

# Excel Data 2: Advanced Filter and Basic PivotTables



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## 1.5-hour Classroom\* / 1.0-hour Zoom Session

*\* Classroom sessions include time to repeat exercises for practice*

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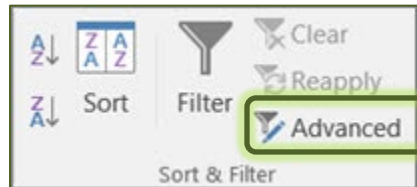
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### **Filter by using advanced criteria**

*This page is from  
the Excel Help file*

If the data you want to filter requires complex criteria (such as Type = "Produce" OR Salesperson = "Davolio"), you can use the **Advanced Filter** dialog box.

To open the **Advanced Filter** dialog box, click **Data > Advanced**.



The **Advanced** command works differently from the **Filter** command in several important ways.

- It displays the **Advanced Filter** dialog box instead of the AutoFilter menu.
- You type the advanced criteria in a separate criteria range on the worksheet and above the range of cells or table that you want to filter. Microsoft Office Excel uses the separate criteria range in the **Advanced Filter** dialog box as the source for the advanced criteria.

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### **Comparison operators**

You can compare two values by using the following operators. When two values are compared by using these operators, the result is a logical value—either TRUE or FALSE.

Comparison operator	Meaning	Example
= (equal sign)	Equal to	A1=B1
> (greater than sign)	Greater than	A1>B1
< (less than sign)	Less than	A1<B1
>= (greater than or equal to sign)	Greater than or equal to	A1>=B1
<= (less than or equal to sign)	Less than or equal to	A1<=B1
<> (not equal to sign)	Not equal to	A1<>B1

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### **Wildcard criteria**

To find text values that share some characters but not others, do one or more of the following:

- Type one or more characters without an equal sign (=) to find rows with a text value in a column that begin with those characters. For example, if you type the text **Dav** as a criterion, Excel finds "Davolio," "David," and "Davis."
- Use a wildcard character.

Use	To find
? (question mark)	Any single character For example, sm?th finds "smith" and "smyth"
* (asterisk)	Any number of characters For example, *east finds "Northeast" and "Southeast"
~ (tilde) followed by ?, *, or ~	A question mark, asterisk, or tilde For example, fy91~? finds "fy91?"

### SUBTOTAL Worksheet Function

We can do common mathematical functions with our filtered lists using the SUBTOTAL worksheet function. The syntax is for this function is "SUBTOTAL(function\_num,ref1,ref2,...)". Function\_num is the number 1 to 11 that specifies which 'function' to use in calculating subtotals within a list (see below). The ref1, ref2... are the ranges of data that should be used in the equation, there can be up to 29 different ranges used in this function.

Function_Num	Function	Function_Num	Function
1 .....	AVERAGE	7 .....	STDEV
2 .....	COUNT	8 .....	STDEVP
3 .....	COUNTA	9 .....	SUM
4 .....	MAX	10 .....	VAR
5 .....	MIN	11 .....	VARP
6 .....	PRODUCT		

Function numbers 1 through 11 will include manually hidden rows, ones you have hidden yourself. Function numbers 101-111 will exclude your hidden rows from the function. Filtered-out rows are always excluded.

	A	B	C	D	E	F
1	Sum	1411		SubSum	1411	
2	Average	8.70987654		SubAvg	8.70987654	
3	Count	162		SubCount	162	
4						
5	Quarter ▾	Item ▾	Size ▾	Color ▾	# Sold ▾	
6	1st Quarter	blouses	Large	Blue	14	
7	1st Quarter	blouses	Large	Red	6	
8	1st Quarter	blouses	Large	White	10	
9	1st Quarter	blouses	Medium	Blue	2	
10	1st Quarter	blouses	Medium	Red	4	

