Intro to Tableau

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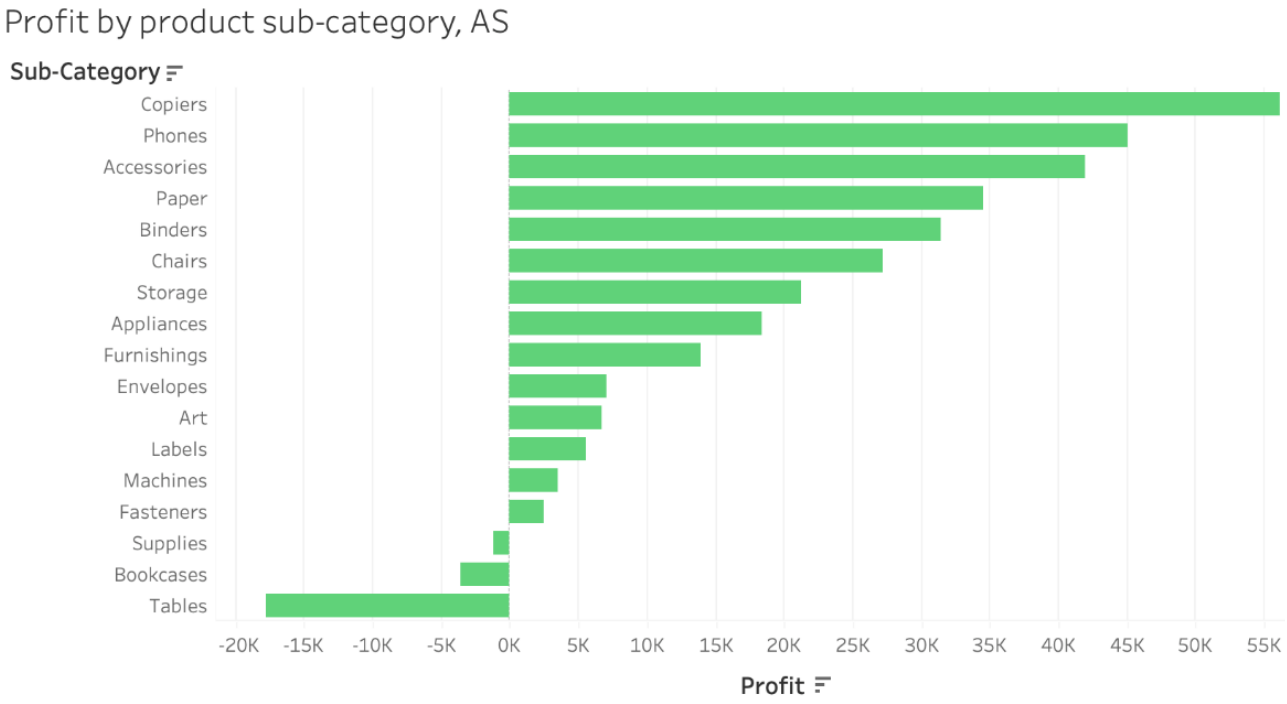
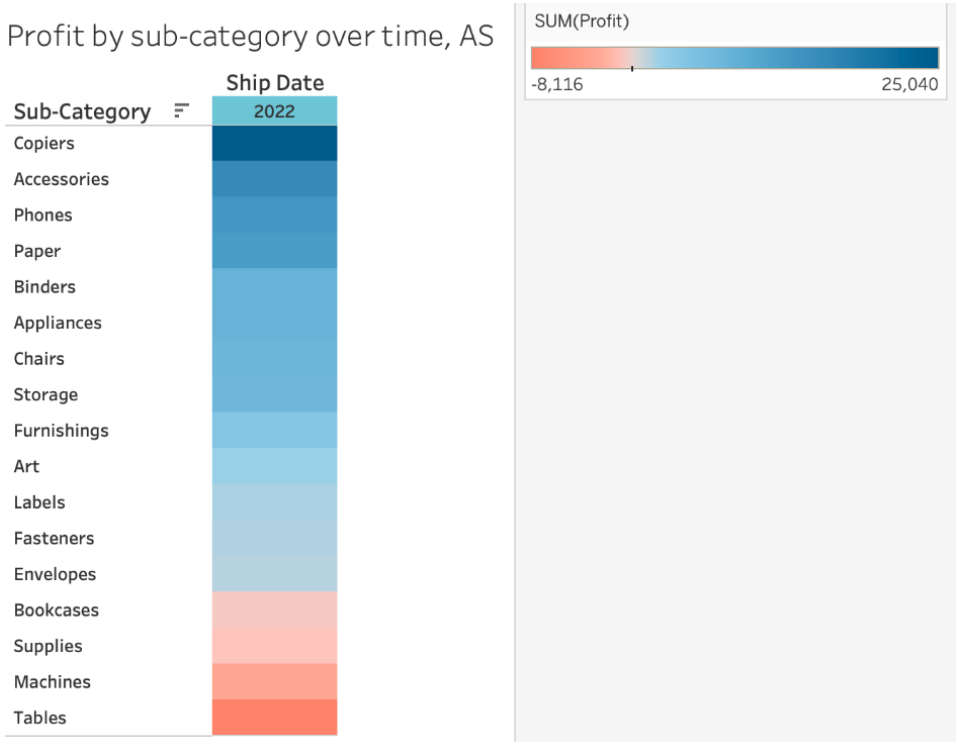
To play around in Tableau, I am using the built-in "Super Store Data" dataset...

