**LAB Book partners up with Practical Tableau Book: Used for Tableau Desktop Level 2**

**This Lab book is Part 2 of 5 Parts. [APPROX TIME - 109 MIN ]**

**Part 1 LAB BOOK has been designed for anyone who wants to prepare for Parts 2-5.**

**If you did not take the Tableau Desktop Level 1 class, you should work your way through this Part 1 Lab Book, to be sure you understand the concepts taught in that class.**

**Desktop Level 1 Skillset is expected for success in this Desktop Level 2 Class**

**\*\*Please note that the Exercises used in this Part2 Lab Book are created from scratch. However, there is a “**PartTwo.twbx**” file in the Workbooks folder which contains all the solutions.**

**\*\*Also note that the chapters in Part 2 will use the Marks Card, in order to create charts without the “Show Me” wizard.**

**For more help and information about Practical Tableau, please visit www.ryansleeper.com**

Part 2 – Chart Types

The charts starting on Page 110 and going to Page 193 are considered “Common Charts”, however, they are excellent because they do NOT use the Show Me gallery. The solutions for these charts are located in the Workbooks Folder and the file is called PartTwo.twbx . (XTBM10---Tableau-Desktop-Level-2-master\Workbooks\PartTwo.twbx). You will learn how to create these charts from scratch, for a particular business reason. Glance through the arts, and pick and choose or do them all! However, if you want a challenge, flip to Page 195 (and move down the lab exercises in this book to Chapter 33).

Chapter 19 - Exercise (Highlighted Table) - 3 Minutes – Book Pages: 109-112

1. Create a new WORKBOOK. Use the Excel Sample Super Store that ships with Tableau Desktop ( located under My Tableau Repository\Datasources\[Tableau ver\EN-EU\ as your data source, Double Click the ORDERS Table to obtain the Dimensions and Measures for this Workbook.
2. *ALT: Create a new workbook based on* ***Superstore Data Source****. This is located on Tableau’s Start Page, under the Saved Data Sources category located in the left connection panel in the application window.*
3. Save the Workbook PartTwo.twbx. (There is a *finished* version of this workbook in the WORKBOOKS folder that has the solutions for the labs.)
4. Rename Sheet1 and call it Highlight Table. Color the sheet tab if desired.
5. Drag the Order Date field to Columns shelf, and using the down arrow on the pill, change the Order Date to Month (leave it discrete/blue, as a *Date Part*)
6. Drag the Sub-Category to the Rows shelf.
7. Drag the Sales measure to Label shelf on the Marks Card.
8. Change the chart type to Square on the Marks Card.
9. Drag a second Sales measure to the Color shelf on the Marks Card.
10. Edit the Color shelf, using the Border tool to put a white border on your table.

Chapter 20 - Exercise (Heat Map) - 8 Minutes – Book Pages: 113-117

1. Get a new Sheet and name it “Heat Map”. Color the sheet tab if desired.
2. Drag Order Date dimension to the Columns shelf, leave it discrete and change it to Month
3. Drag Sales measure to the Rows shelf
4. Drag Sub-Category dimension to the Color shelf.

See Page 114 to compare to book. (Notice how messy these lines are and in some case are overlapping. The goal will be to create a heat map.

1. Clear the work sheet
2. Drag the Order Date dimension to Columns shelf and change to discrete Month
3. Drag the Sub-Category dimension to the Rows shelf
4. Drag the Sales measure to Color shelf on the Marks Card
5. Drag a second Sales measure to the Size shelf on the Marks Card
6. Change the chart type on the Marks Card to circles. Play with the size tool until your chart looks like page 117 in your book – use ½ way mark on scale.
7. Change the chart type on the Marks care to square, just to see the “typical” heat map. Play with the size tool until you like it!
8. Sort Sub-Category by Sum of Sales, Descending.