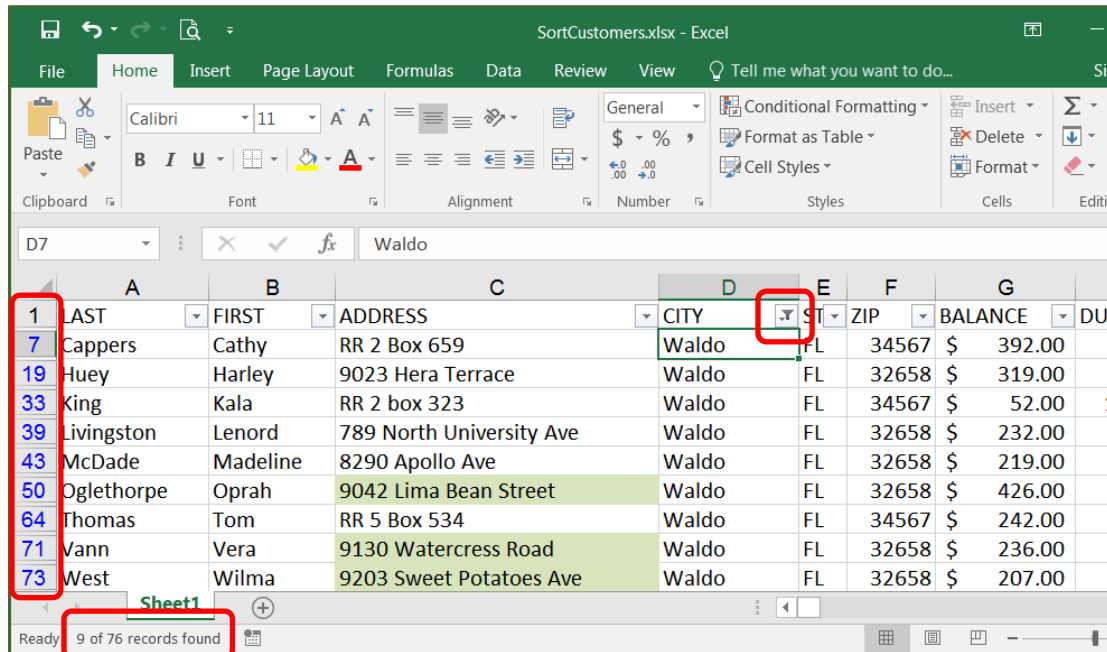
	A	B	C	D	E	F
1	Sum	1411		SubSum	24	
2	Average	8.70987654		SubAvg	8	
3	Count	162		SubCount	3	
4						
5	Quarter ▾	Item ▾	Size ▾	Color ▾	# Sold ▾	
43	2nd Quarter	pants	Large	Red	8	
46	2nd Quarter	pants	Medium	Red	6	
49	2nd Quarter	pants	Small	Red	10	
168						
169						
1	Sum	=SUM(E5:E168)		SubSum	=SUBTOTAL(9,E5:E168)	
2	Average	=AVERAGE(E5:E168)		SubAvg	=SUBTOTAL(1,E5:E168)	
3	Count	=COUNT(E5:E168)		SubCount	=SUBTOTAL(2,E5:E168)	
4						
5	Quarter ▾	Item ▾	Size ▾	Color ▾	# Sold ▾	
43	2nd Quarter	pants	Large	Red	8	
46	2nd Quarter	pants	Medium	Red	6	
49	2nd Quarter	pants	Small	Red	10	
168						
169						

## Class Exercise Filters

- Open the file SortCustomers.xlsx

### Review Basic Filters

- Right-Click on a city of **Waldo**
- Choose Filter -> Filter by Selected Cell's Value



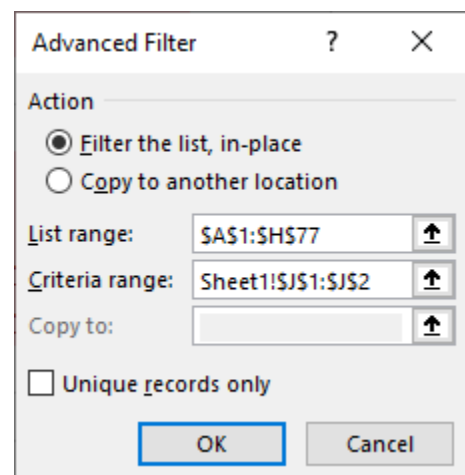
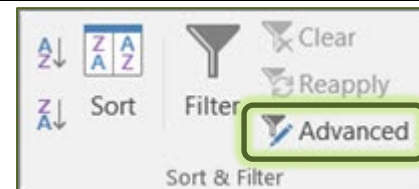
- Turn Filter off from the Sort & Filter menu, or the Data tab (keyboard shortcut Shift-Ctrl-L)

