Data Visualization Lab

The Tableau Workspace

Nov. 28, 2022

Is there anything you want to ask about Lecture 2?

Before we start

Mon 14/11 - 9:00-11:15

Mon 21/11 - 9:00-11:15

Mon 28/11 - 9:00-11:15

~~Mon 5/12 - 9:00-11:15~~

Mon 12/12 - 9:00-11:15

Fri 16/12 - 9:00-10:30

Mon 19/12 - 9:00-11:15

Tue 20/12 - 16:45-18:15

Mon 09/01 - 9:00-11:15

Tue 10/01 - 16:45-18:15

Wed 11/01 - 11:45-14:15

➔ **Next lecture (5/12) is replaced by the Data Management Lab (prof. Avogadro)**

The Tableau Workspace

Tableau Sheets

Recap

During the previous lectures we have obtained three charts (you should have them saved on TP):

1. A chart representing sales divided by category of product sold (**Category**), type of customer (**Segment**) and market (**Market**), in terms of absolute number of items sold (**Quantity**);

2. A chart representing sales (**Sales**) trends (in $) over the months of the year (**MONTH(Order Date)**) comparing, on different lines, the years (**YEARS(Order Date)**) in the dataset;

3. A chart that details the preceding by dividing sales by product category;

4. A crosstab./table


Market
Category
Segment
Africa
Asia Pacific
Europe
LATAM
USCA
Furniture
Consumer
Corporate
Home Office
Office Supplies
Consumer
Corporate
Home Office
Technology
Consumer
Corporate
Home Office
0K
5K
10K
15K
Quantity

Recap

During the previous lectures we have obtained three charts (you should have them saved on TP):

1. A chart representing sales divided by category of product sold (**Category**), type of customer (**Segment**) and market (**Market**), in terms of absolute number of items sold (**Quantity**);

2. A chart representing sales (**Sales**) trends (in $) over the months of the year (**MONTH(Order Date)**) comparing, on different lines, the years (**YEARS(Order Date)**) in the dataset;

3. A chart that details the preceding by dividing sales by product category.

4. A crosstab./table


Order Date
Sales
550K
500K
450K
400K
350K
300K
250K
200K
150K
100K
50K
0K
gennaio
febbra..
marzo
aprile
maggio
giugno
luglio
agosto
sette..
ottobre
novem..
dicem..

Recap

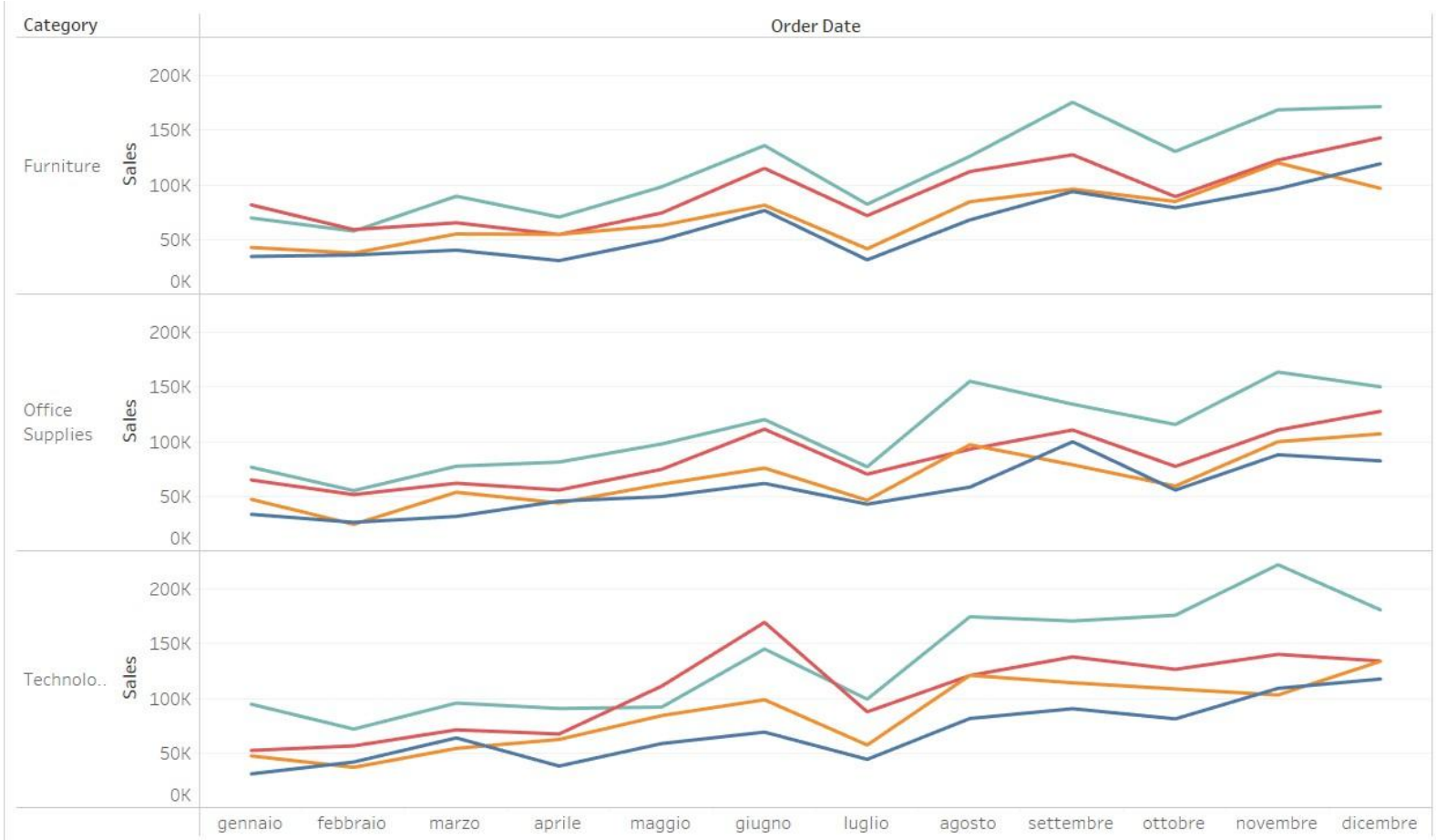
During the previous lectures we have obtained three charts (you should have them saved on TP):

1. A chart representing sales divided by category of product sold (**Category**), type of customer (**Segment**) and market (**Market**), in terms of absolute number of items sold (**Quantity**);

2. A chart representing sales (**Sales**) trends (in $) over the months of the year (**MONTH(Order Date)**) comparing, on different lines, the years (**YEARS(Order Date)**) in the dataset;

3. A chart that details the preceding by dividing sales by product category.

4. A crosstab./table


Category
Order Date
Furniture
Office Supplies
Technolo..
Sales
200K
150K
100K
50K
0K
gennaio
febbraio
marzo
aprile
maggio
giugno
luglio
agosto
settembre
ottobre
novembre
dicembre

Recap

During the previous lectures we have obtained three charts (you should have them saved on TP):

1. A chart representing sales divided by category of product sold (**Category**), type of customer (**Segment**) and market (**Market**), in terms of absolute number of items sold (**Quantity**);

2. A chart representing sales (**Sales**) trends (in $) over the months of the year (**MONTH(Order Date)**) comparing, on different lines, the years (**YEARS(Order Date)**) in the dataset;

3. A chart that details the preceding by dividing sales by product category.

4. **A crosstab./table**

Working with crosstabs

Now imagine that we want to analyze the **profit trend** on the Crosstab we just created.

What is the easiest way to do this?

