

## CPSC 8040 Data Visualization Assignment 2 – Tableau

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### Note:

I saved my Tableau Data Visualization Project as packaged workbooks (.twbx) to avoid dataset loading problem between different computer file systems. I also export my results as PowerPoint files and convert them to pdf files for you to review. I have added more data visualization features in Profit Map worksheet (displaying sum of profit and profit ratios as labels in the profit map) to visualize results in a more straightforward way.

### Tableau Built-in Dataset

We will start by looking at the overall sales data **between 2014 and 2017** to see what you find. Start by creating a simple chart.

My Tableau Version only contains sales data between 2015-2018

### Answers to the Questions in the Assignment Description

#### Build your first visualization

1. From Dimensions in the Data pane, drag Order Date to the Columns shelf.
2. From Measures, drag Sales to the Rows shelf.

What does this chart show? What's the information we get out of it?

The line chart shows total aggregated sales for each year by order date. The sales seem to increase over years. It doesn't show in detail of which product(s) have the highest impact on the sales and whether there are some products performing better than the rest.

#### Colors and Filters

Adding filters definitely helps you to sort through all of this data. Currently, you are looking at sales totals for your various products. You can definitely see that some products have consistently low sales, and might be good candidates for reducing sales efforts for those product lines, but what does overall profitability look like for your different products?

The current view only shows the relationship between sales and sub-categories over time. The profitability information is not shown in the graph. We need to add the profit data to the graph. This can be done by displaying profit with different colors. Generally, blue color means high positive profit while red color means high negative loss.

1. From Measures, drag Profit to Color on the Marks card.

What have we found out by dragging profit to color?

By dragging profit to color reveals that we have negative profit in Tables, Bookcases, and even Machines. (Tableau automatically added a color legend and assigned a diverging color palette because your data includes both negative and positive values). In some years, Bookcases and Machines were actually profitable. However, in 2017, Machines became unprofitable.

## Maps

6. In the Palette drop-down list, select Red-Green Diverging and click OK. This should allow you to quickly see the low performers and the high performers.

The data is accurate, and technically you can compare low performers with high performers, but is that really the whole story? Are sales in some of those states really that terrible, or are there just more buyers in Florida?

Not telling the whole story. The red color only implies lower sales in that state while blue color means higher sales in the state. Maybe there are smaller or fewer stores in the states that appear red. Or maybe there's a higher population density in the states that appear green, so there's just more people to buy stuff. In addition, the current graph doesn't provide information about the profitability.

7. At first glance, it appears that Florida is performing the best. Hovering over its mark reveals a total of 89,474 USD in sales, as compared to South Carolina, for example, which has only 8,482 USD in sales. However, have any of the states in the South been profitable? Drag Profit to Color on the Marks card to see if you can answer this question.

Since profit often consists of both positive and negative values, Tableau automatically selects the Orange-Blue Diverging color palette to quickly show the states with negative profit and the states with positive profit. It's now clear that Tennessee, North Carolina, and Florida have negative profit, even though it appeared they were doing okay—even great—in Sales.

## Dashboard

9. Click the drop-down arrow at the top of the Year of Order Date filter, and select Single Value (Slider).

Wouldn't it be great if you could view which sub-categories are profitable in specific states?

Of course. Select a state within the map. The Sales in the South bar chart automatically updates to show just the sub-category sales in the selected state. Please see the implementation in the workbook.