

EXCEL 2010:PIVOT TABLES

Objectives:

- Learn how to set up your data in Excel in a format that you can use for a pivot table.
- Create a pivot table with that data
- Filter pivot table reports
- Change the summary function used in the pivot table
- Format a pivot table and change pivot table options.
- Change the pivot table report to reflect different views on the same data.
- Create a PivotChart with your pivot table

ABOUT PIVOT TABLES

Analyze and summarize data without disturbing the original data set

Sort to look up data in chronological order

Filter to limit scope to certain values you specify.

Place the pivot table on its own worksheet.

Use pivot tables to produce pivot charts to present the information in a graphical way.

SETTING UP DATA FOR USE IN PIVOT TABLES

1. Organize data in **columns with headings**. These headings will be used when you create the pivot table, and things will get very confusing without headings. -
2. Make sure there are **no empty columns or rows** in your data. Excel is good at sensing the start and end of a data table by looking for empty rows and columns at which point it stops.
 - Empty cells are OK.
 - A whole row of column of empty cells is NOT OK.
3. Consistent data in all cells.
 - If you have a date column, make sure all values in that column are dates (or blank).
 - If you have a quantity column, make sure all values are numbers (or blank) and not words.

CREATE A PIVOT TABLE FROM EXCEL WORKSHEET DATA

1. Open Data.xlsx (find file at <http://www.siumed.edu/lib/libclasses.html#excelpivot>)and Save As Data Pivot.xlsx
2. On Sheet 1 click in any cell in the data table.
3. Click on the Insert menu, and then click the **PivotTable Button**



4. The entire data range selected will be listed
5. Choose to place the PivotTable in a new worksheet and click OK. (Figure 1)

Order ID	Product	Category	Amount	Date	Country
1	Carrots	Vegetables	\$4,270	1/6/2012	United States
2	Broccoli	Vegetables	\$8,239	1/7/2012	United Kingdom
3	Banana	Fruit	\$617	1/8/2012	United States
4	Banana	Fruit	\$8,384	1/10/2012	Canada
5	Beans	Vegetables	\$2,626	1/10/2012	Germany
6	Orange	Fruit	\$3,610	1/11/2012	United States
7	Broccoli	Vegetables	\$9,062	1/11/2012	Australia
8	Banana	Fruit	\$6,906	1/16/2012	New Zealand
9	Apple	Fruit	\$2,417	1/16/2012	France
10	Apple	Fruit	\$7,431	1/16/2012	Canada
11	Banana	Fruit	\$8,250	1/16/2012	Germany
12	Broccoli	Vegetables	\$7,012	1/18/2012	United States
13	Carrots	Vegetables	\$1,903	1/20/2012	Germany
14	Broccoli	Vegetables	\$2,824	1/22/2012	Canada
15	Apple	Fruit	\$6,946	1/24/2012	France
16	Banana	Fruit	\$2,320	1/27/2012	United Kingdom
17	Banana	Fruit	\$2,116	1/28/2012	United States
18	Banana	Fruit	\$1,135	1/30/2012	United Kingdom
19	Broccoli	Vegetables	\$3,595	1/30/2012	United Kingdom
20	Apple	Fruit	\$1,161	2/2/2012	United States
21	Orange	Fruit	\$2,256	2/4/2012	France
22	Banana	Fruit	\$1,004	2/11/2012	New Zealand
23	Banana	Fruit	\$3,642	2/14/2012	Canada
24	Banana	Fruit	\$4,582	2/17/2012	United States
25	Beans	Vegetables	\$3,559	2/17/2012	United Kingdom
26	Carrots	Vegetables	\$5,154	2/17/2012	Australia
27	Mango	Fruit	\$7,388	2/18/2012	France
28	Beans	Vegetables	\$7,163	2/18/2012	United States

Figure 1

A PivotTable empty placeholder will appear on the left. On the right is the PivotTable Field List task pane. (Figure 2)

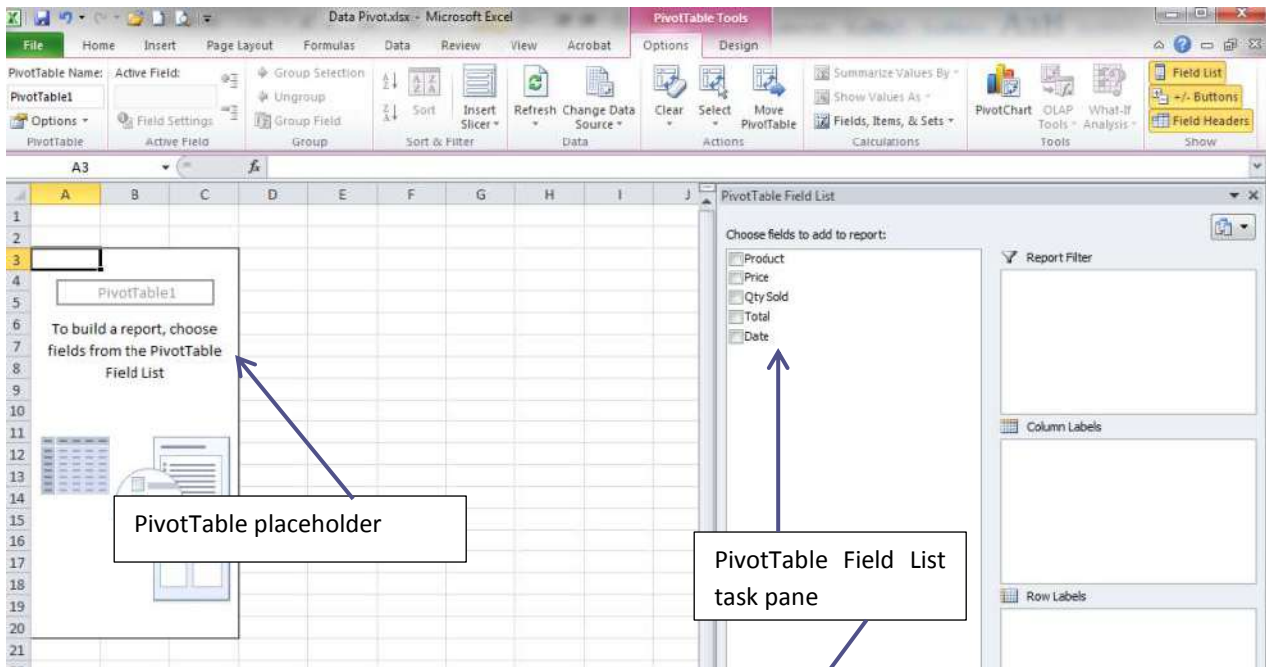
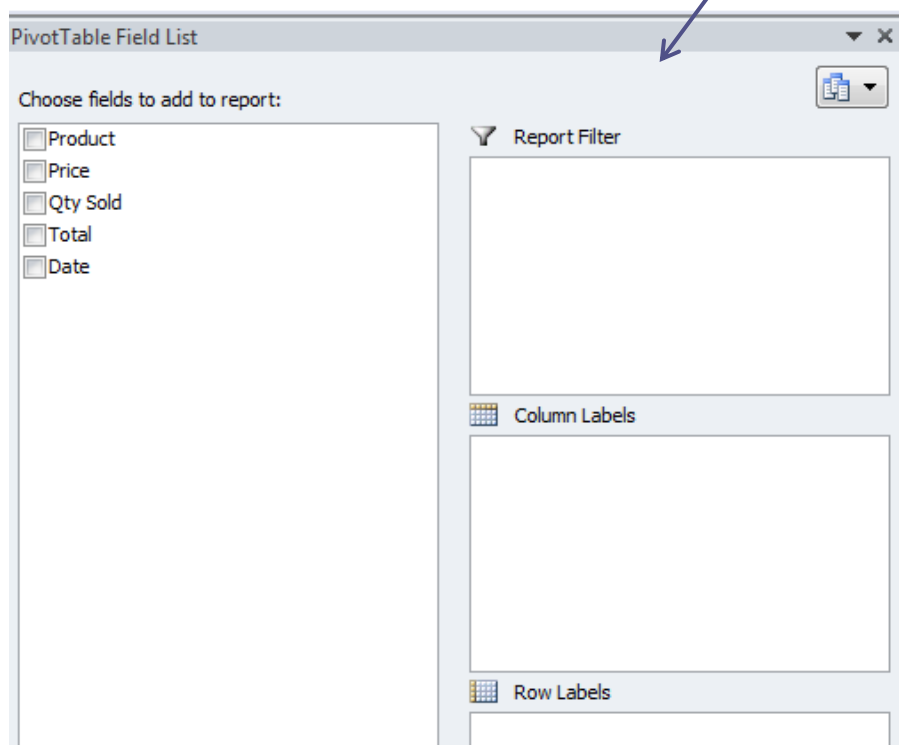


Figure 2

The column headings from your data table should be listed:



DESIGN YOUR PIVOT TABLE LAYOUT

To create the layout, you need to first select the fields you want in your table, and then place them in the correct location.