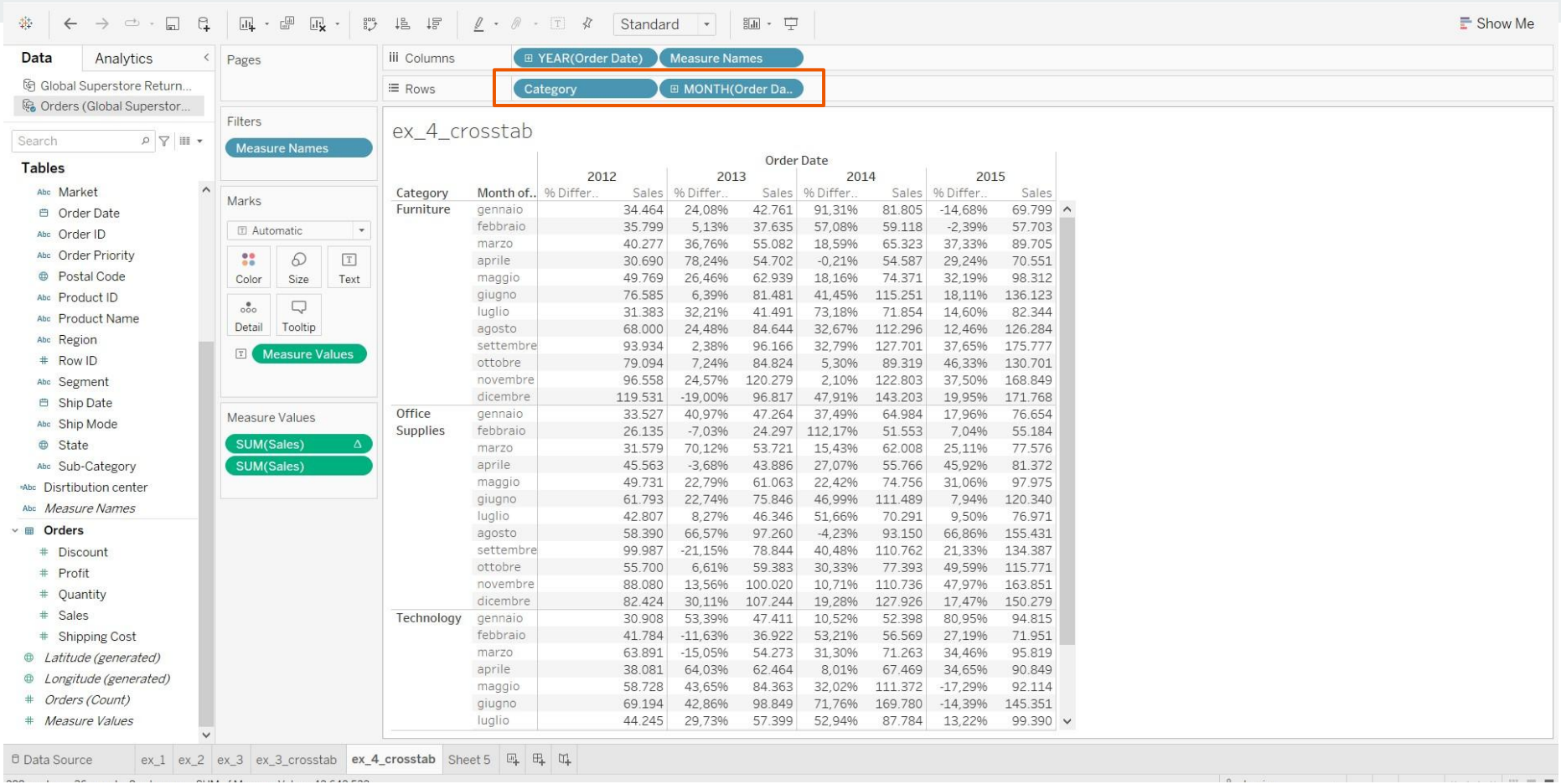
Working with crosstabs

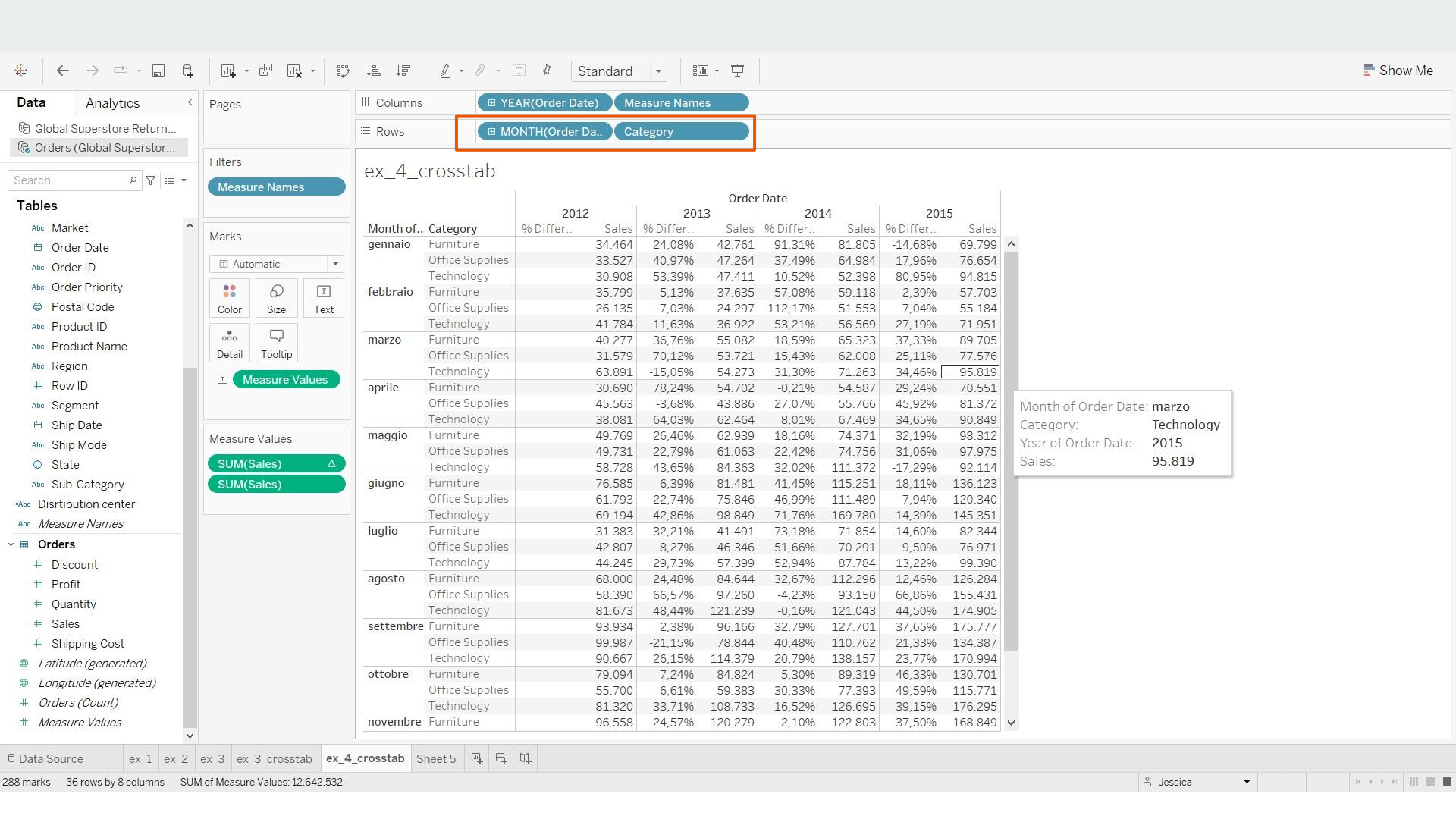
Now imagine that we want to analyze the **profit trend** on the Crosstab we just created.

What is the easiest way to do this?

➔ Swap the **MONTH** and **YEAR(Order Date)** pills so that the **YEAR** one is on the Columns and the **MONTH** one on the Rows;

Note that the order in which you put the Category and the MONTH pills on the Rows shelf matters!


Standard
Show Me
Data
Analytics
Global Superstore Return...
Orders (Global Superstor...
Search
Tables
Market
Order Date
Order ID
Order Priority
Postal Code
Product ID
Product Name
Region
Row ID
Segment
Ship Date
Ship Mode
State
Sub-Category
Disrtibution center
Measure Names
Orders
Discount
Profit
Quantity
Sales
Shipping Cost
Latitude (generated)
Longitude (generated)
Orders (Count)
Measure Values
Pages
Filters
Measure Names
Marks
Automatic
Color
Size
Text
Detail
Tooltip
Measure Values
Measure Values
SUM(Sales)
SUM(Sales)
Columns
YEAR(Order Date)
Measure Names
Rows
Category
MONTH(Order Da..
ex_4_crosstab
Order Date
2012
2013
2014
2015
Category
Month of..
% Differ..
Sales
Furniture
gennaio 34.464 24,08% 42.761 91,31% 81.805 -14,68% 69.799
febbraio 35.799 5,13% 37.635 57,08% 59.118 -2,39% 57.703
marzo 40.277 36,76% 55.082 18,59% 65.323 37,33% 89.705
aprile 30.690 78,24% 54.702 -0,21% 54.587 29,24% 70.551
maggio 49.769 26,46% 62.939 18,16% 74.371 32,19% 98.312
giugno 76.585 6,39% 81.481 41,45% 115.251 18,11% 136.123
luglio 31.383 32,21% 41.491 73,18% 71.854 14,60% 82.344
agosto 68.000 24,48% 84.644 32,67% 112.296 12,46% 126.284
settembre 93.934 2,38% 96.166 32,79% 127.701 37,65% 175.777
ottobre 79.094 7,24% 84.824 5,30% 89.319 46,33% 130.701
novembre 96.558 24,57% 120.279 2,10% 122.803 37,50% 168.849
dicembre 119.531 -19,00% 96.817 47,91% 143.203 19,95% 171.768
Office Supplies
gennaio 33.527 40,97% 47.264 37,49% 64.984 17,96% 76.654
febbraio 26.135 -7,03% 24.297 112,17% 51.553 7,04% 55.184
marzo 31.579 70,12% 53.721 15,43% 62.008 25,11% 77.576
aprile 45.563 -3,68% 43.886 27,07% 55.766 45,92% 81.372
maggio 49.731 22,79% 61.063 22,42% 74.756 31,06% 97.975
giugno 61.793 22,74% 75.846 46,99% 111.489 7,94% 120.340
luglio 42.807 8,27% 46.346 51,66% 70.291 9,50% 76.971
agosto 58.390 66,57% 97.260 -4,23% 93.150 66,86% 155.431
settembre 99.987 -21,15% 78.844 40,48% 110.762 21,33% 134.387
ottobre 55.700 6,61% 59.383 30,33% 77.393 49,59% 115.771
novembre 88.080 13,56% 100.020 10,71% 110.736 47,97% 163.851
dicembre 82.424 30,11% 107.244 19,28% 127.926 17,47% 150.279
Technology
gennaio 30.908 53,39% 47.411 10,52% 52.398 80,95% 94.815
febbraio 41.784 -11,63% 36.922 53,21% 56.569 27,19% 71.951
marzo 63.891 -15,05% 54.273 31,30% 71.263 34,46% 95.819
aprile 38.081 64,03% 62.464 8,01% 67.469 34,65% 90.849
maggio 58.728 43,65% 84.363 32,02% 111.372 -17,29% 92.114
giugno 69.194 42,86% 98.849 71,76% 169.780 -14,39% 145.351
luglio 44.245 29,73% 57.399 52,94% 87.784 13,22% 99.390
Data Source
ex_1
ex_2
ex_3
ex_3_crosstab
ex_4_crosstab
Sheet 5


Standard
Show Me
Data
Analytics
Global Superstore Return...
Orders (Global Superstor...
Search
Tables
Market
Order Date
Order ID
Order Priority
Postal Code
Product ID
Product Name
Region
Row ID
Segment
Ship Date
Ship Mode
State
Sub-Category
Disrtibution center
Measure Names
Orders
Discount
Profit
Quantity
Sales
Shipping Cost
Latitude (generated)
Longitude (generated)
Orders (Count)
Measure Values
Pages
Filters
Measure Names
Marks
Automatic
Color
Size
Text
Detail
Tooltip
Measure Values
Measure Values
SUM(Sales)
SUM(Sales)
Columns
YEAR(Order Date)
Measure Names
Rows
MONTH(Order Da..
Category
ex_4_crosstab
Order Date
2012
2013
2014
2015
Month of..
Category
% Differ..
Sales
gennaio
Furniture
34.464
24,08%
42.761
91,31%
81.805
-14,68%
69.799
Office Supplies
33.527
40,97%
47.264
37,49%
64.984
17,96%
76.654
Technology
30.908
53,39%
47.411
10,52%
52.398
80,95%
94.815
febbraio
Furniture
35.799
5,13%
37.635
57,08%
59.118
-2,39%
57.703
Office Supplies
26.135
-7,03%
24.297
112,17%
51.553
7,04%
55.184
Technology
41.784
-11,63%
36.922
53,21%
56.569
27,19%
71.951
marzo
Furniture
40.277
36,76%
55.082
18,59%
65.323
37,33%
89.705
Office Supplies
31.579
70,12%
53.721
15,43%
62.008
25,11%
77.576
Technology
63.891
-15,05%
54.273
31,30%
71.263
34,46%
95.819
aprile
Furniture
30.690
78,24%
54.702
-0,21%
54.587
29,24%
70.551
Office Supplies
45.563
-3,68%
43.886
27,07%
55.766
45,92%
81.372
Technology
38.081
64,03%
62.464
8,01%
67.469
34,65%
90.849
maggio
Furniture
49.769
26,46%
62.939
18,16%
74.371
32,19%
98.312
Office Supplies
49.731
22,79%
61.063
22,42%
74.756
31,06%
97.975
Technology
58.728
43,65%
84.363
32,02%
111.372
-17,29%
92.114
giugno
Furniture
76.585
6,39%
81.481
41,45%
115.251
18,11%
136.123
Office Supplies
61.793
22,74%
75.846
46,99%
111.489
7,94%
120.340
Technology
69.194
42,86%
98.849
71,76%
169.780
-14,39%
145.351
luglio
Furniture
31.383
32,21%
41.491
73,18%
71.854
14,60%
82.344
Office Supplies
42.807
8,27%
46.346
51,66%
70.291
9,50%
76.971
Technology
44.245
29,73%
57.399
52,94%
87.784
13,22%
99.390
agosto
Furniture
68.000
24,48%
84.644
32,67%
112.296
12,46%
126.284
Office Supplies
58.390
66,57%
97.260
-4,23%
93.150
66,86%
155.431
Technology
81.673
48,44%
121.239
-0,16%
121.043
44,50%
174.905
settembre
Furniture
93.934
2,38%
96.166
32,79%
127.701
37,65%
175.777
Office Supplies
99.987
-21,15%
78.844
40,48%
110.762
21,33%
134.387
Technology
90.667
26,15%
114.379
20,79%
138.157
23,77%
170.994
ottobre
Furniture
79.094
7,24%
84.824
5,30%
89.319
46,33%
130.701
Office Supplies
55.700
6,61%
59.383
30,33%
77.393
49,59%
115.771
Technology
81.320
33,71%
108.733
16,52%
126.695
39,15%
176.295
novembre
Furniture
96.558
24,57%
120.279
2,10%
122.803
37,50%
168.849
Month of Order Date: marzo
Category: Technology
Year of Order Date: 2015
Sales: 95.819
Data Source
ex_1
ex_2
ex_3
ex_3_crosstab
ex_4_crosstab
Sheet 5
288 marks
36 rows by 8 columns
SUM of Measure Values: 12.642.532
Jessica

Working with crosstabs

Now imagine that we want to analyze the **profit trend** on the Crosstab we just created.