Chapter 21 - Exercise (Dual-Axis/Combination) - 5 Minutes – Book Pages: 119-123

1. Create a new sheet and name it Dual-Axis. Color the sheet tab if desired.
2. Drag Order Date to Columns shelf, change it to Year (continuous).
3. Drag the Sales measure to the Rows shelf – Notice the “timeline” chart you get.
4. Drag the Discount measure to the Rows shelf, place it to the right of the Sales measure – your View just got to be “two rows” of data.
5. Click the Discount measure down arrow and choose Measure, Average (if needed).
6. Click the arrow again and choose Dual Axis. Now both the Sales and Average Discount will share your view. Check the picture on bottom of Page 121 to check for accuracy. (colors will not match book, leave this alone)
7. Change the mark type of the Sales measure to Bar. Notice how fat the bars are – new with version 10 and higher of Tableau
8. Change the Order Date pill to Discrete. The bars will get skinnier.
9. Drag the Category dimension onto the Columns shelf, to the LEFT of the Order Date pill.
10. Change the Average Discount mark type to Line on the Marks Card.
11. Set the Fit tool to Entire View.
12. Change Color of lines to Red and bars to Blue. Select ALL Marks for the line – under Color edits.
13. Check your final picture with Page 123 of your book.

Chapter 22 - Exercise (Scatter Plot) - 5 Minutes – Book Pages: 125-128

1. Get a new Sheet and name it Scatter Plot. Color the sheet tab if desired.
2. Drag Sales measure to the Columns shelf.

* Either COPY and PASTE the Profit Ratio Measure from the PartOne.twbx” workbook or create a new Measure called Profit Ratio.
* ALT: If you created this workbook using the data source saved called: “**Superstore Data Source”** or the default saved data source “**Sample – Superstore**”, this calculation already exists. If you are typing the formula from scratch (or you can copy the text below), here is the calculation:

If calculated field (measure) is needed - Name: Profit Ratio

Calculation: SUM([Profit]) / SUM([Sales])

1. Drag the Profit Ratio measure to the Rows shelf. Notice you have only ONE circle. – This is because you have no “level of detail”
2. Drag the Product Name dimension onto the Detail shelf on the Marks Card. – Check your picture with page 127 of your book.
3. Next, we will add TWO RED Reference lines to this chart:
   1. Right-Click the Profit Ratio Axis and add a RED REFERENCE line a little thicker than the default. Keep computation set to default (Average). See first pic below:
   2. Right-Click the Sales Axis and add a RED REFERENCE line a little thicker than the default. Keep computation set to default (Average). See second pic below:

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| --- | --- |
|  |  |

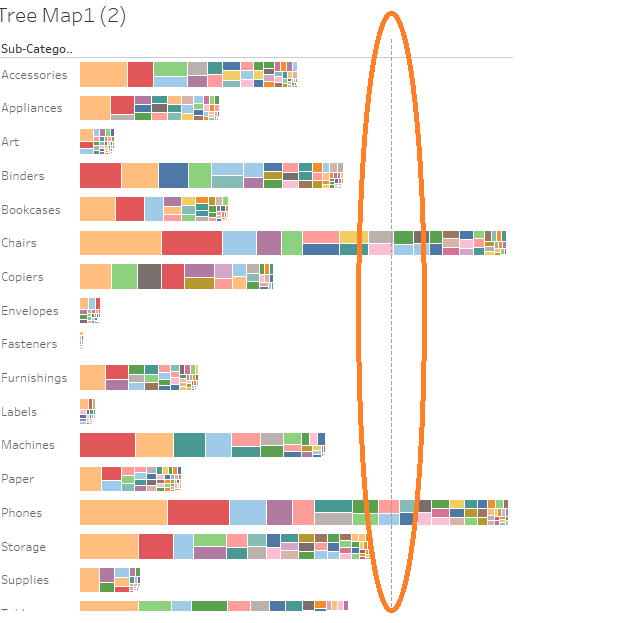
Check Page 128 of your book for accuracy.

Chapter 23 - Exercise (Tree Map – Four Ideas) - 15 Minutes – Book Pages: 129-135

Tree Map 1

1. Get a new Sheet and name it Tree Map1. Color the sheet tab if desired.
2. Drag ***Profit Ratio*** measure to Color shelf on the Marks Card
3. Drag ***Sales*** measure to Size shelf on Marks Card – Notice you have the foundation of a Tree Map, with NO Detail.
4. Drag the ***State*** dimension to Detail shelf on Marks Card. Compare your first Tree Map to page 132 in your book.