Drag and drop each field to the area you want. Although you can check the boxes for the fields you want to include, Excel will guess where each field should be placed, and not always correctly.

1. In the PivotTable Field List task pane, drag the **Product** field from the top section to the **Row** Labels area at the bottom. (Figure 3)

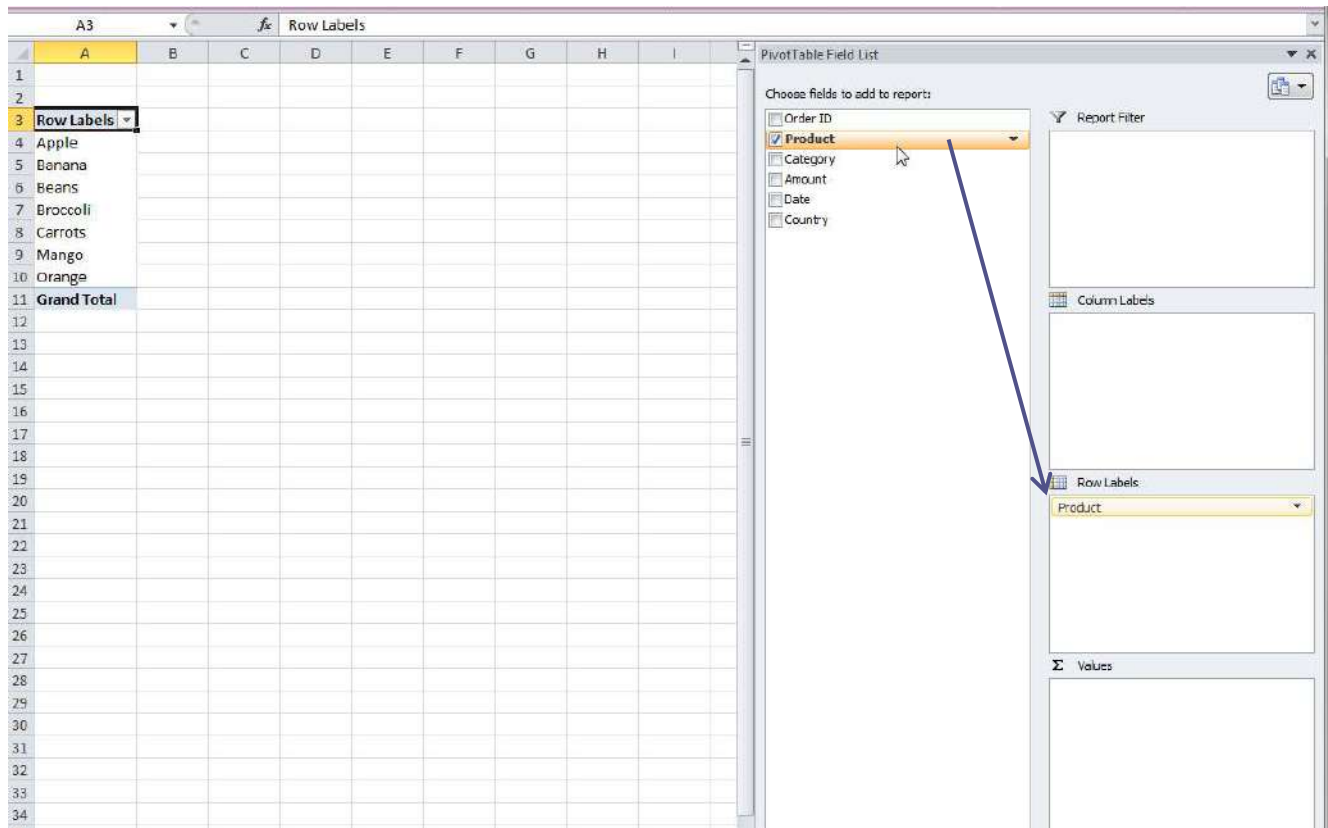


Figure 3

- Drag the **Country** field to the **Column Labels** area. The countries will appear across the top of the PivotTable, in a single row. (Figure 4)



Figure 4

- Drag the **Amount** field to the **Values** area at the bottom.
 - The totals appear at the intersection of the row and column labels on the PivotTable. (Figure 5)

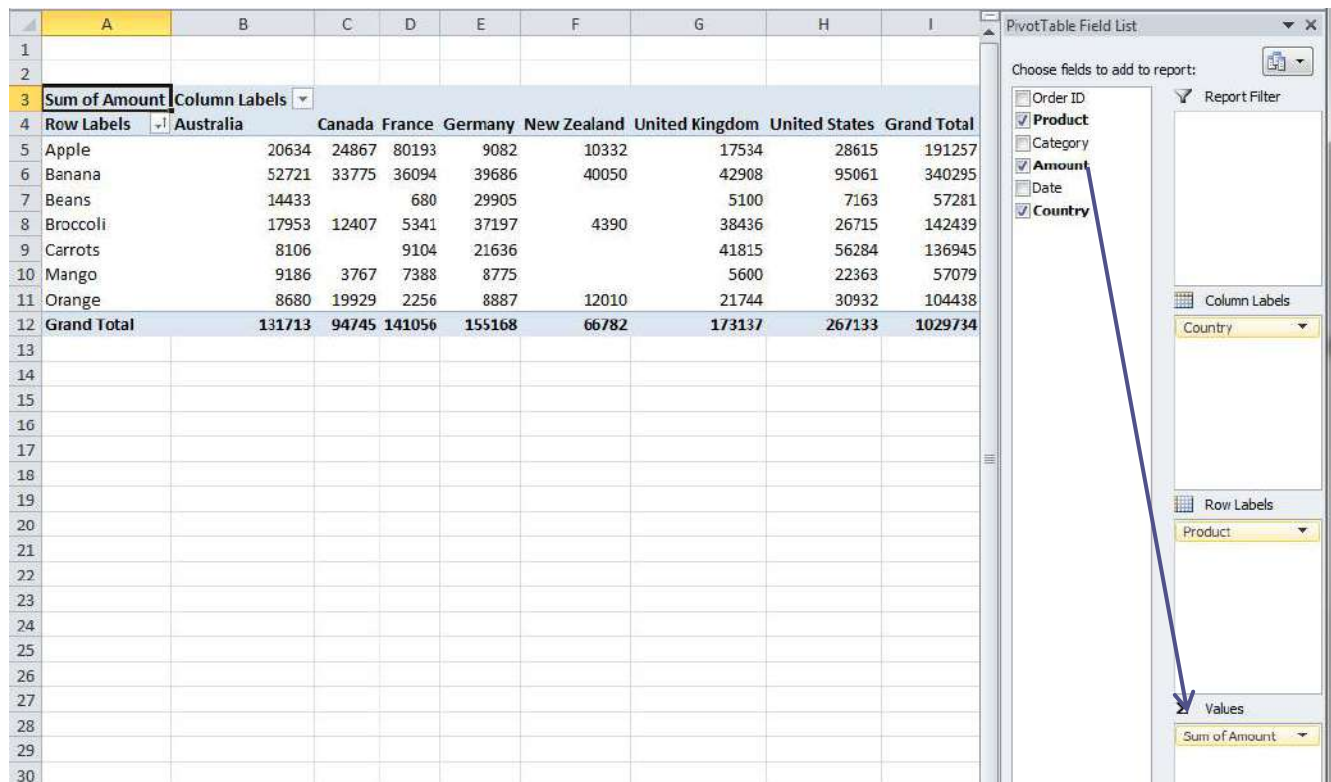


Figure 5

4. Drag the **Category** field to the Report Filter. (Figure 6)

Row Labels	Australia	Canada	France	Germany	New Zealand	United Kingdom	United States	Grand Total
Apple	20634	24867	80193	9082	10332	17534	28615	191257
Banana	52721	33775	36094	39686	40050	42908	95061	340295
Beans	14433		680	29905		5100	7163	57281
Broccoli	17953	12407	5341	37197	4390	38436	26715	142433
Carrots	8106		9104	21636		41815	56284	136945
Mango	9186	3767	7388	8775		5600	22363	57079
Orange	8680	19929	2256	8887	12010	21744	30932	104438
Grand Total	131713	94745	141056	155168	66782	173137	267133	1029734

