Statistics using Excel
&
Data Visualization using Tableau

This is Book 3

Index of Book 3

Module	Topic
1	Installation & Introduction to UI of Tableau
2	Sorting & Grouping
3	Understanding different Filtering Options
4	Logical & Rank functions
5	Introduction to Charts
6	Introduction to Dashboards & Story Board
7	Case Study

also download

https://drive.google.com/open?id=1N5Vf6YJPz_d9qVv5WCY92NQxEqjhVOzV

Module 1: Installation & Introduction to UI of Tableau

Tableau is **business intelligence software** that helps people see and understand their data.

Fast Analytics

Connect and visualize your data in minutes. Tableau is 10 to 100x faster than existing solutions.

Ease of Use

Anyone can analyze data with intuitive drag & drop products. No programming, just insight.

Big Data, Any Data

From spreadsheets to databases to Hadoop to cloud services, explore any data.

Smart Dashboards

Combine multiple views of data to get richer insight. Best practices of data visualization are baked right in.

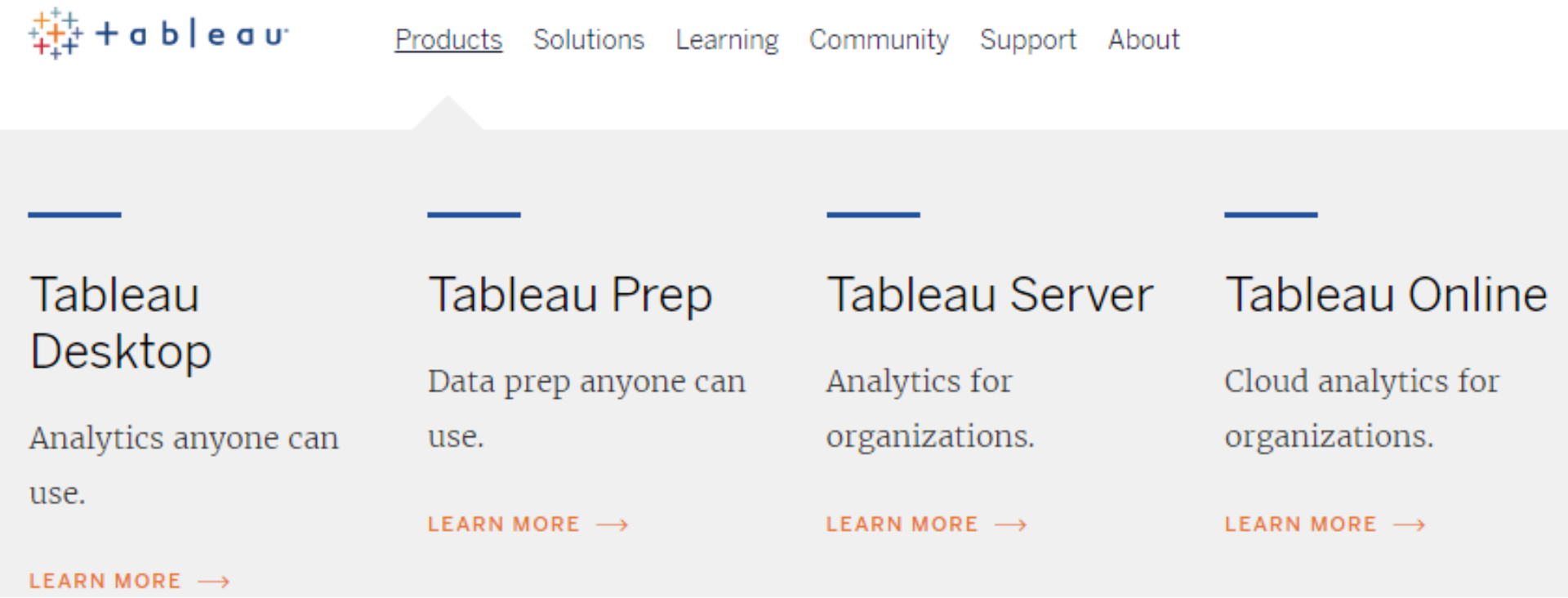
Update Automatically

Get the freshest data with a live connection to your data or get automatic updates on a schedule you define.

Share in Seconds

Publish a dashboard with a few clicks to share it live on the web and on mobile devices.

Tableau is **paid BI tool,** with a 14 day free trail on all the below products.



For Students & Bloggers use **Tableau Public, download from :**

https://public.tableau.com/s/

Its always free, although with limited functionalities.

Tableau : Quick Intro :

- ✓ Tableau is a Business Intelligence tool for **visually analyzing the data**.
- ✓ Users can create and distribute an interactive and shareable dashboard, which depict the trends, variations, and density of the data in the form of graphs and charts.
- ✓ Tableau can connect to files, relational and Big Data sources to acquire and process data. The software allows data blending and real-time collaboration, which makes it very unique.
- ✓ It is used by businesses, academic researchers, and many government organizations for visual data analysis.
- ✓ **It is also positioned as a leader Business Intelligence and Analytics Platform in Gartner Magic Quadrant.**

Get Started

There are three basic steps involved in creating any Tableau data analysis report.

These three steps are -

1. **Connect to a data source** - It involves locating the data and using an appropriate type of connection to read the data.

2. **Choose dimensions and measures** - This involves selecting the required columns from the source data for analysis.

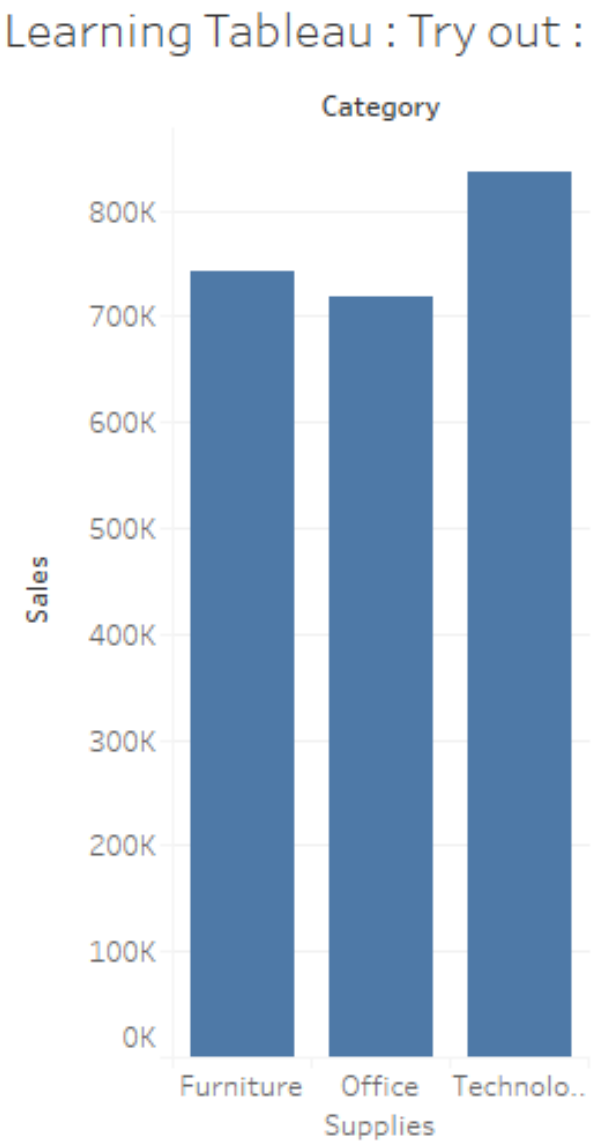
3. **Apply visualization technique** - This involves applying required visualization methods, such as a specific chart or graph type to the data being analyzed.

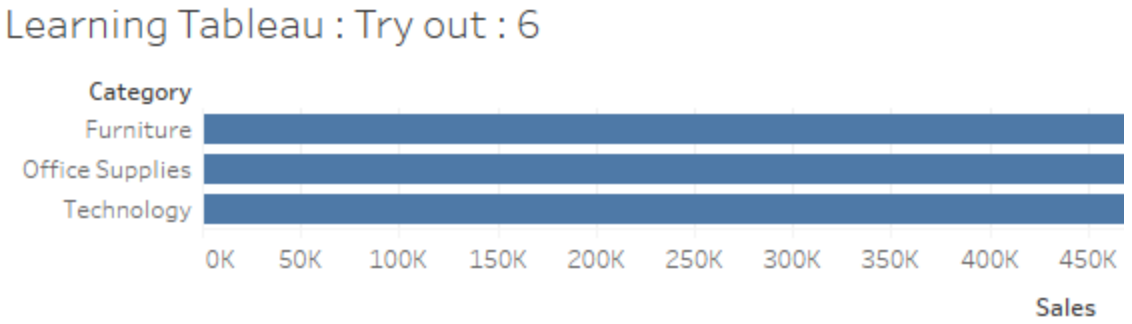
The only way to learn a BI tool like Tableau is to try-out different options , functionalities and capabilities. This can be done by solving simple problems. **Download from the given link "tableau try-outs.txt".**
(https://drive.google.com/open?id=1N5Vf6YJPz_d9qVv5WCY92NQxEqjhVOzV **)**

Related to the try-outs , screen-shots of the expected outputs for certain problems have been put into this e-book.

This e-book also contains minimal and necessary theory.

Try out : 6


Learning Tableau : Try out : 6
Category
800K
700K
600K
500K
400K
300K
200K
100K
0K
Sales
Furniture
Office Supplies
Technolo..

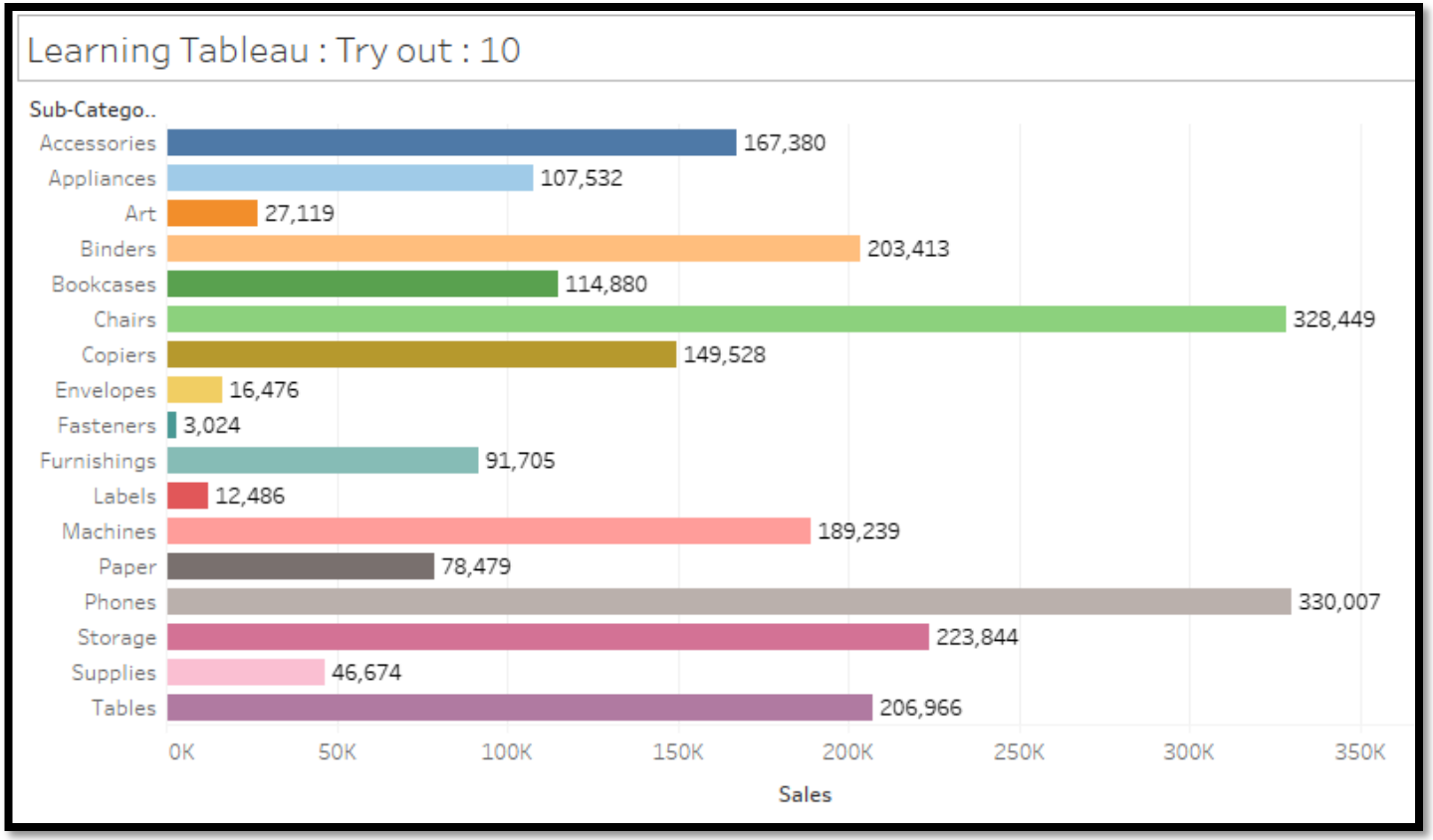

Learning Tableau : Try out : 6
Category
Furniture
Office Supplies
Technology
0K
50K
100K
150K
200K
250K
300K
350K
400K
450K
Sales