Plot 1: First, I created a bar plot showing the overall profit for each product sub-category. Then, I sorted the plot from descending order in terms of profitable sub-categories to reduce cognitive load for the audience. Notice, in this plot, I do not acknowledge time as a variable.



Plot 2: Next, I created a heat map of profit by sub-category *over time*. In the heat map I used a diverging color scale, and not size, to best represent negative to positive values. Then, I sorted the heat map by most to least profitable by product sub-category using the last year the dataset had complete data – in this case, the year was 2022.



Observations:

a. When choosing a color scheme for the heat map, Tableau automatically set it to a diverging color scale. I assume this software recognized my choice of plot (i.e., heat map) for this data possessed negative to positive values and determined this was the best fit to visualize the data. This preset is correct per the *Grammar of Graphics* (2005), as my goal is to communicate and distinguish the sub-categories experiencing loss compared to sub-categories experiencing profit.
b. Theoretically, when creating a heat map, we can adopt color, or size, or both, to denote a growth or decline in a value. In this visualization, using color is more visually digestible for the audience. It would be less effective to show a loss in profit denoted by size (of square), specifically with a dataset containing a wide range in values (-$8,116 - $25,040, seen in the legend above).

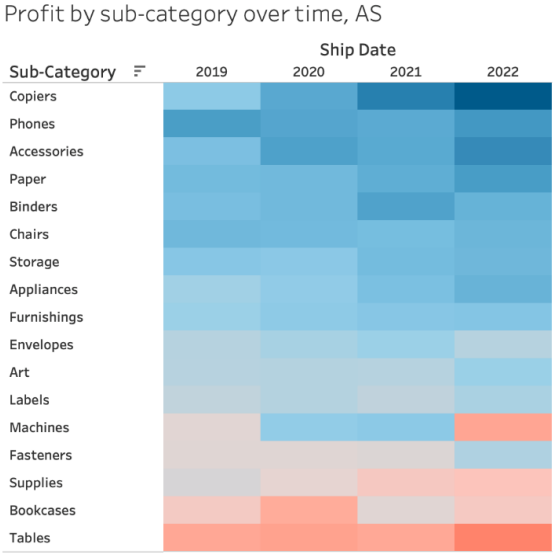
Table 1: I then used the same data to create a table of profit by sub-category over time. Since it's a table, I organized the sub-categories in alphabetical order, so the audience can find each sub-category with ease.

