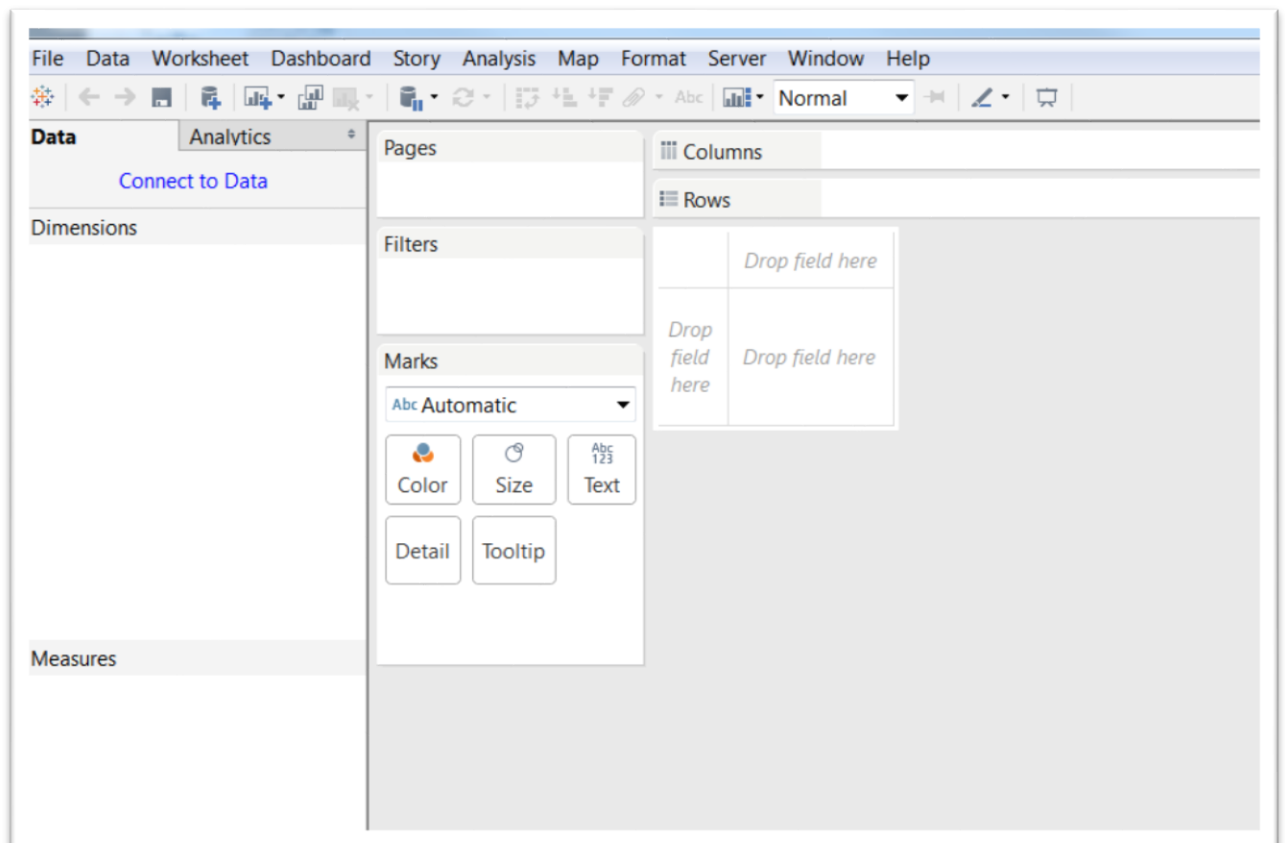


Tableau Tutorial Using Canadian Arms Sales Data

- 1) Your data comes from Industry Canada's Trade [site](#).
- 2) If you don't want to download the data yourself, use this [file](#). You can also download it from the [website](#) we've created for this session. (Note: Click on [this file](#) to learn how to transpose tables)
- 3) Open a Tableau workbook
- 4) Data – new data source



- 5)
- 6) Browse for your Excel file
- 7) Select the arms sales workbook that we downloaded.
- 8) Double-click "WorkingCopy_2-Tableau" sheet or drag and drop the sheet in the "*Drag sheets here*" area

File Data Server Window Help

WorkingCopy_2-Tableau (ArmsSales)

Connected to Excel

Workbook
ArmsSales.xls

Sheets

Enter sheet name

- Original
- WorkingCopy
- WorkingCopy_2
- WorkingCopy_2-Tableau**
- WorkingCopy_2-Tableau 1
- New Union

WorkingCopy_2-Tableau

Sort fields Data source order

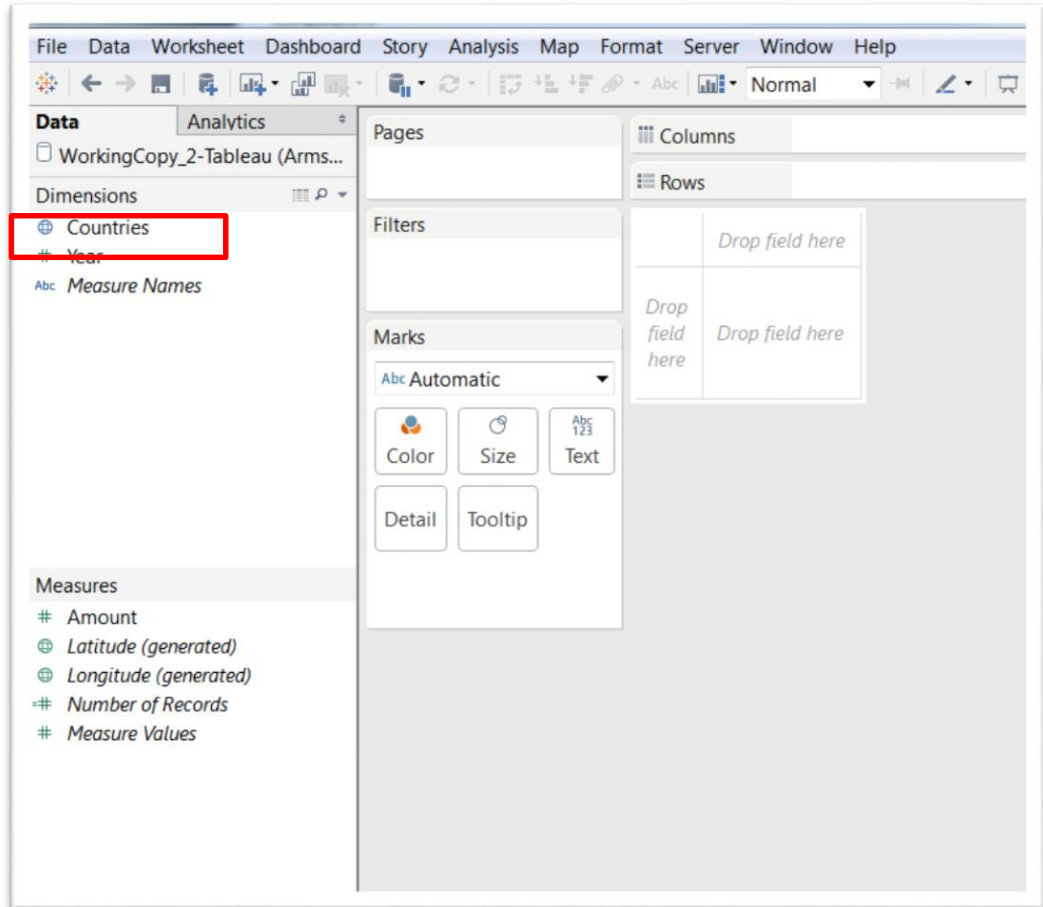
Countries	Year	Amount
Afghanistan	2011	766
Afghanistan	2012	937
Afghanistan	2014	48,472
Albania	2013	7,670
Algeria	2011	29
Algeria	2012	242,000
Algeria	2015	440,000
American Sam...	2015	455
Angola	2012	127

Data Source Sheet 1

Go to Worksheet

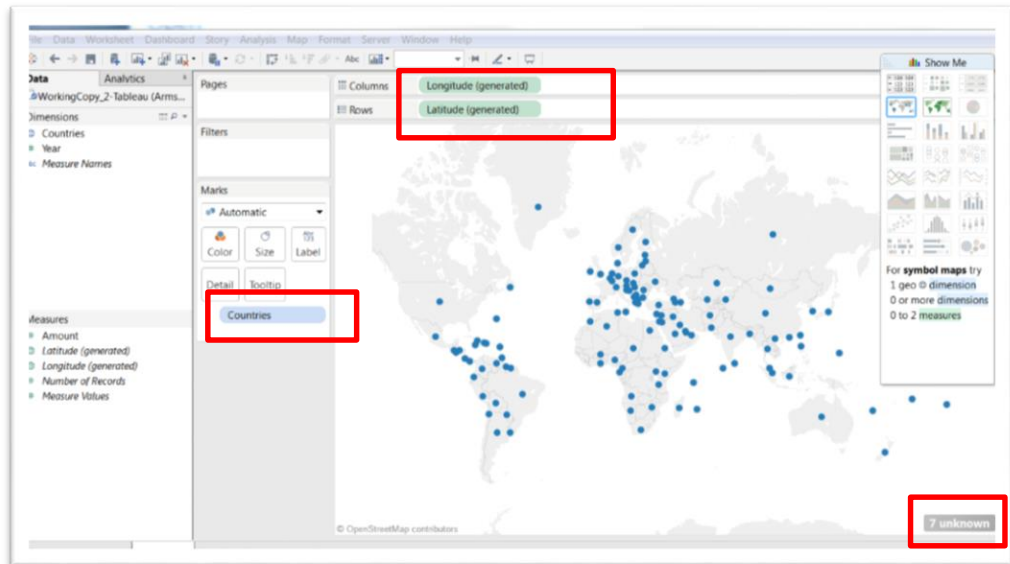
9)

10) Select "Sheet 1"



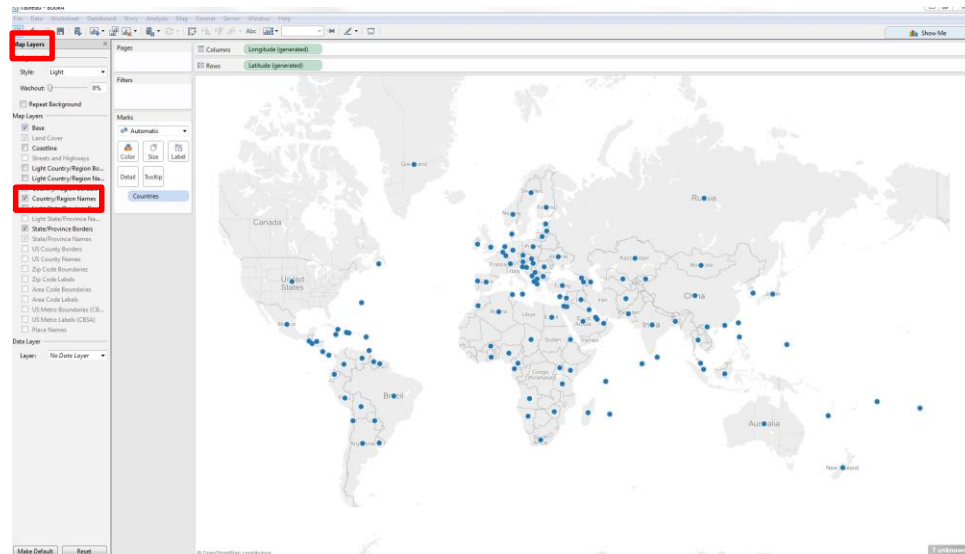
11)

12) Double-Click on the “Countries” icon in the “Dimensions” section to produce your map.

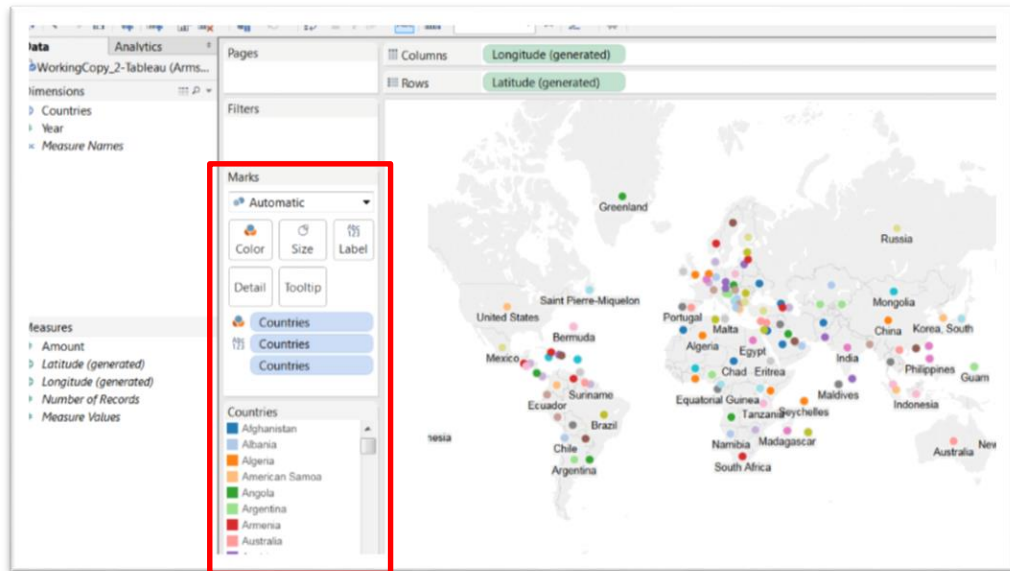


13)

- 14) You'll notice that at the bottom right-hand corner, there's an icon which indicates that there are "7 unknown" countries. We can clean those up later.
- 15) Rename the worksheet from the generic "Sheet 1" to "Countries" by double-clicking on the "Sheet 1" label and typing the new name.
- 16) To obtain the country names, select Map/Map Layers in the top menu. In the left Map Layers window, check Country/Region Names



- 17)
- 18) Close the Map Layers window
- 19) To make the map look more interesting, you can drag the "Countries" icon into the "Color" section under "Marks".