➔ Swap the **MONTH** and **YEAR(Order Date)** pills so that the **YEAR** one is on the Columns and the **MONTH** one on the Rows;

Which of the two versions seems to make more sense to you?

Working with crosstabs

Now imagine that we want to analyze the **profit trend** on the Crosstab we just created.

➔ Swap the **MONTH** and **YEAR(Order Date)** pills so that the **YEAR** one is on the Columns and the **MONTH** one on the Rows;

➔ Put the **MONTH(Order Date)** pill before the **Category** one on the Rows shelf.

Remember we wanted to analyze a trend in profits.

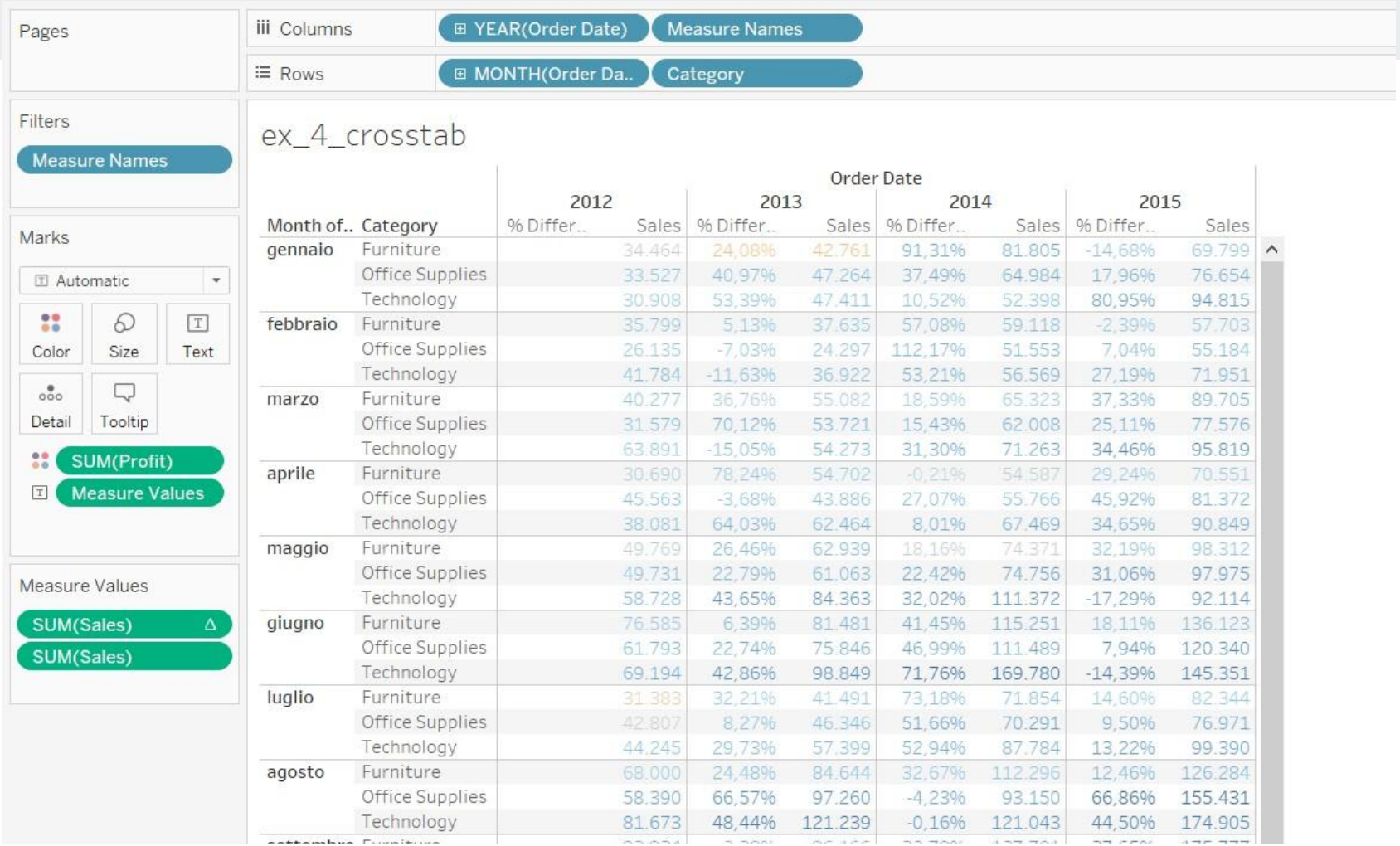
How can we do that? (spoiler: 🎨)

💡 Go back to Lecture 2 if you have any doubts on how to use colors in TP

Working with crosstabs

Now imagine that we want to analyze the **profit trend** on the Crosstab we just created.

- ➔ Swap the **MONTH** and **YEAR(Order Date)** pills so that the **YEAR** one is on the Columns and the **MONTH** one on the Rows;
- ➔ Put the **MONTH(Order Date)** pill before the **Category** one on the Rows shelf;
- ➔ Drag and drop the **Profit** field onto the Color shelf in the Marks Pane



ex_4_crosstab

		Order Date							
		2012		2013		2014		2015	
Month of..	Category	% Differ..	Sales	% Differ..	Sales	% Differ..	Sales	% Differ..	Sales
gennaio	Furniture		34.464	24,08%	42.761	91,31%	81.805	-14,68%	69.799
	Office Supplies		33.527	40,97%	47.264	37,49%	64.984	17,96%	76.654
	Technology		30.908	53,39%	47.411	10,52%	52.398	80,95%	94.815
febbraio	Furniture		35.799	5,13%	37.635	57,08%	59.118	-2,39%	57.703
	Office Supplies		26.135	-7,03%	24.297	112,17%	51.553	7,04%	55.184
	Technology		41.784	-11,63%	36.922	53,21%	56.569	27,19%	71.951
marzo	Furniture		40.277	36,76%	55.082	18,59%	65.323	37,33%	89.705
	Office Supplies		31.579	70,12%	53.721	15,43%	62.008	25,11%	77.576
	Technology		63.891	-15,05%	54.273	31,30%	71.263	34,46%	95.819
aprile	Furniture		30.690	78,24%	54.702	-0,21%	54.587	29,24%	70.551
	Office Supplies		45.563	-3,68%	43.886	27,07%	55.766	45,92%	81.372
	Technology		38.081	64,03%	62.464	8,01%	67.469	34,65%	90.849
maggio	Furniture		49.769	26,46%	62.939	18,16%	74.371	32,19%	98.312
	Office Supplies		49.731	22,79%	61.063	22,42%	74.756	31,06%	97.975
	Technology		58.728	43,65%	84.363	32,02%	111.372	-17,29%	92.114
giugno	Furniture		76.585	6,39%	81.481	41,45%	115.251	18,11%	136.123
	Office Supplies		61.793	22,74%	75.846	46,99%	111.489	7,94%	120.340
	Technology		69.194	42,86%	98.849	71,76%	169.780	-14,39%	145.351
luglio	Furniture		31.383	32,21%	41.491	73,18%	71.854	14,60%	82.344
	Office Supplies		42.807	8,27%	46.346	51,66%	70.291	9,50%	76.971
	Technology		44.245	29,73%	57.399	52,94%	87.784	13,22%	99.390
agosto	Furniture		68.000	24,48%	84.644	32,67%	112.296	12,46%	126.284
	Office Supplies		58.390	66,57%	97.260	-4,23%	93.150	66,86%	155.431
	Technology		81.673	48,44%	121.239	-0,16%	121.043	44,50%	174.905
settembre	Furniture								

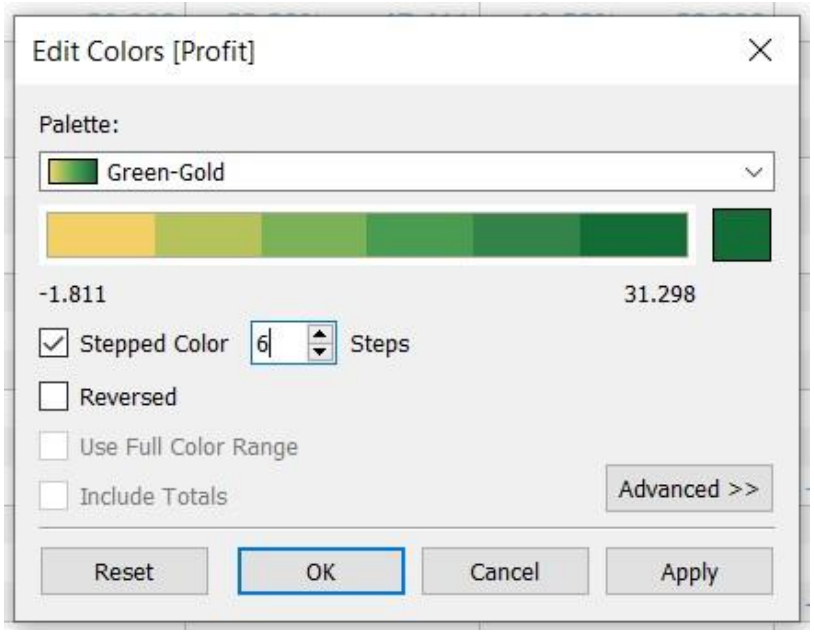
Working with crosstabs

Adding **Profit** to color gives us a clearer understanding of overall trends.

These colors are a bit pale, though, so let's edit how we display this. We'll click on ***Color>Edit Colors***.

Let's use:

- ➔ Green-gold palette
- ➔ Stepped color (6 steps)



		Order Date							
		2012		2013		2014		2015	
Month of..	Category	% Differ..	Sales	% Differ..	Sales	% Differ..	Sales	% Differ..	Sales
gennaio	Furniture		34.464	24,08%	42.761	91,31%	81.805	-14,68%	69.799
	Office Supplies		33.527	40,97%	47.264	37,49%	64.984	17,96%	76.654
	Technology		30.908	53,39%	47.411	10,52%	52.398	80,95%	94.815
febbraio	Furniture		35.799	5,13%	37.635	57,08%	59.118	-2,39%	57.703
	Office Supplies		26.135	-7,03%	24.297	112,17%	51.553	7,04%	55.184
	Technology		41.784	-11,63%	36.922	53,21%	56.569	27,19%	71.951
marzo	Furniture		40.277	36,76%	55.082	18,59%	65.323	37,33%	89.705
	Office Supplies		31.579	70,12%	53.721	15,43%	62.008	25,11%	77.576
	Technology		63.891	-15,05%	54.273	31,30%	71.263	34,46%	95.819
aprile	Furniture		30.690	78,24%	54.702	-0,21%	54.587	29,24%	70.551
	Office Supplies		45.563	-3,68%	43.886	27,07%	55.766	45,92%	81.372
	Technology		38.081	64,03%	62.464	8,01%	67.469	34,65%	90.849
maggio	Furniture		49.769	26,46%	62.939	18,16%	74.371	32,19%	98.312
	Office Supplies		49.731	22,79%	61.063	22,42%	74.756	31,06%	97.975
	Technology		58.728	43,65%	84.363	32,02%	111.372	-17,29%	92.114

Working with crosstabs

The colors in this table are much clearer, but we can achieve something more impactful.

How can we do that?

