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

**This Lab book is Part 1 of 5 Parts. Part 1 has been designed for anyone who wants to prepare for Parts 2-5. [APPROX TIME – 95 MIN.]**

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

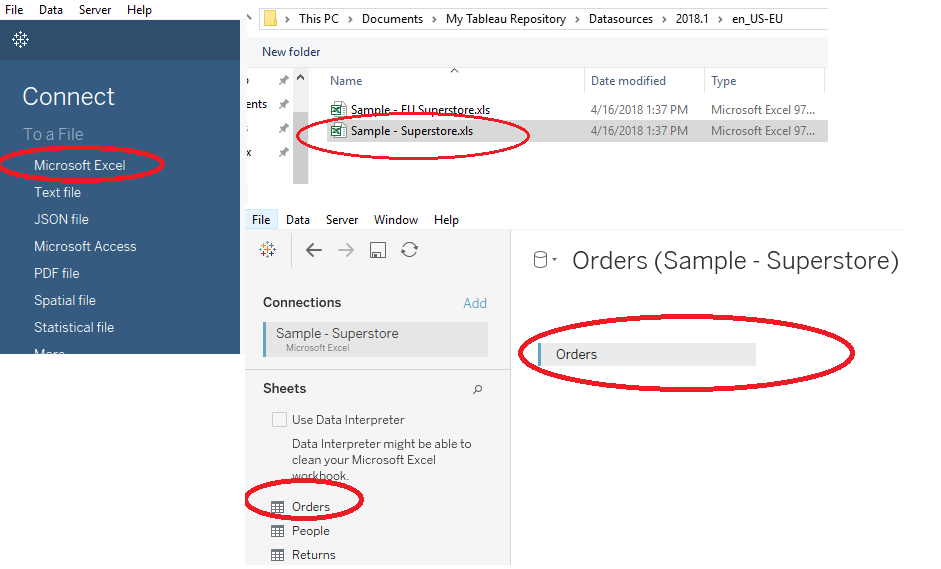
***Desktop Level 1 Skillset is expected for success in this Desktop Level 2 Class***

**\*\*\*Please note, all exercises will be created from scratch. However, the SOLUTION files for this Lab Book are located in the Workbooks folder[[1]](#footnote-1) and named “PartOne.twbx”.**

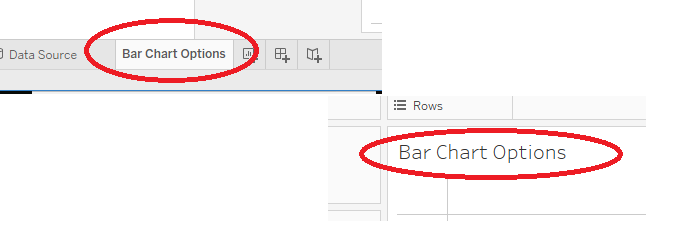
Part 1 –

Chapter 8 - Exercise (Bar Chart Options) - 10 Minutes – Book Pages: 35-37 (top)

1. Create a new workbook and use the Excel Sample Superstore, ORDERS table:



1. Rename Sheet 1 to Bar Chart Options (which will also change the title of the page to “Bar Chart Options” – Additionally: right click the sheet tab and choose “color” off the menu. (\*note: these colors are your preference, but back at work, you may consider using them to differentiate departments, or sheets vs. dashboards, or projects, etc.)



1. SAVE Entire Workbook to your desktop. Name the file: “PARTONE.TWBX”– you will use this workbook throughout **Part I** of *Practical Tableau Book* (Pages 3-101).
2. Once you have the steps above opened, you will try each of the FIVE bar chart options discussed in your book on pages 35 and 36. Please follow the steps below to complete these five options:

**Option 1** – Double Click the Sales measure. Result: plain blue bar chart – click the undo button

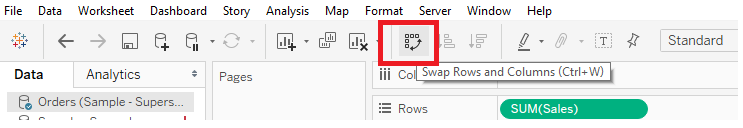
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**Option 2** – Left Drag your Sales measure to the Row Shelf –Result: same blue bar chart as above – click the undo button

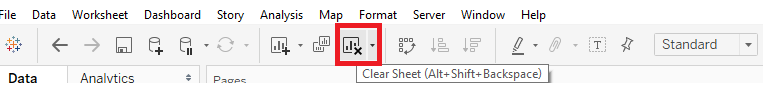
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**Option 3 –** Click ONCE on the Sales measure, Go to the **SHOW ME** tab (gallery) and select the ***horizontal bar*** chart (3rd row, 1st column) – Notice the bar chart by default is horizontal. Also Note that the Show Me gallery choice changed the position of your Sales Field. It is now located in the Columns shelf.