20)

21) In marks, select Filled Map

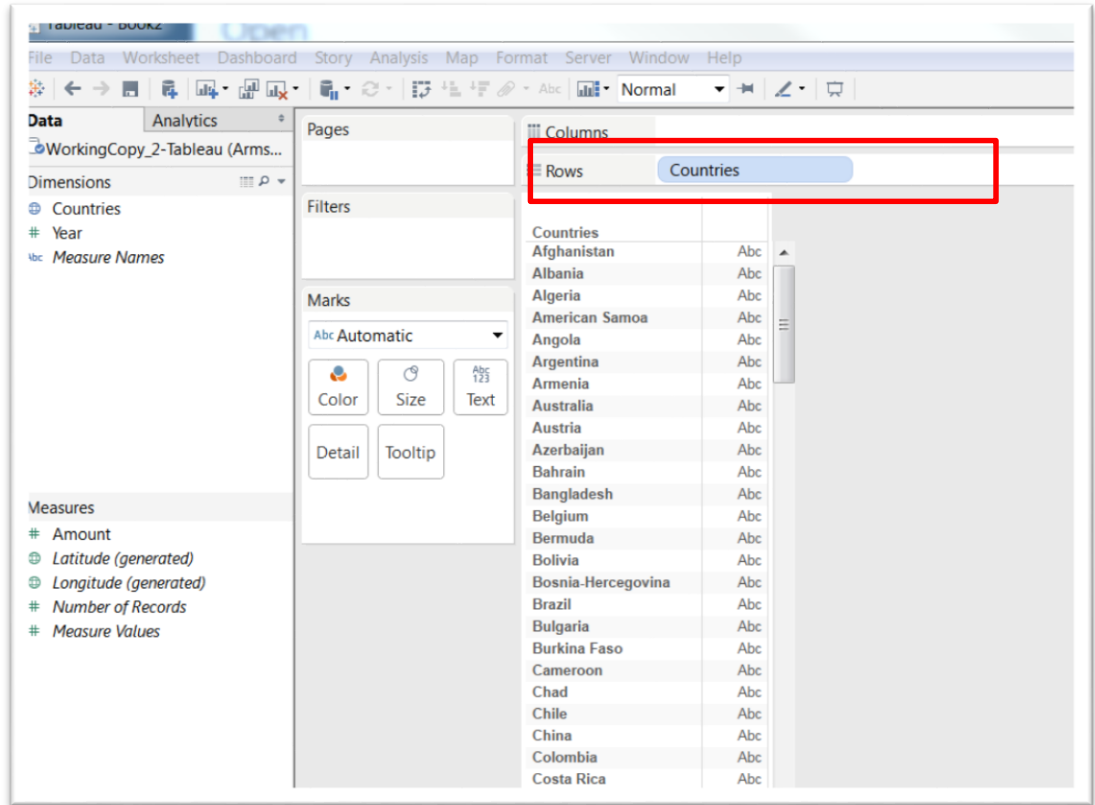


22)

23) We can always return to the countries tab. But for now, let's move on and create a new one by clicking on the icon to the right of your "Countries" tab.

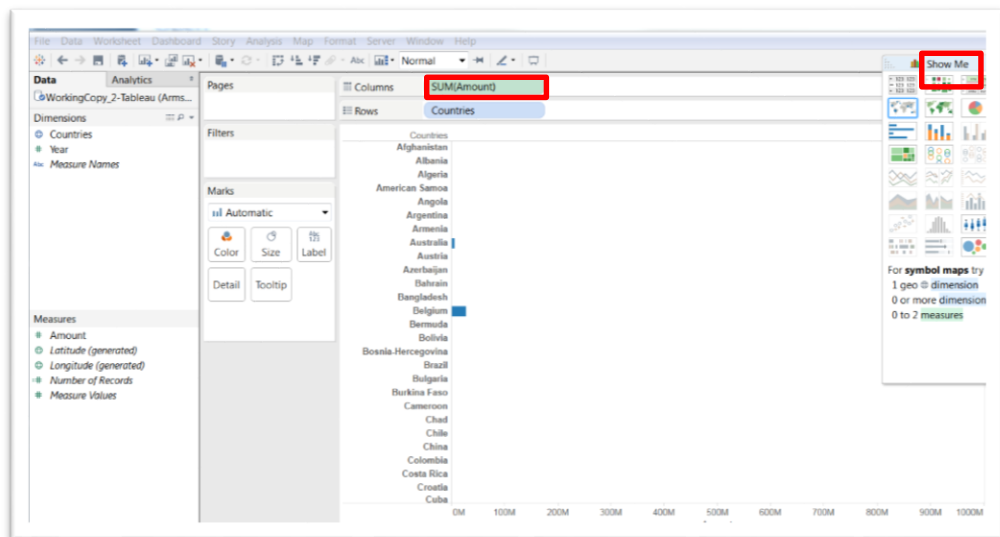
24) Rename it "Arms Sales".

25) Drag the "Countries" icon into the table's "Rows" section.



26)

27) Drag the “Amount” onto the table’s “Columns” section.

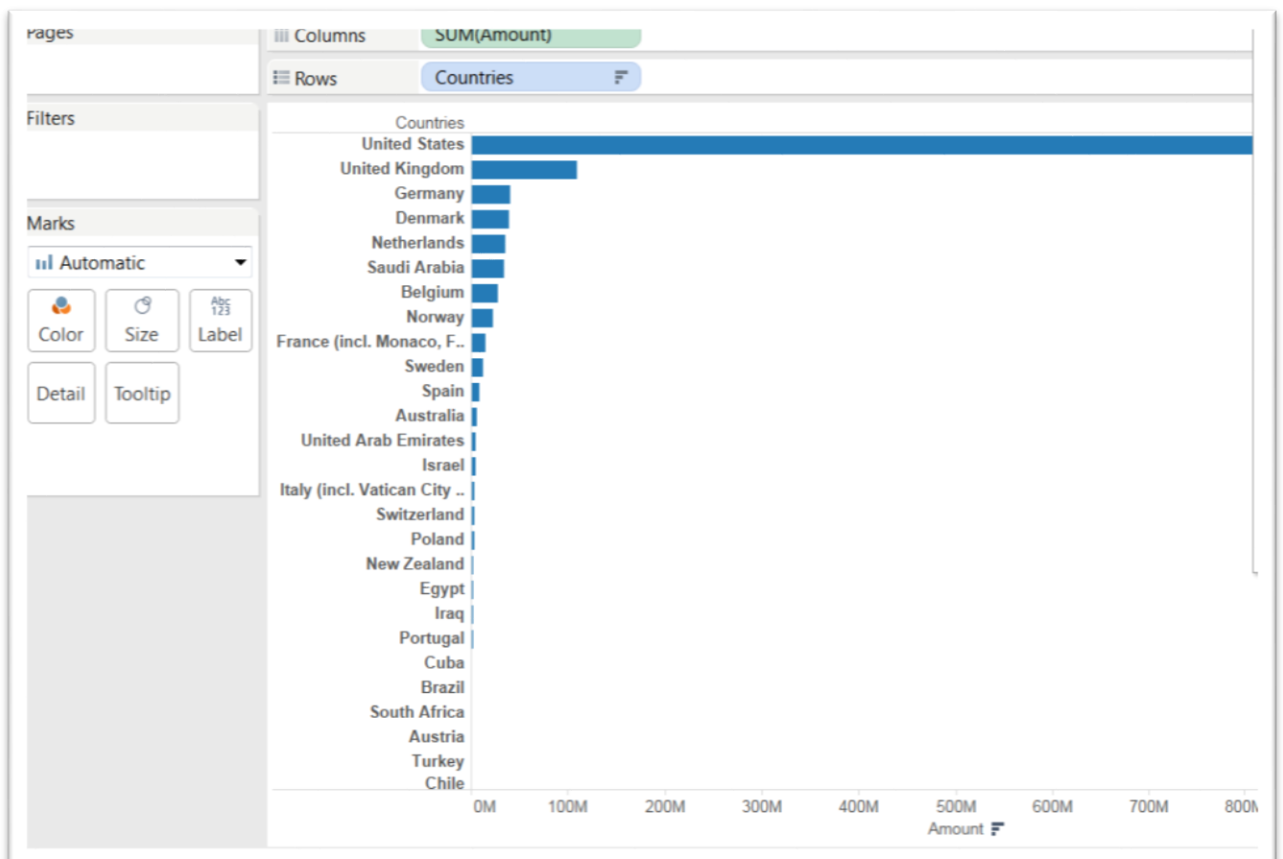
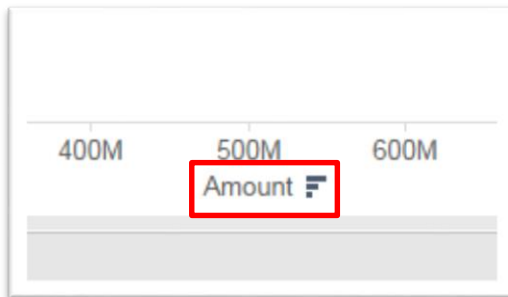


28)

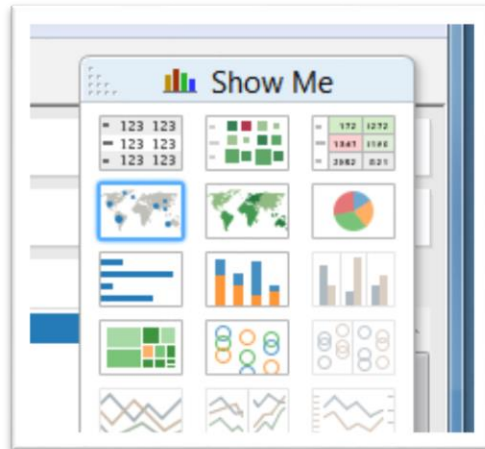
29) The visualization we want is a horizontal bar chart. So select that option in the “Show Me” panel to the right of the table, which is the horizontal bar chart icon highlighted in red.

30) Now we want the country that buys the greatest number of our arms to be at the top. But this chart is organizing the countries in ascending order.

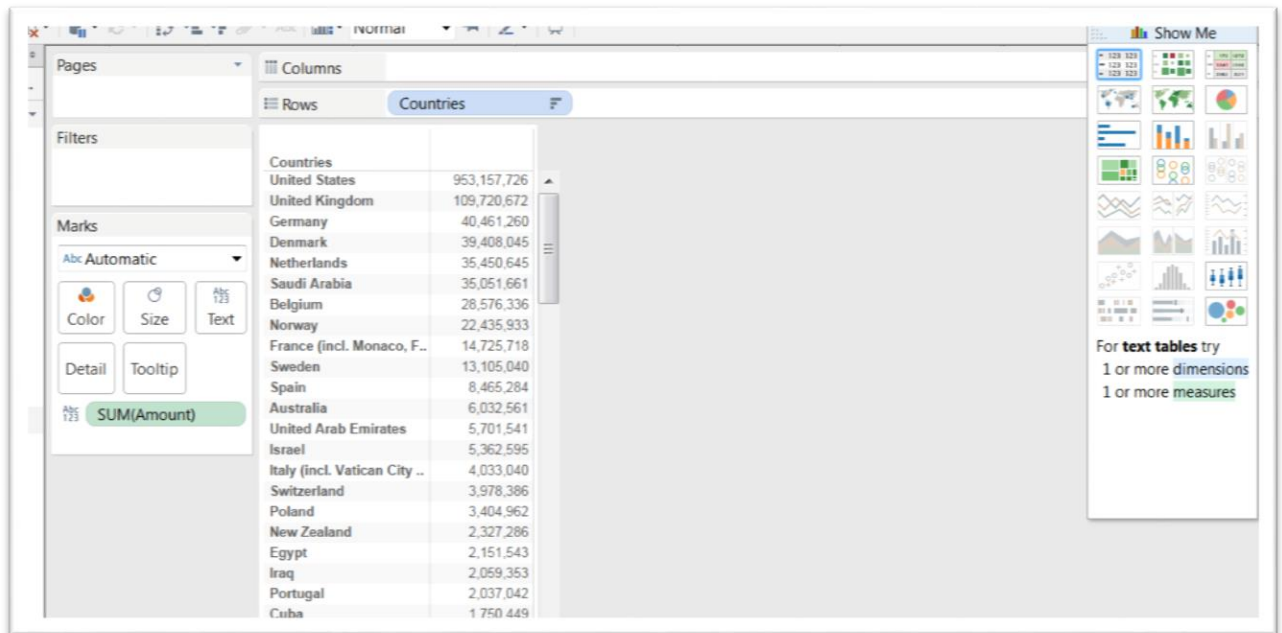
31) To change this, hover your mouse over the “Amount” label below the number 500M (which we will reformat as currency), to produce an icon that allows you to sort in descending – if the arrow is pointing down – or ascending if the arrow is pointing up.



- 32) If you wanted to display the sales as a conventional chart, select the icon with the numbers in the “Show Me” box.

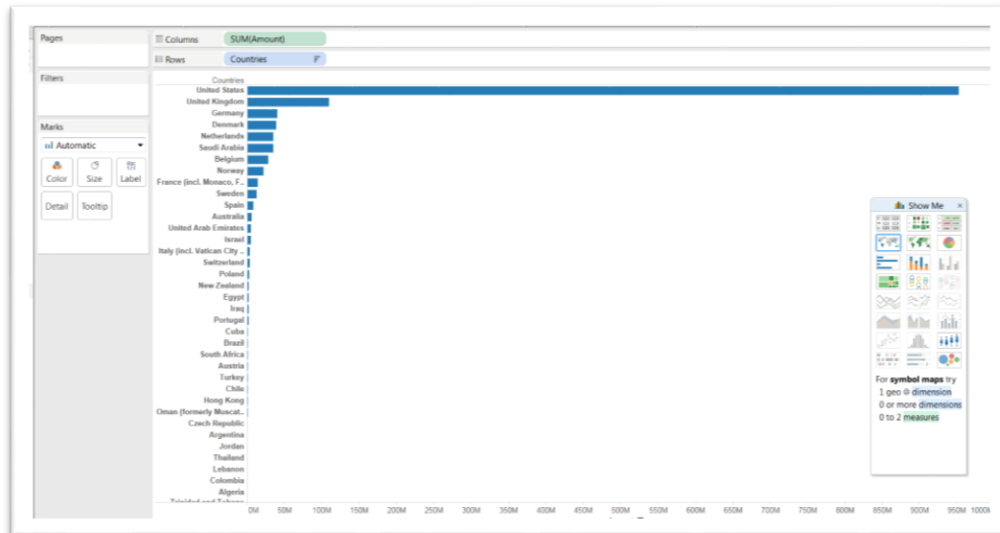


- 33)



- 34) You’ll also notice that selecting this option places the “SUM” of the arms sales into the “Text” option under “Marks” on the left.