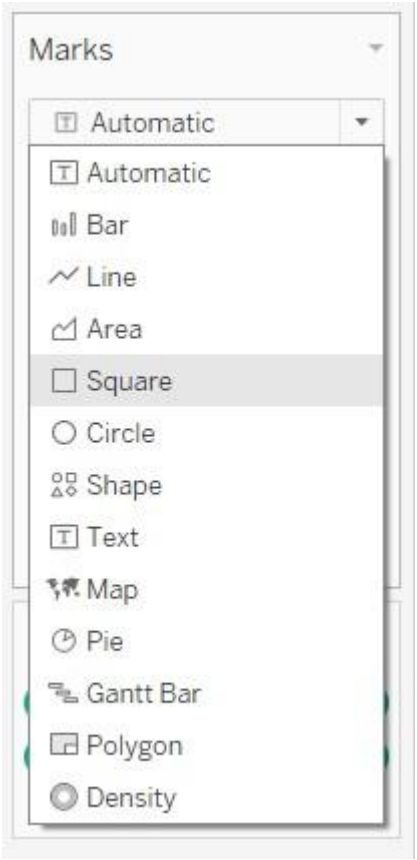
An easy way to do so would be to fill the cells in our table, instead of having the value displayed.

Working with crosstabs

The colors in this table are much clearer, but we can achieve something more impactful.

How can we do that?

➔ Change the mark type to square by clicking on the **Automatic** dropdown menu in the Marks Pane and select **Square**;



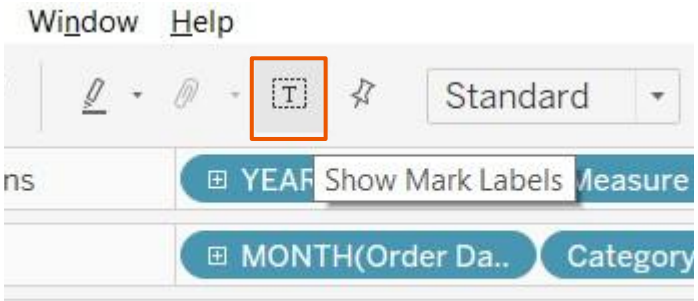
Working with crosstabs

The colors in this table are much clearer, but we can achieve something more impactful.

How can we do that?

- ➔ Change the mark type to square by clicking on the **Automatic** dropdown menu in the Marks Pane and select **Square**;

- ➔ Turn on mark labels by using the **Show Mark Labels** button on the toolbar.



ex_4_crosstab

		Order Date							
		2012		2013		2014		2015	
Month of..	Category	% Difference in ..	Sales	% Difference in ..	Sales	% Difference in ..	Sales	% Difference in ..	Sales
gennaio	Furniture		34.464	24,08%	42.761	91,31%	81.805	-14,68%	69.799
	Office Supplies		33.527	40,97%	47.264	37,49%	64.984	17,96%	76.654
	Technology		30.908	53,39%	47.411	10,52%	52.398	80,95%	94.815
febbraio	Furniture		35.799	5,13%	37.635	57,08%	59.118	-2,39%	57.703
	Office Supplies		26.135	-7,03%	24.297	112,17%	51.553	7,04%	55.184
	Technology		41.784	-11,63%	36.922	53,21%	56.569	27,19%	71.951
marzo	Furniture		40.277	36,76%	55.082	18,59%	65.323	37,33%	89.705
	Office Supplies		31.579	70,12%	53.721	15,43%	62.008	25,11%	77.576
	Technology		63.891	-15,05%	54.273	31,30%	71.263	34,46%	95.819
aprile	Furniture		30.690	78,24%	54.702	-0,21%	54.587	29,24%	70.551
	Office Supplies		45.563	-3,68%	43.886	27,07%	55.766	45,92%	81.372
	Technology		38.081	64,03%	62.464	8,01%	67.469	34,65%	90.849
maggio	Furniture		49.769	26,46%	62.939	18,16%	74.371	32,19%	98.312
	Office Supplies		49.731	22,79%	61.063	22,42%	74.756	31,06%	97.975
	Technology		58.728	43,65%	84.363	32,02%	111.372	-17,29%	92.114
giugno	Furniture		76.585	6,39%	81.481	41,45%	115.251	18,11%	136.123
	Office Supplies		61.793	22,74%	75.846	46,99%	111.489	7,94%	120.340
	Technology		69.194	42,86%	98.849	71,76%	169.780	-14,39%	145.351
luglio	Furniture		31.383	32,21%	41.491	73,18%	71.854	14,60%	82.344
	Office Supplies		42.807	8,27%	46.346	51,66%	70.291	9,50%	76.971
	Technology		44.245	29,73%	57.399	52,94%	87.784	13,22%	99.390
agosto	Furniture		68.000	24,48%	84.644	32,67%	112.296	12,46%	126.284
	Office Supplies		58.390	66,57%	97.260	-4,23%	93.150	66,86%	155.431
	Technology		81.673	48,44%	121.239	-0,16%	121.043	44,50%	174.905
settembre	Furniture		93.934	2,38%	96.166	32,79%	127.701	37,65%	175.777
	Office Supplies		99.987	-21,15%	78.844	40,48%	110.762	21,33%	134.387
	Technology		90.667	26,15%	114.379	20,79%	138.157	23,77%	170.994
ottobre	Furniture		79.094	7,24%	84.824	5,30%	89.319	46,33%	130.701
	Office Supplies		55.700	6,61%	59.383	30,33%	77.393	49,59%	115.771
	Technology		81.320	33,71%	108.733	16,52%	126.695	39,15%	176.295
novembre	Furniture		96.558	24,57%	120.279	2,10%	122.803	37,50%	168.849

Dynamic highlighting

What we have here is a comprehensive outlook of profits throughout the years and months in our dataset.

Suppose we want to compare the trends within the same **Category** without modifying the current view.

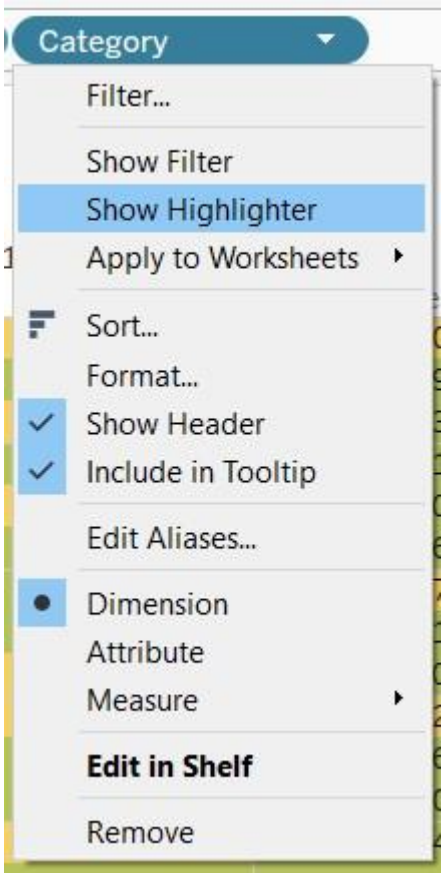
How do we do that?

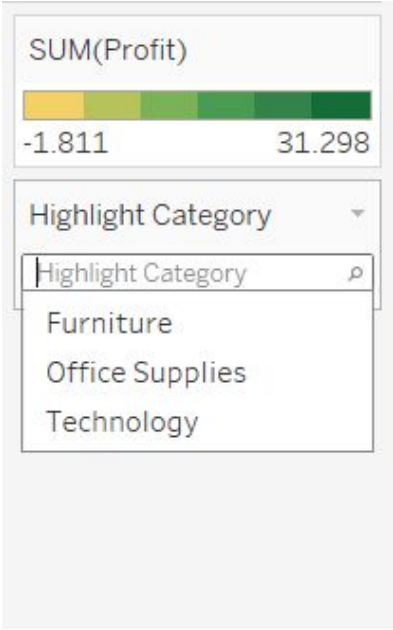
Dynamic highlighting

Go over to the Column shelf, open the dropdown menu on the **Category** pill and click on **Show Highlighter**.

A small window (**Highlight Category**) will pop up on the rightmost side of the view displaying a filter.

Now hovering over the categories in the **Highlight Category** box can be a quick way of assessing profits and comparing them category-by-category.






Pages
Columns
YEAR(Order Date)
Measure Names
Rows
MONTH(Order Da..
Category
Filters
Measure Names
Marks
Square
Color
Size
Label
Detail
Tooltip
SUM(Profit)
Measure Values
Measure Values
SUM(Sales)
SUM(Sales)
ex_4_crosstab
Order Date
2012
2013
2014
2015
Month of..
Category
% Difference in ..
Sales
gennaio Furniture 34.464 24,08% 42.761 91,31% 81.805 -14,68% 69.799
Office Supplies 33.527 40,97% 47.264 37,49% 64.984 17,96% 76.654
Technology 30.908 53,39% 47.411 10,52% 52.398 80,95% 94.815
febbraio Furniture 35.799 5,13% 37.635 57,08% 59.118 -2,39% 57.703
Office Supplies 26.135 -7,03% 24.297 112,17% 51.553 7,04% 55.184
Technology 41.784 -11,63% 36.922 53,21% 56.569 27,19% 71.951
marzo Furniture 40.277 36,76% 55.082 18,59% 65.323 37,33% 89.705
Office Supplies 31.579 70,12% 53.721 15,43% 62.008 25,11% 77.576
Technology 63.891 -15,05% 54.273 31,30% 71.263 34,46% 95.819
aprile Furniture 30.690 78,24% 54.702 -0,21% 54.587 29,24% 70.551
Office Supplies 45.563 -3,68% 43.886 27,07% 55.766 45,92% 81.372
Technology 38.081 64,03% 62.464 8,01% 67.469 34,65% 90.849
maggio Furniture 49.769 26,46% 62.939 18,16% 74.371 32,19% 98.312
Office Supplies 49.731 22,79% 61.063 22,42% 74.756 31,06% 97.975
Technology 58.728 43,65% 84.363 32,02% 111.372 -17,29% 92.114
giugno Furniture 76.585 6,39% 81.481 41,45% 115.251 18,11% 136.123
Office Supplies 61.793 22,74% 75.846 46,99% 111.489 7,94% 120.340
Technology 69.194 42,86% 98.849 71,76% 169.780 -14,39% 145.351
luglio Furniture 31.383 32,21% 41.491 73,18% 71.854 14,60% 82.344
Office Supplies 42.807 8,27% 46.346 51,66% 70.291 9,50% 76.971
Technology 44.245 29,73% 57.399 52,94% 87.784 13,22% 99.390
agosto Furniture 68.000 24,48% 84.644 32,67% 112.296 12,46% 126.284
Office Supplies 58.390 66,57% 97.260 -4,23% 93.150 66,86% 155.431
Technology 81.673 48,44% 121.239 -0,16% 121.043 44,50% 174.905
settembre Furniture 93.934 2,38% 96.166 32,79% 127.701 37,65% 175.777
Office Supplies 99.987 -21,15% 78.844 40,48% 110.762 21,33% 134.387
Technology 90.667 26,15% 114.379 20,79% 138.157 23,77% 170.994
ottobre Furniture 79.094 7,24% 84.824 5,30% 89.319 46,33% 130.701
Office Supplies 55.700 6,61% 59.383 30,33% 77.393 49,59% 115.771
Technology 81.320 33,71% 108.733 16,52% 126.695 39,15% 176.295
novembre Furniture 96.558 24,57% 120.279 2,10% 122.803 37,50% 168.849
SUM(Profit)
-1.811
31.298
Highlight Category
Highlight Category

A point on data

Why is dynamic highlighting useful?

Remember that we noticed some sort of sales seasonality in the previous charts, so now we are interested in understanding whether different categories lead to different profits in different times of the year.

