CHAPTER 4

Measure Names and Measure Values

Chapter 3 introduced us to working with worksheets and views by using the understanding of dimensions and measures. We learnt to group dimensions, build our own hierarchies of dimensions, and create sets to dynamically select the data to display in a view. This chapter will delve deeper into the understanding of dimensions and measures. It will introduce two new fields, namely, measure names and measure values. We will learn to blend multiple measures on a single axis and also to use dual axis to enhance our presentation of data. In the course of explanation, we will introduce some new chart forms, such as slope graphs and combination charts, such as bar and line together in a view and lollipop charts, etc.

4.1 Why are measure names and measure values required?

These fields are created automatically by Tableau so that a view can quickly be created with multiple measures on it. Few examples are stated below:

- As a senior executive manager of the firm, you would like to compare the measures, "Sales" and "Profits" across "Customer Segments" over a period of time.
- As the head of the firm, you would like to evaluate the performance of the practice units this year against last year's performance. You would like a visualization that clearly and quickly shows the trends, whether the performance of the practice unit has increased, decreased or remained unchanged.
- As a senior sales executive, you would like to conclusively infer, the products that account for top 50% of your sales.

4.1.1 What are measure names and measure values?

These are built-in Tableau fields. "Measure Names" appears as a dimension at the bottom in the dimensions area under the data pane. "Measure Values" appears as a measure at the bottom in the measures area under the data pane.

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4.1.2 Where do these fields come from?

When you connect to a data source, Tableau automatically creates these fields to contain all of the measure names and values.

Example:

Consider the table below that shows data in a data source (see Table 4-1.):

Table 4-1. *A sample data set*

Region	Sales	Profit
East	100,000	20,000
West	120,000	12,000
North	150,000	45,000
South	110,000	11,000
Central	90,000	9,000

The "Measure Names" container will contain:

- Sales
- Profit

The "Measure Values" container will contain: (See Table 4-2.)

Table 4-2. *Sample "Measure Values" container*

Sales	Profit
100,000	20,000
120,000	12,000
150,000	45,000
110,000	11,000
90,000	9,000

4.1.2.1 Demo 1

Objective: To plot the dimension "Measure Names" and the measure "Measure Values" in a table in Tableau.

Input: "Sample - Superstore.xls".

4.1.2.1.1 Steps to plot "Measure Names" and "Measure Values" in a table.

4.1.2.1.2 Step 1

Read in the data from "Sample - Superstore.xls" into Tableau (Shown in Fig. 4-1).

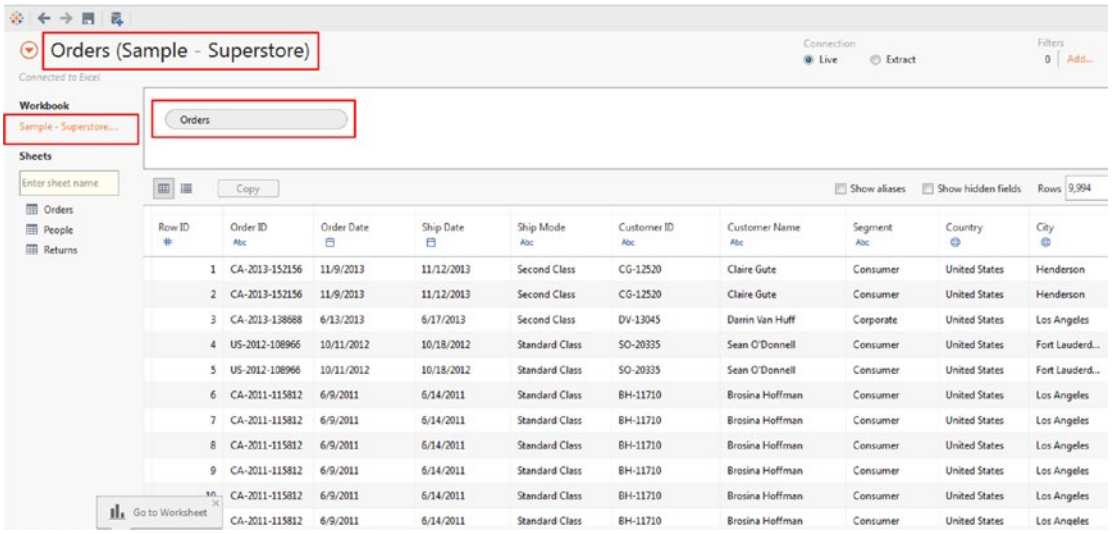

Figure 4-1. *Data from "Sample - Superstore.xls" read into Tableau*

4.1.2.1.3 Step 2

Drag the dimension "Measure Names" from the dimensions area under the data pane to the rows shelf (Shown in Fig. 4-2).

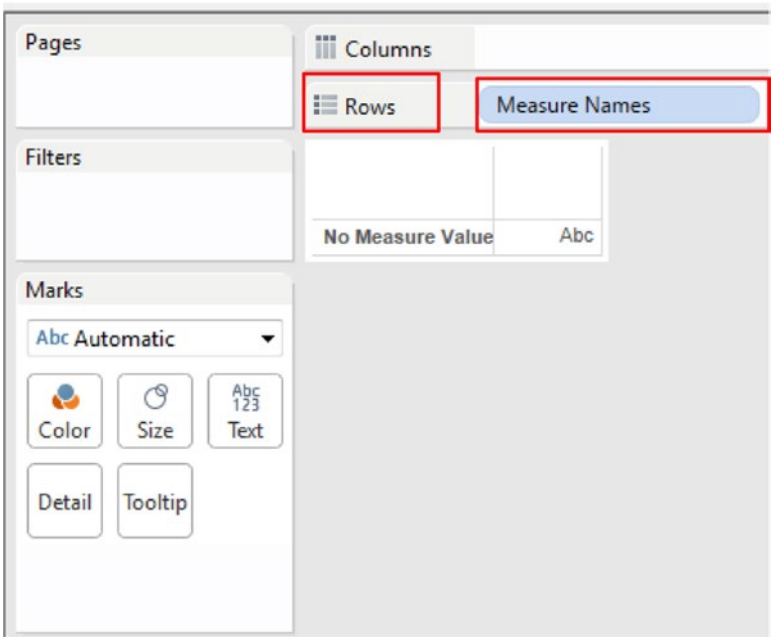

Figure 4-2. *Dimension "Measure Names" placed on the rows shelf*

4.1.2.1.4 Step 3

Drag the measure “Measure Values” from the measures area under the data pane to “Label” on the marks card (Shown in Fig. 4-3).

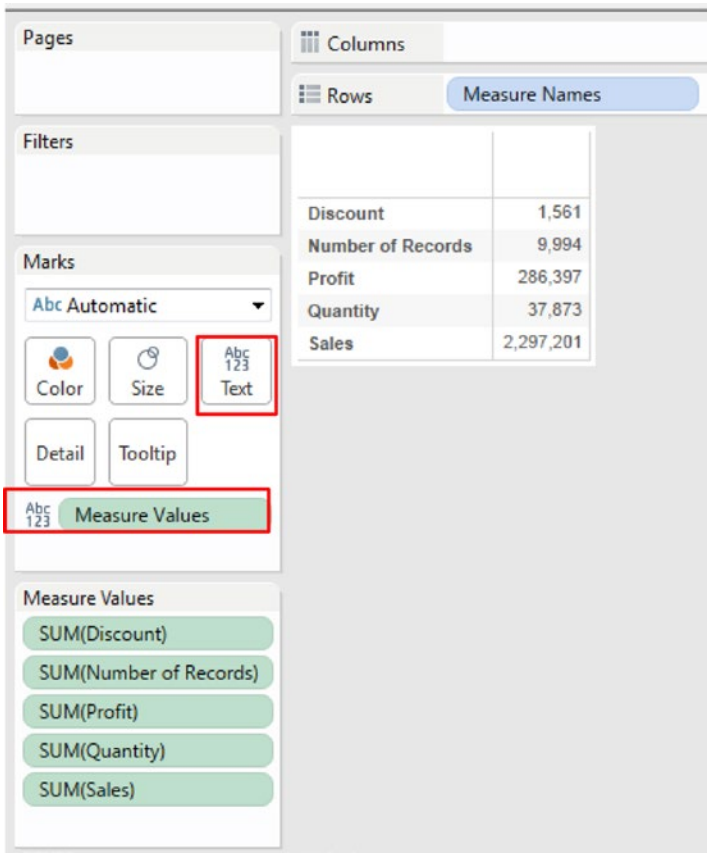

Figure 4-3. *Measure “Measure Values” placed on “Label” on the marks card*

If one wishes to see the measure values as per the dimension "Region", simply drag the dimension "Region" from the dimensions area under the data pane and place it on the columns shelf (Shown in Fig. 4-4).

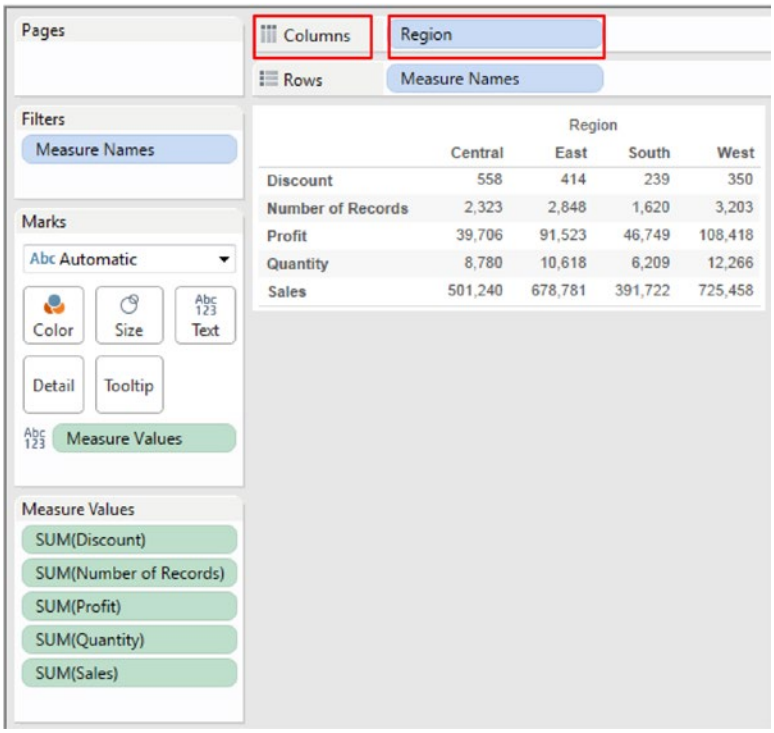

Figure 4-4. *Dimension "Region" placed on the columns shelf*

4.1.2.1.5 Step 4

Notice that "Measure Names" has automatically been placed on the "Filters Shelf," and there is a "Measure Values Shelf" just below the marks card. Let us add a quick filter to "Measure Names" (Shown in Fig. 4-5).

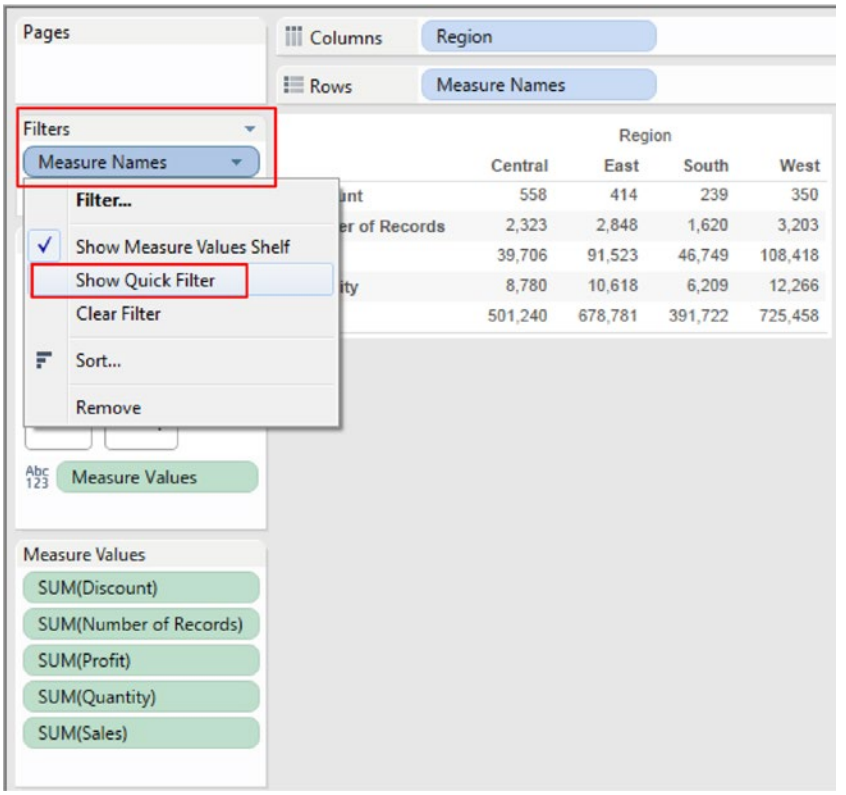

Figure 4-5. *Add a "Quick Filter" to "Measure Names"*

The “Quick Filter” will allow one to select measures to display in the view. Below is the sheet after adding a “Quick Filter” to “Measure Names” (Shown in Fig. 4-6).

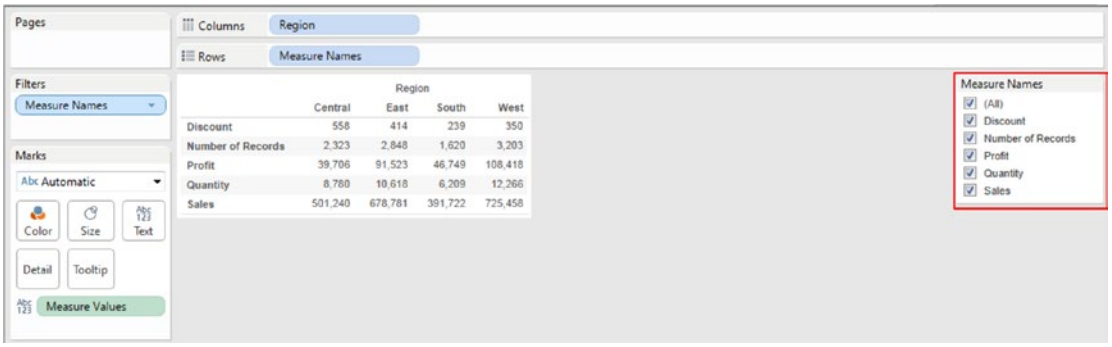

Figure 4-6. *“Quick Filter” on Measure Names*

The output on selecting measures, “Sales” and “Profit” ONLY (See Fig. 4-7).

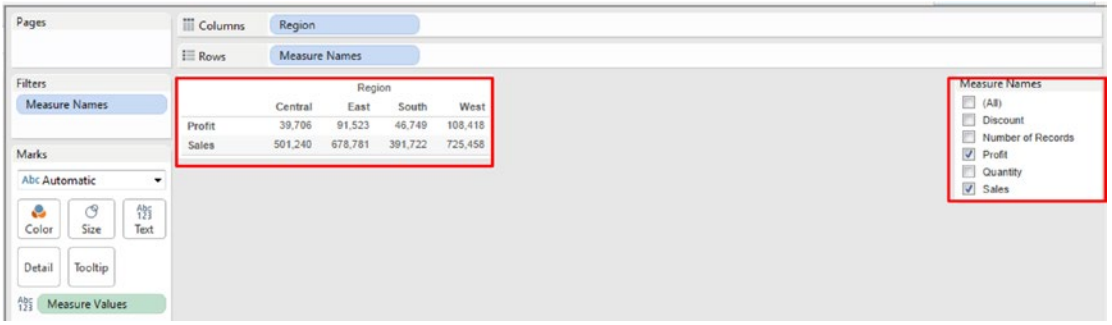

Figure 4-7. *Measures, “Profit” and “Sales” selected in the “Quick Filter”*

4.1.2.2 Demo 2

Objective: Let us create a worksheet / view that allows the user to dynamically select measures to be displayed on the view. Example, the user can choose to have "Profit" displayed over time (2011, 2012, 2013 and 2014) or can choose to have "Discount" or "Sales" displayed over time.

Input: "Sample - Superstore.xls"

Expected output: Shown in Fig. 4-8.

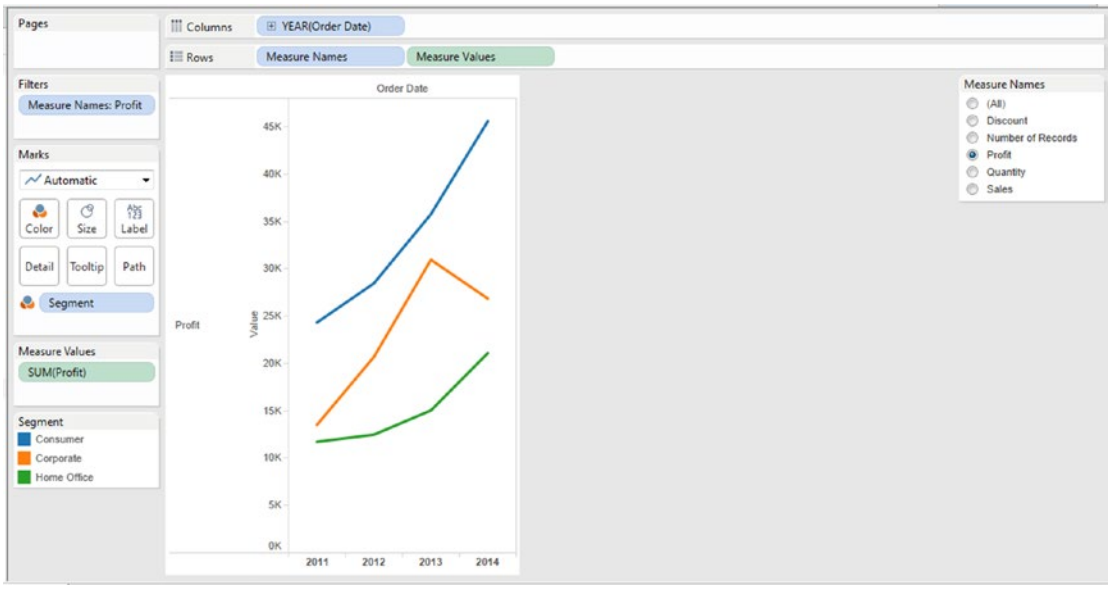

Figure 4-8. *Quick Filter with "Measure Names" - Demo 2 – expected output*

4.1.2.2.1 Steps to use quick filter with “Measure Names”

4.1.2.2.2 Step 1

Read in data from “Sample - Superstore.xls” into Tableau (Shown in Fig. 4-9).

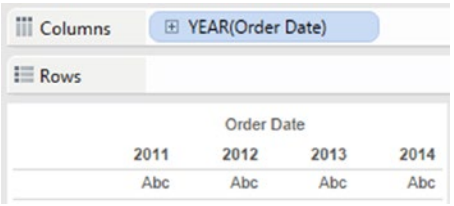

Figure 4-9. *Data from “Sample - Superstore.xls” read into Tableau*

4.1.2.2.3 Step 2

Drag the dimension “Order Date” from the dimensions area under the data pane and place it on the columns shelf (Shown in Fig. 4-10).

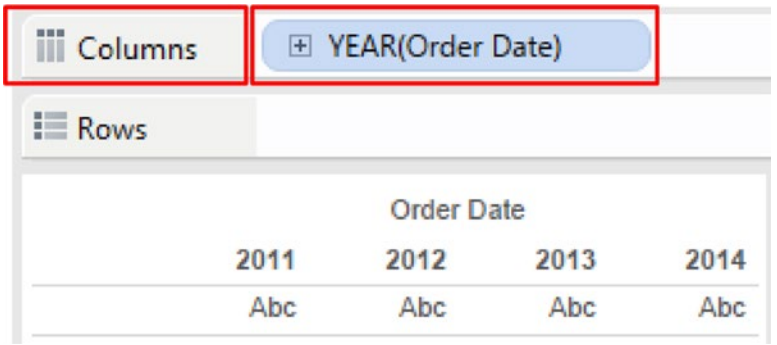

Figure 4-10. *Dimension “Order Date” placed on the columns shelf*

4.1.2.2.4 Step 3

Drag the dimension “Measure Names” from the dimensions area under the data pane and place it on the rows shelf. Drag the measure “Measure Values” from the measures area under the data pane and place it on the rows shelf to the right of “Measure Names” (Shown in Fig. 4-11).

