

4803 Assignment 5: Tableau Desktop Exercise #3

Learning outcomes:

- As the dumbbell chart shows, when you see an interesting chart that has two different visualization elements (e.g., dots and lines, or lines and squares, etc.), you should be able to use the **dual axis** in Tableau to re-create those charts.
- Use sets, groups and/or annotations to help guide your audience, especially (1) when you are presenting your interpretation of the visualization or (2) when you want to highlight certain elements of a viz in a dashboard (e.g., for a specific user).
- Use scatter plots flexibly (on different levels of detail) to explore relationships
- Use the “analytics” panel in Tableau to help you analyze data patterns, including creating reference lines as shown before, and (optional but highly recommended) clustering this week. For clustering, you will be able to capture the results of the cluster analysis and use it for other visualizations.
- Use connected scatter plots to show the trajectory of two dimensions of data.
- Create animations using Pages.
- Understand (quick) table calculations. Recall that these are based on what you see in the view, so they are usually faster and more efficient. The top/bottom N illustration is an example. I also encourage you to explore other ways of doing this by googling.
- Understand the concept of “level of detail”, especially the “fixed” operator we discussed in the demo.

There are two other optional videos this week, one is stacked bar charts (using multiple fields) and the other is the hub and spoke map. While I do not require you to know these, if your time permits, I highly recommend that you watch them too. In the hub and spoke map video, I also show you how to extract geocoding data from Tableau for further visualizations, which you may find useful for your group project.

Exercises:

You need to create/submit **one TWBX file**. Name it as *LastName_FirstName_Tableau3.TWBX*.

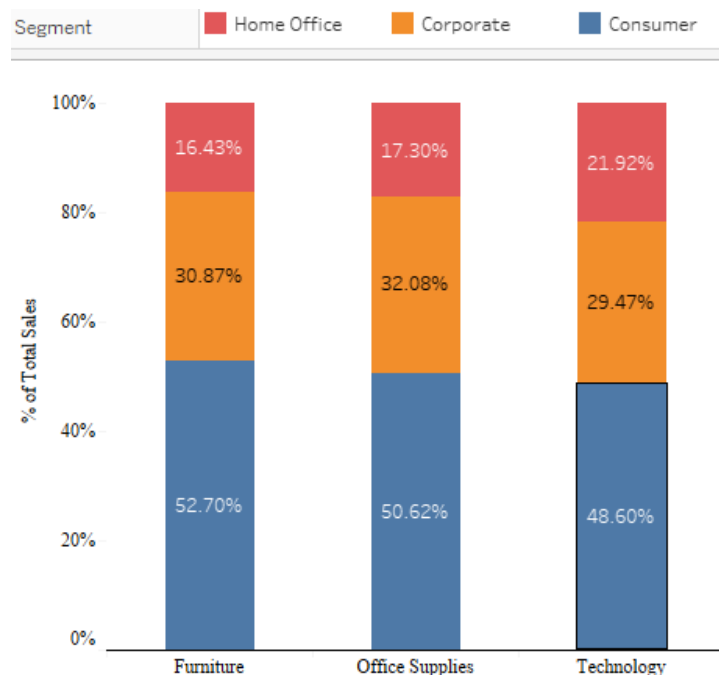
Use the Sample Superstore dataset (sample-superstore.xls) to create these visualizations:

1. (20%) Create a visualization that would allow users to do the following:
 - a. Select any two years from the list of years in the data, for ORDER DATE
 - b. Use a dumbbell chart to show the total sales by category for those two years.
 - c. (optional, may be challenging, 5% extra credit for this assignment) – use Measure Names and Measure Values to allow users to choose a particular metric (e.g., discount, profit, quantity, or sales), instead of SALES mentioned above, for this visualization

Tip 1: Part (c) is often a feature that you might find useful for a dashboard. If you would like to provide that kind of capability for your group project dashboard, give it a try after you are done with the rest of the assignment. Part (a) however, is based on a filter, and you should be comfortable with that.