If you only consider one year, let's say 2015, and hover over the categories in the **Highlight Category** pane, you can clearly compare sales and profits in different months and categories.

💡 Remember that:

- ➔ Color denotes **Profits**
- ➔ Numbers denote **Sales**

Month of..	Category	2015 % Difference in ..	2015 Sales
febbraio	Technology	27,19%	71.951
marzo	Furniture	37,33%	89.705
	Office Supplies	25,11%	77.576
	Technology	34,46%	95.819
aprile	Furniture	29,24%	70.551
	Office Supplies	45,92%	81.372
	Technology	34,65%	90.849
maggio	Furniture	32,19%	98.312
	Office Supplies	31,06%	97.975
	Technology	-17,29%	92.114
giugno	Furniture	18,11%	136.123
	Office Supplies	7,94%	120.340
	Technology	-14,39%	145.351
luglio	Furniture	14,60%	82.344
	Office Supplies	9,50%	76.971
	Technology	13,22%	99.390
agosto	Furniture	12,46%	126.284
	Office Supplies	66,86%	155.431
	Technology	44,50%	174.905
settembre	Furniture	37,65%	175.777
	Office Supplies	21,33%	134.387
	Technology	23,77%	170.994
ottobre	Furniture	46,33%	130.701
	Office Supplies	49,59%	115.771
	Technology	39,15%	176.295
novembre	Furniture	37,50%	168.849
	Office Supplies	47,97%	163.851
	Technology	58,47%	222.579
dicembre	Furniture	19,95%	171.768
	Office Supplies	17,47%	150.279
	Technology	34,82%	181.097

Furniture

2015 % Difference in ..	2015 Sales
27,19%	71.951
37,33%	89.705
25,11%	77.576
34,46%	95.819
29,24%	70.551
45,92%	81.372
34,65%	90.849
32,19%	98.312
31,06%	97.975
-17,29%	92.114
18,11%	136.123
7,94%	120.340
-14,39%	145.351
14,60%	82.344
9,50%	76.971
13,22%	99.390
12,46%	126.284
66,86%	155.431
44,50%	174.905
37,65%	175.777
21,33%	134.387
23,77%	170.994
46,33%	130.701
49,59%	115.771
39,15%	176.295
37,50%	168.849
47,97%	163.851
58,47%	222.579
19,95%	171.768
17,47%	150.279
34,82%	181.097

Office supplies

2015 % Difference in ..	2015 Sales
27,19%	71.951
37,33%	89.705
25,11%	77.576
34,46%	95.819
29,24%	70.551
45,92%	81.372
34,65%	90.849
32,19%	98.312
31,06%	97.975
-17,29%	92.114
18,11%	136.123
7,94%	120.340
-14,39%	145.351
14,60%	82.344
9,50%	76.971
13,22%	99.390
12,46%	126.284
66,86%	155.431
44,50%	174.905
37,65%	175.777
21,33%	134.387
23,77%	170.994
46,33%	130.701
49,59%	115.771
39,15%	176.295
37,50%	168.849
47,97%	163.851
58,47%	222.579
19,95%	171.768
17,47%	150.279
34,82%	181.097

Technology

The Show me tool

Know what you want, don't know how to do it

Now that we have explored all the data about profits and we have noticed that furniture profits are apparently bad during fall, we can start to make hypotheses about the reason why this happened.

For example, we may wonder ***is this happening across all stores?***. We can therefore analyze this phenomenon from many perspectives, one of which is regionality.

➔ **How can we do that? (hint: 🗺️)**

Know what you want, don't know how to do it

Now that we have explored all the data about profits and we have noticed that furniture profits are apparently bad during fall, we can start to make hypotheses about the reason why this happened.

For example, we may wonder ***is this happening across all stores?***. We can therefore analyze this phenomenon from many perspectives, one of which is regionality.

➔ **How can we do that? (hint: 🗺️)**

Feel lost? *I feel you* 😪

The Show Me tool

TP provides you with a one-click option to identify a proper chart type for your data. It comes on handy when you know what you want to do but you don't know how to do it.

The **Show Me** on the rightmost part of the screen contains a list of common chart types that can help you start your analysis.

💡 The chart suggestions in Show Me are not necessarily the best ones, still they represent a great starting point

The Show Me tool

Which dimensions and measures do we need in order to visualize sales regionality? 🤔

The Show Me tool

Which dimensions and measures do we need in order to visualize sales regionality? 🤔

- ➔ **Sales;**
- ➔ **Country.**

Hold the **Ctrl** button on your keyboard and select the two data fields in the Data Pane.

You will see that the Show Me tab is populated with chart types to choose among.
We will pick **symbol maps** to start off.

Pages

Columns: Longitude (generate..

Rows: Latitude (generated)

Filters

Marks

Automatic

Color | Size | Label

Detail | Tooltip

Country

SUM(Sales)

ex_5

SUM(Sales)

20
500.000
1.000.000
1.500.000
2.000.000
2.297.201

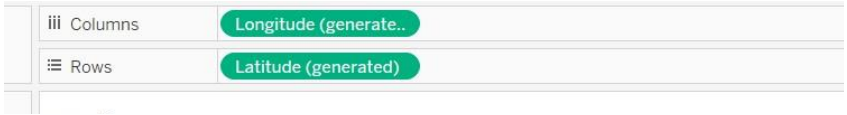
Symbol maps

Symbol maps are fully customizable; we will perform the following operations:

- ➔ Refine the visualization with additional dimensions;
- ➔ Adjust dot size;
- ➔ Adjust transparency;
- ➔ Adjust borders;
- ➔ Change color palette.

Symbol maps

Before we start, have a look at the Rows/Columns shelves.



Notice that neither the **Longitude** nor the **Latitude** measures are present in the dataset. TP automatically creates them based on:

- ➔ Measures/dimensions you select;
- ➔ Type of chart you choose.

Symbol maps

Refine the visualization with additional dimensions:

What does the symbol map show? What is the chart representing?

- ➔ It shows **Sales** in each country over a global map;
- ➔ The size of the dots represents the **total amount of sales**, bigger dots simply mean higher sales.

We know that we have much more precise information on the origin of sales than the **Country**. For example, we know the **State** and the **City** in which they were made.

Let's start with the **State** data field; drag and drop in onto the canvas!

Pages

Columns | Longitude (generate..

Rows | Latitude (generated)

Filters

Marks

Automatic

Color | Size | Label

Detail | Tooltip

Country

SUM(Sales)

ex_5

SUM(Sales)

20

500.000

1.000.000

1.500.000

2.000.000

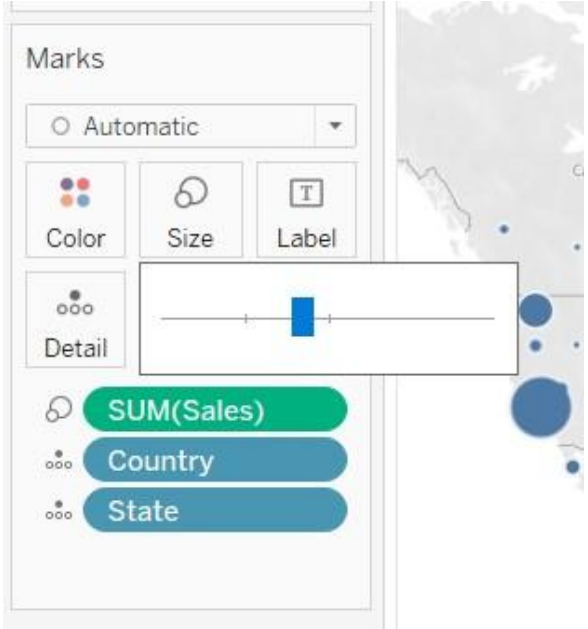
2.297.201

Symbol maps

Adjust dot size:

Increasing the size is useful when you want to display quantities that are really small in a dataset with huge variance in data or datasets in which the highest and the lowest values belong to different orders of magnitude.

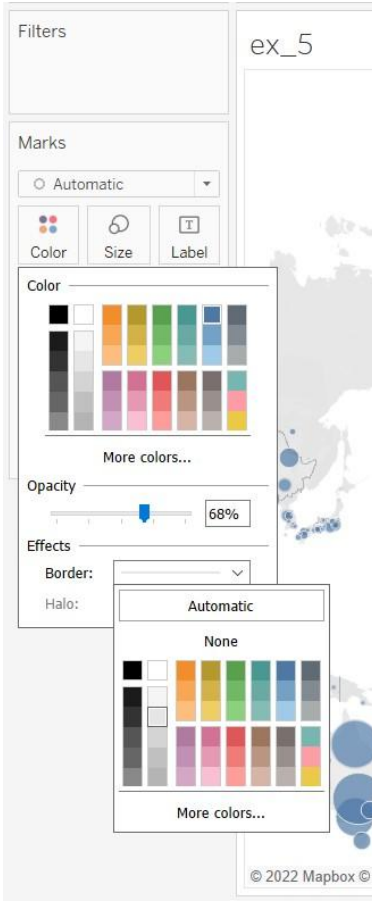
To increase the dot size, head over to the **Size** shelf in the Marks pane and use the slider to set the proper size for your dots.



Symbol maps

Adjust transparency, add borders:

Move to the **Color** shelf in the Marks Pane and adjust dot opacity (or transparency) and add some border to the dots so that they stand out better in the overall visualization.



Symbol maps

Change color palette:

Now, let’s bring back the **Profits** measure.

How can we do that?

Symbol maps

Change color palette:

Now, let's bring back the **Profits** measure.

How can we do that?

Similar to what we did earlier, we can use color. In this case:

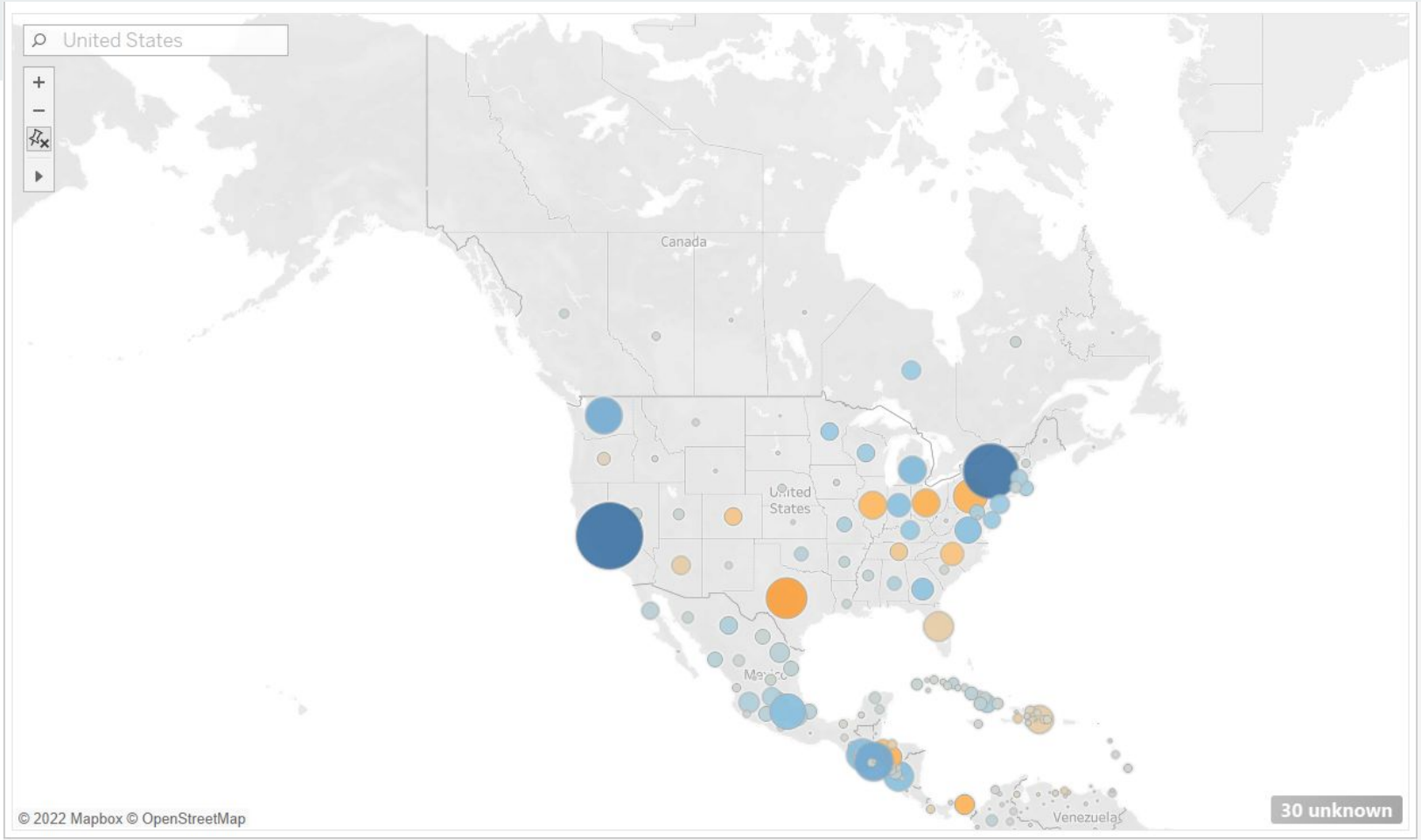
- ➔ The color will denote the sum of **Profits** in each State;
- ➔ The size of the dot will represent the total **Sales** in each State.