- 35) Let’s return to the horizontal bar chart because it’s a more interesting visual.



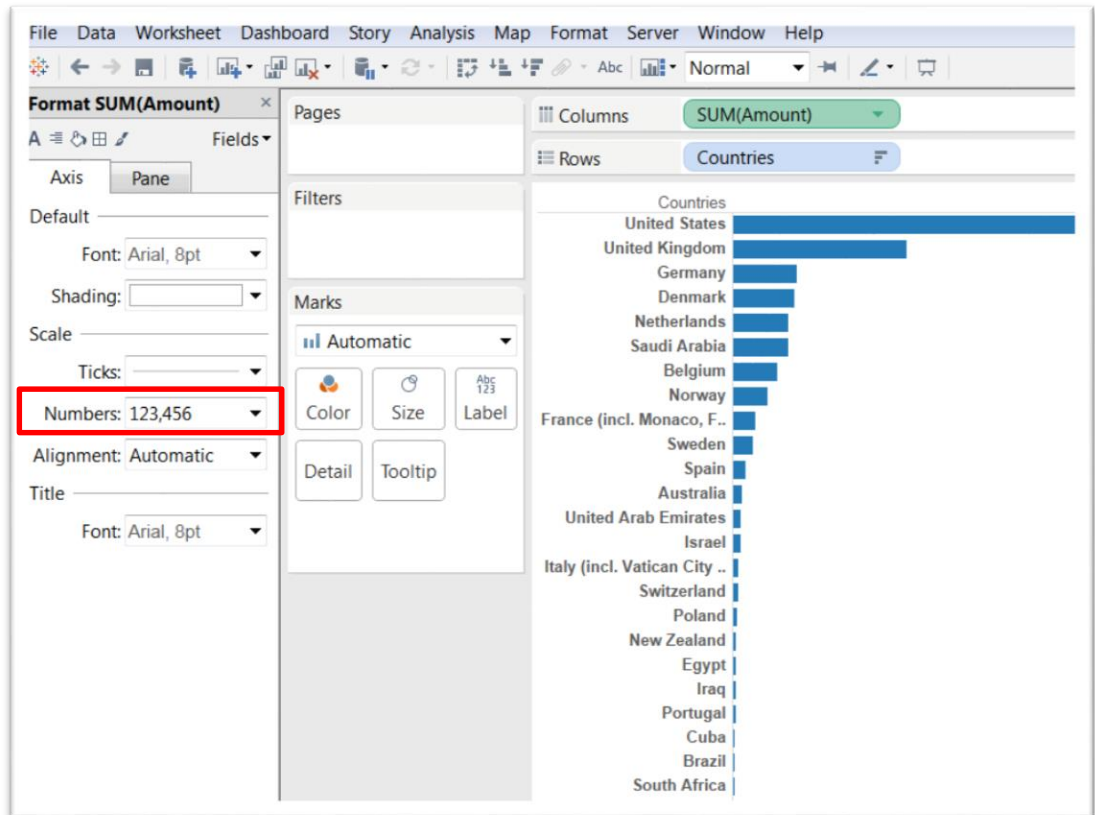
36)

37) Before we go too much farther, let's reformat the sales figures at the bottom.

38) To do this, hover your mouse over the "SUM(Amount)" tab in the "Columns" section until you see an arrow to the right.

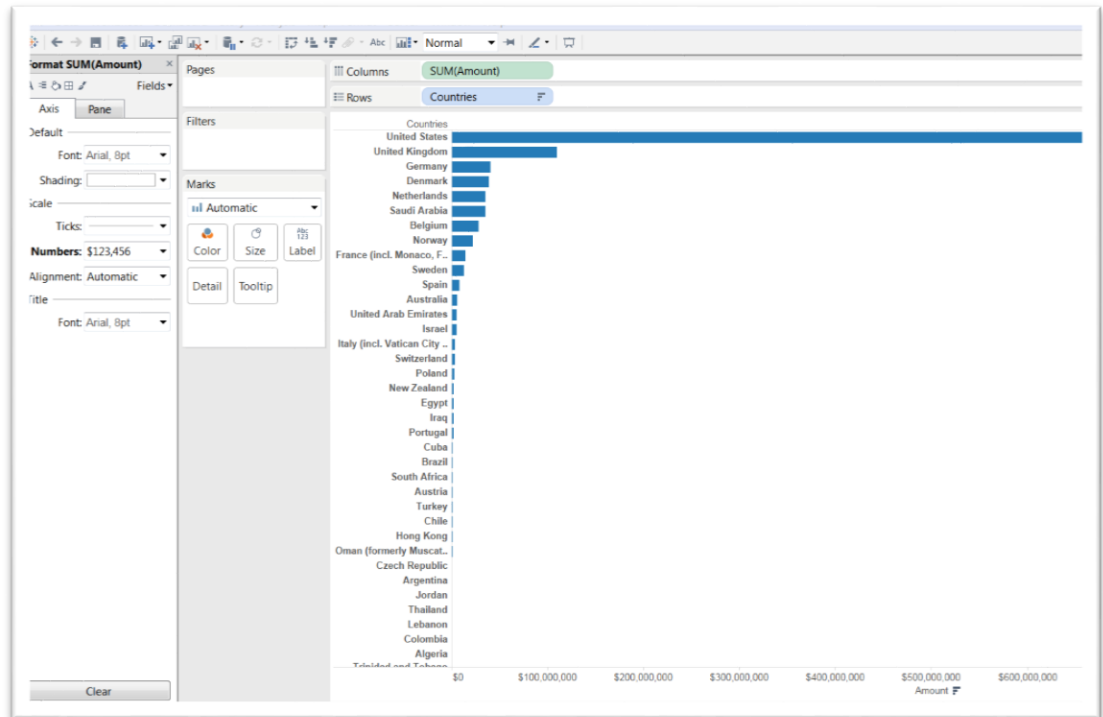
39) Click on the arrow to produce a drop-down menu.

40) From the menu, select "Format" to produce a menu to the left of the table.



41)

42) Click on the on the arrow to the right of the “Numbers” option and choose “Currency (Custom)” and no decimal places.

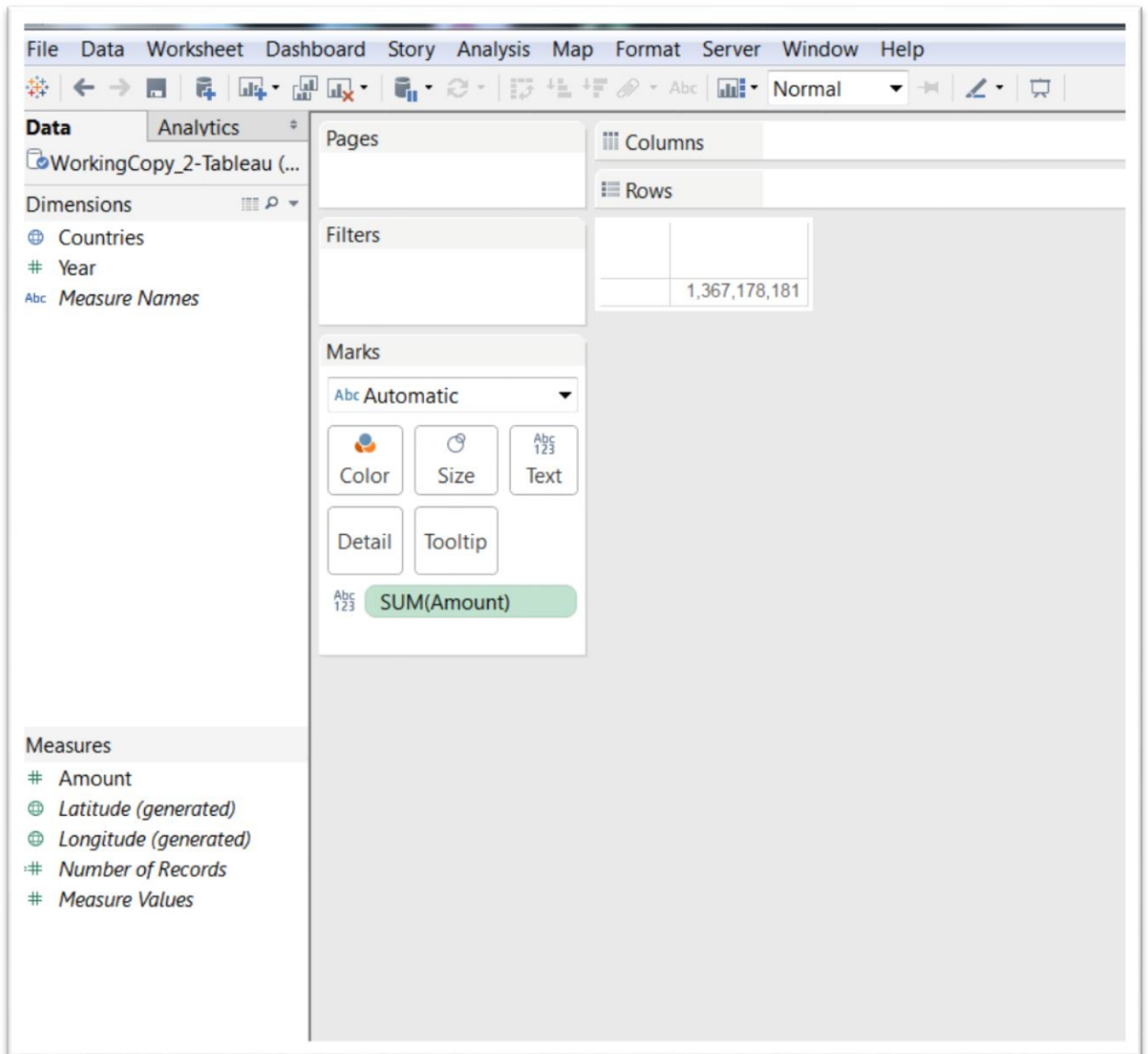


43)

44) Okay, that's better.

45) Create another worksheet, we'll call "Sales by Year"

46) Drag “Amount” into the “Drop field here” in the data canvas.



47) Drag “Year” into Columns.

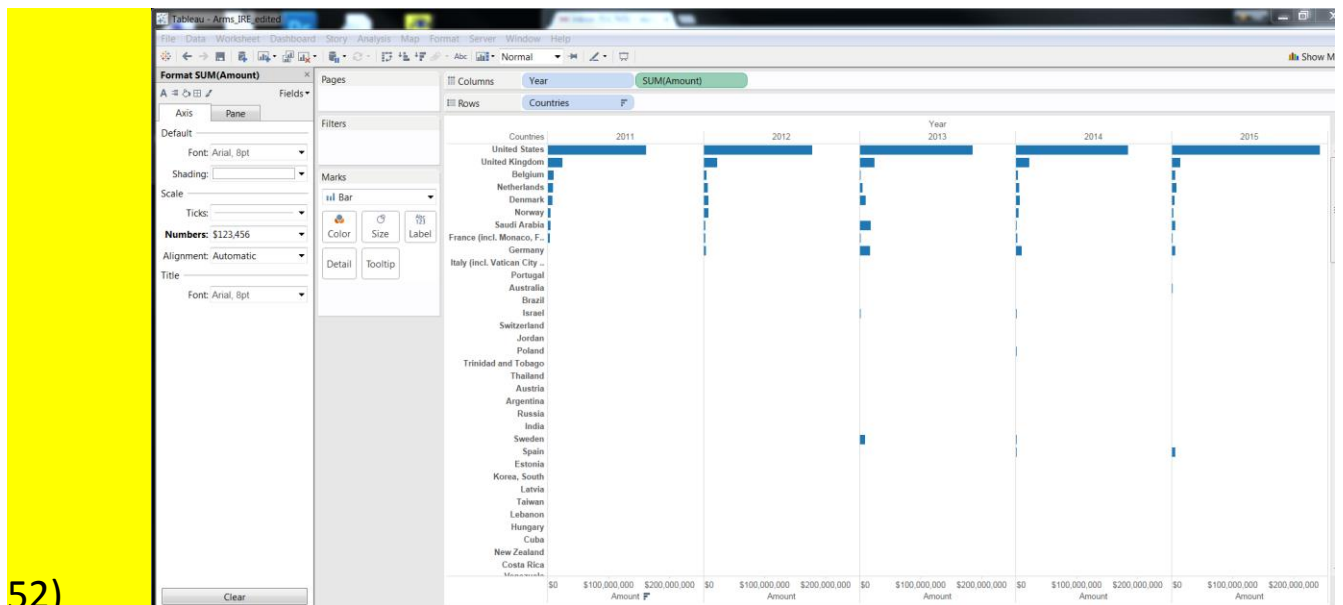
48) Hover your cursor over the “Year” tab to obtain an arrow. Click on the arrow and select “Discrete” from the drop-down menu.

49) Drag “Countries” into “Rows”.