Figure 6

USE THE REPORT FILTER

Fields dragged to the Report Filter appear at the top of the pivot table. You can filter the entire pivot table report based on these fields

To filter the pivot table to show only fruit (Figure 7):

1. Click the Category drop-down arrow.
2. Click to select Fruit from the list.
3. Click OK.

Search

- (All)
- Fruit
- Vegetables

Select Multiple Items

OK Cancel

Figure 7

The table will change to show only fruit. (Figure 8)

Category	Fruit								
Sum of Amount	Column Labels								
Row Labels	Australia	Canada	France	Germany	New Zealand	United Kingdom	United States	Grand Total	
Apple	20634	24867	80193	9082	10332	17534	28615	191257	
Banana	52721	33775	36094	39686	40050	42908	95061	340295	
Mango	9186	3767	7388	8775		5600	22363	57079	
Orange	8680	19929	2256	8887	12010	21744	30932	104438	
Grand Total	91221	82338	125931	66430	62392	87786	176971	693069	

Figure 8

Try changing the display to only vegetables and then change it back to All.

MODIFY THE PIVOT TABLE

FORMATTING

Formatting tools are available on the Design Tab that appears on the Ribbon under the PivotTable Tools contextual tab.

CHANGE THE REPORT LAYOUT:

1. Click the **Design Tab** under **PivotTable Tools** on the Ribbon.
2. From **Report Layout** drop-down, choose **Show in Tabular Form**.

This format displays the cell borders and changes the columns to equal widths. (Figure 9)

Product	France	Germany	New Zealand	United Kingdom
Apple	867	80193	9082	10332
Banana	775	36094	39686	40050
Beans		680	29905	
Broccoli	407	5341	37197	4390
Carrots	8106	9104	21636	
Mango	9186	3767	7388	
Orange	8680	19929	2256	8887
Grand Total	131713	94745	141056	155168

Figure 9

CHANGE THE TABLE DESIGN

1. On the **PivotTable Tools Design Tab**, click the drop-down arrow to see all the available styles. (Figure 10)

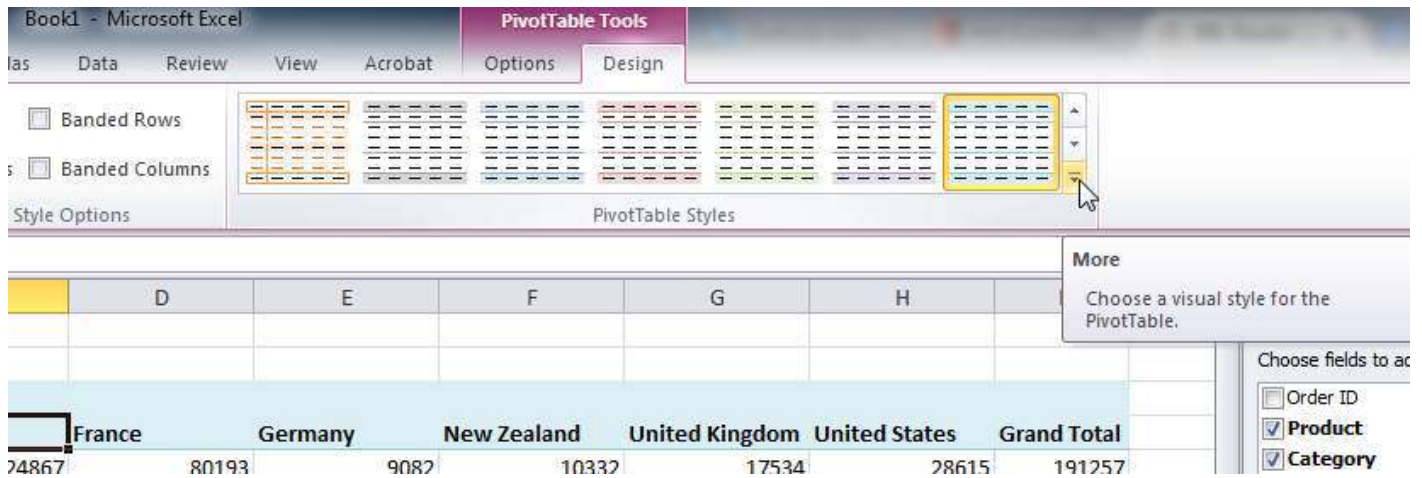


Figure 10

2. Choose second style in the third row, Pivot Style Light 15. (Figure 11)

Other formatting options include banded rows and banded columns

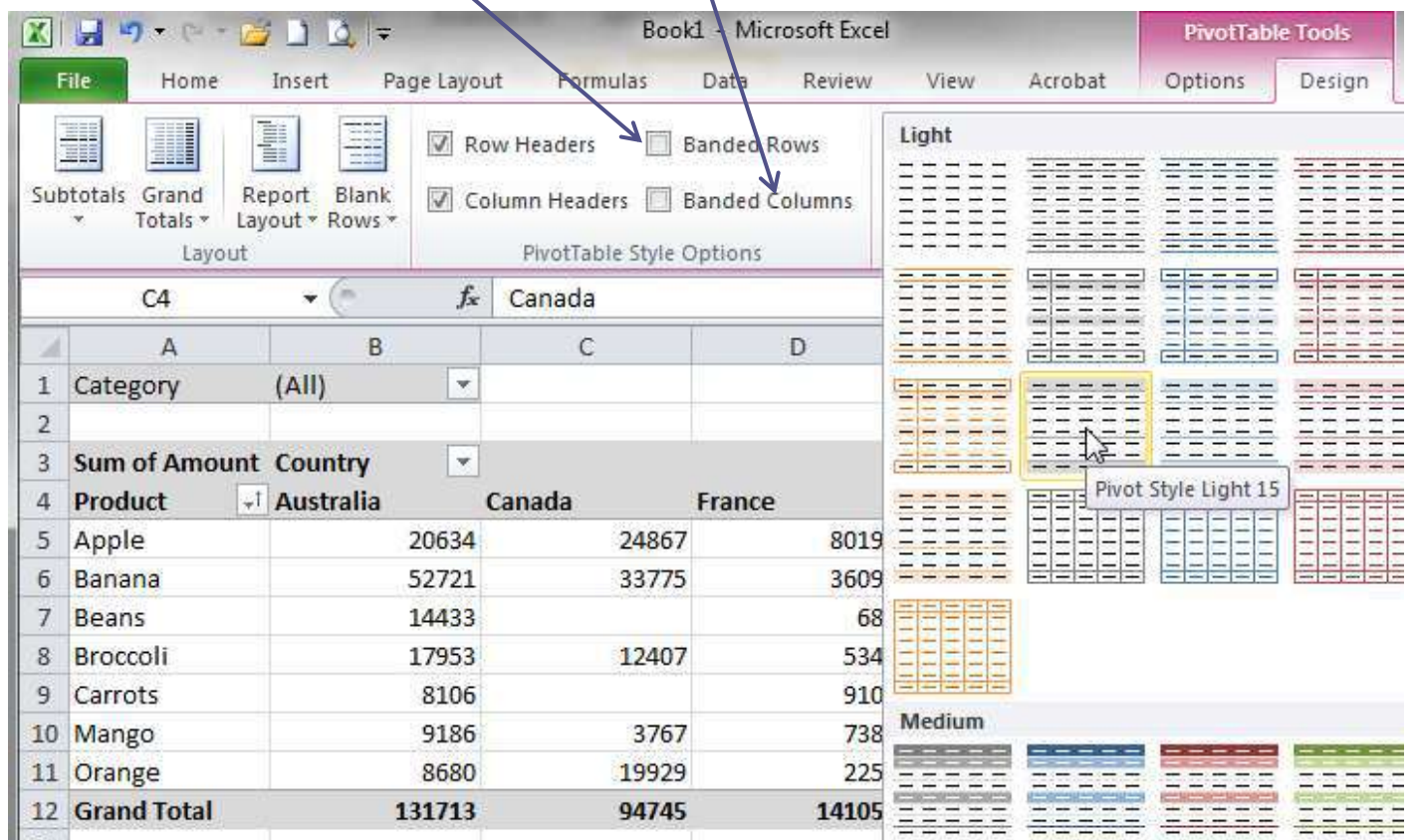


Figure 11

PIVOT THE TABLE'S FIELDS

Pivot tables allow you to rotate or “pivot” the data fields used as rows and columns. You can also change which fields are used and how they are presented.