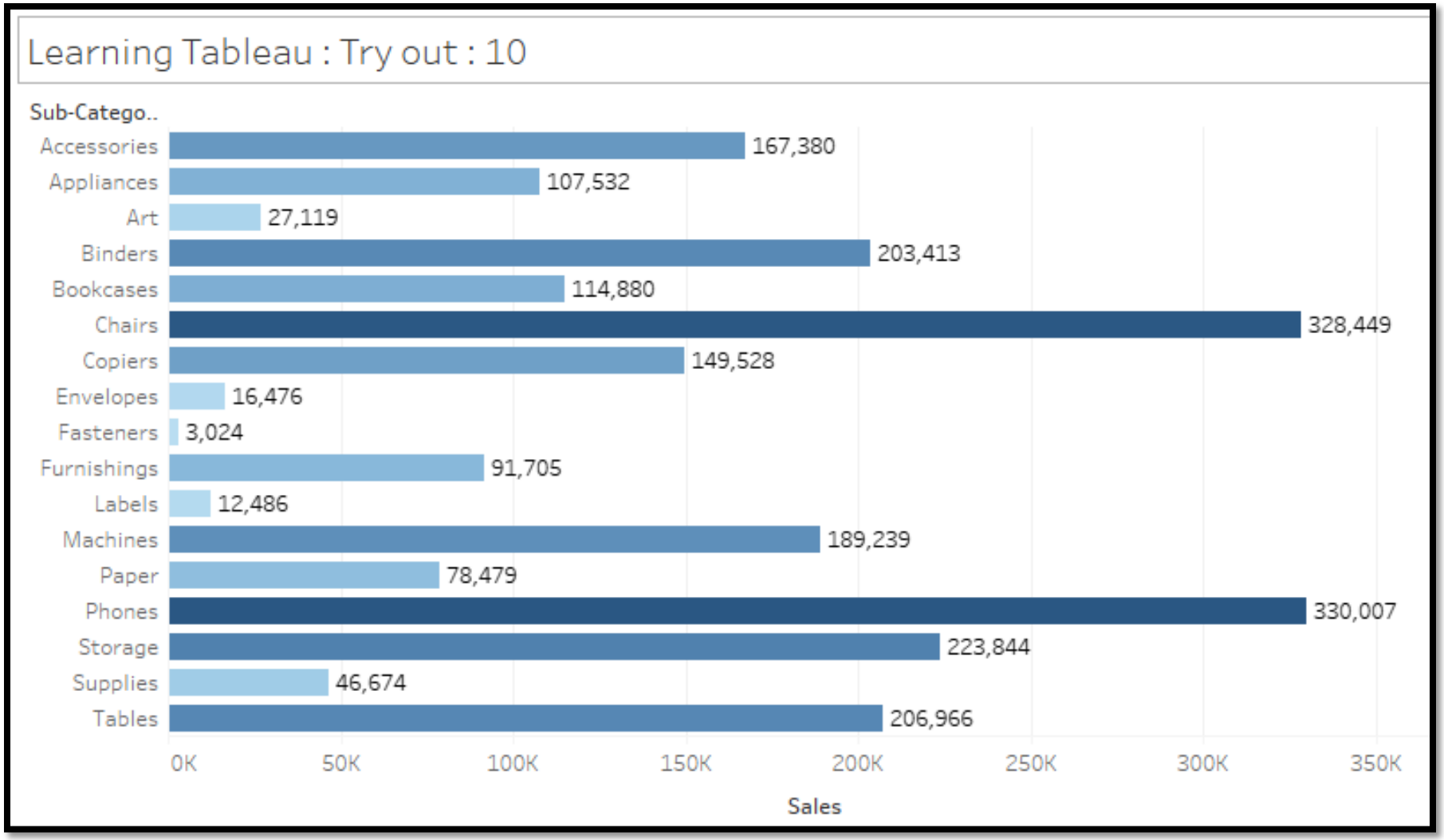
Try out : 7 : adding some caption

Caption

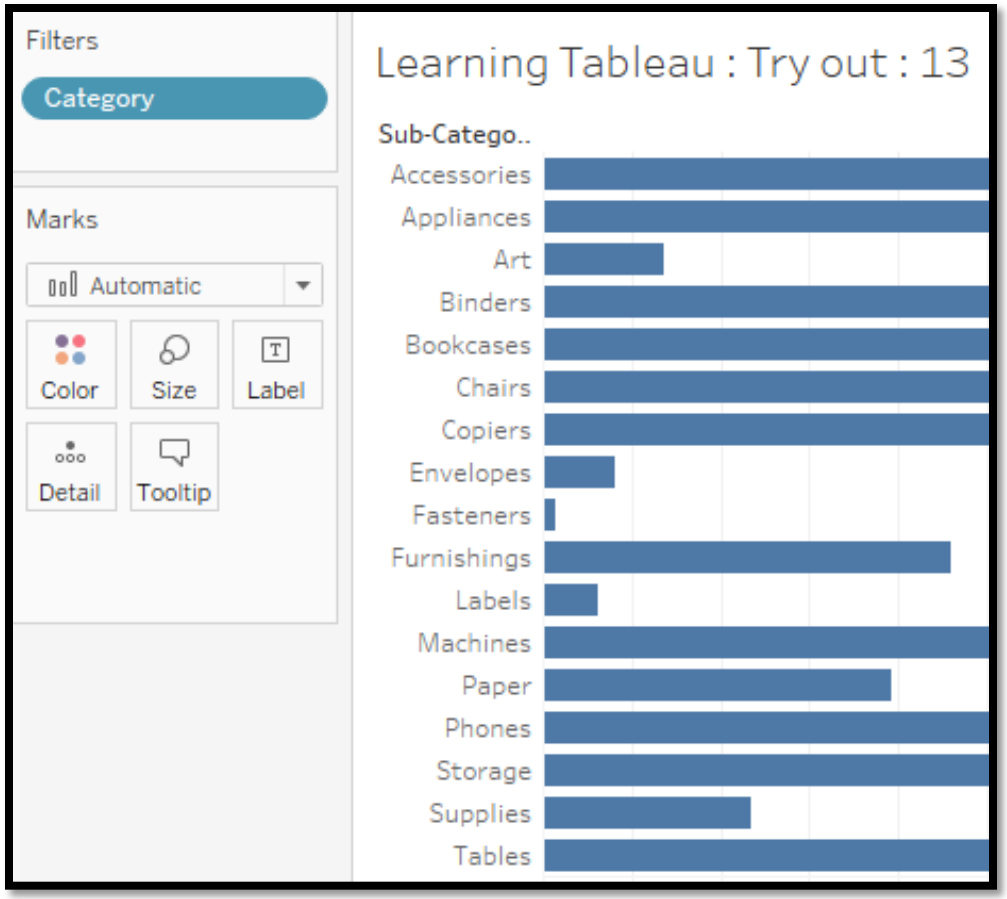
Sum of Sales for each Category. This is the first Graph you have created in Tableau. You can play around with it a bit like sorting , adding text labels, seeing it in presentation mode and changing the graph type.

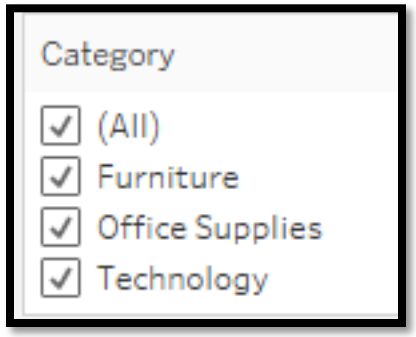
Try out : 10

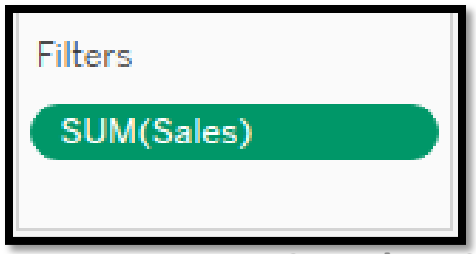


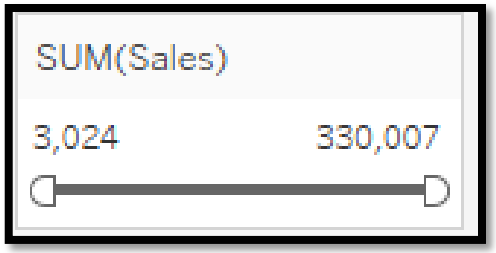

Learning Tableau : Try out : 10
Sub-Catego..
Accessories
Appliances
Art
Binders
Bookcases
Chairs
Copiers
Envelopes
Fasteners
Furnishings
Labels
Machines
Paper
Phones
Storage
Supplies
Tables
167,380
107,532
27,119
203,413
114,880
328,449
149,528
16,476
3,024
91,705
12,486
189,239
78,479
330,007
223,844
46,674
206,966
0K
50K
100K
150K
200K
250K
300K
350K
Sales