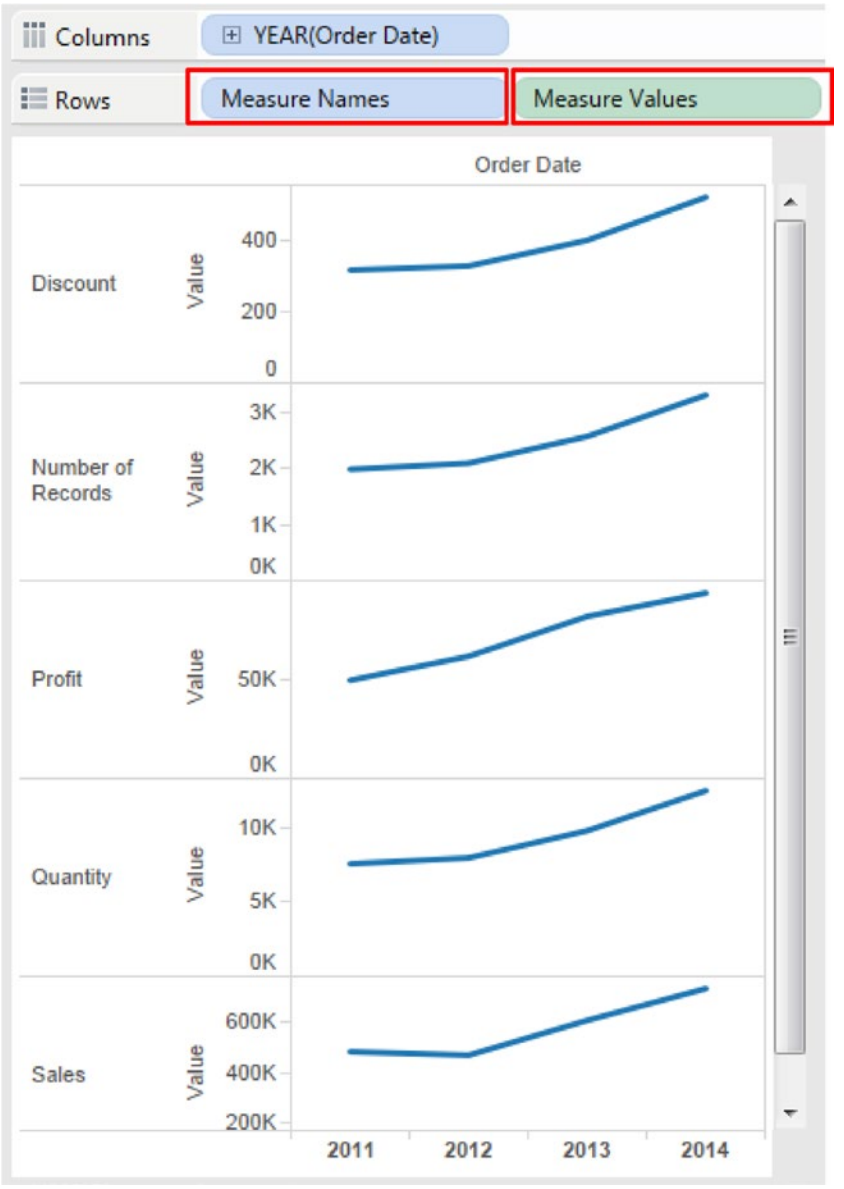

Figure 4-11. *Dimension “Measure Names” and measure “Measure Values” placed on the rows shelf*

4.1.2.2.5 Step 4

Drag the dimension “Segment” from the dimensions area under the data pane and place it on “Color” on the marks card (Shown in Fig. 4-12).

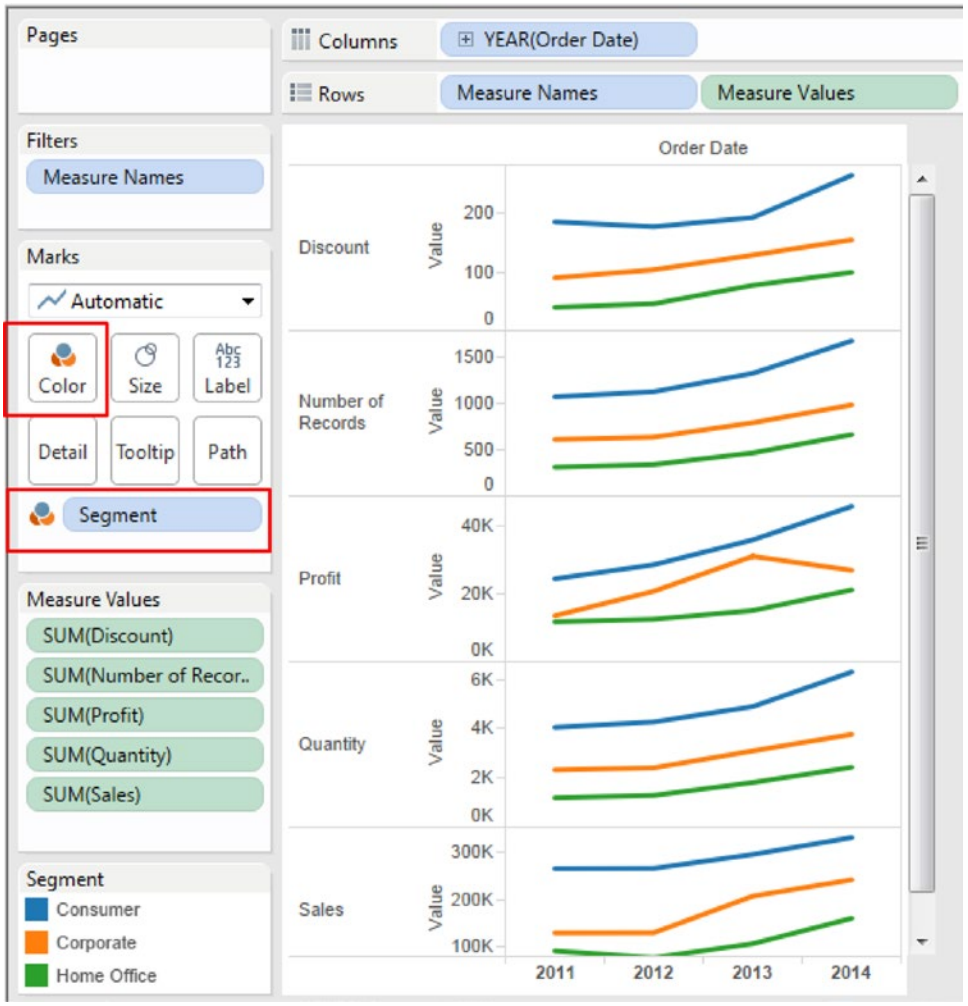

Figure 4-12. *Dimension “Segment” placed on “Color” on the marks card*

4.1.2.2.6 Step 5

Observe that “Measure Names” has automatically been placed by Tableau on the “Filters Shelf”. Let us add a “Quick Filter” to “Measure Names” (Shown in Fig. 4-13).

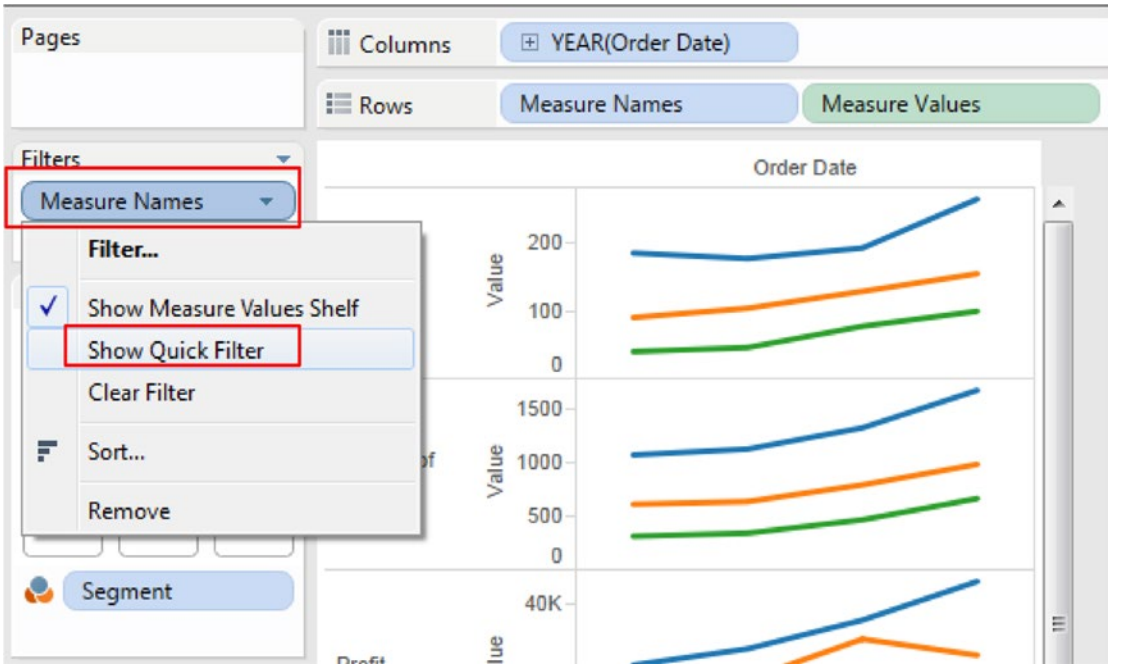

Figure 4-13. *Adding a “Quick Filter” to “Measure Names”*

4.1.2.2.7 Step 6

Change the "Quick Filter" settings to display a single values list (Shown in Fig. 4-14).

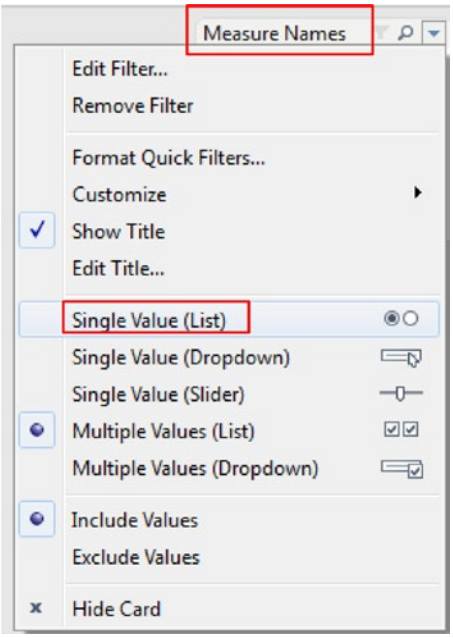

Figure 4-14. *Changing the "Quick Filter" to a "Single Value (List)"*

Select the measure “Profit” from the Single Value (List). The output below shows “Profit” over time by “Segment” (Shown in Fig. 4-15).

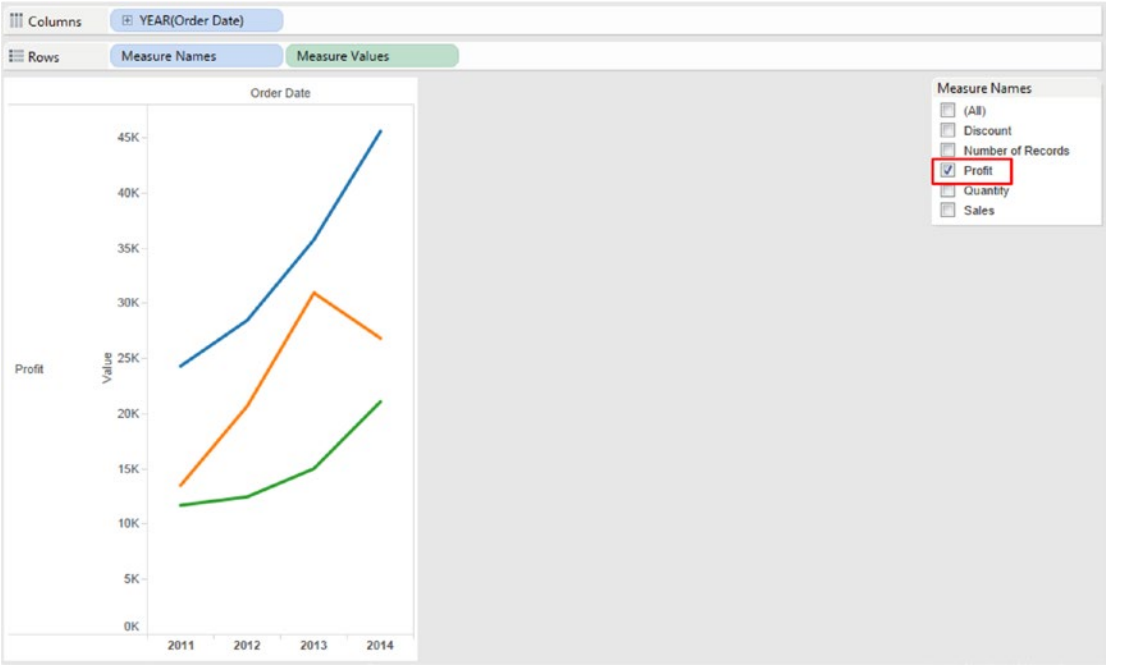

Figure 4-15. *Output shows “Profit” over time by “Segment”*

With this understanding of multiple measures by way of the demos in the previous section, let us further explore how multiple measures can be brought into a worksheet / view. We will begin with plotting each measure on a separate axis, proceed to blend the measures and plot it on a single axis, and then experiment with using dual axis. Measures can be placed on the following:

- Individual axis
- Blend measures and place on single axis
- Dual axis

4.1.3 Measures on an independent axis

One can create individual axis for each measure (Shown in Fig. 4-16). Refer to Table 4-3 for the data used in the Figure 4-16.

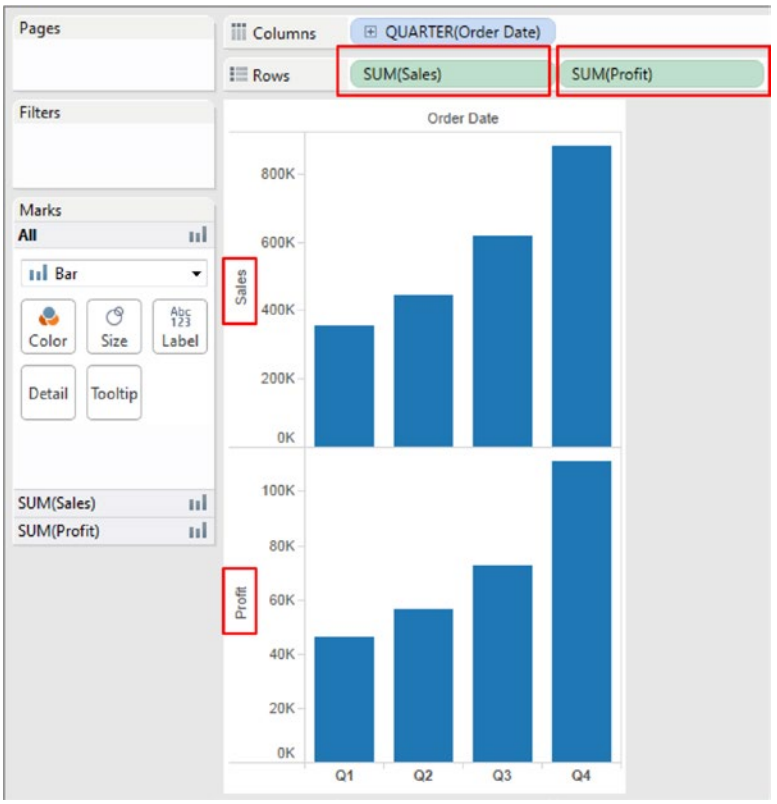

Figure 4-16. *Independent axis for each measure*

Table 4-3. *Data used in Fig. 4-16*

Columns Shelf	Quarter(Order Date) Date is "Discrete" as evident from the visual cue. It is blue in color. The preferred chart form to depict discrete dates is "Bar chart".
Rows Shelf	Sales, Profit. The aggregation used on both measures is "SUM".

Each measure on the rows shelf adds an additional axis to the rows of the table. As can be seen from Fig. 4-16 and Fig. 4-17, there are two measures ("Sales" and "Profit"), and they have added two additional axes to the rows of the table. The "Sales" and "Profit" axes are individual rows in the table and have independent scales.

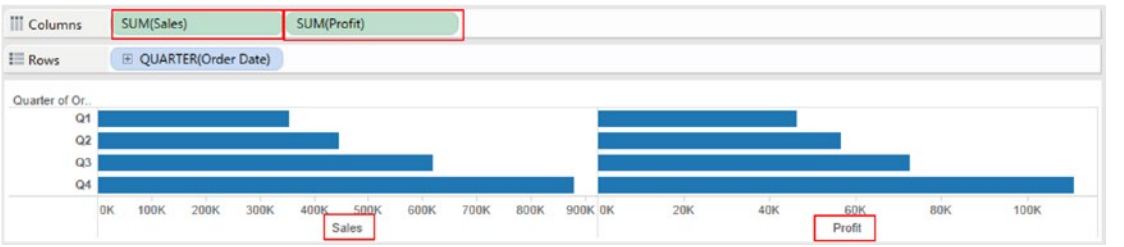

Figure 4-17. *Each measure on its own independent axis*

Table 4-4. *Data used in Fig. 4-17*

Columns shelf	Sales, Profit. The aggregation used on both measures is SUM.
Rows shelf	Quarter(Order Date) Date is "Discrete" as evident from the visual cue. It is blue in color. The preferred chart form to depict discrete dates is "Bar Chart".

■ **Note** Notice that for the visualization in Fig. 4-16, the status bar shows 2 rows (one for each measure) by 4 columns (a year has a maximum of 4 quarters). We have used bar to show the measures as that is the preferred chart form when working with discrete dates. There are 8 bars therefore the status bar shows 8 marks.

Each measure on the columns shelf adds an additional axis to the columns of the table. As can be seen from Fig. 4-17, there are two measures (sales and profit) and they have added two additional axes to the columns of the table. The Sales and Profit axes are individual columns in the table and have independent scales.

■ **Note** Notice that for the visualization in Fig. 4-17, the status bar shows four rows (one for each quarter) by two columns (one for each measure). We have used bar to show the measures as that is the preferred chart form with discrete dates. There are eight bars; therefore, the status bar shows eight marks.

4.1.4 Blended axes

Blend the measures and have them share a common axis. When should one use it? It should be used when one wants to compare measures that have similar scale and units.

4.1.4.1 Demo 1

Objective: Let us create a worksheet / view that displays two measures "Sales" and "Profit" for each year (2011 to 2014) side-by-side using "Side by Side Bars".

Input: "Sample - Superstore.xls".

Expected Output: See Fig. 4-18.

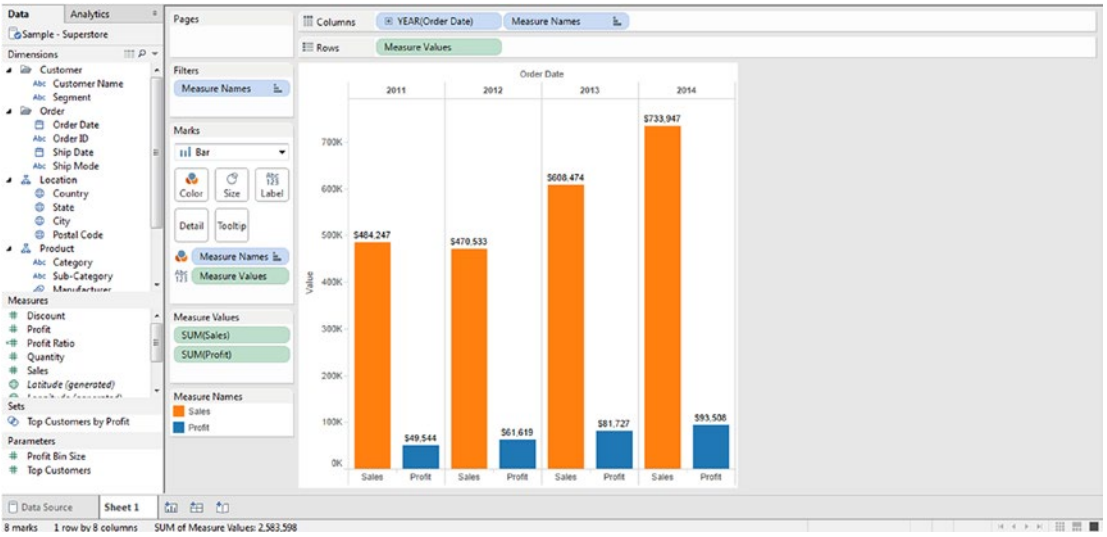

Figure 4-18. *Blended Measures – Demo 1 - Expected output*

4.1.4.1.1 Steps to displays two measures “Sales” and “Profit” side by side using “Side by Side Bars”

4.1.4.1.2 Step 1

Drag “Order Date” from dimensions area under the data pane and place it on the columns shelf. Dates are always displayed as a hierarchy. By default, when we drag “Order Date” and place it either on the rows or columns shelf, it is “Discrete” (this is evident from the visual cue (“Order Date” appears in blue color) (Shown in Fig. 4-19).

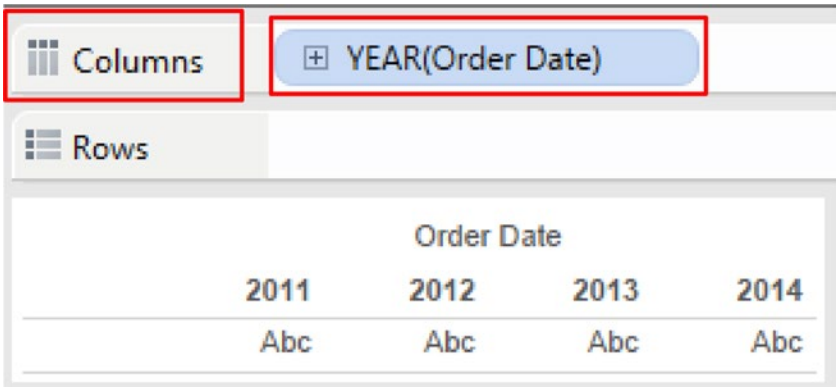

Figure 4-19. *Dimension “Order Date” placed on the columns shelf*

4.1.4.1.3 Step 2

Drag the measure “Sales” from the measures area under the data pane and place it on rows shelf. Change the marks type to “Bar” (Shown in Fig. 4-20).

