

DR. ALVIN'S PUBLICATIONS

LEARNING TABLEAU PART II TECHNIQUES

DR. ALVIN ANG



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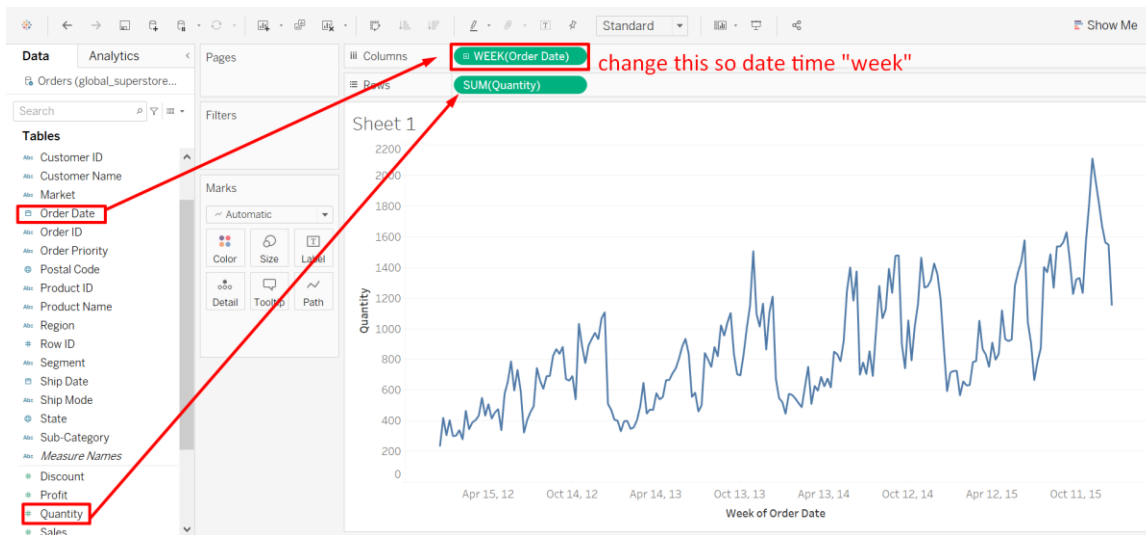
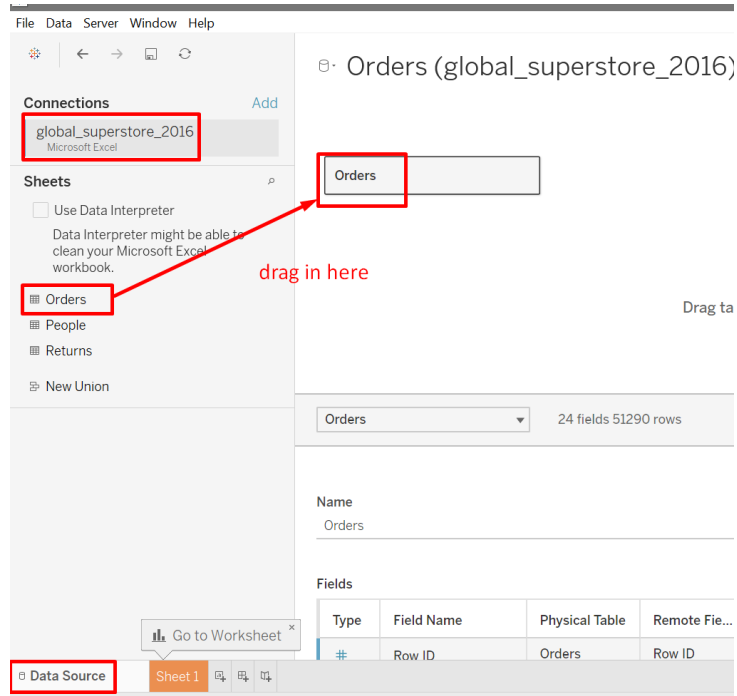
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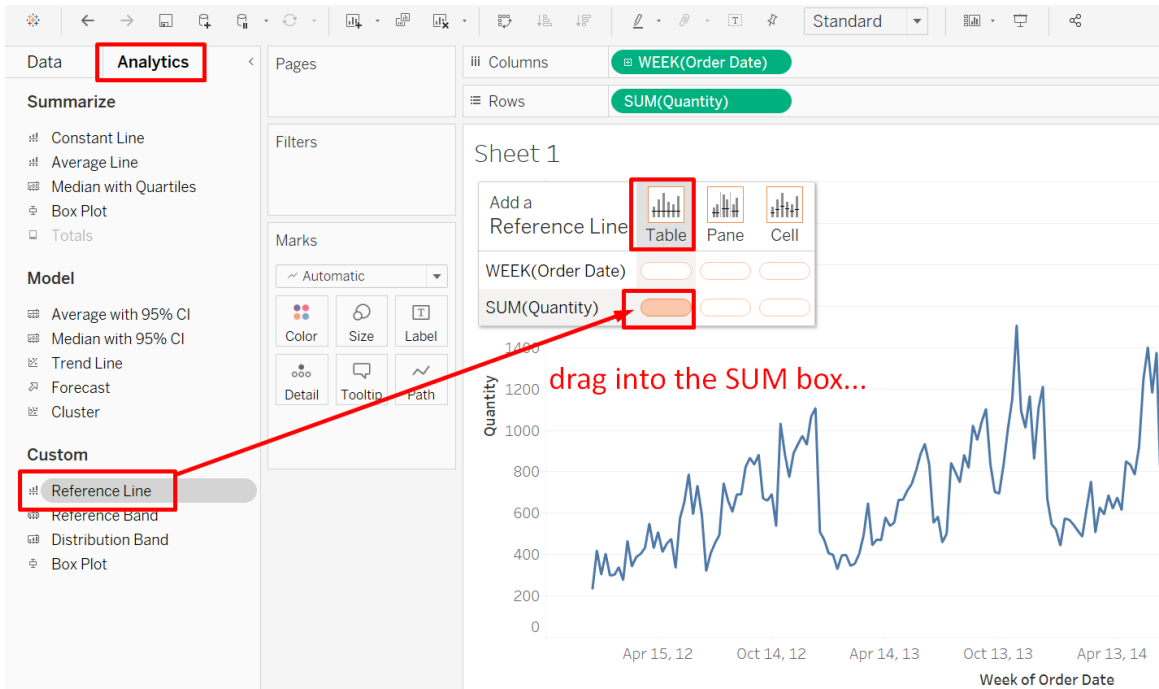
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I. ANALYTICS

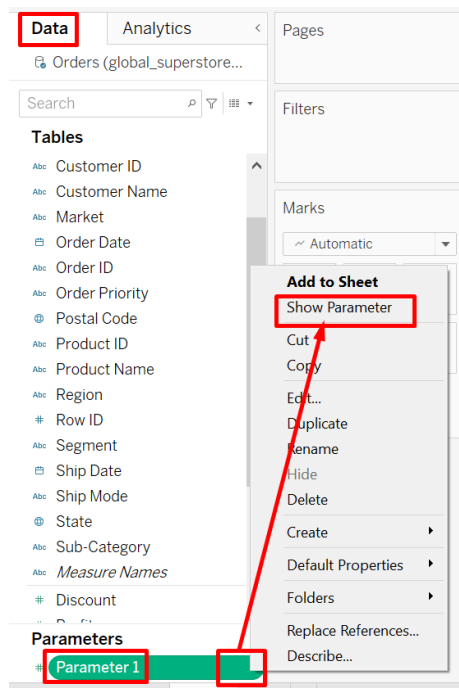
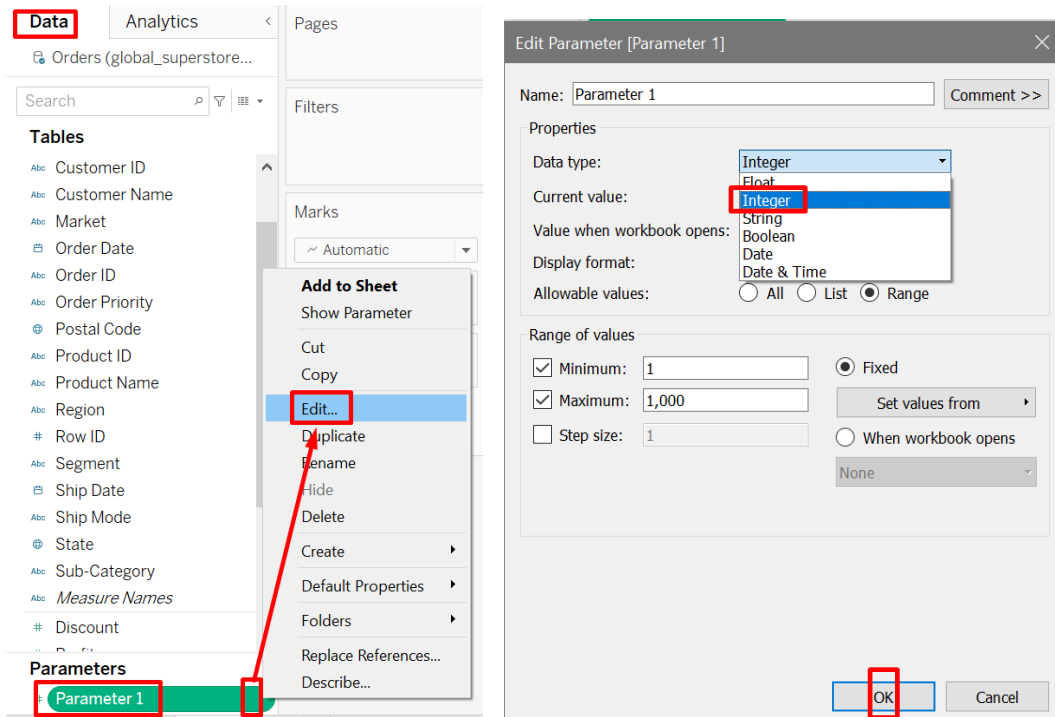
A. REFERENCE LINE

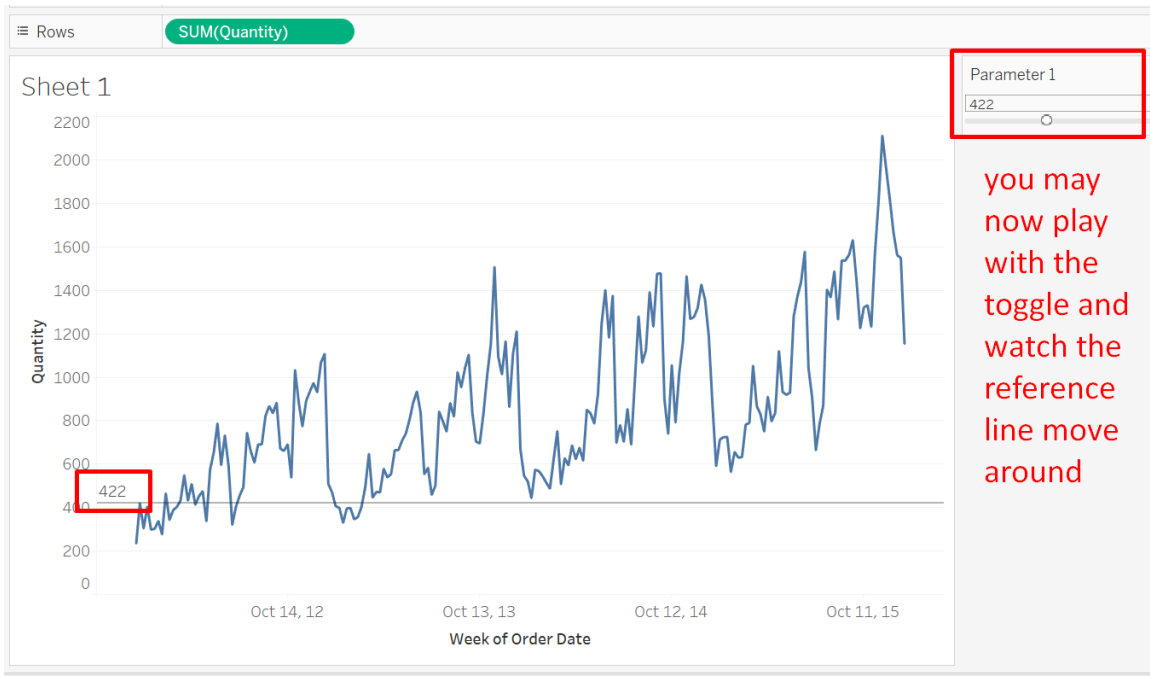
Data source is found here: https://www.alvinang.sg/s/global_superstore_2016.xlsx





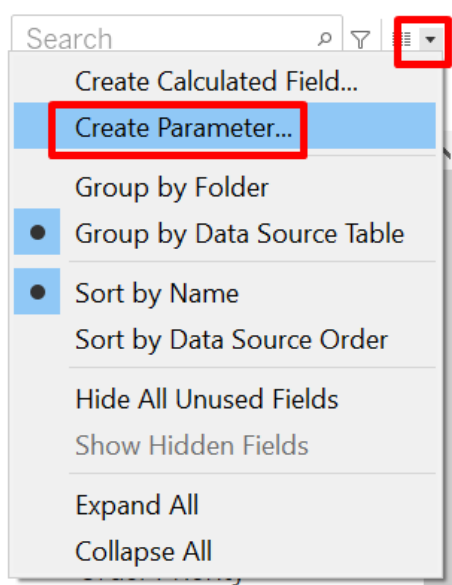
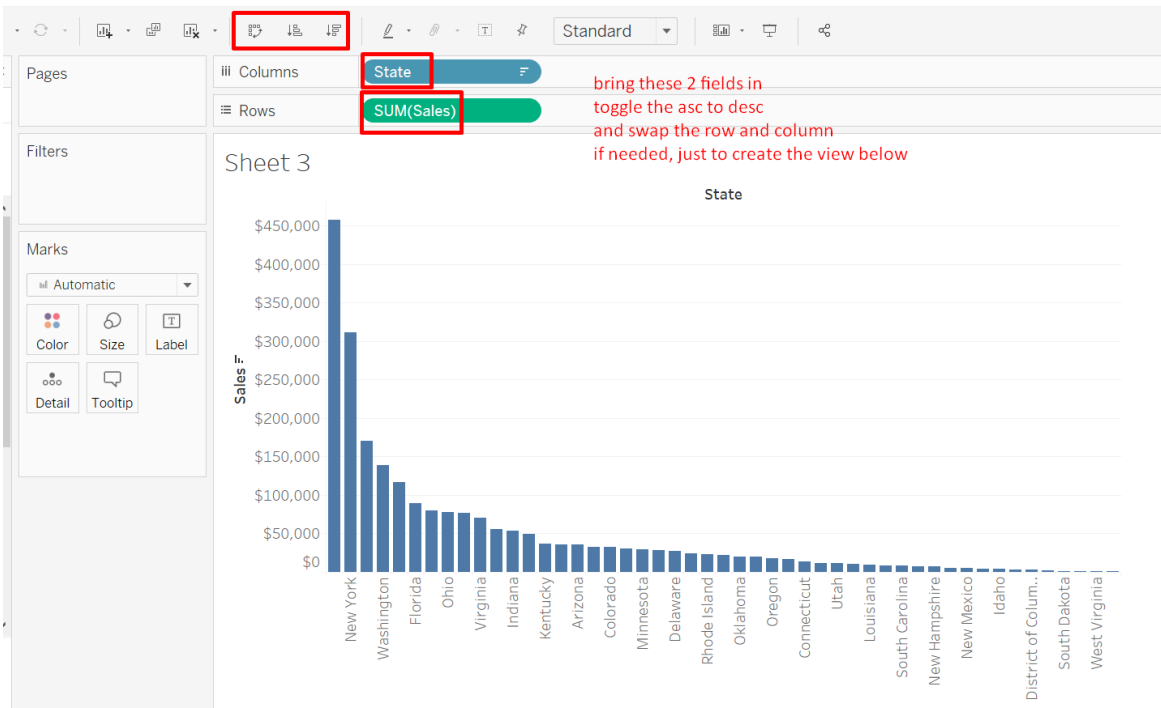
(then click OK)





1. REFERENCE LINE USING PARAMETER

<https://www.alvinang.sg/s/Sample-Superstore-USA.xls>



Edit Parameter [3 - Sales Target Reference Line] ✕

Name: Comment >>

Properties

Data type:

Current value:

Value when workbook opens:

Display format:

Allowable values: All List Range

Range of values

Minimum: Fixed

Maximum: Set values from ▾

Step size: When workbook opens

The screenshot shows the Tableau interface with the following elements:

- Analytics Pane:** Contains sections for Summarize, Model, and Custom. The 'Reference Line' option is highlighted in the Custom section.
- Marks Card:** Set to 'Automatic'.
- Columns Shelf:** Contains 'State'.
- Rows Shelf:** Contains 'SUM(Sales)'.
- Sheet 3:** Displays a bar chart of Sales by State. A red arrow points from the 'Table' icon in the 'Add a Reference Line' menu to the chart.
- Annotations:** A red arrow points from 'Reference Line' in the Custom section to the 'Table' icon. Text 'click here' is near the Analytics pane, and 'drag into Table' is near the Marks card.

The 'Edit Reference Line, Band, or Box' dialog box is shown with the following settings:

- Tab:** Line (selected)
- Scope:** Entire Table (selected)
- Value:** 3 - Sales Target Reference Line
- Label:** Value
- Tooltip:** Automatic
- Line only:** Line only (selected), 95
- Formatting:**
 - Line: (empty)
 - Fill Above: None
 - Fill Below: None
- Checkboxes:** Show recalculated line for highlighted or selected data points (checked)
- Buttons:** OK

Data Analytics Pages

Orders (Sample - Superst...)

Columns: State

Rows: SUM(Sales)

Clickback to Data

Filters

Tables

- 2 - Date Calculation
- Category
- City
- Country
- Customer ID
- Customer Name
- Market
- Order Date
- Order ID
- Order Priority
- Postal Code

Parameters

- 2 - Date Parameter
- 2 - Top N Parameter
- 3 - Sales Target Referer...**

Add to Sheet

- Show Parameter
- Cut check this
- Copy
- Edit...
- Duplicate
- Rename
- Hide
- Delete
- Create
- Default Properties
- Folders
- Replace References...
- Describe...

right click here

Sheet 3

State

3 - Sales Target Refer...
50,000

this appears

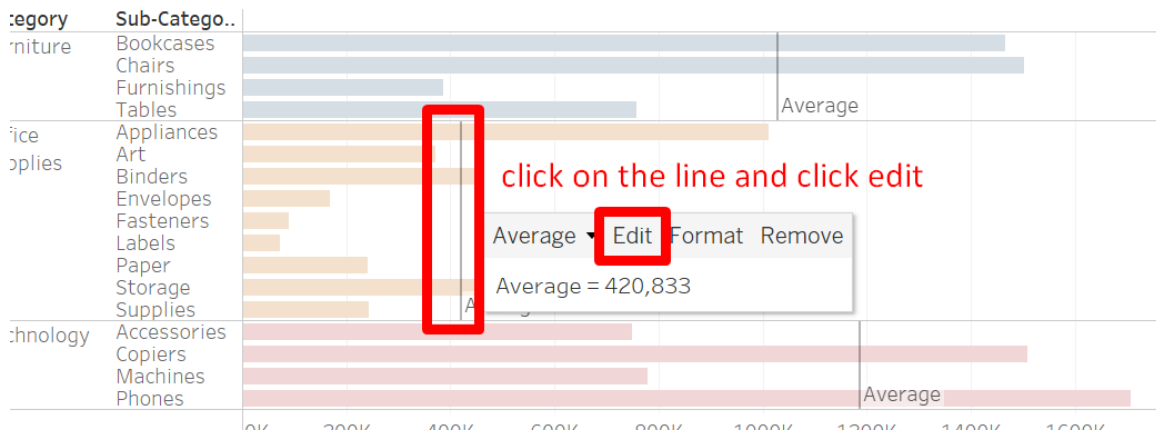
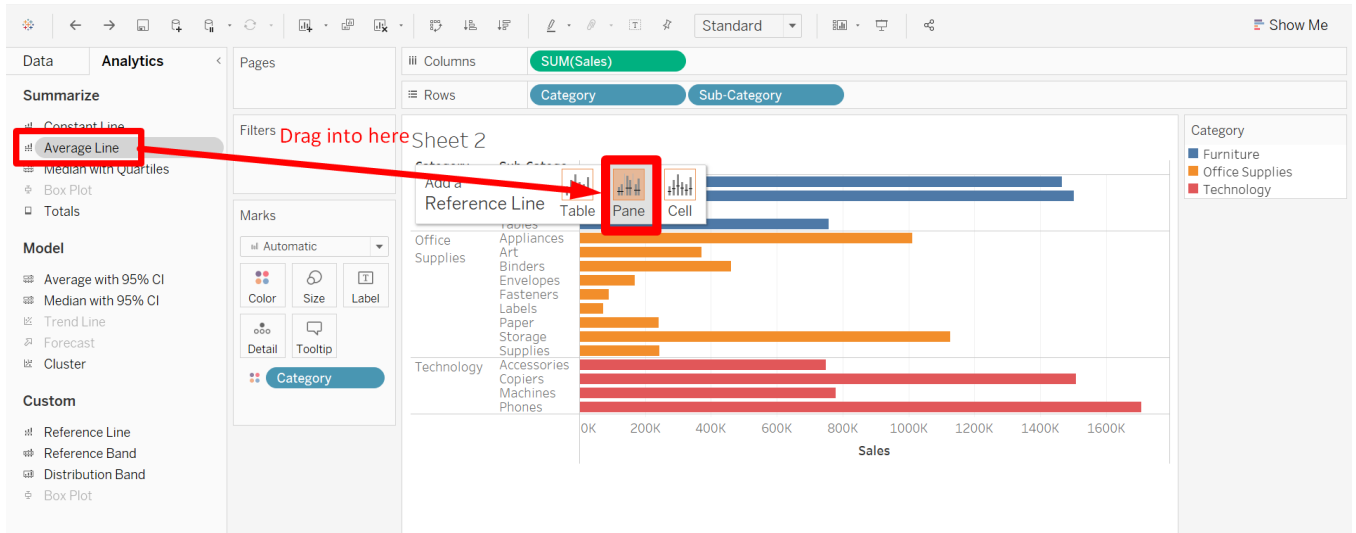
Sheet 3

State

3 - Sales Target Refer...
250,000

you now can toggle the target sale reference line using the parameter u have just set

B. AVERAGE LINE



Edit Reference Line, Band, or Box

Line Band Distribution Box Plot

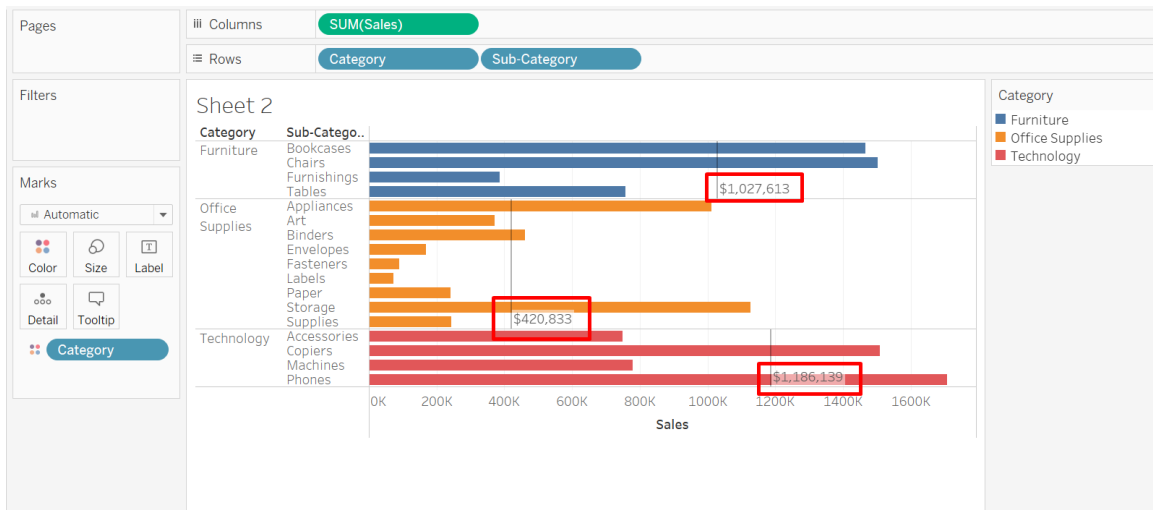
Scope
 Entire Table Per Pane Per Cell

Line
 Value: SUM(Sales) Average
 Label: Custom \$<Value>
 Tooltip: Automatic
 Line only 95

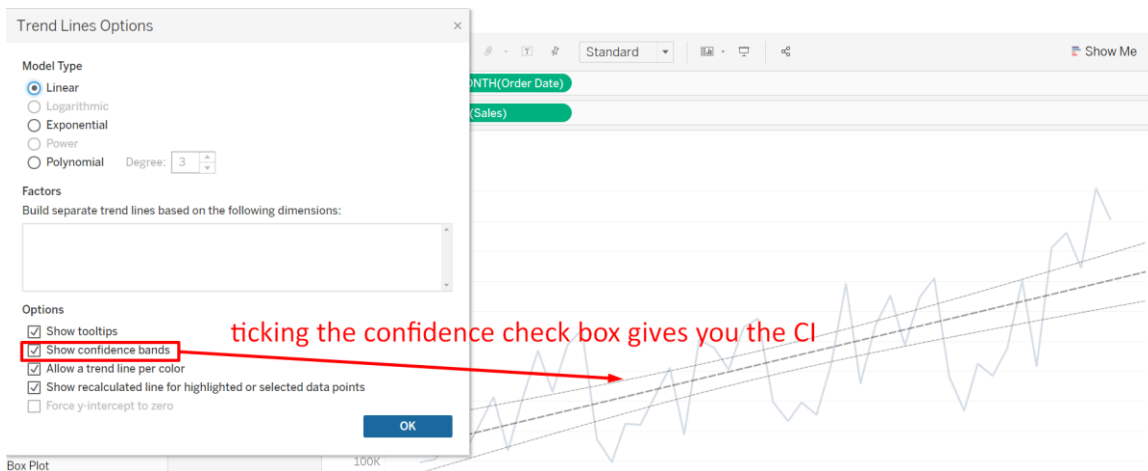
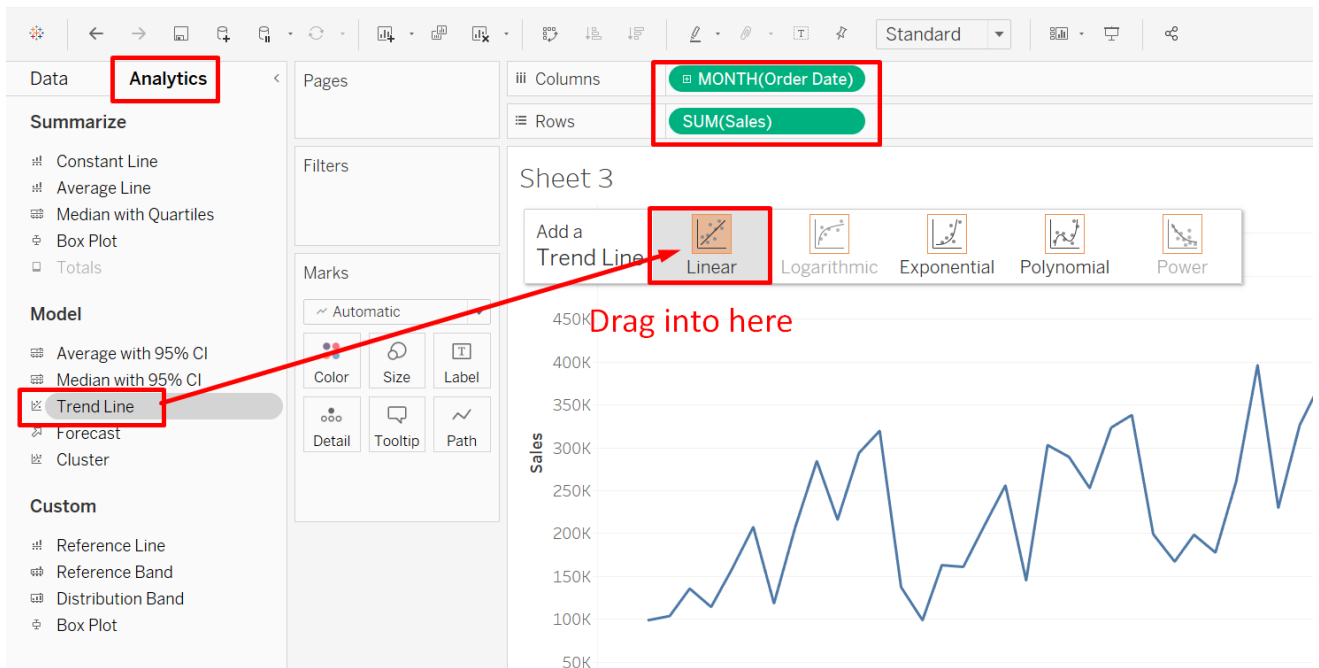
Formatting
 Line:
 Fill Above: None
 Fill Below: None