Try out : 13 : See filters

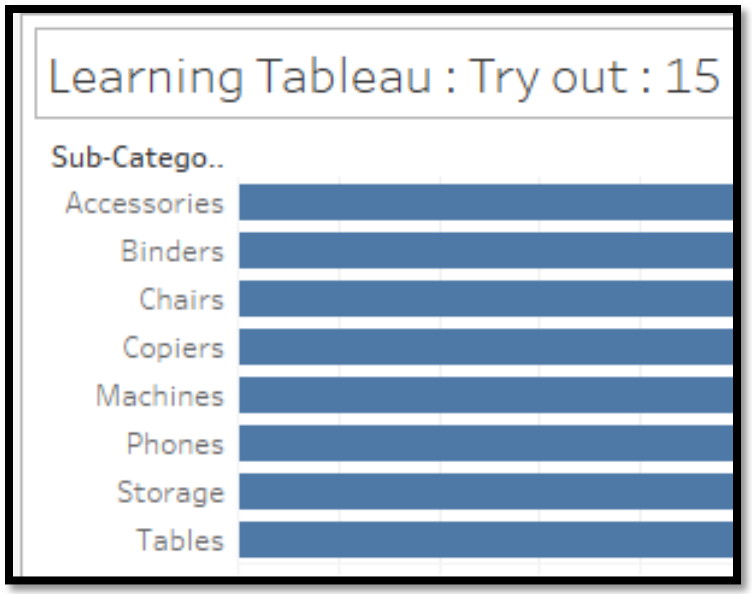


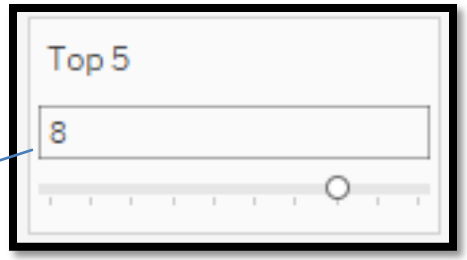






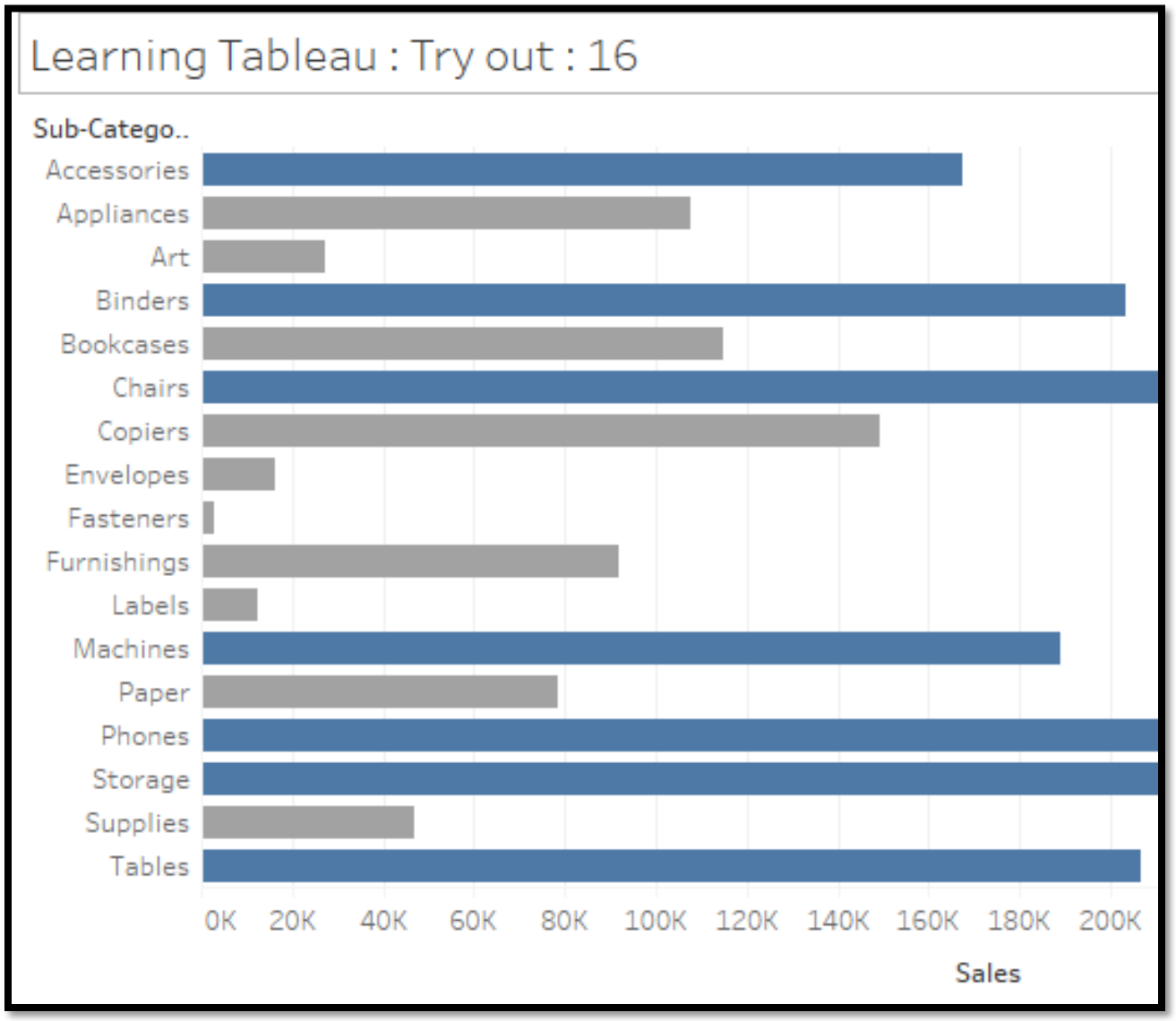
Try out : 15 : creating a parameter

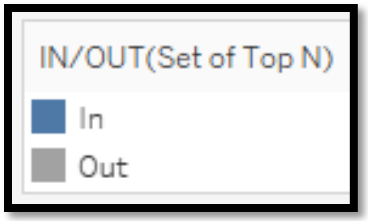




U selected **Top 8** , hence the o/p shows only **8 sub-categories.**

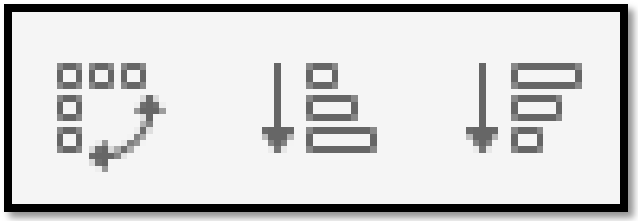
Try out : 16 : creating a set



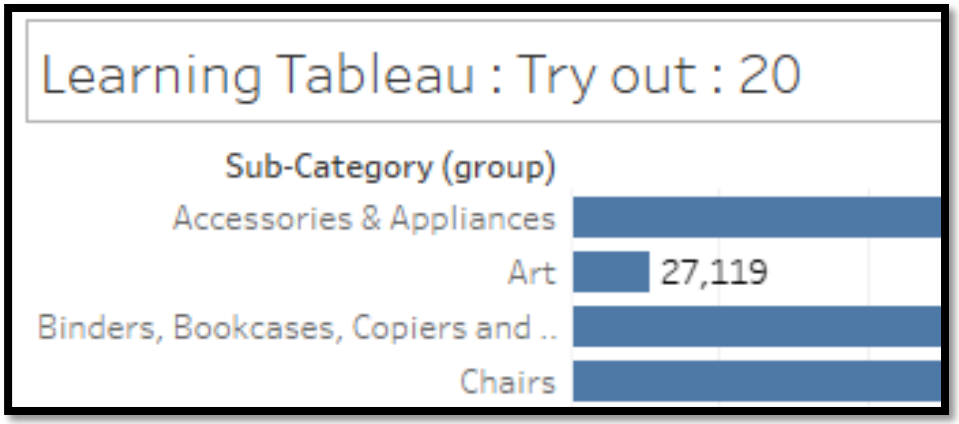


Try out : 17 to 19

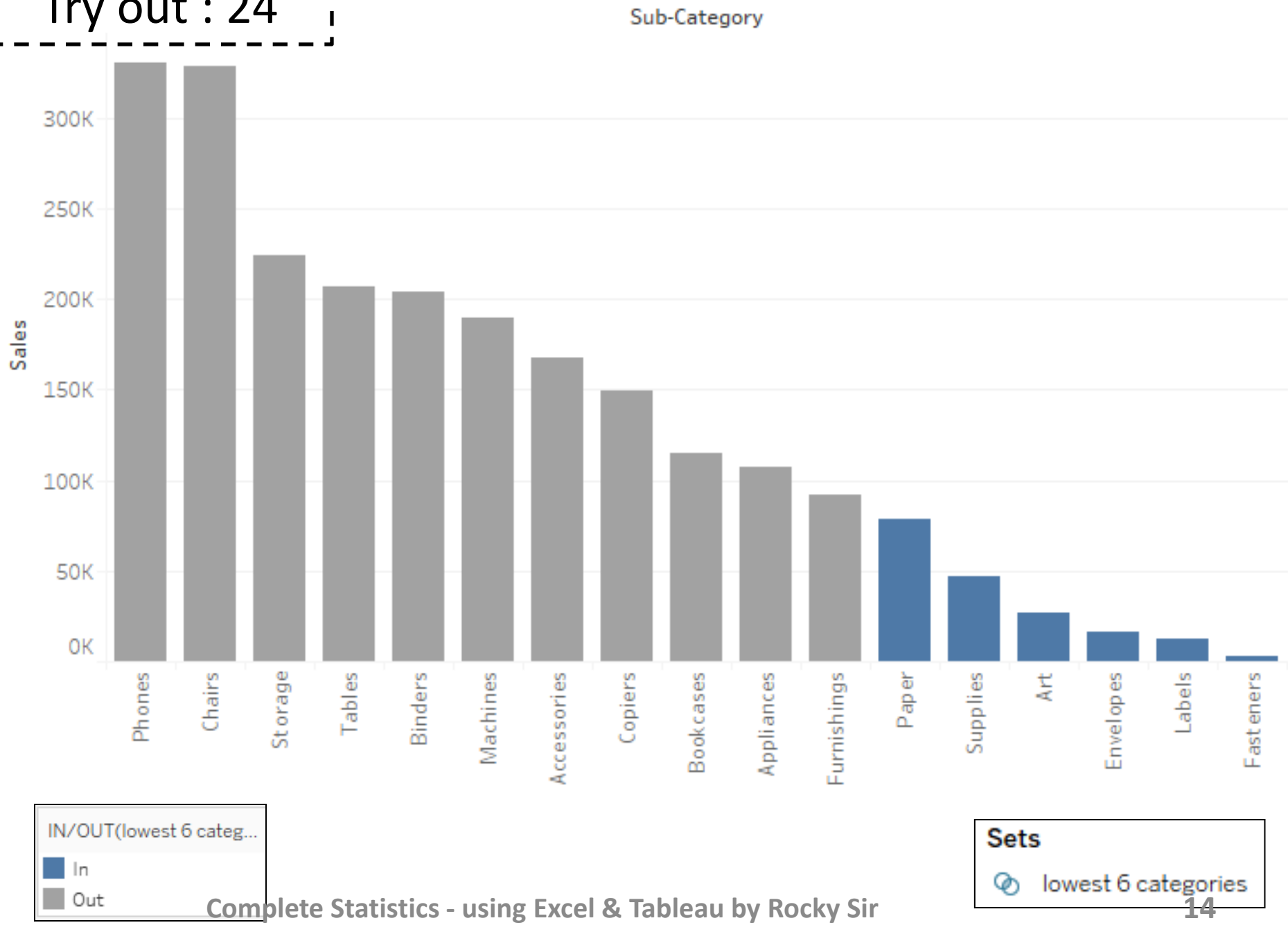
Icons for swapping of rows & columns, Ascending & Descending order



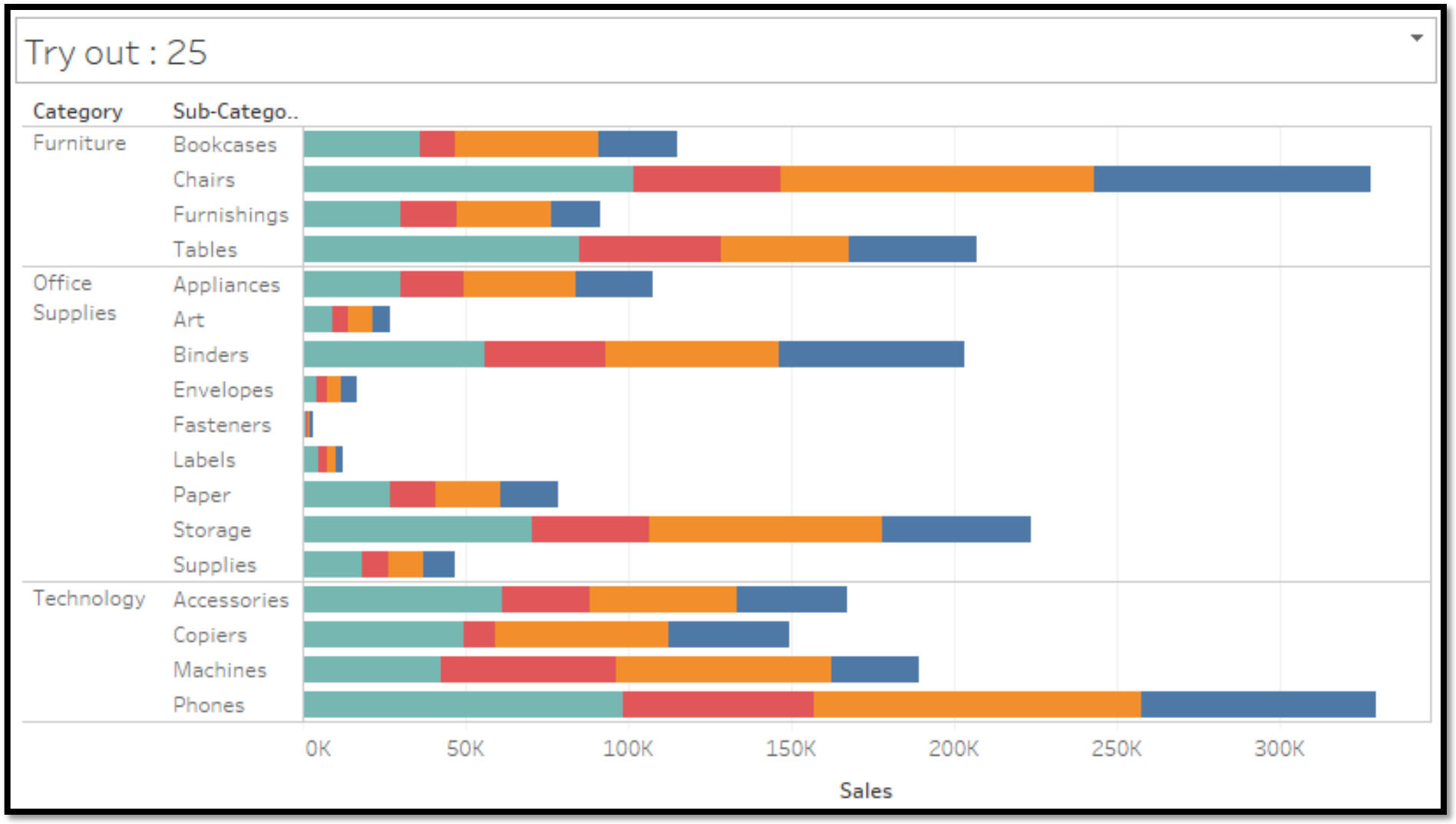
Try out : 20



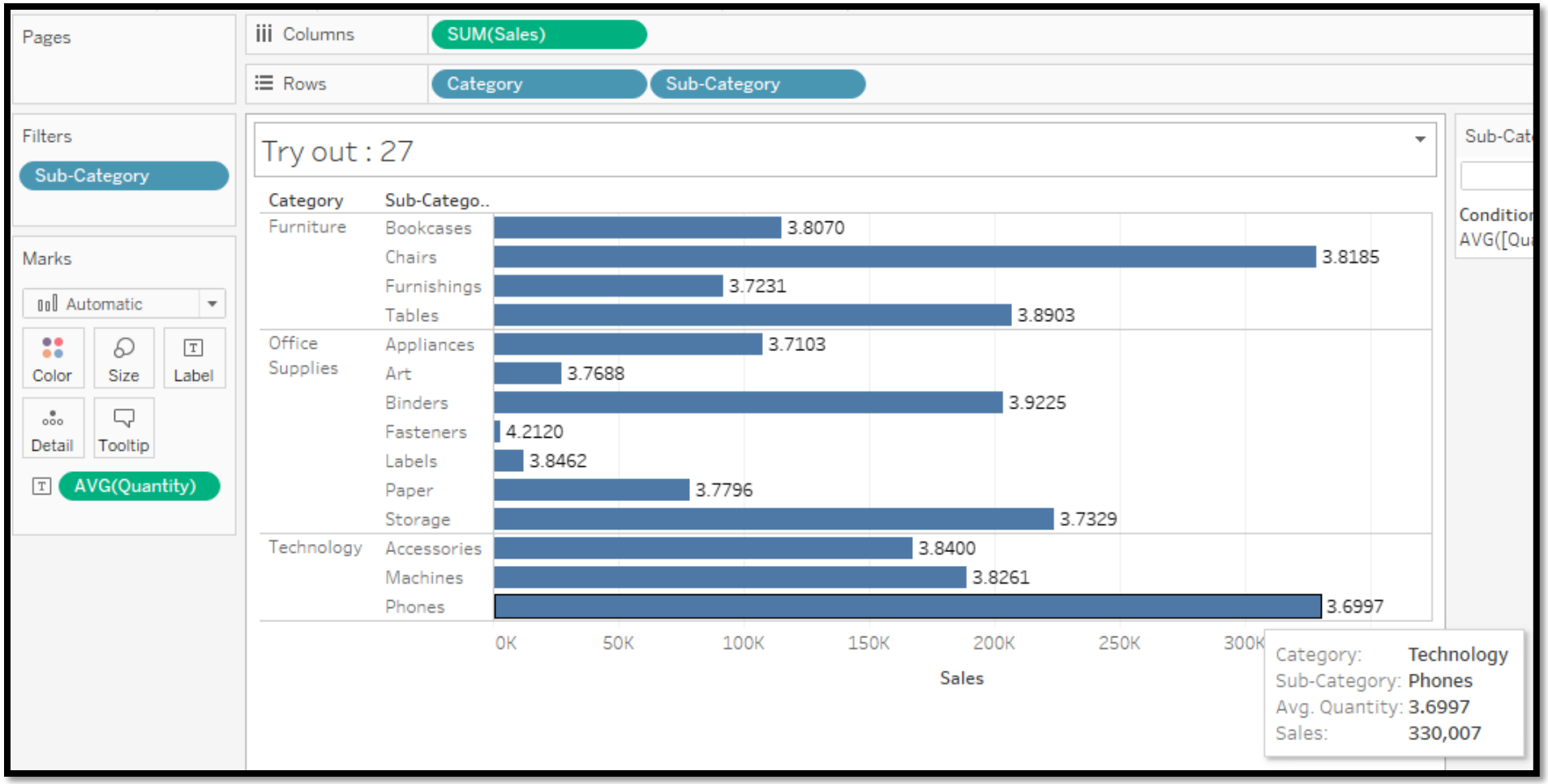
Try out : 24


Sub-Category
Sales
300K
250K
200K
150K
100K
50K
0K
Phones
Chairs
Storage
Tables
Binders
Machines
Accessories
Copiers
Bookcases
Appliances
Furnishings
Paper
Supplies
Art
Envelopes
Labels
Fasteners
IN/OUT(lowest 6 categ...
In
Out
Sets
lowest 6 categories