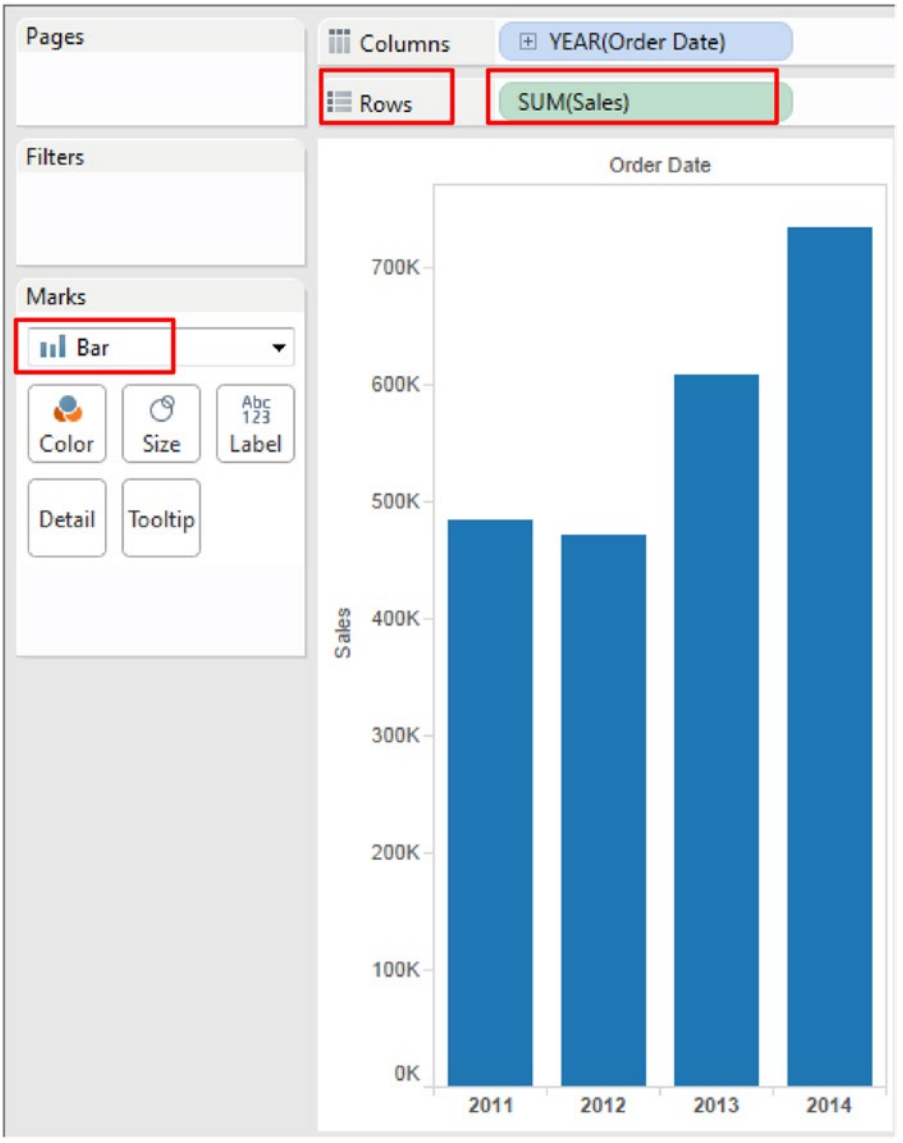

Figure 4-20. *Marks Type changed to "Bar"*

4.1.4.1.4 Step 3

Drag the measure "Profit" from the measures area under the data pane and place it on the same axis as the measure "Sales". Note: The measure "Profit" should be dropped only when you see a ruler or scale image otherwise it will replace the measure "Sales" on the rows shelf. As soon as more than one measure is dropped on the same axis, you will notice a new dimension "Measure Names" and a new measure "Measure Values". In our example, "Measure Names" appears on the columns shelf and "Measure Values" on the rows shelf. The shared axis is created using the "Measure Values" field. What are measure names and measure values? Measure names are a container that contains the names of the measures that has been dragged on the worksheet/view. In our example, the measure names container has the names of the two measures "Sales" and "Profit". The measure values container has the values for the measures, "Sales" and "Profit", i.e. Sum(Sales) and Sum(Profit). (Shown in Fig. 4-21).

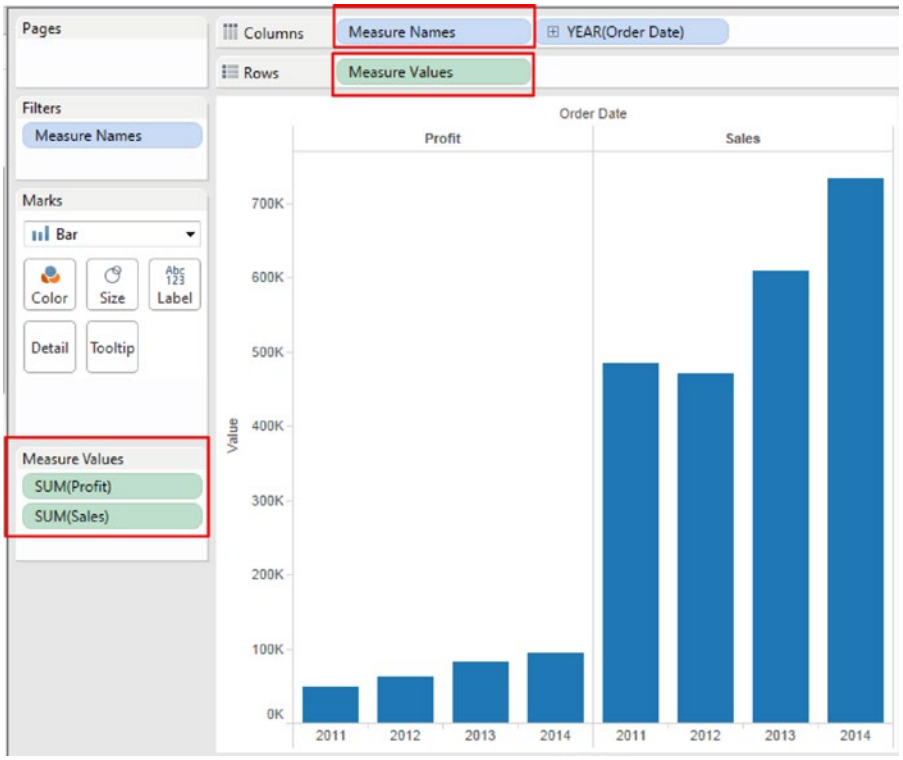

Figure 4-21. *Dimension "Measure Names" and measure "Measure Values" placed on the columns and rows shelf, respectively*

We would like to view the "Sales" and "Profits" bars side by side. Notice in Fig. 4-21, "Measure Names" is displayed first on the columns shelf, followed by "Order Date". Move "Measure Names" to the right of "Order Date". The output is as shown in Fig. 4-22.

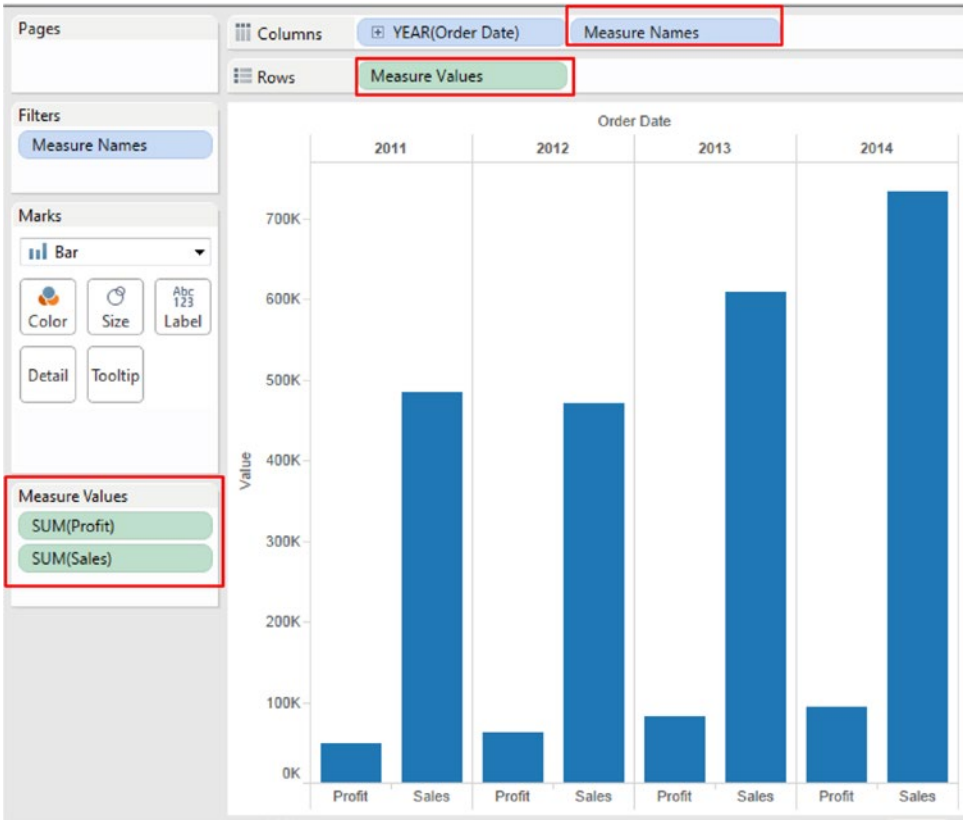

Figure 4-22. *Measure Values, "Sales" and "Profit" displayed for Years (2011-2014)*

4.1.4.1.5 Step 4

Let us change the sequence in which the bars are displayed. First, the "Profit" bar is displayed for each year followed by the "Sales" bar. Let us change the sequence. To do so, in the "Measure Values" shelf, move sum (Sales) above sum (Profit) (Shown in Fig. 4-23).

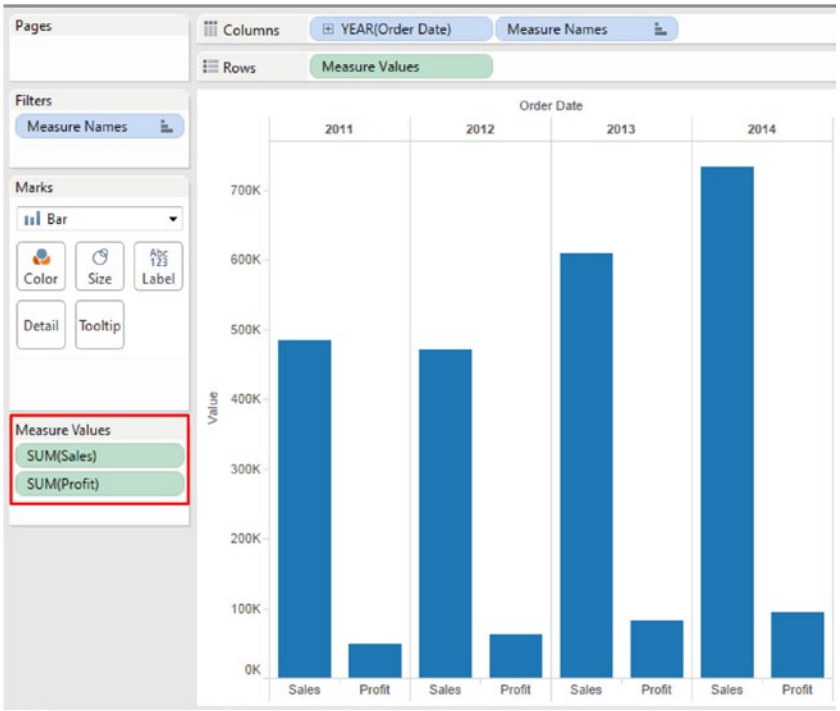

Figure 4-23. *Sequence of measure values changed to display "Sales" followed by "Profit"*

4.1.4.1.6 Step 5

Keep the CTRL key pressed as you drag "Measure Names" from the columns shelf to "Color" on the "Marks" card (Shown in Fig. 4-24).

■ **Note** If you do NOT keep the CTRL key pressed as you drag "Measure Names" to "Color", "Measure Names" will disappear from the columns shelf and you will get stacked bars in the view.

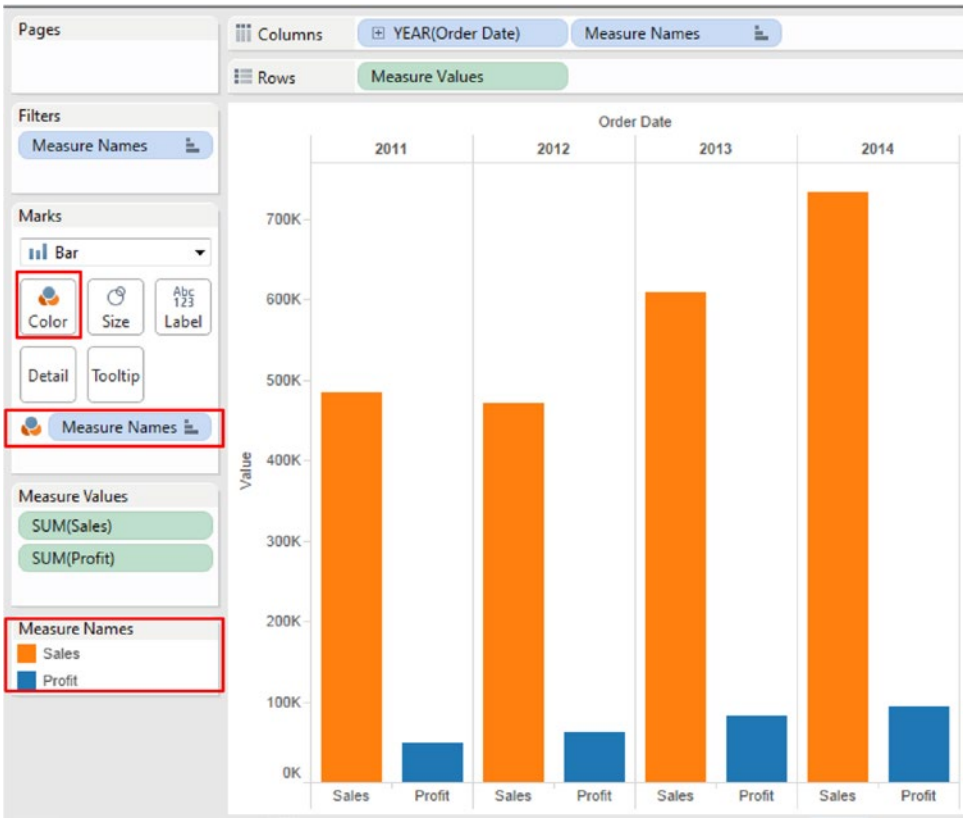

Figure 4-24. *Dimension "Measure Names" placed on "Color" on the marks card*

4.1.4.1.7 Step 6

Keep the CTRL key pressed as you drag “Measure Values” from the rows shelf and drop it on “Label” on the “Marks” card (Shown in Fig. 4-25).

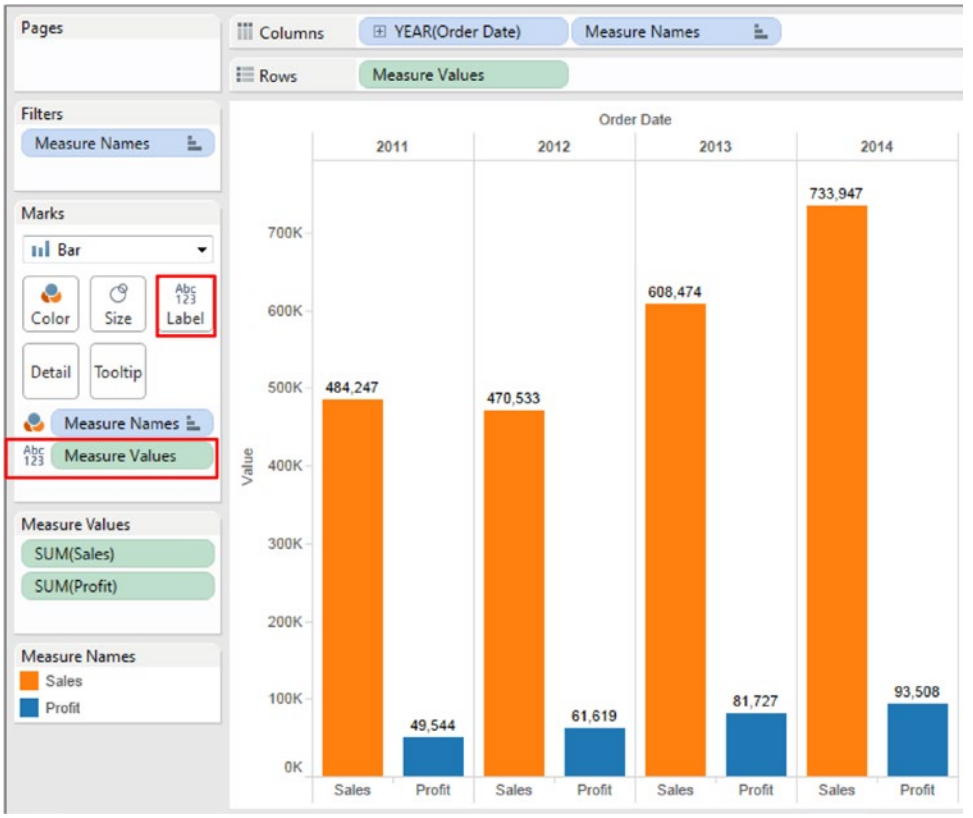

Figure 4-25. *Measure “Measure Values” placed on “Label” on the marks card*

4.1.4.2 Demo 2

Objective: To plot multiple measures (such as "Sales", "Profit" and "Discount") on a single axis.
Input: "Sample Superstore.xls". The Excel sheet has data for 4 years (2011 to 2014).
Expected output: Shown in Fig. 4-26**.**

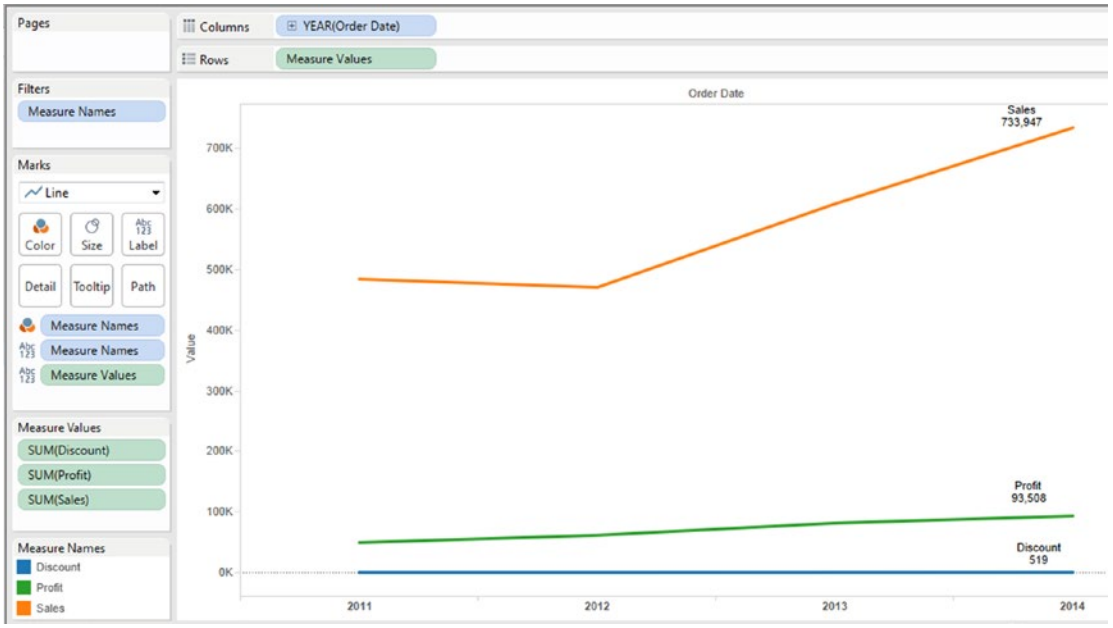

Figure 4-26. *Blended measures - Demo 2 – expected output*

4.1.4.2.1 Steps to plot multiple measures on the same axis

4.1.4.2.2 Step 1

Read in data from "Sample - Superstore.xls" into Tableau (Shown in Fig. 4-27).

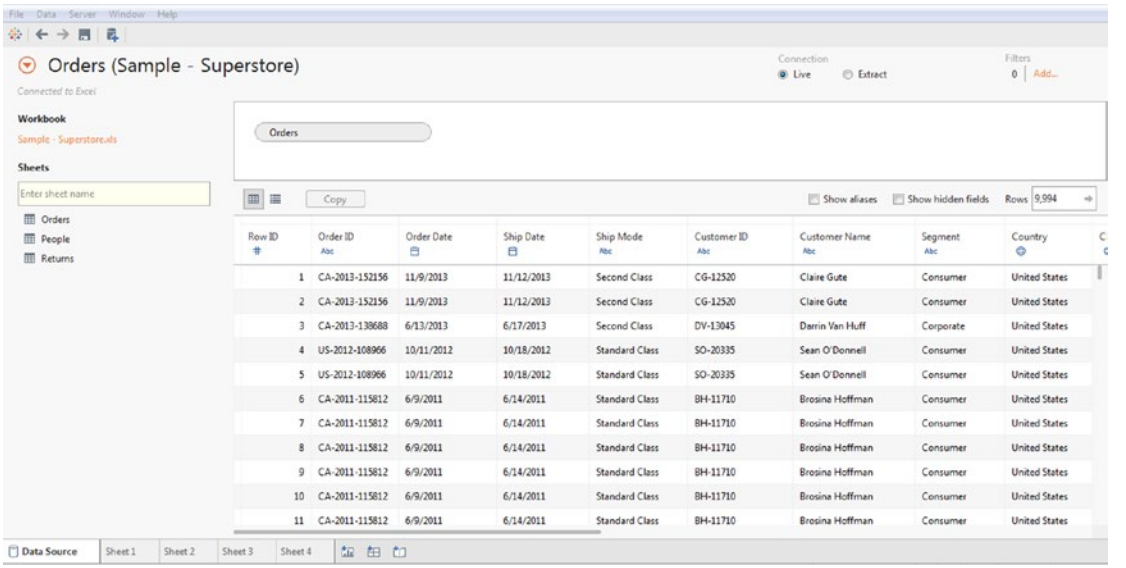

Figure 4-27. *"Sample - Superstore.xls" connected to Tableau*

4.1.4.2.3 Step 2

Drag “Measure Names” from the dimensions area under the data pane to “Filters Shelf”.

The ‘Filter [Measure Names] dialog box shows up. Select the measures “Discount”, “Profit” and “Sales” (Shown in Fig. 4-28).

