.7	USD	4426	6 Month U	DIGITAL SUBSCRIPTION		10	2082
29.95	USD	4204	Monthly V	DIGITAL SUBSCRIPTION		10	2082
-34.95	USD	4204	Monthly V	DIGITAL SUBSCRIPTION		10	2082
-0.96	USD	4163	Exchange	OTHER MISC		10	2082
-22.95	USD	4214	Monthly L	DIGITAL SUBSCRIPTION		10	2082
299.4	USD	4205	Annual W	DIGITAL SUBSCRIPTION		10	2082
77.7	USD	4426	6 Month U	DIGITAL SUBSCRIPTION		10	2082
29.95	USD	4204	Monthly V	DIGITAL SUBSCRIPTION		10	2082
34.95	USD	4204	Monthly V	DIGITAL SUBSCRIPTION		10	2082
34.95	USD	4204	Monthly V	DIGITAL SUBSCRIPTION		10	2082
34.95	USD	4204	Monthly V	DIGITAL SUBSCRIPTION		10	2082
83.85	USD	4428	3 Month V	DIGITAL SUBSCRIPTION		10	2082
19.95	USD	4214	Monthly L	DIGITAL SUBSCRIPTION		10	2082
34.95	USD	4204	Monthly V	DIGITAL SUBSCRIPTION		10	2082
29.95	USD	4204	Monthly V	DIGITAL SUBSCRIPTION		10	2082
29.95	USD	4204	Monthly V	DIGITAL SUBSCRIPTION		10	2082
149.7	USD	4430	6 Month V	DIGITAL SUBSCRIPTION		10	2082
77.7	USD	4426	6 Month U	DIGITAL SUBSCRIPTION		10	2082
29.95	USD	4204	Monthly V	DIGITAL SUBSCRIPTION		10	2082
19.95	USD	4214	Monthly L	DIGITAL SUBSCRIPTION		10	2082
29.95	USD	4204	Monthly V	DIGITAL SUBSCRIPTION		10	2082
29.95	USD	4204	Monthly V	DIGITAL SUBSCRIPTION		10	2082

Step 4

R	S	T	U	V	W	X	Y	
21.45	USD	4214	Monthly L	DIGITAL SUBSCRIPTION	Exempt	10	20820	US
29.95	USD	4204	Monthly V	DIGITAL SUBSCRIPTION		10	20820	US
9.95	USD	2612	Freight Ch	DIGITAL SUBSCRIPTION		10	20820	US
155.4	USD	4218	Annual US	DIGITAL SUBSCRIPTION		10	20820	US
29.95	USD	4204	Monthly V	DIGITAL SUBSCRIPTION		10	20820	US
155.4	USD	4218	Annual US	DIGITAL SUBSCRIPTION		10	20820	US
77.7	USD	4426	6 Month U	DIGITAL SUBSCRIPTION		10	20820	US
29.95	USD	2545	MyFamily	DIGITAL SUBSCRIPTION		10	20820	US
22.95	USD	4214	Monthly L	DIGITAL SUBSCRIPTION		10	20820	US
17.76	USD	4214	Monthly L	DIGITAL SUBSCRIPTION		10	20820	US
29.95	USD	4204	Monthly V	DIGITAL SUBSCRIPTION		10	20820	US
155.4	USD	4218	Annual US	DIGITAL SUBSCRIPTION		10	20820	US
22.95	USD	4214	Monthly L	DIGITAL SUBSCRIPTION		10	20820	US
29.95	USD	4204	Monthly V	DIGITAL SUBSCRIPTION		10	20820	US
50.85	USD	4424	3 Month U	DIGITAL SUBSCRIPTION		10	20820	US
22.95	USD	4214	Monthly L	DIGITAL SUBSCRIPTION		10	20820	US
29.95	USD	3508	MyFamily	DIGITAL SUBSCRIPTION		10	20820	US
77.7	USD	4426	6 Month U	DIGITAL SUBSCRIPTION		10	20820	US
34.95	USD	4204	Monthly V	DIGITAL SUBSCRIPTION		10	20820	US
22.95	USD	4214	Monthly L	DIGITAL SUBSCRIPTION		10	20820	US
77.7	USD	4426	6 Month U	DIGITAL SUBSCRIPTION		10	20820	US
19.95	USD	4214	Monthly L	DIGITAL SUBSCRIPTION		10	20820	US
22.95	USD	4214	Monthly L	DIGITAL SUBSCRIPTION		10	20820	US
50.85	USD	4424	3 Month U	DIGITAL SUBSCRIPTION		10	20820	US
19.95	USD	4214	Monthly L	DIGITAL SUBSCRIPTION		10	20820	US