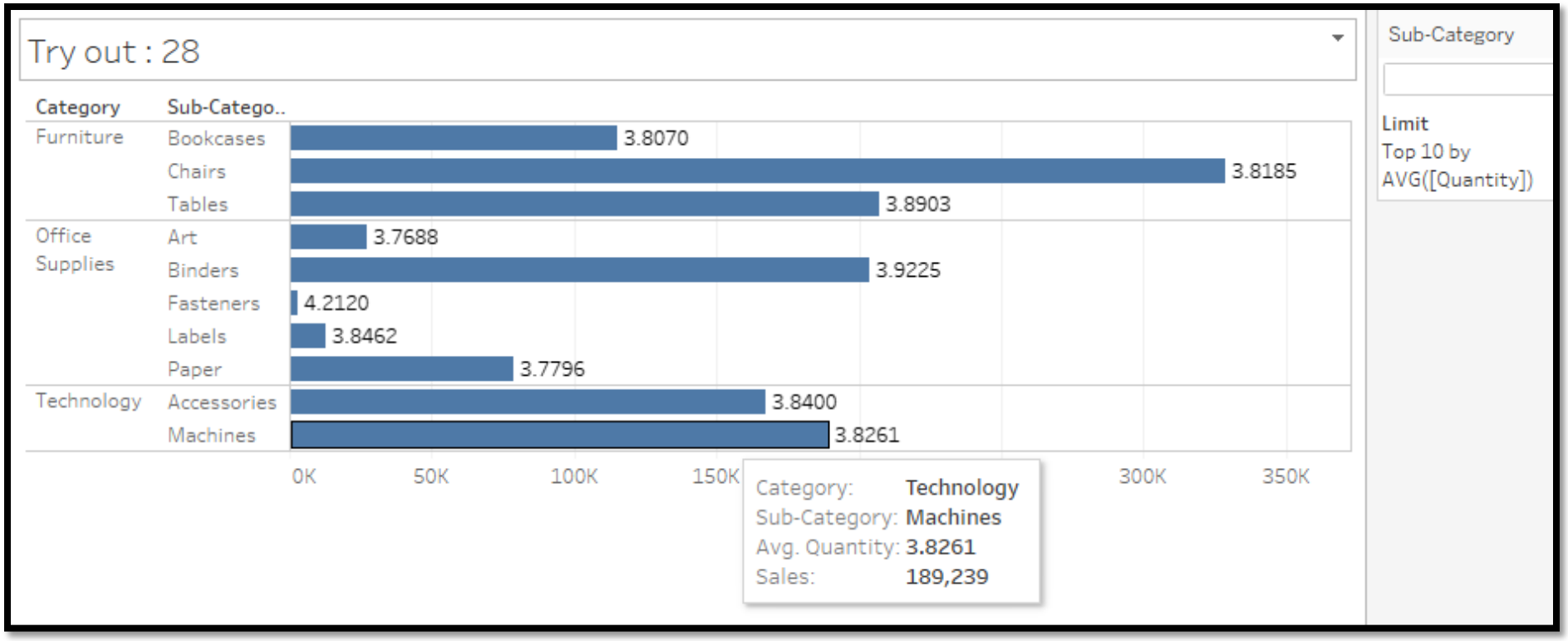
Try out : 25


Try out : 25
Category
Sub-Catego..
Furniture
Bookcases
Chairs
Furnishings
Tables
Office Supplies
Appliances
Art
Binders
Envelopes
Fasteners
Labels
Paper
Storage
Supplies
Technology
Accessories
Copiers
Machines
Phones
0K
50K
100K
150K
200K
250K
300K
Sales

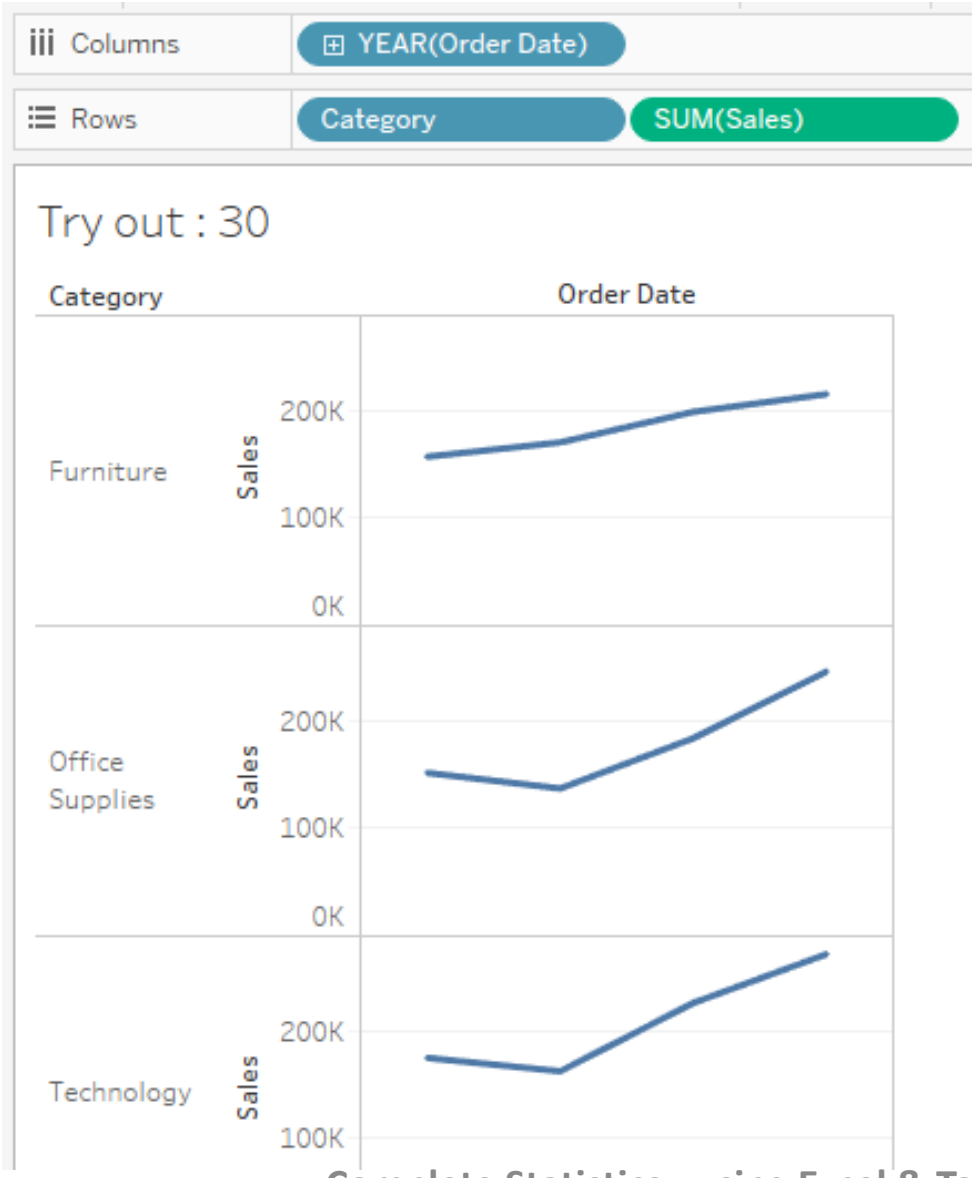
Try out : 27


Pages
Columns
SUM(Sales)
Rows
Category
Sub-Category
Filters
Sub-Category
Marks
Automatic
Color
Size
Label
Detail
Tooltip
AVG(Quantity)
Try out : 27
Category
Sub-Catego..
Furniture
Bookcases
3.8070
Chairs
3.8185
Furnishings
3.7231
Tables
3.8903
Office Supplies
Appliances
3.7103
Art
3.7688
Binders
3.9225
Fasteners
4.2120
Labels
3.8462
Paper
3.7796
Storage
3.7329
Technology
Accessories
3.8400
Machines
3.8261
Phones
3.6997
0K
50K
100K
150K
200K
250K
300K
Sales
Category: Technology
Sub-Category: Phones
Avg. Quantity: 3.6997
Sales: 330,007

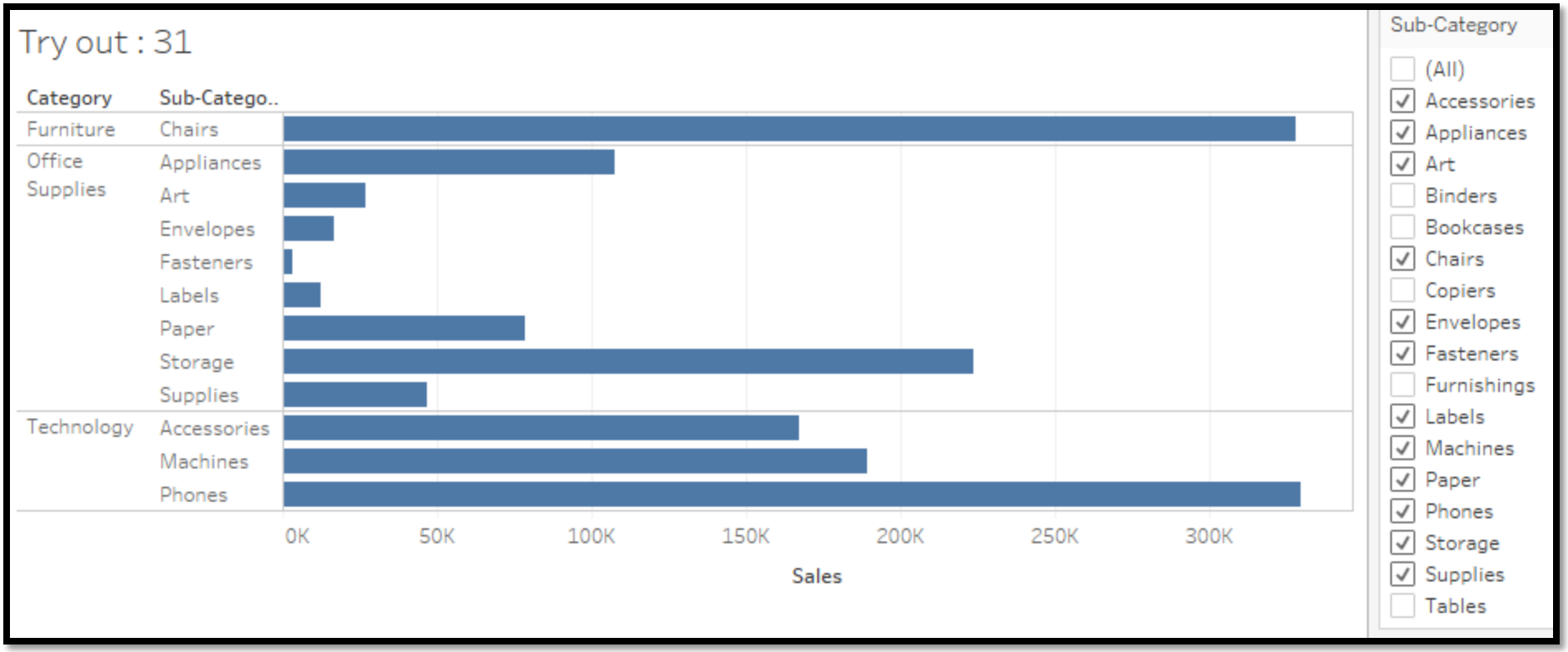
Try out : 28


Try out : 28
Category
Sub-Catego..
Furniture
Bookcases
3.8070
Chairs
3.8185
Tables
3.8903
Office Supplies
Art
3.7688
Binders
3.9225
Fasteners
4.2120
Labels
3.8462
Paper
3.7796
Technology
Accessories
3.8400
Machines
3.8261
0K
50K
100K
150K
300K
350K
Category: Technology
Sub-Category: Machines
Avg. Quantity: 3.8261
Sales: 189,239
Sub-Category
Limit
Top 10 by
AVG([Quantity])

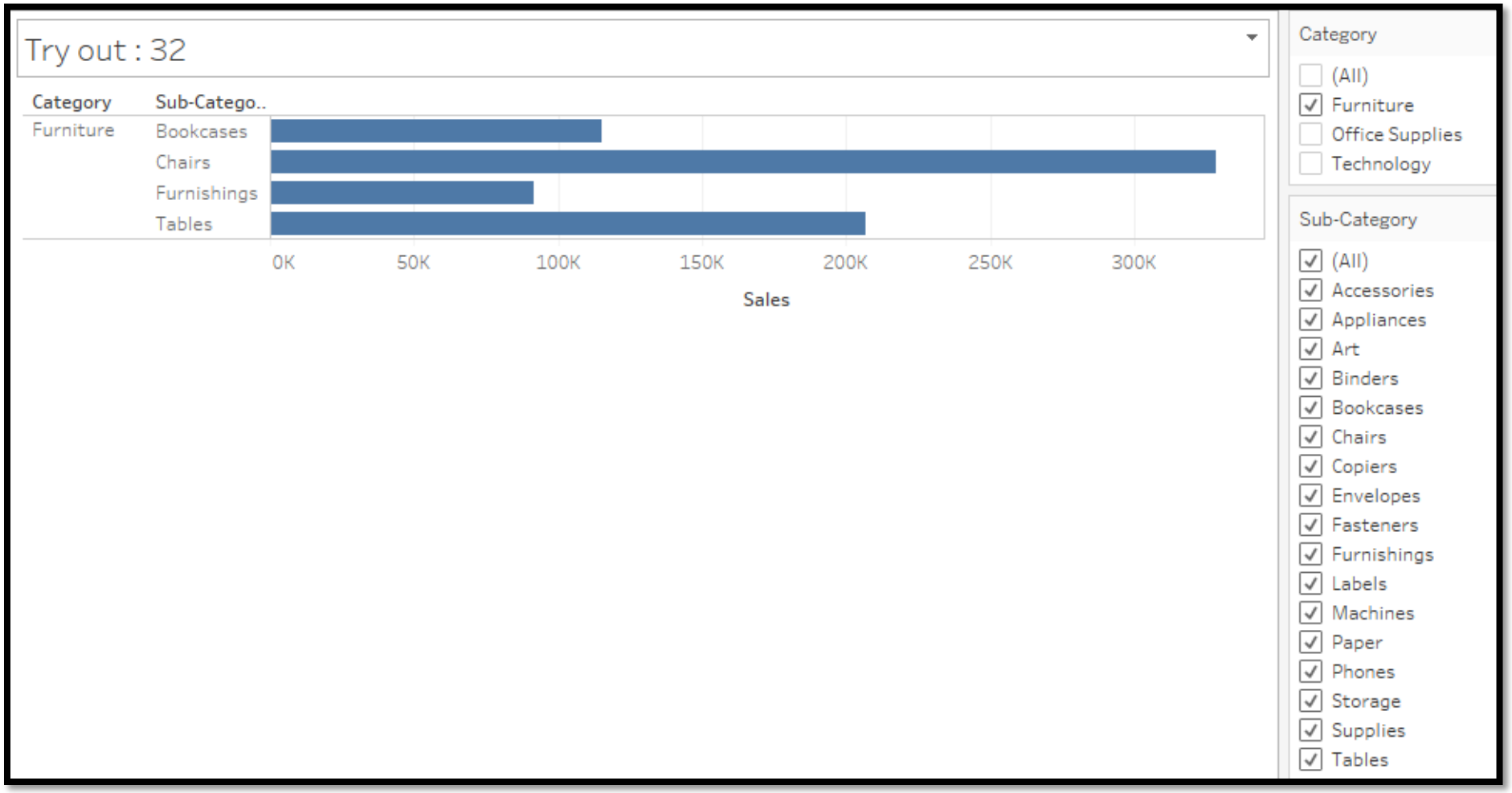
Try out : 30


Columns
YEAR(Order Date)
Rows
Category
SUM(Sales)
Try out : 30
Category
Order Date
Furniture
Office Supplies
Technology
Sales
200K
100K
0K