* Find the SWAP tool on the toolbar (or press **CTRL + W**)



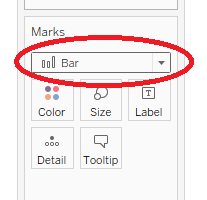
* Additionally: Click the Swap tool again to watch it toggle back and forth between horizontal and vertical. (Notice your SALES measure moving back and forth between Columns and Row shelves.
* CLEAR THE WORKSHEET: (Find CLEAR tool and click or press ALT\_SHIFT\_BACKSPACE)



\*\*\*\*

**Option 4 –** Change to a bar chart using the Marks Card:

* Drag Order Date dimension to the Columns shelf, Drag Sales measure to Rows shelf (see picture on Page 36 of your book).
* Go to the Marks Card and choose *BAR* from the mark options:



* (Notice that when you use the Marks Card, as opposed to the “**SHOW ME**” gallery, your Sales and Order Date field remain in place. *As you learn more about Tableau, you will rely less and less on the Wizard and learn to use the Marks Card to create your charts*)
* CLEAR the Worksheet

\*\*\*

**Option 5** – Right-drag the SALES measure to the Rows shelf. (Result: See picture on Page 37 of your book.)

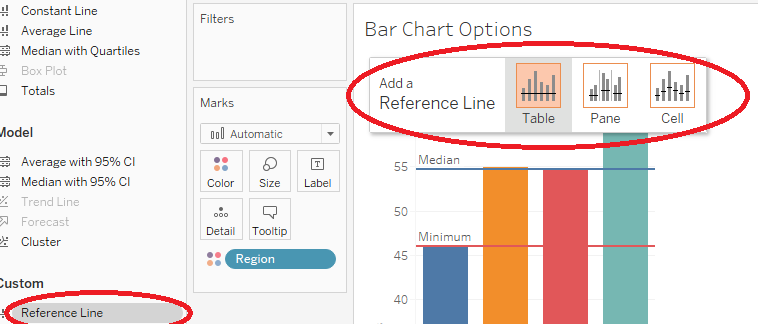
* This result gives an option to change the aggregate calculation being used. Choose the menu option Measure, and the select MEDIAN, Choice # 2 from List. *A right click in Tableau can offer quicker options than going through many menus to get the desired result.*

**SAVE THE WORKBOOK and keep this worksheet open for next exercise.**

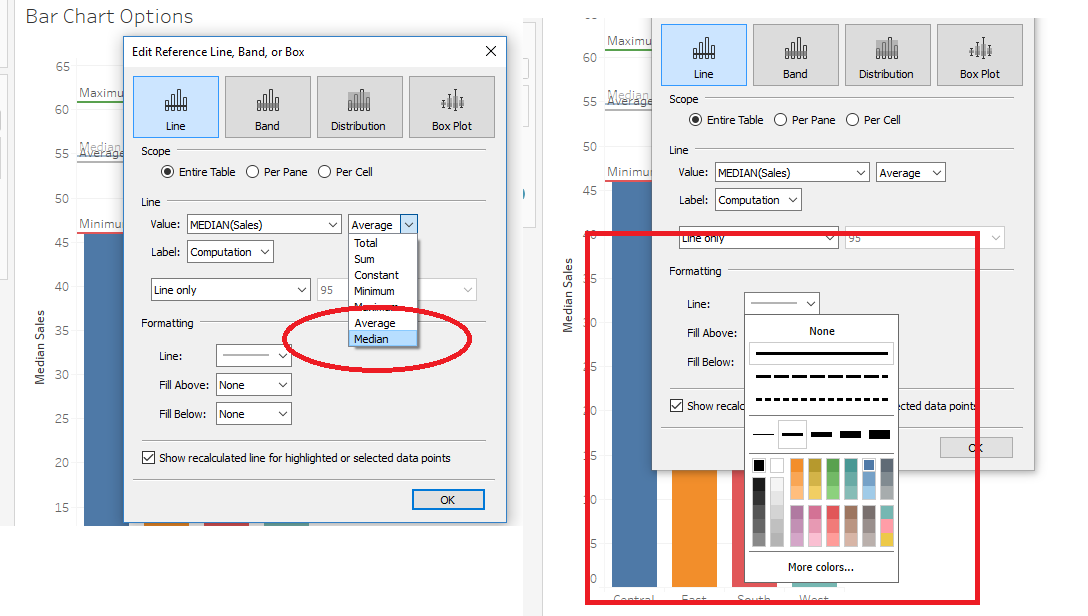
Part 1 - Chapter 8 - Exercise (Bar Chart Analytics) - 5 Minutes (Book Page: 37)