SWITCH THE COLUMNS AND ROWS IN YOUR PIVOT TABLE: (FIGURE 12)

1. Click and drag the **Product** field from the Row Labels panel to the Columns panel
2. Then click and drag the **Country** field from the Column Labels panel to the Row Labels panel.

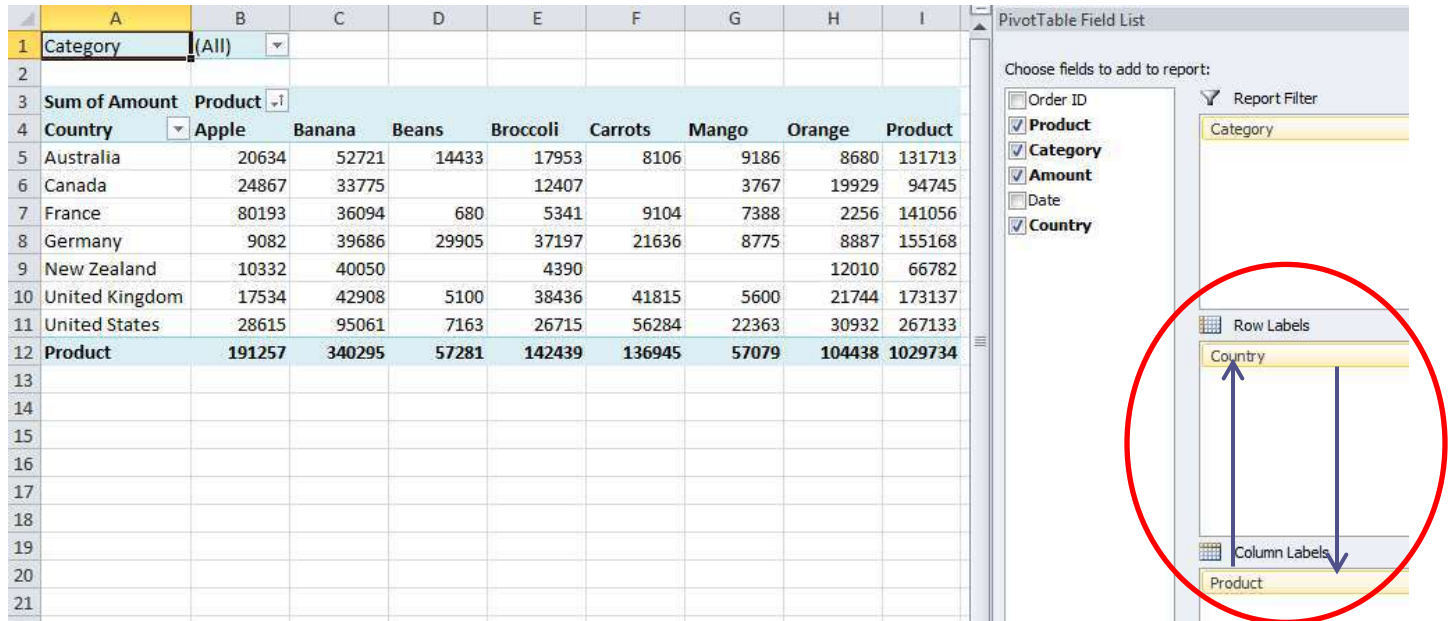


Figure 12

CHANGE THE FIELDS USED: (FIGURE 13)

1. Drag the **Date** field to the **Report Filter Panel**

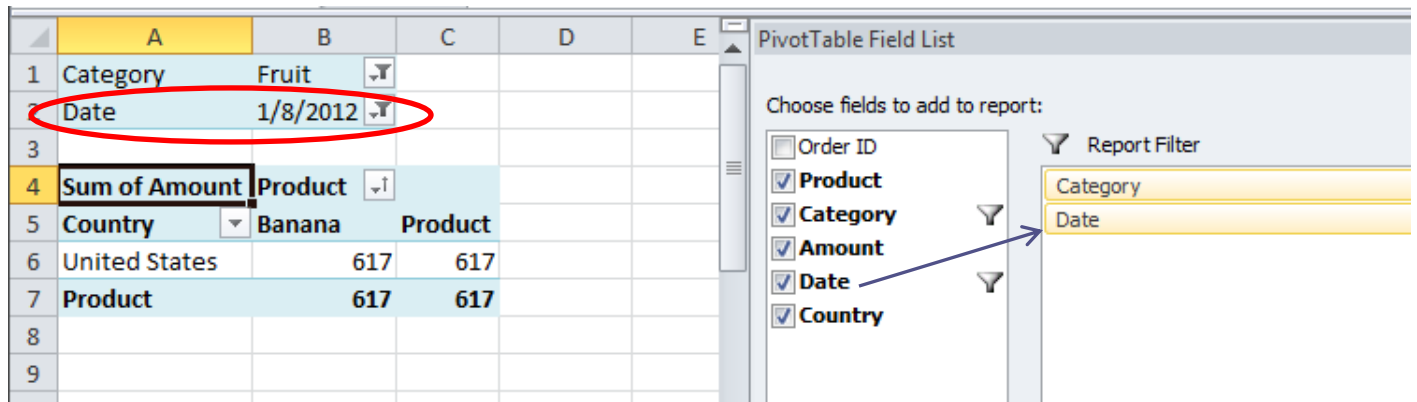
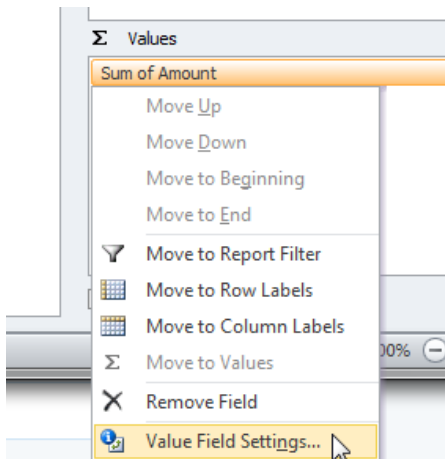


Figure 13

2. Date now appears as another filter at the top of the chart.
3. Click on the drop-down arrow by Category and choose Fruit, then click on the drop-down arrow by Date and select 1/8/2012 from the list to display only fruit sold on that date.
4. Change the Date filter back to All to display all the data.

CHANGE THE VALUE FIELD SETTINGS



The default calculation for the Value field is the Sum of the Amount.