Tip 2: You should now start thinking about dashboards as you work on visualizations. By providing the ability for users to dynamically change filters (“show filters”) and customize those filters, your dashboard would become much more interactive.

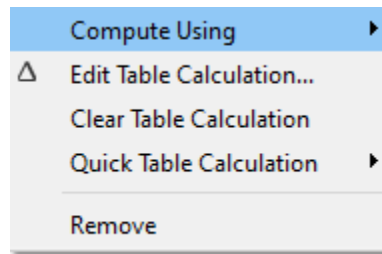
2. (20%) Create the following visualization. This is based on the full dataset, with each bar representing each CATEGORY, divided by sales to SEGMENT, and you should be able to show the percentage breakdown by SEGMENT within each CATEGORY. In addition, the CONSUMER segment should be at the bottom, and the percentage number should be used as labels, as shown.



Tip 1: The sequence of colors in the LEGENDS of Tableau (which color means what) affects the display sequence of marks on the chart.

Tip 2: You will need to use quick table calculations. In addition, once you choose the right table calculation, check “Compute Using” to make sure it’s calculating the way you intend to. See

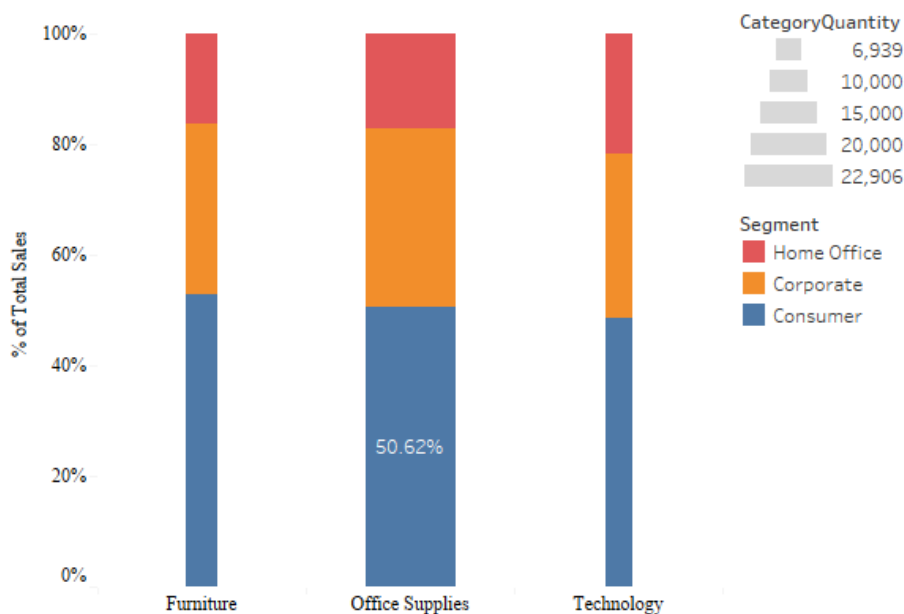
https://help.tableau.com/current/pro/desktop/en-us/calculations_tablecalculations.htm for more details if you need to.