Show recalculated line for highlighted or selected data points

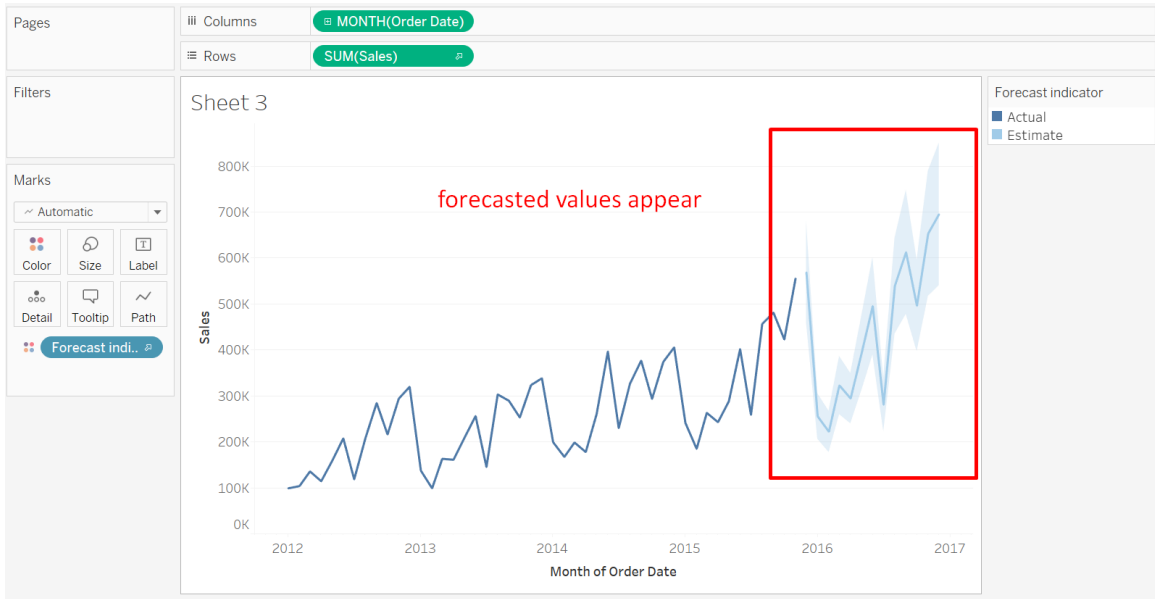
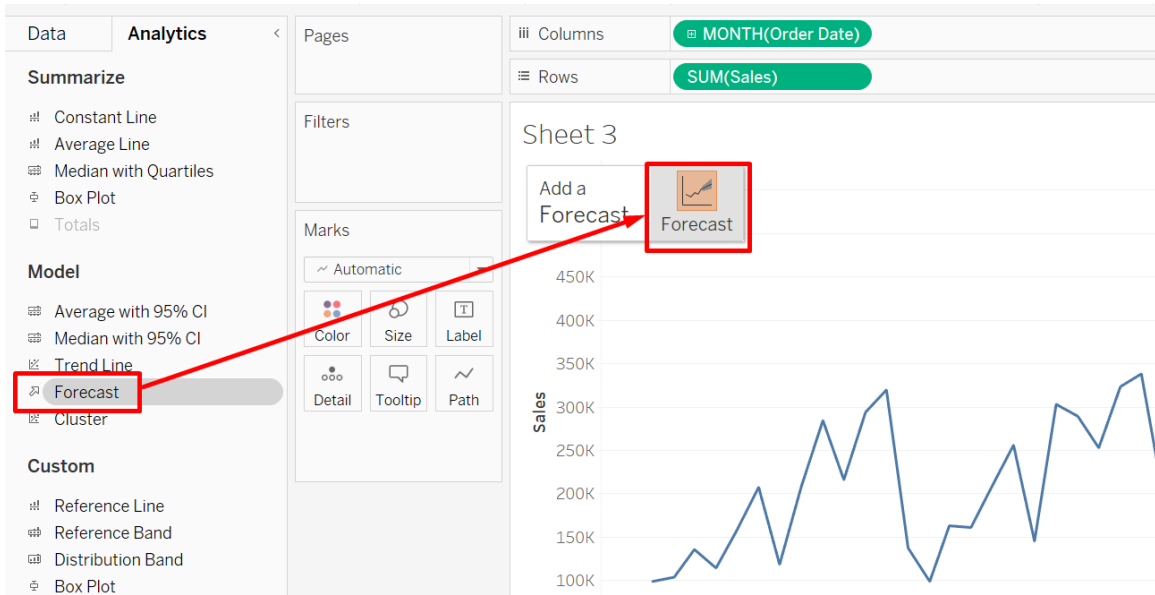
OK



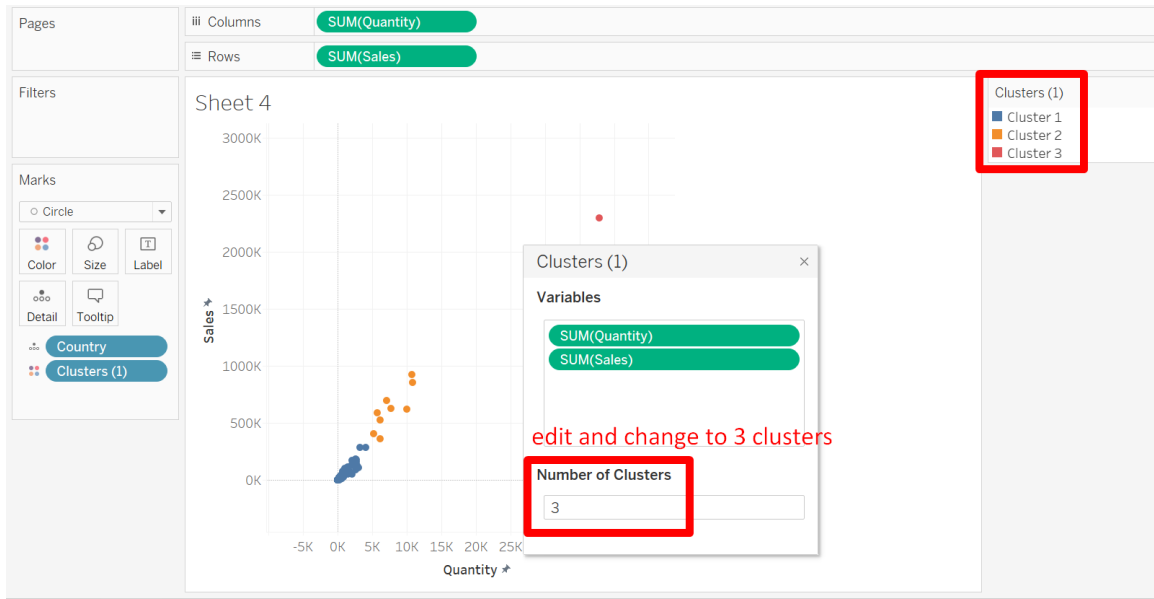
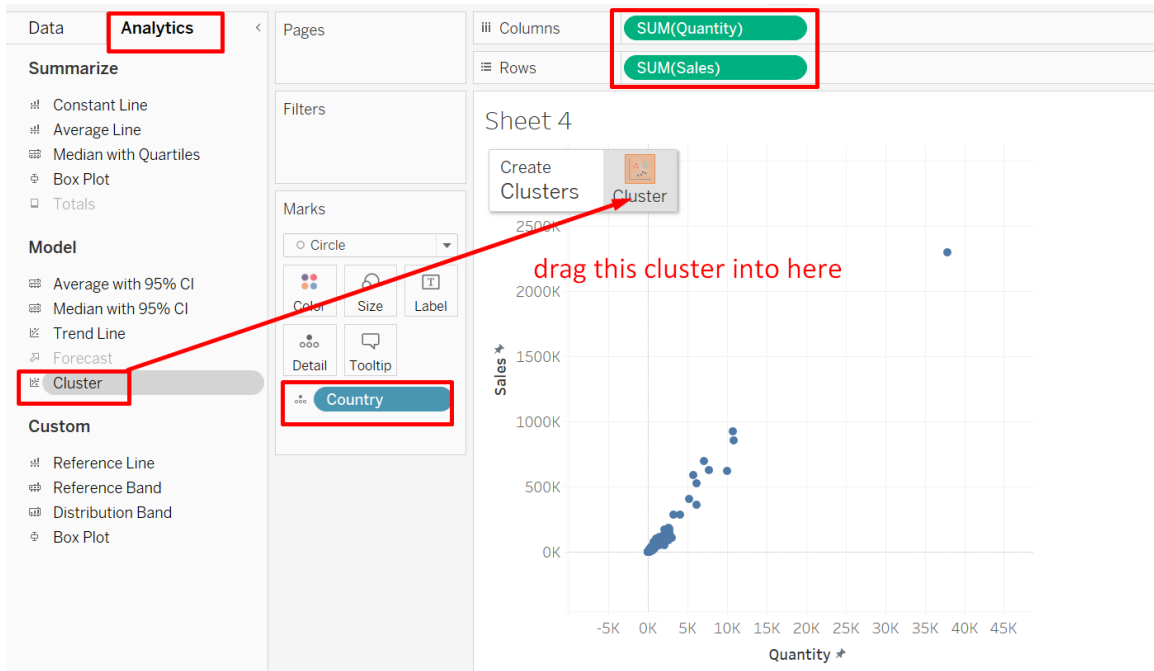
C. TREND LINE



D. FORECASTING LINE



E. CLUSTERING



II. QUICK TABLE CALCULATIONS

A. ADD TOTALS

<https://www.alvinang.sg/s/Sample-Superstore-USA.xls>

We shall achieve this...

Grand Totals and Sub Totals		Region				Grand Total
Category	Sub-Cat. <small>±</small>	Central US	Eastern US	Southern US	Western US	
Furniture	Furnishings	15,150	28,982	17,256	29,894	91,283
	Bookcases	24,157	43,819	10,899	36,004	114,880
	Tables	39,155	39,140	43,916	84,755	206,966
	Chairs	85,231	96,261	45,176	101,781	328,449
	Total	163,693	208,202	117,248	252,434	741,578
Office Supplies	Fasteners	2,484	2,832	1,473	2,488	9,277
	Labels	2,445	2,573	2,353	5,061	12,433
	Envelopes	4,205	3,632	3,139	3,814	14,790
	Art	5,652	7,319	4,579	9,090	26,640
	Supplies	9,395	10,666	8,294	18,055	46,410
	Paper	16,695	19,467	13,692	26,121	75,975
	Appliances	23,519	34,117	19,411	29,957	107,003
	Binders	56,923	53,487	37,015	55,945	203,371
	Storage	45,814	71,511	35,746	70,501	223,571
	Total	167,131	205,605	125,702	221,032	719,469
Technology	Copiers	37,260	53,219	9,300	49,749	149,528
	Accessories	33,956	45,033	27,277	61,114	167,380
	Machines	26,797	66,106	53,891	42,444	189,239
	Phones	72,403	100,615	58,304	98,684	330,007
	Total	170,416	264,974	148,772	251,992	836,154
Grand Total		501,240	678,781	391,722	725,458	2,297,201

Tableau Public - Book1

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Entire View

Region

Category Sub-Category

Sheet 2

		Region			
		Central US	Eastern US	Southern US	Western US
Furniture	Bookcases	24,157	43,819	10,899	36,004
	Chairs	85,231	96,261	45,176	101,781
	Furnishings	15,150	28,982	17,256	29,957
	Tables	39,155	39,140	43,916	84,755
Office Supplies	Appliances	23,519	34,117	19,411	29,957
	Art	5,652	7,319	4,579	9,090
	Binders	56,923	53,487	37,015	55,945
	Envelopes	4,205	3,632	3,139	3,814
	Fasteners	2,484	2,832	1,473	2,488
	Labels	2,445	2,573	2,353	5,061
	Paper	16,695	19,467	13,692	26,121
Technology	Storage	45,814	71,511	35,746	70,501
	Supplies	9,395	10,666	8,294	18,055
	Accessories	33,956	45,033	27,277	61,114
	Copiers	37,260	53,219	9,300	49,749
	Machines	26,797	66,106	53,891	42,444
Phones	72,403	100,615	58,304	98,684	

Region

- Edit Colors...
- Format Legends...
- Edit Title...
- Highlight Selected Items
- Sort...
- Hide Card

Region

- Abc Binders
- Abc Bookcases
- Abc Chairs
- Abc Copiers
- Abc Envelopes
- Abc Fasteners
- Abc Furnishings
- Abc Labels
- Abc Machines
- Abc Paper
- Abc Phones
- Abc Storage
- Abc Supplies
- Abc Tables

Region

- Region
- Sub-Category
- SUM(Sales)

Color Size Text

Detail Tooltip

Data Source Grand Totals and Sub Totals Sheet 2

Tableau Public - Book1

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Entire View

Region

Category Sub-Category

Sheet 2

		Region			
		Central US	Eastern US	Southern US	Western US
Furniture	Furnishings	15,150	28,982	17,256	29,957
	Bookcases	24,157	43,819	10,899	36,004
	Tables	39,155	39,140	43,916	84,755
	Chairs	85,231	96,261	45,176	101,781
Office Supplies	Fasteners	2,484	2,832	1,473	2,488
	Labels	2,445	2,573	2,353	5,061
	Envelopes	4,205	3,632	3,139	3,814
	Art	5,652	7,319	4,579	9,090
	Supplies	9,395	10,666	8,294	18,055
	Paper	16,695	19,467	13,692	26,121
	Appliances	23,519	34,117	19,411	29,957
Technology	Binders	56,923	53,487	37,015	55,945
	Storage	45,814	71,511	35,746	70,501
	Copiers	37,260	53,219	9,300	49,749
	Accessories	33,956	45,033	27,277	61,114
	Machines	26,797	66,106	53,891	42,444
Phones	72,403	100,615	58,304	98,684	

Region

- Region
- Sub-Category
- SUM(Sales)

Color Size Text

Detail Tooltip

Data Source Grand Totals and Sub Totals Sheet 2

Tableau Public - Book1

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Entire View Show Me

Data Analytics Pages

Columns Region

Rows Category Sub-Category

Sheet 2

right click Region

Sort ascending
Sort descending
Format...
Hide Field Labels for Columns

Category	Sub-Cat...	Central US	Eastern US	Western US
Furniture	Furnishings	15,150	28,982	29,894
	Bookcases	24,157	43,819	36,004
	Tables	39,155	39,140	84,755
	Chairs	85,231	96,261	101,781
Office Supplies	Fasteners	2,484	2,832	1,473
	Labels	2,445	2,573	2,353
	Envelopes	4,205	3,632	3,139
	Art	5,652	7,319	4,579
	Supplies	9,395	10,666	8,294
	Paper	16,695	19,467	13,692
	Appliances	23,519	34,117	19,411
	Binders	56,923	53,487	37,015
	Storage	45,814	71,511	35,746
Technology	Copiers	37,260	53,219	9,300
	Accessories	33,956	45,033	27,277
	Machines	26,797	66,106	53,891
	Phones	72,403	100,615	58,304

Data Source Grand Totals and Sub Totals Sheet 2

Tableau Public - Book1

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Entire View Show Me

Data Analytics Pages

Columns Region

Rows Category Sub-Category

Sheet 2

choose these 3

Analysis

- Show Mark Labels
- Aggregate Measures
- Stack Marks
- View Data...
- Explain Data
- Reveal Hidden Data
- Percentage Of
- Totals
- Forecast
- Trend Lines
- Special Values
- Table Layout
- Legends
- Filters
- Highlighters
- Parameters
- Create Calculated Field...
- Edit Calculated Field
- Infer Properties from Missing Values
- Cycle Fields
- Swap Rows and Columns

Show Row Grand Totals

Show Column Grand Totals

Add All Subtotals

Remove All Subtotals

Total All Using

Category	Sub-Category	Eastern US	Southern US	Western US	Grand Total
		28,982	17,256	29,894	91,283
		43,819	10,899	36,004	114,880
		39,140	43,916	84,755	206,966
		96,261	45,176	101,781	328,449
		208,202	117,248	252,434	741,578
		2,832	1,473	2,488	9,277
		2,573	2,353	5,061	12,433
		3,632	3,139	3,814	14,790
		7,319	4,579	9,090	26,640
		10,666	8,294	18,055	46,410
		19,467	13,692	26,121	75,975
		34,117	19,411	29,957	107,003
		53,487	37,015	55,945	203,371
		71,511	35,746	70,501	223,571
		167,131	205,605	125,702	719,469
		37,260	53,219	9,300	149,528
		33,956	45,033	27,277	167,380
		26,797	66,106	53,891	189,239
		72,403	100,615	58,304	330,007
		170,416	264,974	148,772	836,154
		501,240	678,781	391,722	2,297,201

Data Source Grand Totals and Sub Totals Sheet 2

B. RANKING

We shall achieve this...

Ranking Table

Customer Name	Rank of Sales along Customer Name	Sales
Sean Miller	1	\$25K
Tamara Chand	2	\$19K
Raymond Buch	3	\$15K
Tom Ashbrook	4	\$15K
Adrian Barton	5	\$14K
Ken Lonsdale	6	\$14K
Sanjit Chand	7	\$14K
Hunter Lopez	8	\$13K
Sanjit Engle	9	\$12K
Christopher Con..	10	\$12K
Todd Sumrall	11	\$12K
Greg Tran	12	\$12K
Becky Martin	13	\$12K
Seth Vernon	14	\$11K
Caroline Jumper	15	\$11K
Clay Ludtke	16	\$11K
Maria Etezadi	17	\$11K
Karen Ferguson	18	\$11K
Bill Shonely	19	\$11K
Edward Hooks	20	\$10K
John Lee	21	\$10K
Grant Thornton	22	\$9K
Helen Wasserman	23	\$9K
Tom Boeckenhau..	24	\$9K
Peter Fuller	25	\$9K

Tableau Public - Book1

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Columns: Measure Names
Rows: Customer Name
Marks: SUM(Sales)

Customer Na..	Sales
Sean Miller	25,043
Tamara Chand	19,052
Raymond Buch	15,117
Tom Ashbrook	14,596
Adrian Barton	14,474
Ken Lonsdale	14,175
Sanjit Chand	14,142
Hunter Lopez	12,873
Sanjit Engle	12,209
Christopher Con..	12,129
Todd Sumrall	11,892
Greg Tran	11,820
Becky Martin	11,790
Seth Vernon	11,471
Caroline Jumper	11,165
Clay Ludtke	10,881
Maria Etezadi	10,664
Karen Ferguson	10,604
Bill Shonely	10,502
Edward Hooks	10,311
John Lee	9,800
Grant Thornton	9,351
Helen Wasserman	9,300
Tom Boeckenhau..	9,134
Peter Fuller	9,063

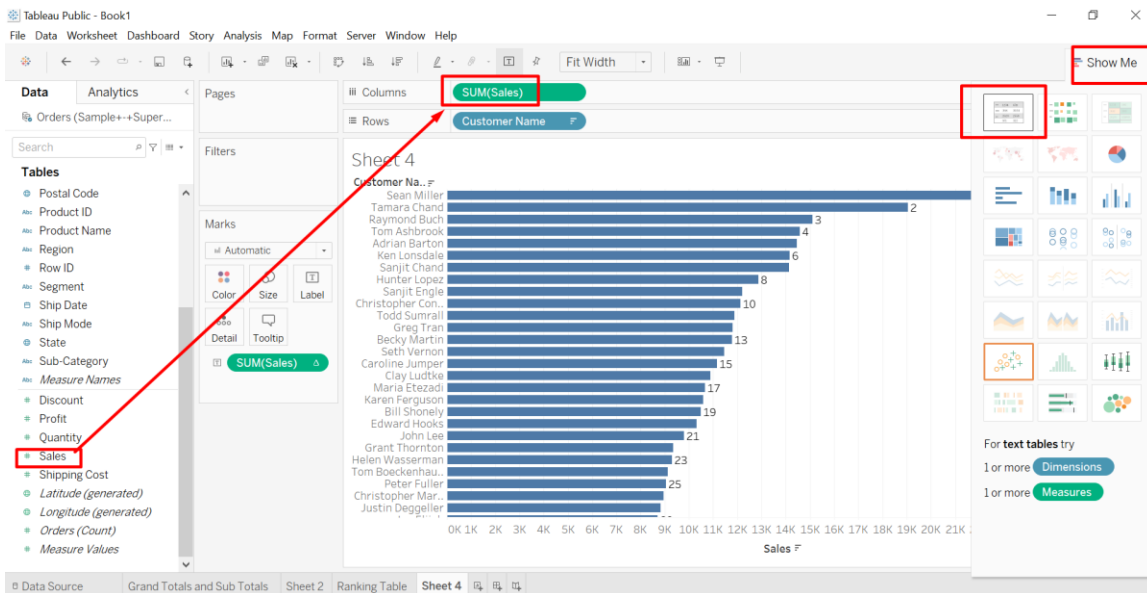
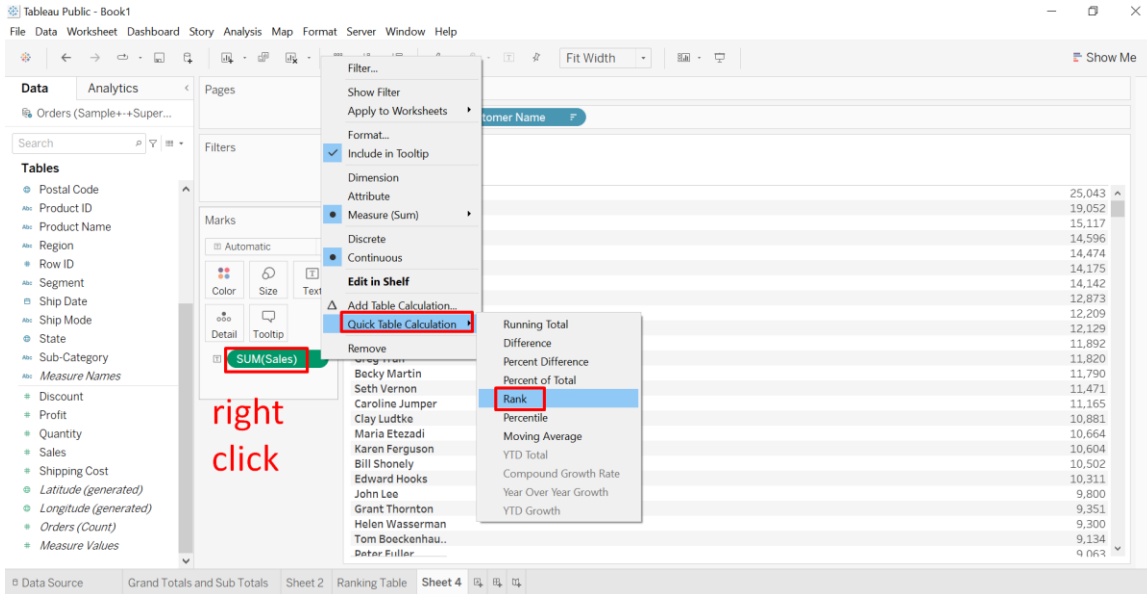


Tableau Public - Book1

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Fit Width Show Me

Format SUM(Sales) Fields

Measure Names

Customer Name Rank of Sales along Customer Name Sales

Sean Miller \$25K

amara Chand \$19K

aymond Buch \$15K

om Ashbrook \$14K

drian Barton \$14K

en Lonsdale \$14K

anjit Chand \$13K

unter Lopez \$12K

anjit Engle \$12K

hristopher Con... \$12K

odd Sumrall \$12K

reg Tran \$12K

Becky Martin \$12K

Seth Vernon \$11K

Caroline Jumper \$11K

Clay Ludtke \$11K

Maria Etezadi \$11K

Karen Ferguson \$11K

Bill Shonely \$11K

Edward Hooks \$10K

John Lee \$10K

Grant Thornton \$9K

Helen Wasserman \$9K

Tom Boeckenhau... \$9K

Defer Fuller \$9K

right click ..
FORMAT...