To represent values in different ways:

1. Click the drop-down arrow for **Sum of Amount** in the **Values** panel (Figure 14)
2. Choose **Value Field Settings...**

Figure 14

In the window that appears you have the following choices: (Figure 15)

1. **Summarize Values By** Change from the default Sum to other calculations such as Count, Average, Max, Min, etc.
2. **Show Values As** – Change from No Calculation to percentages and other options.
3. **Number Format** –Change the number format for the Value field

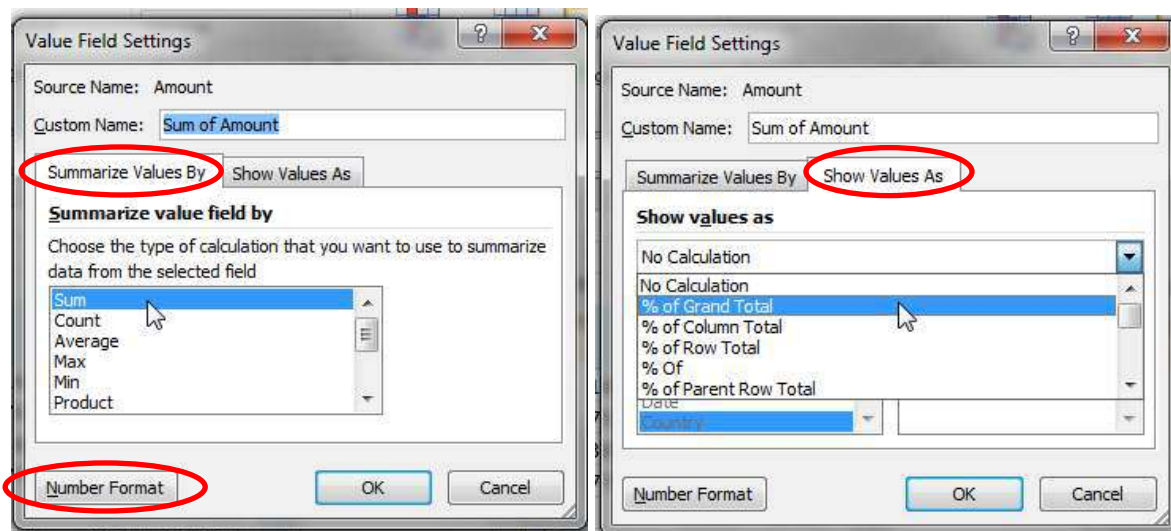
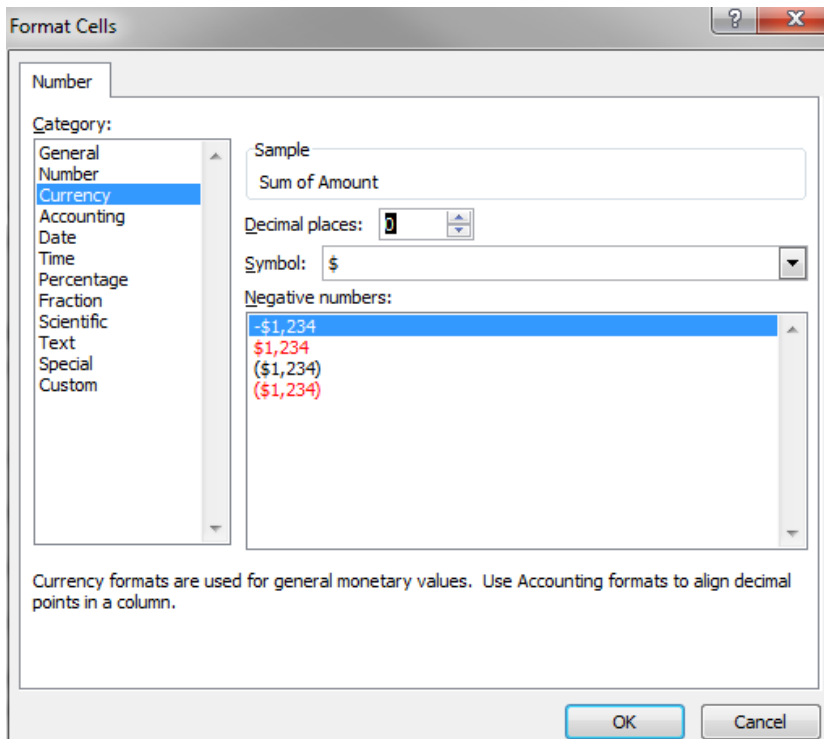


Figure15

CHANGE THE NUMBER FORMAT TO DISPLAY DOLLARS:

1. Click the Number Format button:

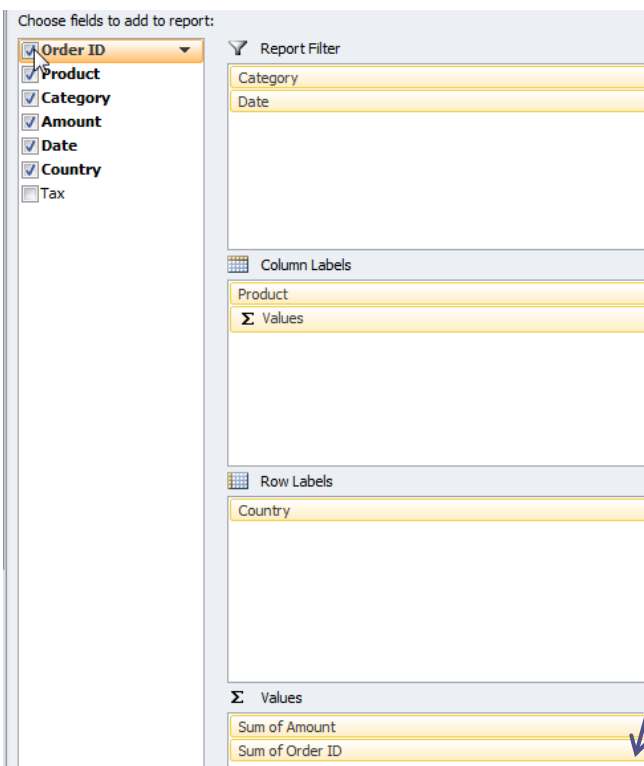


- From the Category list choose **Currency** and change the number of decimal places to zero. (Figure 17) and click OK

Figure 17

ADD A FIELD TO THE PIVOT TABLE AND CHANGE ITS SUMMARY FUNCTION

For this exercise we want to know the number of orders for a particular country or product. Instead of a sum for the order we need a count.



ADD THE ORDER ID FIELD TO THE PIVOT TABLE:

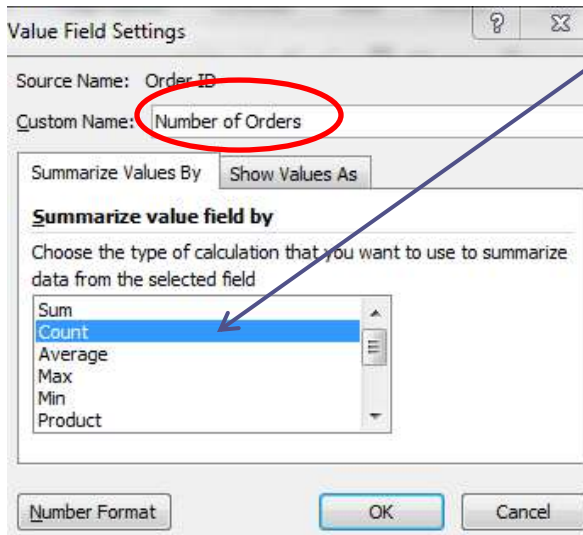
- In the PivotTable Field List panel, click the box next to **Order ID**.
- Sum of Order ID** will be added to the **Values** section. (Figure 18)

Alternatively, you can drag **Order ID** down to the **Values Panel** and Values will automatically be added under **Column Labels**.

CHANGE THE SUMMARY FUNCTION OF ORDER ID FROM SUM TO COUNT:

- Click on the drop-down arrow for **Sum of Order ID** in the Values panel.
- Choose **Value Field Settings**

Figure 18



3. Choose **Count** under “**Summarize Values By**”
4. Change the Custom Name to **Number of Orders**. (Figure 19)

Figure 19

Your pivot table should now look like the excerpt below (Figure 20).

	A	B	C	D	E	F	G
1	Category	(All)					
2	Date	(All)					
3							
4		Product	Values				
5		Apple	Banana	Beans			
6	Country	Sum of Amount	Number of Orders	Sum of Amount	Number of Orders	Sum of Amount	Number of Orders
7	Australia	\$20,634	4	\$52,721	10	\$14,433	3
8	Canada	\$24,867	6	\$33,775	7		
9	France	\$80,193	16	\$36,094	7	\$680	1
10	Germany	\$9,082	2	\$39,686	9	\$29,905	6
11	New Zealand	\$10,332	2	\$40,050	8		
12	United Kingdom	\$17,534	4	\$42,908	7	\$5,100	2
13	United States	\$28,615	6	\$95,061	23	\$7,163	1
14	Grand Total	\$191,257	40	\$340,295	71	\$57,281	13

Figure 20

CREATE AND MODIFY CALCULATED FIELDS

You can create calculated fields, which are computed by assigning a formula using numeric fields in your data source

EXERCISE: CREATE A CALCULATED FIELD FOR A 7% SALES TAX ON THE SALES AMOUNT..