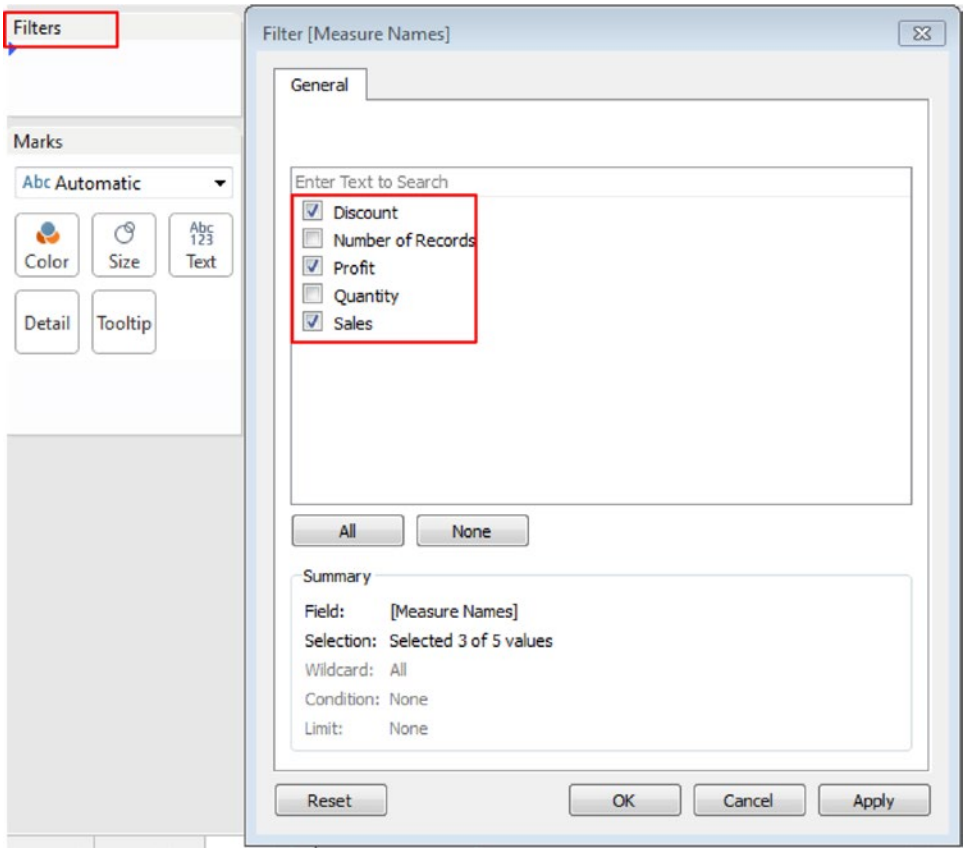

Figure 4-28. *Select measures in the “Filter [Measure Names]” dialog box*

Click on “Apply” and then “OK”.

The output after applying the filter is shown in Fig. 4-29.

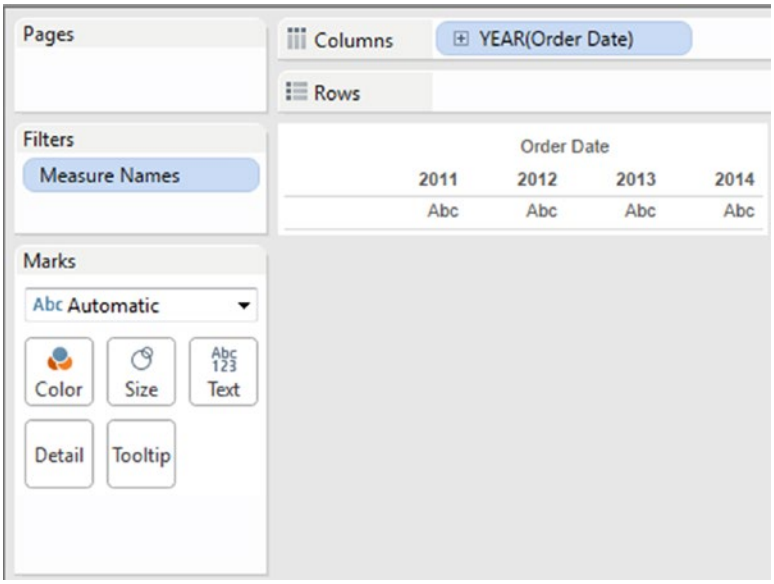

Figure 4-29. *"Measure Names" placed in the "Filters Shelf"*

4.1.4.2.4 Step 3

Drag the dimension "Order Date" from the dimensions area under the data pane and place it on the columns shelf. Retain the default granularity at "Year" (Figure 4-30).

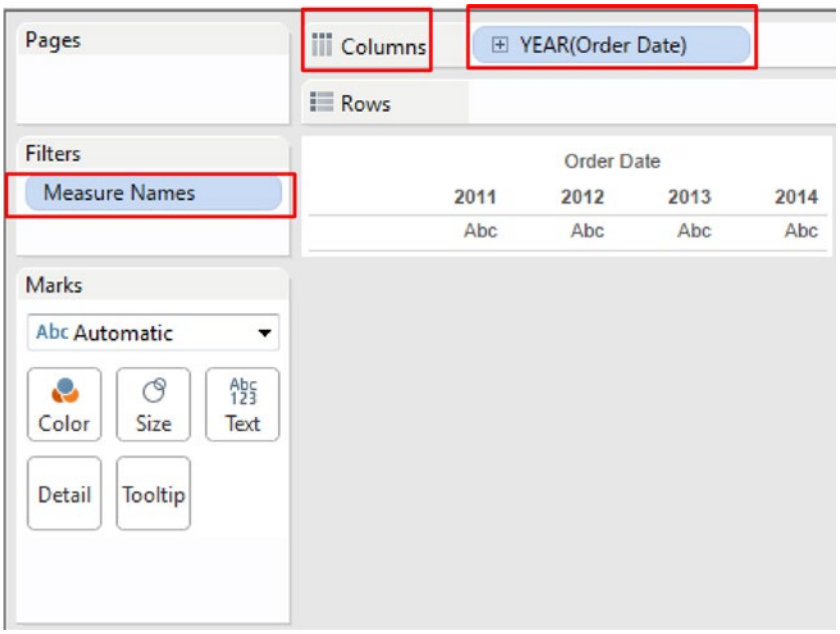

Figure 4-30. *Dimension "Order Date" placed on the columns shelf*

4.1.4.2.5 Step 4

Drag "Measure Values" from the measures area under the data pane and place it on the rows shelf (Shown in Fig. 4-31).

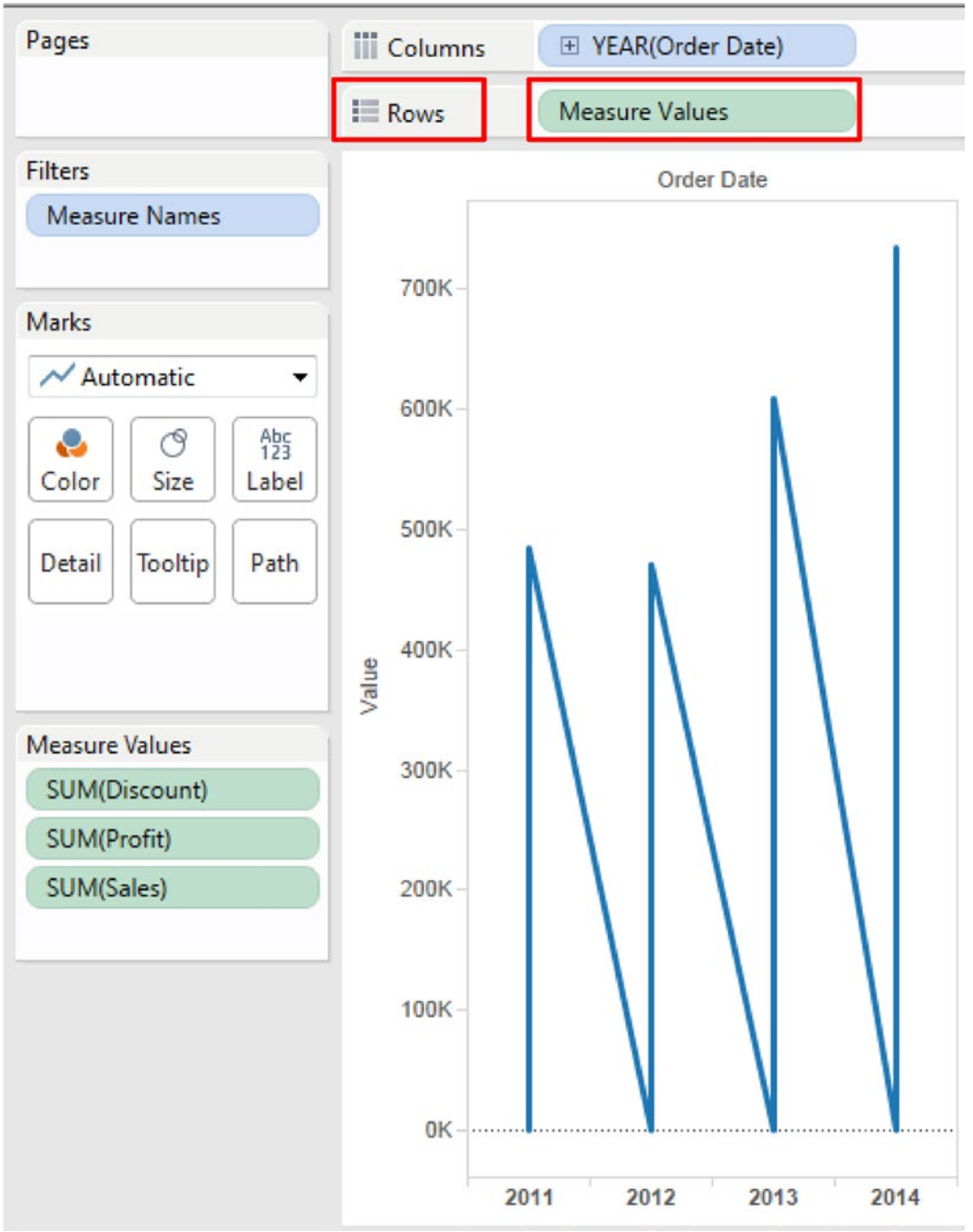

Figure 4-31. *Measure "Measure Values" placed on the rows shelf*

4.1.4.2.6 Step 5

Change the “Marks Type” to “Line” (Shown in Fig. 4-32).

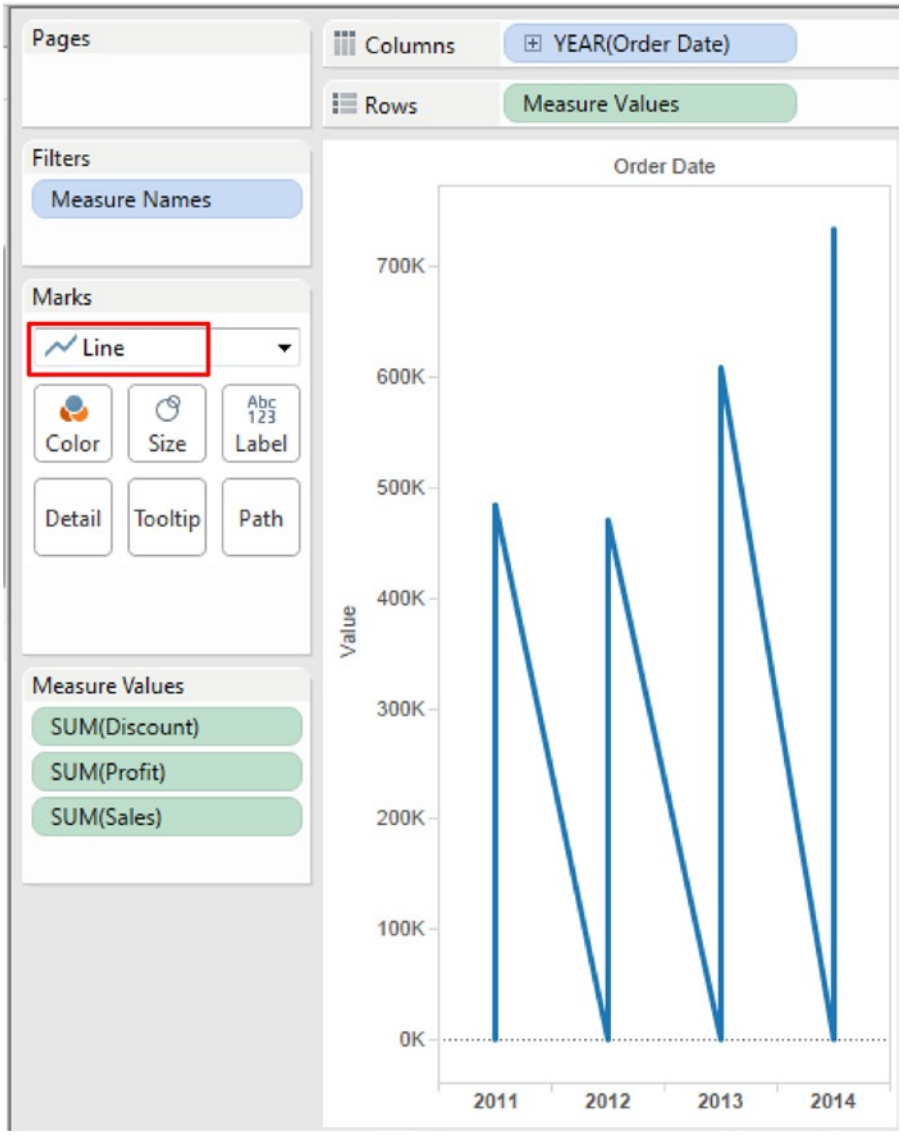

Figure 4-32. *“Marks Type” set to “Line”*

Drag “Measure Names” from the dimensions area under the data pane and place it on “Color” on the marks card (Shown in Fig. 4-33).

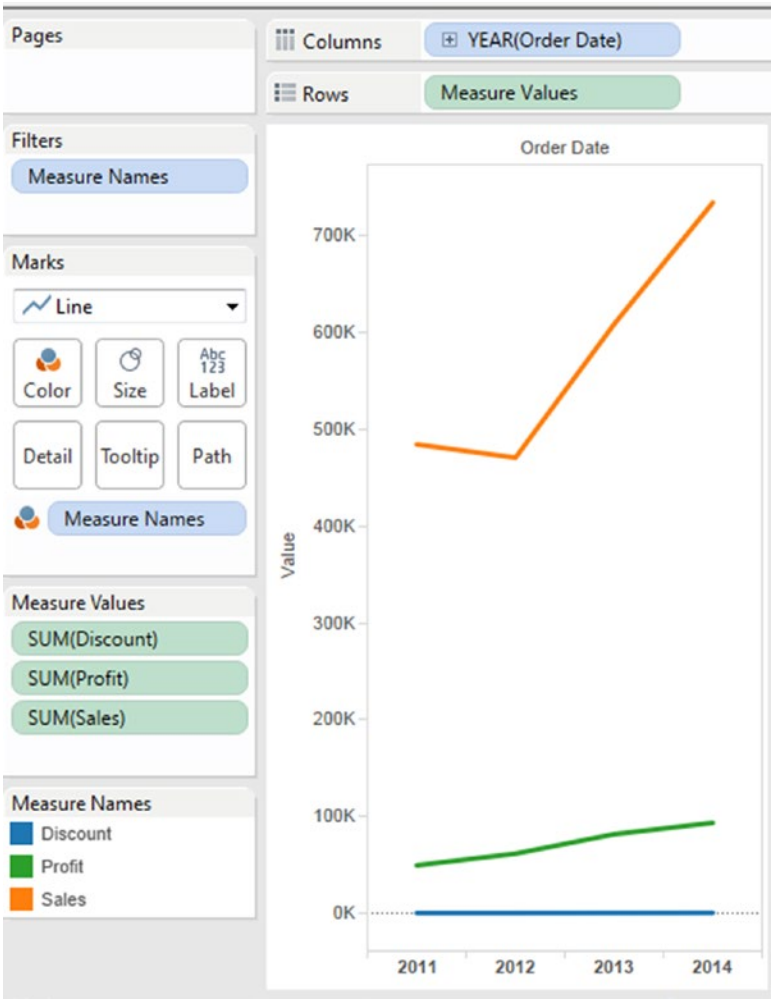

Figure 4-33. *“Measure Names” placed on “Color” on the marks card*

4.1.4.2.7 Step 6

Now let us apply some formatting.

Drag and drop “Measure Names” on “Label” on the marks card (Shown in Fig. 4-34).

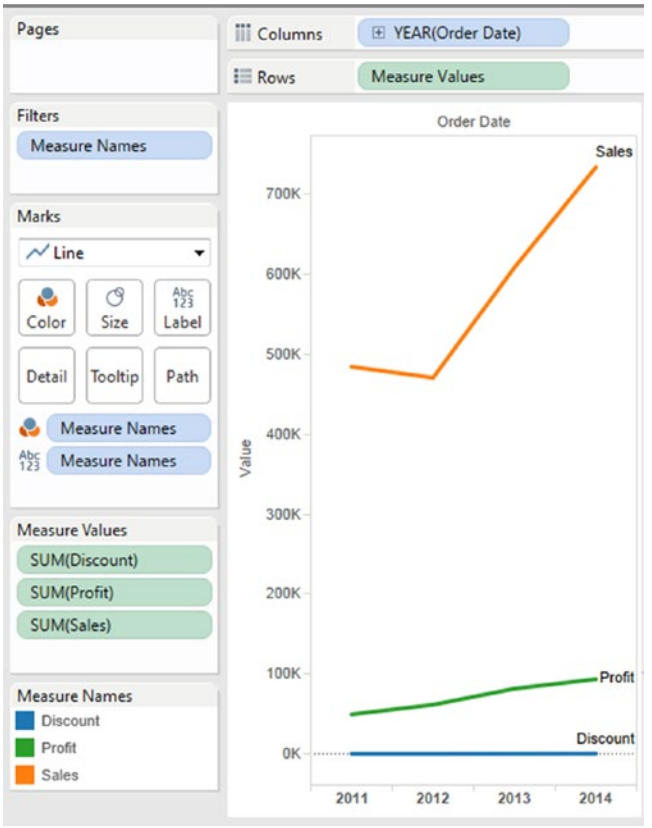

Figure 4-34. *“Measure Names” placed on “Label” on the marks card*

Drag “Measure Values” and place it on “Label” on the marks card (Shown in Fig. 4-35).

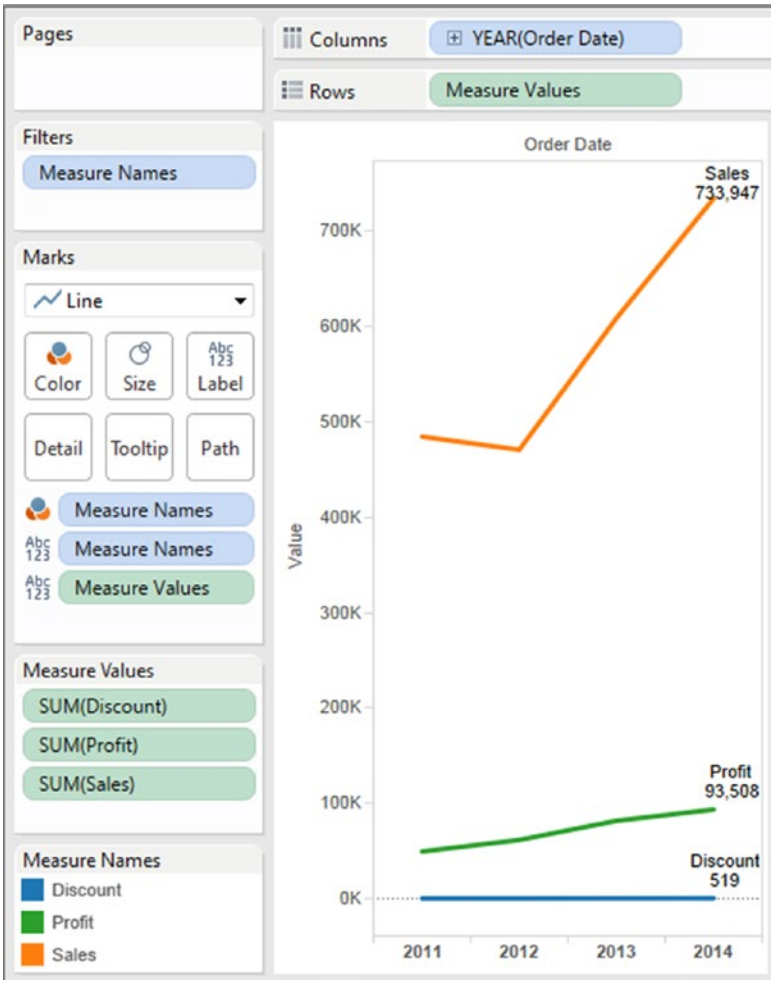

Figure 4-35. *“Measure Values” placed on “Label” on the marks card*

Change the "Fit" to "Entire View" (Shown in Fig. 4-36).