Visible Cells

Another tricky thing I figured out was that if I needed to paste some information to the whole filtered column, I would need to use a special code that would allow me to paste info into only filtered cells and not also to all of the cells that were not visible after I filtered. In order to do this, I typed in "Selection.SpecialCells(xlCellTypeVisible).Select" right after the code that allowed me to select all of the blank cells as described in the previous step. This allowed me to quickly select only what I wanted.
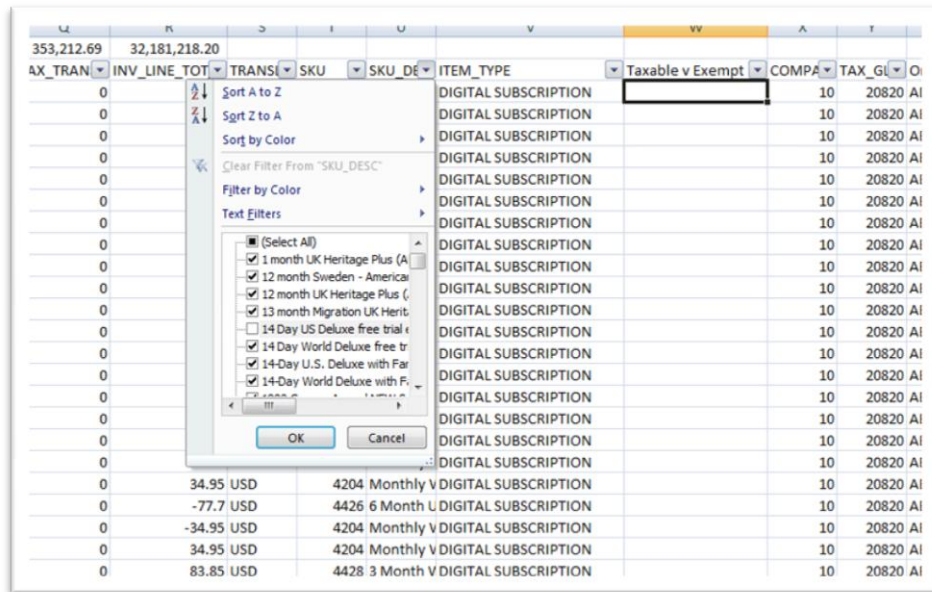
The First Filtered Cell

As mentioned above, I did not figure out how to select the first filtered cell in a filtered range. Simply selecting the cell that was right below the title filtered cell did not prompt me to the first filtered cell at all. However, by copying a specific info and pasting it to only the visible filtered cells after filtering the transactions, the info was pasted to the exact cells that I wanted without needing to select the first filtered cell. Choosing the cell that was right below the title filtered cell and typing some information in it to begin with, however, did cause a small problem. The very first cell that was right below the title filtered cell would have the value that I initially typed in although I did not want it there. I knew what that cell was for and that cell was actually not part of the whole range I intended to work on so I simply write a code that would delete any value that input into that cell. Fortunately, whether or not I remember to do that did not impact my final result at all.