1. With your pivot table open, click the Options Tab under PivotTableTools on the Ribbon.
2. Click the **Field, Items, & Sets** button and choose **Calculated Field** (Figure 21)

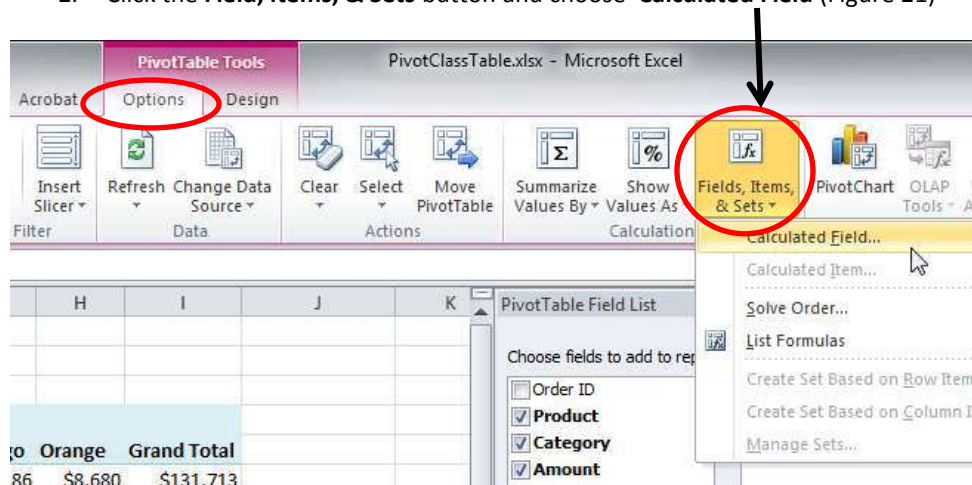


Figure 21

3. In the panel that appears, type Tax in the Name.
4. Click on **Amount** in the list of Fields and click **Insert Field**. The Formula box should now say “=Amount”
5. Type in *.07, the complete formula should read **=Amount*.07**
6. Click OK. Tax should now appear in the PivotTable Field List

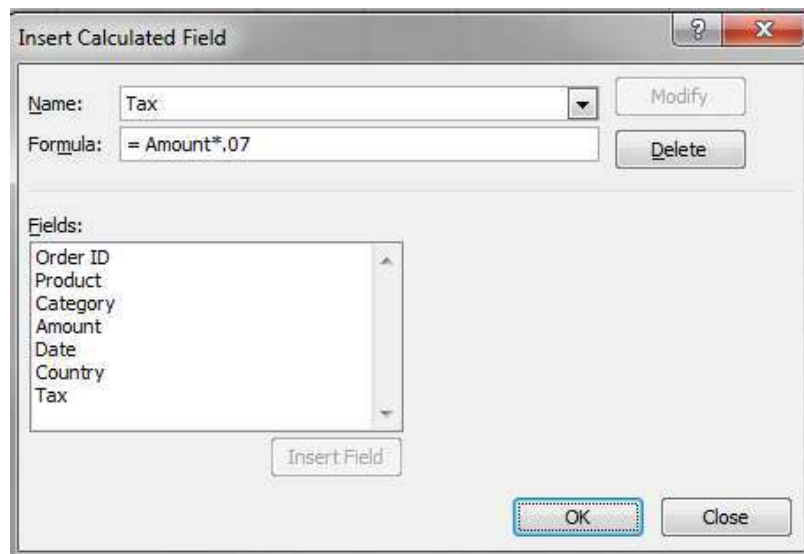


Figure 22

ADD THE NEW CALCULATED FIELD TO THE PIVOT TABLE:

1. Check the box next to **Tax** in the PivotTable Field List.
2. **Sum of Tax** will be added to the Values panel and will appear on the pivot table. (Figure 23)

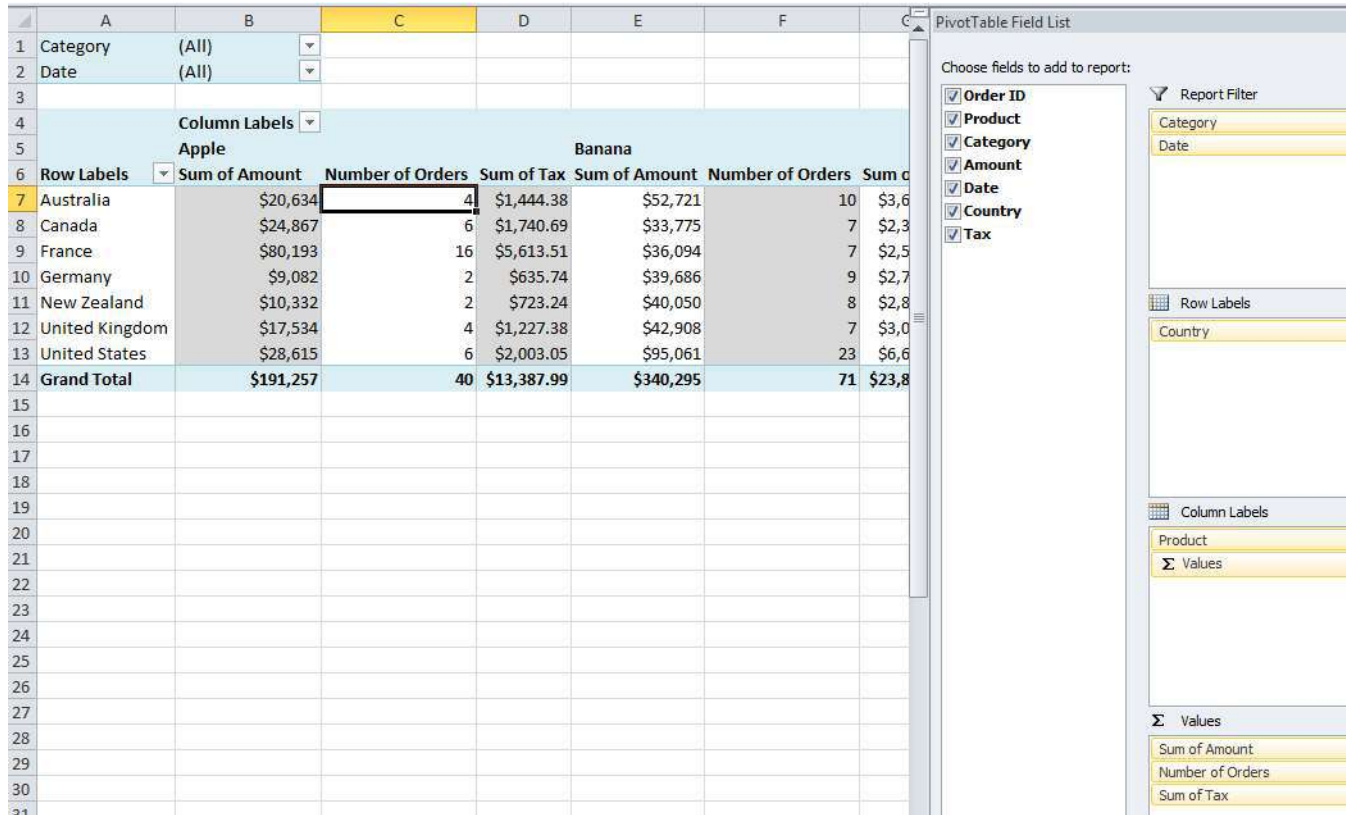


Figure 23

REARRANGE THE VIEW

1. Drag **Product** from the **Column Labels** panel to Row Labels, placing Product below Country. (Figure 24)
2. The table pivots to show **Products** listed below each country. (Figure 25)