Countries	Year				
	2011	2012	2013	2014	2015
Afghanistan	766	937		48,472	
Albania			7,670		
Algeria	29	242,000			440,000
American Samoa					455
Angola		127			32,505
Argentina	271,381	383,849	63,452	172,023	
Armenia	186				16,698
Australia	965,703	1,073,822	1,109,228	1,420,514	1,563,294
Austria	318,587	210,976	220,318	501,473	260,440
Azerbaijan			23,504		43,474
Bahrain		250,851			
Bangladesh	2,150	2,875			14,140
Belgium	10,486,775	5,622,906	2,280,635	4,288,159	5,897,861
Bermuda		52,827	84,993	37,136	
Bolivia		3,746			
Bosnia-Herzegovina				6,205	
Brazil	843,200	121,008	233,694	333,776	101,181
Bulgaria	12,551			37,787	35,757
Burkina Faso	5,580			38	620
Cameroon				9,365	
Chad					65,602
Chile	223	919,801		393,789	30,173
China	10,787	46,201	20,601	13,386	2,372
Colombia	29,525	83,993	25,425	375,336	179,733
Costa Rica	91,270	305,954	102,974		
Croatia	12,622	16,548		7,221	13,051
Cuba	108,809	290,986	468,998	171,787	709,869

50)

51) Make the Year in Columns “Discrete” by right-clicking on the Year tab to get choose the “Discrete” option.

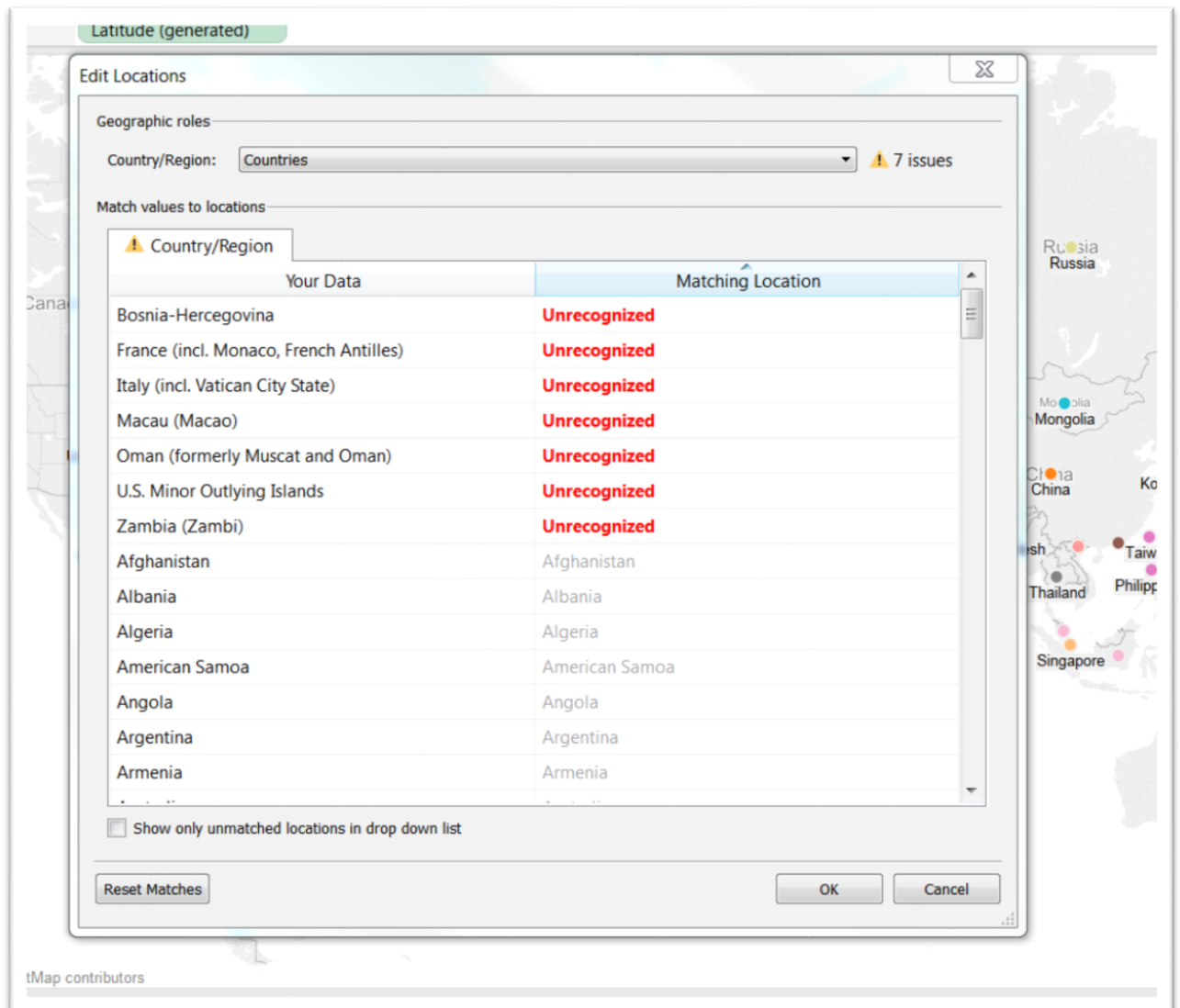


52)

53) Sort the dollar “Amounts” by hovering your cursor over the word “Amount” at the bottom of the first table to the left, and double-click on the icon that appears to the right.

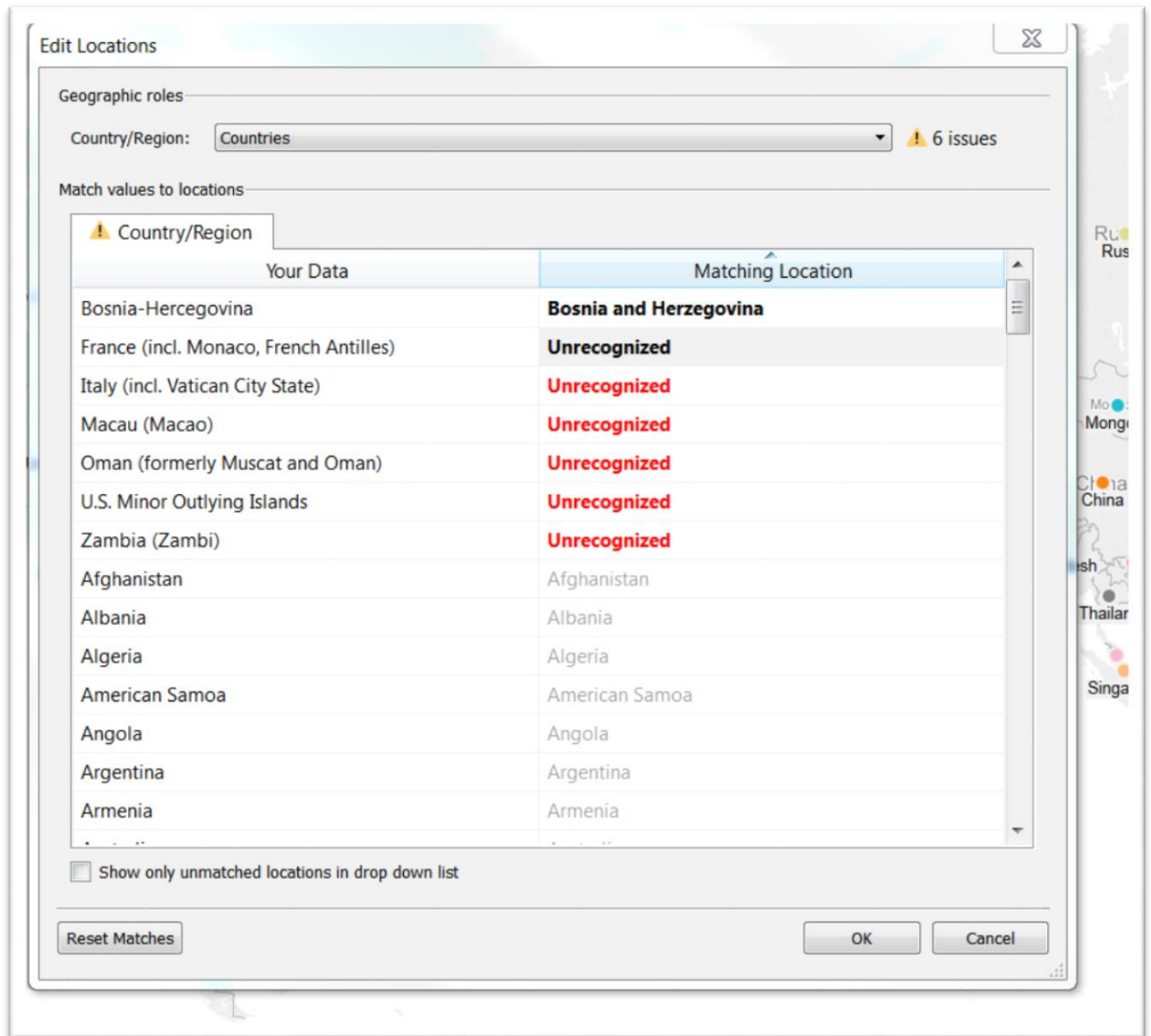
54) To get rid of the format box, click on the “X” at the top right-hand corner of the box.

- 55) Before we create a dashboard, let's return to those seven countries that Tableau doesn't recognize.
- 56) Return to the "Countries" tab, right-click anywhere in the map to obtain a drop-down menu, and click on the "Edit locations" option.



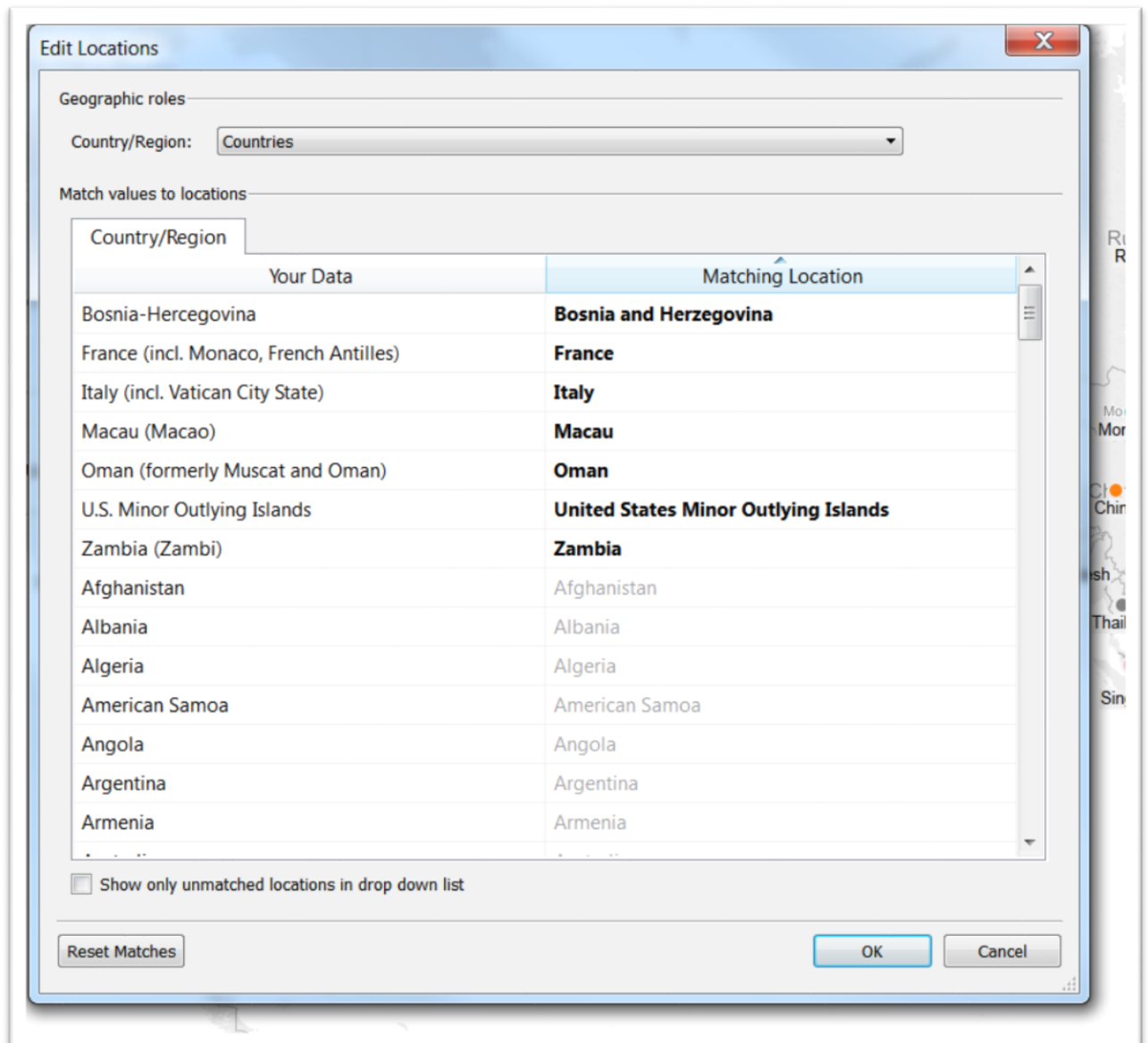
- 57) We can see that there are seven "Unrecognized" countries.
- 58) Double-click on the first name, which produces a blank rectangle to your right, and plug in the correct name, in this case

“Bosnia and Herzegovina”.



59) For the rest, get rid of the parenthetical bits of information to the right of the remaining six country names.