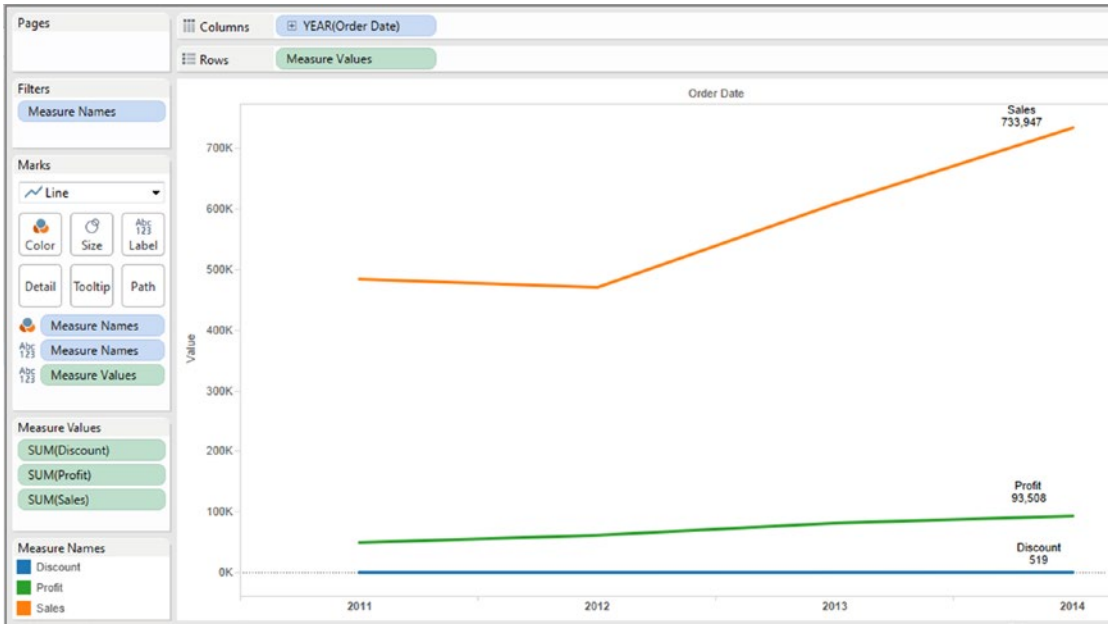

Figure 4-36. *"Fit" set to "Entire View"*

4.1.4.3 Demo 3

4.1.4.3.1 Combined axis chart with stacked marks

Objective: To create a combined axis chart with stacked marks.

Input:

Description of the data set used in this section:

The data set is of 2014 Olympics. It has the following dimensions:

- Athlete: Name of the athlete
- Country: Name of the participating athlete's country
- Sex: Gender of the athlete
- Sport: Name of the sport in which the athlete participated

The measures are as follows:

- Age: Age of the athlete.
- Bronze: Number of bronze medals won by athlete in the sport in which he participated.
- Gold: Number of gold medals won by athlete in the sport in which he participated.
- Silver: Number of silver medals won by athlete in the sport in which he participated.
- Total: Total number of medals won by the athlete in the sport in which he participated.

A subset of the data (Shown in Fig. 4-37).

	A	B	C	D	E	F	G	H	I
1	Country	Athlete	Sex	Age	Sport	Gold	Silver	Bronze	Total
2	Australia	Torah Bright	Female	27	Snowboarding		1		1
3	Australia	David Morris	Male	29	Freestyle Skiing		1		1
4	Australia	Lydia Ierodiaconou-Lassila	Female	32	Freestyle Skiing			1	1
5	Austria	Anna Fenninger	Female	24	Alpine Skiing	1	1		2
6	Austria	Nicole Hosp	Female	30	Alpine Skiing		1	1	2
7	Austria	Dominik Landertinger	Male	26	Biathlon		1	1	2
8	Austria	Julia Dujmovits	Female	26	Snowboarding	1			1
9	Austria	Mario Matt	Male	34	Alpine Skiing	1			1
10	Austria	Matthias Mayer	Male	23	Alpine Skiing	1			1
11	Austria	Thomas Diethart	Male	21	Ski Jumping		1		1
12	Austria	Michael Hayböck	Male	22	Ski Jumping		1		1
13	Austria	Marcel Hirscher	Male	24	Alpine Skiing		1		1
14	Austria	Daniela Iraschko-Stolz	Female	30	Ski Jumping		1		1
15	Austria	Andreas Linger	Male	32	Luge		1		1
16	Austria	Wolfgang Linger	Male	31	Luge		1		1
17	Austria	Thomas Morgenstern	Male	27	Ski Jumping		1		1
18	Austria	Marlies Schild	Female	32	Alpine Skiing		1		1
19	Austria	Gregor Schlierenzauer	Male	24	Ski Jumping		1		1
20	Austria	Christoph Bieler	Male	36	Nordic Combined			1	1
21	Austria	Simon Eder	Male	30	Biathlon			1	1

Figure 4-37. *A subset of the data for Demo 3: Combined Axis Chart with Stacked Marks*

Table 4-5. *Activities to perform*

Columns Shelf	Measure values (Sum(Bronze), Sum(Silver), Sum(Gold))
Rows shelf	Country
Marks card:	
Color	Measure names (Bronze, Silver, Gold)
Label	Measure values

Expected Output: Shown in Fig. 4-38.

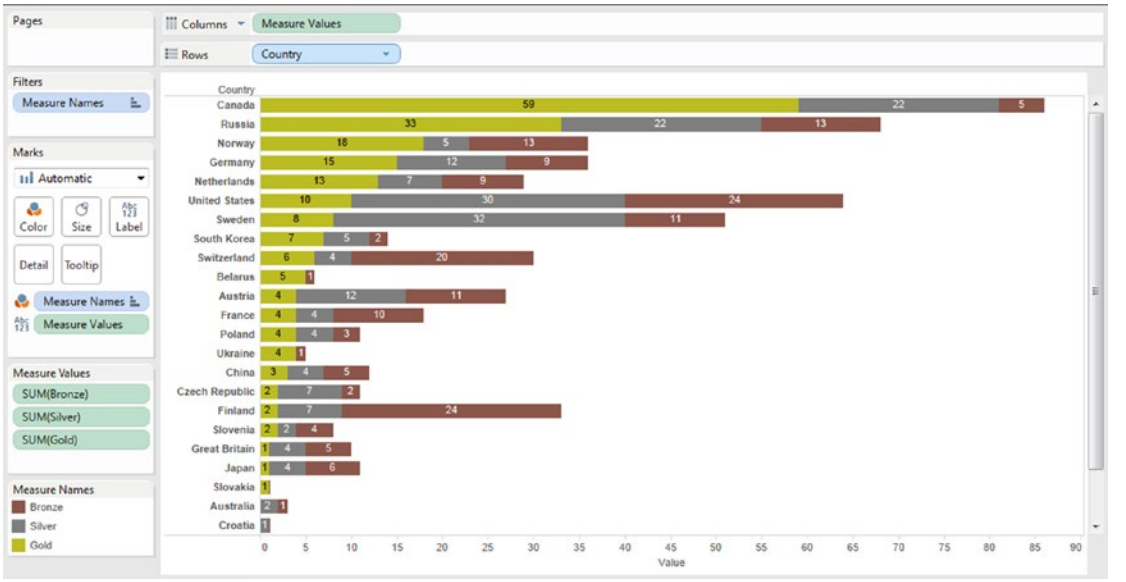

Figure 4-38. *Combined axis with stacked marks – Demo 3 - Expected output*

4.1.4.3.2 Steps to create combined axis chart with stacked marks

4.1.4.3.3 Step 1

Drag the dimension “Country” from the dimensions area under the data pane and place it on the rows shelf. The status bar shows 26 rows by 1 column (the dataset has details about 26 Countries) (Shown in Fig. 4-39).

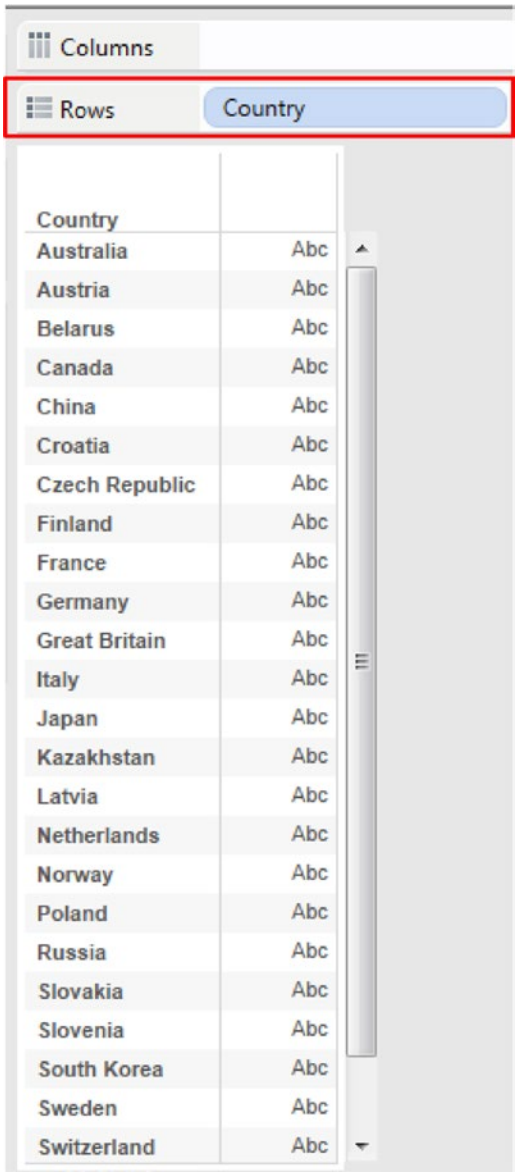

Figure 4-39. *Dimension "Country" placed on the rows shelf*

4.1.4.3.4 Step 2

Drag the measure "Bronze" from the measures area under the data pane and place it on the columns shelf (Shown in Fig. 4-40).

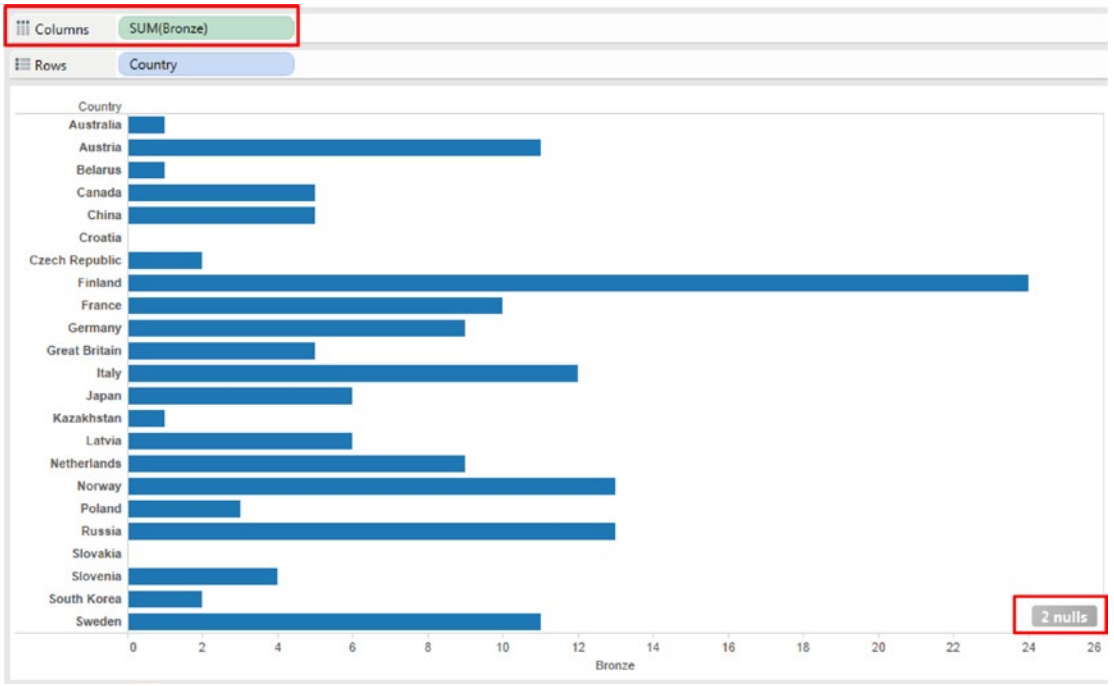

Figure 4-40. *Measure "Bronze" placed on the columns shelf*

Notice the message, "2 nulls" at the bottom right of the screen.
Click on the message "2 nulls". It brings up the "Special Values for [Bronze]" window shown in Fig. 4-41.

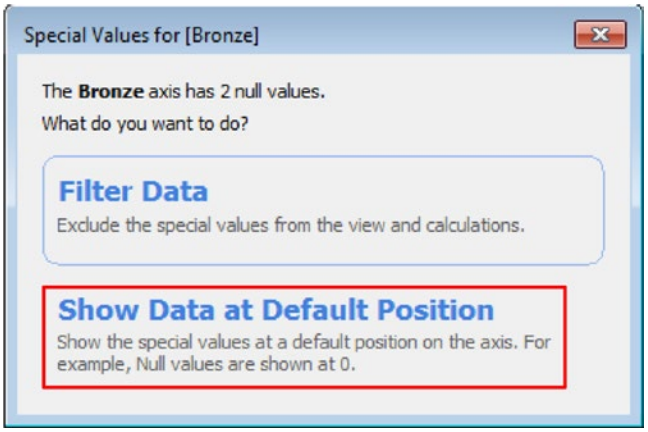

Figure 4-41. *Fixing up "Special Values for [Bronze]"*

"Filter Data" excludes the special values from the view and calculations. "Show Data at Default Position" shows the special values at a default position on the axis. For example, null values are shown at 0.
Select "Show Data at Default Position". The message disappears. The output is as shown in Fig. 4-42.

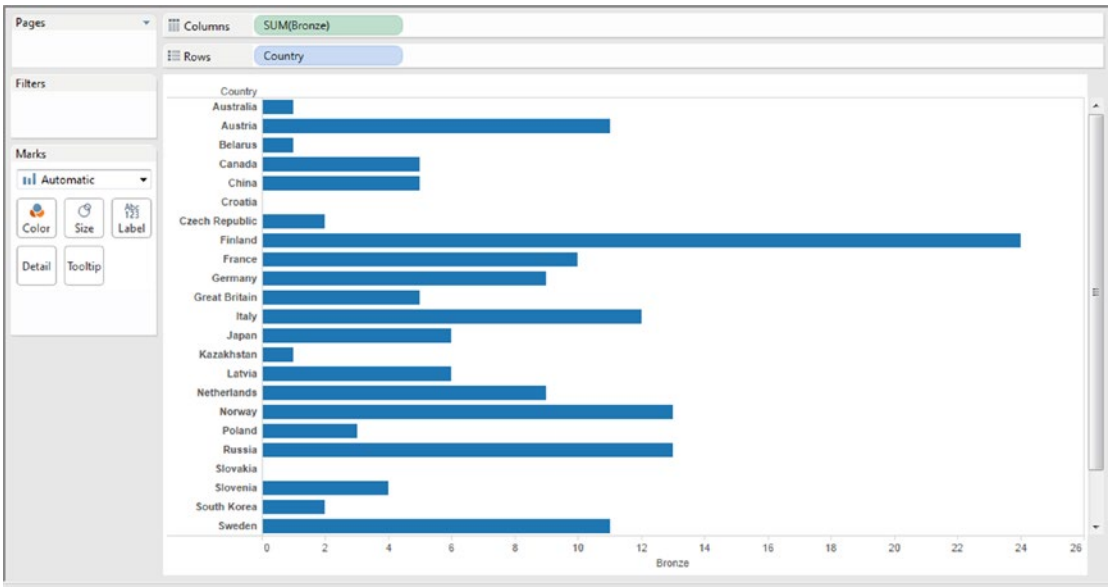

Figure 4-42. *Output after considering the "Special Values" for the measure bronze*

4.1.4.3.5 Step 3

Drag the measure "Silver" from the measures area under the data pane and place it on the same axis as the measure "Bronze" (Shown in Fig. 4-43).

Figure 4-43. *Measure "Bronze" and "Silver" placed on the same axis*

Notice the change on the columns shelf. The columns shelf now has "Measure Values". The rows shelf has the dimension "Country" and to the right of the dimension "Country" is the dimension "Measure Names". The axis has changed to show "Value".

4.1.4.3.6 Step 4

Drag the measure "Gold" from the measures area under the data pane and place it on the same axis as the measures "Bronze" and "Silver" (Shown in Fig. 4-44).

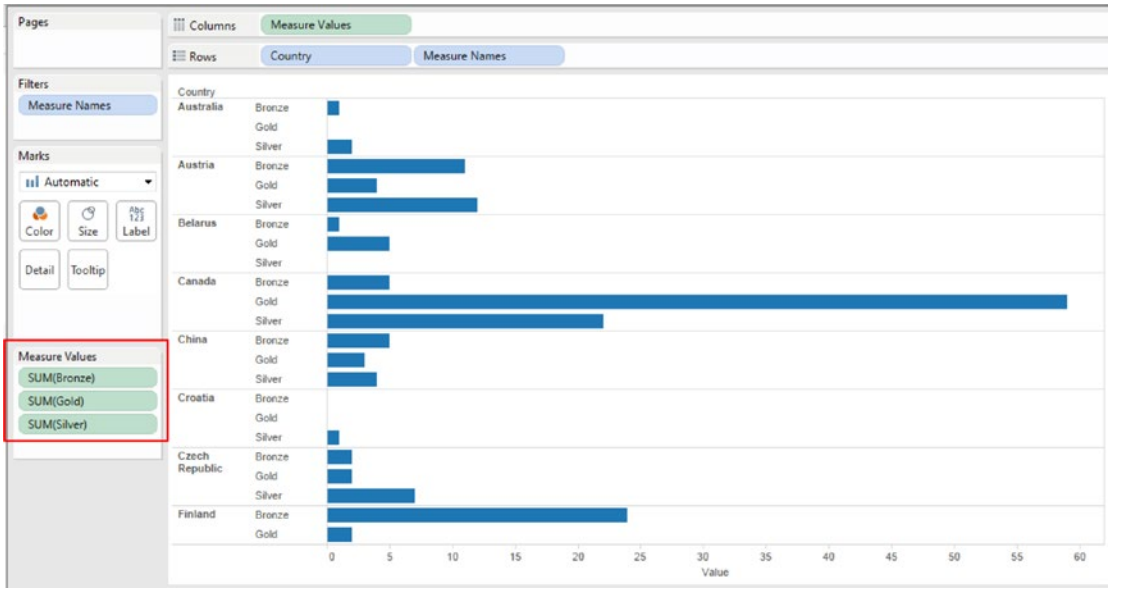

Figure 4-44. *Measures "Bronze", "Silver" and "Gold" placed on the same axis*

Observe the "Measure Values" just below the marks card. The order of the measures is as follows (See Fig. 4-45):

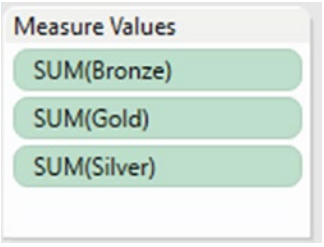

Figure 4-45. *Measure values below the marks card*

Let us change the order to SUM(Bronze), SUM(Silver) and then SUM(Gold). Drag SUM(Silver) and drop it above SUM(Gold) (See Fig. 4-46).

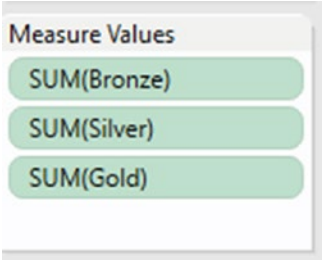

Figure 4-46. *Changed sequence of measure values*

The change reflected on the worksheet / view is as shown in Fig. 4-47.

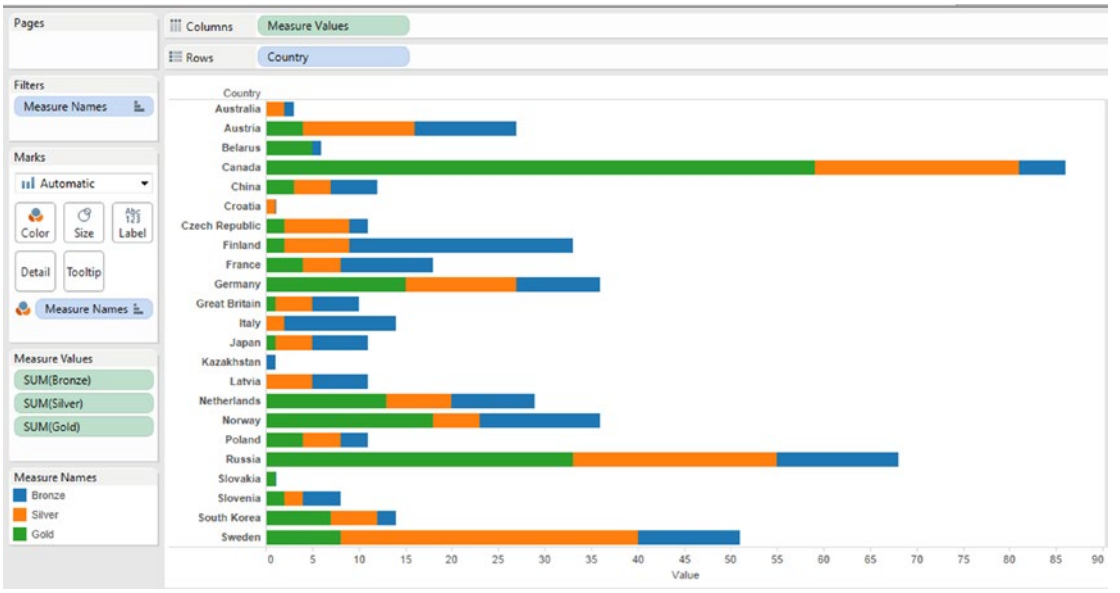

Figure 4-47. *The output after re-sequencing the measure values*

4.1.4.3.7 Step 5

Drag “Measure Names” from the columns shelf and drop it on “Color” on the marks card (Shown in Fig. 4-48).