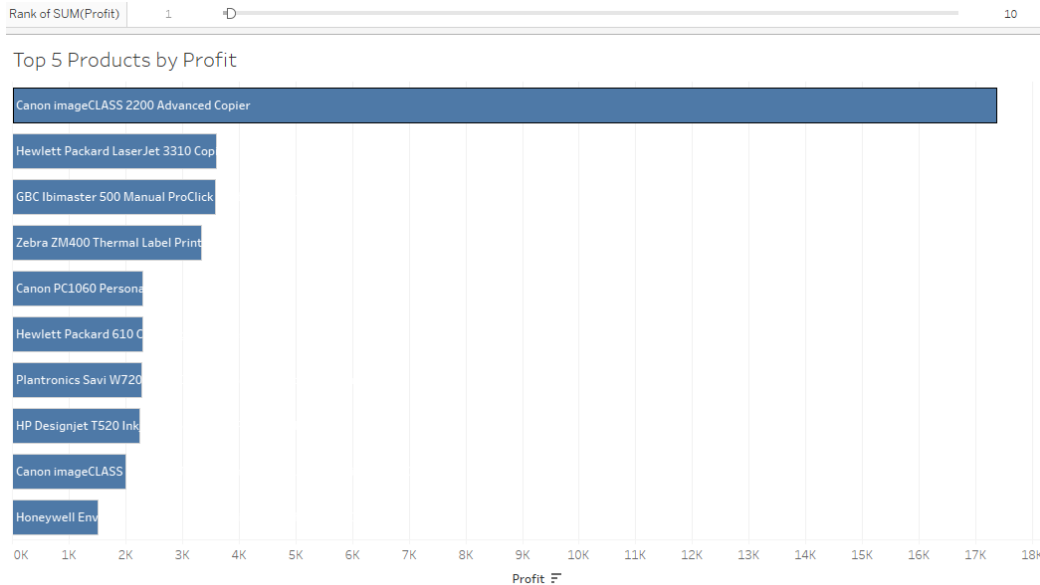
Tip 3: While not required, I encourage you to try and format the bar chart as closely as possible what's shown above, including (1) removing the light-gray gridlines; (2) add a horizontal base to the bar; and (3) change the fonts of some of those words and give them the dark color.

3. (10%) Suppose you are working as an intern for a department selling office supplies to consumers. Use the chart from Q2, remove all labels and only show the label (the percentage number) for your department. Then use QUANTITY to adjust the size of the visualization.
4. (15%) Your visualization from Q3 will show different bar width for different segments in different categories. What if you want to change it to the following?

Tip: Level of detail.

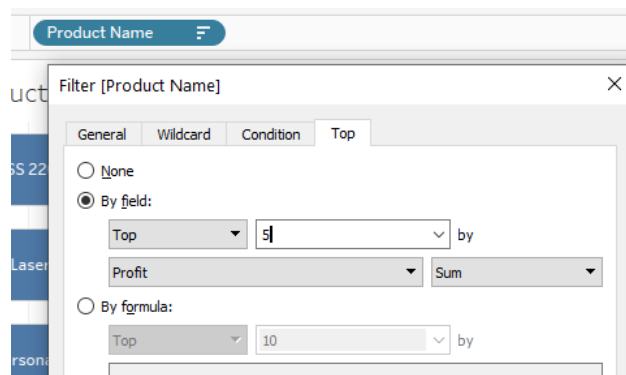


5. (15%) Create the following bar chart to reflect the Quarter 4 top N products (PRODUCT NAME) in terms of profits, i.e., the top N products that generate the most profit in quarter 4 over the years. The user should be able to input N and the chart should populate.

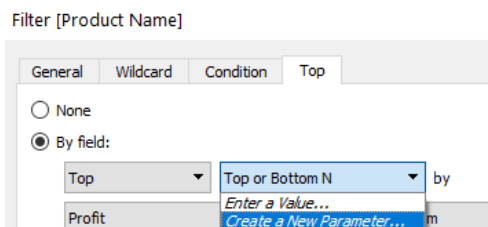


Tip 1: Hide the row headers and use Product Names as labels instead. Then right click on any of the bars, choose FORMAT -- FIELDS (pick PRODUCT NAME) -- PANE. Here you can change the font color to white, and the alignment to LEFT.

Tip 2: The Top N video was intended to illustrate the use of table calculations. Another way to do top/bottom N is to just use PRODUCT NAME as a filter.



Tip 3: You can even create a parameter (which is just a constant that the user can enter). The parameter will show up at the bottom of the DATA pane, and you can right click on it to check "Show Parameter". The benefit of a parameter is that you can even insert this as a field for the TITLE of your viz.



6. (20%) Create a scatterplot where each dot is a postal code and visualize the relationship between total discounts and total sales. Then create an animation so that each “frame” of your visualization represents a calendar quarter (e.g., 2016Q1, then 2016Q2, etc.)