Numbers: \$123K

Automatic
Number (Standard)
Number (Custom)
Currency (Standard)
Currency (Custom)
Scientific
Percentage
Custom

Currency (Custom)
Decimal places: 0
Negative values: (\$1234)
Display Units: Thousands (K)
Prefix / Suffix: \$
 Include thousands separat

Measure Values
SUM(Sales)
SUM(Sales)

Clear

Data Source Grand Totals and Sub Totals Sheet 2 Ranking Table Sheet 4

C. RUNNING TOTAL

1. YEARLY RUNNING TOTAL

thereafter drag and throw away the YEAR to leave only Quarter and Month

hit the + button to uncollapse more

hit the + button to uncollapse more

Year of...	Quarte..	Month of ..	2012	Order Date	2013	2014	2015
2012	Q1	January	13,996		18,174		
		February	7,014	12,211	22,868		
		March	53,608	38,467	51,186		
	Q2	April	28,175	34,195	39,249		
		May	28,837	30,132	56,691		
		June	30,008	24,797	39,430		
		July	33,574	28,765	38,441		
		August	28,151	36,898	33,266		
		September	81,313	64,596	72,908		
		October	36,181	31,405	56,463		
		November	79,521	75,973	82,192		
		December	63,921	74,920	97,237		
2013	Q1	January		18,174			
		February		36,467			
		March		51,186			
	Q2	April		39,249			
		May		56,691			
		June		39,430			
		July		38,441			
		August		33,266			
		September		72,908			
		October		56,463			
		November		82,192			
		December		97,237			
2014	Q1	January			38,441		
		February			31,405		
		March			56,463		
	Q2	April			39,249		
		May			56,691		
		June			39,430		
		July			38,441		
		August			33,266		
		September			72,908		
		October			56,463		
		November			82,192		
		December			97,237		
2015	Q1	January				44,712	
		February				20,284	
		March				53,909	
	Q2	April				40,112	
		May				45,651	
		June				48,260	
		July				48,428	
		August				61,516	
		September				90,489	
		October				77,794	
		November				112,326	
		December				90,475	

Filter...

Show Filter

Format...

Include in Tooltip

Dimension

Attribute

Measure (Sum)

Discrete

Continuous

Edit in Shelf

Add Table Calculation...

Quick Table Calculation

Quarte..	Month of ..	2012	Order Date	2013	2014	2015
Q1	January	13,946	18,174	18,542	44,703	
	February	7,014	12,211	22,868	20,284	
	March	53,608	38,467	51,186	53,909	
Q2	April	28,175	34,195	39,249	40,112	
	May	28,837	30,132	56,691	45,651	
	June	30,008	24,797	39,430	48,260	
	July	33,574	28,765	38,441	48,428	
	August	28,151	36,898	33,266	61,516	
	September	81,313	64,596	72,908	90,489	
	October	36,181	31,405	56,463	77,794	
	November	79,521	75,973	82,192	112,326	
	December	63,921	74,920	97,237	90,475	

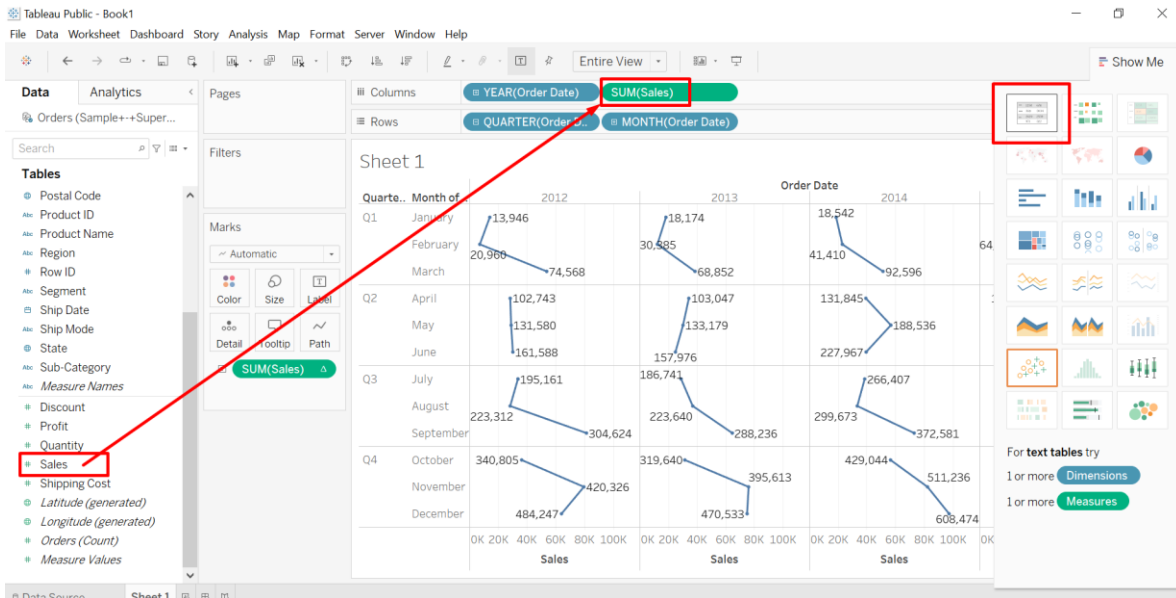
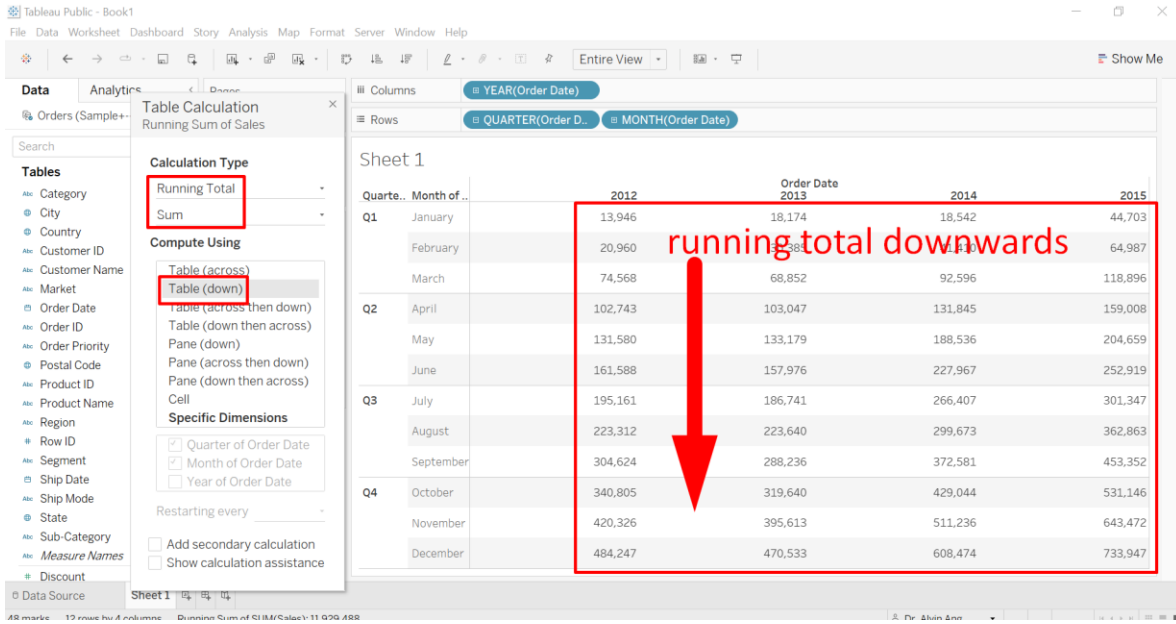


Tableau Public - Book1

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Entire View

Data Analytics Pages Columns Rows

Orders (Sample++Super...)

Search

Filters: Measure Names

Tables: Postal Code, Product ID, Product Name, Region, Row ID, Segment, Ship Date, Ship Mode, State, Sub-Category, Measure Names, Discount, Profit, Quantity, Sales, Shipping Cost, Latitude (generated), Longitude (generated), Orders (Count), Measure Values

Marks: Automatic, Color, Size, Text, Detail, Tooltip, Measure Values

Measure Values: SUM(Sales), SUM(Sales)

Columns: YEAR(Order Date), Measure Names

Rows: QUARTER(Order Date), MONTH(Order Date)

Sheet 1

Order Date

		2012		2013		2014		2015	
Quarte..	Month of ..	Sales	Running Sum ..	Sales	Running Sum ..	Sales	Running Sum ..	Sales	Running Sum ..
Q1	January	13,946	13,946	18,174	18,174	18,542	18,542	44,703	44,703
	February	7,014	20,960	12,211	30,385	22,868	41,410	20,284	64,987
	March	53,608	74,568	38,467	68,852	51,186	92,596	53,909	118,896
Q2	April	28,175	102,743	34,195	103,047	39,249	131,845	40,112	159,008
	May	28,837	131,580	30,132	133,179	56,691	188,536	45,651	204,659
	June	30,008	161,588	24,797	157,976	39,430	227,967	48,260	252,919
Q3	July	33,574	195,161	28,765	186,741	38,441	266,407	48,428	301,347
	August	28,151	223,312	36,898	223,640	33,266	299,673	61,516	362,863
	September	81,313	304,624	64,596	288,236	72,908	372,581	90,489	453,352
Q4	October	36,181	340,805	31,405	319,640	56,463	429,044	77,794	531,146
	November	79,521	420,326	75,973	395,613	82,192	511,236	112,326	643,472
	December	63,921	484,247	74,920	470,533	97,237	608,474	90,475	733,947

Annotations: "u need to rearrange here and here" with arrows pointing to the column headers and the Measure Values section.

Pages

Columns: YEAR(Order Date), Measure Names

Rows: QUARTER(Order Date), MONTH(Order Date)

Filters: Measure Names

Marks: Automatic, Color, Size, Text, Detail, Tooltip, Measure Values

Measure Values: SUM(Sales), SUM(Sales)

Yearly Running Total

		2012		2013		2014		2015	
Quarte..	Month of ..	Sales	Running Sum ..	Sales	Running Sum ..	Sales	Running Sum ..	Sales	Running Sum ..
Q1	January	13,946	13,946	18,174	18,174	18,542	18,542	44,703	44,703
	February	7,014	20,960	12,211	30,385	22,868	41,410	20,284	64,987
	March	53,608	74,568	38,467	68,852	51,186	92,596	53,909	118,896
Q2	April	28,175	102,743	34,195	103,047	39,249	131,845	40,112	159,008
	May	28,837	131,580	30,132	133,179	56,691	188,536	45,651	204,659
	June	30,008	161,588	24,797	157,976	39,430	227,967	48,260	252,919
Q3	July	33,574	195,161	28,765	186,741	38,441	266,407	48,428	301,347
	August	28,151	223,312	36,898	223,640	33,266	299,673	61,516	362,863
	September	81,313	304,624	64,596	288,236	72,908	372,581	90,489	453,352
Q4	October	36,181	340,805	31,405	319,640	56,463	429,044	77,794	531,146
	November	79,521	420,326	75,973	395,613	82,192	511,236	112,326	643,472
	December	63,921	484,247	74,920	470,533	97,237	608,474	90,475	733,947

Annotation: "yearly running total" in red text above the table.

2. QUARTERLY RUNNING TOTAL

We continue from the previous segment...

Tableau Public - Book1

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Columns: YEAR(Order Date) Measure Names

Rows: QUARTER(Order Date) MONTH(Order Date)

Yearly Running Total

	2012		2013
	Sales	Running Sum ...	Sales
	13,946	13,946	18,174
	7,014	20,960	12,211
	53,608	74,568	38,467
	28,175	102,743	34,195
	28,837	131,580	30,132
	30,008	161,588	24,797
	33,574	195,161	28,765
	28,151	223,312	36,898
	81,313	304,624	64,596
Q4	October	340,805	31,405
	November	420,326	75,973
	December	484,247	74,920

right click

Tableau Public - Book1

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Table Calculation

Running Sum of Sales

Calculation Type

Running Total

Sum

Compute Using

Table (across)

Table (down)

Table (across then down)

Table (down then across)

Pane (across)

Pane (down)

Pane (across then down)

Pane (down then across)

Cell

Specific Dimensions

Quarter of Order Date

Month of Order Date

Year of Order Date

Restarting every Quarter o...

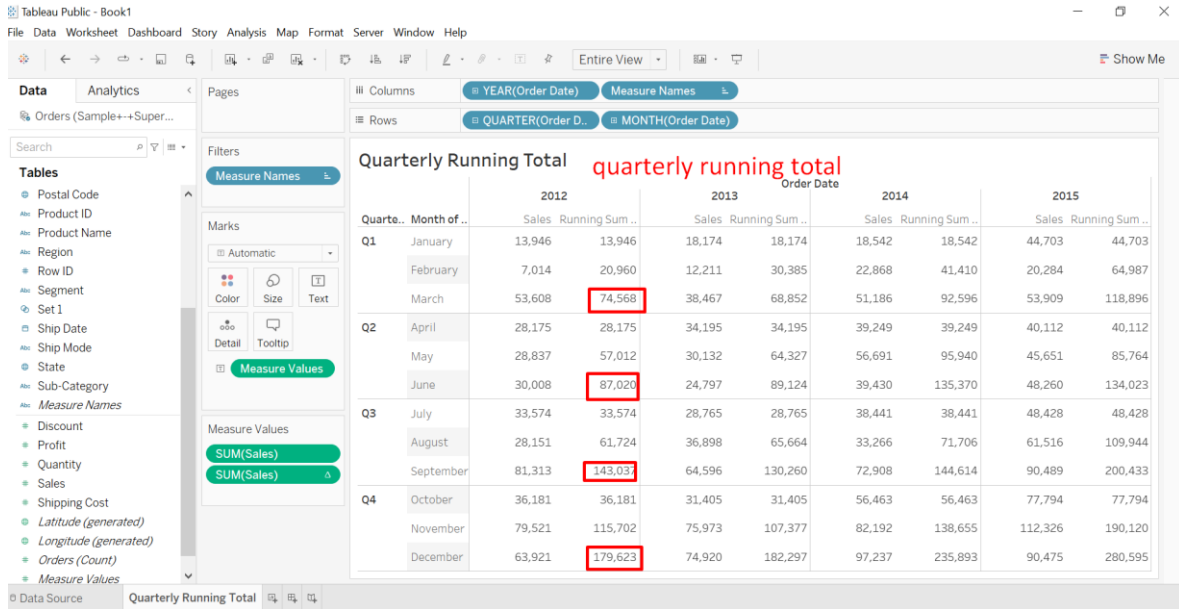
Sort order

None

Quarter of Order Date

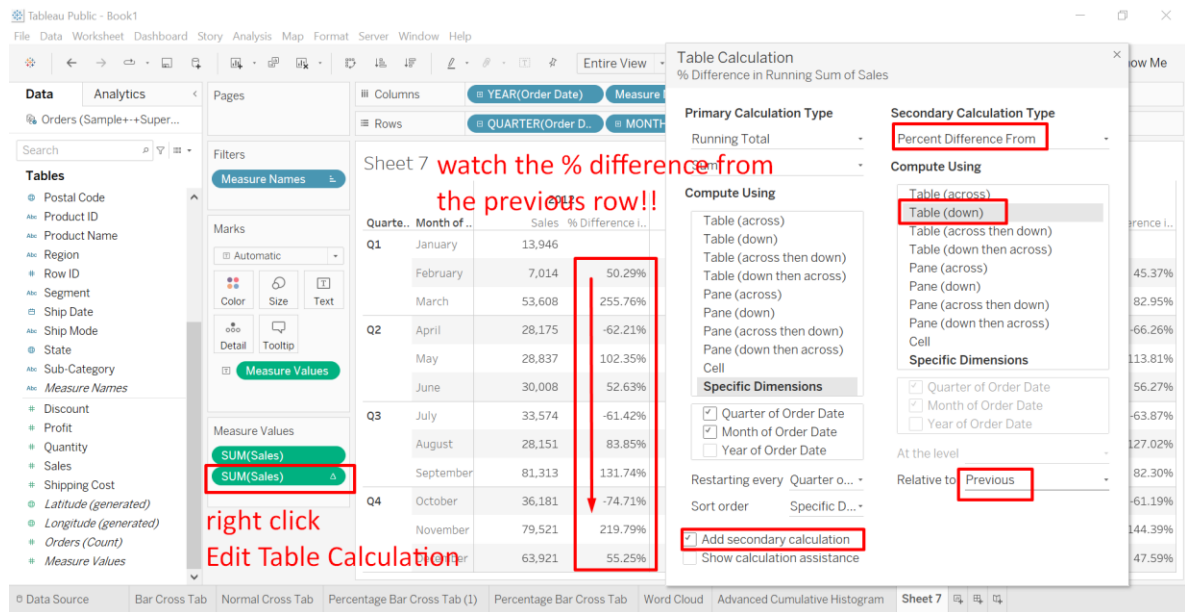
Add secondary calculation

Show calculation assistance



3. PERCENT DIFFERENCE FROM

Continue off from previous section...



D. PERCENTAGE OF TOTAL

1. % OF TOTAL TABLE

The screenshot shows the Tableau Public interface. The 'Columns' shelf contains 'Region' and the 'Rows' shelf is empty. The 'Marks' shelf is set to 'SUM(Sales)'. The view displays a table with the following data:

Region	Sales
Central US	501,240
Eastern US	678,781
Southern US	391,722
Western US	725,458

The screenshot shows the Tableau Public interface with the context menu open for the 'SUM(Sales)' mark. The 'Quick Table Calculation' option is selected, and the 'Percent of Total' option is highlighted in the submenu.

Context Menu Options:

- Filter...
- Show Filter
- Apply to Worksheets
- Format...
- Include in Tooltip
- Dimension
- Attribute
- Measure (Sum)
- Discrete
- Continuous
- Edit in Shelf
- Add Table Calculation...
- Quick Table Calculation
- Remove

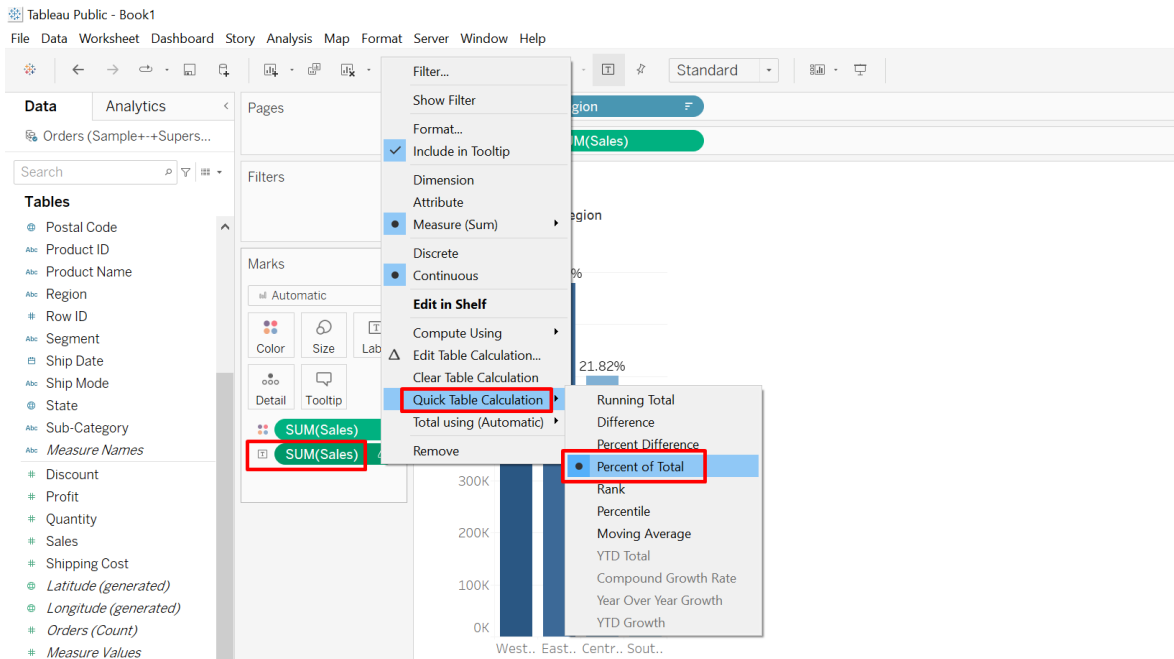
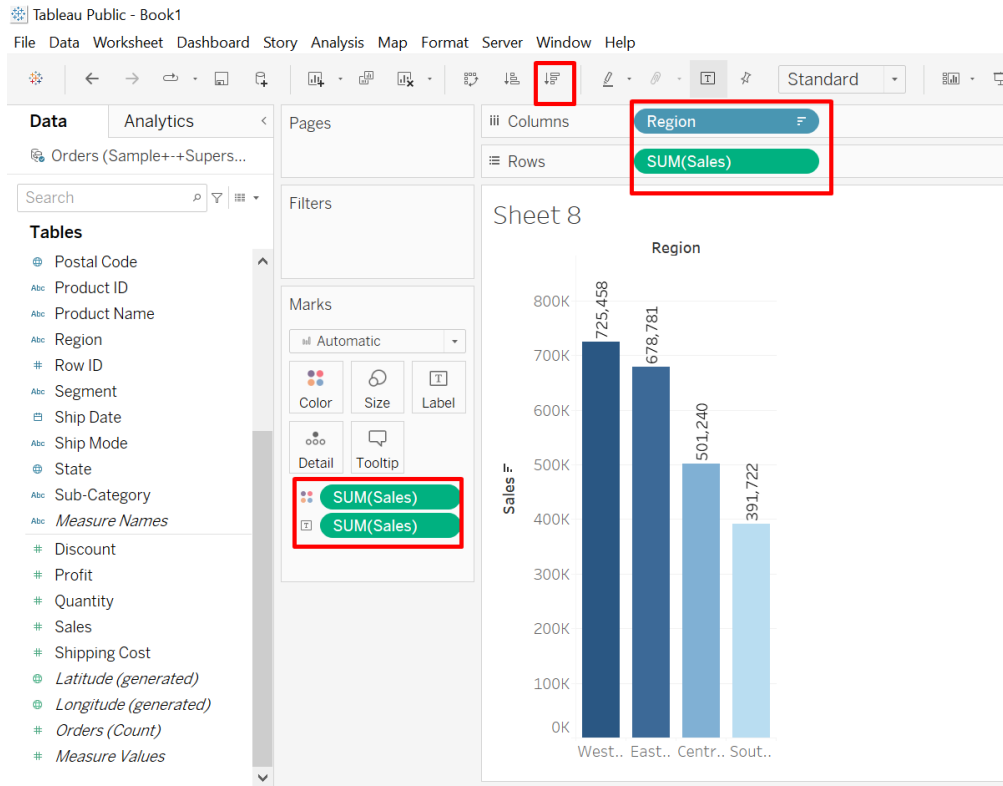
Quick Table Calculation Submenu Options:

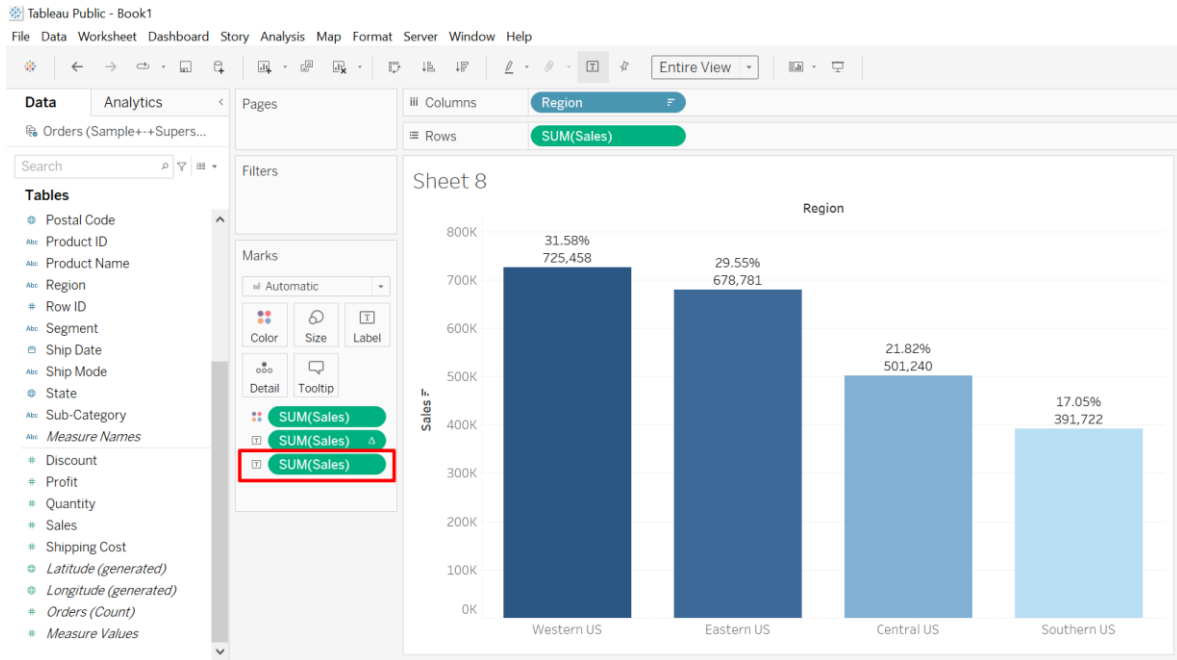
- Running Total
- Difference
- Percent Difference
- Percent of Total
- Rank
- Percentile
- Moving Average
- YTD Total
- Compound Growth Rate
- Year Over Year Growth
- YTD Growth

The screenshot shows the Tableau Public interface with a pivot table on 'Sheet 8'. The 'Region' field is on the Rows shelf. The Marks card is set to 'Automatic' and contains 'SUM(Sales)'. The pivot table shows the following data:

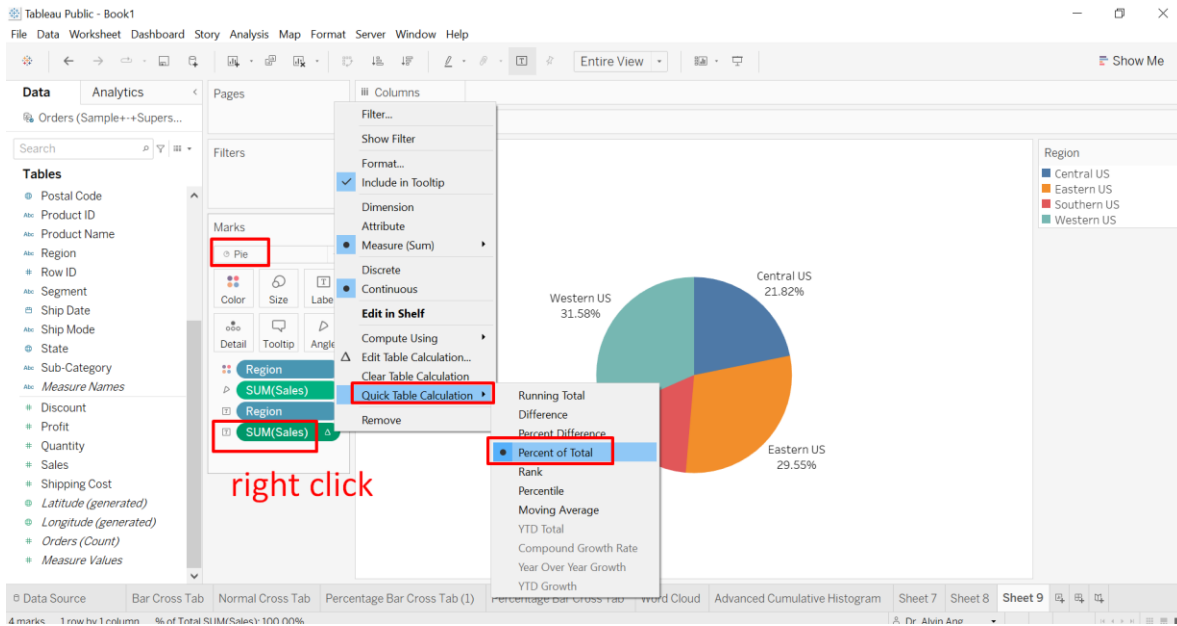
Region	
Central US	21.82%
Eastern US	29.55%
Southern US	17.05%
Western US	31.58%
Grand Total	100.00%