Let's drag and drop the **Profit** field onto the **Color** shelf in the Marks Pane.

Custom territories

Maps on Tableau have some tools that allow you to interact with them during data analysis.

The **Search tool**, for example, allows you to perform geographic search, by simply typing the name of the State or city that you want to look for (whether they are present in the dataset or not). TP will zoom in to highlight the area you searched for.



💡 To zoom out click on the pin (📌) followed by an ❌ on the toolbar that floats over the map in the canvas

Custom territories

Now imagine that we are a big company and we have just witnessed a dip in sales in July; we may want to investigate the reasons behind this dip in sales and we have two hypotheses:

- ➔ The fall in sales is due to our actions as a company;
- ➔ The fall in sales is due to seasonality.

We know from previous analyses that seasonality is a factor that impacts on our sales and profits.

How can we use the symbol map to test whether there is a seasonality effect in sales?

Custom territories

We might want to divide the globe, thus the data, by hemispheres, but we do not have this in our dataset.

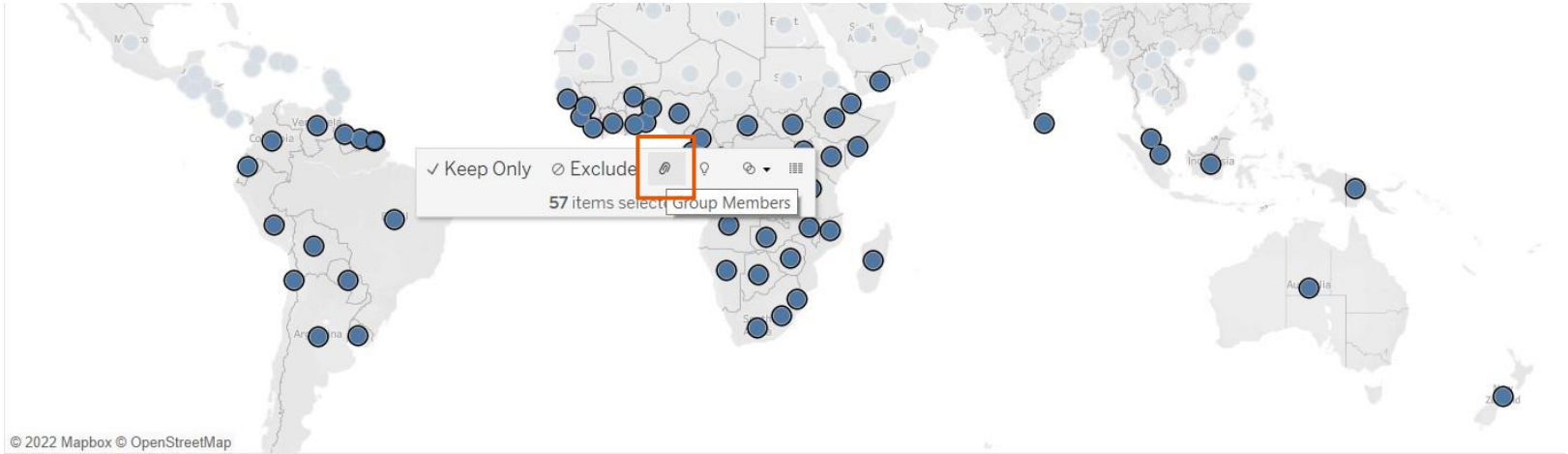
We can use the **Lasso Selection tool** to select data directly on the map and create a new group of data. It will be a rough division of data, but it can give you useful insights on your data.

Remove everything from the Marks pane except for the **Country** dimension to make the view clearear.

💡 If you are familiar with Photoshop, the lasso tool works exactly the same

Custom territories

Drag the Lasso tool over the southern region of the map and create a new group of data by clicking on the paper clip 📎 icon on the tooltip.



Custom territories

Drag the Lasso tool over the southern region of the map and create a new group of data by clicking on the paper clip 📎 icon on the tooltip.

A new data field (**Country (group)**) will appear in the Data pane.

The new data field is automatically added to the **Color** shelf in the Marks pane.

Filters

Marks

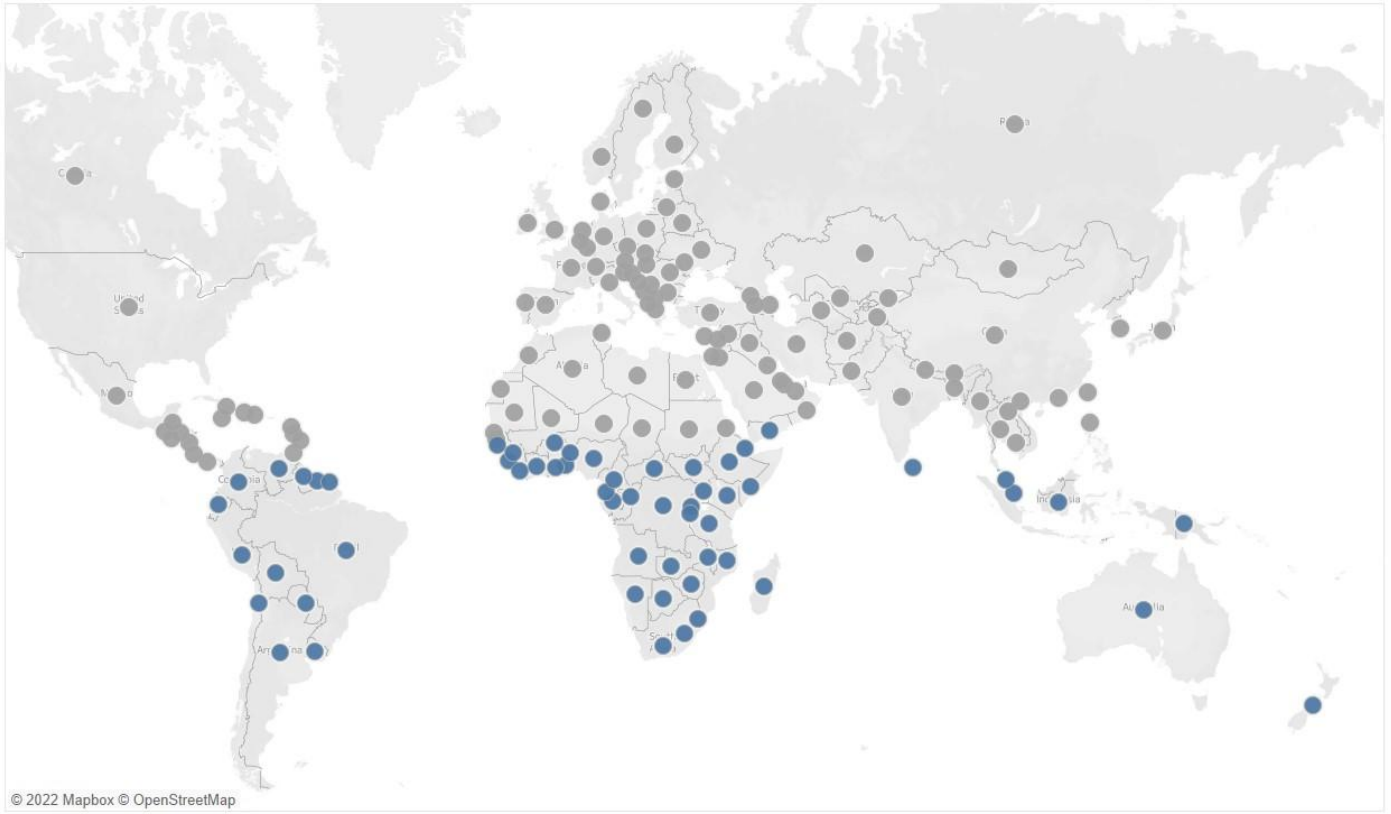
Automatic

Color | Size | Label | Detail | Tooltip

Country

Country (group)

ex_6



Country (group)

Angola, Argentina, Au..

Other

Working with filters

We have just isolated data about **Sales** and **Profits** in the southern hemisphere, we can compare the sales seasonality chart we have done before to an equivalent chart with our new data.

Let's duplicate the sales seasonality chart sheet and drag and drop the **Country (group)** data field onto the columns shelf (before **MONTH(Order date)**)

Pages

Columns: Country (group) | MONTH(Order Da..