R	S	T	U	V	W	X	Y
32,181,218.20							
32,181,218.20							
INV_LINE_TOT	TRANS	SKU	SKU_DE	ITEM_TYPE	Taxable v Exempt	COMPA	TAX_GL
155.4	USD	4218	Annual US	DIGITAL SUBSCRIPTION		10	2082
29.95	USD	4204	Monthly V	DIGITAL SUBSCRIPTION		10	2082
34.95	USD	4204	Monthly V	DIGITAL SUBSCRIPTION		10	2082
29.95	USD	4204	Monthly V	DIGITAL SUBSCRIPTION		10	2082
34.95	USD	4204	Monthly V	DIGITAL SUBSCRIPTION		10	2082
29.95	USD	2545	MyFamily	DIGITAL SUBSCRIPTION		10	2082
29.95	USD	4204	Monthly V	DIGITAL SUBSCRIPTION		10	2082
29.95	USD	4204	Monthly V	DIGITAL SUBSCRIPTION		10	2082
29.95	USD	4204	Monthly V	DIGITAL SUBSCRIPTION		10	2082
34.95	USD	4204	Monthly V	DIGITAL SUBSCRIPTION		10	2082
0	USD	4426	6 Month U	DIGITAL SUBSCRIPTION		10	2082
29.95	USD	4204	Monthly V	DIGITAL SUBSCRIPTION		10	2082
29.95	USD	4204	Monthly V	DIGITAL SUBSCRIPTION		10	2082
34.95	USD	4204	Monthly V	DIGITAL SUBSCRIPTION		10	2082
34.95	USD	4204	Monthly V	DIGITAL SUBSCRIPTION		10	2082
29.95	USD	4204	Monthly V	DIGITAL SUBSCRIPTION		10	2082
34.95	USD	4204	Monthly V	DIGITAL SUBSCRIPTION		10	2082
34.95	USD	4206	Monthly V	DIGITAL SUBSCRIPTION		10	2082
34.95	USD	4204	Monthly V	DIGITAL SUBSCRIPTION		10	2082
-77.7	USD	4426	6 Month U	DIGITAL SUBSCRIPTION		10	2082
-34.95	USD	4204	Monthly V	DIGITAL SUBSCRIPTION		10	2082
34.95	USD	4204	Monthly V	DIGITAL SUBSCRIPTION		10	208?

Choose Everything Except One

The last thing that I looked for in the code was that wherever possible, the code should allow me to choose all of the categories except for one specific category not by listing the specific names of all of the categories out and remembering to choose those and only those listed names the next time. I accomplished this step by pasting the specific information to all of the blank cells in the "Taxable v Exempt" column of all of the categories listed (without filtering anything). Then, if there is a specific category whose cell(s) in the "Taxable v Exempt" column should have (a) different value(s), then I would go back and filter to only that specific category and copy and paste different values to the cells of this specific category on top of the old values. This way, I can assign different values to some specific categories and not the others, not having to have Excel remember all of the names of the categories but rather remember them in a more generalized way.

Choose all of the categories except for one

2.3 Lessons Learned

Through this project, I got to know how to accomplish some of my tasks, which seemed to require the selection of the first filtered cell, successfully without having to select that cell. I found a code that could help me to select that first filtered cell; however, scripting it to my code would further complicate the whole process unnecessarily. In addition, I have learned how to select all of the blank cells up to the last filtered transaction. This is an extremely valuable lesson to me, since I do get to work with blank cells quite often and my current method has been taking me forever to get this done. Last, I have learned that the "Record Macro" function is extremely useful in many situations and it can save me a ton of time just by modifying the already made code rather than creating a totally new one. I have felt much more comfortable working with VBA after finishing this project. I feel that I can do basically anything with VBA and if I get stuck with some problems, I can always figure out the solutions for them just by reading a book or Googling it ☺

2.4 Assistance

I did not receive any help from another person or persons on this project. I have once visited with you for some guidance on the project but that was about it. Thank you very much for your help!