Tree Map 2

1. Duplicate the Tree Map1 sheet. Leave name as is Tree Map1 (2). Leave color as is (if you colored it)
2. Add the Sub-Category dimension to the Rows shelf.
3. If your chart is really small, get your mouse near the right side of the chart and find the double-edged mouse and dotted line, in an effort to make your chart wider. See pic below for where to put your mouse:
   1. 
4. Look at page 133 in your book to see that your chart looks similar to the book.

Tree Map 3

1. Duplicate the Tree Map1 (2) sheet. Leave name as is. Leave color as is (if you colored it)
2. Move the State dimension from the Detail shelf to the Label shelf.
3. Click the Color shelf and Edit the colors. Change the STEPS to “2”. This will make any profits for Sub-Category that are negative, will be RED. It will also make any profits for Sub-Category that are positive, will be NAVY.
4. Check page 134 in your book for validation of how your chart will look.

Tree Map 4

1. Duplicate the Tree Map1 (3) sheet. Leave name as is. Leave color as is (if you colored it)
2. Drag a Sub-category into the FILTER card.
3. Set the filter scope to NONE. Apply.
4. Select Accessories and Apply. Continue to play with this filter by taking checks on and off sub-categories. Try one or more of these on your view.

* (\*\*tip – right-click on the Sub-Category pill in the Filter shelf and choose Show Filter to change the “Sub-Category” filter to see the view change.

1. Drag Sales and Profit Ratio measures to the Label shelf.
2. Format Profit Ratio and Sales to show Percentage and Currency (Standard) respectively in the Label shelf.
3. Customize the Label appearance to show the what you see in the book – page 135.
4. Check page 135 in your book for how your chart should look.

Chapter 24 - Exercise (Sparklines) - 10 Minutes – Book Pages: 137-145

1. Create a new Sheet and name it Sparklines. Color the sheet tab if desired.
2. Drag Measure Names to the Rows shelf, Drag Measure Values to the Rows shelf next to it. – Change the view to Fit to Height - Look at page 138 and check your chart to be sure it looks like the book.
3. Right-drag the Order Date field to the Columns shelf and choose the GREEN (continuous) Month (4th from bottom). Notice the sparklines already running across your view.
4. Make the width of the graph smaller by taking your mouse to the right most side of the graph and dragging it in to approximately half the size it was. This will make your sparklines “pop”.
5. Right-click any of one of the LEFT Axis (Your measures). Then click on “Edit Axis”. Take the check box OFF the “Include Zeros” box, in an effort to get rid of the zeros on your view.
6. Edit the ***Measure Name*** pill in the Filter shelf to remove the ***Number of Records*** system generated measure from the filter.
7. Now remove any lines that do not help your view.
   1. Click on FORMAT menu and choose “Lines” and Rows tab in Format pane.
      1. Format by taking ALL the lines off the sheet, rows and columns. This will give your sparklines a clean background.
   2. Right-click “Value Axis” and deselect the “Show Header” menu choice.
8. Click the Color shelf and choose your desired color for your sparklines.
9. Check Page 144 to see that it is similar (except for color) to the Sparkline chart on that page.

Chapter 25 - Exercise (Small Multiples) - 5 Minutes – Book Pages: 147-152

1. Get a new Sheet and name it Small Multiples. Color the sheet tab if desired.
2. Drag the Region dimension onto the Columns shelf.
3. Drag the Segment dimension onto the Rows shelf.
4. Drag the ***Sales*** measure onto the Rows shelf, next to the Segment pill.
5. Right-drag the ***Order Date*** dimension to the Columns shelf, placing it to the RIGHT of ***Region*** pill, and choose the continuous (green) MONTH option (4th from bottom)

Check page 149 to check your progress.

1. There are some formatting options on the bottom of page 151 that will make your chart look nicer. Give any/all a try, as desired. To Format the Font for the remaining headers, go to Format Menu and choose “Font”. This will allow you to make the remaining headers larger.
2. Change the worksheet title to read: **Sales by Region, Segment, and Calendar Month**. Format this title as 20 pt. and Bold.
3. Check page 151 to see if your chart appears as the picture in the book.