2. % OF TOTAL BAR CHART





3. % OF TOTAL PIE CHART



4. % OF TOTAL CROSTAB

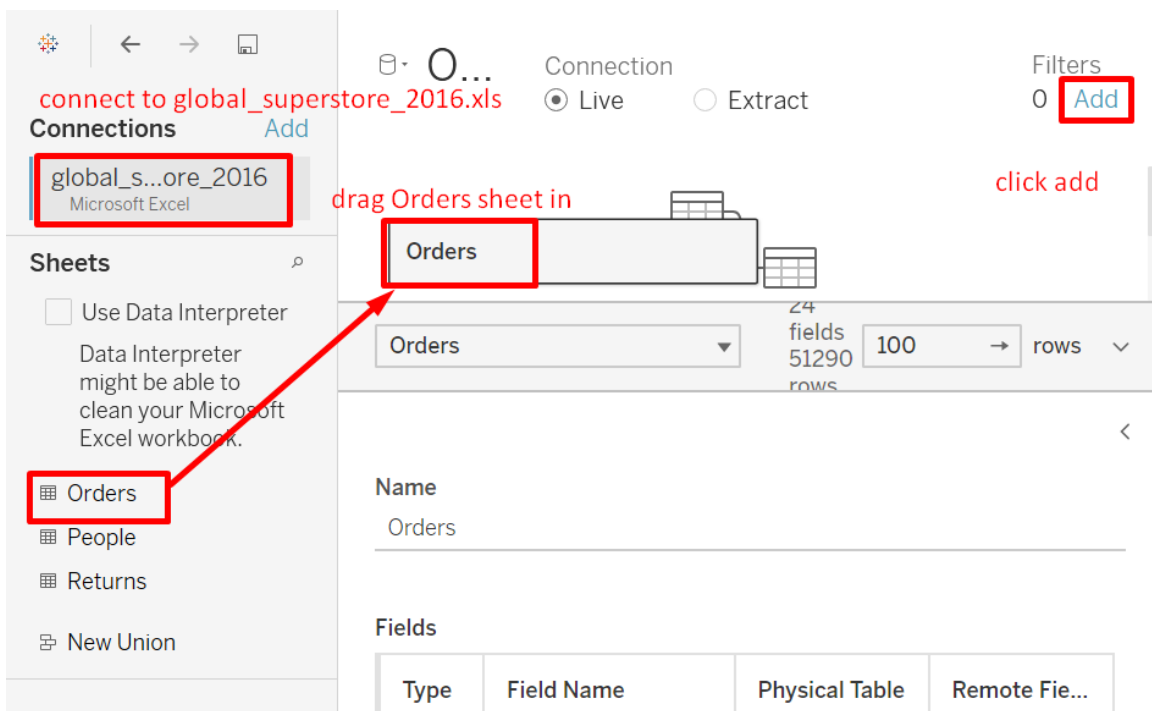
right click
Add Table
Calculations

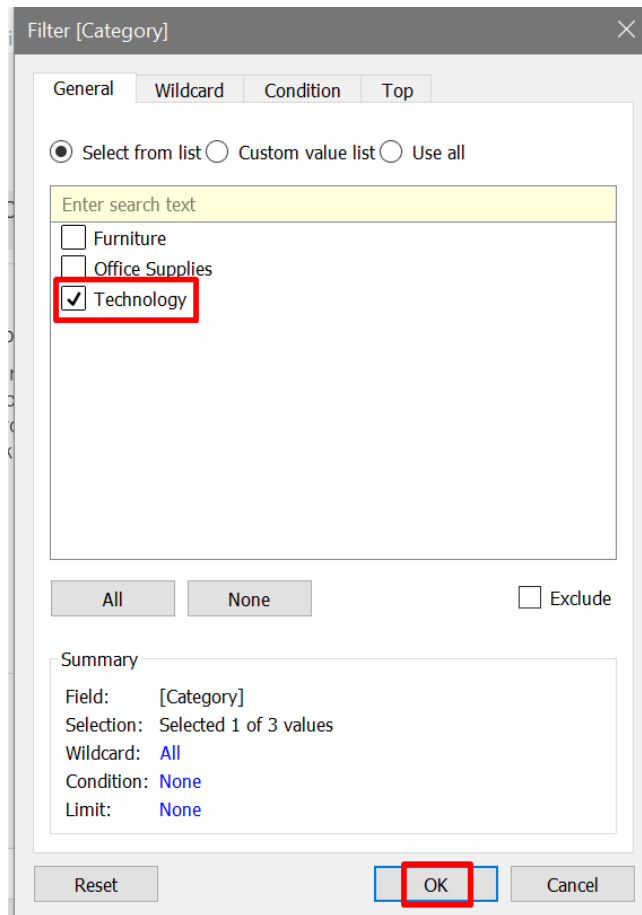
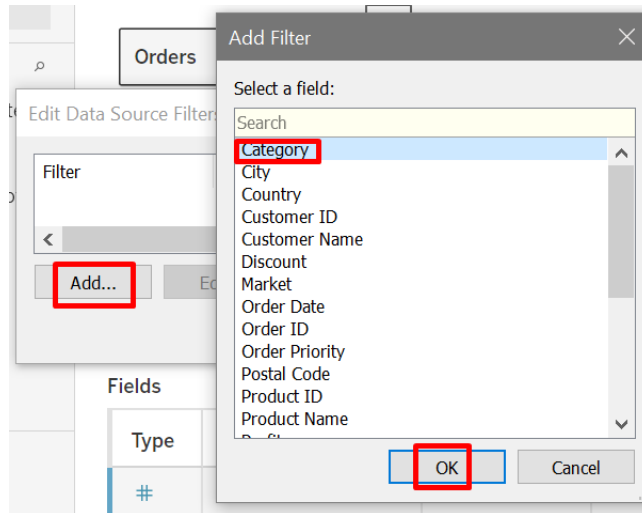
Quarte..	Month	2012	Order Date 2013	2014
Q1	January	2.88%	3.86%	3.05%
	February	1.45%	2.60%	2.76%
	March	11.07%	8.18%	8.41%
Q2	April	5.82%	7.27%	6.45%
	May	5.95%	6.40%	9.32%
	June	5.20%	5.27%	6.48%
Q3	July	6.93%	6.11%	6.32%
	August	5.81%	7.84%	5.47%
	September	16.79%	13.73%	11.98%
Q4	October	7.47%	6.67%	9.28%
	November	16.42%	16.15%	13.51%
	December	13.20%	15.92%	15.98%
Grand Total		100.00%	100.00%	100.00%

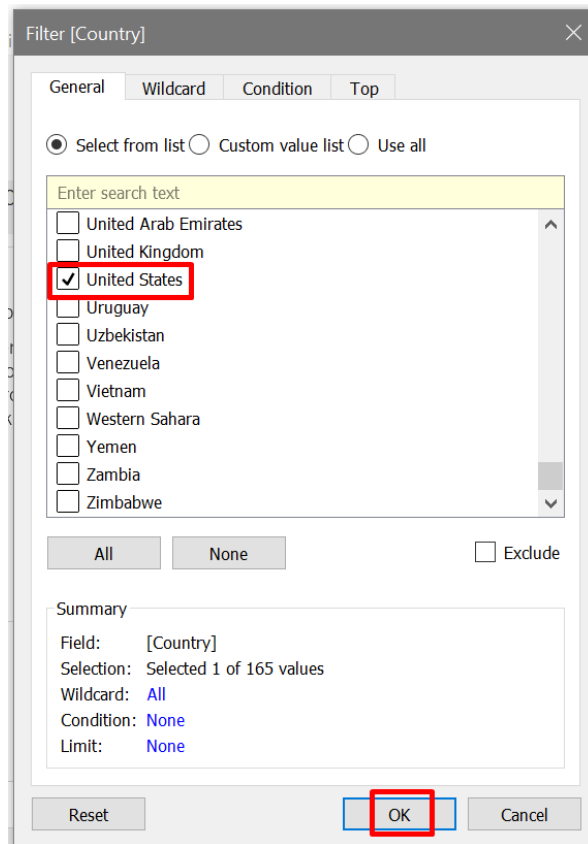
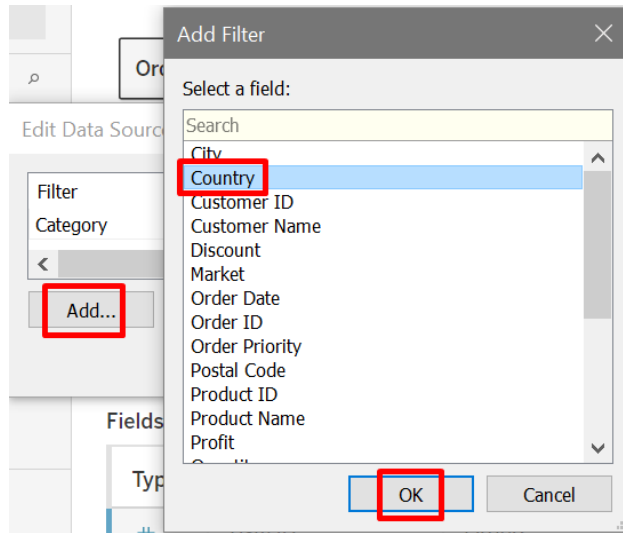
III. CONFIGURING THE DATA SOURCE

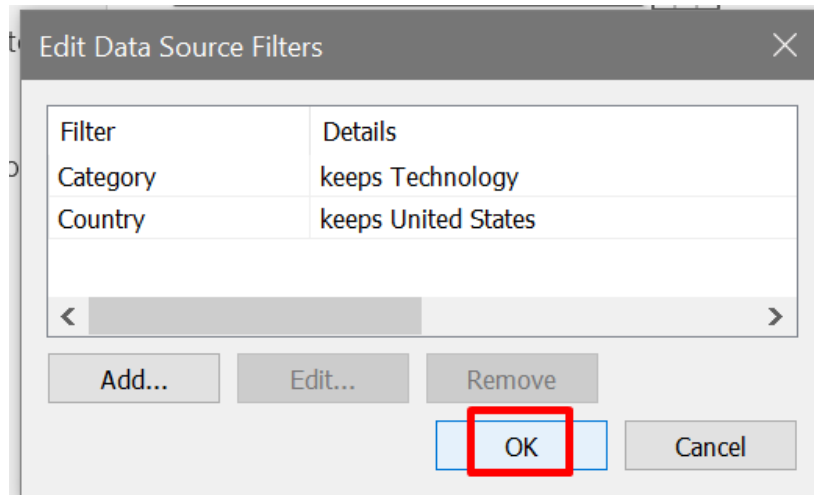
A. FILTERING COLUMNS

- The global_superstore_2016.xls has many columns in the Orders sheet.
- We don't want to use all columns and row. Specifically, we only want:
 - Category: Technology
 - Country: USA
- We can create a filter upon connecting to the data.









Observe that the data source has been filtered only to USA and Tech

Country	Region	Market	Product ID	Category	Sub-
United States	Central US	USCA	TEC-PH-5816	Technology	Phor
United States	Western US	USCA	TEC-PH-4389	Technology	Phor
United States	Eastern US	USCA	TEC-AC-6340	Technology	Acce
United States	Southern US	USCA	TEC-MA-3788	Technology	Macl
United States	Central US	USCA	TEC-MA-3329	Technology	Macl
United States	Western US	USCA	TEC-AC-5858	Technology	Acce
United States	Western US	USCA	TEC-AC-5109	Technology	Acce
United States	Eastern US	USCA	TEC-AC-5744	Technology	Acce

B. JOINING MULTIPLE XLS

DifferentNames

click add to add in additional csvs to connect them

this is from Sales 2016

this is from Products 2016

tableau automatically figures out the shared column and joins based on it

#	Abc
Sheet1	Sheet1
Row ID	Order ID
42433	AG-2012-TB11280

the two separate CSVs have been brought in and you can use them to start charting (using their individual columns)

Category	Sub-Category	Sales
Furniture	Bookcases	~85K
	Chairs	~55K
	Furnishings	~25K
	Tables	~35K
Office Supplies	Appliances	~65K
	Art	~45K
	Binders	~25K
	Envelopes	~15K
	Fasteners	~10K
	Labels	~5K
	Paper	~15K
Technology	Storage	~95K
	Supplies	~15K
	Accessories	~45K
	Copiers	~95K
	Machines	~115K

C. BRINGING IN SEPARATE XLS

Refer here:

<https://www.alvinang.sg/s/Learning-Tableau-Part-I-Fast-Track-by-Dr-Alvin-Ang.pdf> (search under Brining In A Separate Data Source)

D. UNION SEPARATE SHEETS WITHIN SAME XLS

May2016				June2016				July2016			
DAY	CUSTOMER	PURCHASES	TYPE	DAY	CUSTOMER	PURCHASES	TYPE	DAY	CUSTOMER	PURCHASES	TYPE
4	Lane	5	Credit	1	Lisa	3	Credit	2	Mario	2	Credit
10	Chris	6	Credit	28	Isaac	4	Cash	15	Wei	1	Cash
28	Juan	1	Credit	28	Sam	2	Credit	21	Jim	7	Cash

A union of these tables creates the following single table that contains all rows from all tables.

Union In short, this is what Union does to 3 separate sheets / tables

DAY	CUSTOMER	PURCHASES	TYPE
4	Lane	5	Credit
10	Chris	6	Credit
28	Juan	1	Credit
1	Lisa	3	Credit
28	Isaac	4	Cash
28	Sam	2	Credit
2	Mario	2	Credit
15	Wei	1	Cash
21	Jim	7	Cash

File is here: <https://www.alvinang.sg/s/Weather.xlsx>

connect to weather.xls and drag in January sheet

Name	City	State	Rainfall
January	January	January	
	Jacksonville	Fla.	53.1000
	Long Beach	Calif.	57.0000
	Los Angeles	Calif.	57.1000
	Miami	Fla.	68.1000

102	Jacksonville	January	Fla.	January	53.1
103	Long Beach	January	Calif.	January	57.1
104	Los Angeles	January	Calif.	January	57.1
105	Miami	January	Fla.	January	68.1
106	Phoenix	January	Ariz.	January	54.2
107	Sacramento	January	Calif.	January	46.3
108	San Diego	January	Calif.	January	57.8
109	San Francisco	January	Calif.	January	49.4
110	Tampa	January	Fla.	January	61.3
111	Vero Beach	January	Fla.	January	63
112	Mt. Washington	January	N.H.	January	5.2

If you open up January sheet, you see that Jacksonville is 53.1

Connections Add

Weather
Microsoft Excel

Sheets

- April
- January
- July
- October
- New Union

January (Weather)

January

Union

Drag in the April sheet, hover over January the Union word will appear and place it in it

January

now Jan and April are unioned together

change to 200 rows

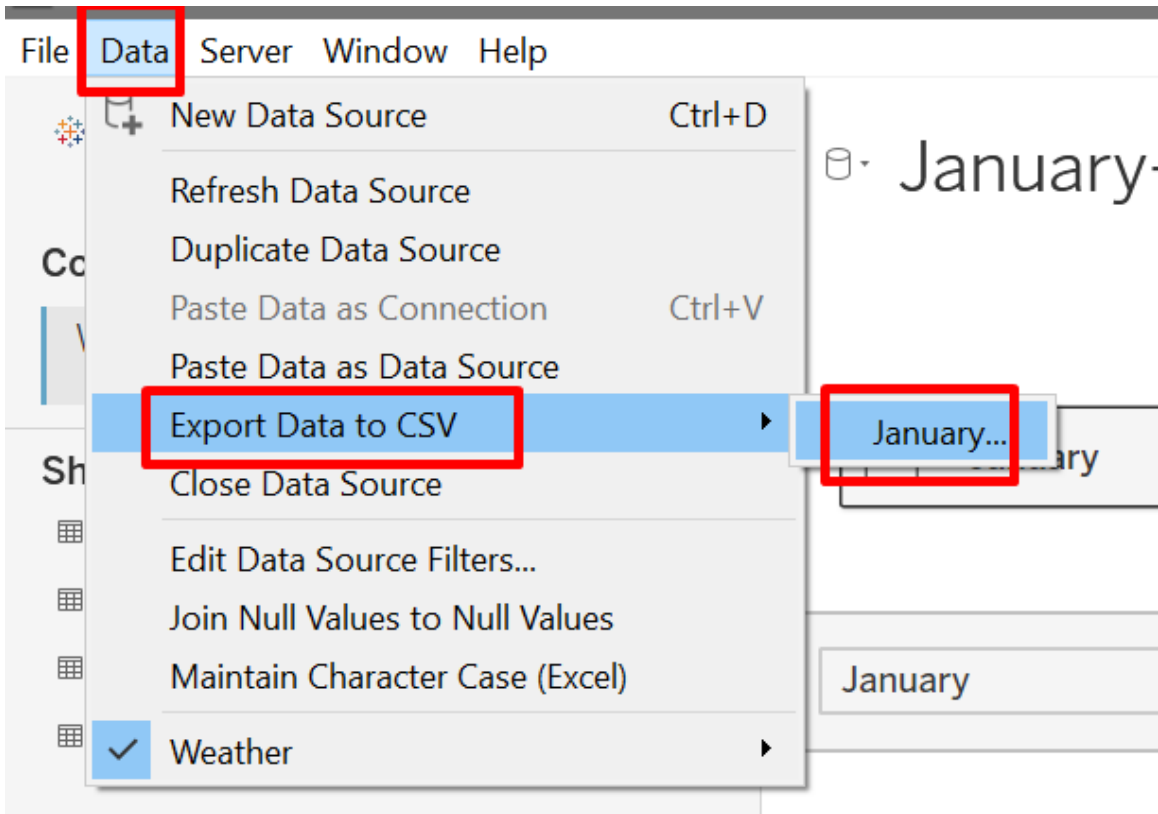
January 5 fields 200 rows 200 → rows

Name	City	State	Rainfall	Sheet	Table Name
January	Jackson	Miss.	63.4000	April	April
January	Jackson	Miss.	45.0000	January	January
January	Jacksonville	Fla.	66.6000	April	April
January	Jacksonville	Fla.	53.1000	January	January
January	Juneau	Alaska	40.8000	April	April
January	Juneau	Alaska	25.7000	January	January
January	Kansas City	Mo.	54.4000	April	April
January	Kansas City	Mo.	26.9000	January	January
January	Knoxville	Tenn.	57.8000	April	April

You can see that the current table is unioned of both Jan and April

click sort

1. EXPORT OUT TO CSV THE UNIONED TABLE



91	Jackson	April	Miss.	April	63.4				
92	Austin	April	Texas	April	68.3				
93	Charleston	April	S.C.	April	64.2				
94	San Antonio	April	Texas	April	68.6				
95	Houston	April	Texas	April	68.5				
96	Mobile	April	Ala.	April	66.1				
97	Montgomery	April	Ala.	April	64.3				
98	Savannah	April	Ga.	April	65.3				
99	Baton Rouge	April	La.	April	66.6				
100	New Orleans	April	La.	April	68.2				
101	Honolulu	April	Hawaii	April	75.6				
102	Jacksonville	January	Fla.	January	53.1				
103	Long Beach	January	Calif.	January	57				
104	Los Angeles	January	Calif.	January	57.1				
105	Miami	January	Fla.	January	68.1				
106	Phoenix	January	Ariz.	January	54.2				
107	Sacramento	January	Calif.	January	46.3				
108	San Diego	January	Calif.	January	57.8				
109	San Francisco	January	Calif.	January	49.4				
110	Tampa	January	Fla.	January	61.3				

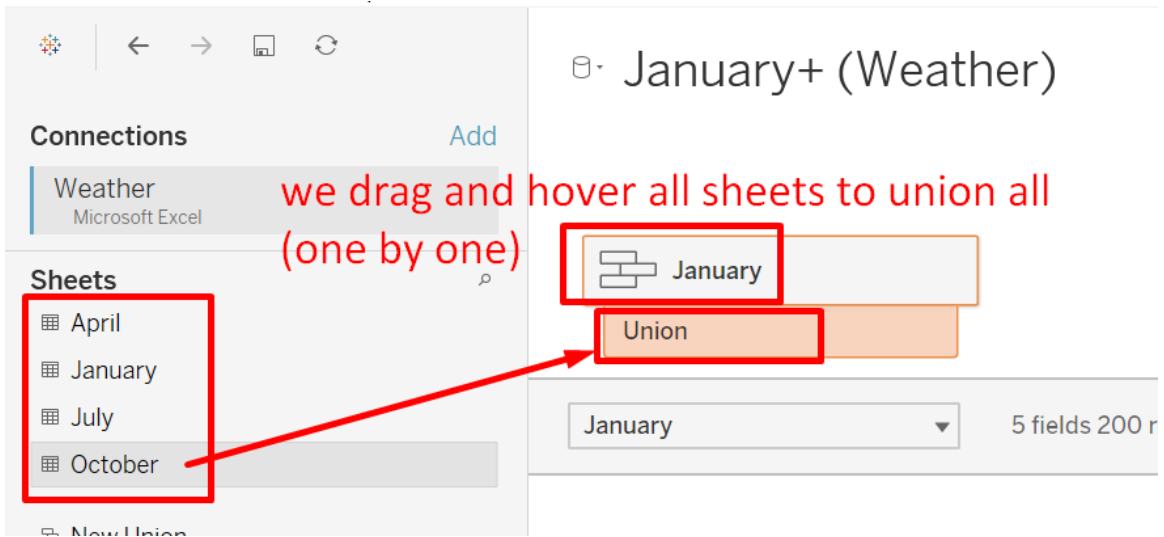
You can see now that the April sheet has been placed on top of the Jan sheet (in the exported .csv)

E. MERGE FIELDS

File can be found here: <https://www.alvinang.sg/s/Weather.xlsx>

Follow the steps here first to union all sheets: search under Brining In A Separate Data Source)

Union Separate Sheets Within Same XLS (ctrl click the link)



Note:

- For Jan + April + July to union, its fast and easy because their column names are all same.
- However, when you union October, Tableau hangs and you wait.... Because the last column name is different...its called "how much rain fell..."

City	State	Rainfall
Jacksonville	Fla.	81.6
Long Beach	Calif.	73.8
Los Angeles	Calif.	69.3
Miami	Fla.	83.7
Phoenix	Ariz.	92.8
Sacramento	Calif.	75.4
San Diego	Calif.	70.9
San Francisco	Calif.	62.8
Tampa	Fla.	82.5
Vero Beach	Fla.	81.7
Mt. Washington	N.H.	48.7
Caribou	Maine	65.6
Juneau	Alaska	56.8
Buffalo	N.Y.	70.8
Duluth	Minn.	65.5
Burlington	Vt.	70.6
Casper	Wyo.	70
Grand Rapids	Mich.	71.4
Anchorage	Alaska	58.4
Portland	Maine	68.7

they all have the same 3 column names

City	State	How Much Rain Fell
Jacksonville	Fla.	81.6
Long Beach	Calif.	73.8
Los Angeles	Calif.	69.3
Miami	Fla.	83.8
Phoenix	Ariz.	92.8
Sacramento	Calif.	74.4
San Diego	Calif.	67.6
San Francisco	Calif.	61
Tampa	Fla.	75.8
Vero Beach	Fla.	76.4
Mt. Washington	N.H.	30.2
Caribou	Maine	42.8
Juneau	Alaska	42.3
Buffalo	N.Y.	50.7
Duluth	Minn.	43.5
Burlington	Vt.	47.7
Casper	Wyo.	45.7
Grand Rapids	Mich.	49.9
Anchorage	Alaska	34.1
Portland	Maine	47.7

oct is different

January is made of 4 tables. January+

Column from Jan / Apr / July column from Oct

change to 400

click here

400 → rows

Name	City	State	Rainfall	How Much Rain Fell	Sheet	Tab
Albany	N.Y.	null	49.3000	October	Oc	
Albany	N.Y.	22.200	null	January	Jan	
Albany	N.Y.	46.600	null	April	Ap	
Albany	N.Y.	71.100	null	July	Jul	
Albuquerque	N.M.	null	57.3000	October	Oc	
Albuquerque	N.M.	35.700	null	January	Jan	
Albuquerque	N.M.	55.600	null	April	Ap	
Albuquerque	N.M.	78.500	null	July	Jul	

Type	Field Name	Physical Table	Remote Field Name
🌐	City	January+	City
🌐	State	January+	State
#	Rainfall	January+	Rainfall
#	How M...	January+	How Much Rain Fell

CTRL click to select these 2 columns

Merge them!

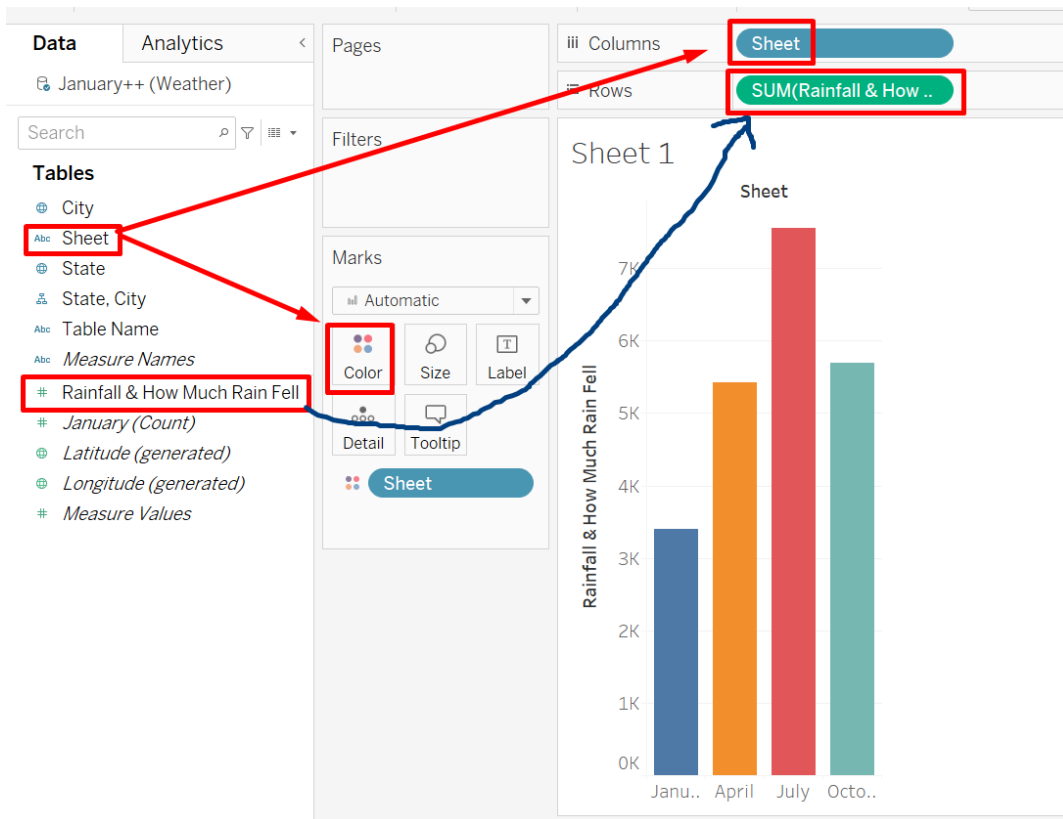
Merge Mismatched Fields

State	Rainfall	How Much Rain Fell
N.Y.	null	49.3000
N.Y.	22.200	null
N.Y.	46.600	null
N.Y.	71.100	null
N.M.	null	57.3000
N.M.	35.700	null
N.M.	55.600	null
N.M.	78.500	null

City	State	Project	Rainfall & How Much Rain Fell	Sheet
Albany	N.Y.		46.600	April
Albany	N.Y.		22.200	January
Albany	N.Y.		71.100	July
Albany	N.Y.		49.300	October
Albuquerque	N.M.		55.600	April
Albuquerque	N.M.		35.700	January
Albuquerque	N.M.		78.500	July
Albuquerque	N.M.		57.300	October

the final merge!