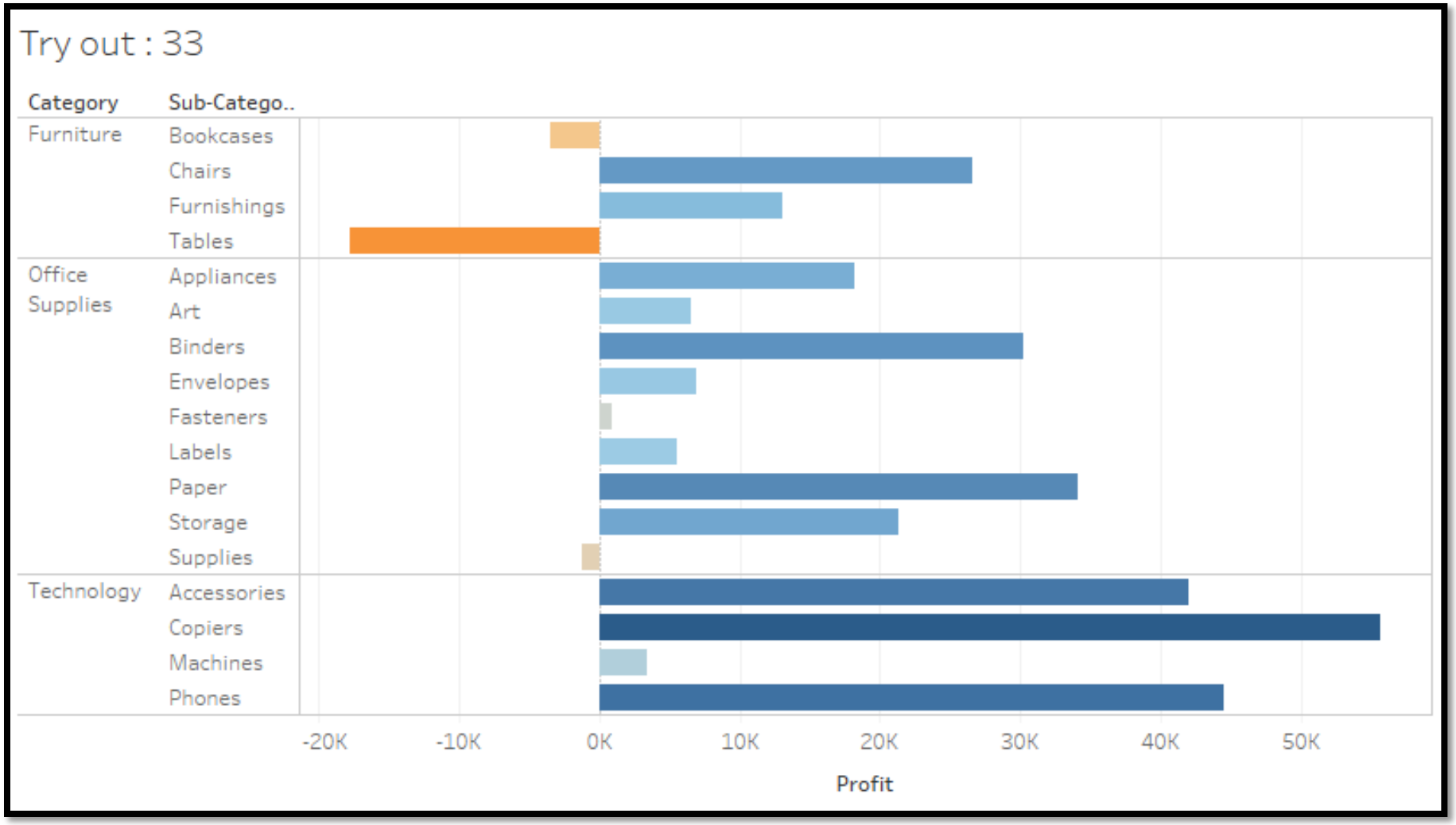
Try out : 31


Try out : 31
Category
Sub-Catego..
Furniture
Chairs
Office Supplies
Appliances
Art
Envelopes
Fasteners
Labels
Paper
Storage
Supplies
Technology
Accessories
Machines
Phones
0K
50K
100K
150K
200K
250K
300K
Sales
Sub-Category
(All)
Accessories
Appliances
Art
Binders
Bookcases
Chairs
Copiers
Envelopes
Fasteners
Furnishings
Labels
Machines
Paper
Phones
Storage
Supplies
Tables

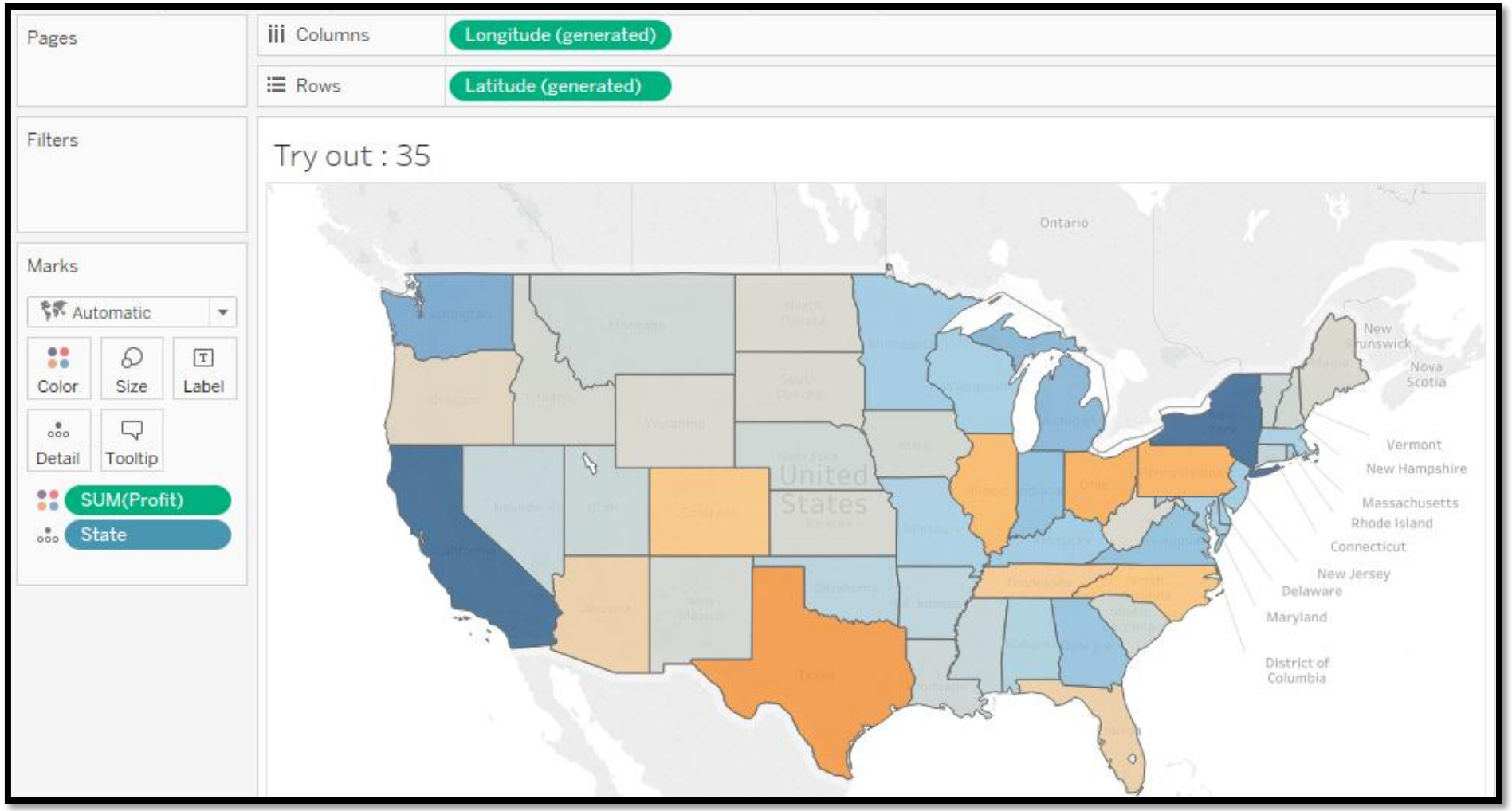
Try out : 32


Try out : 32
Category
Sub-Catego..
Furniture
Bookcases
Chairs
Furnishings
Tables
0K
50K
100K
150K
200K
250K
300K
Sales
Category
(All)
Furniture
Office Supplies
Technology
Sub-Category
(All)
Accessories
Appliances
Art
Binders
Bookcases
Chairs
Copiers
Envelopes
Fasteners
Furnishings
Labels
Machines
Paper
Phones
Storage
Supplies
Tables

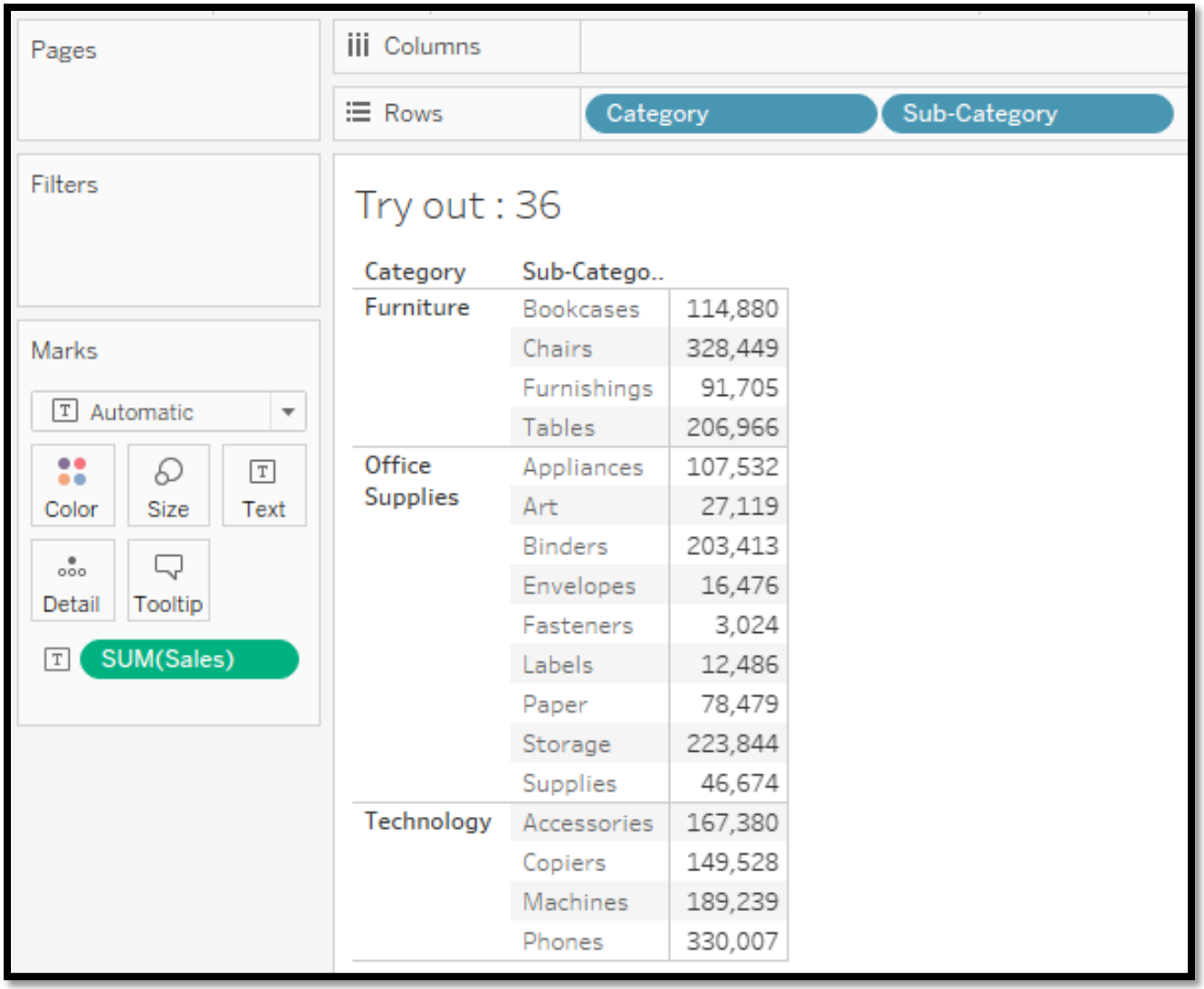
Try out : 33


Try out : 33
Category
Sub-Catego..
Furniture
Bookcases
Chairs
Furnishings
Tables
Office Supplies
Appliances
Art
Binders
Envelopes
Fasteners
Labels
Paper
Storage
Supplies
Technology
Accessories
Copiers
Machines
Phones
-20K
-10K
0K
10K
20K
30K
40K
50K
Profit

Try out : 35

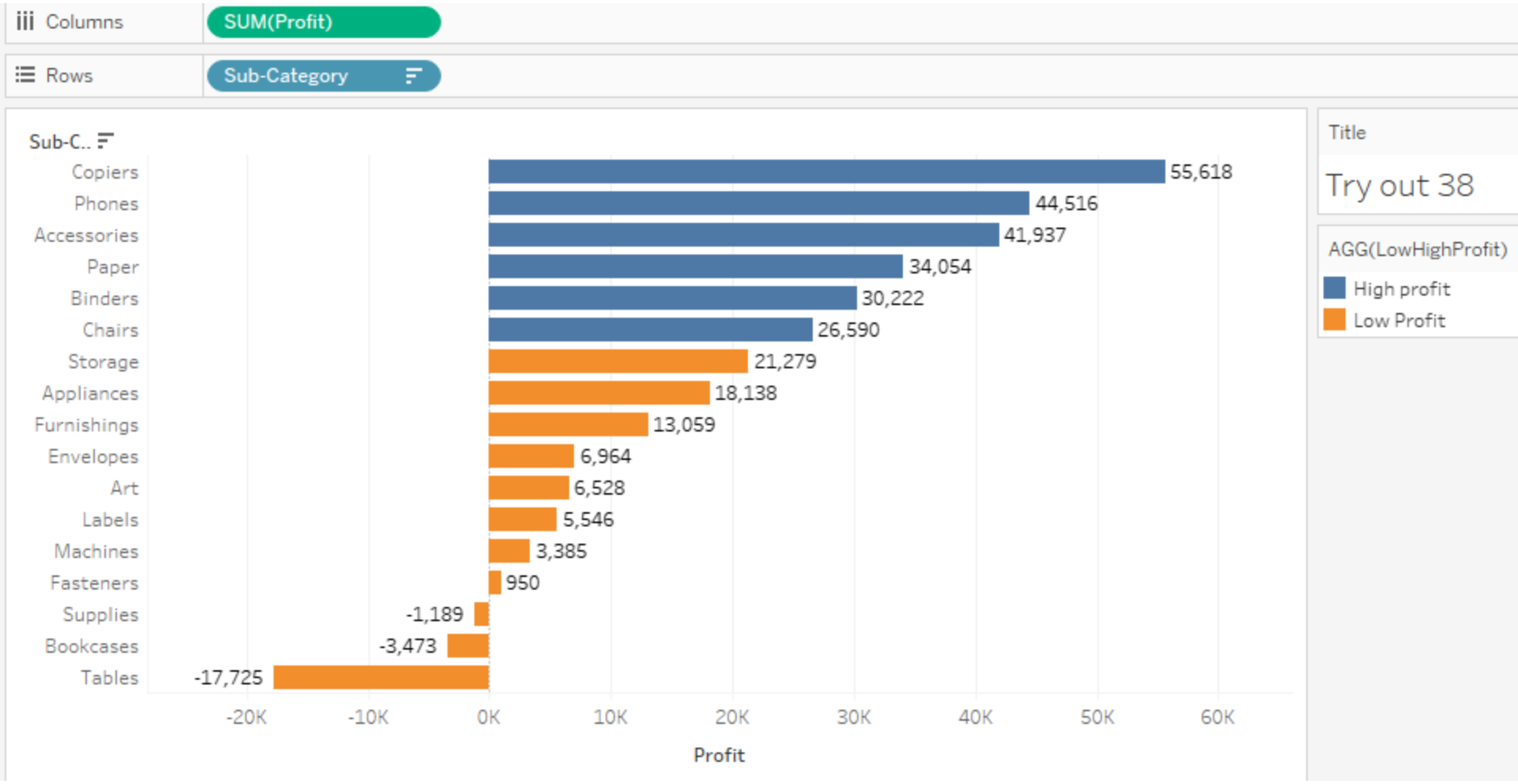

Pages
Columns
Longitude (generated)
Rows
Latitude (generated)
Filters
Try out : 35
Marks
Automatic
Color
Size
Label
Detail
Tooltip
SUM(Profit)
State
Ontario
New Brunswick
Nova Scotia
Vermont
New Hampshire
Massachusetts
Rhode Island
Connecticut
New Jersey
Delaware
Maryland
District of Columbia
United States