### Advanced Filter

- In cell J1 type **City**
- In cell J2 type **Waldo**
- Return to dataset (ctrl-Home)
- From the Data tab, choose **Advanced Filter**
- The list range should be filled in for \$A\$1:\$H\$77
- Click in the Criteria Range and choose cells J1 and J2
- Click OK → 9 records

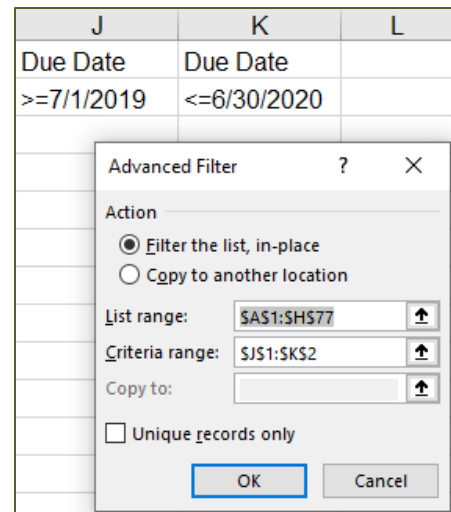
\*\*\*Notice there are no filter arrows, number of records is listed in the status bar, and row numbers turned blue.

- Click the **Clear** button from the Sort & Filter group



### Multiple criteria - AND

- In cell J1 type DUE DATE
- in cell J2 type  $\geq 7/1/2019$
- In cell K1 type DUE DATE
- in cell K2 type  $\leq 6/30/2020$
- click on the **Advanced** filter option
- set the **Criteria Range** to  $\$J\$1:\$K\$2$
- Click OK → 23 Records
- Click the **Clear** button from the Sort & Filter group



### Multiple criteria – OR

- In cell L1 type Balance
- Skip L2
- in cell L3 type  $>600$
- click on the **Advanced** filter option
- set the **Criteria Range** to  $\$J\$1:\$L\$3$
- Click OK → 26 Records
- Click the **Clear** button from the Sort & Filter group

J	K	L
Due Date	Due Date	Balance
$\geq 7/1/2019$	$\leq 6/30/2020$	
		$>600$

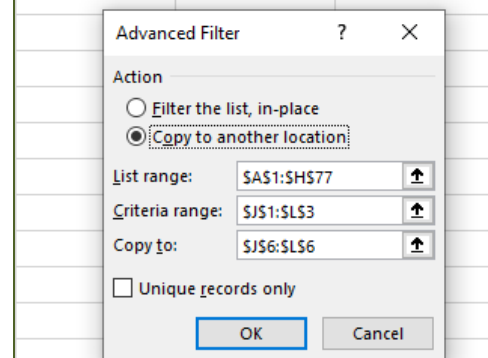
### Another Location

- change K2 to  $\leq 7/31/2019$
- click on the **Advanced** filter option
- set the **Copy to**  $\$J\$6$
- click OK
- there's no **UNDO**
- click in the new dataset, press Ctrl A
- right-click and Delete

J	K	L
Due Date	Due Date	Balance
$\geq 7/1/2019$	$\leq 7/31/2019$	
		$>600$
LAST	FIRST	CITY
Martin	Mary	Jacksonville
Edwards	Edgar	Gainesville
Brown	Bobbie	Gainesville
Jimenez	Jose	Gainesville
Joiner	Jake	Jacksonville

### Copy Specific Titles

- in cell J6 type FIRST
- in cell K6 type LAST
- In cell L6 type CITY
- click on the **Advanced** filter option
- set the **Copy to**  $\text{Sheet1}!\$J\$6:\$L\$6$



### Delete Columns J through L

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## **Class Exercise SubTotal function**

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### ***Set up Grand Total***

- Turn on the Filter
- Go to Cell H79, Type SubTotal
- Go to Cell H80, Type Total
- Go to Cell G80, press the AutoSum button  $\Sigma$  (on the Home or Formulas tab)
- Modify equation to stop at row 78
  - \*\*\*\* =SUM(G2:G78)
- Result: \$23,192.00

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### ***Set up SubTotal***

- Return to the top of the worksheet (Ctrl-Home)
- Set City filter to show only Waldo
- Go to Cell G79, press the AutoSum button  $\Sigma$ 
  - \*\*\*\* See Page 5 for details on the SubTotal Worksheet Function
- Result: \$2,325.00

8	\$	236.00	5/20
8	\$	207.00	1/20
=SUBTOTAL(9,G2:G78)			