Rows: Category | SUM(Sales)

Filters

Marks

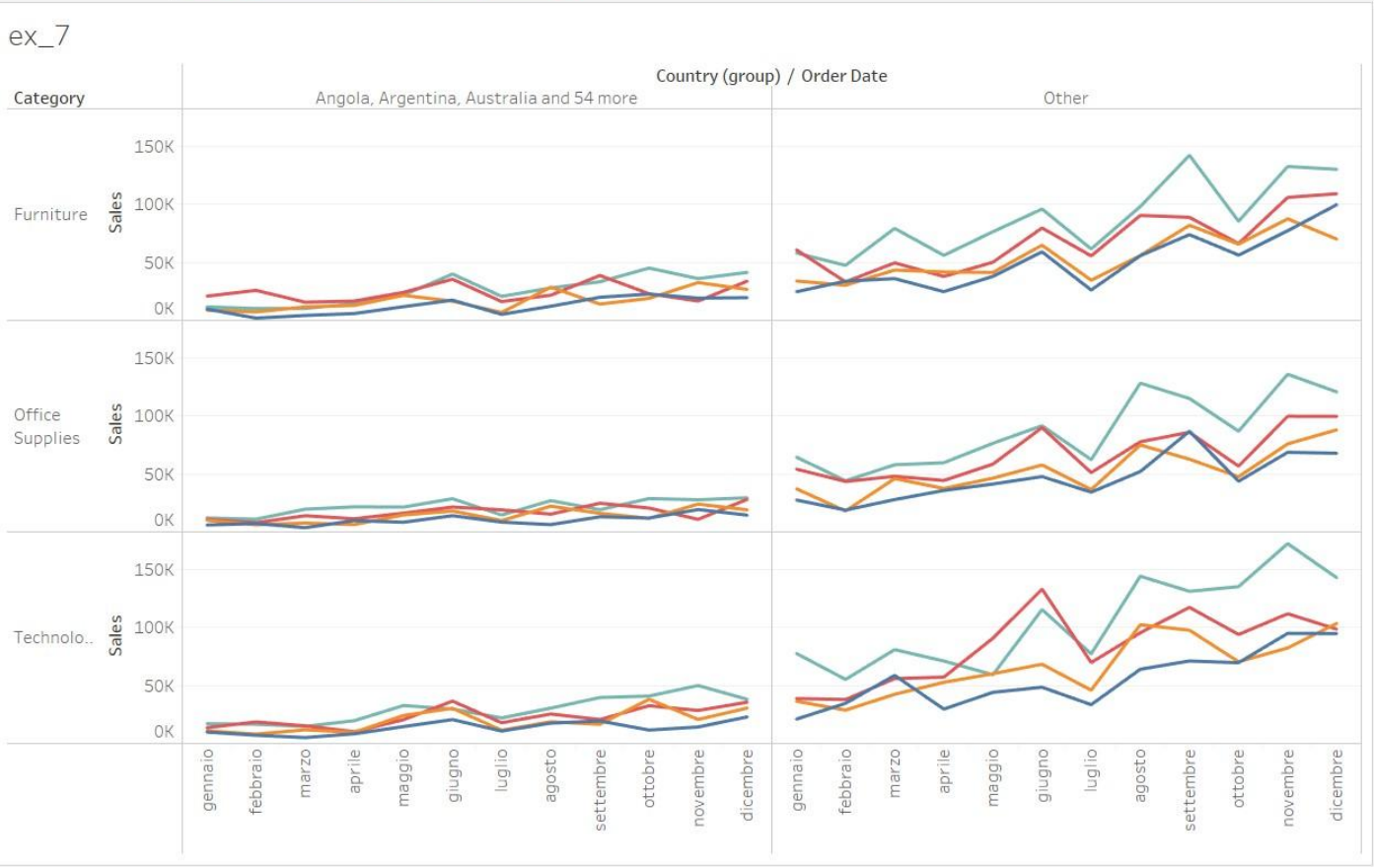
Automatic

Color | Size | Label

Detail | Tooltip | Path

YEAR(Order ..

SUM(Sales)



YEAR(Order Date)

2012

2013

2014

2015

Working with filters

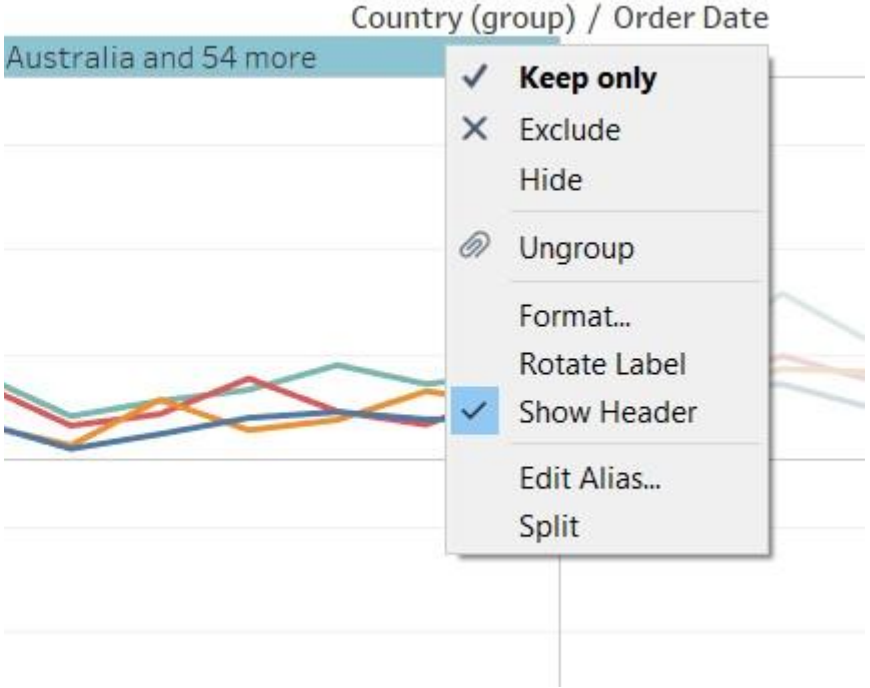
What can we conclude about the seasonality effect from the chart we just created? Is the sales seasonality hypothesis true?

Working with filters

What can we conclude about the seasonality effect from the chart we just created? Is the sales seasonality hypothesis true?

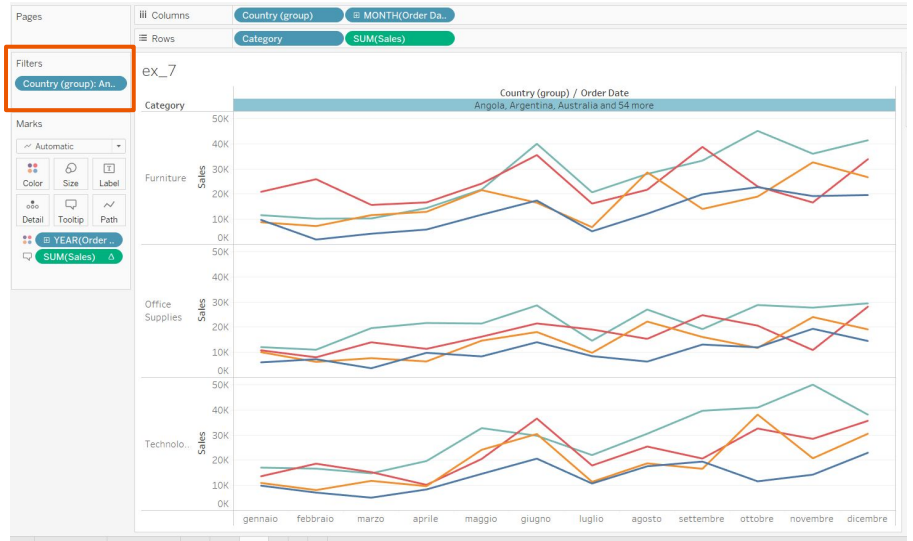
Actually we don't know yet …

If we want to see how sales go only in the southern hemisphere, we can right click on the new group column title, and select **Keep only** from the dropdown menu.



Working with filters

Notice that when you choose to **Keep only** one dimension/measure on either Row or Column shelves, the dimension on which you operate (which is **Country (group)** in this case) appears on the **Filters** shelf above the Mark pane.



Working with filters

What can we conclude about the seasonality effect from the chart we just created? Is the sales seasonality hypothesis true?

Actually, *no*, the sales seasonality effect doesn't seem to hold in this case.

Why?

Pages

Columns: Country (group) | MONTH(Order Da..

Rows: Category | SUM(Sales)

Filters

Country (group): An..

Marks

Automatic

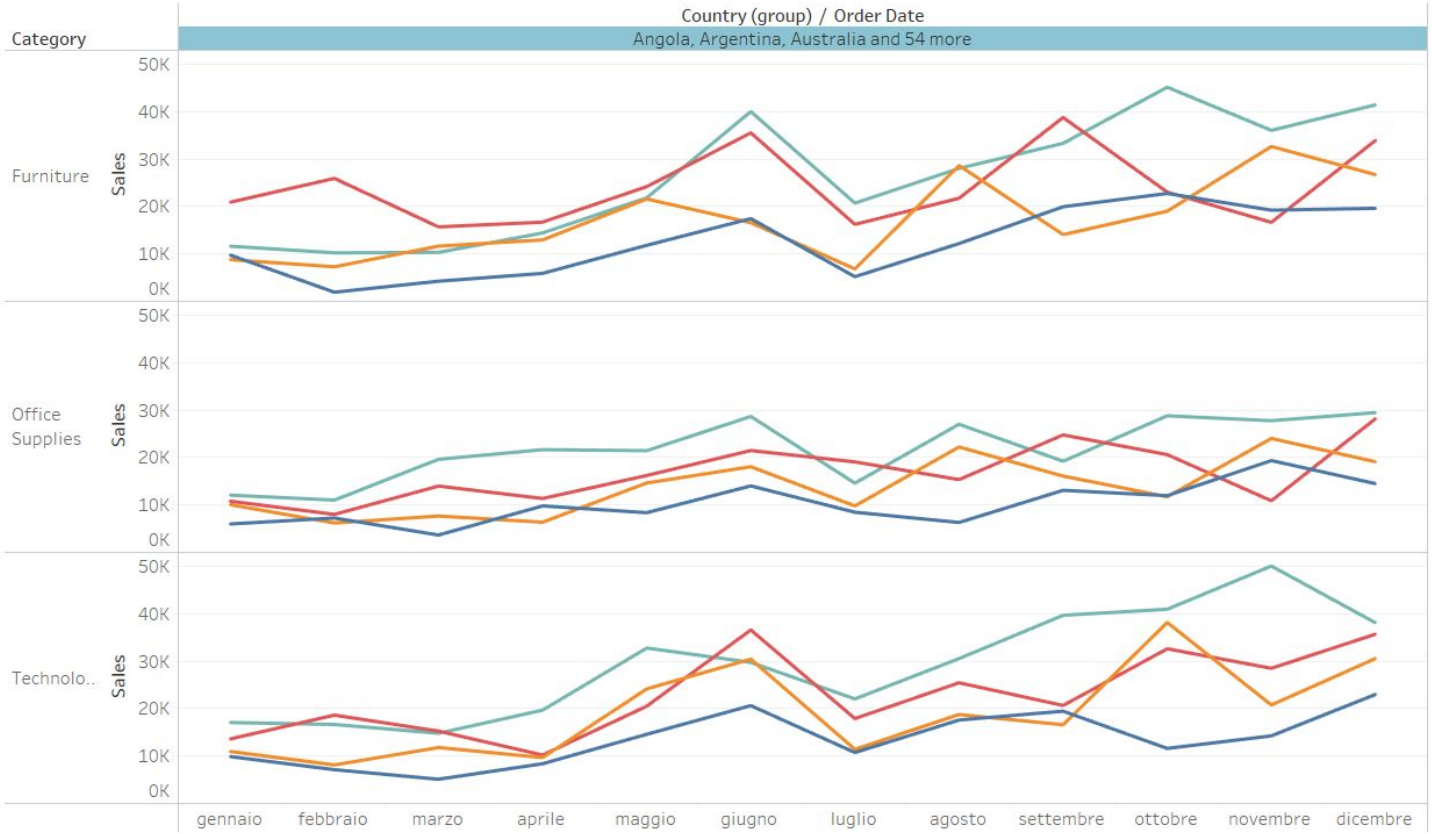
Color | Size | Label

Detail | Tooltip | Path

YEAR(Order ..

SUM(Sales)

ex_7



Working with filters

Now, remember the initial hypotheses in our analysis?

- ➔ The fall in sales is due to our actions as a company;
- ➔ ~~The fall in sales is due to seasonality.~~

Also, we had concluded that *Furniture* was the worst performing category in terms of profits.

Now, we want to see how *Furniture* sales and profits go over the entire globe on the symbol map we created before.