Continuing with MEDIAN(Sales) on Row Shelf:

1. Drag Region dimension to the Columns shelf.
2. Drag a second Region dimension to the Color Shelf in the Marks Card.
3. Select the Analytics tab in the Side Bar.
4. Under Custom, choose Reference Line – then drag and drop on top of TABLE ( this sets the scope of the reference line.)

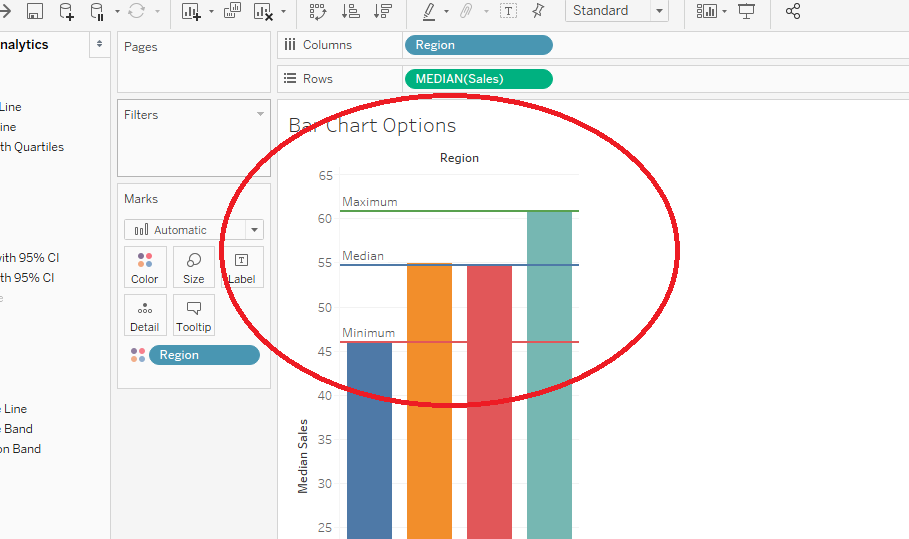


1. You will see the screen below. Pick Median from the computation dropdown.
2. Choose a line color from the Line drop-down list of choices:



1. Repeat these actions twice more, once to depict MINIMUM and once to depict MAXIMUM:

Your final result should look like this:



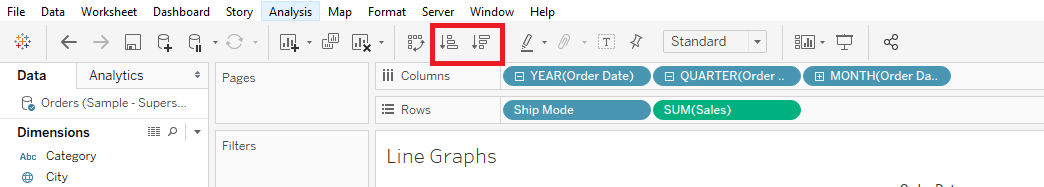
1. SAVE YOUR WORKBOOK

Chapter 9 - Exercise (Line Graphs/Axes/Dates) - 10 Minutes- (Book Pages 39-46)

1. Add a new sheet to your workbook and name the sheet Line Graphs - additionally, change the color of the tab, if desired.
2. Double-click Sales measure (to bring it to Rows shelf.)
3. Right-drag the Order Date dimension to the Columns shelf. From the *Drop Field* pop-up menu, choose the GREEN (Continuous) MONTH(Order Date) - 4th from bottom of the list. Click OK.
4. Click on the Color shelf in the Marks Card and choose the middle (All) marker located at the bottom of the color editor.
   * **Notice** that the SORT tools are not available for the Order Date Field. Continuous fields cannot be sorted.
   * **Notice** that Tableau associates time with Line Charts by default.