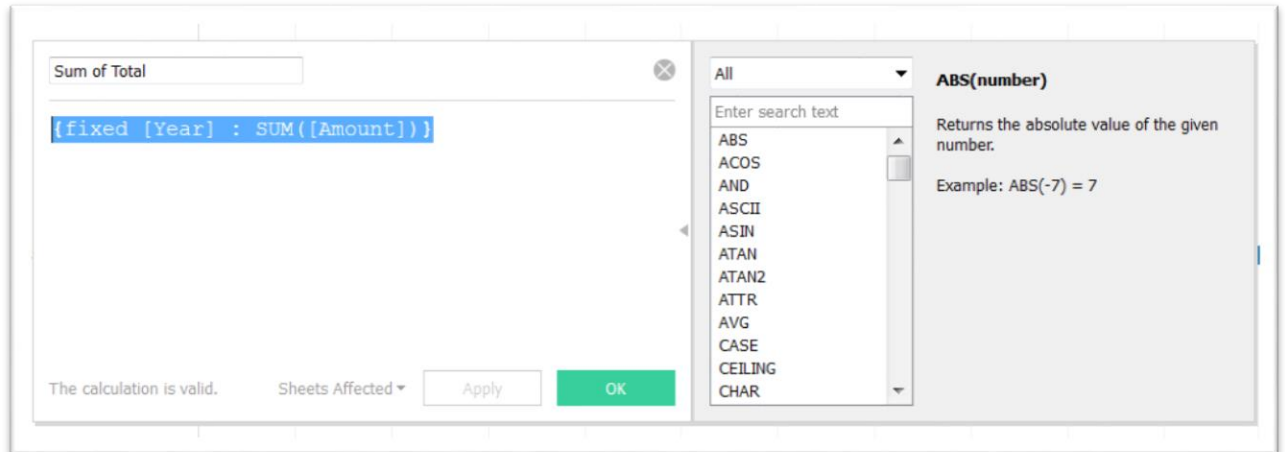
60) The “Matching Location” section to the right contains the correct country names.



- 61)
- 62) Now we're going to create two NEW columns: Sum of Total and Percent of Total. Sum of Total will add the arms sales to all countries for each year. The Percent of Total will calculate the arms sales per country as a percent of the total arms sales for any given year.
- 63) To create the "Sum of Total" column, right click anywhere within the "Measures" section to the left, and from the drop-down menu, chose the "Create calculated field" option.
- 64) Let's call the new column "Sum of Total."

65) In the space below, type the formula $\ll\{\text{fixed [Year]} : \text{SUM}([\text{Amount}])\}\gg$:
SUM([Amount])>>

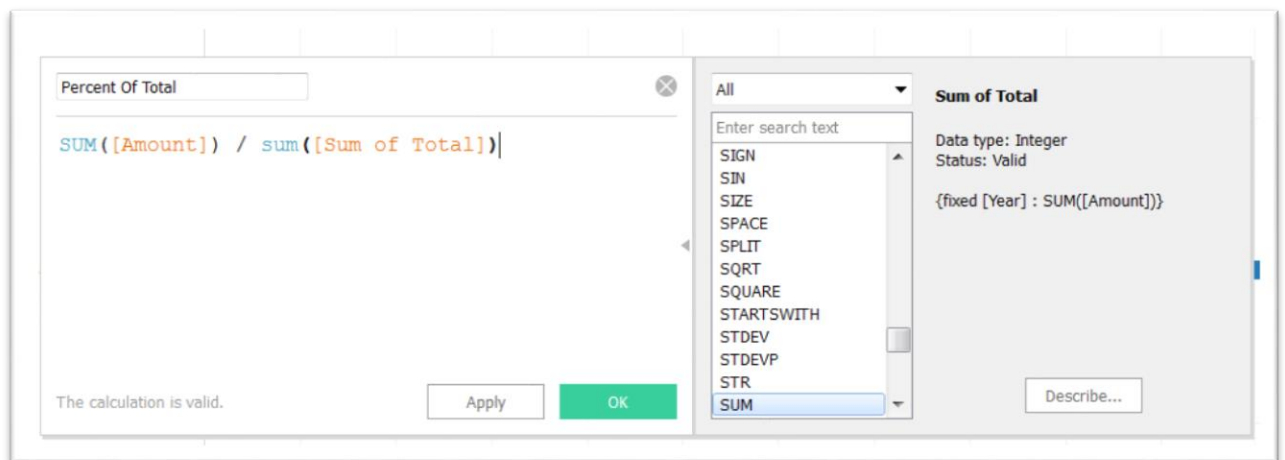
66) Your formula should look like this:



67) You'll notice the Tableau is informing us that the "calculation is valid". If this were not the case, we'd receive an invalid message highlighted in red.

68) Repeating the same steps, we must now create a second field, which we'll call "Percent Of Total".

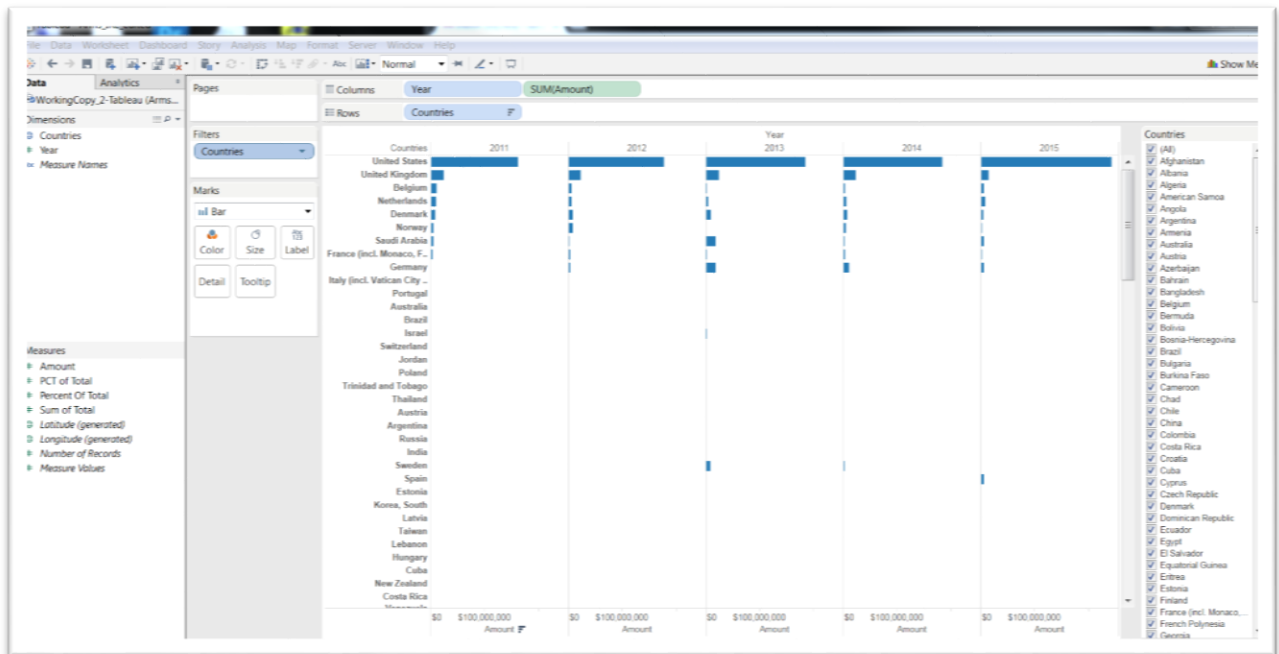
69) Your formula should look like this:



70) Since this new calculation is a percentage we need to change the format for the field. Right-click on "Percent of Total"

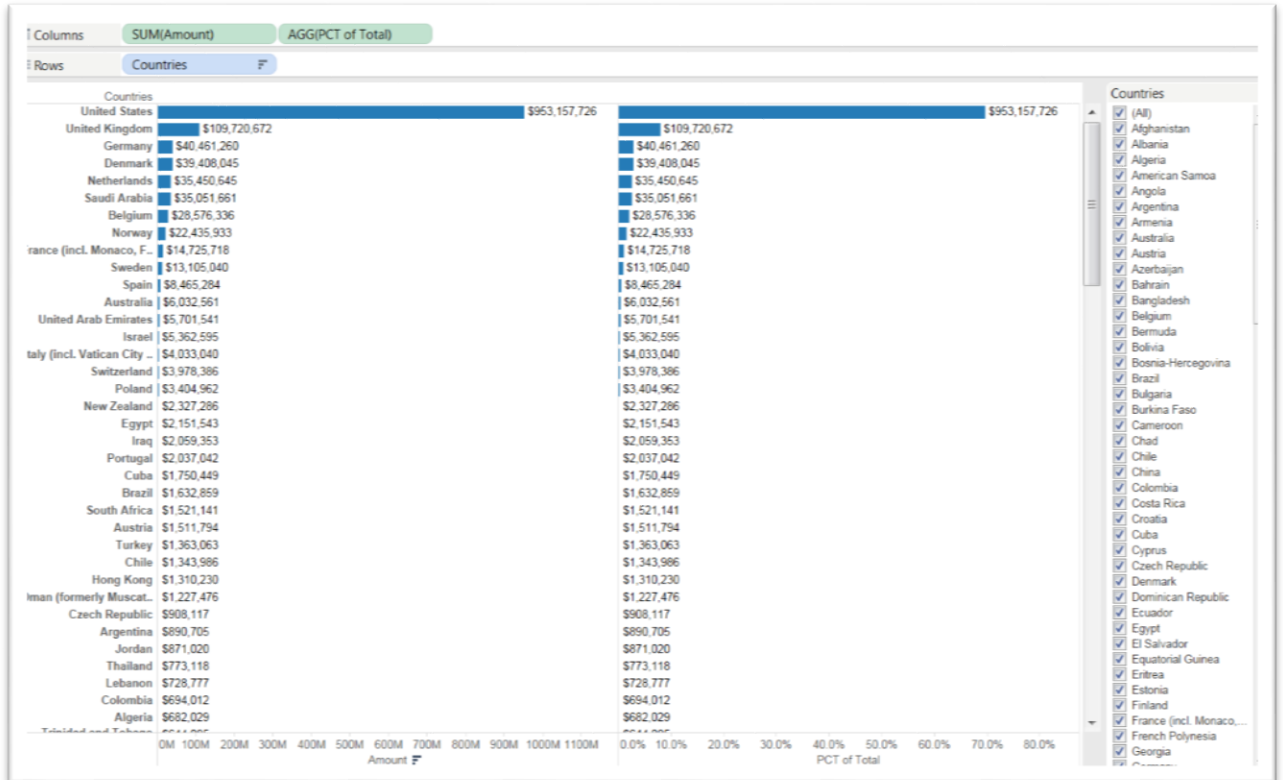
under Measures. Choose Default Properties.../Number format.../Percentage with one decimal place.

- 71) Now we want to show the filter with all the countries, allowing us to make choices.
- 72) Take the “Countries” tab and drag it into the Filters section. Click on the “Countries” tab and select the “Show filter” option. Your screengrab should look like this:



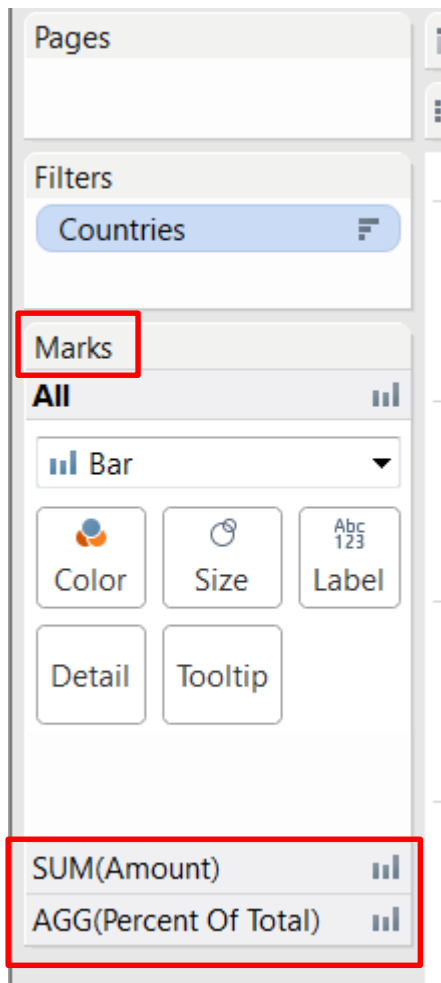
- 73) Now let's use the Percent Of Total Column we calculated, by dragging the field into the “Columns” section to the right of

“SUM(Amount)”.



74) Make the labels for the columns are sum([amount]) and Percent of Total in the second column. Make sure that Year is Discrete as we did in step 51.

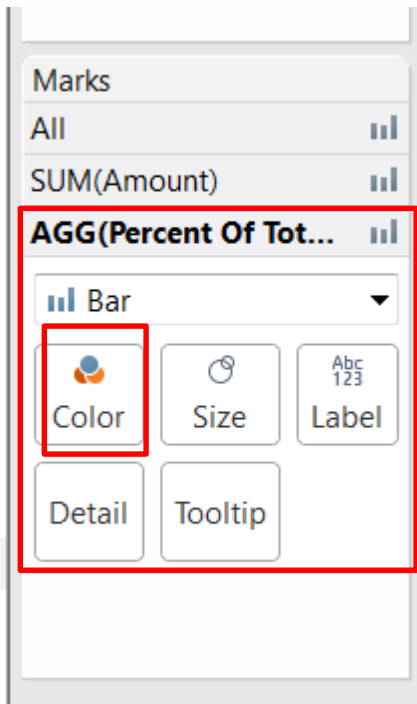
75) To change the colors to make each column distinct, have a look at the menu to the left of the table.