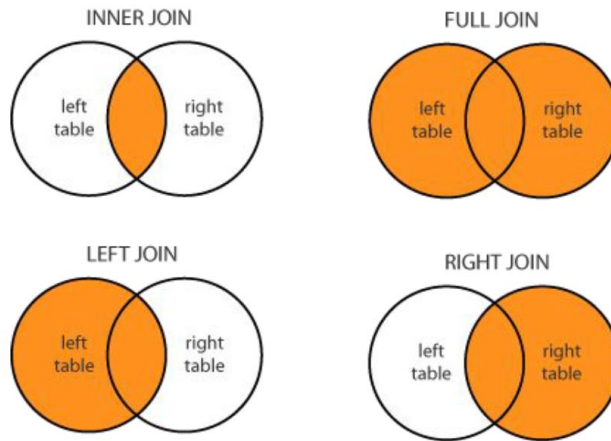
Click on Sheet 1 and create the sheet below...







F. EXPLAINING DATA JOINS

1. DATA JOIN TYPES

In general, there are four types of joins that you can use to combine your data in Tableau: inner, left, right, and full outer.



47

-  **Inner Join:** When you use an inner join to combine tables, the result is a table that contains values that have matches in both tables.
-  **Left Join:** When you use a left join to combine tables, the result is a table that contains all values from the left table and corresponding matches from the right table. When a value in the left table doesn't have a corresponding match in the right table, you see a null value in the data grid.
-  **Right Join:** When you use a right join to combine tables, the result is a table that contains all values from the right table and corresponding matches from the left table. When a value in the right table doesn't have a corresponding match in the left table, you see a null value in the data grid.
-  **Full (Outer) Join:** When you use a full outer join to combine tables, the result is a table that contains all values from both tables. When a value from either table doesn't have a match with the other table, you see a null value in the data grid.

<https://www.alvinang.sg/s/Sample-Superstore-USA.xls>

Connections: Sample - Superstore (USA) Microsoft Excel

Sheets: Orders, People, Returns, New Union

Orders (Sample - Superstore (USA))

Connected to Sample-Superstore (USA).xls

Brought in Orders Sheet

Bottom displays entire table
1st Column: Row ID
Last Column: Order Priority

Need more data?
Drag tables here to relate them. [Learn more](#)

Name	Orders	Orders	Orders	Orders	Orders	Orders	Orders
Orders	Sales	Quantity	Discount	Profit	Shipping Cost	Order Priority	
Row ID.....	221.98	2	0.000000	62.15	40.770	High	
...	341.96	2	0.000000	54.71	25.270	High	
...	48.71	1	0.200000	5.48	11.130	High	
...	17.94	3	0.000000	4.66	4.290	High	

Tableau - Book1

File Data Server Window Help

Connections: Sample - Superstore (USA) Microsoft Excel

Sheets: Orders, People, Returns, New Union

Orders (Sample - Superstore (US.

If we simply drag in People Sheet, a strange orange line connecting them appears

Drag tat

ConnectionsAdd

Sam...SA)
Micros... Excel

Sheets

- Orders
- People
- Returns
- New Union

Orders — People

4 rows

How do relationships differ from joins? [Learn more](#)

Abc People
Person Region (Peo

We have just created a "Relationship"... NOT a Join....
 Relationship = Tableau automating the process of "relating" the two sheets together. This is out of the scope of this manuscript. But you can find out more clicking here. Its more advanced and shall be left out.

Learn More about Relationships here:

https://help.tableau.com/v2021.3/pro/desktop/en-us/datasource_relationships_learnmorepage.htm

← →

Orders+ (S... Connection Live Extract Filters 0 | Add

Orders

People

rather, we double click here to enter it

we don't want a relationship so we delete this away

Orders+ (S... Connection Live Extract Filters 0 | Add

ConnectionsAdd

Sam...SA) Micros... Excel

Sheets

- Orders
- People
- Returns
- New Union

Orders is made of 2 tables. ⓘ

Orders People

we drage "people" sheet in and it automatically creates an inner join

Orders 26 fields 9994 rows 100 rows

< # Abc

Orders is made of 2 tables. ⓘ

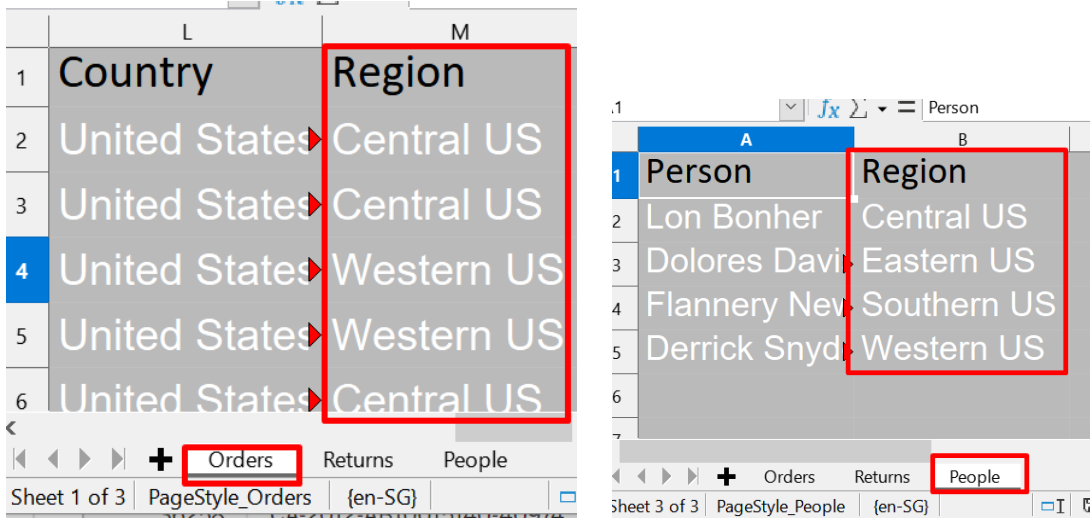
Orders People

we click inside the blue zone

Join

Inner	Left	Right	Full Outer
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Data Source	People		
Region	=	Region (People)	
Add new join clause			

this pops up and shows us the KEY.....meaning, the shared column between Orders and People sheet



You can see that Tableau automatically knows the KEY (the shared column) between the two sheets and JOINS these two sheets together based on it.

from Orders Sheet							from People Sheet				
Name	Orders	Orders	Orders	Person	Region (People)						
count	Profit	Shipping Cost	Order Priority	Person	Region (People)	0.000000	62.15	40.770	High	Lon Bonher	Central US
0.000000	54.71	25.270	High	Lon Bonher	Central US	0.200000	5.48	11.130	High	Derrick Snyders	Western US
0.000000	4.66	4.290	High	Derrick Snyders	Western US						

Look below the Tableau screen. It shows all the columns. Tableau INNER Joins the two sheets based on REGION.

G. DATA INTERPRETER: AUTO DATA CLEANSING

	A	E	F	G	H	I	J	K	L	M	N	
1		NEW PC REGISTRATIONS OR SALES										
2		<i>This table contains estimated figures for new car sales for the given years</i>										
3												
4												
5		REGIONS/COUNTRIES	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
149	LIBYA	35,000	35,000	36,000	37,000	37,500	38,000	39,000	20,000	30,000	30,000	30,000
150	MADAGASCAR	930	1,100	1,100	1,000	900	900	1,100	1,200	1,200	1,200	1,600
151	MALAWI	930	1,100	1,100	1,000	1,000	1,500	1,500	1,000	1,000	1,000	1,100
152	MAURITIUS	2,900	3,500	4,000	4,000	3,000	4,000	3,000	7,000	7,500	8,600	8,600
153	MOROCCO	56,183	75,295	90,941	102,095	93,761	91,119	99,727	117,818	108,177	109,649	109,649
154	NIGERIA	16,000	22,000	7,000	7,000	34,000	25,000	30,000	40,000	40,000	42,000	42,000
155	REUNION	25,142	22,437	24,819	23,267	20,935	20,295	21,111	19,795	19,465	20,605	20,605
156	SENEGAL	3,000	3,000	3,000	3,000	4,000	4,000	3,500	4,000	4,000	4,000	4,500
157	SOUTH AFRICA	419,868	481,558	434,653	329,262	258,129	337,130	396,292	440,002	450,561	439,264	439,264
158	SUDAN	2,000	2,000	2,500	3,000	7,000	2,000	2,000	2,000	1,500	1,800	1,800
159	TANZANIA	2,000	2,000	2,000	2,000	2,000	2,000	3,000	3,000	3,500	1,000	1,000
160	TUNISIA	25,000	30,000	30,000	33,000	35,000	45,000	35,000	37,000	35,000	37,100	37,100
161	UGANDA	3,000	3,500	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000
162	ZAMBIA	2,300	2,700	2,800	2,600	3,000	2,000	2,000	2,000	2,000	2,000	2,000
163	ZIMBABWE	7,000	6,000	3,000	3,000	3,000	2,000	3,000	3,000	3,000	4,100	4,100
164												
165	ALL COUNTRIES	45,177,808	47,727,785	50,552,021	49,669,083	49,321,625	55,403,283	57,376,238	60,406,766	62,857,950	64,976,034	64,976,034
166	only LV											
167												
168												
169												

- The excel table above is opened from GlobalVehicleSales.xls.
- <https://www.alvinang.sg/s/GlobalVehicleSales.xlsx>
- Note that the user has drawn the table in his own way – which is unreadable by Tableau.

The screenshot shows the Tableau interface. On the left, the 'Connections' pane shows 'GlobalVehicleSales' (Microsoft Excel) selected. Below it, the 'Sheets' pane shows 'pc_sales' selected. The main view displays the 'pc_sales' table with 14 fields and 158 rows. A red box highlights a portion of the data, showing nonsensical values like 'null', 'This table contains estimate...', and 'null' in the columns. A red text box above the highlighted data reads: 'when we bring in the globalvehICLESale.xls to Tableau, we see that the rows and columns produce nonsensical values'. The 'Fields' pane on the left shows the table structure with columns F1 through F4.

pc_sales (GlobalVehicleSales)

Connection: Live Extract

Filters: 0 | Add

Connections: GlobalVehicleSales (Microsoft Excel)

Sheets:

- Cleaned with Data Interpreter
- [Review the results.](#) (To undo changes, clear the check box.)
- pc_sales
- pc_sales A5:N53
- pc_sales A55:N86
- New Union

pc_sales

Need more data? Drag tables here to relate them. [Learn more](#)

once we checkbox the Data Interpreter, immediately see the Data has been cleansed

pc_sales 12 fields 155 rows 100 rows

REGIONS/COUNTRIES	F4	2005	2006	2007	2008	2009
EUROPE	null	17,906,455	18,685,556	19,618,588	18,821,599	16,608,76
EU 28 countries + EFTA	null	15,622,035	15,961,138	16,147,274	14,911,880	14,533,115
EU 15 countries + EFTA	null	14,565,695	14,820,182	14,842,186	13,602,038	13,668,808
AUSTRIA	null	307,915	308,594	298,182	293,697	319,403
BELGIUM	null	480,088	526,141	524,795	535,947	476,194
DENMARK	null	148,819	156,936	162,686	150,199	112,454
FINLAND	null	148,161	145,700	125,608	139,669	90,574

Fields:

Type	Field Name	Phys...	Rem...
Abc	REGIO...	pc!sales	REGIO...
#	F4	pc!sales	F4
#	2005	pc!sales	2005
#	2006	pc!sales	2006

Go to Worksheet

A. PIVOT DATA

Data source can be found here: <https://www.alvinang.sg/s/GlobalVehicleSales-nlar.xlsx>

Before starting, remember to use the Data Interpreter first here: Data Interpreter: Auto Data Cleansing (ctrl click the link)

after selecting Data Interpreter, data has been cleansed (see below)

#	#	#	#	#	#	#	#	#	#	#	#
pc/sales	pc/sales	pc/sales	pc/sales	pc/sales	pc/sales	pc/sales	pc/sales	pc/sales	pc/sales	pc/sales	pc/sales
F4	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
null	17,906,455	18,685,556	19,618,588	18,821,599	16,608,761	16,499,863	17,167,600	16,191,359	15,941,854	16,060,143	
null	15,622,035	15,961,138	16,147,274	14,911,880	14,533,115	13,830,694	13,642,659	12,567,993	12,343,996	13,013,515	
null	14,565,695	14,820,182	14,842,186	13,602,038	13,668,808	12,984,549	12,815,435	11,773,371	11,554,834	12,113,882	
null	307,915	308,594	298,182	293,697	319,403	328,563	356,145	336,010	319,035	303,318	
null	480,088	526,141	524,795	535,947	476,194	547,340	572,211	486,737	486,065	482,939	
null	148,819	156,936	162,686	150,199	112,454	153,858	170,036	170,763	182,086	189,051	
null	148,161	145,700	125,608	139,669	90,574	111,968	126,123	111,251	103,455	106,236	
null	2,118,042	2,045,745	2,109,672	2,091,369	2,302,398	2,251,669	2,204,229	1,898,760	1,790,456	1,795,885	
null	3,319,259	3,467,961	3,148,163	3,090,040	3,807,175	2,916,259	3,173,634	3,082,504	2,952,431	3,036,773	

shift + select all the columns (2005 - 2014)

click on pivot

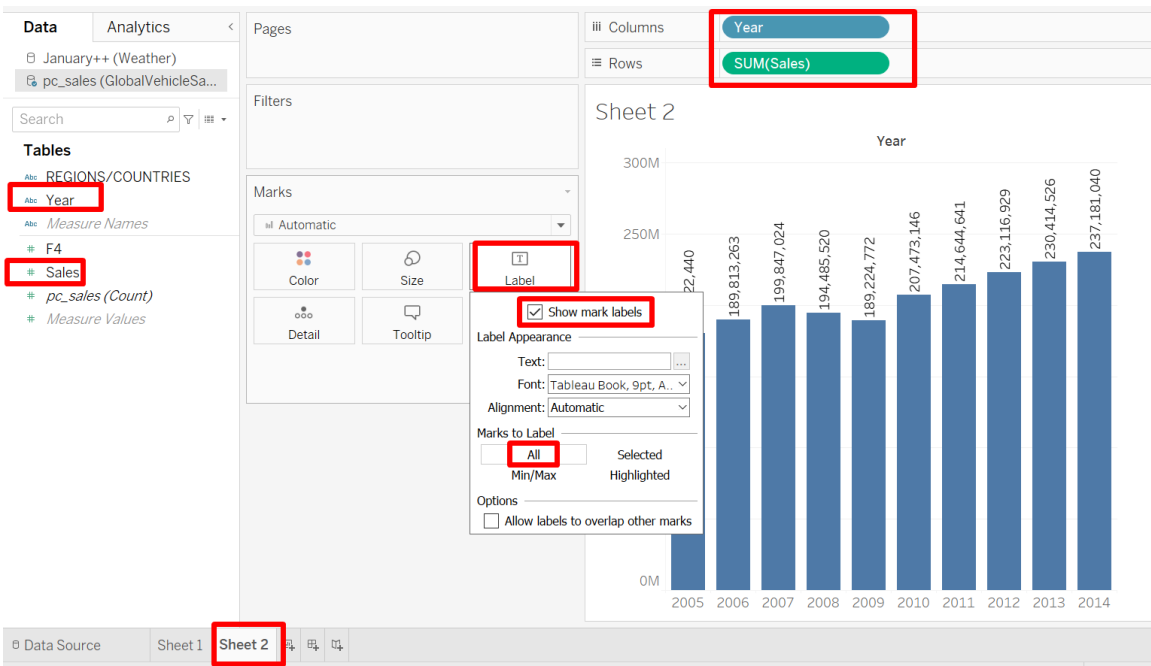
#	#	#	#	#	#	#	#	#	#	#	#
pc/sales	pc/sales	pc/sales	pc/sales	pc/sales	pc/sales	pc/sales	pc/sales	pc/sales	pc/sales	pc/sales	pc/sales
F4	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
null	17,906,455	18,685,556	19,618,588	18,821,599	16,608,761	16,499,863	17,167,600	16,191,359	15,941,854	16,060,143	
null	15,622,035	15,961,138	16,147,274	14,911,880	14,533,115	13,830,694	13,642,659	12,567,993	12,343,996	13,013,515	
null	14,565,695	14,820,182	14,842,186	13,602,038	13,668,808	12,984,549	12,815,435	11,773,371	11,554,834	12,113,882	
null	307,915	308,594	298,182	293,697	319,403	328,563	356,145	336,010	319,035	303,318	
null	480,088	526,141	524,795	535,947	476,194	547,340	572,211	486,737	486,065	482,939	
null	148,819	156,936	162,686	150,199	112,454	153,858	170,036	170,763	182,086	189,051	
null	148,161	145,700	125,608	139,669	90,574	111,968	126,123	111,251	103,455	106,236	
null	2,118,042	2,045,745	2,109,672	2,091,369	2,302,398	2,251,669	2,204,229	1,898,760	1,790,456	1,795,885	
null	3,319,259	3,467,961	3,148,163	3,090,040	3,807,175	2,916,259	3,173,634	3,082,504	2,952,431	3,036,773	

pc_sales 4 fields 1550 rows

Rows and Columns now have been auto pivoted...

REGIONS/COUNTRIES	F4	Year	Sales
EUROPE	null	2005	17,906,455
EUROPE	null	2006	18,685,556
EUROPE	null	2007	19,618,588
EUROPE	null	2008	18,821,599
EUROPE	null	2009	16,608,761
EUROPE	null	2010	16,499,863
EUROPE	null	2011	17,167,600
EUROPE	null	2012	16,191,359
EUROPE	null	2013	15,941,854

change the column names..



B. SPLIT FIELDS

Data Source can be found here: <https://www.alvinang.sg/s/acrossthebay10k.xlsx>

1. SPLIT FIRST NAME LAST NAME

The screenshot shows the Tableau interface with the 'acrossthebay10k' data source selected. A red box highlights the data source name, with a red annotation 'we import in this xls'. The 'Name' column is selected, and a context menu is open, showing the 'Split' option highlighted with a red box. A red annotation 'we want to split first name and last name' points to the 'Split' option. The table below shows columns: Bib, Name, State, Overall, and Sex PI. The 'Name' column contains names like 'Steve Heagy li', 'Jordan Tropf', etc.

Bib	Name	State	Overall	Sex PI
71	Steve Heagy li	PA	1 / 14968	1 / 5281
5,919	Steve Kartalia	MD	2 / 14968	2 / 5281
64	Jordan Tropf	OH	3 / 14968	3 / 5281
58	Enos Benbow	DE	4 / 14968	4 / 5281
56	Ryan Topita	MD	5 / 14968	5 / 5281
94	Ariel Laguilles	DC	6 / 14968	6 / 5281
211	Chris Vesely	MD	7 / 14968	7 / 5281
134	Sam Brandt	PA	8 / 14968	8 / 5281
83	Matthew Dunn	MD	9 / 14968	9 / 5281

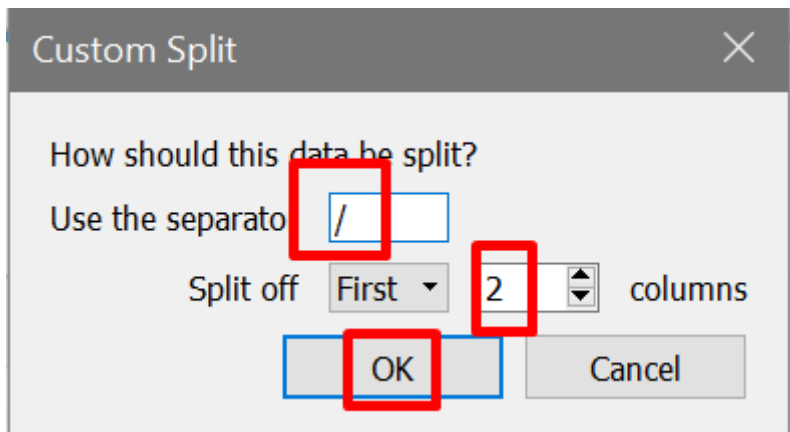
The screenshot shows the same data source, but now with 11 fields. The 'Name' column has been split into 'First Name' and 'Last Name' columns. A red box highlights these two new columns, with a red annotation 'Tableau auto split for us created 2 new columns'. The table below shows columns: Sex, Age, City, State, Overall, Sex PI, Time, First Name, and Last Name. The 'First Name' and 'Last Name' columns contain the first and last parts of the names from the previous table.

Sex	Age	City	State	Overall	Sex PI	Time	First Name	Last Name
M	31	Lansdale	PA	1 / 14968	1 / 5281	1/1/1900 9:29:00 AM	Steve	Heagy
M	49	Westminster	MD	2 / 14968	2 / 5281	1/1/1900 9:36:00 AM	Steve	Kartalia
M	22	Mayfield Village	OH	3 / 14968	3 / 5281	1/1/1900 9:37:00 AM	Jordan	Tropf
M	32	Georgetown	DE	4 / 14968	4 / 5281	1/1/1900 10:27:00 AM	Enos	Benbow
M	23	Pasadena	MD	5 / 14968	5 / 5281	1/1/1900 10:30:00 AM	Ryan	Topita
M	36	Washington	DC	6 / 14968	6 / 5281	1/1/1900 11:27:00 AM	Ariel	Laguilles
M	21	Baltimore	MD	7 / 14968	7 / 5281	1/1/1900 11:45:00 AM	Chris	Vesely
M	24	Newville	PA	8 / 14968	8 / 5281	1/1/1900 11:50:00 AM	Sam	Brandt
M	34	Trappe	MD	9 / 14968	9 / 5281	1/1/1900 11:52:00 AM	Matthew	Dunn

2. SPLIT 2 COLUMNS VIA /

Sheet1 9 fields 14968 rows 100 rows

#	Abc Sheet1	Abc Sheet1	# Sheet1	Sheet1	Sheet1	Abc Sheet1	Overall
Bib	Name	Sex	Age	City	State		
71	Steve Heagy li	M	31	Lansdale	PA		1 / 14968
5,919	Steve Kartalia	M	49	Westminster	MD		2 / 14968
64	Jordan Tropf	M	22	Mayfield Village	OH		3 / 14968
58	Enos Benbow	M	32	Georgetown	DE		4 / 14968
56	Ryan Topita	M	23	Pasadena	MD		5 / 14968
94	Ariel Laguilles	M	36	Washington	DC		6 / 14968
211	Chris Vesely	M	21	Baltimore	MD		7 / 14968
134	Sam Brandt	M	24	Newville	PA		8 / 14968
83	Matthew Dunn	M	34	Trappe	MD		9 / 14968



Sheet1 11 fields 14968 rows 2 new columns have been created via split at / 100 rows

Abc Sheet1	# Sheet1	Sheet1	Sheet1	Abc Sheet1	Abc Sheet1	Sheet1	Abc Calculation	Abc Calculation
Sex	Age	City	State	Overall	Sex PI	Time	Position	Total
M	31	Lansdale	PA	1 / 14968	1 / 5281	1/1/1900 9:29:00 AM	1	14968
M	49	Westminster	MD	2 / 14968	2 / 5281	1/1/1900 9:36:00 AM	2	14968
M	22	Mayfield Village	OH	3 / 14968	3 / 5281	1/1/1900 9:37:00 AM	3	14968
M	32	Georgetown	DE	4 / 14968	4 / 5281	1/1/1900 10:27:00 AM	4	14968
M	23	Pasadena	MD	5 / 14968	5 / 5281	1/1/1900 10:30:00 AM	5	14968
M	36	Washington	DC	6 / 14968	6 / 5281	1/1/1900 11:27:00 AM	6	14968
M	21	Baltimore	MD	7 / 14968	7 / 5281	1/1/1900 11:45:00 AM	7	14968
M	24	Newville	PA	8 / 14968	8 / 5281	1/1/1900 11:50:00 AM	8	14968
M	34	Trappe	MD	9 / 14968	9 / 5281	1/1/1900 11:52:00 AM	9	14968

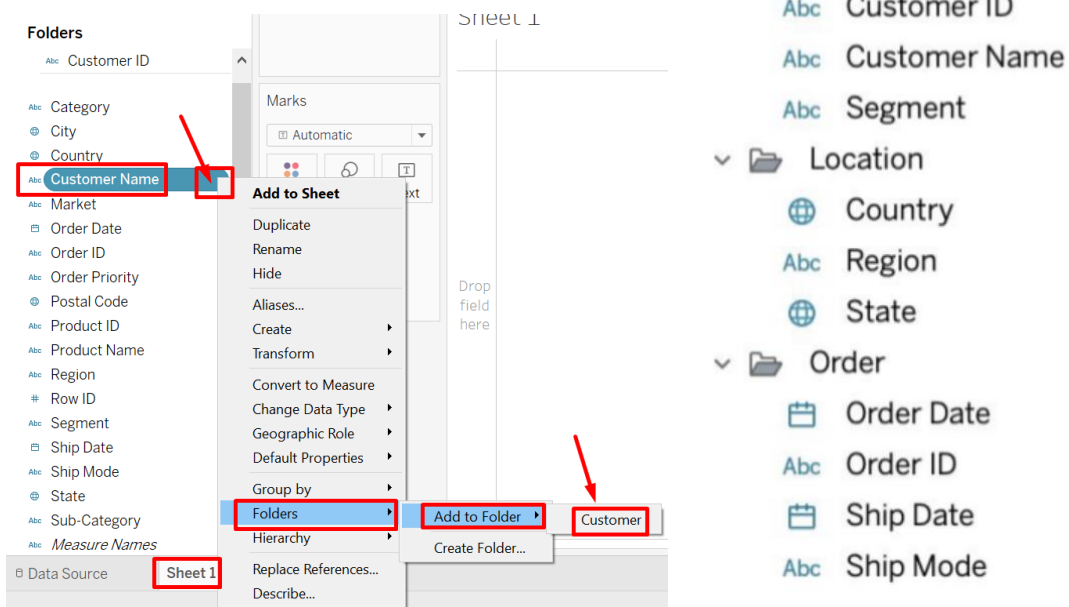
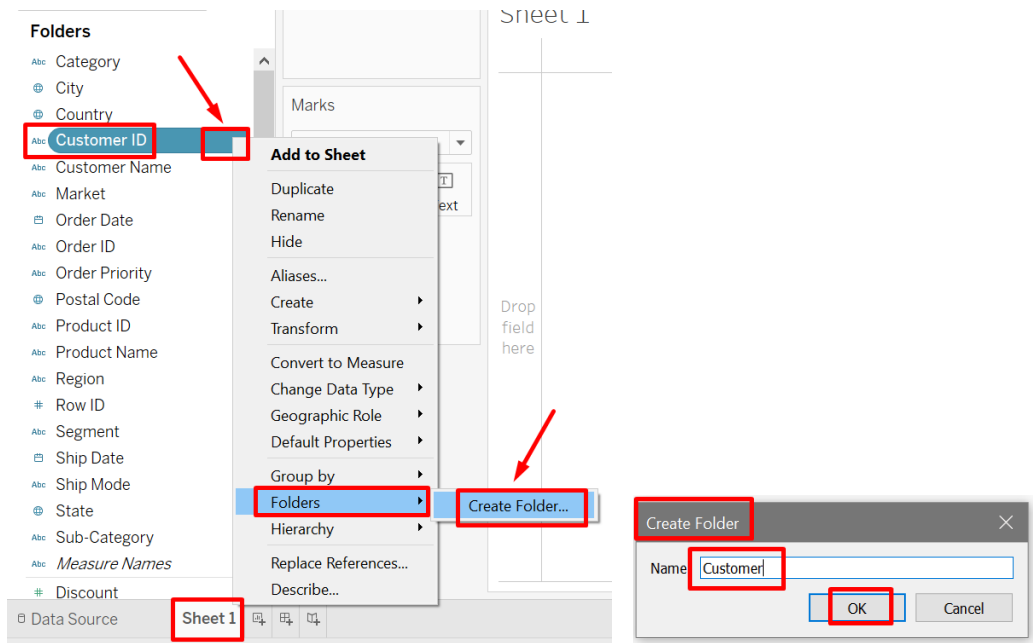
IV. CONFIGURING THE FIELDS

A. CREATING FOLDERS

File can be found here: https://www.alvinang.sg/s/global_superstore_2016.xlsx

The screenshot illustrates the steps to create a folder for a data source in Tableau. On the left, the 'Connections' pane shows 'global_superstore_2016' selected. Below it, the 'Sheets' pane shows 'Orders' selected. A red arrow labeled 'drag in' points from 'Orders' in the 'Sheets' pane to the 'Orders' data source in the main view. On the right, the context menu for the 'Orders' data source is open, with 'Group by Folder' selected. A red arrow points from 'Group by Folder' to the 'Sheet 1' tab at the bottom of the interface.