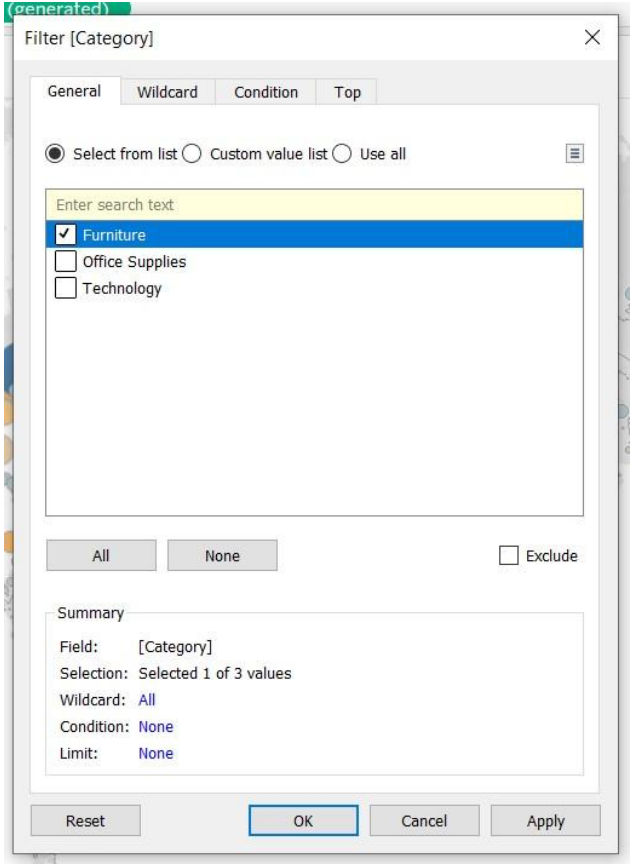
How can we do that? (hint: look at the slide title)

Working with filters

We need to:

- ➔ Duplicate the symbol map without hemisphere subdivision;
- ➔ Add **Category** to the **Filters** shelf;
- ➔ Select *Furniture* in the popup window.

💡 You can play around with all the Filter options in this window



Filters

Category: Furniture

Marks

Automatic

Color | Size | Label

Detail | Tooltip

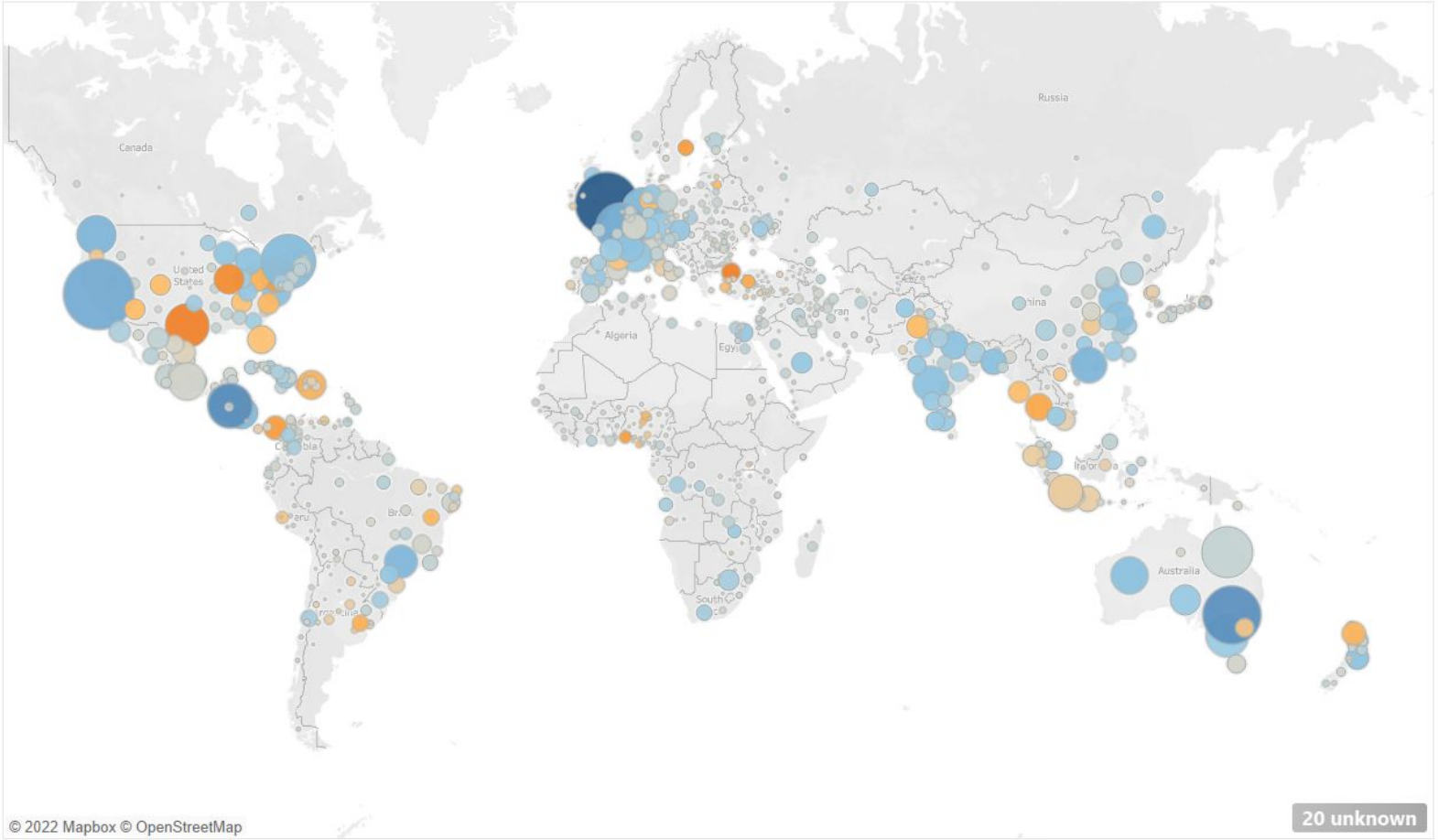
SUM(Profit)

SUM(Sales)

Country

State

ex_8



Working with filters

The resulting chart is not very different from the previous; you'll notice that:

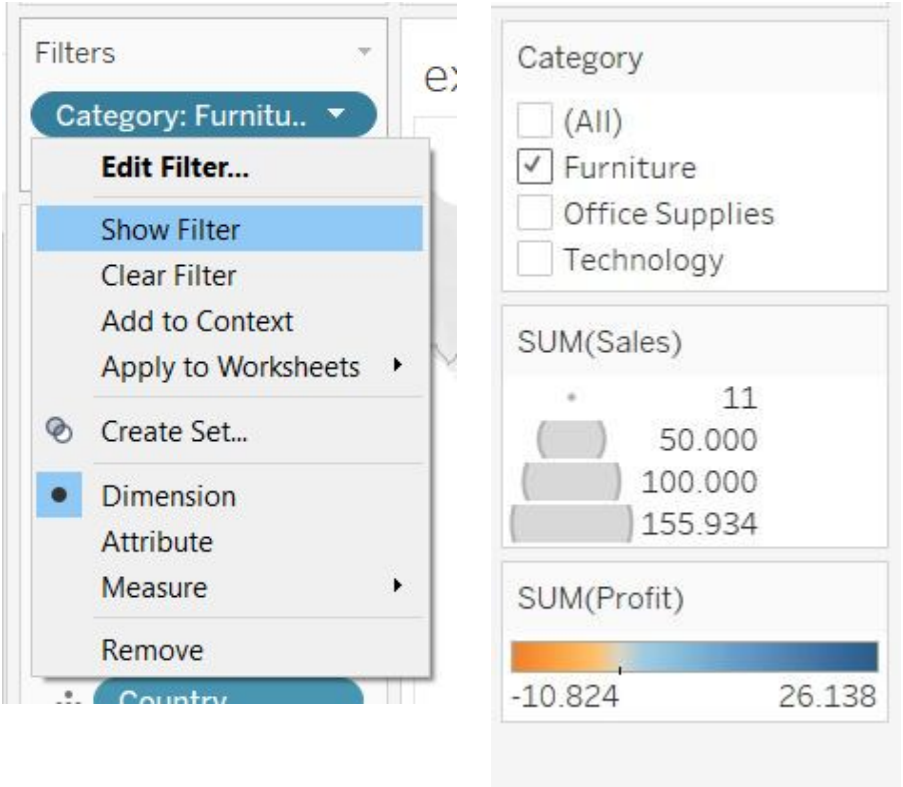
- ➔ The colors of the dots have slightly changed to adapt to the *Furniture* **profits**;
- ➔ The size of the dots has slightly changed to adapt to the *Furniture* **sales**.

💡 Notice that if you add continuous numerical measures (e.g. **Sales**) to the Filters pane, you will also be able to dynamically select the range of data to display

Working with filters

Filters in TP are not static; in fact, you can manipulate your filters by simply **right clicking** onto the **Category: Furniture** pill in the **Filters** pane and select **Show Filter**.

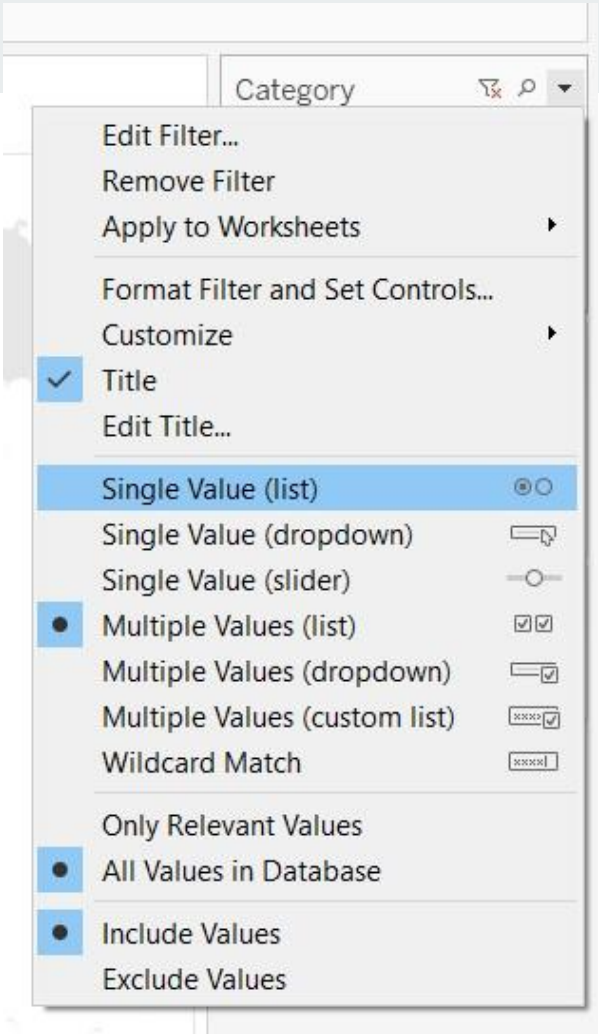
A new pane will appear on the right of your canvas, showing the dynamic **Category** filter.



Working with filters

You can edit the type of filter to show; the default setting is **Multiple Values (list)**, which allows you to choose to display a either a single category at a time or a combination of categories together.

Change the filter type to **Single Value (list)**, which enables you to either display one category at a time or all the categories aggregated.



15 minute break

Answer the Wooclap when you come back:

👋 **Wooclap here!**

Up next:

- ➔ 10 minutes to answer the Wooclap
- ➔ Lessons learned and recap
- ➔ 15-minute Q&A at the end of the lesson

Play around with what we've seen today with different data sources (or start working on your projects)

Additional free data sources are available 🔗 here

Recap and lessons learned

Recap

- Working with crosstabs:
  - Table formatting;
  - Dynamic highlighting.
- Show me tool;
- Symbol maps:
  - Customization;
  - Data grouping
  - Filtering.

Takeaway

Link to the solution workbook for the lesson: 🔗 TBD