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### ***Viewing the different Subtotals***

- From the City drop down, set it so you can only see Starke
  - Result: \$1,290.00
- From the City drop down, set it so you can only see Jacksonville
  - Result: \$3,506.00
- From the City drop down, set it so you can only see Gainesville
  - Result: \$16,071.00

## ***Exit Excel***

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### ***SubTotal Worksheet Function Exercise***

- Open file ExcelData2-Sales.xlsx
- Insert four rows at the top of the worksheet
  - Select the first four rows
  - Right-Click inside the select and choose INSERT
- Create this table:

	A	B	C	D	E
1	Sum			SubSum	
2	Average			SubAvg	
3	Count			SubCount	

- Click inside the dataset, turn on the Filter
- Use the filter tools to find these 3 records:
  - Quarter: 2nd Quarter
  - Item: Pants
  - Color: Red
- Build the following equations

	A	B	C	D	E
1	Sum	=SUM(E5:E168)		SubSum	=SUBTOTAL(9,E5:E168)
2	Average	=AVERAGE(E5:E168)		SubAvg	=SUBTOTAL(1,E5:E168)
3	Count	=COUNT(E5:E168)		SubCount	=SUBTOTAL(2,E5:E168)
4					
5	Quarter	Item	Size	Color	# Sold
43	2nd Quarter	pants	Large	Red	8
46	2nd Quarter	pants	Medium	Red	6
49	2nd Quarter	pants	Small	Red	10
168					
169					

You have to go above and below the showing numbers so that you include all the hidden cells!  
If you only use E43:E49 you will lose all the data currently hidden.

- View Page 4 for the "answers"
- Clear the filter, the numbers in Column E should match the numbers in Column B

### SubTotal Worksheet with Advanced Filter

- Clear cells A1 through B3
- In cell A1 type: Item
- In cell A2 type: Pants
- In cell B1 type: Size
- In cell B2 type: Small
- Click inside the large dataset
- From the Data tab, choose **Advanced Filter**
- if needed, Set the **List range** to \$A\$5:\$E\$167
- Set the **Criteria Range** to \$A\$1:\$B\$2
- Click OK → 18 records

Advanced Filter
 ?
×

Action
   
☒ Filter the list, in-place
   
☐ Copy to another location

List range:

Criteria range:

Copy to:

☐ Unique records only

OK Cancel

Item	Size		SubSum	139
Pants	Small		SubAvg	7.72222222
			SubCount	18
Quarter	Item	Size	Color	# Sold
1st Quarter	Pants	Small	Blue	12
1st Quarter	Pants	Small	Red	8
1st Quarter	Pants	Small	White	10
2nd Quarter	Pants	Small	Blue	2

**Exit Excel**



### PivotTable Exercise

- Open file ExcelData2-Sales.xlsx
- Plan Pivot Table

1 <sup>st</sup> QTR		Red	White	Blue
LARGE	Pants	Σ # sold		
	Blouses			
	Socks			
MEDIUM	Pants	Σ # sold		
	Blouses			
	Socks			
SMALL	Pants	Σ # sold		
	Blouses			
	Socks			

- From the Insert tab choose PivotTable
- Click OK to make a new sheet
- Drag **Item** into the Rows section
- Drag **Color** into the Columns section
- Drag **# Sold** to the Values section
- Drag **Size** to the Rows section
- Swap **Item** and **Size**
- Drag **Quarter** to the Filters section
- Filter **Quarter** for 1st Quarter

### PivotTable Fields

Choose fields to add to report:

Search

☒ Quarter  
☒ Item  
☒ Size

Drag fields between areas below:

<b>Filters</b> Quarter	<b>Columns</b> Color
<b>Rows</b> Size Item	<b>Values</b> Sum of # Sold

Quarter	1st Quarter				
Sum of # Sold	Column Labels				
Row Labels	Blue	Red	White	Grand Total	
<b>Large</b>	26	30	26	82	
Blouses	14	6	10	30	
Pants	2	6	2	10	
Socks	10	18	14	42	
<b>Medium</b>	15	21	18	54	
Blouses	2	4	3	9	
Pants	5	7	6	18	
Socks	8	10	9	27	
<b>Small</b>	36	24	30	90	
Blouses	18	14	16	48	
Pants	12	8	10	30	
Socks	6	2	4	12	
<b>Grand Total</b>	77	75	74	226	