Type	Field Name	Physical Table	Remote File...
#	Row ID	Orders	Row ID

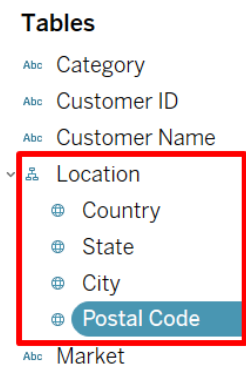
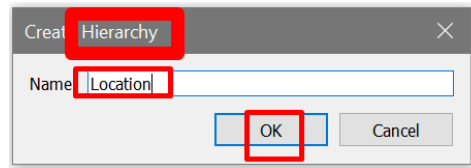
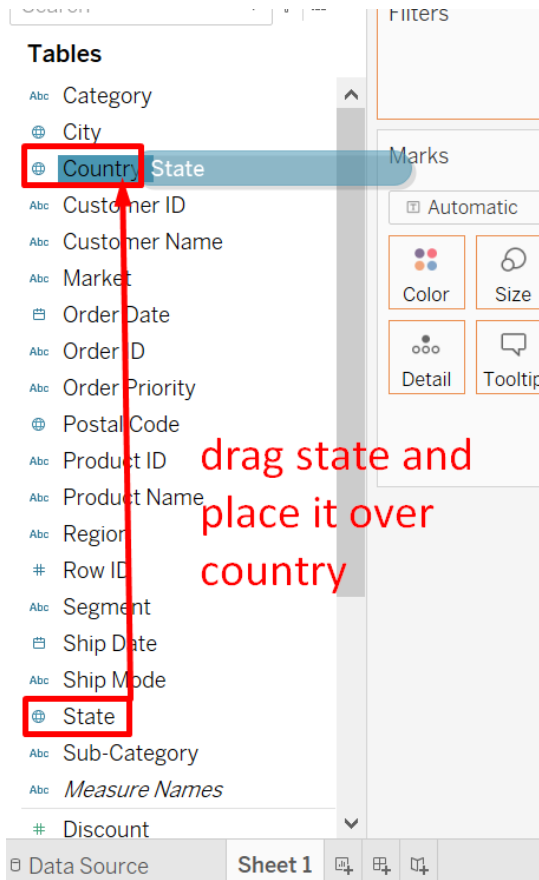


Keep going until you create all 3 folders as shown above....

B. CREATING HIERARCHIES

File can be found here: https://www.alvinang.sg/s/global_superstore_2016.xlsx

The screenshot illustrates the steps to create a hierarchy in Tableau. In the 'Connections' pane, the data source 'global_superstore_2016' is selected. In the 'Sheets' pane, the 'Orders' table is selected and dragged into the view, as indicated by the red arrow and the text 'drag in'. A context menu is open over the 'Orders' table, with 'Group by Data Source Table' highlighted. The 'Fields' pane shows a list of fields including 'Order Priority', 'Postal Code', 'Product ID', 'Product Name', 'Region', 'Row ID', 'Segment', 'Ship Date', 'Ship Mode', 'Sub-Category', and 'Measure Names'. The 'Data Source' pane shows 'Sheet 1' selected.



keep going until you create a Location Hierarchy like this...

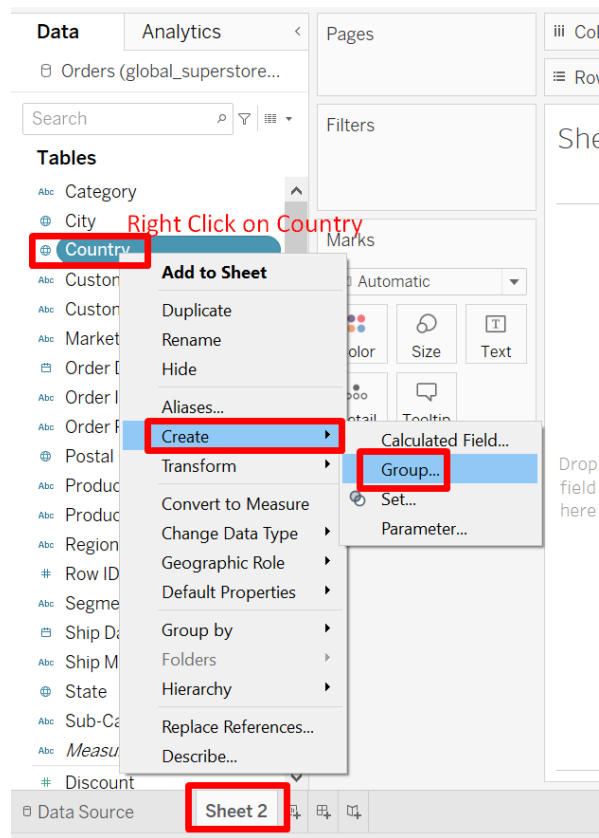
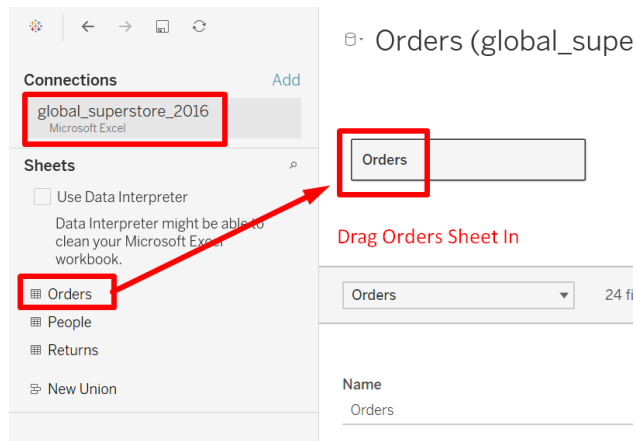
drag drop location into Rows

you can keep clicking and drillin down...

Country	State	City	City
Afghanistan	Hirat	Herat	Abc
	Kabul	Kabul	Abc
	Kandahar	Kandahar	Abc
Albania	Nangarhar	Jalalabad	Abc
	Durrës	Durres	Abc
	Elbasan	Elbasan	Abc
Algeria	Korçë	Korce	Abc
	Shkodër	Shkoder	Abc
	Vlorë	Vlore	Abc
	Algier	Algiers	Abc
	Annaba	Annaba	Abc
	Batna	Barika	Abc
		Batna	Abc
		Bechar	Abc
		Bejaia	Abc
		Constantine	Abc
		Djelfa	Abc
		Ain Oussera	Abc
	Dar Chioukh	Abc	
	Messaad	Abc	
	Guelma	Abc	
	Laghouat	Abc	
	Medea	Abc	
	Mostaganem	Abc	
	Oran	Abc	
	Saida	Abc	
	Sidi Bel Abbes	Abc	
	Skikda	Abc	
	Tipaza	Abc	
	Tizi Ouzou	Abc	
	Boghni	Abc	
	Tlemcen	Abc	
Annola	Benquela	Benquela	Abc

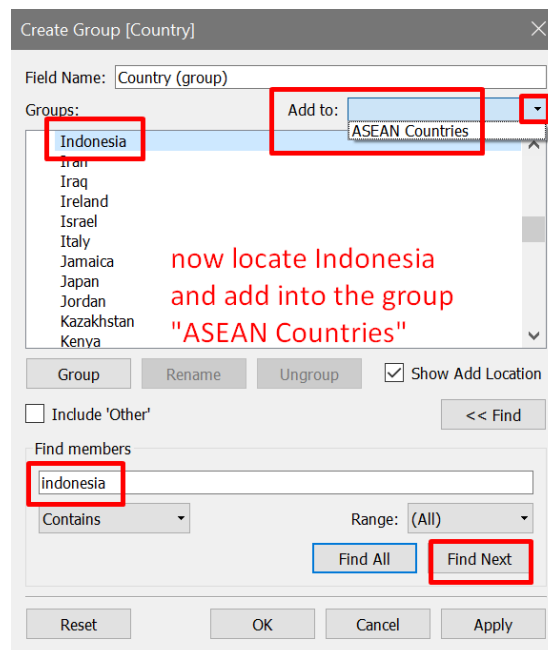
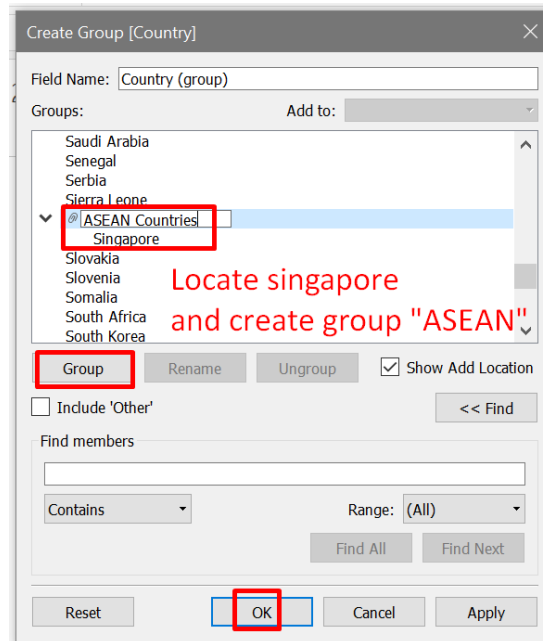
C. CREATING GROUPS

File is here: https://www.alvinang.sg/s/global_superstore_2016.xlsx

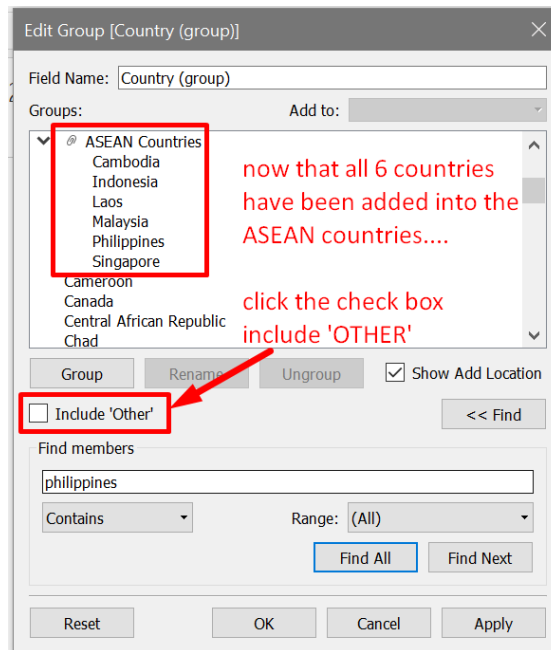
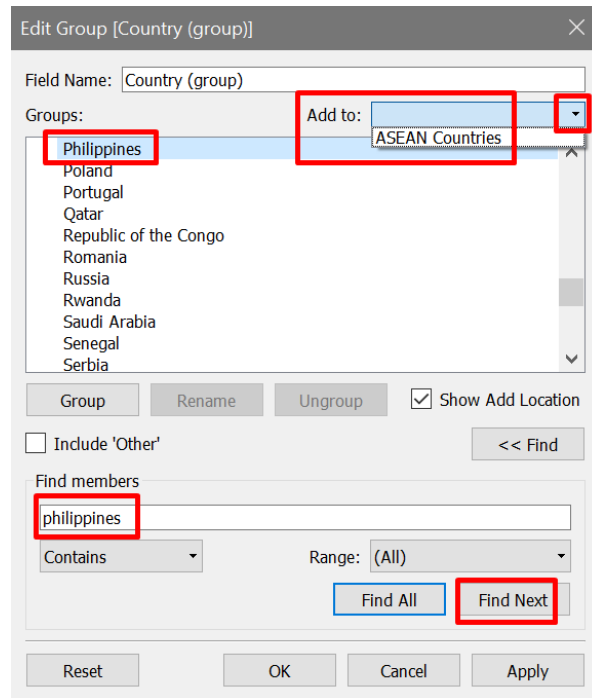


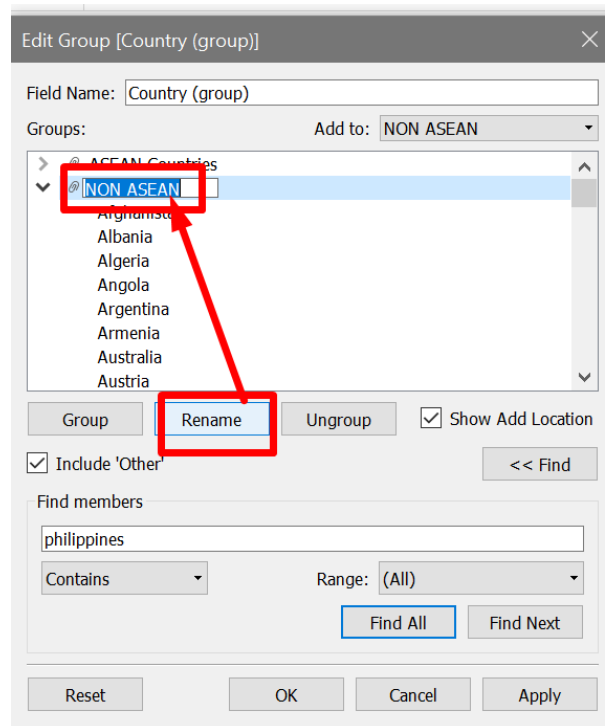
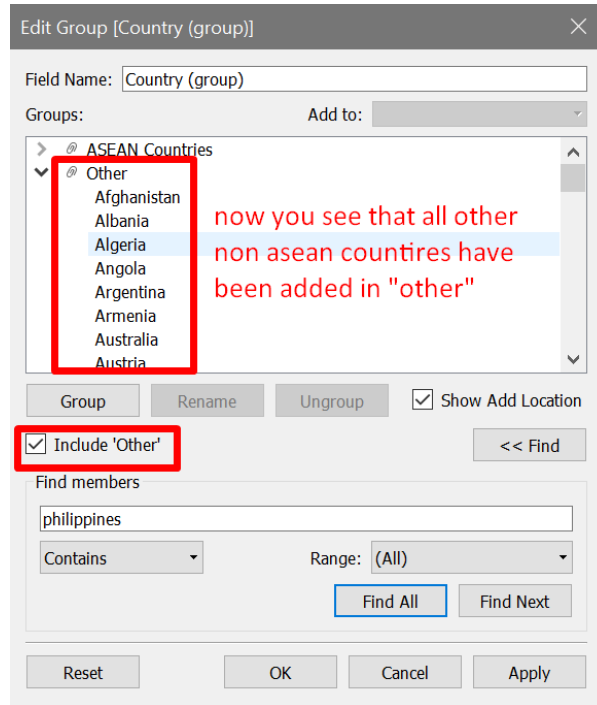
We shall group all ASEAN = Singapore / Malaysia / Indonesia / Philippines / Laos / Cambodia

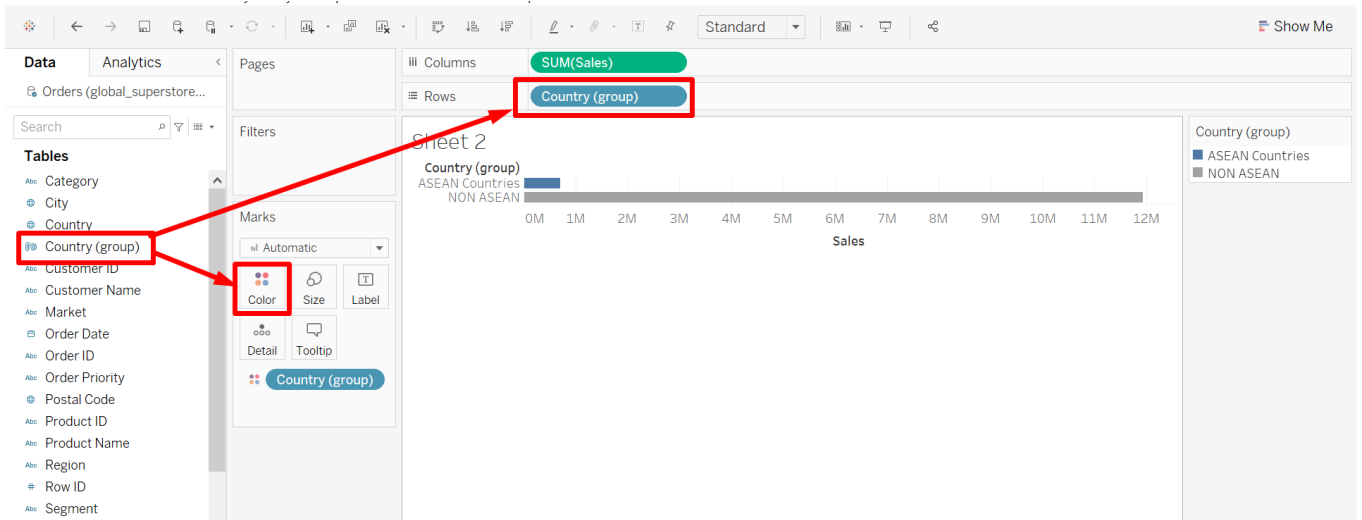
All other countries are NON ASEAN



We repeat for the rest of the other ASEAN countries...

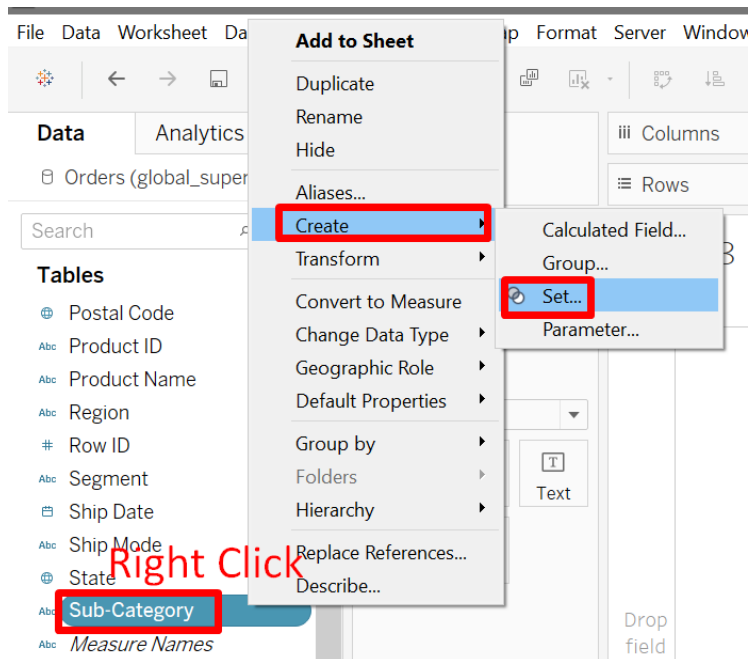
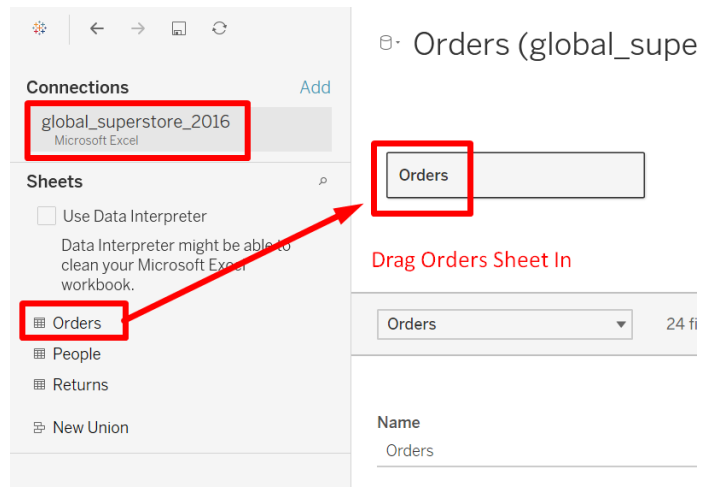




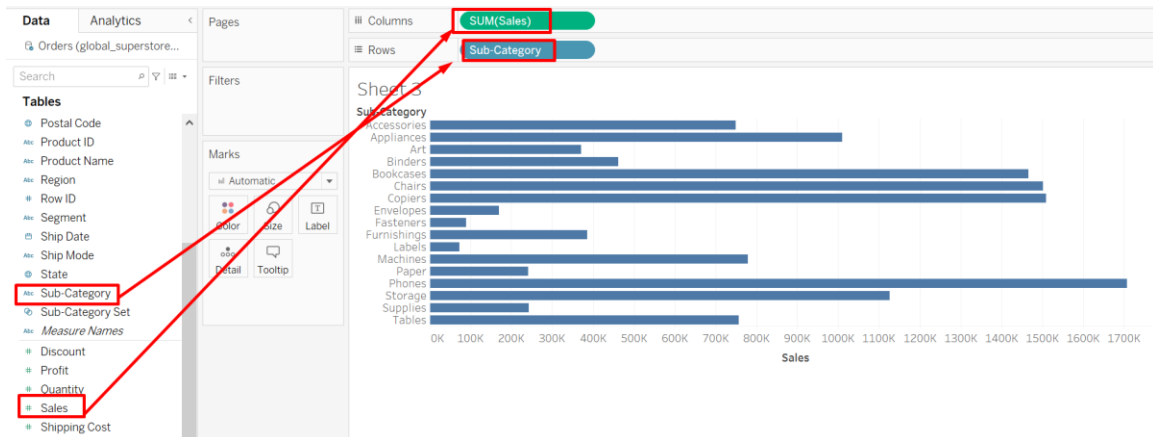
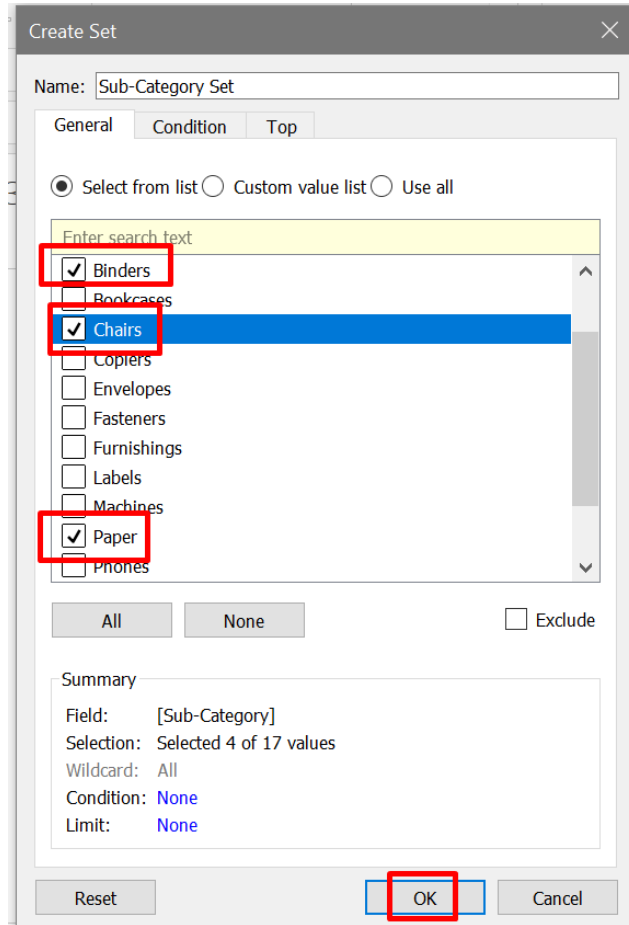