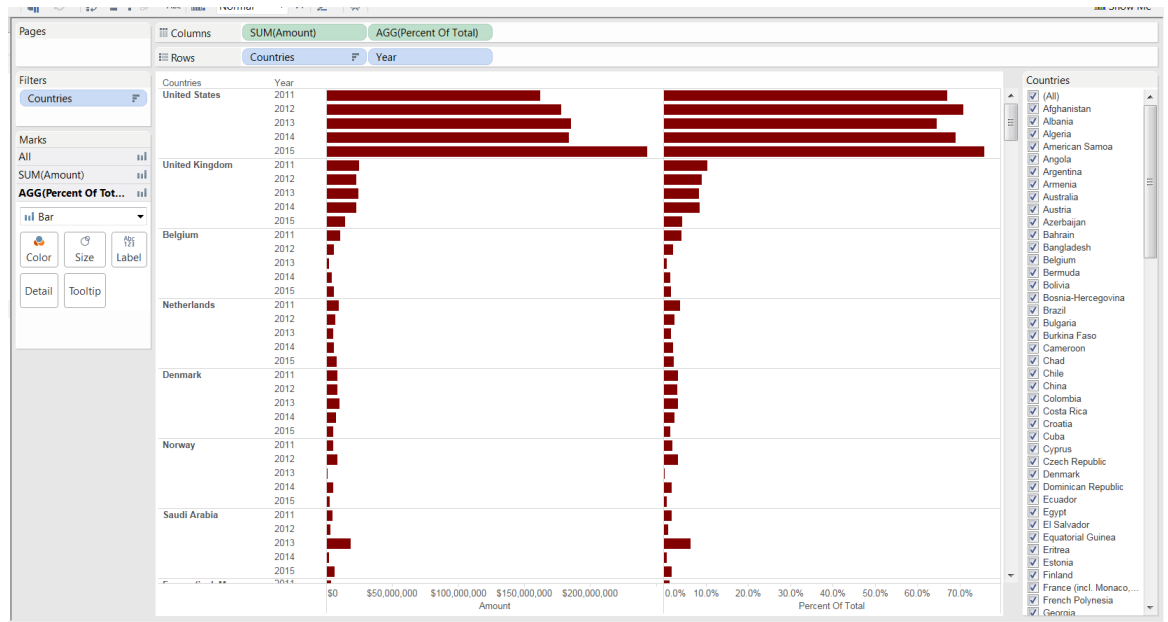
76) Tableau has placed the aggregated amount and percent of total into the “Marks section

77) Tableau’s default colour is blue. So that colour can remain for the column that has summed the sales amounts. To change the colour for the Percent of Total, click on the AGG(Percent OF

Total) label to produce a palette.

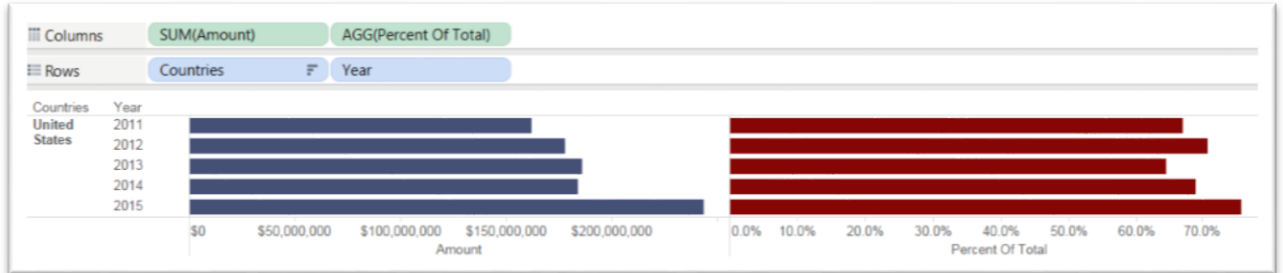


78) Click the “Color” icon and choose something different to create two tables that are distinguishable from each other.



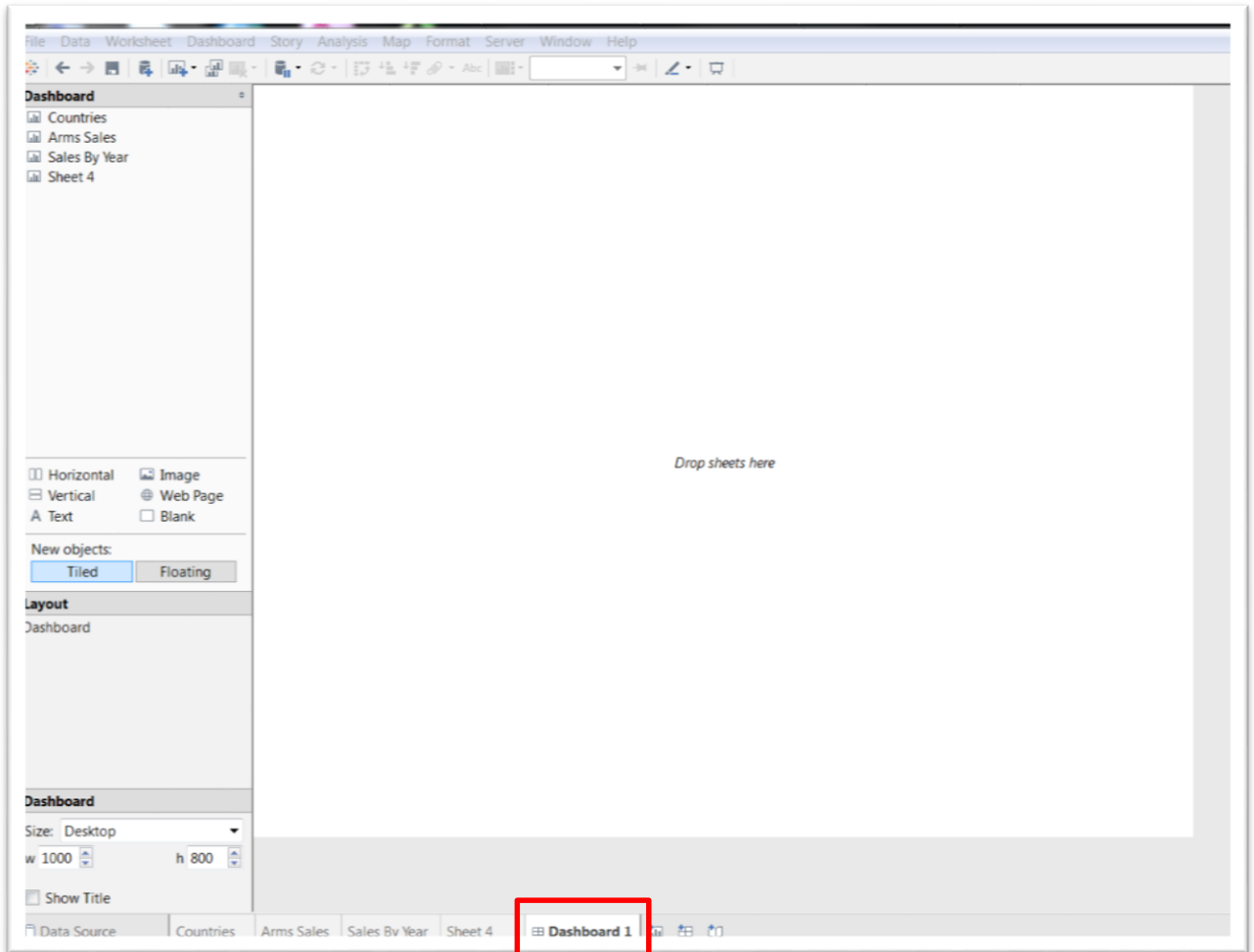
79)
80) Hovering your cursor over any of the horizontal bars produces the Country, Year, Amount and Per cent of Total.

81) Now we can use the filter on the far right to full effect. This is where the power of Tableau is on full display. Select a country, say, the United States.

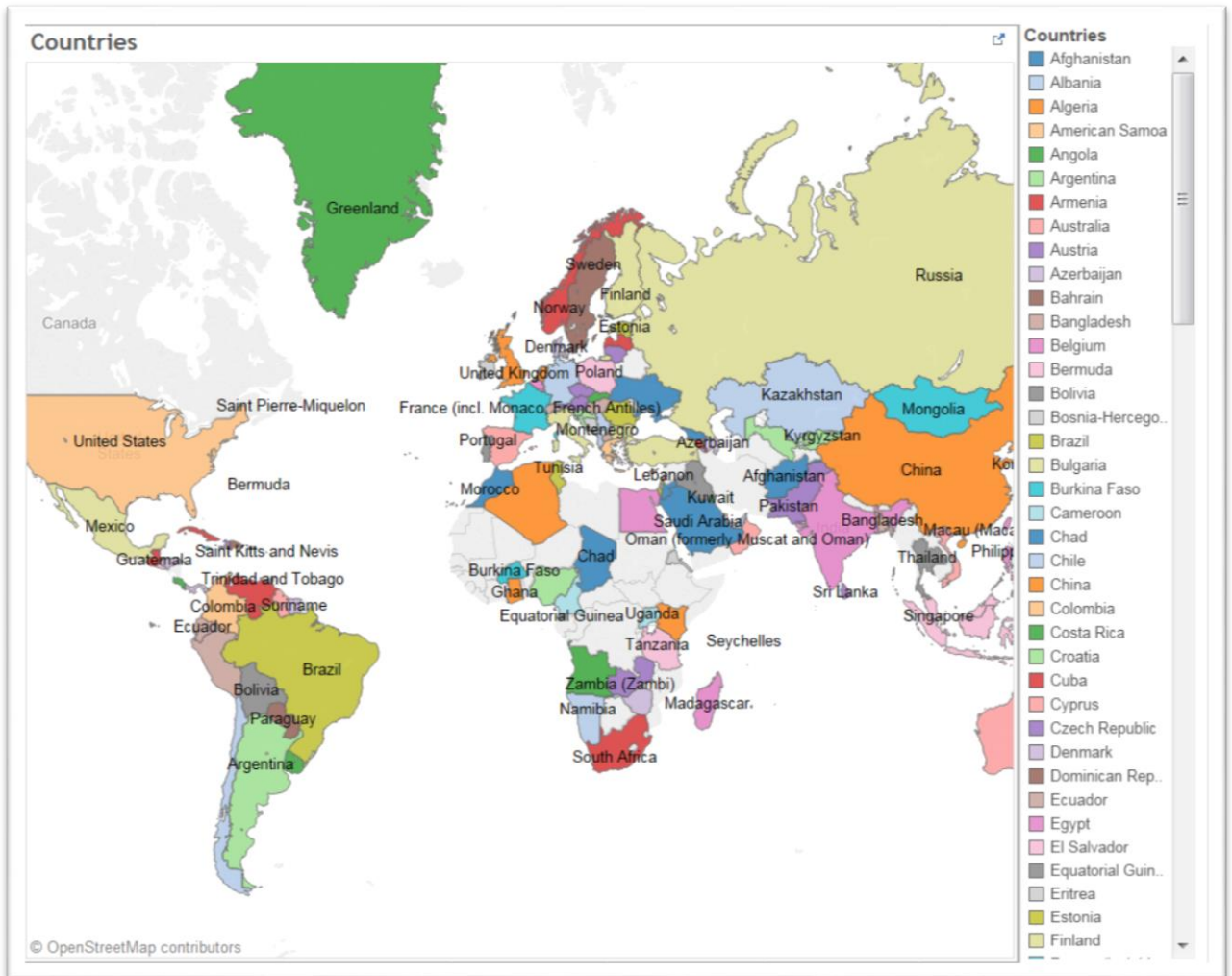


82) Now we can create a dashboard, that combines visualizations of the map and aggregates of sales and their percent of totals.

83) We'll do this in a new tab. Right click on the empty tab to the right to obtain a short-cut menu and select "New dashboard".

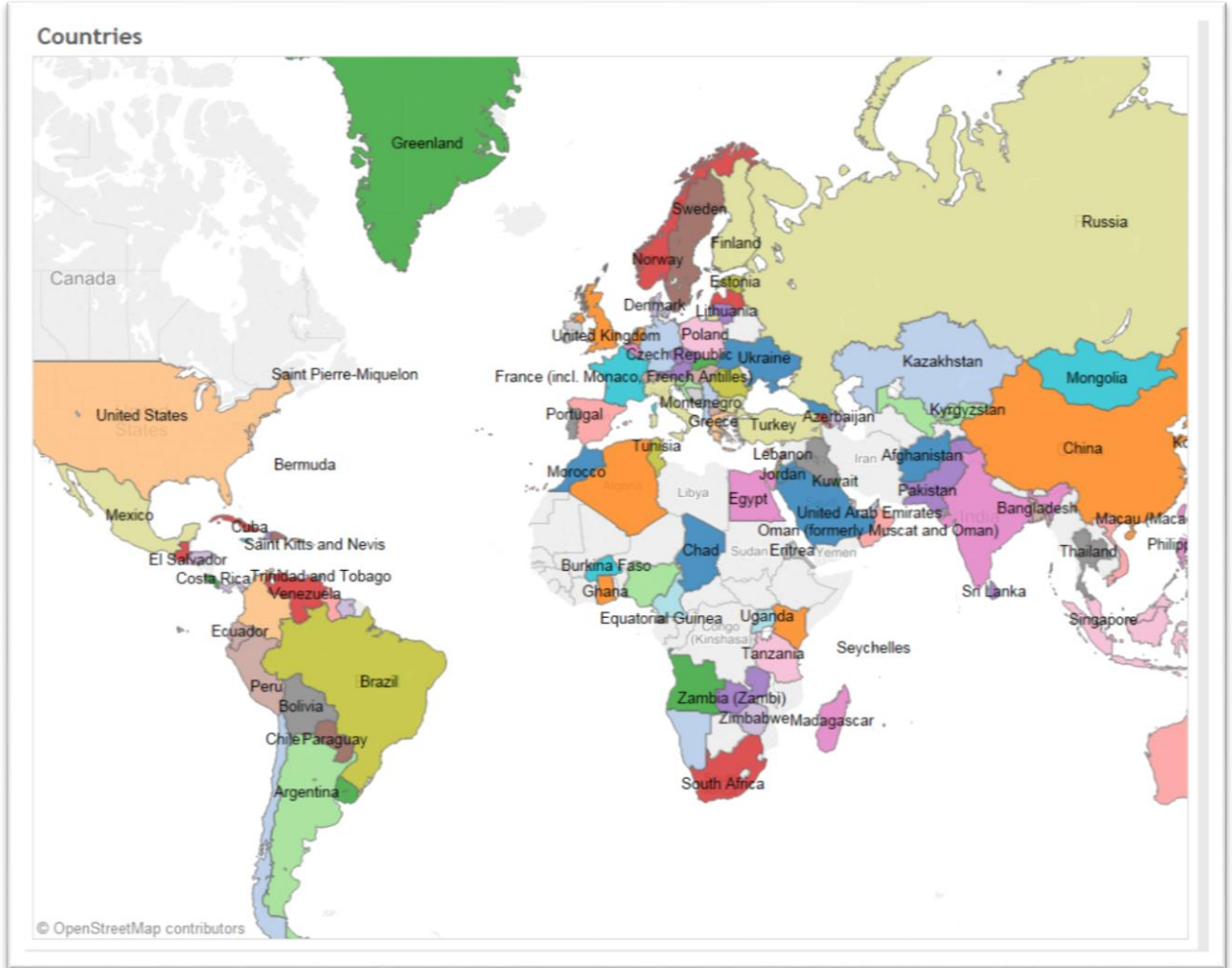


84) Drag “Countries” into the drop space to the right.