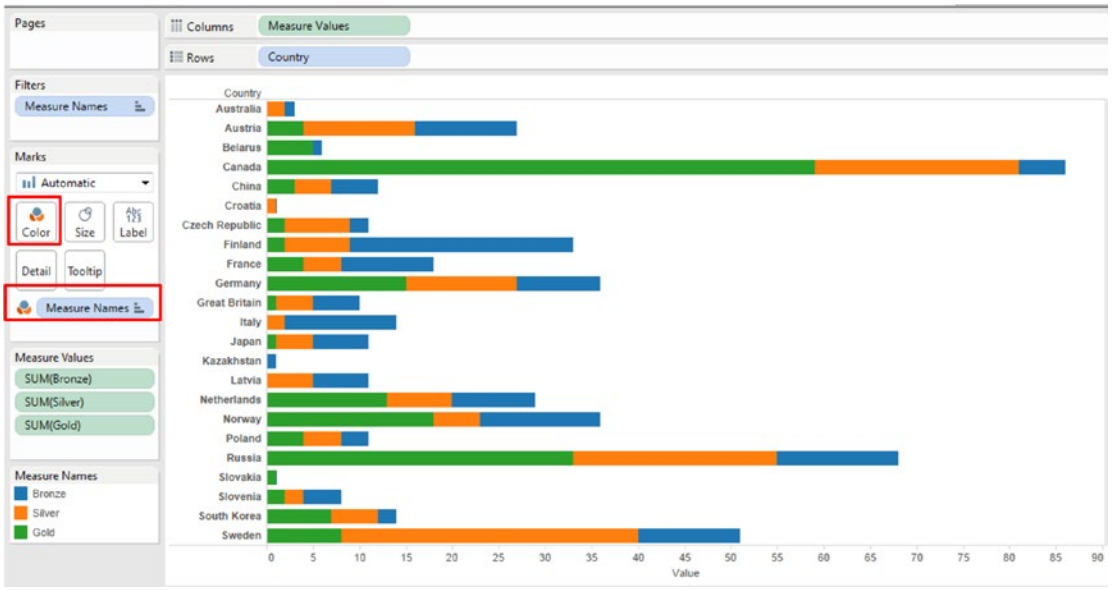

Figure 4-48. *"Measure Names" placed on "Color" on the marks card*

4.1.4.3.8 Step 6

Keep the CTRL key pressed and drag "Measure Values" from the rows shelf and drop it on "Label" on the marks card (Shown in Fig. 4-49).

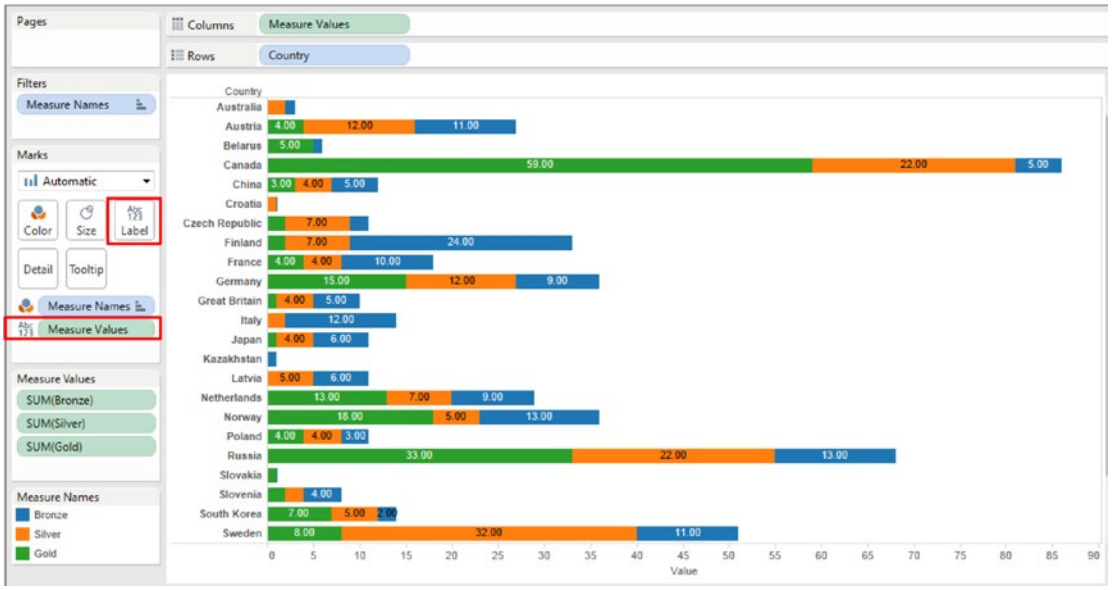

Figure 4-49. *"Measure Values" placed on "Label" on the marks card*

4.1.4.3.9 Step 7

Sort the dimension "Country" by the measure "Gold" in descending order. Right click on the dimension "Country". It brings up the drop down menu. Select "Sort" (Shown in Fig. 4-50).

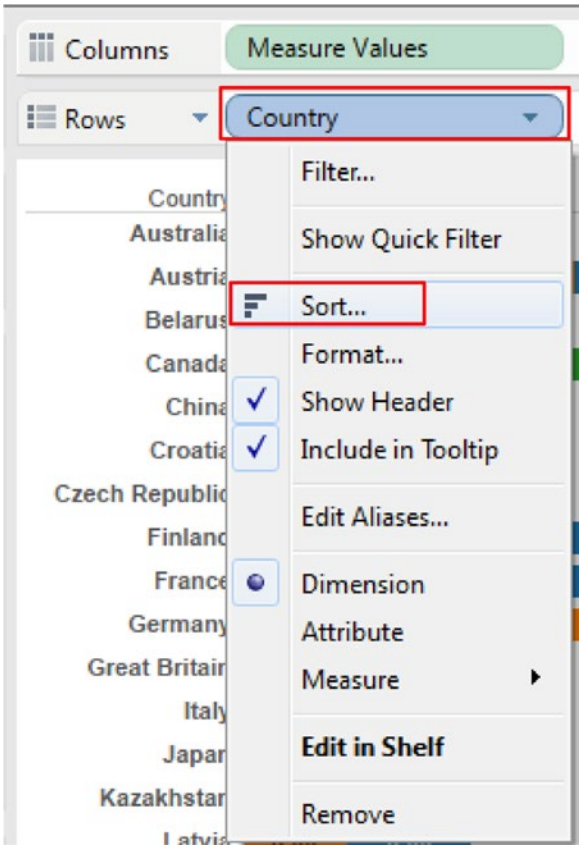

Figure 4-50. *Perform "Sort" on the dimension "Country"*

On selecting "Sort" the screen for "Sort [Country]" shows up. Provide the values as shown in Fig. 4-51.

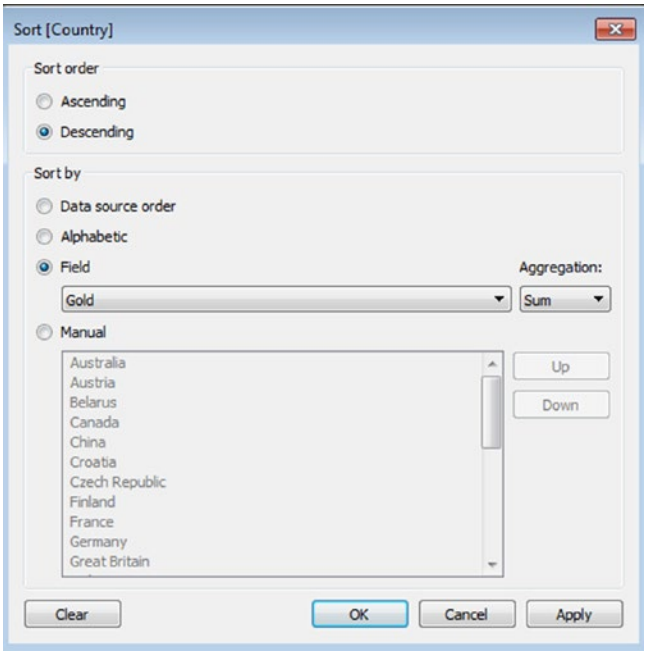

Figure 4-51. *Perform "Sort" on the dimension "Country" in descending order of measure "Gold"*

Click "Apply" and then "OK".
The output of sort is as follows (Shown in Fig. 4-52).

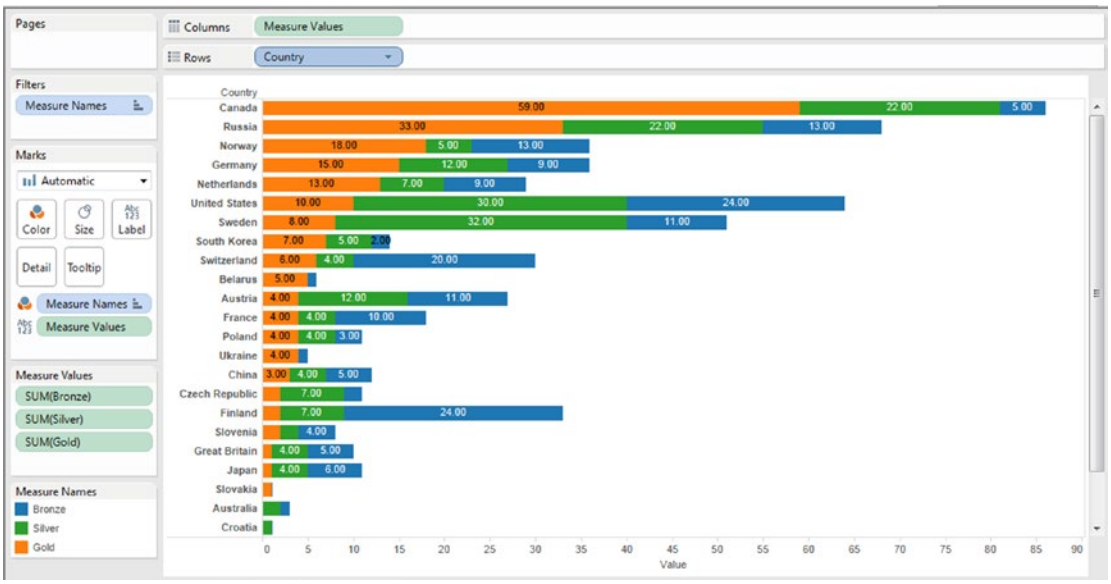

Figure 4-52. *Output after sorting the dimension "Country" in descending order of measure "Gold"*

4.1.4.3.10 Step 8

Now for some formatting.

Change the color of "Bronze", "Silver" and "Gold" bars. Change the number format for all the measure values (Shown in Fig. 4-53 and Fig. 4-54).

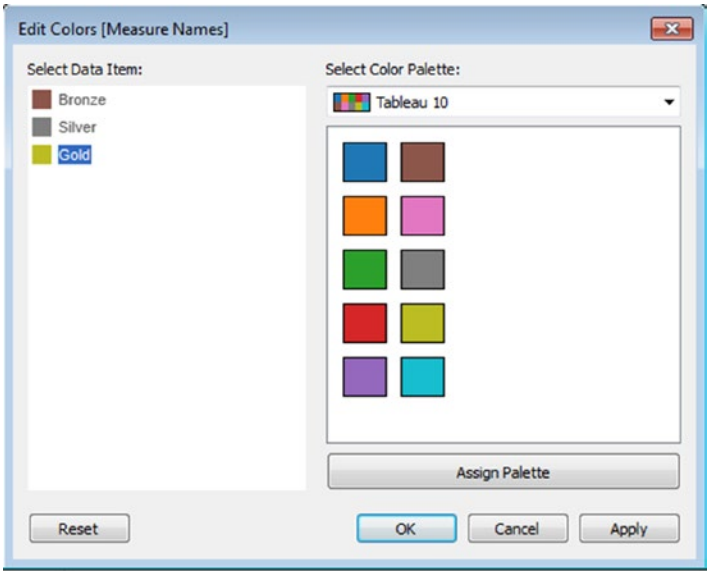

Figure 4-53. *Edit the colors for the measures*

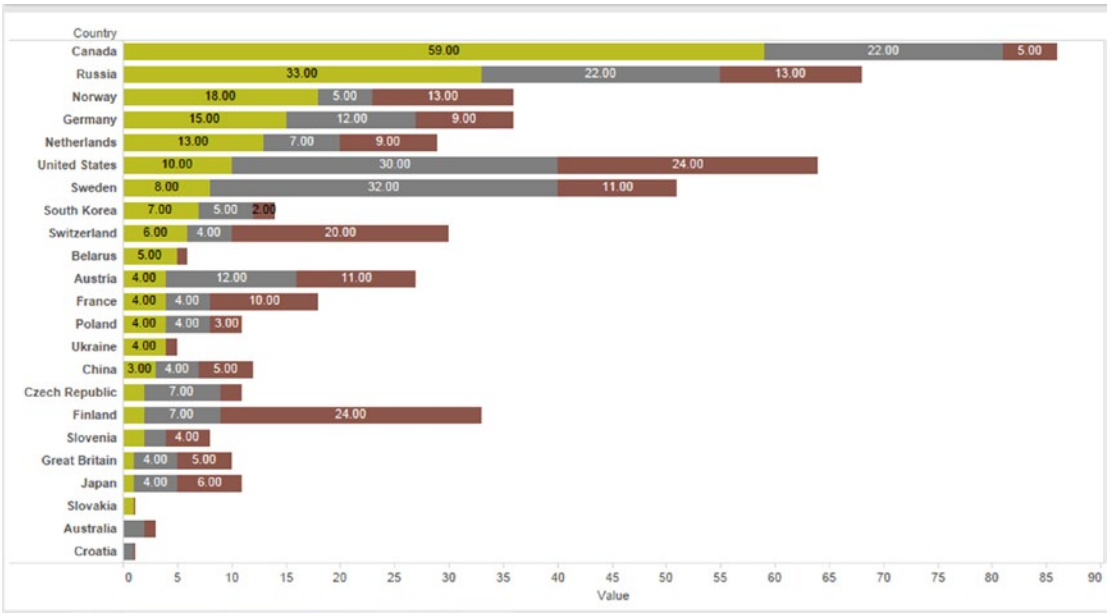

Figure 4-54. *Output after applying the chosen colors to the measures*

Select Number Format for the measure “Bronze”. (Shown in Fig. 4-55). Select “Number (Custom)” and select “0” for “Decimal places” (Shown in Fig. 4-56).

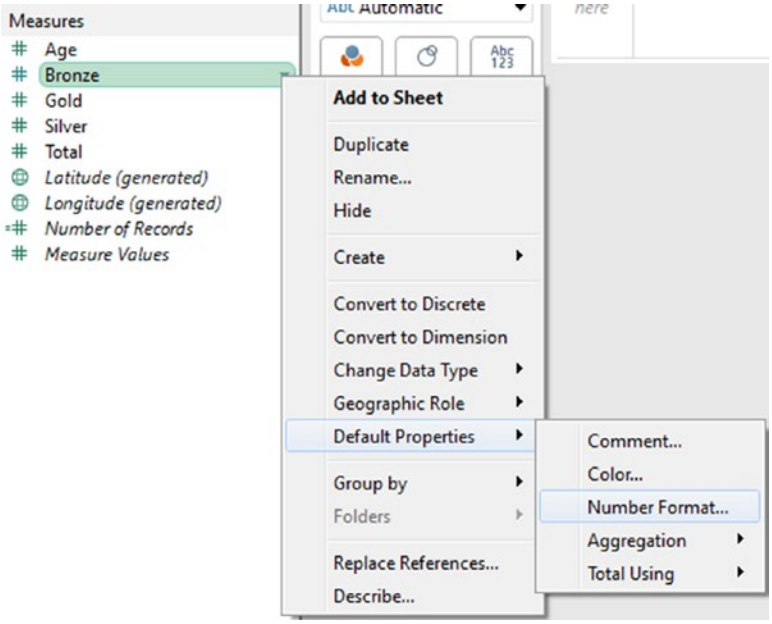

Figure 4-55. *Selecting “Number Format” for measure “Bronze”*

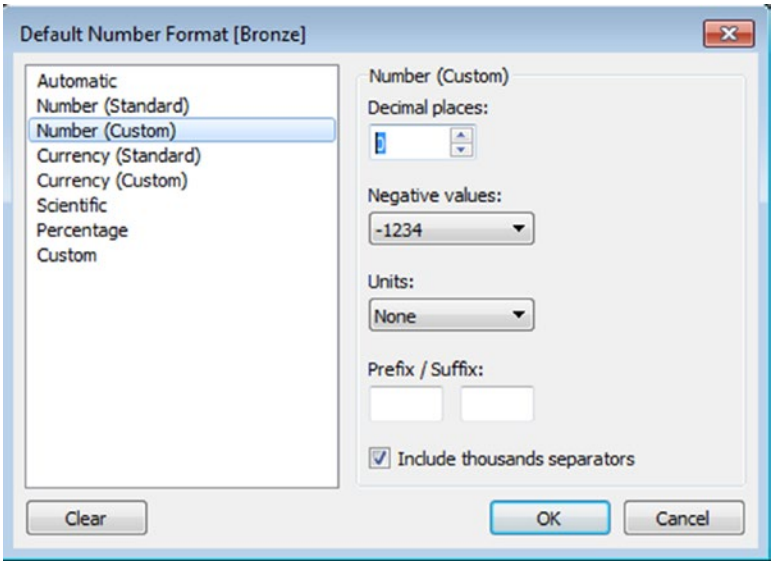

Figure 4-56. *Set the “Number Format” for the measures*

Likewise, change the number format for "Silver" and "Gold" measures as well. The final output is as shown in Fig. 4-57.

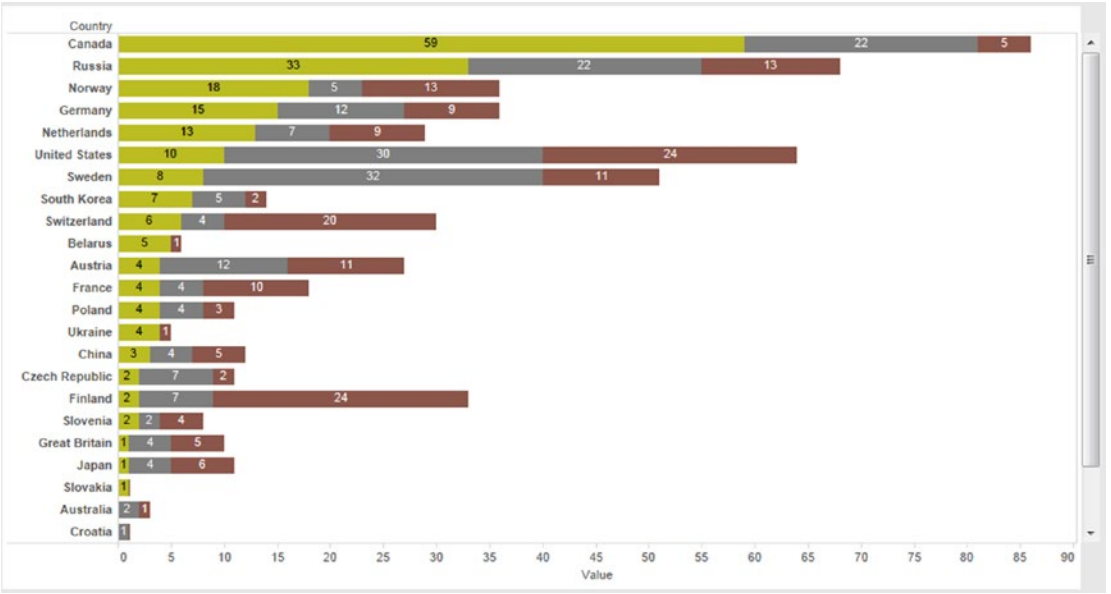

Figure 4-57. *Blended Measures – Demo 3 – Final Output*

From the output, it can be seen that "Canada", "Russia" and "Norway" are placed Nos. 1, 2 and 3 in their gold medal tallies, respectively.

4.1.4.4 Demo 4 (Slope Graph)

Objective: "XYZ" is an enterprise that has six units. Targets are set at the beginning of each year for each unit. At the end of the year the performance of each unit is evaluated. Given below is a data set showing the performance of the units in the year 2014 and 2015 (Table 4-6). Plot a graph to depict the performance of the units showcasing whether the performance has increased, decreased or remained constant/steady.

Input:

Table 4-6. *Blended measures - Demo 3 – data set*

	A	B	C
1	**Units**	**Dec-14**	**Dec-15**
2	Unit 1	78	69
3	Unit 2	82	84
4	Unit 3	65	71
5	Unit 4	70	70
6	Unit 5	73	71
7	Unit 6	65	65

4.1.4.4.1 Steps to create a slope graph

4.1.4.4.2 Step 1

Read in data from "Slope Graph.xls" into Tableau (Shown in Fig. 4-58).

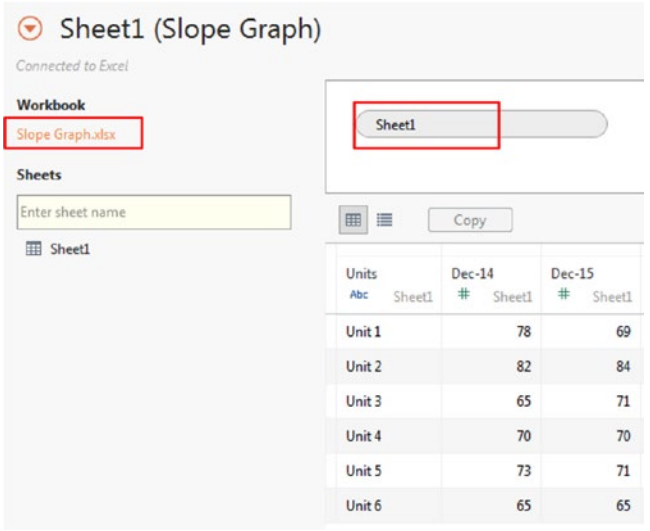

Figure 4-58. *Data from "Slope Graph.xls" read into Tableau*

4.1.4.4.3 Step 2

Drag the dimension "Measure Names" from the dimensions area under the data pane and place it on the columns shelf.

Drag the measure "Measure Values" from the measures area under the data pane and place it on the rows shelf (Shown in Fig. 4-59).