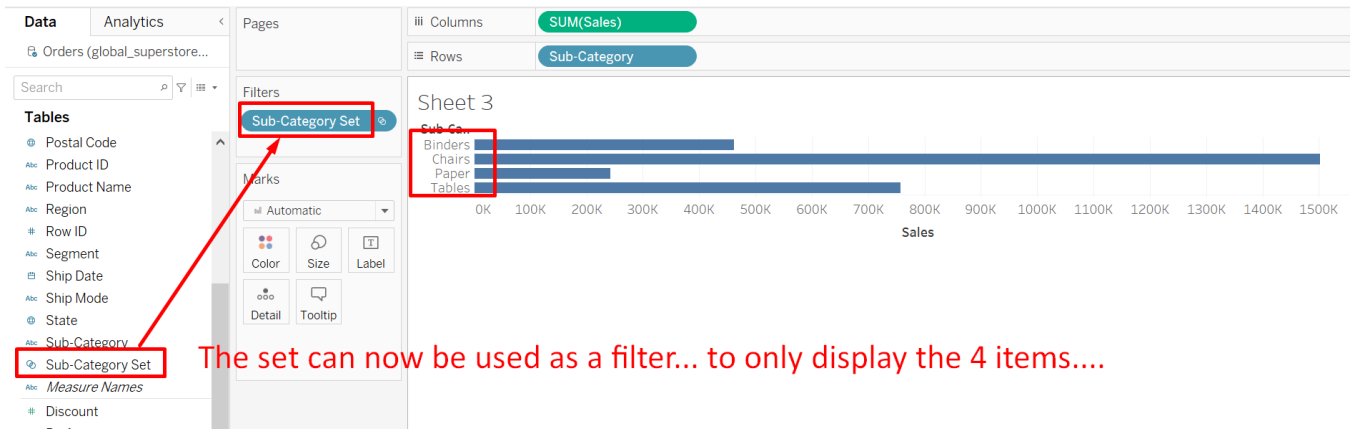
D. CREATING SETS

File is here: https://www.alvinang.sg/s/global_superstore_2016.xlsx



Let's create a set of : Set = Chairs + Tables + binders + Papers

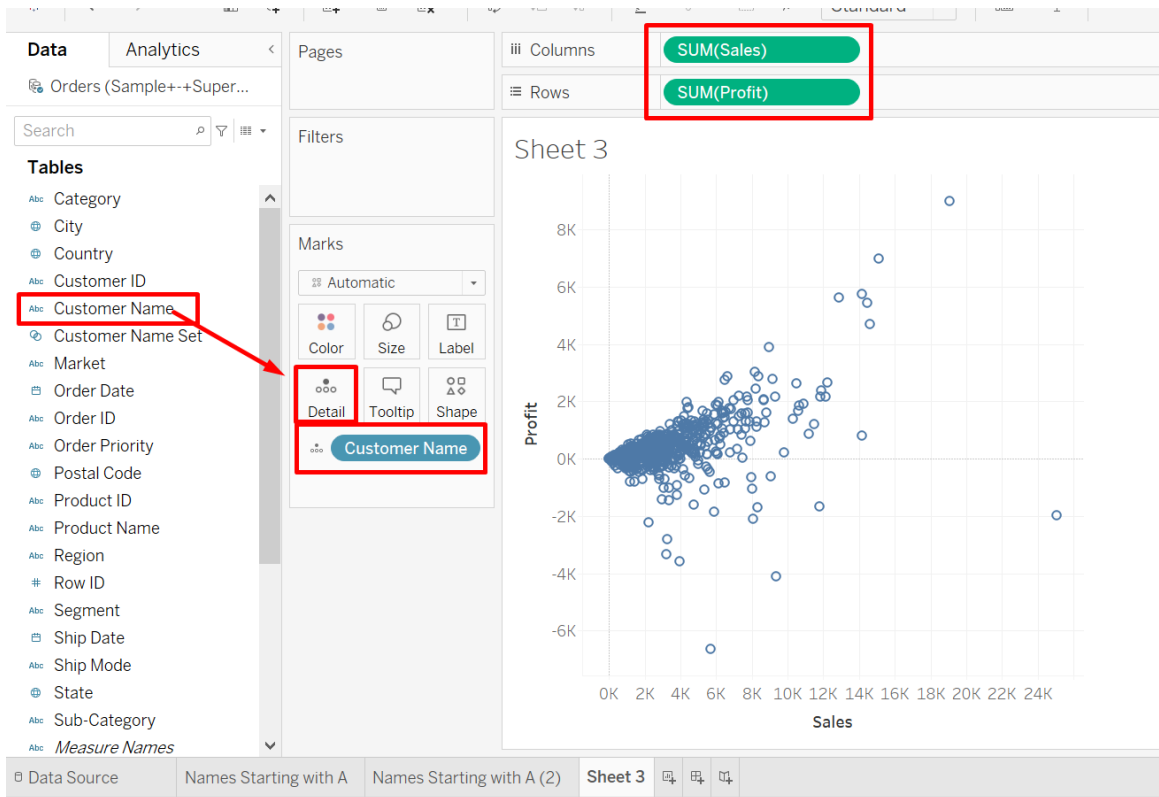
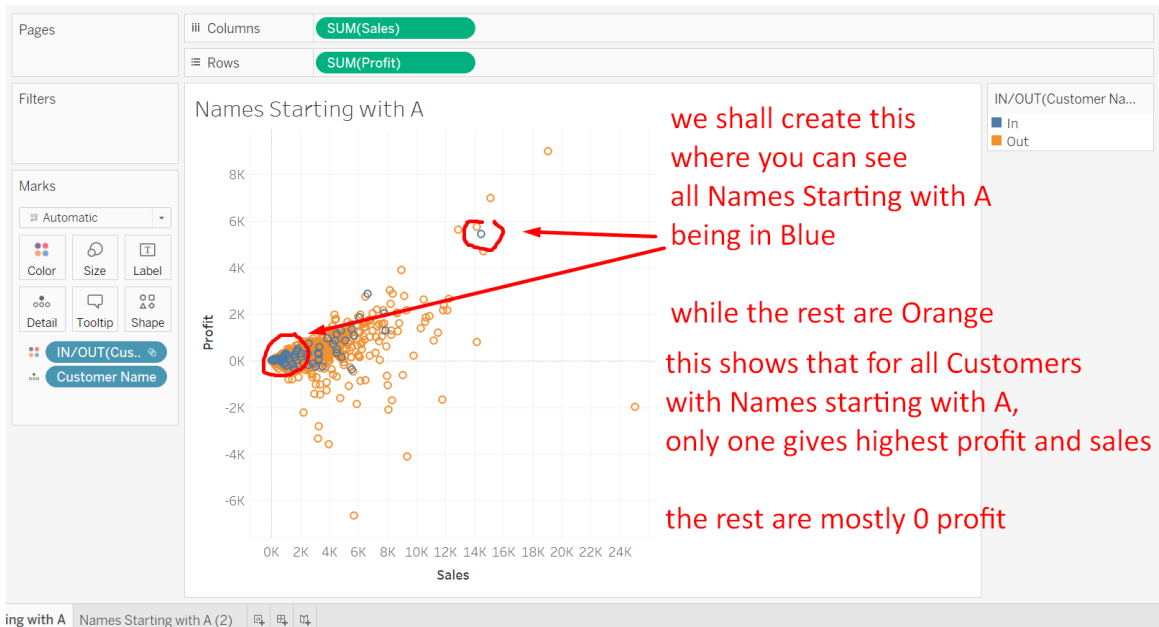




The set can now be used as a filter... to only display the 4 items...

1. SETS: USE CASE I (SCATTERPLOT SEPERATING THE A NAMES)

<https://www.alvinang.sg/s/Sample-Superstore-USA.xls>



Tables

- Category
- City
- Country
- Customer ID
- Customer Name**
- Customer Name Set
- Market
- Order Date
- Order ID
- Order Priority
- Postal Code
- Product ID
- Product Name
- Region
- Row ID
- Segment
- Ship Date

right click

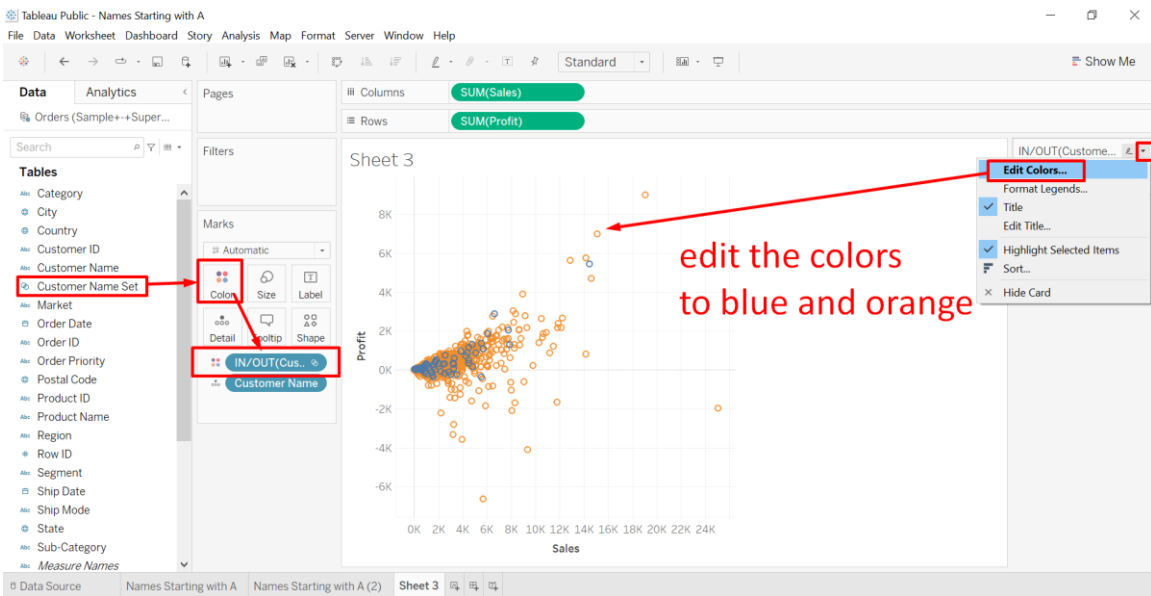
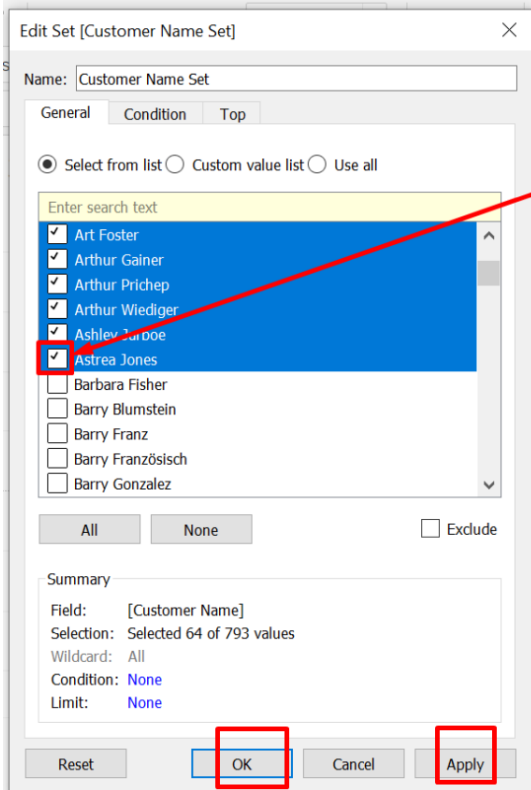
A context menu is open over the 'Customer Name' field. The menu items are: Add to Sheet, Show Filter, Duplicate, Rename, Hide, Aliases..., Create (highlighted with a red box), Transform, Convert to Measure, Change Data Type, and Geographic Role. A sub-menu is open for 'Create', with 'Set...' highlighted by a red circle and a red arrow pointing from the text 'click anywhere near the first name, then it turns blue'.

The 'Edit Set [Customer Name Set]' dialog box is shown. The 'General' tab is active. Under 'Select from list', the first name 'Aaron Bergman' is selected, and the entire list of names is highlighted in blue. A red box highlights the first name, and a red arrow points from the text 'click anywhere near the first name, then it turns blue' to it. The 'Summary' section shows: Field: [Customer Name], Selection: Selected 0 of 793 values, Wildcard: All, Condition: None, Limit: None.

click anywhere near the first name, then it turns blue

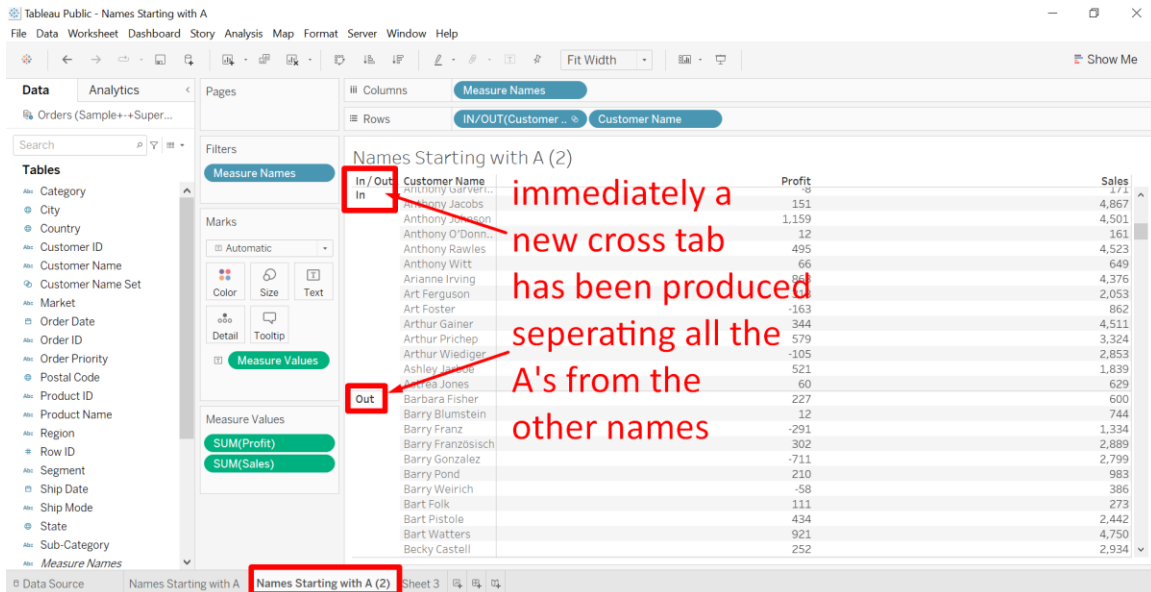
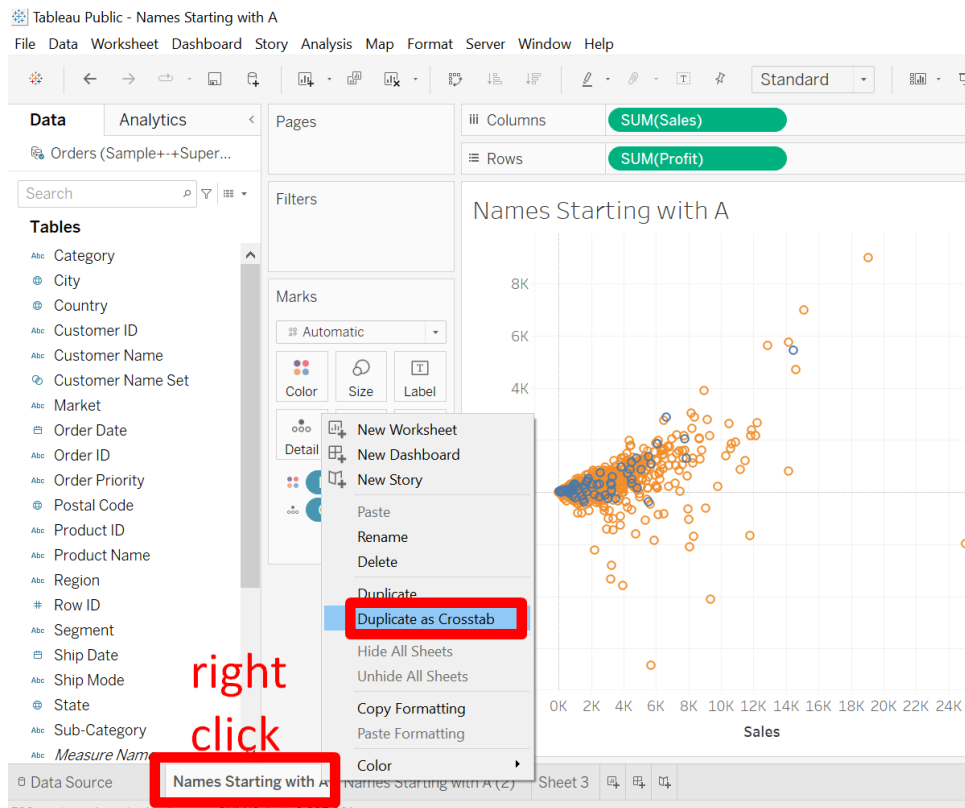
then press SHIFT + DOWN ARROW to multiple select all the A's

keep pressing SHIFT + DOWN ARROW until you reach all the A's



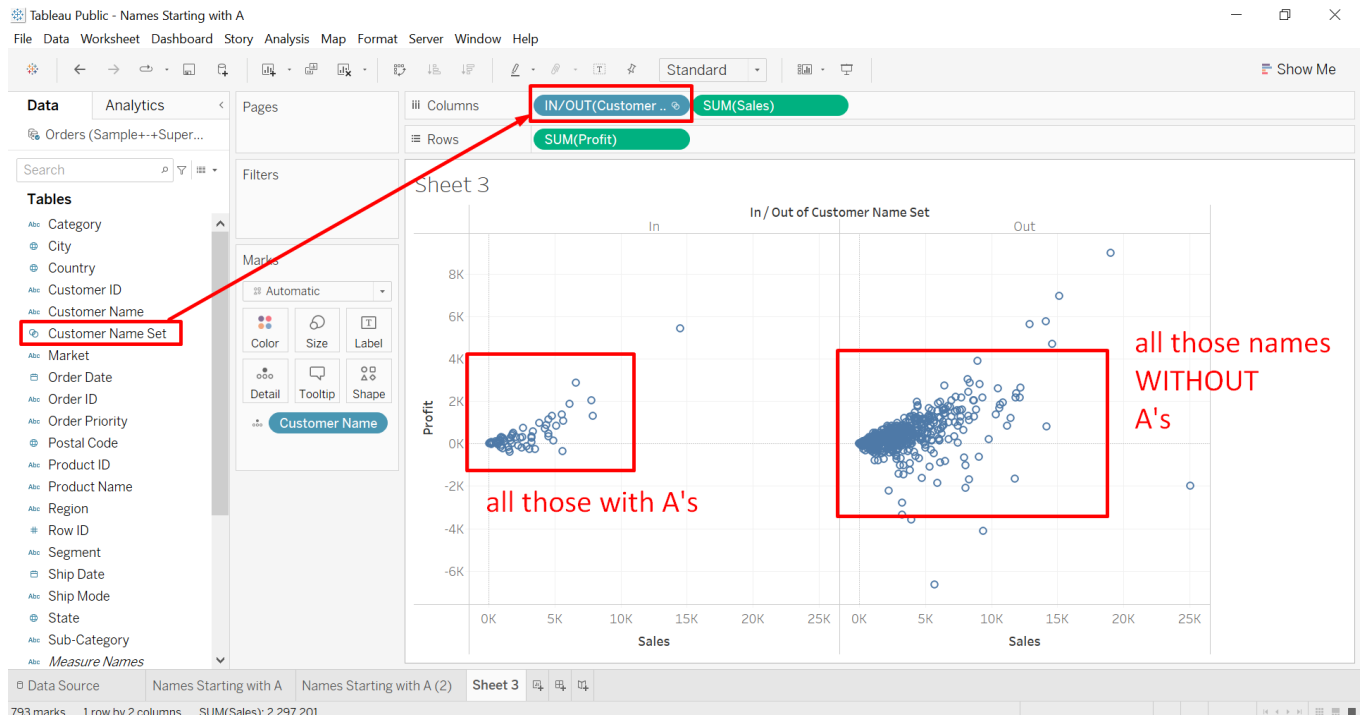
2. SETS: USE CASE II (CHANGING TO CROSS TAB)

Continue off from previous section...



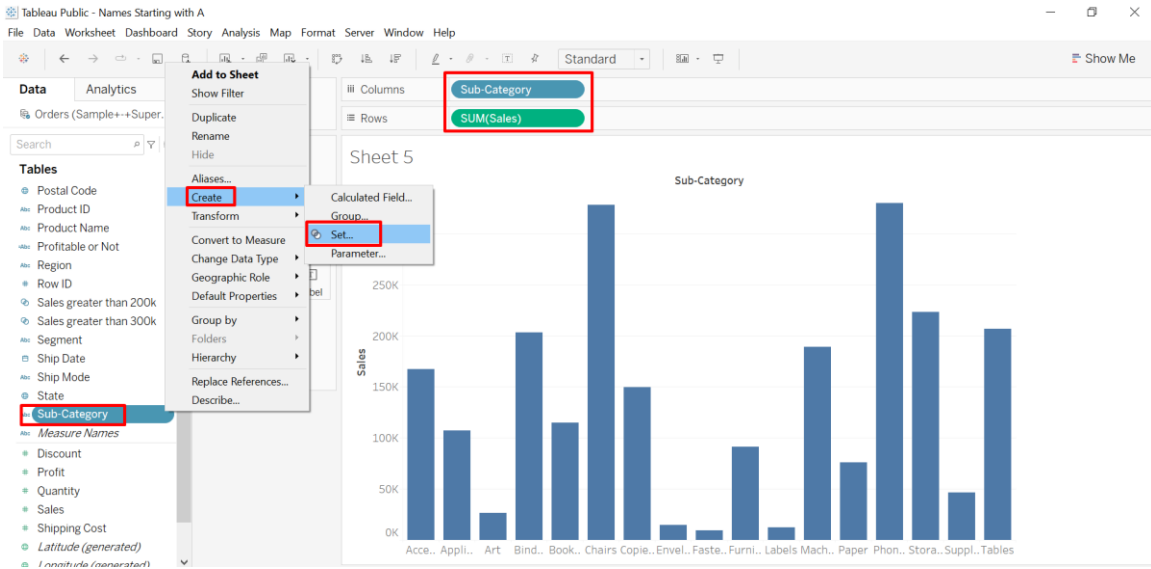
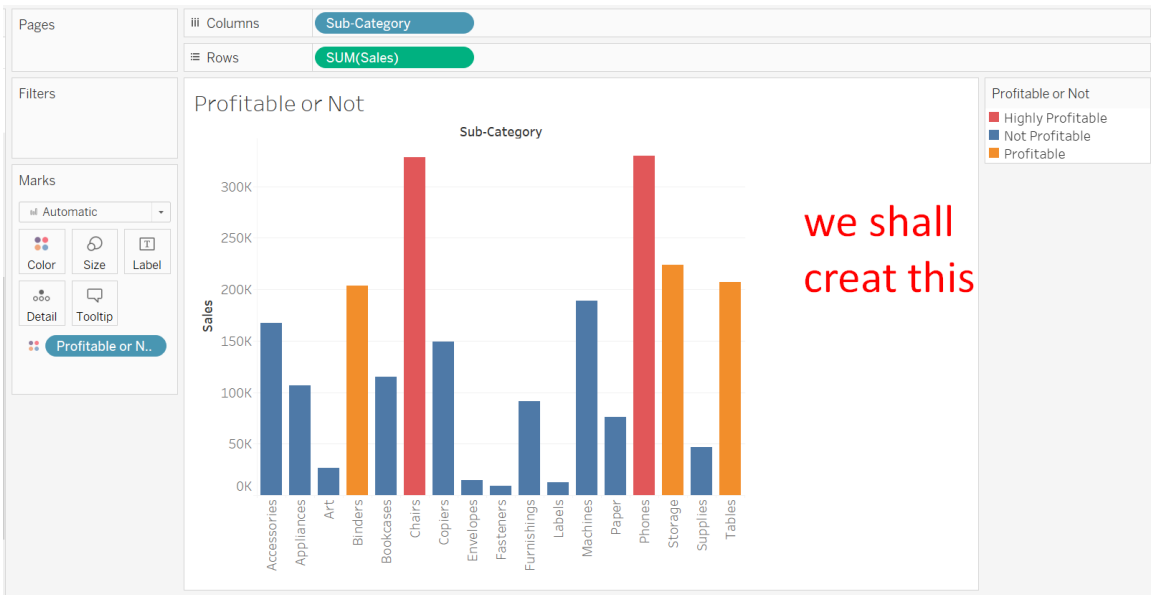
3. SETS: USE CASE III (SEPERATING THE A'S IN THE SCATTER PLOT)

Continue off from previous section...



4. SETS: USE CASE IV (USING IT IN CALCULATED FIELDS)

<https://www.alvinang.sg/s/Sample-Superstore-USA.xls>



Edit Set [Sales greater than 300k]

Name: Sales greater than 300k

General Condition Top

None

By field:

Sales Sum

> 300,000

Range of Values

Min: Load

Max:

By formula:

Reset OK Cancel Apply

Edit Set [Sales greater than 200k]

Name: Sales greater than 200k

General Condition Top

None

By field:

Sales Sum

> 200,000

Range of values

Min: Load

Max:

By formula:

Reset OK Cancel Apply

Tableau Public - Names Starting with A

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Data Analytics Pages Columns Rows

Sub-Category
SUM(Sales)

Search

Create Calculated Field...
Create Parameter...
Group by Folder
Group by Data Source Table
Sort by Name
Sort by Data Source Order
Hide All Unused Fields
Show Hidden Fields
Expand All
Collapse All

Ship Mode
State
Sub-Category
Measure Names
Discount

Profitable or Not

```
IF [Sales greater than 300k] THEN "Highly Profitable"
ELSEIF [Sales greater than 200k] THEN "Profitable"
ELSE "Not Profitable"
END
```

The calculation is valid. 1 Dependency - Apply OK

Tableau Public - Names Starting with A

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Data Analytics Pages Columns Rows

Sub-Category
SUM(Sales)

Search

Filters

Tables

Category
City
Country
Customer ID
Customer Name
Customer Name Set
Market
Order Date
Order ID
Order Priority
Postal Code
Product ID
Product Name
Profitable or Not
Region
Row ID
Sales greater than 200k
Sales greater than 300k
Segment
Ship Date
Ship Mode

Color
Size
Label
Detail
Tooltip

Profitable or Not

Profitable or Not

Edit Colors...
Format Legends...
Title
Edit Title...
Highlight Selected Items
Sort...
Hide Card

Sheet 5

Sub-Category

Sales

300K
250K
200K
150K
100K
50K
0K

Accessories
Appliances
Art
Binders
Bookcases
Chairs
Copiers
Envelopes
Fasteners
Furnishings
Labels
Machines
Paper
Phones
Storage
Supplies
Tables

u can edit the colors if you want...