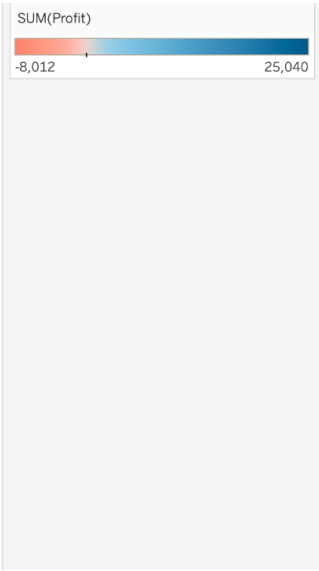
Profit by sub-category over time, AS

	Ship Date				
Sub-Category	2019	2020	2021	2022	2023
Accessories	5,352	11,248	9,651	15,686	
Appliances	2,031	3,049	5,301	7,892	57
Art	1,419	1,499	1,457	2,262	16
Binders	5,650	6,709	11,095	8,045	-73
Bookcases	-622	-2,501	148	-659	1
Chairs	6,971	6,516	5,858	7,447	431
Copiers	3,381	9,930	17,743	25,040	
Envelopes	1,473	1,877	2,196	1,442	
Fasteners	194	201	325	1,684	25
Furnishings	2,226	3,275	4,049	4,229	113
Labels	1,107	1,503	1,158	1,771	35
Machines	120	2,979	3,581	-3,218	
Paper	6,396	6,732	9,085	12,170	129
Phones	12,072	10,449	9,555	12,946	29
Storage	4,072	3,636	6,244	7,100	232
Supplies	483	-10	-709	-941	5
Tables	-3,018	-3,692	-2,926	-8,116	

Clean-up:

Since time is a crucial variable in our data, I filtered out any incomplete data according to year – in this case, the incomplete year was 2023.
Upon filtering out 2023 data, *Plot 1* still looks fairly similar to its original. However, when 2023 data is filtered out from *Plot 2* and *Table 1*, the audience can see a much cleaner aesthetic as a result of the last (incomplete) column being omitted:





Profit by sub-category over time, AS

	Ship Date			
Sub-Category	2019	2020	2021	2022
Accessories	5,352	11,248	9,651	15,644
Appliances	2,031	3,049	5,301	7,892
Art	1,419	1,499	1,457	2,262
Binders	5,650	6,709	11,095	8,051
Bookcases	-622	-2,501	148	-659
Chairs	6,971	6,516	5,858	7,376
Copiers	3,381	9,930	17,743	25,040
Envelopes	1,473	1,877	2,196	1,442
Fasteners	194	201	325	1,669
Furnishings	2,226	3,275	4,049	4,206
Labels	1,107	1,503	1,158	1,771
Machines	120	2,979	3,581	-3,218
Paper	6,396	6,732	9,085	12,170
Phones	12,072	10,449	9,555	12,946
Storage	4,072	3,636	6,244	7,100
Supplies	483	-10	-709	-941
Tables	-3,018	-3,692	-2,926	-8,012

Finally, I added annotations to the heat map. The annotations can be seen below as the tabular numbers in the boxes, along with the diverging color scale, to represent profit.

Profit by sub-category over time, AS

Sub-Category	Ship Date 2019	2020	2021	2022
Copiers	3,381	9,930	17,743	25,040
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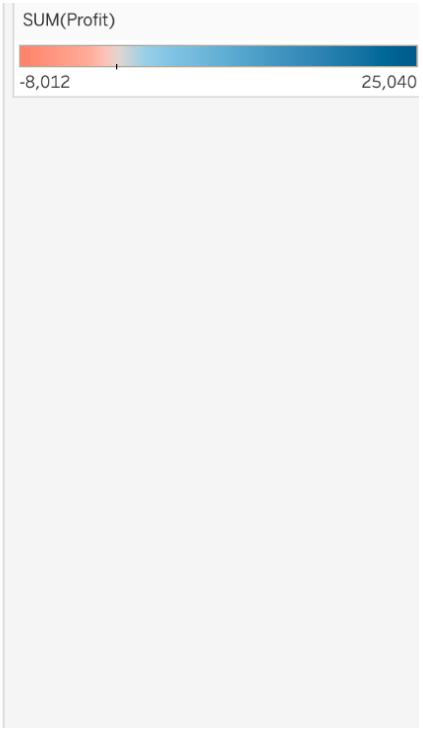

Sources

Leland Wilkinson. 2005. The Grammar of Graphics (Statistics and Computing). Springer-Verlag, Berlin, Heidelberg.