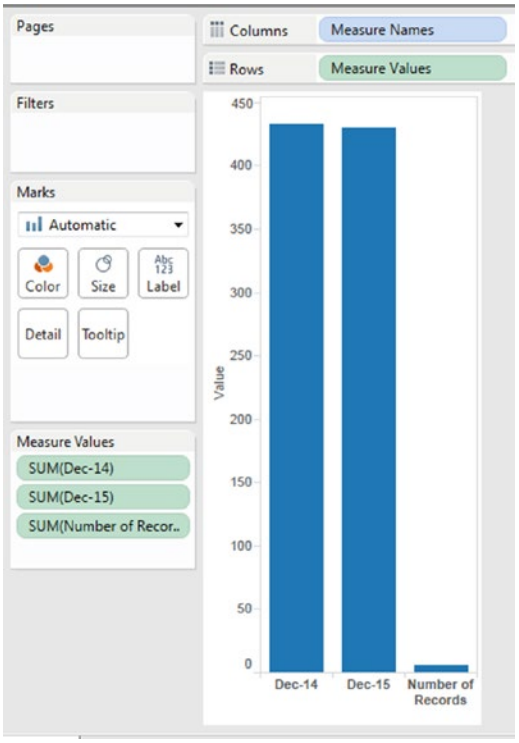

Figure 4-59. *"Measure Names" and "Measure Values" placed on the columns and rows shelf*

4.1.4.4.4 Step 3

Remove the measure "Number of Records" from the "Measure Values" shelf (Shown in Fig. 4-60).

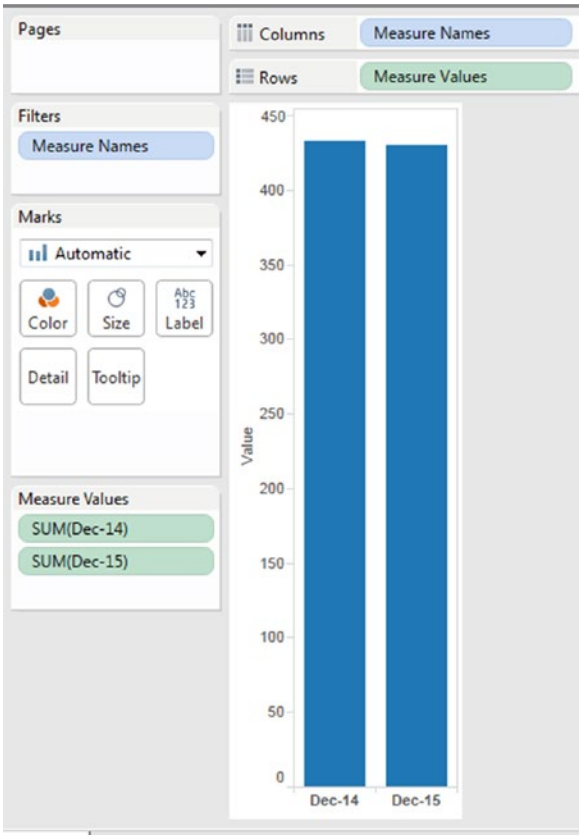

Figure 4-60. *Output after removing the measure "Number of Records" from the "Measure Values" shelf*

4.1.4.4.5 Step 4

Change the "Marks Type" to "Line" (Fig. 4-61).

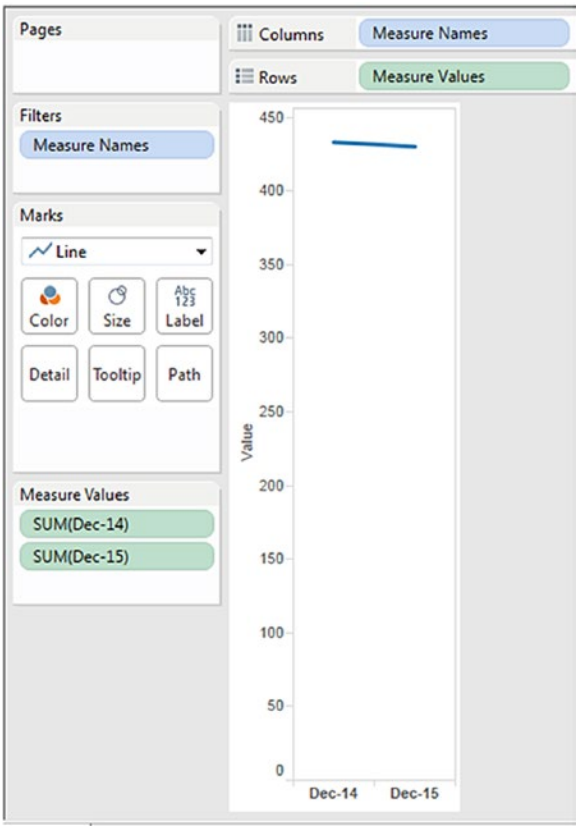

Figure 4-61. *"Marks Type" changed to "Line"*

4.1.4.4.6 Step 5

Create a calculated field "Performance" (Shown in Fig. 4-62).

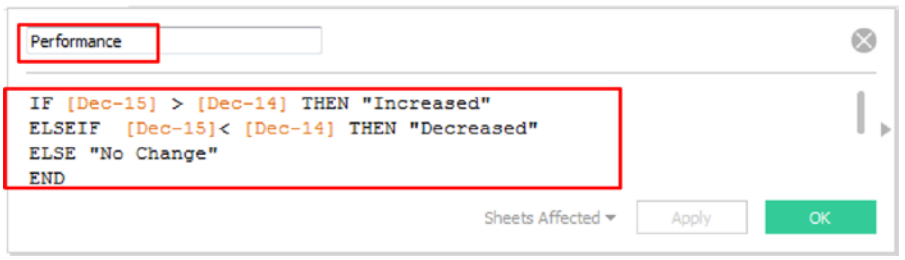

Figure 4-62. *Calculated field "Performance" created*

Drag the calculated field “Performance” from the dimensions area under the data pane to “Color” on the marks card (Shown in Fig. 4-63).

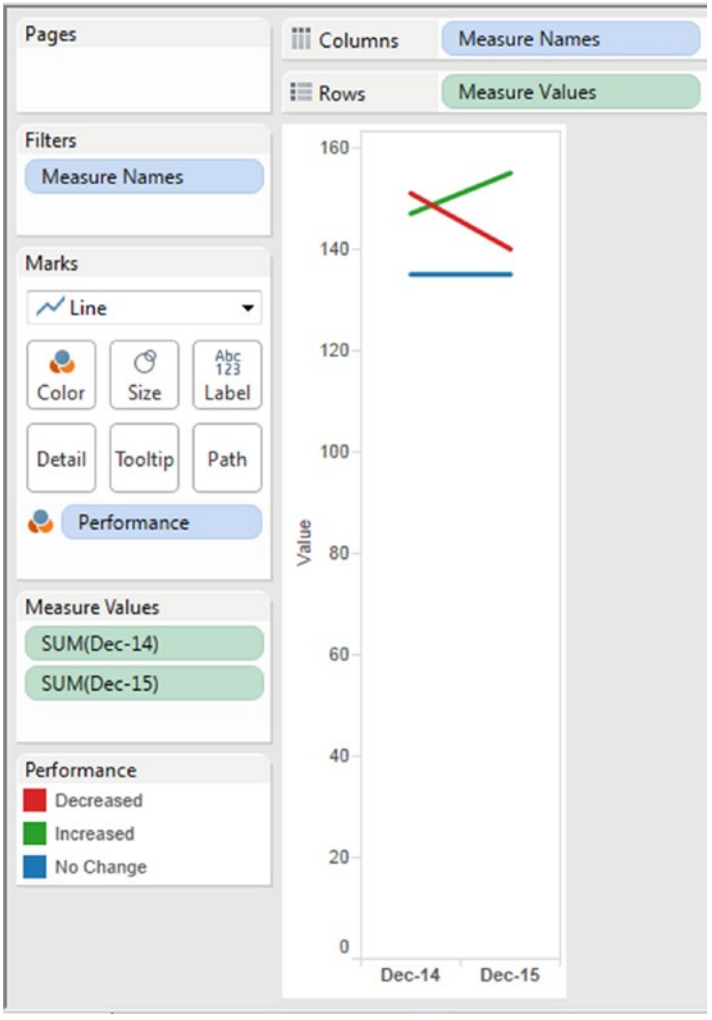

Figure 4-63. *Calculated field “Performance” placed on “Color” on the marks card*

4.1.4.4.7 Step 6

Drag the dimension “Units” from the dimensions area under the data pane and place it on “Detail” on the marks card (Shown in Fig. 4-64).

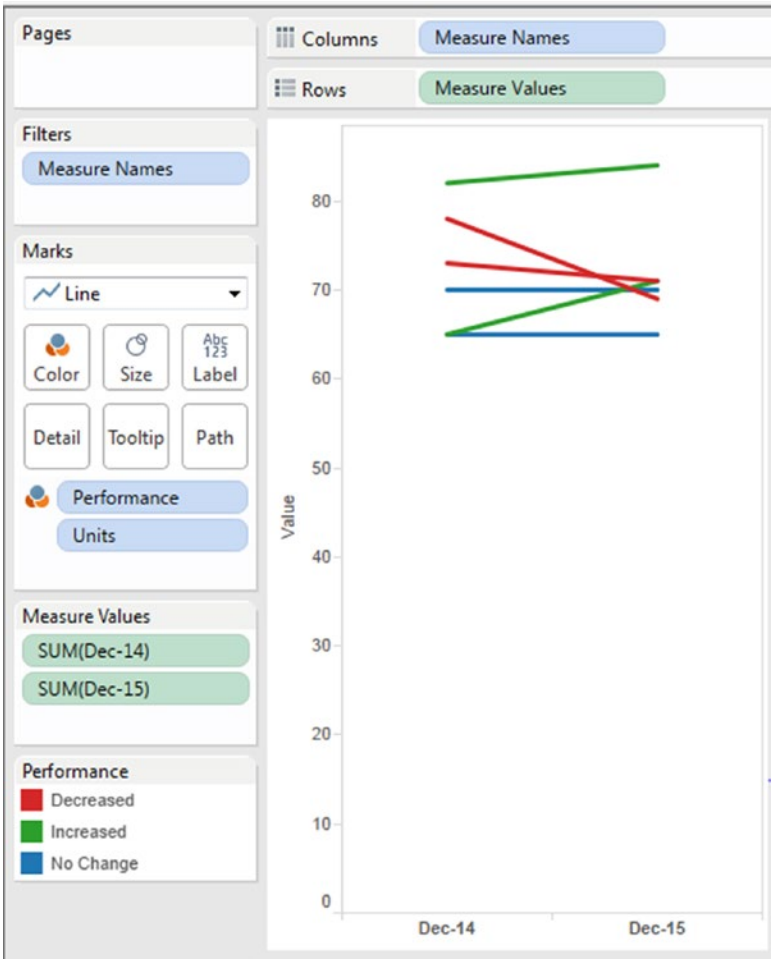

Figure 4-64. *Dimension “Units” placed on “Detail” on the marks card*

Drag the dimension “Units” from the dimensions area under the data pane and place it on “Label” on the marks card (Shown in Fig. 4-65).

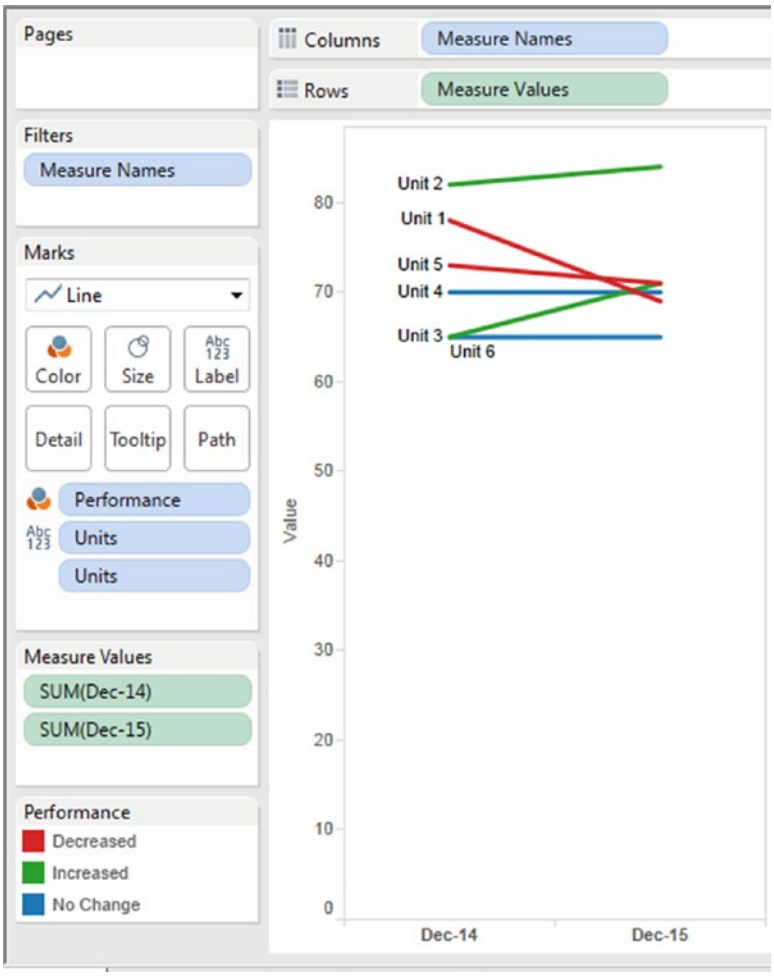

Figure 4-65. *Dimension “Units” placed on “Label” on the marks card*

We can conclude the following from the above figure:

- Performance has shown an increase for Unit 2 and Unit 3
- Performance has shown a decrease for Unit 1 and Unit 5
- Performance has remained steady for Unit 4 and Unit 6

4.1.4.4.8 Assignment 1

You are a student at a post-graduate college. In order to know clearly the subject that you should improve upon, you plot a graph to decipher your performance in the various subjects over the four years spent in a graduate school. Plot a slope graph highlighting the performance of the first and fourth year in graduate school.

Input: "Slope Graph – Assignment.xls"
Expected Output: Shown in Fig. 4-66.

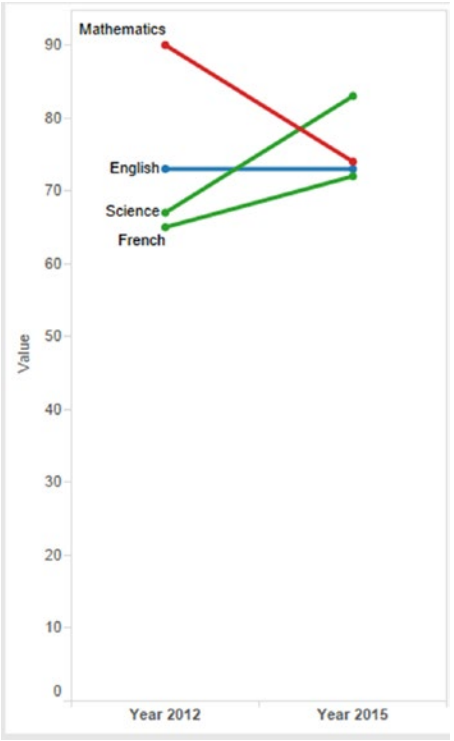

Figure 4-66. *Slope graph - Assignment 1 – expected output*

4.1.5 Dual axis

The previous section familiarized you with blending the measures and placing it on a common axis. However, what if you are required to have a secondary axis in our view.

4.1.5.1 Demo 1

Objective: As a senior executive in a firm, you would like to strengthen the firm's marketing strategies for its products and services. An understanding of how profit fares as the sales are made over the year will hold you in good stead as you pull up innovative marketing strategies. Plot "Sales" and "Profits" in such a way that it helps your understanding.

Input: "Sample - Superstore.xls".

Columns shelf	Month(Order Date) Date is "Discrete" as evident from the visual cue. It is blue in color. The preferred chart form to depict discrete dates is bar chart.
Rows shelf	Sales, Profit. The aggregation used on both measures is SUM.

Expected output: Shown in Fig. 4-67.

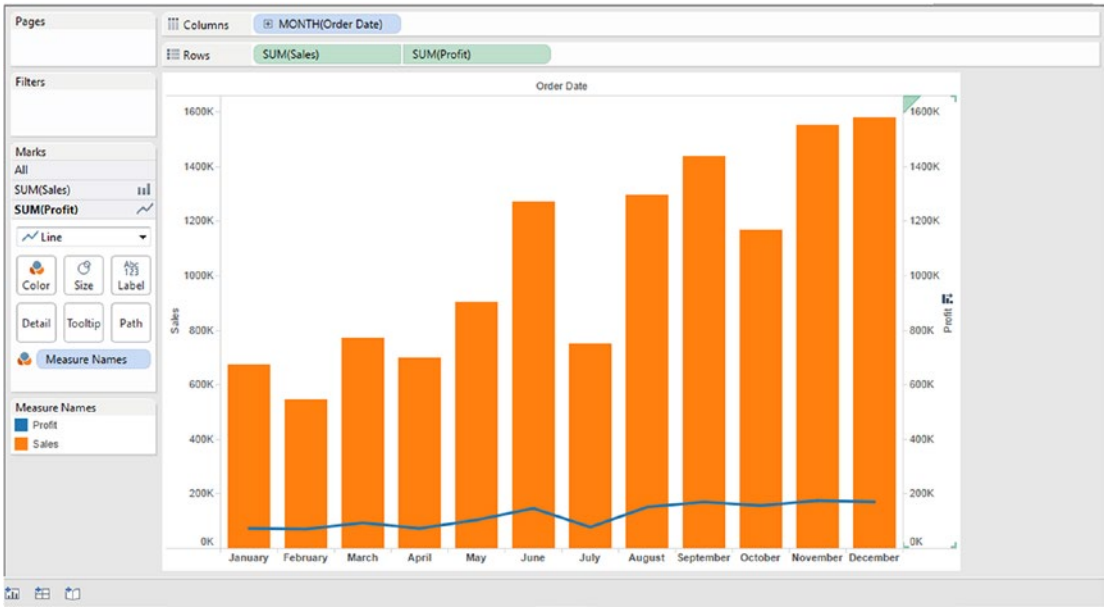

Figure 4-67. *Dual Axis - Demo 1 - expected output*

4.1.5.1.1 Steps to demonstrate dual axis chart

4.1.5.1.2 Step 1

Drag "Order Date" from dimensions area under the data pane and place it on the columns shelf. Dates are always displayed as hierarchy. By default, when we drag "Order Date" and place it either on the rows shelf or columns shelf, it is "Discrete" (this is evident from the visual cue) (Shown in Fig. 4-68).

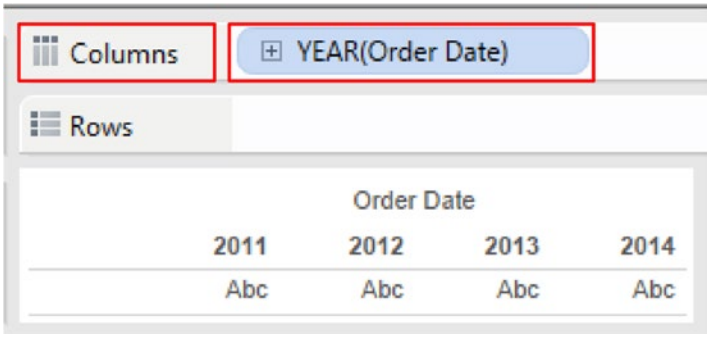

Figure 4-68. *Dimension "Order Date" placed on the columns shelf*

Right click on Year(Order Date). A drop down in displayed. Select “Month” (Shown in Fig. 4-69).

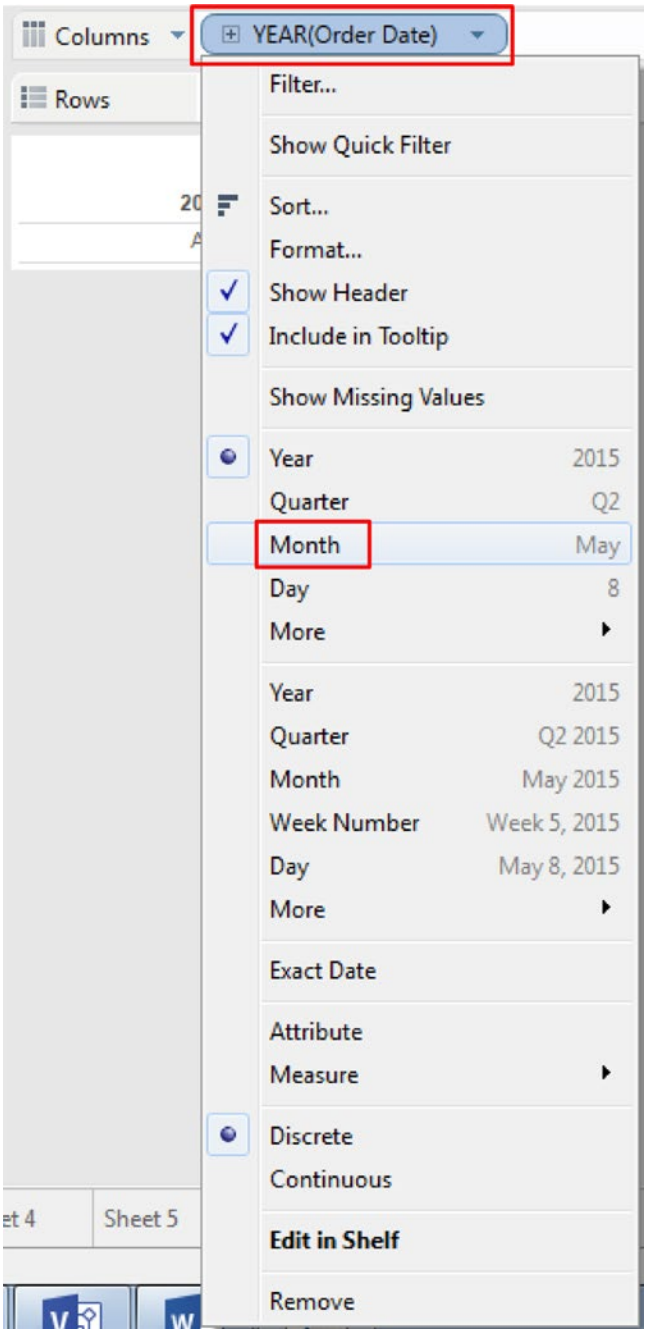

Figure 4-69. *Changing the granularity of “Order Date” to “Month”*

Selecting "Month"(Order Date) will change the display as shown in Fig. 4-70.