See picture on page 41 of your book to confirm result.

1. Drag the Ship Mode dimension to the Rows shelf.
   * Notice that the pill only goes in FRONT of the Sales Measure. You cannot move it afterward. A dimension always precedes a measure in a view; a dimension sets the granularity or “level of detail” in which the aggregation is performed. This “breaks up” the aggregation in the view into the different/unique Ship Modes, presented here as separate rows.
   * Notice that each Axis has the same range.
2. To change this, right click any Sales axis field (left side of view), and choose Edit Axis.
3. Under Range, choose *Independent Axis Ranges for each row or Column*.
   * Check result with page 44 picture in your book.
4. Go to the GREEN – Order Date pill and click the plus sign twice to see how the built-in hierarchy for Date type fields in Tableau works. Also, you can DRILL UP by clicking any of the [-] signs before the prior dimensions in the shelf.
5. Next, remove the GREEN Order Date pill from the Columns shelf (Right-click a white part of the Columns shelf and choose “CLEAR SHELF”.
6. Double-click the Order Date dimension to the Columns shelf. Leave it blue (discrete). Notice it CAN be sorted. We did not filter this for months, so note the plus sign starts on the YEAR option. . You can click the hierarchy plus signs all the way through to the DAY. Then, you can click the plus signs and drill back down. The main difference is that you can SORT Discreet fields.



1. Additionally, feel free to use plus signs and sort tools to practice with DATES and HEIRARCHIES.
2. Save the workbook.

Chapter 10 - Exercise (Level of Detail and Scatters) - 5 Minutes – Book Pages: 47-51

1. Create a new worksheet, name it “Level of Detail” and color the tab if desired.
2. Create a new calculated field called “Profit Ratio”.
3. Start this calculation by clicking on the “Analysis” menu and then “Create Calculated Field” – or, you could RIGHT click on a white area in the Meaures area and “Create Calculated Field” 0r you could right mouse click an existing measure and create a calculated field.
4. Then type in : SUM([Profit[) / SUM([Sales])
   1. OR you could also DRAG the fields into the calculation window. If you do this, please note the orange arrow pointing down. Tableau will place your dragged object where this arrow appears.
5. Click “OK”
6. Drag the Sales measure to the column.
7. Drag the new Profit Ratio measure to the Rows shelf.
8. Check the picture on page 48 of your book for the result.
9. Next, drag the Customer Name dimension into the Detail card on the Marks Card. Notice how much more detail is in your chart.
   1. MORE DETAIL MORE LEVELS?
   2. Drag Segment onto the Color Shelf
   3. Drag Sales onto the Size Shelf
   4. Drag Category onto the Shapes Shelf

Be sure to hide the Show Me box by clicking the Show Me tab. This will enable you to see associated reference legends (color, size, shape type) encoded in the view.” Compare your results to page 50 in your book. Take the time to hover over the chart and see all the details available in the tool tips.

Chapter 11 - Exercise (Filtering Dimensions and Measures) - 5 Minutes – Book Pages: 53-60

1. Create a new worksheet, name it Filter Dim (color if desired).
2. Drag the Customer Name dimension to the Rows shelf.
3. Drag the Sales measure to the Columns shelf.
4. Once the bar chart appears, CTRL + Click the first three names that begin with A (in your book, they use “C” names, but the point can be made with any name)
5. Click on *Exclude* from the pop-up.
6. Once you see the names are excluded, also notice that the Filters shelf has a Customer Name filter. Click the arrow pointing down on the Customer Name pill in the Filters shelf and choose “Edit filter”
7. The point is that the two ways to filter dimensions both work. Now, Click the Wildcard tab in the Filter window. Click on Starts With and type a capital “A” in the search box and click the Exclude check box.
8. You have now been successful in excluding all the names beginning with the letter “A”.
9. Next, drag the Sales measure into the Filter shelf. The Filter Field [Sales ] pop-up has values which are aggregates. Choose SUM.
10. Setting the Filter to Range of Values (default), change the lower number to 10,000.00. Click OK
11. Sort in Descending Order
12. Click the “T” Show Mark Labels tool on the toolbar to show all the mark values in the view.
13. Your chart should look like page 59 in your book.