Try out : 36

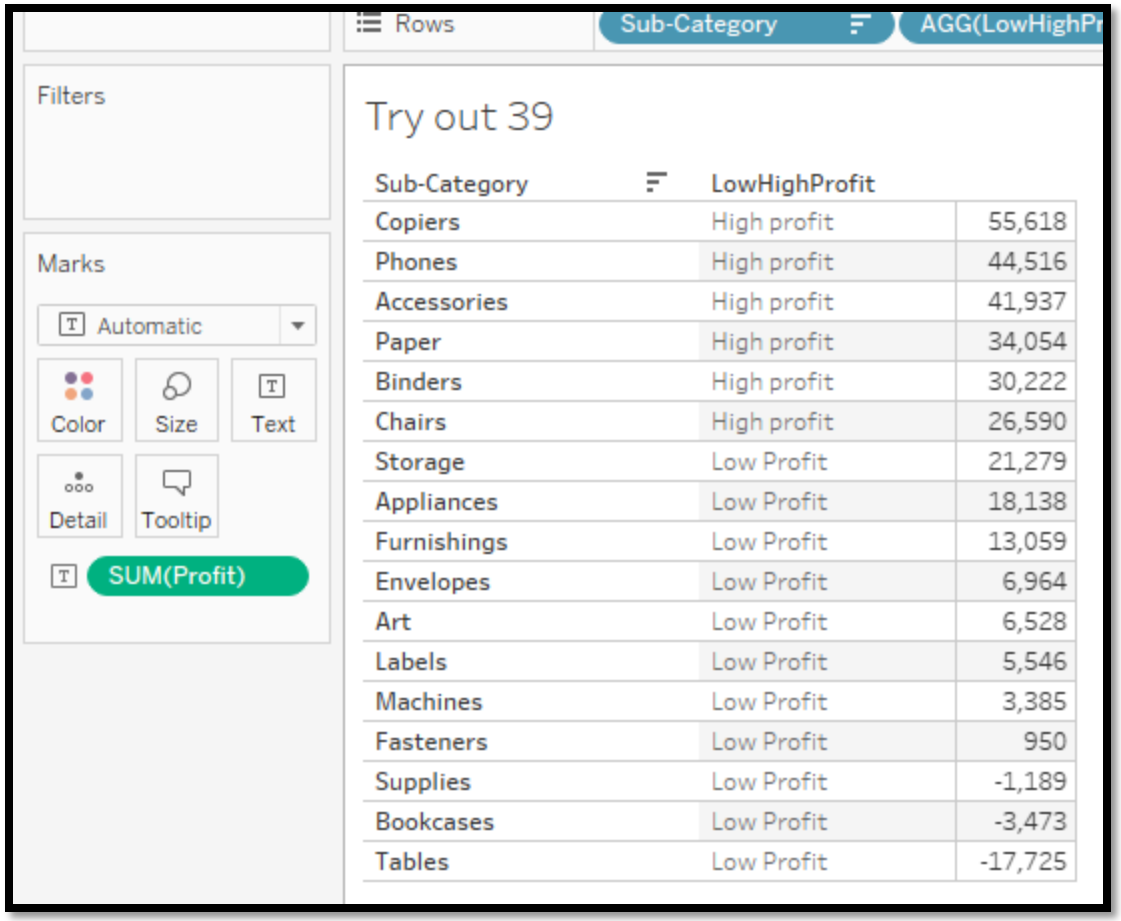


Category	Sub-Catego..	
Furniture	Bookcases	114,880
	Chairs	328,449
	Furnishings	91,705
	Tables	206,966
Office Supplies	Appliances	107,532
	Art	27,119
	Binders	203,413
	Envelopes	16,476
	Fasteners	3,024
	Labels	12,486
	Paper	78,479
	Storage	223,844
	Supplies	46,674
Technology	Accessories	167,380
	Copiers	149,528
	Machines	189,239
	Phones	330,007

Try out : 38


Columns
SUM(Profit)
Rows
Sub-Category
Sub-C..
Copiers
Phones
Accessories
Paper
Binders
Chairs
Storage
Appliances
Furnishings
Envelopes
Art
Labels
Machines
Fasteners
Supplies
Bookcases
Tables
55,618
44,516
41,937
34,054
30,222
26,590
21,279
18,138
13,059
6,964
6,528
5,546
3,385
950
-1,189
-3,473
-17,725
-20K
-10K
0K
10K
20K
30K
40K
50K
60K
Profit
Title
Try out 38
AGG(LowHighProfit)
High profit
Low Profit

Try out : 39



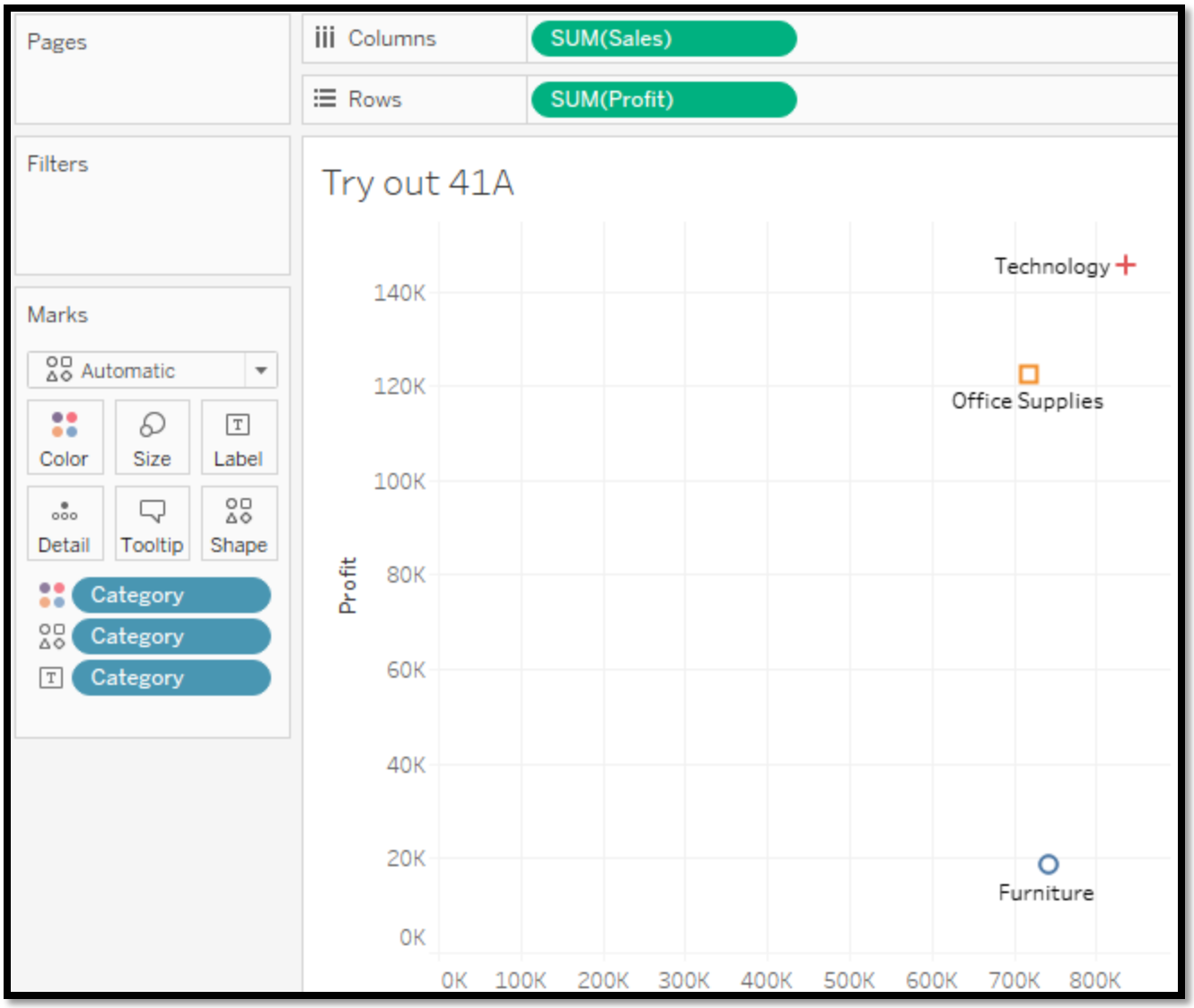
Try out 39

Sub-Category	LowHighProfit	
Copiers	High profit	55,618
Phones	High profit	44,516
Accessories	High profit	41,937
Paper	High profit	34,054
Binders	High profit	30,222
Chairs	High profit	26,590
Storage	Low Profit	21,279
Appliances	Low Profit	18,138
Furnishings	Low Profit	13,059
Envelopes	Low Profit	6,964
Art	Low Profit	6,528
Labels	Low Profit	5,546
Machines	Low Profit	3,385
Fasteners	Low Profit	950
Supplies	Low Profit	-1,189
Bookcases	Low Profit	-3,473
Tables	Low Profit	-17,725

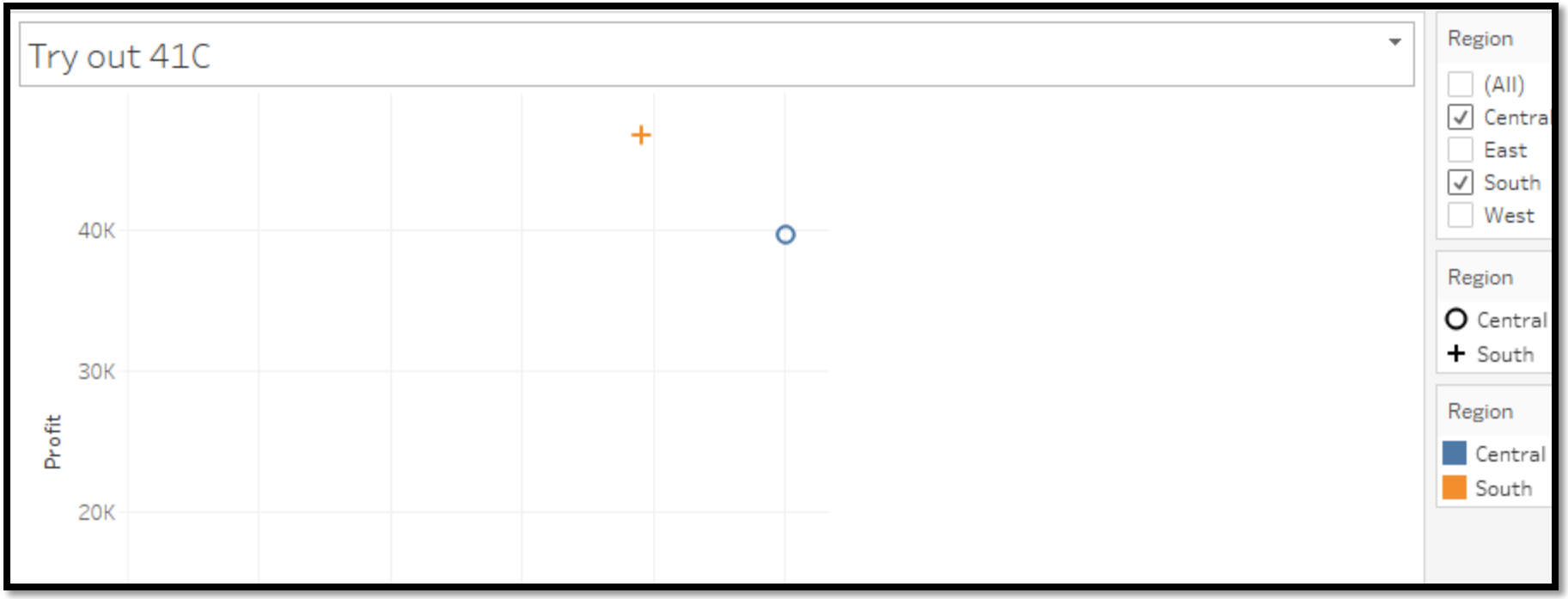
Try out 39

Sub-Category	
Copiers	55,618
Phones	44,516
Accessories	41,937
Paper	34,054
Binders	30,222
Chairs	26,590
Storage	21,279
Appliances	18,138
Furnishings	13,059
Envelopes	6,964
Art	6,528
Labels	5,546
Machines	3,385
Fasteners	950
Supplies	-1,189
Bookcases	-3,473
Tables	-17,725

Try out : 41A


Pages
Columns
SUM(Sales)
Rows
SUM(Profit)
Filters
Marks
Automatic
Color
Size
Label
Detail
Tooltip
Shape
Category
Category
Category
Try out 41A
Technology
Office Supplies
Furniture
Profit
140K
120K
100K
80K
60K
40K
20K
0K
0K
100K
200K
300K
400K
500K
600K
700K
800K