Chapter 26 - Exercise (Bullet Graphs) - 15 Minutes – Book Pages: 153-160

1. Create a new worksheet; name it Bullet. Color the sheet tab if desired.
2. Create TWO calculated fields. You can create the first one, then duplicate it and change the value within it, and the name:

* Calc 1 Name: This Year’s Sales,
  + Calc: IF YEAR([Order Date]) = 2018 THEN [Sales] END
* Calc 2 Name: Last Year’s Sales,
  + Calc: IF YEAR([Order Date]) = 2017 THEN [Sales] END

1. Drag This Year’s Sales measure onto the Columns shelf
2. Drag Sub-Category to the Rows shelf
3. Drag Last Year’s Sales measure to the Detail shelf on the Marks Card
4. Change the view to Fit Height
5. Right-click the x-Axis (This Year’s Sales), and choose Add Reference Line
6. In the Reference Line pop up box:
   1. Change the Scope to Per Cell
   2. Change the value to SUM(Last Year’s Sales)
   3. Change the calculated value to Sum or Total.
   4. Change the Label to None
   5. Change the line to RED and make it a bit thicker
7. Click “OK”

The first part of your bullet graph is complete

1. For a second time, right-click the X-Axis (This Year’s Sales), and “Add Reference Line”
2. In the Reference Line pop up box:
   1. Change the type of reference line to “Distribution”
   2. Change the Scope from Per Pane to Per Cell
   3. Change the Computation Value by clicking the arrow down and next to Percentages| Percent of, and change the value to Last Year’s Sales.
   4. Change calculation below from Average to Total or Sum.
   5. Change the label to None
   6. Check the box that says “Fill Below” (for shading on the 60% and 80% distribution)
   7. Adjust Fill color combinations, if desired.
   8. Click “OK”
3. Be sure to visit the Size shelf on the Marks Card and slide to the left to make the blue bar chart lines a bit skinnier. This will allow the shading to show through.
4. Check page 159 to see how your chart compares to the book.

Chapter 27 - Exercise (Stacked Area) - 5 Minutes – Book Pages: 161-167

1. Get a new Sheet and name it Area. Color the sheet tab if desired.
2. Drag Order Date to Columns shelf and change to Month (discrete).
3. Drag the Sales measure to the Rows shelf.
4. Drag the Sub-Category to the Color (you now have a line graph – check page 162 for validation)
5. Change the chart type on the Marks Card to “Area” – you now have the picture on page 163.
6. Click the down arrow on the Sales pill and choose Quick Table Calculation and pick Percentage of Total – this will allow percentage trends to show up for the many sub-categories in the left Axis.
7. Change the left Axis to reflect ALL the percentages by modifying the direction of the table calculation of Sales:
   1. Click the down arrow on the Sales pill once again.
   2. Choose Compute Using off the menu and choose scope as Table(down)
8. Now your area chart reflects 100% of the values for Sub-Category. Check Page 167 to see how your chart “stacks up” to the one in the book. 😊

Chapter 28 - Exercise (Histogram) - 5 Minutes – Book Pages: 169-173

1. Get a new Sheet and name it Histogram. Color the sheet tab if desired.
2. Right-click the Quantity measure, Create, Bins...
   1. Change the “Size” of the bin to 2 and click OK
3. Drag this newly created bin to the Columns shelf. This bin is called Quantity (bin) and is located in the Dimension area in Side bar.
4. Drag the Quantity measure to the Rows shelf.
5. Click the green quantity pill’s down arrow and choose Measure and choose Count.
6. Notice the “ranges” that sales have been split into. – Check page 171 in your book to validate the look of your chart.
7. Change Quantity (bin) to a Continuous type of data presentation in the view.
8. For some different views, feel free to “edit” the bin and change the range (aka ‘distribution’) to any numbers (1, 3, 4, etc.) The higher your number goes, the less “ranges” you get. (Note: You could create a parameter to set the Quantity (bin) size and allow for interactive adjustments to distribution ranges.)
9. Modify the worksheet title to show: “Histogram: Number of Orders with Given # of Products per Order”.