Chapter 12 - Exercise (Calculated Fields) - 5 Minutes – Book Pages: 61-64

1. Create a new worksheet, name it Calcs (color if desired)
2. Create a calculated field named Orders with the calculation: COUNT([Order Id])
3. Drag this new Orders measure onto the Rows shelf.
4. Right-click your new calculated field and choose Duplicate
5. Notice Tableau has given you a “Copy” of this calculation. Right Click it and choose “Rename” – Name it “Count Orders Distinct”.
6. Edit this calculation to show: COUNTD([Order Id]).
7. Drag the new Count Orders Distinct measure onto the Rows, next to your first calculation.
8. Go to the “Show Me” option and choose the first “Text Table” tool (1st tool in row, 1st tool in column)
9. See the difference between Count Order and Count Order Distinct. What does this mean? – That order ID’s may sometimes contain more items (i.e., Product Names), therefore the OrderID is repeated when there is multiple line items. However, with a CountD function, it will only show ONE DISTINCT OrderID, regardless of how many line items were in that order.

Chapter 12 - Exercise (AOV – Average Order Value) - 10 Minutes – Book Pages: 61-64

1. Create a new worksheet, name it Conditions (color if desired)
2. Create a new calculation in your preferred way. Name it “AOV” to stand for **A**verage **O**rder Value.
3. The Calculation is as follows:

SUM([Sales)/ Count Orders Distinct

\*\*Note!!! There are no parentheses around “Count Orders Distinct”. Normally, this would cause an error in Tableau. But, since Count Orders Distinct is actually a calculated field which is already aggregated, there is no issue.

\*\*\*You will use this calculation in the next exercise.

Chapter 12 - Exercise (Aggregating Calculated Fields) - 10 Minutes – Book Pages: 65-67

1. Continue with your “Conditions” Worksheet.
2. Create a new calculation in your preferred way. Name it “Sub-Category Segment”
   1. Type in this calculation: (*or use the finished workbook PartOne.twbx under Workbooks in the downloaded data and copy the calculation from it.*)
   2. Below is the calculation, if you prefer to type it:

IF [Sub-Category] = "Copiers"

OR [Sub-Category] = "Machines"

OR [Sub-Category] = "Supplies"

THEN "My Sub-Categories"

ELSE "Other"

END

\*\*The calculation appears in capital letters, but this has no significance. It just makes it easier to read. These key words are NOT case-sensitive.

1. Drag Sub-Category dimension to the Rows shelf.
2. Drag the new Sub-Category Segment calculated dimension to the Rows shelf, next to your first pill.
3. Drag the new AOV measure to the Text card on the Marks Card.
4. Format this measure as *Currency (Standard)*.

Chapter 13 - Exercise (Table Calculations) - 5 Minutes – Book Pages: 69-74

1. Create a new worksheet named CrossTab (color if desired).
2. Drag the Order Date dimension onto the Column Shelf.
3. Click the arrow pointing down on the Order Date pill and change this to the SECOND “Month” option in the menu – now your order date will be continuous (not sortable)
4. Drag the SALES measure into the row. You now have a line chart.
5. Drag a second SALES measure into the row, to the right of the one you have. Notice you have TWO line charts.
6. Click on the second SALES pill in the row and click the arrow pointing down. Choose ***Quick Table Calculation***, then choose Difference (second option)
7. While this pill is selected, go to the Marks Card and choose “BAR” for the chart type for this pill. Now your second row on the chart is showing difference in SALES.
8. While still selecting the second Sum(Sales) pill in the Rows shelf, drag the SALES measure from the Side Bar to the Color Shelf on the Marks Card.
9. Click on Color, Click on Edit Colors, choose Red-Blue Diverging, then click the check box in front of Stepped Color, change the number from 5 to 2.
10. Click on ok.
11. Check your results. It should look similar to the chart on page 74.