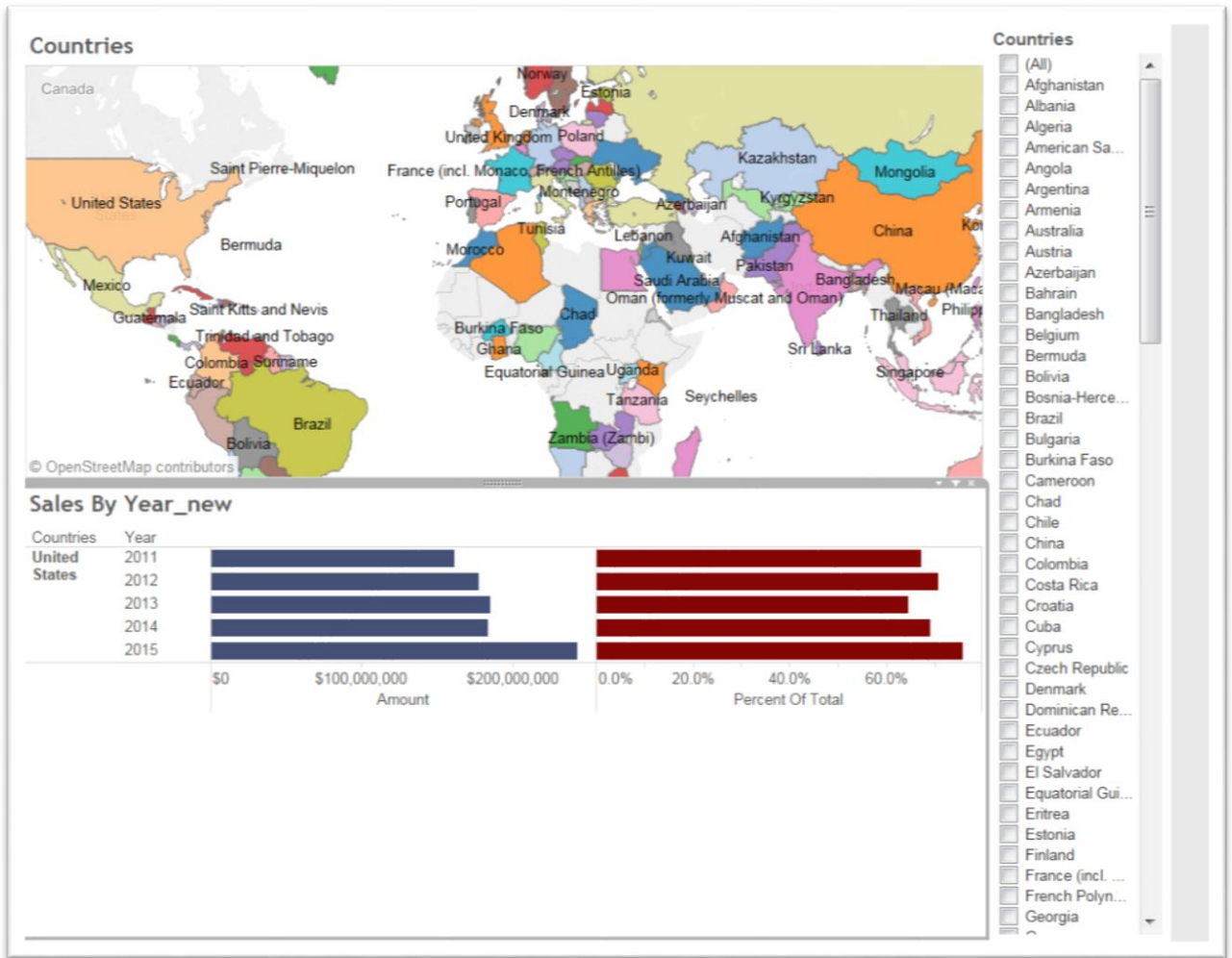
85) Click on the countries filter to produce a grey bar across the top, which gives you the option to make it disappear by clicking on the

“X” to the top right-hand side.



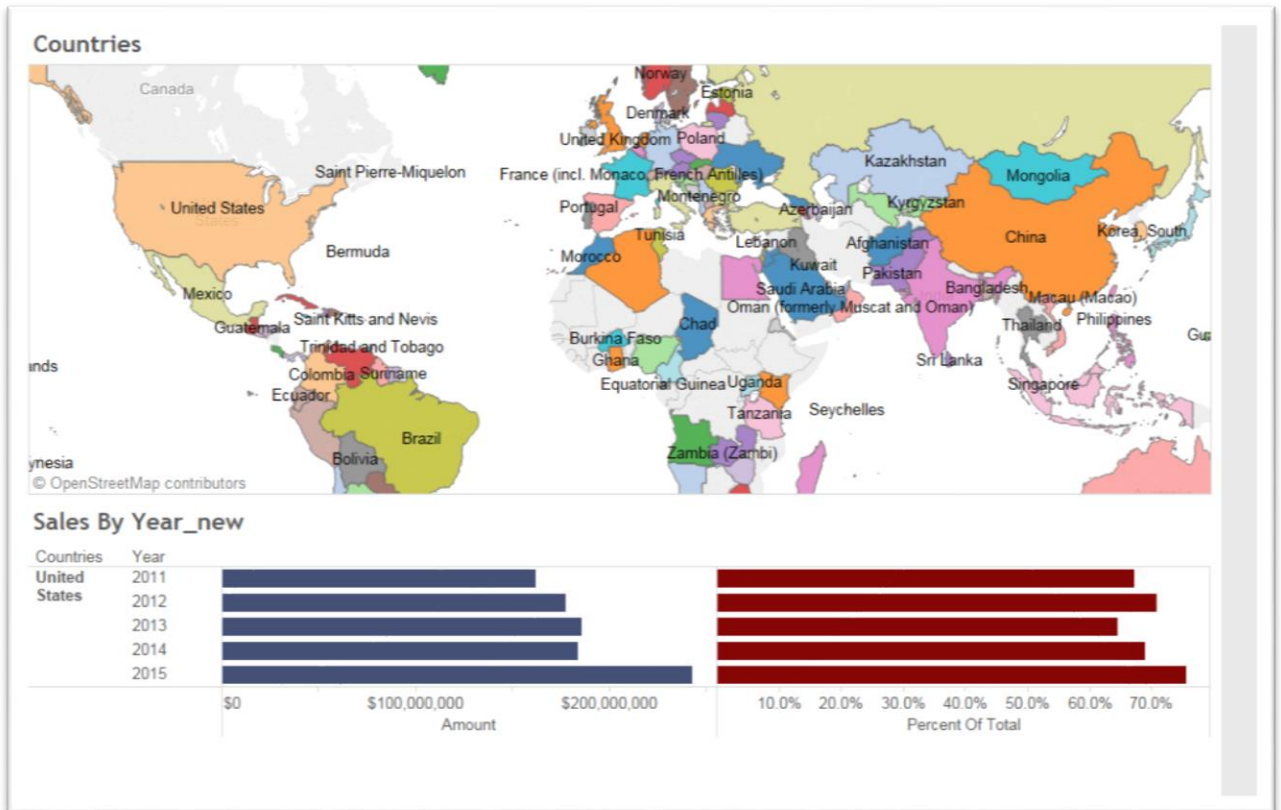
86) Drag and place the “Sales by Year” tab just below the map, by clicking on the icon, dragging it to the bottom of the table until your table and then letting go. It’s tricky. So you may have to do it a

couple of times.



87) You'll also notice that I renamed the dashboard.

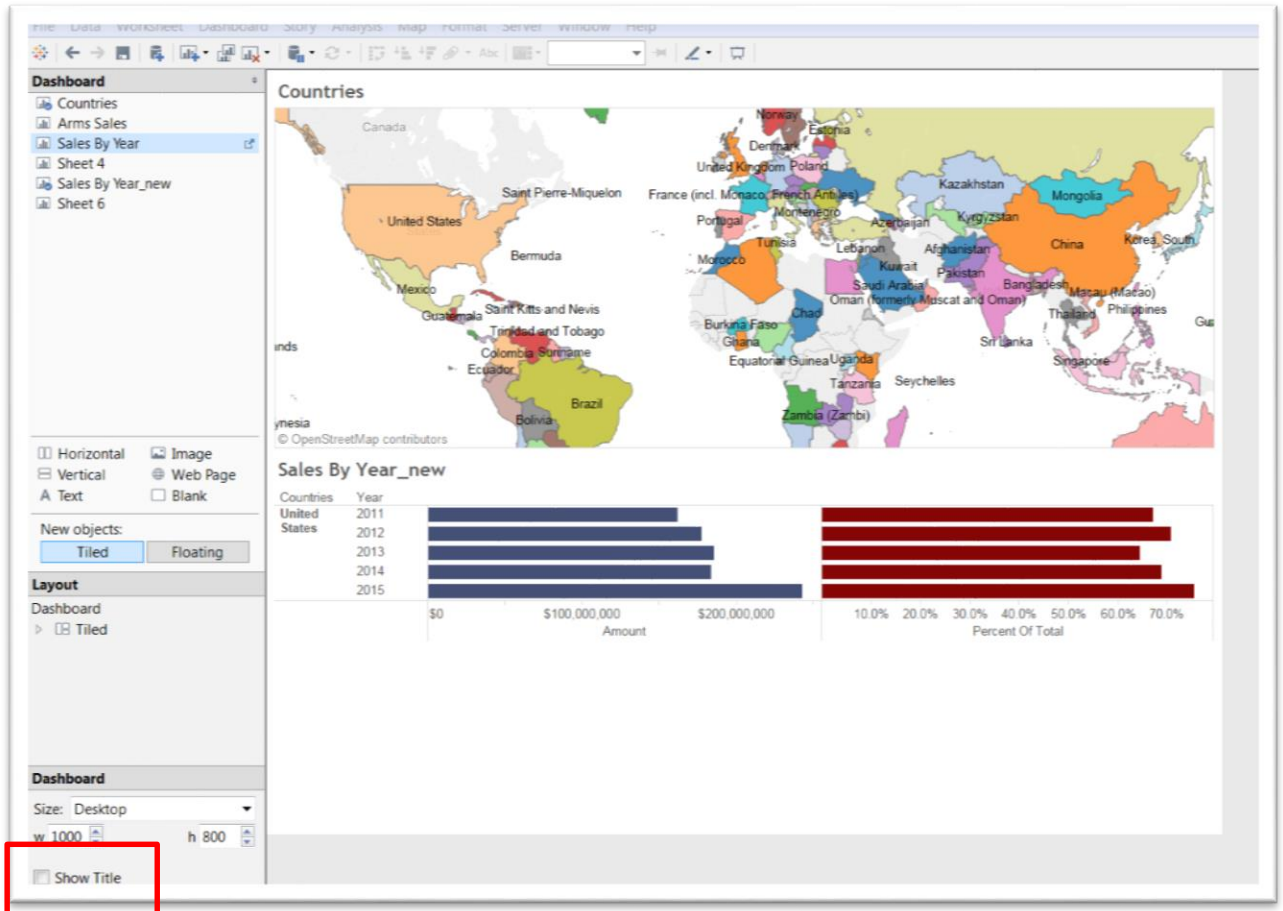
88) Get rid of the “Countries” filter, by repeating step 85.



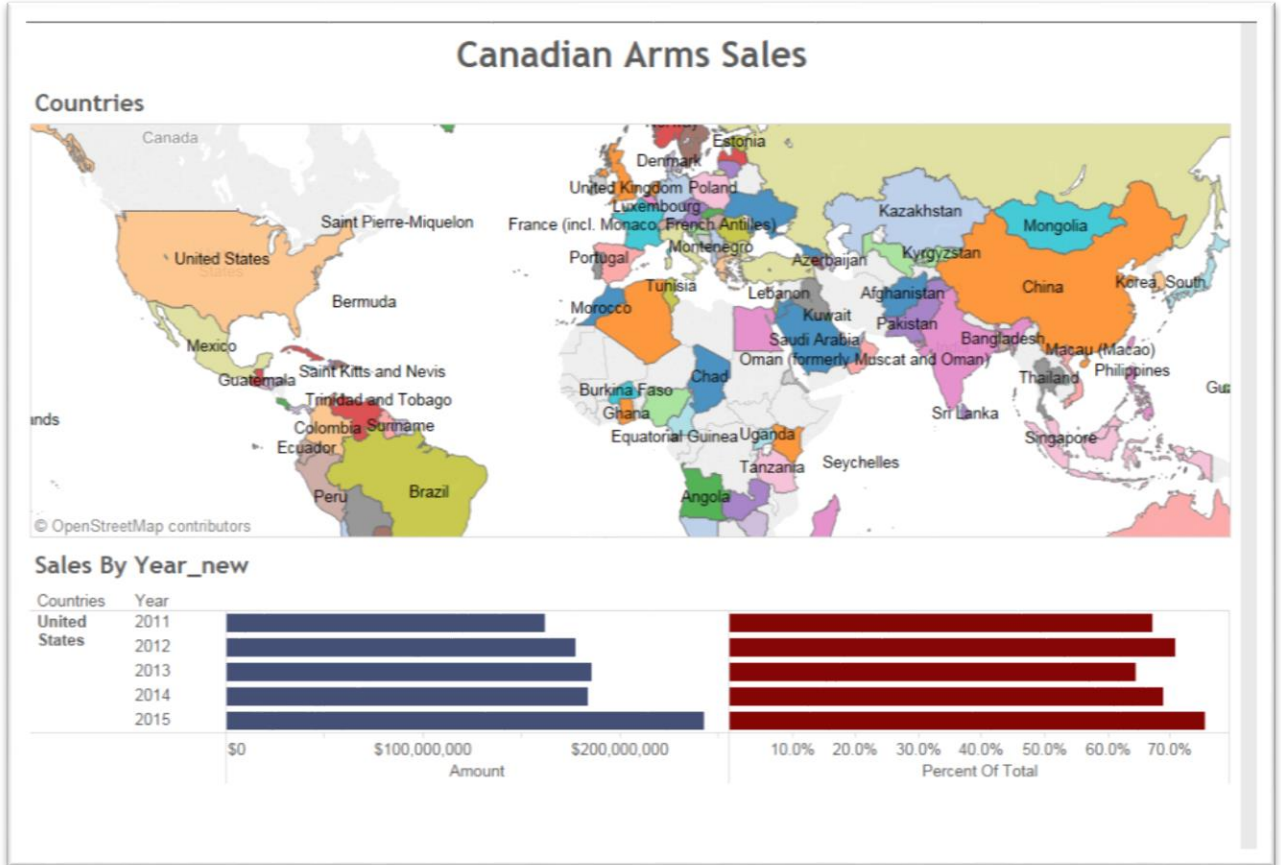
89) Looks pretty good.