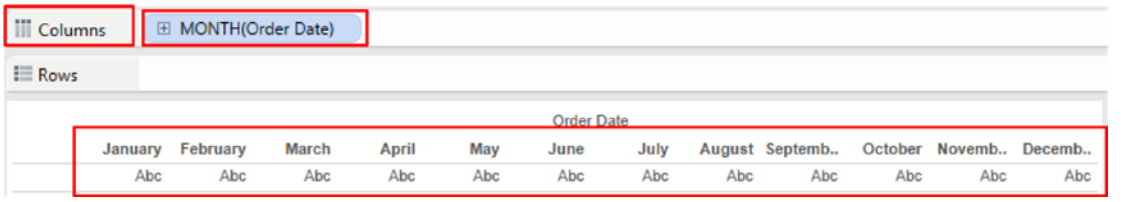

Figure 4-70. *"Order Date" granularity set to "Month"*

4.1.5.1.3 Step 2

Drag "Sales" from under the measures area under the data pane and place it on the rows shelf (Shown in Fig. 4-71).

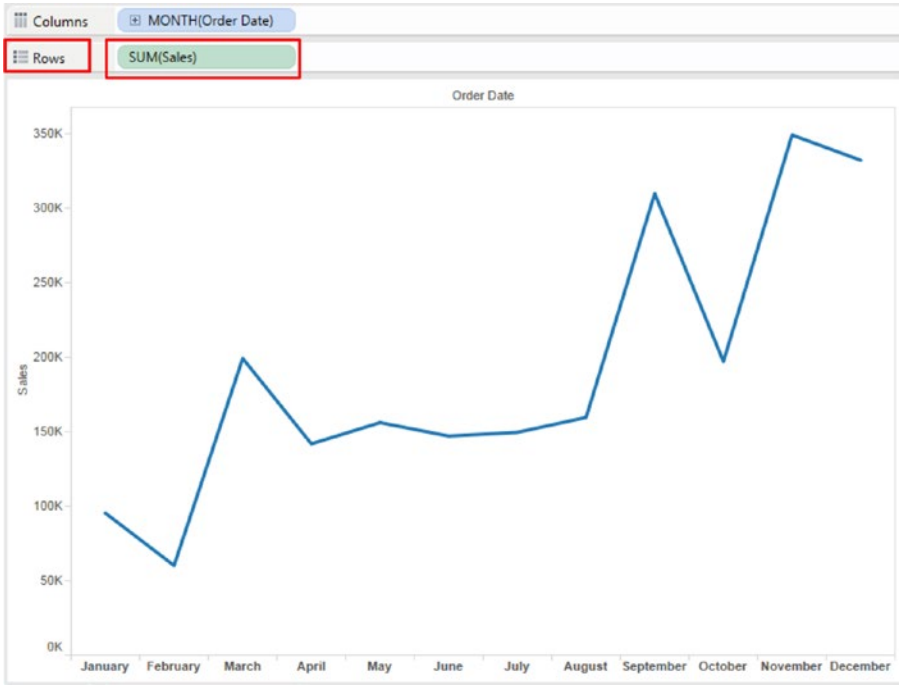

Figure 4-71. *Measure "Sales" placed on the rows shelf*

Change the chart form to “Bar” in the marks card (Shown in Fig. 4-72).

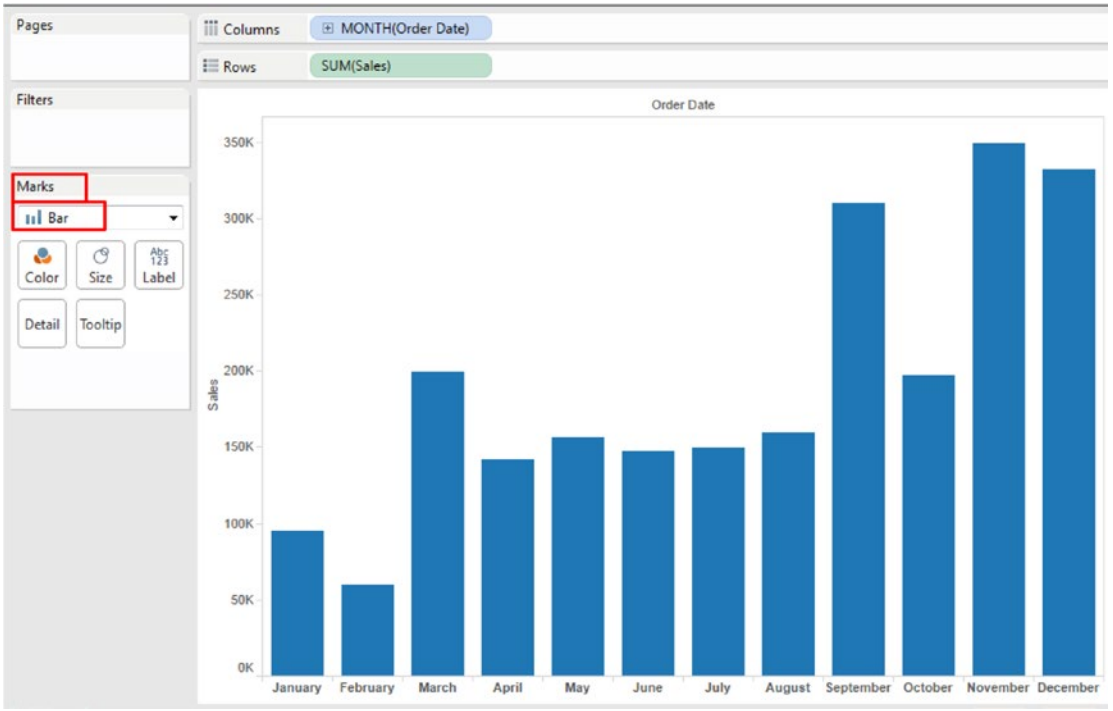

Figure 4-72. *“Marks Type” changed to “Bar”*

4.1.5.1.4 Step 3

Drag “Profit” from under the measures area under the data pane and place it on the opposite axis (the axis opposite to the one on which the “Sales” measure is placed) (Shown in Fig. 4-73).

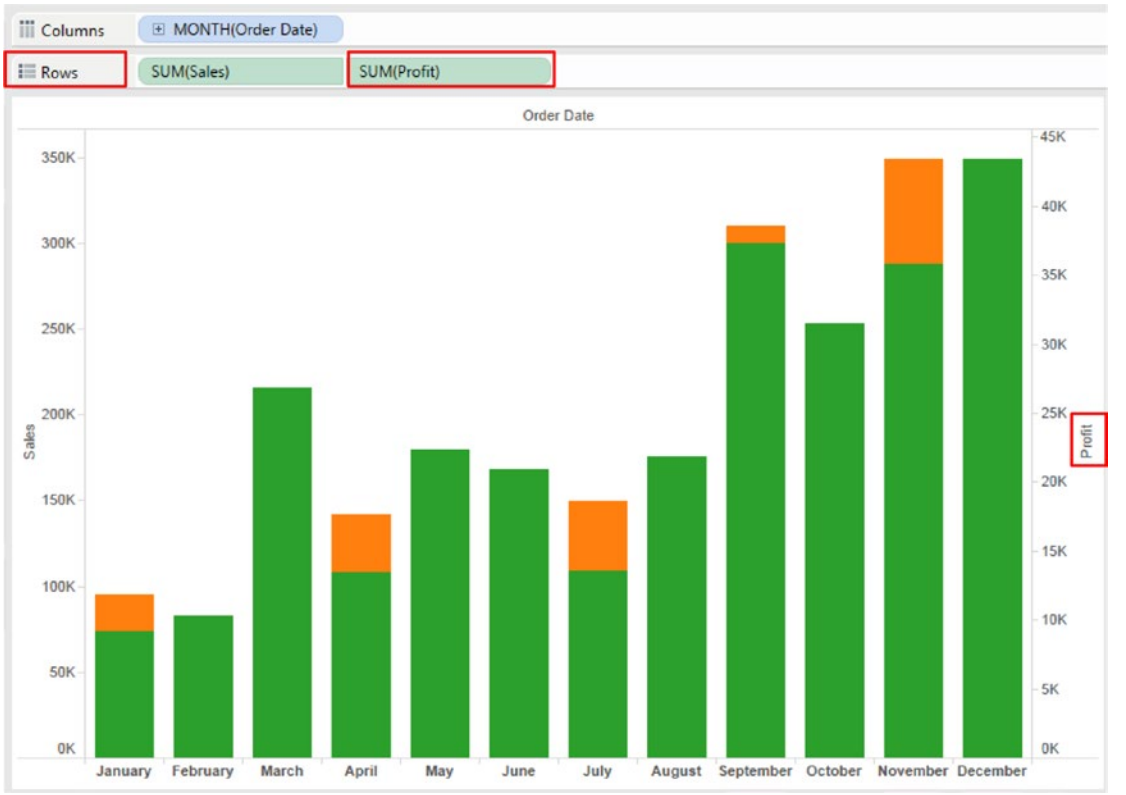

Figure 4-73. *Measure "Profit" placed on the axis opposite to axis for "Sales"*

4.1.5.1.5 Step 4

Synchronize the secondary axis (the axis on which "Profit" measure is placed) (Shown in Fig. 4-74).

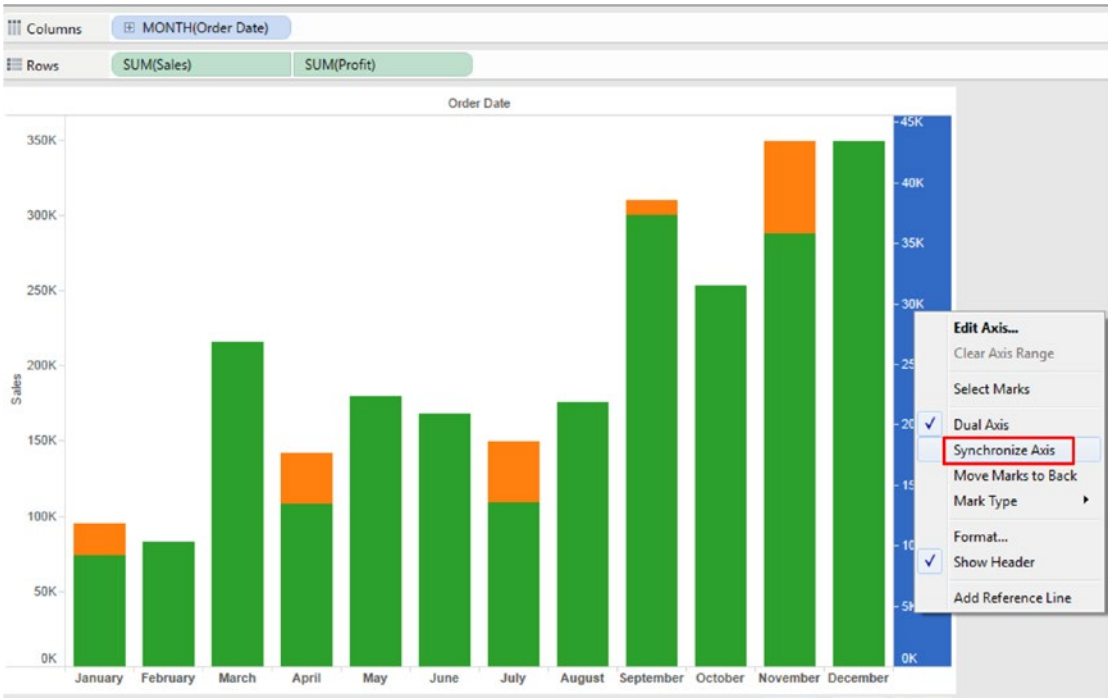

Figure 4-74. *Synchronize the secondary axis to the primary axis*

■ **Note** It is always the "Secondary Axis" that can be synchronized with the "Primary Axis". If you select the axis on which the "Sales" measure is placed and right click to show the context menu, you will notice that the "Synchronize Axis" feature is disabled (Shown in Fig. 4-75).

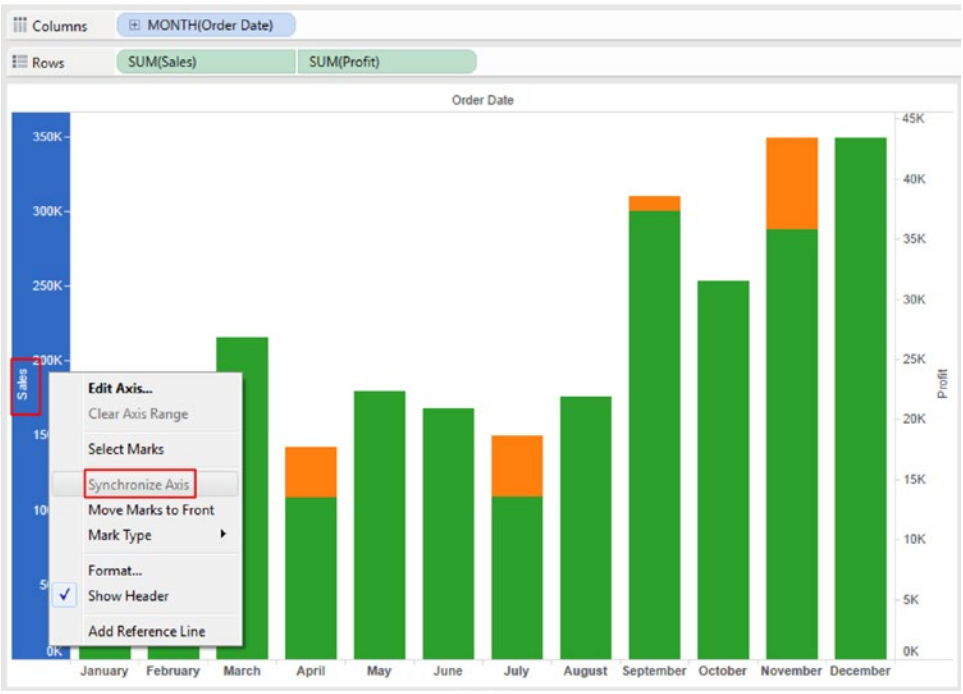

Figure 4-75. *Primary axis cannot be synchronized with the secondary axis*

Let us look at the output of synchronizing the "Profit Axis" with the "Sales Axis" (See Fig. 4-76).

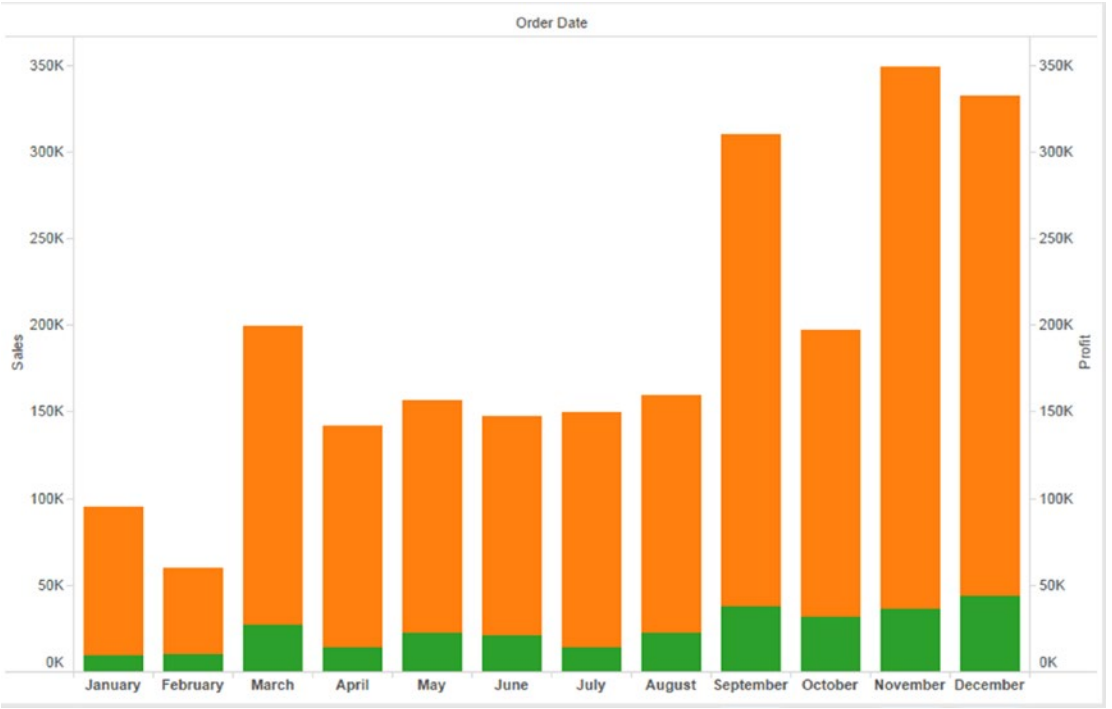

Figure 4-76. *"Profit Axis" synchronised with the "Sales Axis"*

Change the chart form for "Profit" to "Line" (Shown in Fig. 4-77).

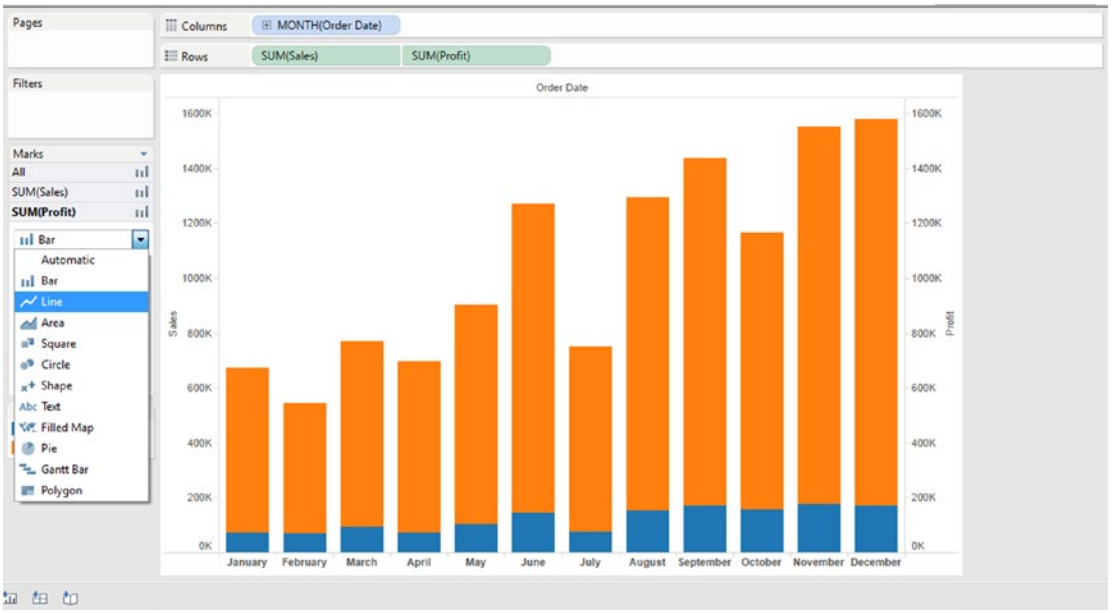

Figure 4-77. *Select "Line" as the marks type for the measure "Profit"*

The output of choosing "Line" graph for "Profit" measure (Shown in Fig. 4-78).

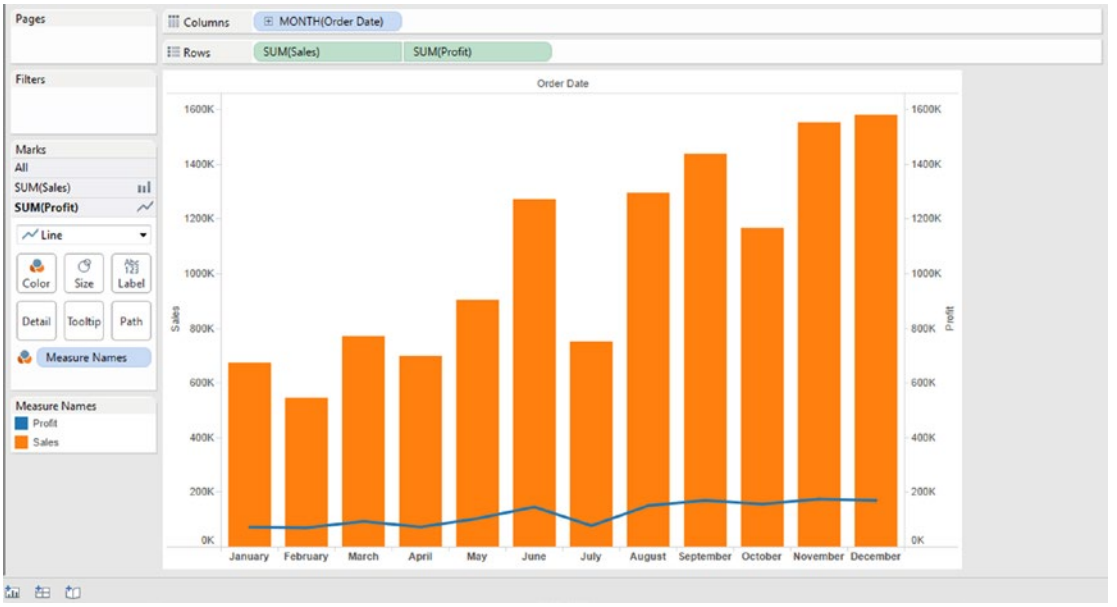

Figure 4-78. *Dual axis - Demo 1 – final output*