Chapter 14 - Exercise (Parameters) - 5 Minutes – Book Pages: 75-79

1. Create a new Worksheet named Params (color if desired)
2. Create a new parameter by clicking on drop-down menu to the right of Dimensions heading under the Data tab in the Side Bar.
3. Check Page 77 as you create this parameter. Here are the options you will use:
   * Parameter name: Algebra Parameter
   * Data Type: Integer
   * Current Value: 1
   * Allowable Values: Range
   * Minimum: 1, Maximum: 20, Step-Size: 1
4. Click “OK”
5. Create a new calculation, name it Algebra Equation.

MIN(2) \* [Algebra Parameter]

* + Additionally, you can drag your new parameter in from the Data sidebar.

1. Click OK.
2. Drag the new Algebra Equation (calculated) measure to the Text card on the Marks Card
   * Notice the number 2 appears in your VIEW.
3. Select the Algeba Parameter at the bottom of the Side bar, right-click it, and choose Show Parameter Control.

* You may need to hide the “SHOW ME” gallery, as the parameter control appears beneath it on the right side of the worksheet canvas area.

1. When you change the parameter number either by typing or dragging the slider, the value in your VIEW changes dynamically.
2. Change the size of the font used by the Algebra Equation pill in view to 24 points.

Chapter 15 - Exercise (Sets) - 15 Minutes – Book Pages: 81 - 88

1. Create a new Worksheet named Sets Filter (color if desired)

**WAY ONE to Create Sets**

1. Drag SALES measure to the Columns shelf.
2. Drag Customer Name dimension to the Rows shelf.
3. Under the Customer Name header in the view’s canvas, click on the first customer, “Aaron Bergman”
4. Shift-click on the customer name, “Aleksandra Gannaway”, in the header region.
5. In the pop-up box, choose the option Create Set
6. Name the set First 20 Customers
7. Drag the new Set onto the Rows shelf, to the right of the Customer Name pill.

* Notice that the first 20 customers are “IN” the first 20 Set and the rest are “OUT” of the set.

1. Right-click on the IN/OUT(First 20 Customers) pill (Set), choose Edit Aliases: change In value to “1st 20 Customers”; change the Out values to “Rest of Customers”.
2. Undo the Aliases, if desired.

**WAY TWO to Create Sets**

1. Right-click the Customer Name dimension in Data side bar, Choose Create, and Create Set off the menu.
2. See the pic on Page 83 to compare what you are looking at.
3. Click Cancel (we are just looking at a different way to make a set)

USING SETS FIVE WAYS

1. WAY ONE - FILTER
   1. Drag your newly created First 20 Customers pill from the Rows shelf onto the Filter shelf. Choose 1st Customers from the filter list and click OK. Notice your VIEW now only has these Customers.
   2. SORT in Descending order
   3. Drag the SALES measure onto the Label Shelf in the Marks Card
   4. Compare your chart to the top of Page 84.
2. WAY TWO - CLUSTER
   1. Create a new worksheet named Sets Cluster (color as same color of WAY ONE Set)
   2. Drag your new Set onto the Color Shelf on Marks Card
   3. Drag Customer Name to the Detail Shelf on the Marks Card
   4. Drag the Sales measure to the Column
   5. Drag the Profit Ratio Measure to the Rows
3. WAY THREE – Side by Side Customer/Cluster
   1. Duplicate your “Sets Cluster” worksheet by Right Clicking and Choosing “Duplicate” off menu
   2. Rename the Sheet to “Sets Calc”
   3. Drag First 20 Customers Set to the Column Shelf.
   4. Click on the Color Shelf and select “Edit Colors”. Make any color assignment changes you desire.
   5. Change mark type to Circle; add a dark border around the mark.
   6. Click on the “IN” (or ‘1st 20 Customers’) data item and associate it to the red(ish) color to the right. Then click OK
   7. Compare your chart to the picture on the top of Page 86.
4. WAY FOUR and FIVE – Dimension and Hierarchy
   1. Create a new worksheet named “Sets Hierarchy” (color as same color as the rest of “Sets” sheets.
   2. Click on Customer Name Dimension
   3. Ctl-click on Segment dimension and the “First 20 Customers” set.
   4. Right-click, select Hierarchy, then Create Hierarchy
   5. Name it “Custom Hierarchy.”
   6. Re-order the custom hierarchy just created to show the following order: First 20 Customers, Segment, Customer Name**.**
   7. Drag SALES measure to Columns shelf
   8. Drag new Custom Hierarchy to Row
   9. Check picture on top of page 87 to compare
   10. THEN, Click the plus sign on the hierarchy, Click the descending sort button, compare your chart to picture at the bottom of page 87 – yours may vary a bit, but the point is that the First 20 Customers show up and are “in” the SET
   11. THEN, Click the plus sign one last time, compare your picture to page 88. You got three different views as a result of this hierarchy.