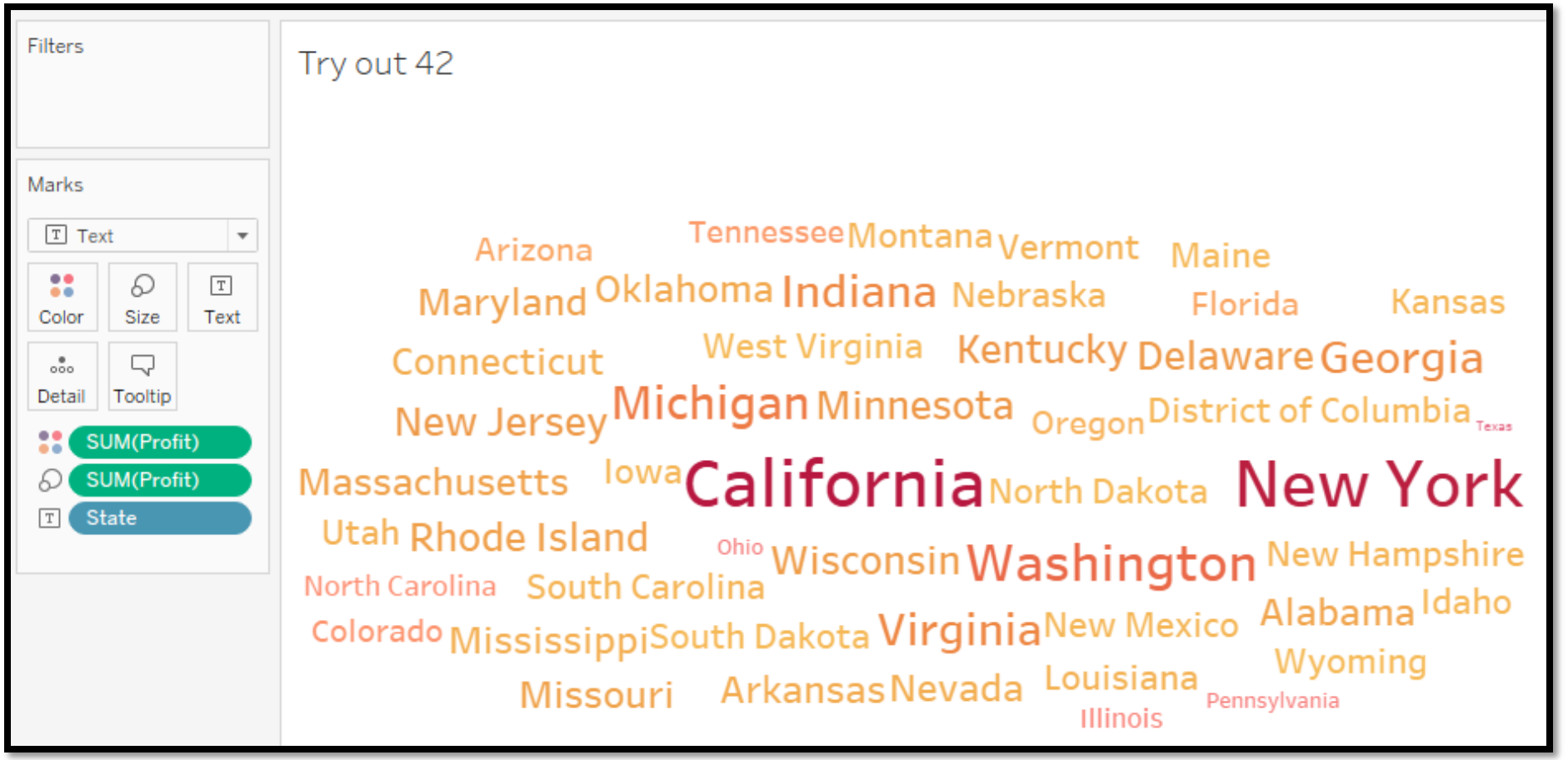
Try out : 41C : Interactive Scatter Plot



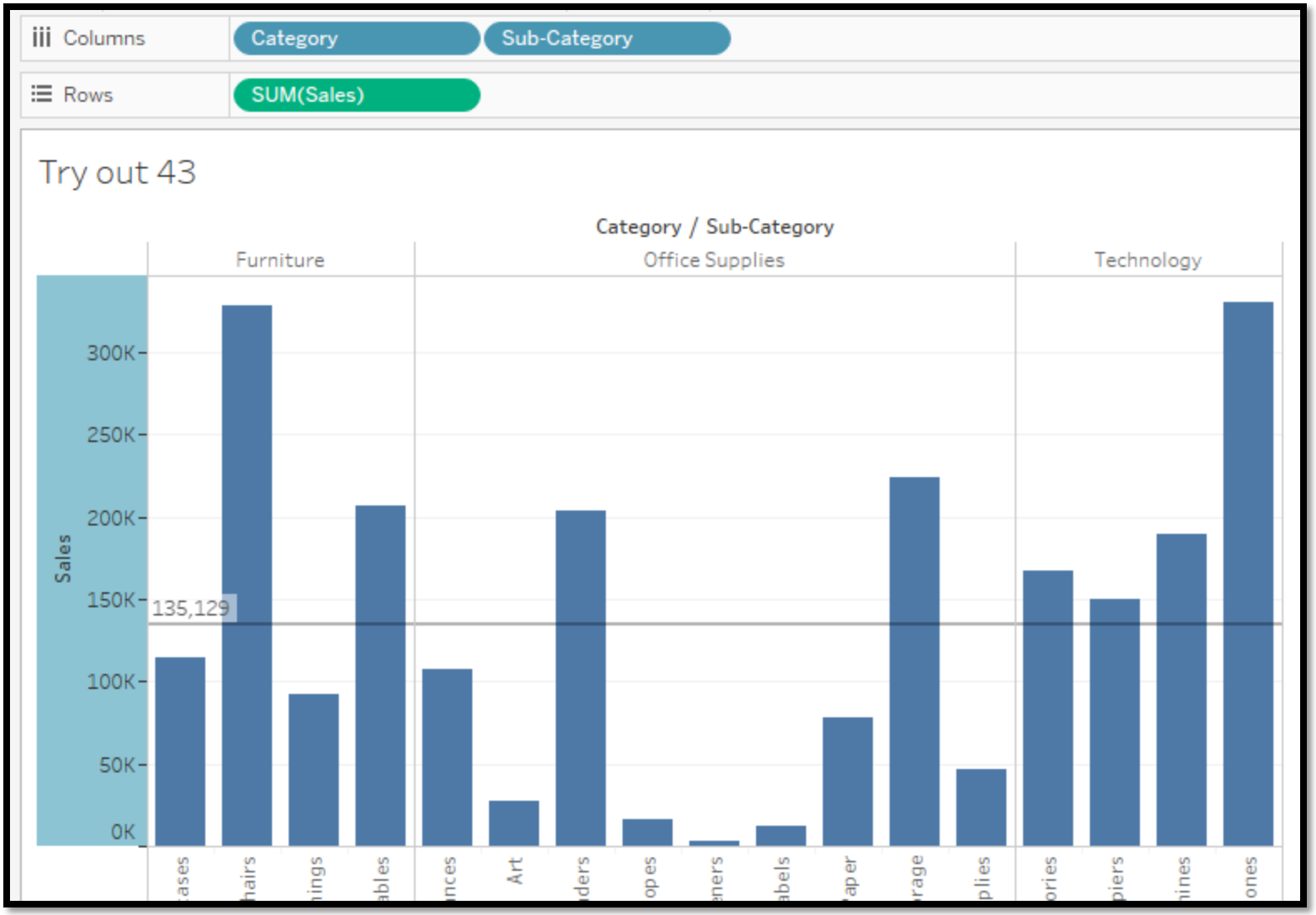
Interactive Scatter Plot

If the scatter symbols are too small then increase their size.

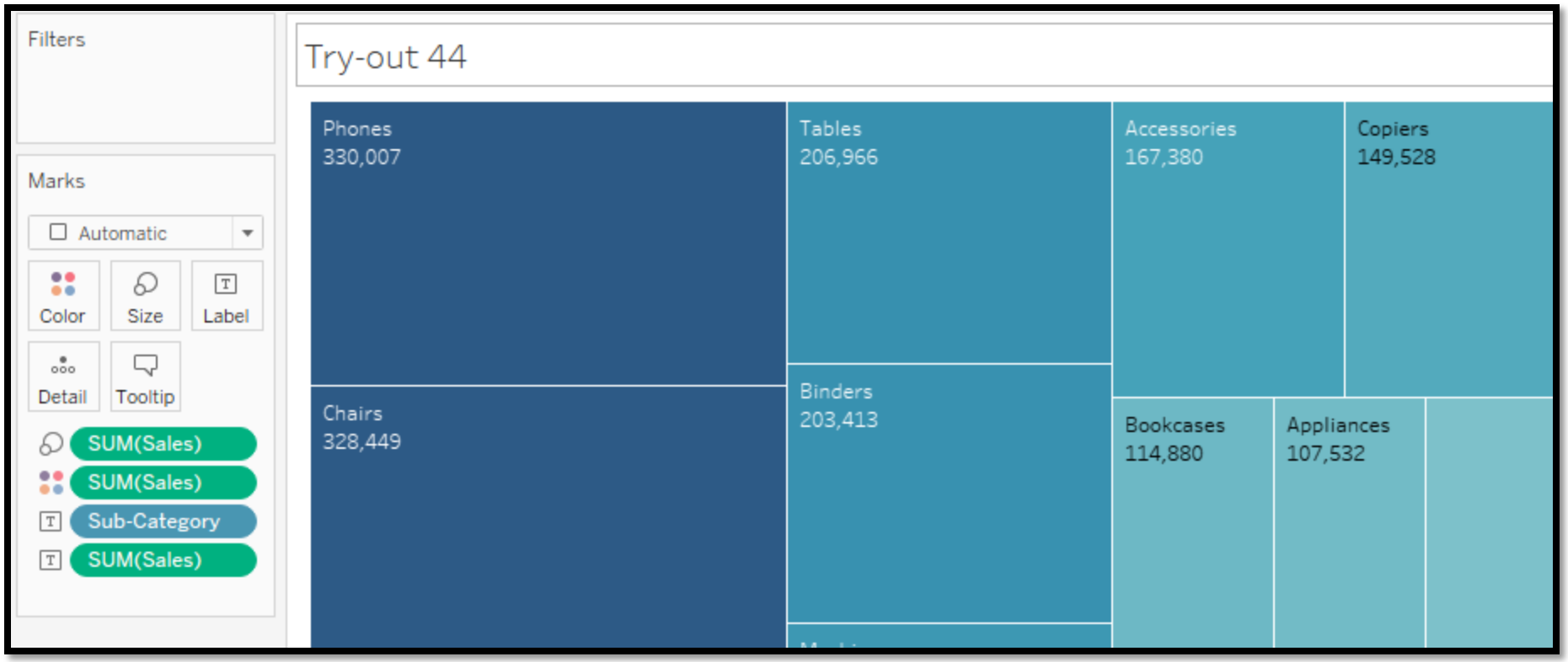
Try out : 42 : Word Map



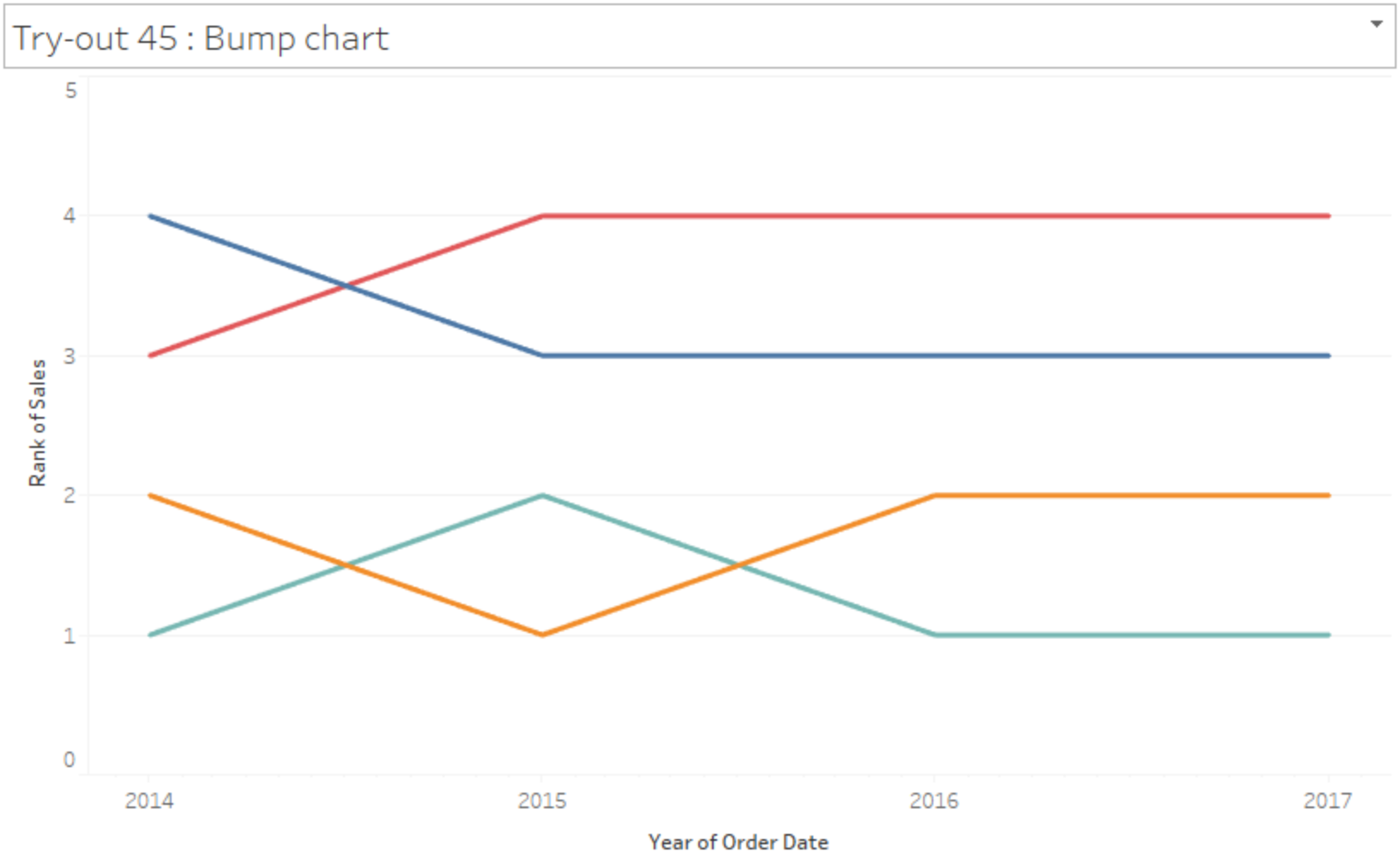
Try out : 43


Columns
Category
Sub-Category
Rows
SUM(Sales)
Try out 43
Category / Sub-Category
Furniture
Office Supplies
Technology
Sales
300K
250K
200K
150K
100K
50K
0K
135,129
Art