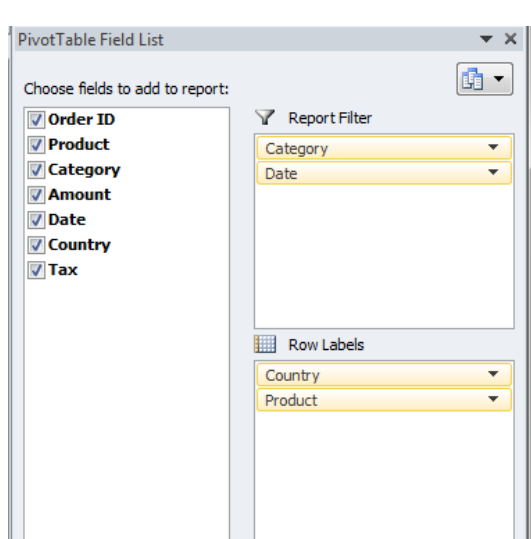


Figure 24

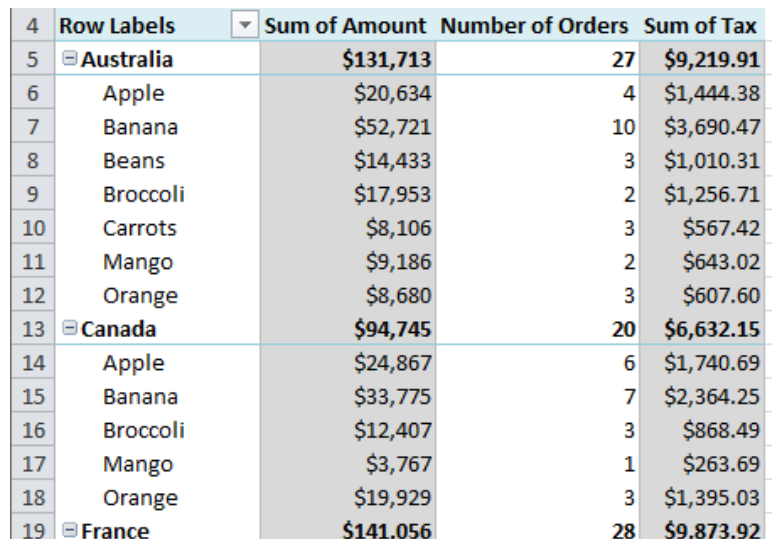


Figure 25

- Rearrange again by dragging **Country** below **Product** in the **Row Labels** panel. (Figure 26)
- The table pivots to show the countries listed below each product. (Figure 27)

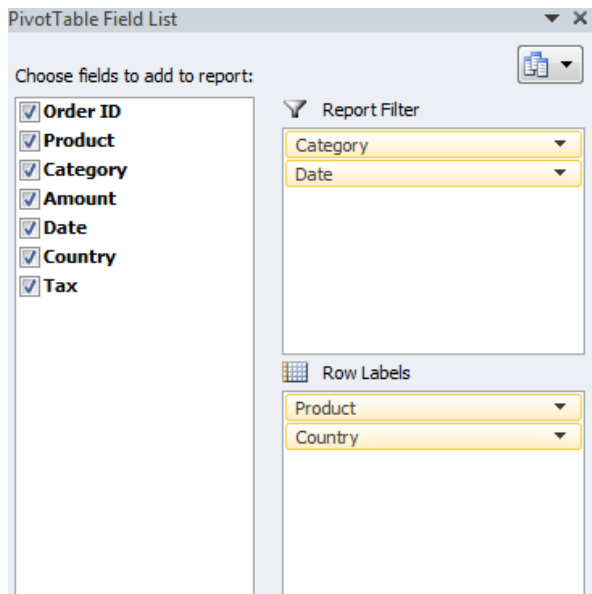


Figure 26

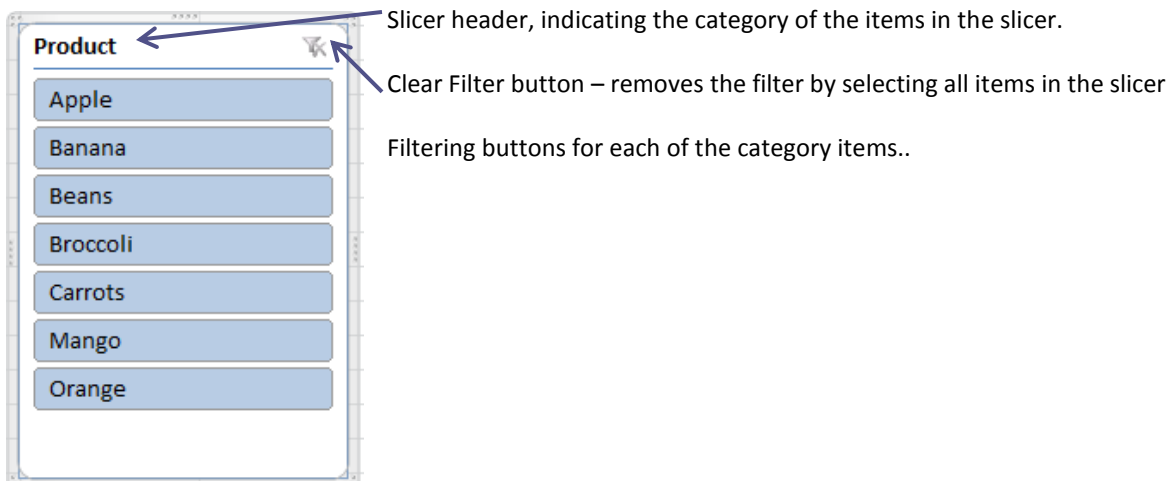
4	Row Labels	Sum of Amount	Number of Orders	Sum of Tax
5	Apple	\$191,257	40	\$13,387.99
6	Australia	\$20,634	4	\$1,444.38
7	Canada	\$24,867	6	\$1,740.69
8	France	\$80,193	16	\$5,613.51
9	Germany	\$9,082	2	\$635.74
10	New Zealand	\$10,332	2	\$723.24
11	United Kingdom	\$17,534	4	\$1,227.38
12	United States	\$28,615	6	\$2,003.05
13	Banana	\$340,295	71	\$23,820.65
14	Australia	\$52,721	10	\$3,690.47
15	Canada	\$33,775	7	\$2,364.25
16	France	\$36,094	7	\$2,526.58
17	Germany	\$39,686	9	\$2,778.02
18	New Zealand	\$40,050	8	\$2,803.50
19	United Kingdom	\$42,908	7	\$3,003.56
20	United States	\$95,061	23	\$6,654.27
21	Beans	\$57,281	13	\$4,009.67
22	Australia	\$14,433	3	\$1,010.31

Figure 27

USE SLICERS TO FILTER PIVOT TABLE DATA

Slicers provide buttons that you can use to quickly filter pivot table data and see at a glance which items in a category are being used to filter data. Each slicer is designed to filter on a specific pivot table field, so you can create more than one for a pivot table report.

.A slicer contains the following:



TO ADD A SLICER:

1. With your pivot table selected, click on the **Options** tab under **PivotTable Tools** on the Ribbon and click the drop-down arrow next to **Insert Slicer**. (Figure 32)
2. Check the boxes next to **Product** and **Category**. (Figure 33) and click OK.

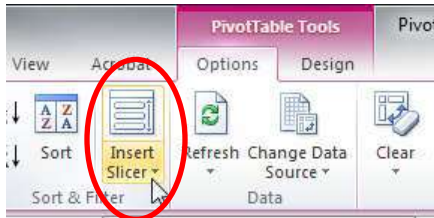


Figure 32



Figure 33

3. Two slicers are inserted into the pivot table. You can click on the buttons to add filters rather than use drop-downs. Visually, it is easier to see which filters are in use.