Chapter 16 - Exercise (Level of Detail Expressions (LOD)) - 10 Minutes – Book Pages: 89-93

1. Create a new Worksheet named “LOD” (color if desired)
2. Drag SALES measure to the Columns shelf.
3. Drag Category dimension to the Rows shelf.
4. Click the Show Mark Labels (“T”) tool on the toolbar to see the Sales amounts as labels at the end of each bar.
5. Change Fit screen settings to show Entire View.

Compare to top of page 90 in book.

1. Drag Sub-Category dimension to row, next to Category
2. Compare to bottom of page 90 in book.
3. Create a new calculation named “Exclude Sub-Category”

Here is the calculation:

{ EXCLUDE [Sub-Category]: SUM([Sales]) }

1. Drag this to the Columns shelf, next to SALES
2. Create another calculation named “Divide Sales by Exclude Sub Category”

Here is the calculation:

SUM([Sales])/SUM([Exclude Sub-Category])

1. Drag that calculated field as the last pill on the column shelf.
2. Check your charts with top and bottom of page 92 in book.

Chapter 17 - Exercise (Dashboards and Distribution) - 10 Minutes – Book Pages: 95-101

1. Create a new Worksheet names “Map” – color if desired
2. Double-click the State dimension to quickly create a symbol map
3. Go to the SHOW ME Wizard and choose the SECOND Map on the SECOND row. This is a choropleth (or ‘Filled’) map and will “color in” each State.
4. Drag the REGION Dimension to the Color Shelf on the Marks Card.
5. Drag a SECOND Latitude Measure to the row, next to the first Latitude Measure – you will get two charts
6. Click on the second Latitude measure to select it and change the chart type to “Pie”
7. Still selecting the second Latitude pill in the Rows shelf, drag the Sales measure to the Size Shelf on the Marks Card.
8. Drag a second Sales measure to the Color Shelf – Edit the colors and choose the palette named “Blue Light.”
9. Change second Latitude pill to present itself as a “Dual Axis”.
10. Increase the Size settings for the pie marks.

NEXT

1. Create a new DASHBOARD (either use menu DASHBOARD or the middle tool on the sheets tabs) name it “Sales Dashboard”
2. Drag the new Map worksheet onto the Dashboard – notice it takes up the entire space.
3. Drag the Cross Tab worksheet under the map. Notice it takes up the entire BOTTOM Space.
4. Drag the Bar Chart Options sheet to the right bottom so that it shares the bottom half of the dashboard with your Table Calcs sheet.
5. Check the picture on Page 97 to be sure your Dashboard compares to this one – note: the Bar Chart Options we created here differs from that in the book.
6. Save the workbook.
7. Create a Saved Data Source file for possible use with other Labs:
   1. Select the Data menu choice and select Orders (Sample – Superstore) connection.
   2. Select Add to Saved Data Sources
   3. Save in the default (My Tableau Repository) directory; save as “My Superstore Data Source.”

**THE TOPICS IN THE PART 1 EXERCISES WERE COVERED IN THE TABLEAU BEGINNING CLASS, EXCEPT FOR A LIMITED FEW, THAT WILL BE TAUGHT IN THIS CLASS. IF YOU CAN COMPLETE THE EXERCISES ABOVE, YOU ARE READY TO CONTINUE ON WTH THE TABLEAU DESKTOP 2 CLASS.**

1. The Workbooks folder is located in the downloaded student data files at the following link:

   <https://github.com/ONLC-Classes/XTBM10---Tableau-Desktop-Level-2> [↑](#footnote-ref-1)