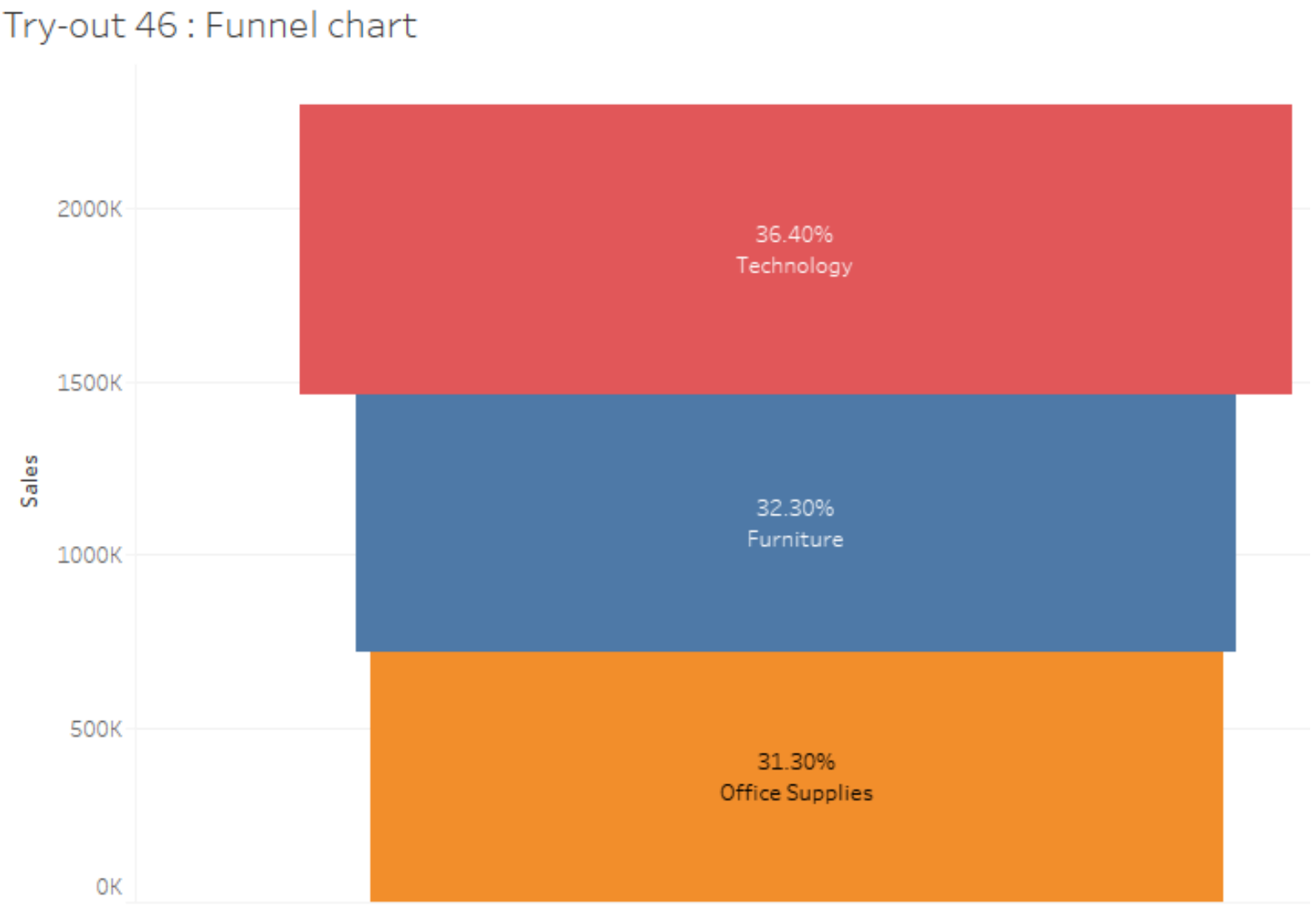
Try out : 44 : Tree Maps



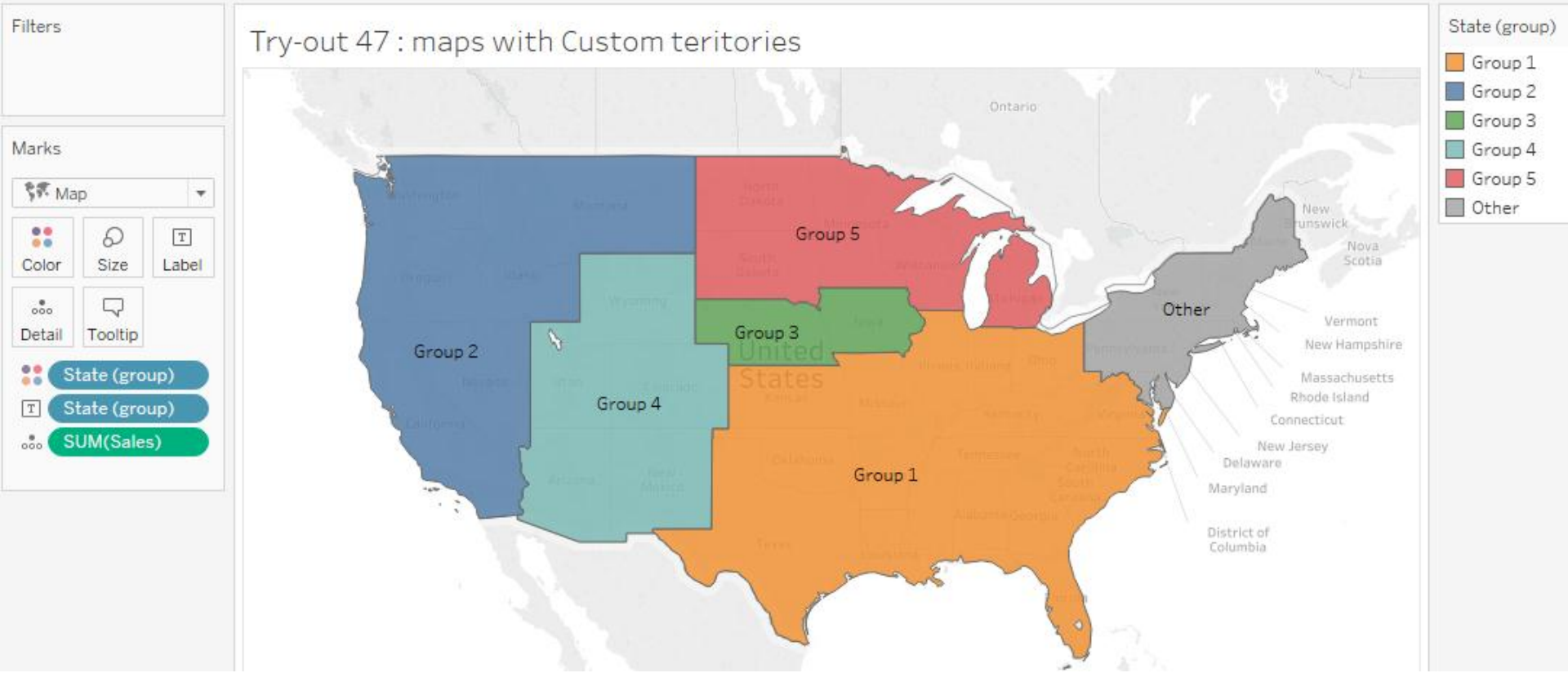
Try out : 45 : Bump Chart



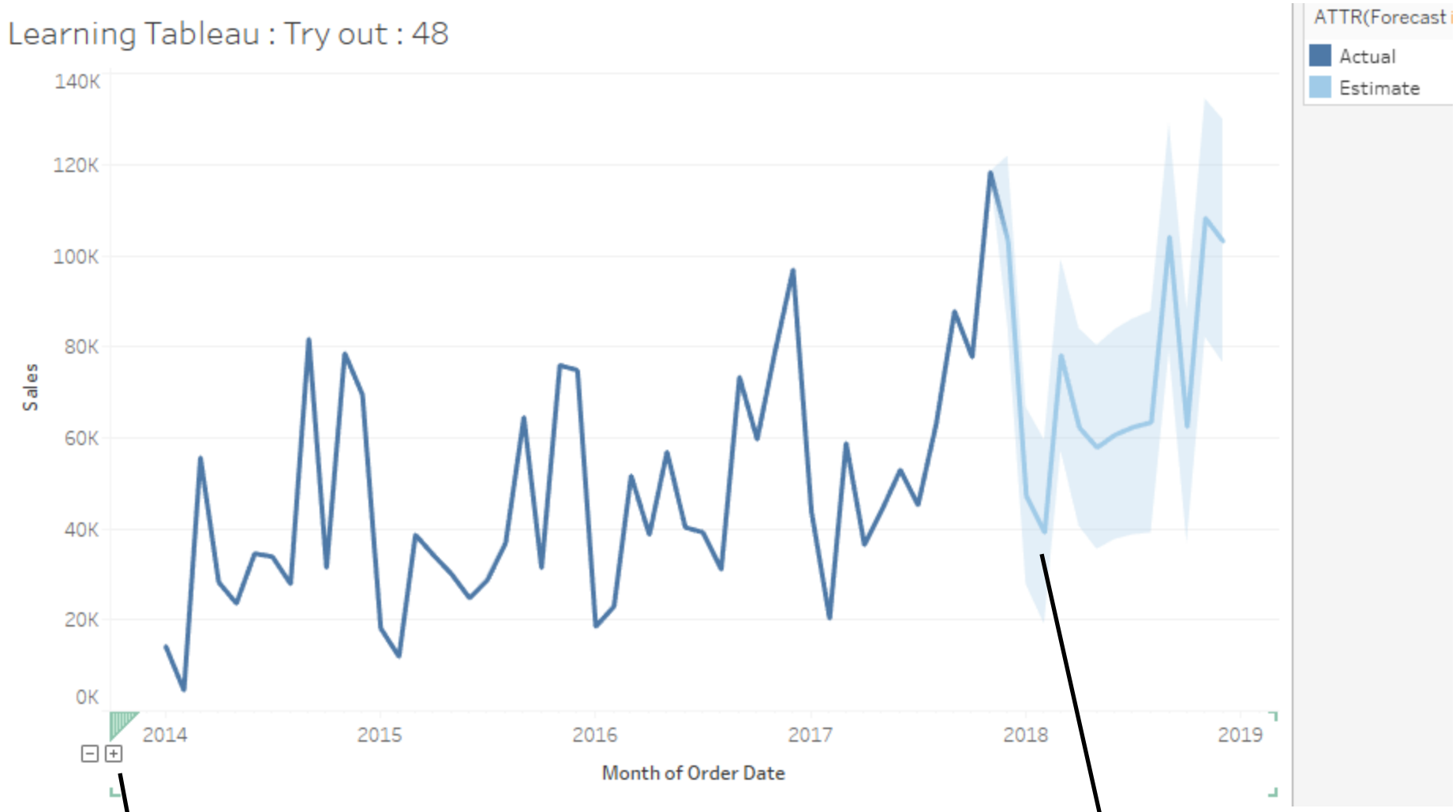
Try out : 46 : Funnel Chart



Try out : 47 : Maps with Custom Territories



Try out : 48 : Forecasting sales by extrapolating data



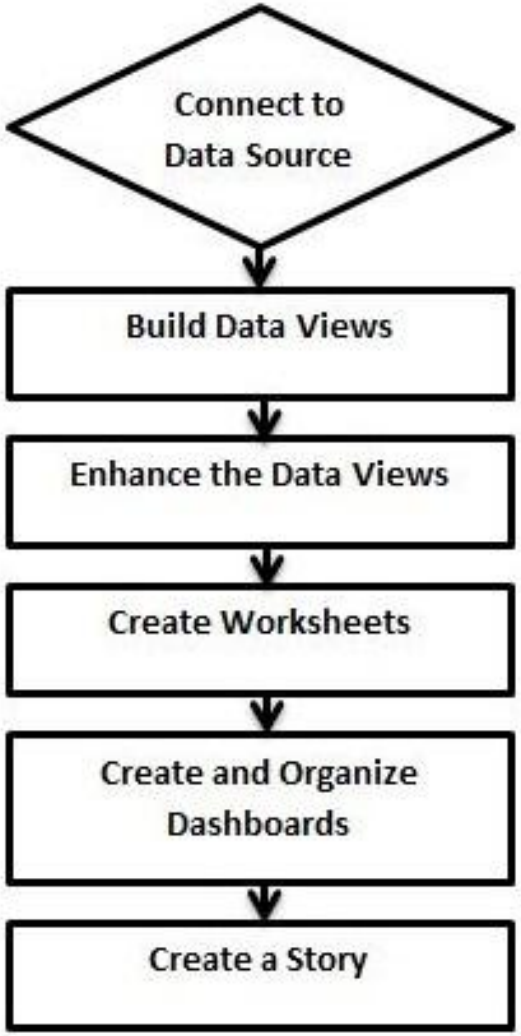
drill down / up to see the effect

In case if you see breaks in forecast , choose forecast on "Attribute" instead of "Dimension"

Introduction to Dashboards & Story Board

As Tableau helps in analyzing lots of data over diverse time periods, dimensions, and measures, it needs a very meticulous planning to create a good dashboard or story. Hence, it is important to know the approach to design a good dashboard. Like any other field of human endeavor, there are many best practices to be followed to create good worksheets and dashboards.

Though the final outcome expected from a Tableau project is ideally a dashboard with story, there are many intermediate steps which needs to be completed to reach this goal. Following is a flow diagram of design steps that should be ideally followed to create effective dashboards.



Case Study :

Story Board is a great tool by tableau. It allows us to communicate our analysis to the audience or management very effectively. This Try-out is a teamwork, *with out the assistance of the Trainer.*

The team has to do the following in 3 hrs :
a> go to https://onlinehelp.tableau.com/current/pro/desktop/en-us/help.htm

b> Explore the help section

c> go to section "Create Stories". Explore all sub-sections.

d> Now choose a sensible data-set (other than SuperStore). You may refer https://toolbox.google.com/datasetsearch for finding the right data-set.

e> Tell me your analysis through your Story.