Chapter 29 - Exercise (Box and Whisker) - 3 Minutes – Book Pages: 175-181

1. Create a new worksheet and name it Box & Whisker. Color the sheet tab if desired.
2. Drag Sub-category dimension to Columns shelf.
3. Drag Sales measure to Rows shelf.
4. Drag Order Date to Detail shelf on Marks Card. On that Order Date pill now in the Marks Card, click the arrow pointing down and select the Date Part as “Month” (discrete)
5. Right-click the Y-Axis (Sales) and choose Add Reference Line – select Box Plot. The default “IQR” settings will be ideal. Click OK.
6. Then, change the marks type to Circle.
7. Using the Size shelf, make the bars and circles smaller by dragging it to the left until desired.
8. Check page 181 for finished map to compare yours.

Chapter 30 - Exercise (Symbol Map) - 3 Minutes – Book Pages: 177-181

1. Get a new Sheet and name it Symbol Map. Color the sheet tab if desired.
2. Double click the Postal Code dimension – see the “auto map” appear
3. Drag the Sales measure onto the Size shelf in the Marks Card.
4. Increase the size of default marks in the view (Circles).
5. Click on the Color shelf in the Marks Card and play with the opacity and borders. You can make your map “pop” with these.

Check page 185 (top) to compare yours.

Chapter 30 - Exercise (Map-Box Map) - 10 Minutes – Book Pages: 183-186

1. Get a new Sheet and name it Map Box Map. Color the sheet tab if desired.
2. Go to [www.mapbox.com/maps](http://www.mapbox.com/maps) (while leaving Tableau Open)
3. Scroll down and click on/select the “San Francisco” Map
4. Click the “Or View Live Map” link
5. Copy the URL in the browser’s Address area.
6. Go back to Tableau and click on the “Map” menu.
7. Choose Background Maps, then Map Services
8. Click the Add button and choose Map Box
9. In the pop-up, give the Style a name – example: Colorful
10. Paste the URL you got into the URL field
11. Click into one of the empty fields below so that Tableau populates the fields.
12. Click OK
13. See your new Colorful map in the dialog box and click “Close”
14. Double click the State dimension. It will have your new Colorful Map on the background. Also, go back to the Map menu and choose Background Maps. The new Colorful Map background appears in the menu as a choice.
15. Check page 186 (bottom) to compare yours.

Chapter 31 - Exercise (Filled Map) - 2 Minutes – Book Page: 187-189

1. Create a new worksheet and name it Filled Map. Color the sheet tab if desired.
2. Double click the State dimension and get the default map
3. Change the mark type from the Marks Card to Map – map will now be filled with color.
4. Drag the Region dimension into the Color shelf on the Marks Card. The map will now be *regionalized*.
5. Compare page 189 with yours

Chapter 32 - Exercise (Dual Axis Map) - 5 Minutes – Book Page: 191-193

1. Get a new Sheet and name it Dual Axis Map. Color the sheet tab if desired.
2. Double-click the State dimension and get the default map.
3. Add the Sales measure to the Size shelf on the Marks Card.
4. Add the Country and the City dimensions to the Detail shelf on the Marks Card.
5. Drag a SECOND Latitude(generated) measure to the Rows shelf.
6. Click the Color shelf on the Marks Card and change the color to something that will stand out – Black is the best, though your book uses white.
7. Select the 1st Latitude(generated)and remove the Sales, Country, and City pills from the Marks Card.
8. Add the Region dimension to the Color shelf.
9. Change the chart type to “Map”.
10. Click on the SECOND Latitude(generated) pill on the Rows shelf and choose Dual Axis.

Although they become one map, if the filled map is covering the symbol map, reverse the order by dragging the second Latitude pill in front of the first one.

1. Check page 193 to compare yours. Change Size shelf and the Color shelf settings for Sum(Sales) circle marks, if desired.

PAGE 195 - The Remaining Charts for this chapter are considered ADVANCED. They are in the class data Workbooks folder (XTBM10---Tableau-Desktop-Level-2-master\Workbooks), in a workbook called “PartTwo\_Advanced.twbx”. Please feel free to do as many as you can/desire, or save them for a later time when you want a challenge. Be sure to understand the Business Reason for each chart!