	A	B	C	D	E	F	G	H
1	Category	Fruit						
2	Date	(All)						
3								
4	Row Labels	Sum of Amount	Number of Orders					
5	Australia	\$91,221	19					
6	Apple	\$20,634	4					
7	Banana	\$52,721	10					
8	Mango	\$9,186	2					
9	Orange	\$8,680	3					
10	Canada	\$82,338	17					
11	Apple	\$24,867	6					
12	Banana	\$33,775	7					
13	Mango	\$3,767	1					
14	Orange	\$19,929	3					
15	France	\$125,931	25					
16	Apple	\$80,193	16					
17	Banana	\$36,094	7					
18	Mango	\$7,388	1					
19	Orange	\$2,256	1					
20	Germany	\$66,430	13					

CREATE A PIVOT CHART

1. Click in your pivot table
2. Click the **Options Tab** under **PivotTable Tools** on the Ribbon and then click on PivotChart. (Figure 28)

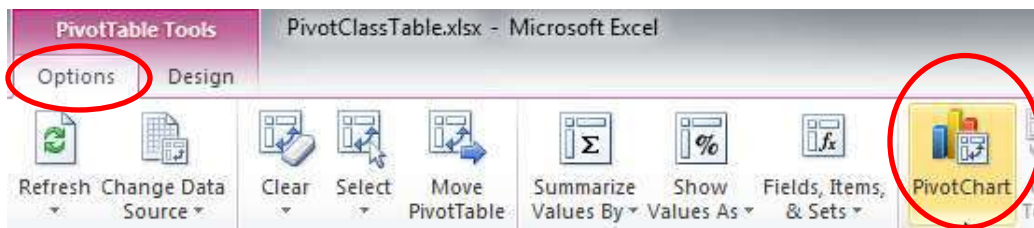


Figure 28

3. Choose the first Column chart style. (Figure 29) and click OK.

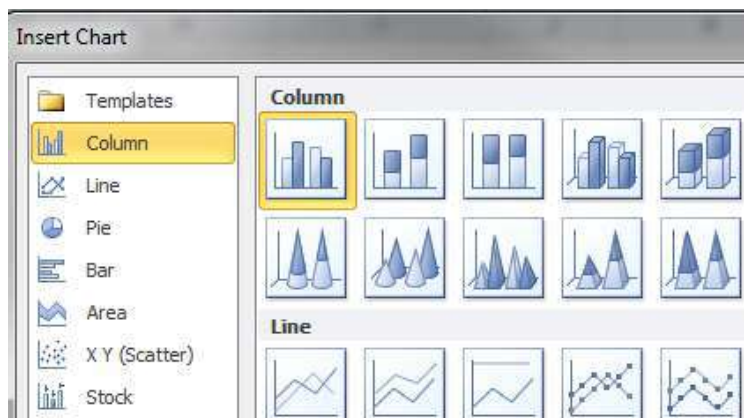


Figure 29

4. Click the **Move Chart** button on the Ribbon and move to a new sheet. Name the chart Pivot Chart (Figure 30).

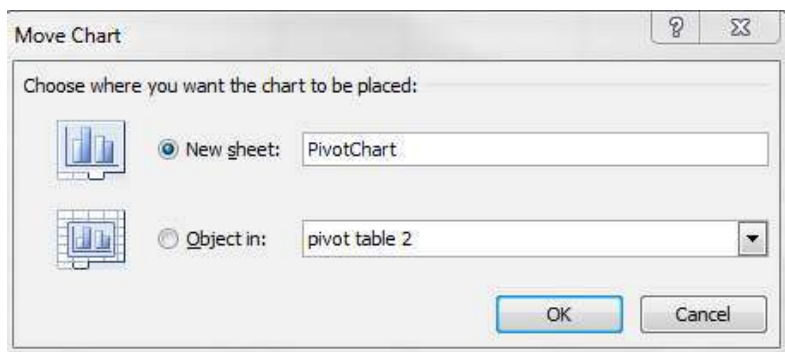


Figure30

5. Just like the pivot table, use the PivotTable Field List to add or delete field and filter the results. (Figure 31)

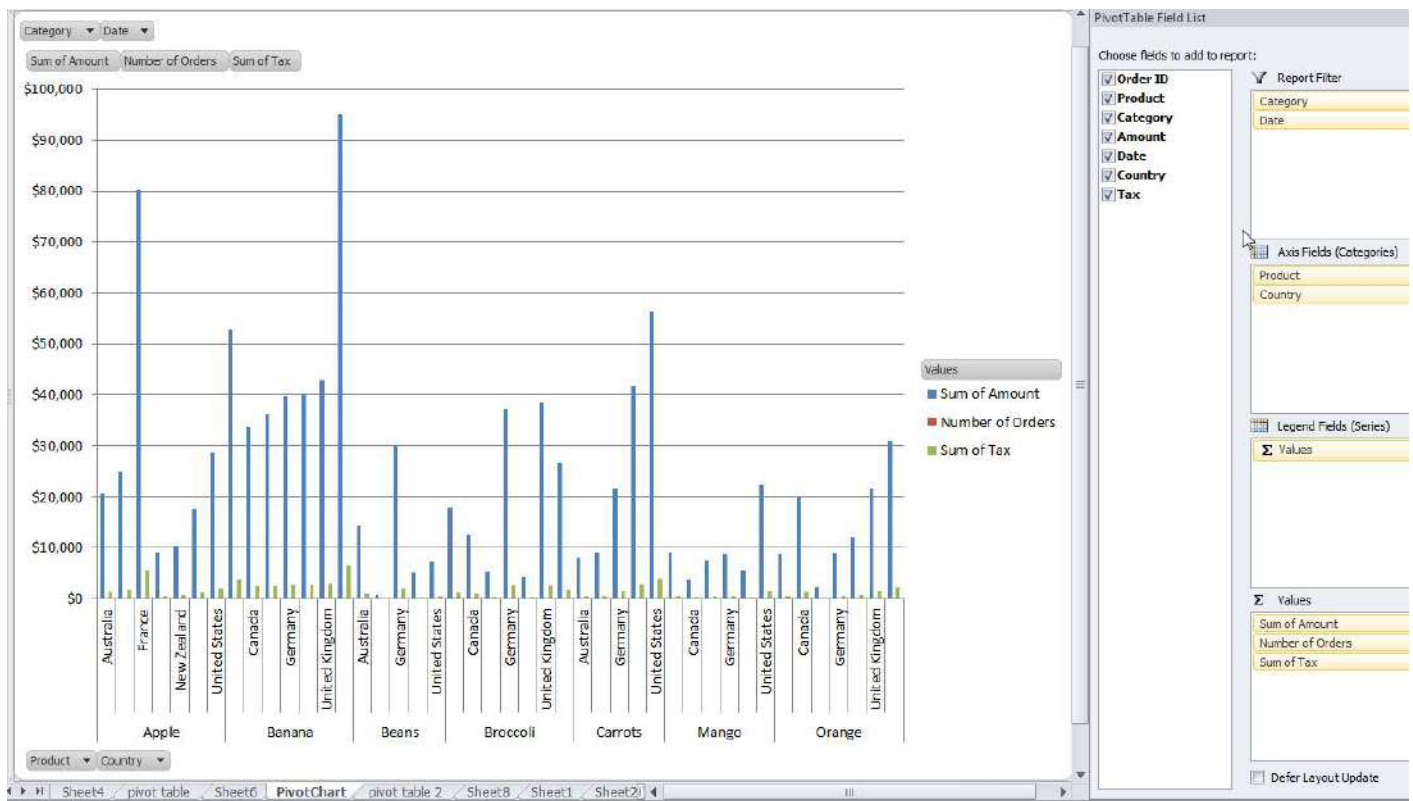


Figure 31

Try dragging Product below Country in the Axis Fields panel and clicking to remove the check by Tax in the Field List.

TABLE SUMMARY FUNCTIONS

Count: Show the count of the records for a particular category. Count is the default for any text fields that you use as Data Items.

Average: Calculate the average for the values in the field for the current category and page filter.

Max: Display the largest numeric value in that field for the current category and page filter.

Min: Display the smallest numeric value in that field for the current category and page filter.

Product: Display the product of the numeric values in that field for the current category and page filter.

Count Numbers: Display the number of numeric values in that field for the current category and page filter. Non-numeric entries are ignored.

StdDev: Display the standard deviation for the sample in that field for the current category and page filter.

StdDevp: Display the standard deviation for the population in that field for the current category and page filter.

Var: Display the variance for the sample in that field for the current category and page filter.

Varp: Display the variance for the population in that field for the current category and page filter.