90) Name the dashboard with something like Canadian Arms Sales.

91) Give the visualization a title by clicking on the radio box next to the "Show Title".



92) The title becomes the label you've given to your dashboard.



93) If you want to change the title, clicking on the actual title to produce an “Edit Title” dialog box.



94) You can plug in and format a new title.

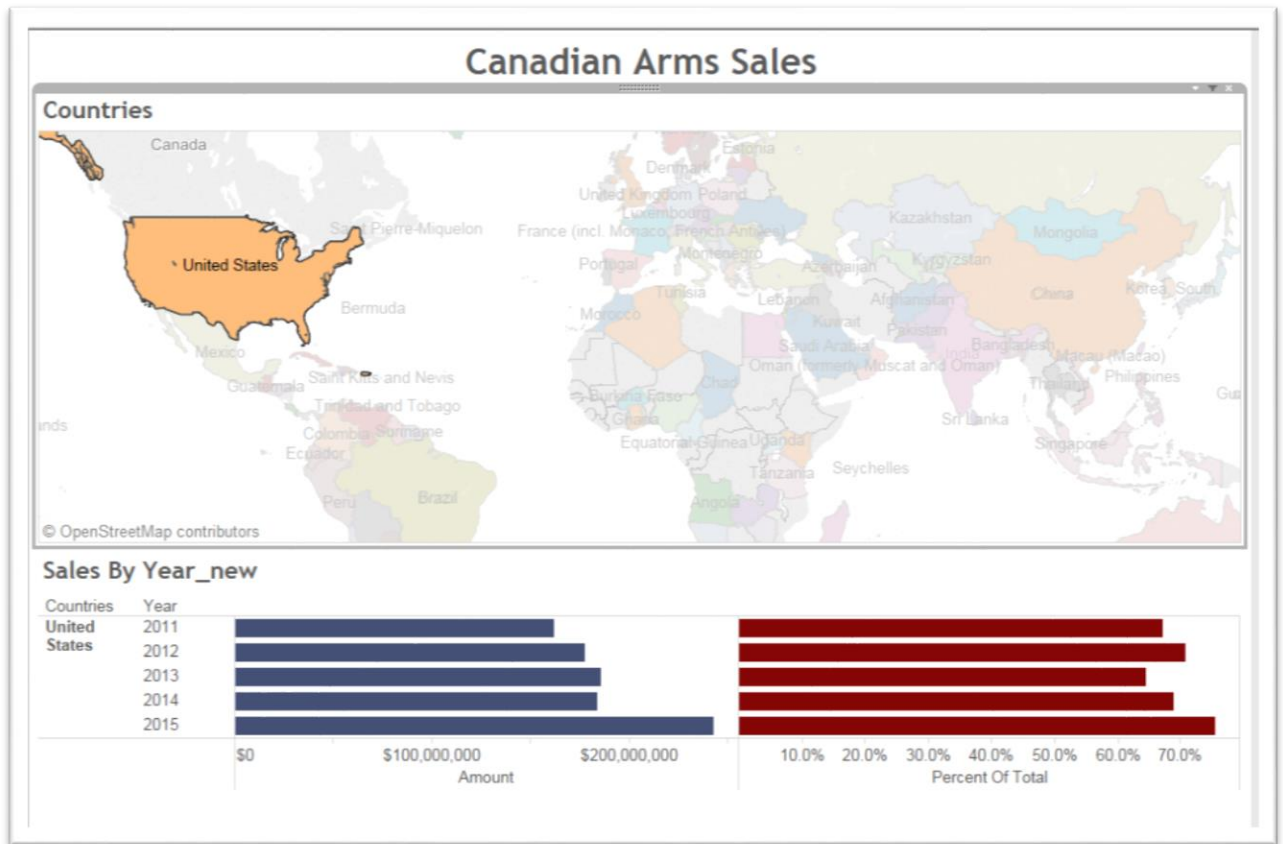
95) Now to link the two tables, we will ask Tableau to use the map as a filter, meaning what clicking on a country produces the corresponding sales figures in the table below.

96) To do this, click on the map to produce a grey bar at the top.



97) From the drop-down menu, choose the “Use as filter” option.

98) Now when you click on a country, you'll get the corresponding values.



99) To recoup all the countries, click anywhere inside the map.

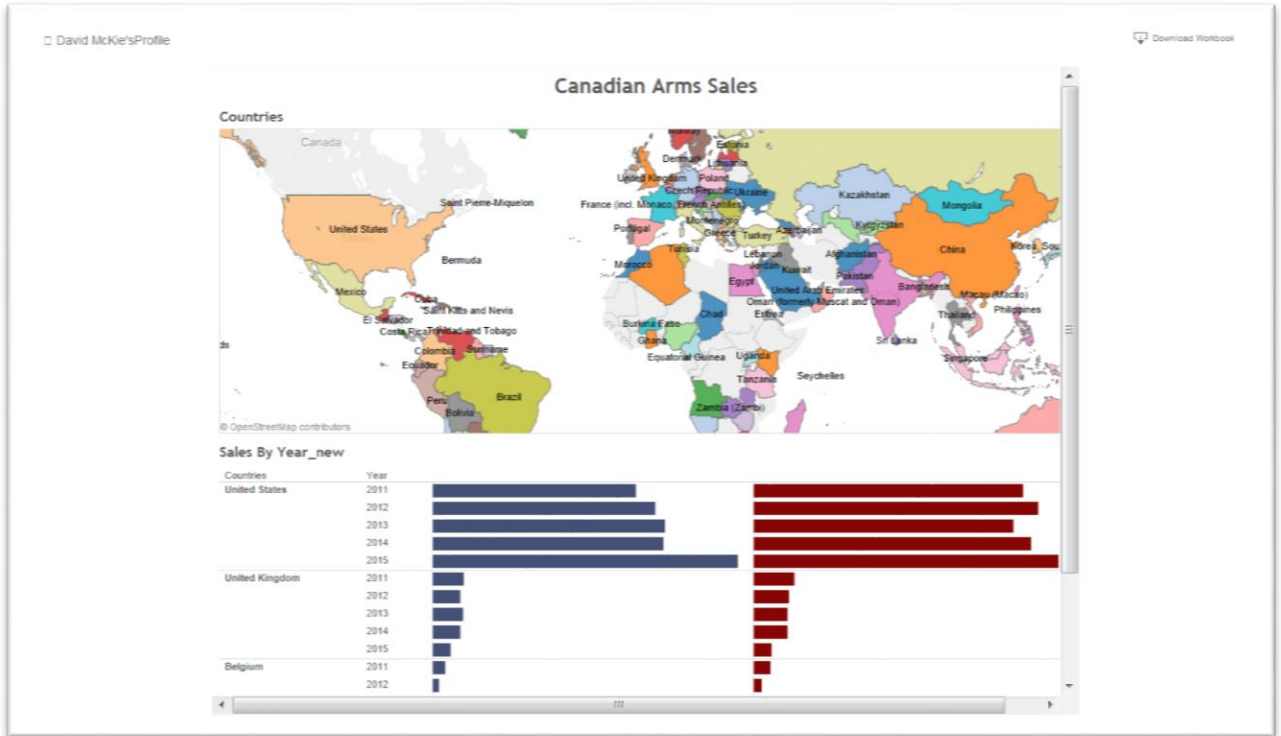
100) Export the result, by going to the "Server" portion on your menu, then to "Tableau Public", then to "Save to Tableau Public", which

produces a “Tableau Public Sign In” dialog box.

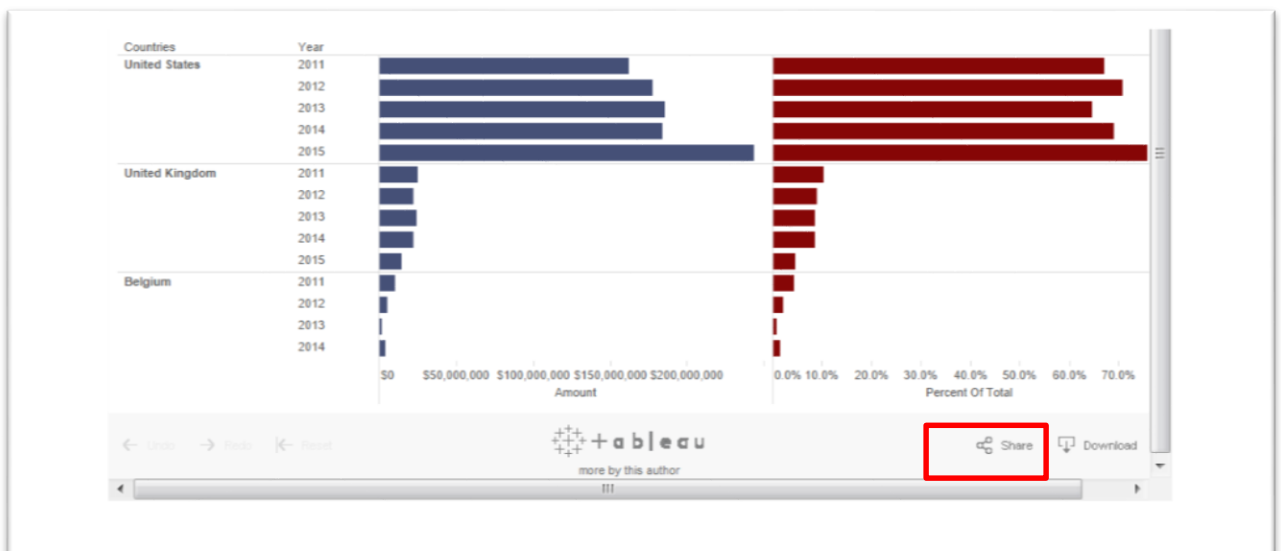


101) To upload your visualization to Tableau’s server, select the “Save” option under “File” from the menu. Do this if you’re using the

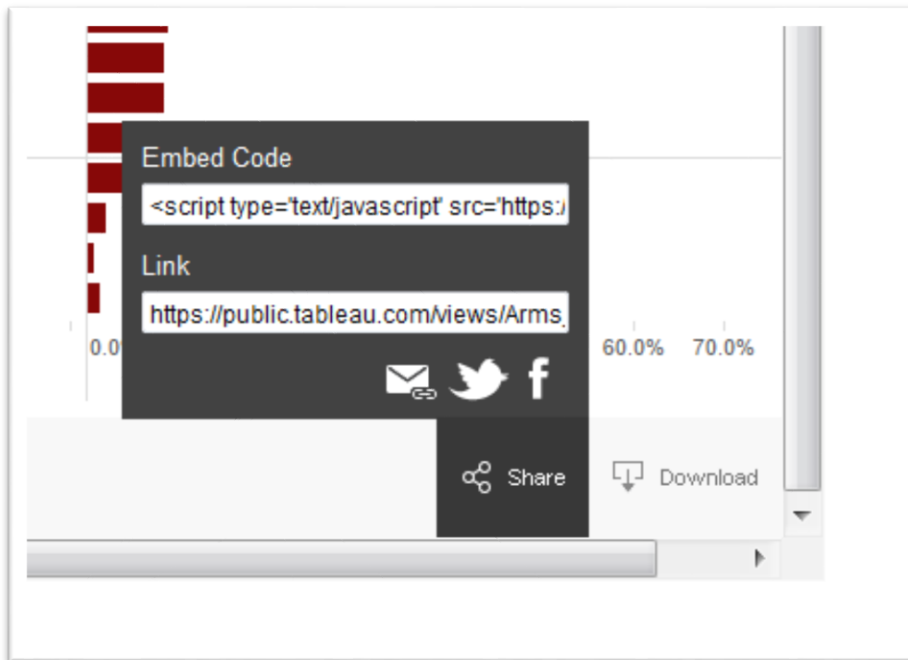
Tableau Public version.



102) Once the visualization is in your browser, click on the “share” icon. To get the “share” option, use the vertical scroll bar to the right of the visualization to get to the bottom.



103) You'll be given the Embed Code and Link. To chose the former, click on the script copy and paste it into your blog post's HTML view.



104) You can see what I've done, by clicking [here](#).

105) If you're using the Tableau Desktop version, the process has a few more steps.

106) Go to "Data", click on your file name, select "Extract Data".

107) Select the "Extract" tab.

108) To go "File", "save as", browse to the location you want to save the file, select "Tableau Packaged Workbook with the "twbx" extension.

109) Go to "Server" on the menu, "Tableau Public", "Save to Tableau Public".

110) You'll get a sign-in prompt.

111) Type your password to sign in.

112) Once the file is uploaded, you can get the embed code and URL from hitting the share icon.