V. FILTERING

A. TOP FILTER

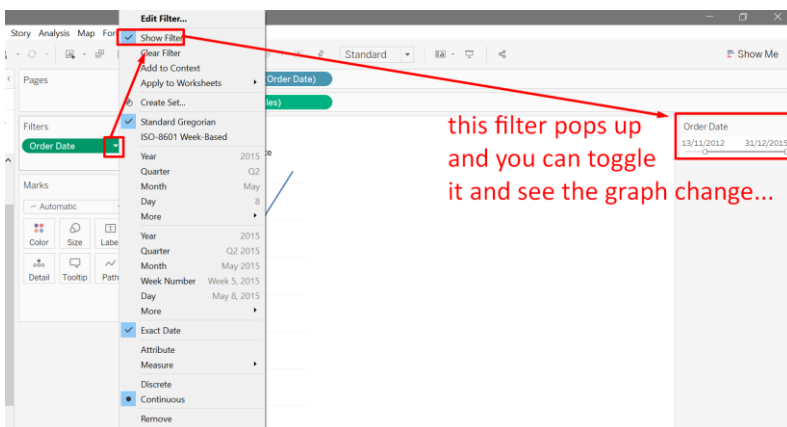
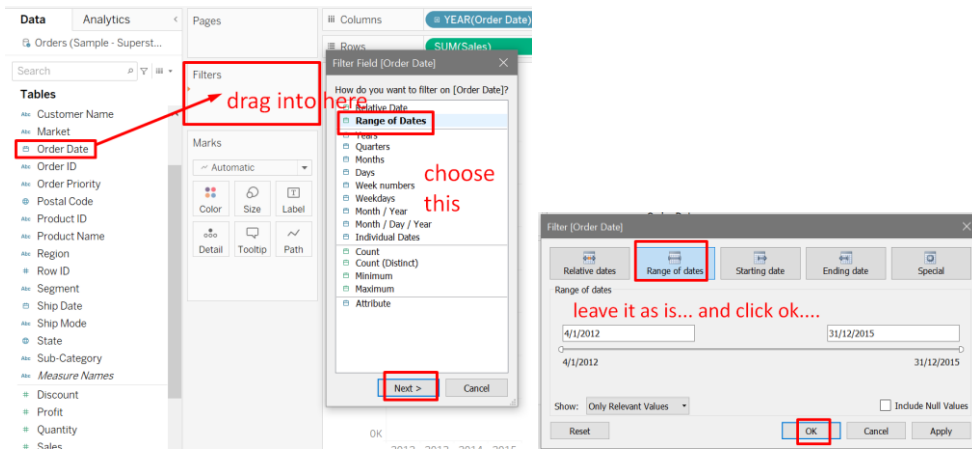
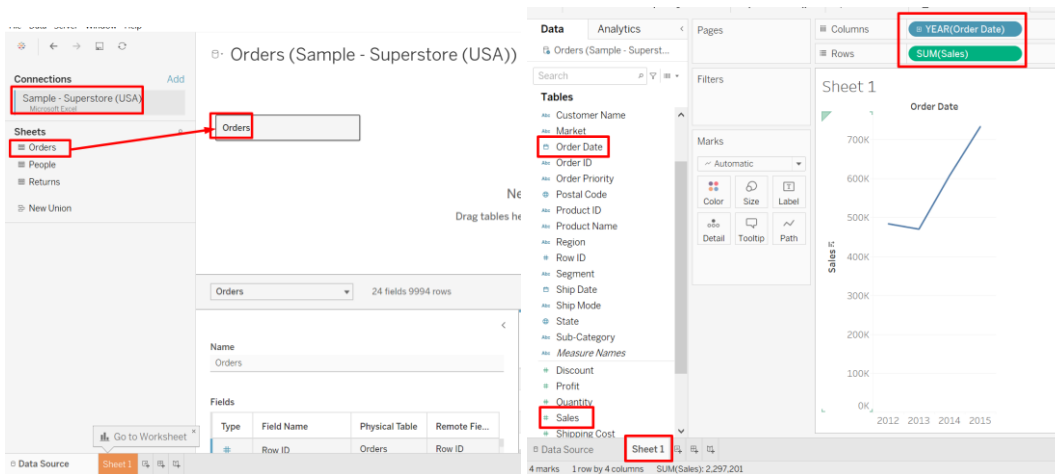
File can be found here: <https://www.alvinang.sg/s/Sample-Superstore-USA.xls>

The screenshot displays the Tableau Desktop interface. The 'Columns' shelf contains 'SUM(Sales)' and 'Sub-Category'. The 'Rows' shelf is empty. A bar chart titled 'Shoot 2' is shown, with 'Sub-Category' on the vertical axis and sales values on the horizontal axis. The 'Filters' shelf is empty. A 'Filter [Sub-Category]' dialog box is open, showing the 'Top' filter type. The 'By field' section is selected, with 'Sales' chosen as the field and 'Sum' as the aggregation. The 'Top' value is set to 5. The 'OK' button is highlighted.

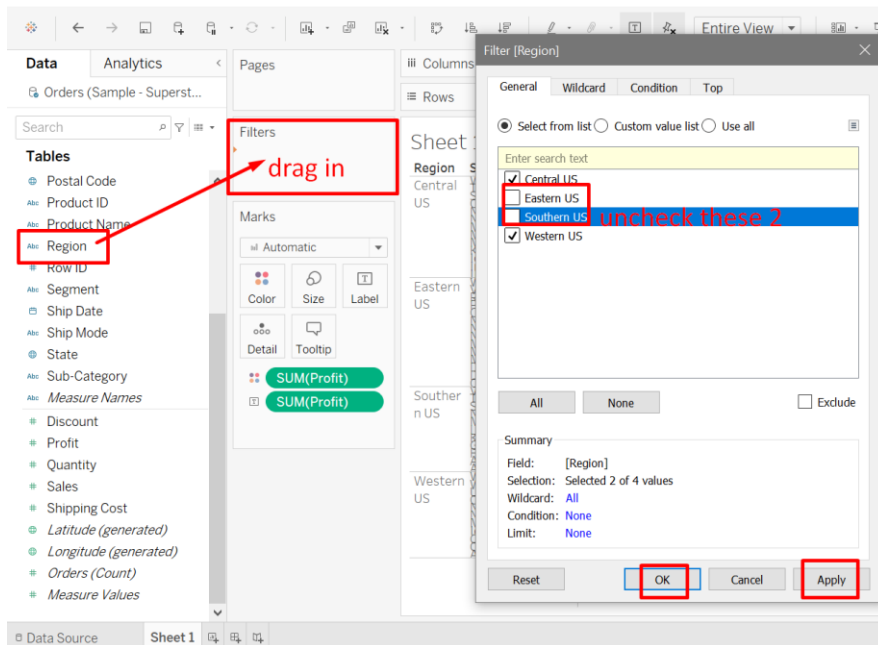
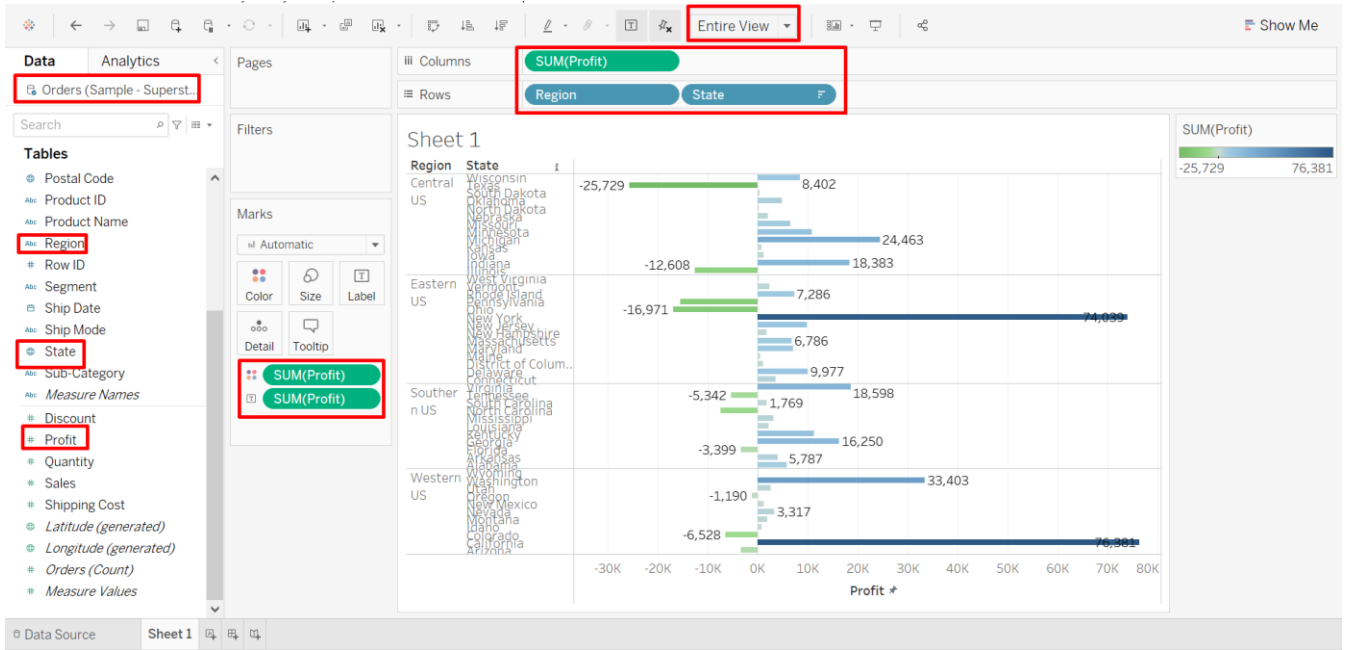
Sub-Category	Sales
Accessories	~100K
Appliances	~100K
Art	~20K
Binders	~100K
Bookcases	~100K
Chairs	~100K
Copiers	~100K
Envelopes	~20K
Fasteners	~20K
Furnishings	~100K
Labels	~20K
Machines	~100K
Paper	~100K
Phones	~100K
Storage	~100K
Supplies	~100K
Tables	~100K

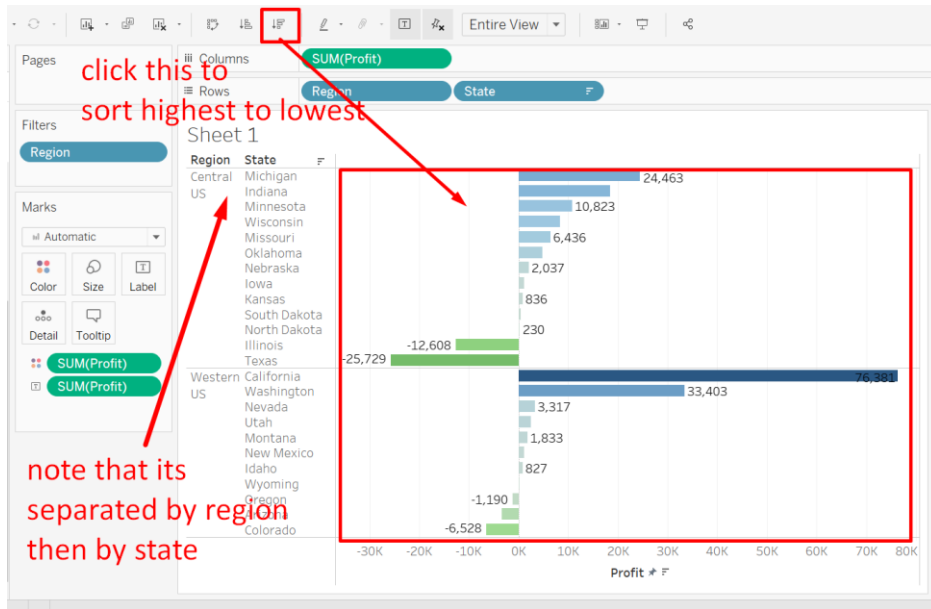
B. DATE FILTER

File can be found here: <https://www.alvinang.sg/s/Sample-Superstore-USA.xls>



C. CONTEXT FILTER





Region

State

Filter [State]

General Wildcard Condition **Top**

None

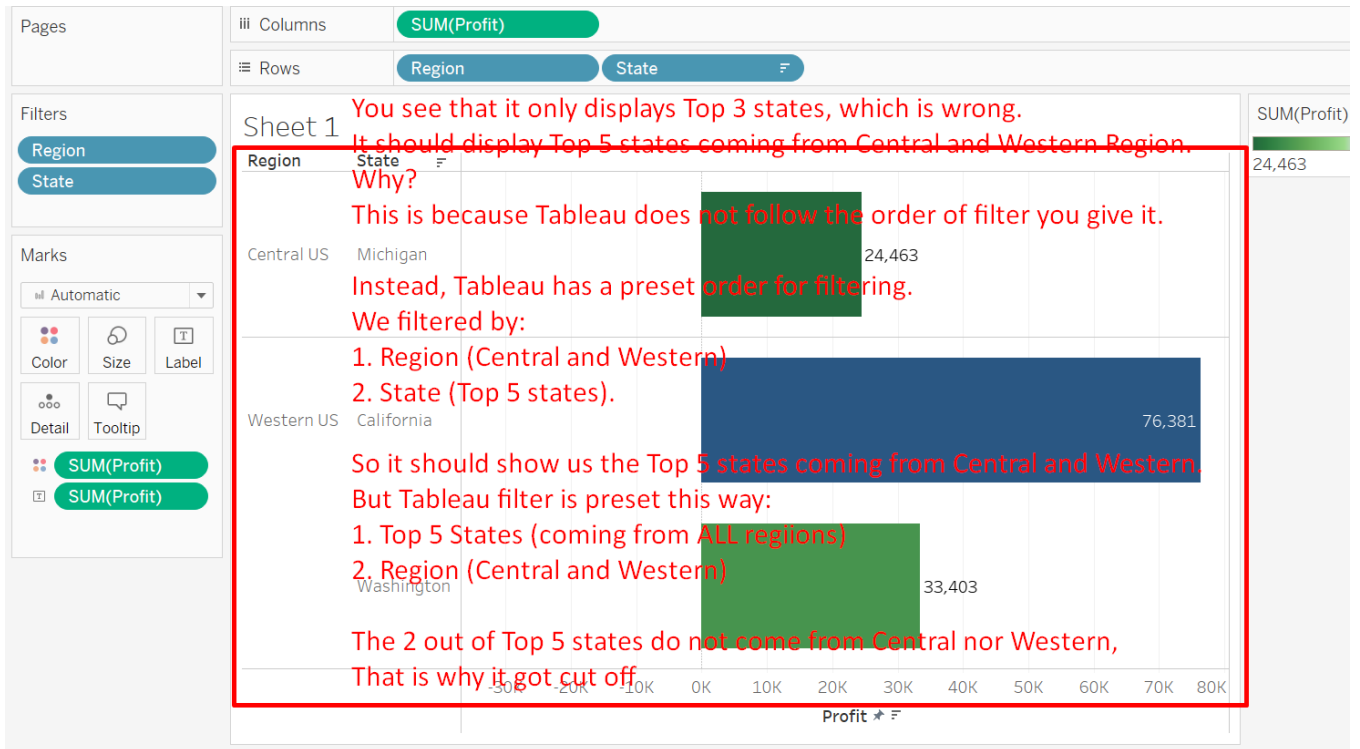
By field:

Top 5 by Profit Sum

By formula:

Top 10 by

Reset OK Cancel Apply

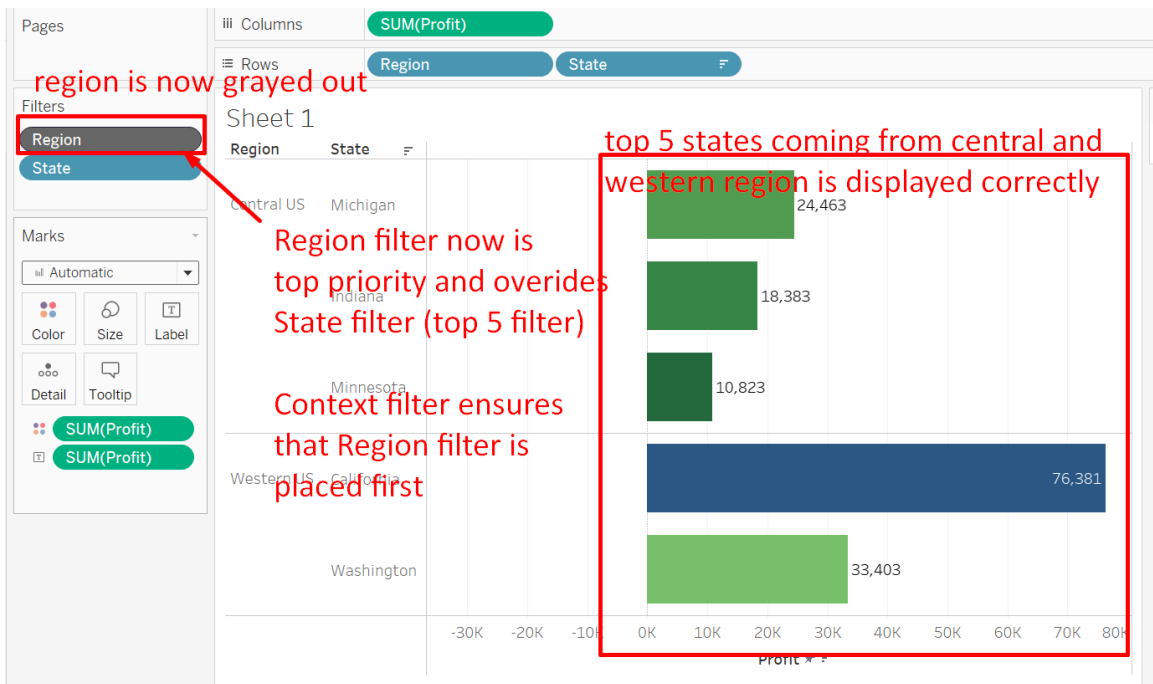
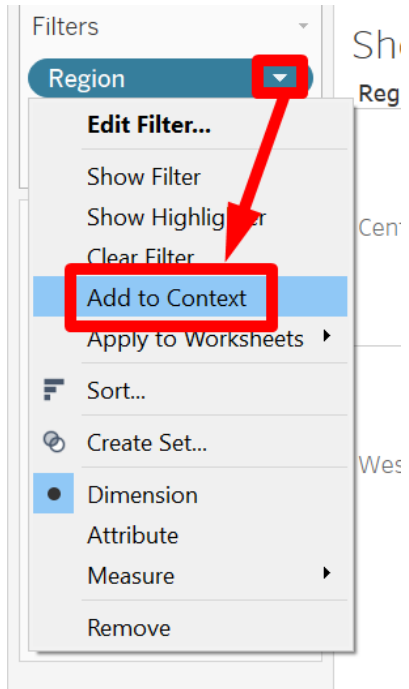


In other words, even though we did the filtering in the right order, Tableau reverses the order, and does it his way, in the following order:

1. top 5 states filter
2. only 2 regions filter

Thus, out of the top 5 states, only 3 came from Central and West region – that is why we result with only 3 states.

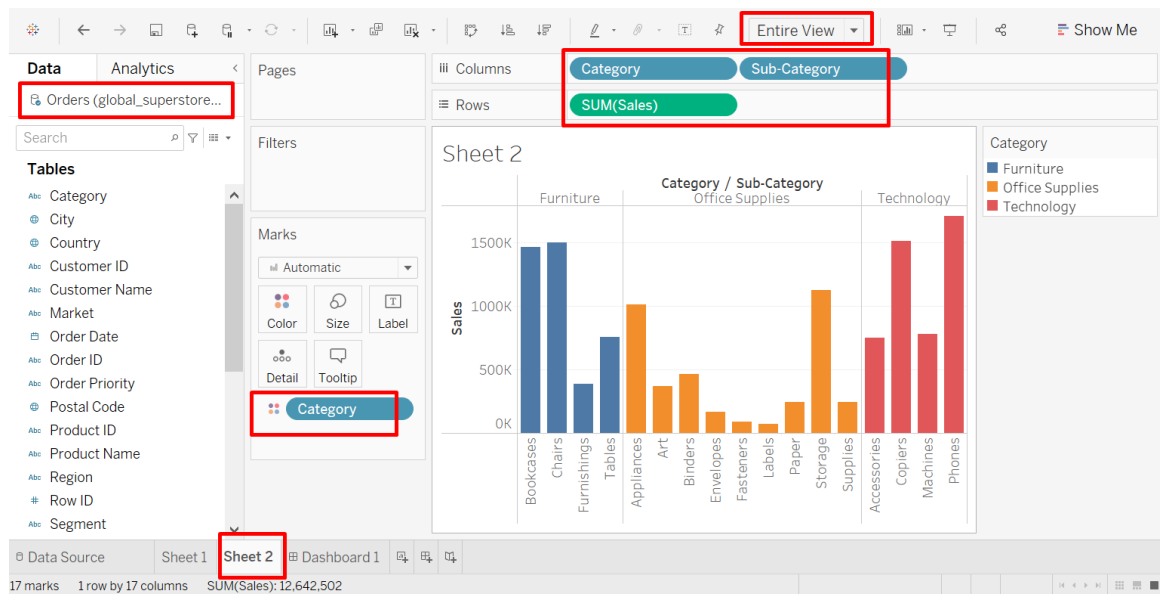
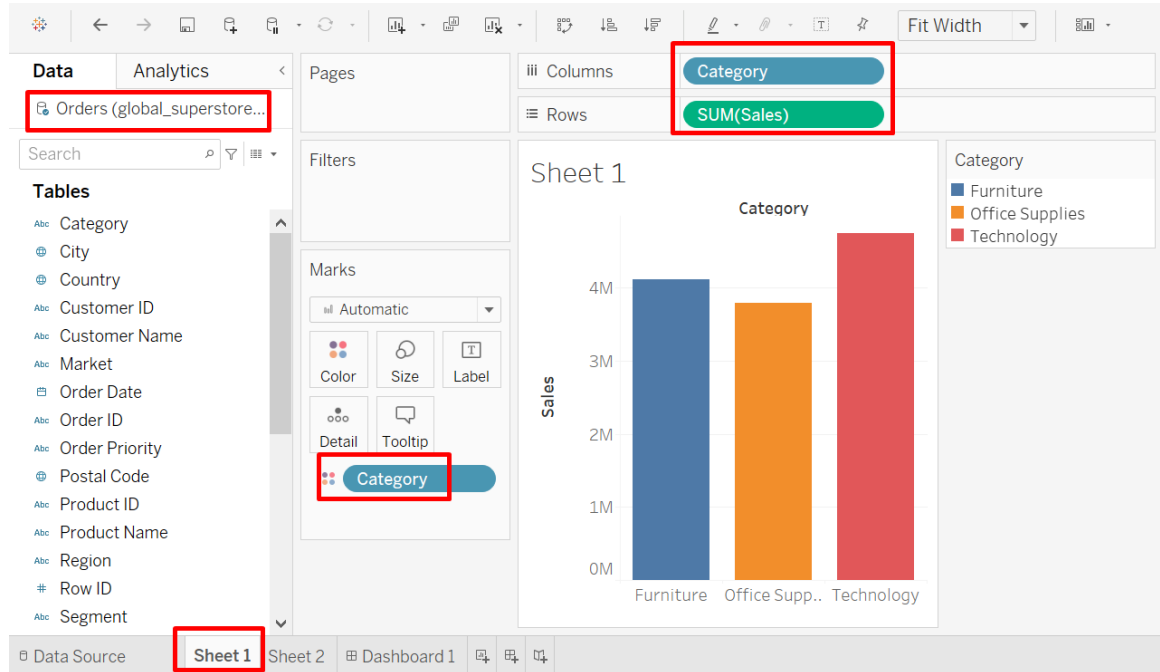
To fix this, we use the Context Filter.

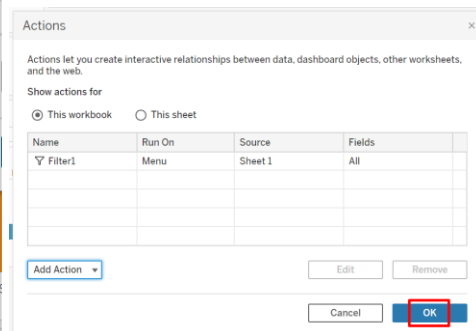
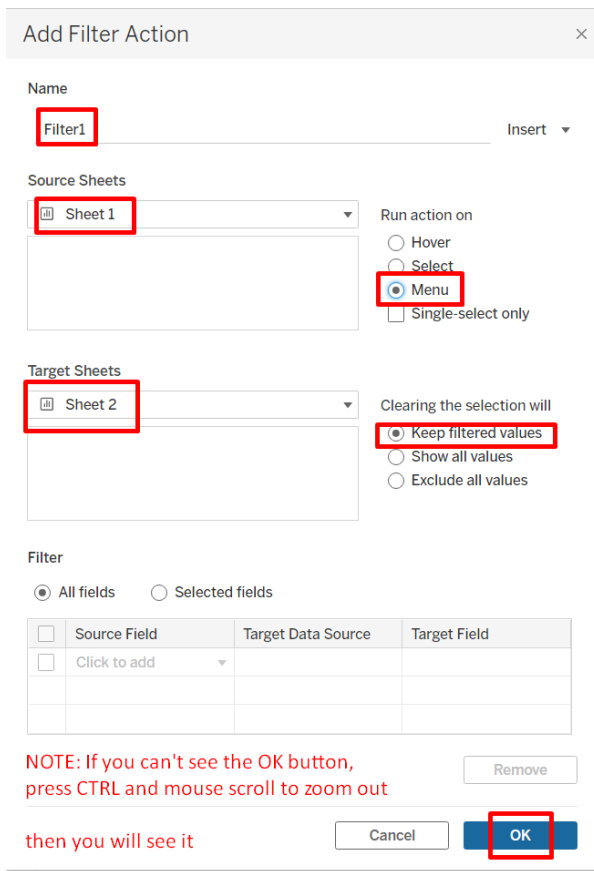
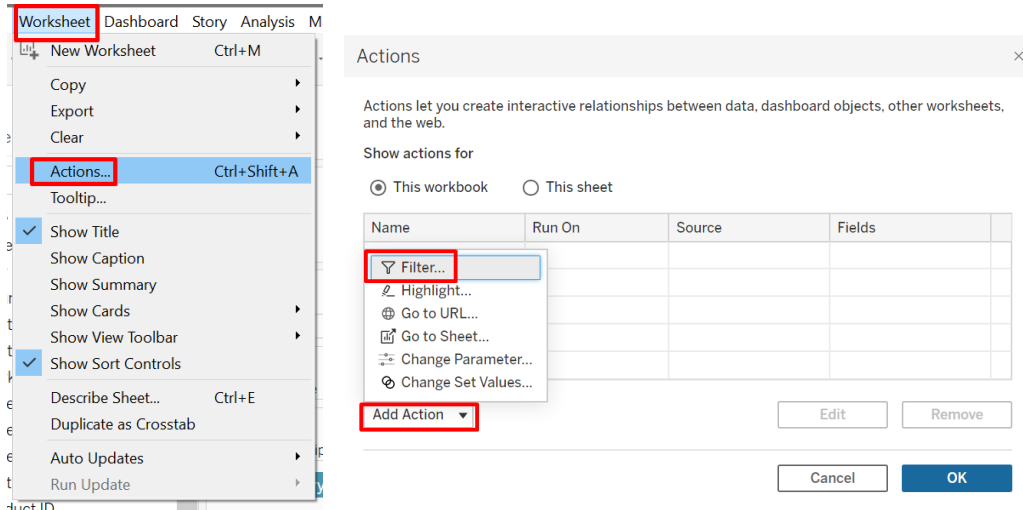


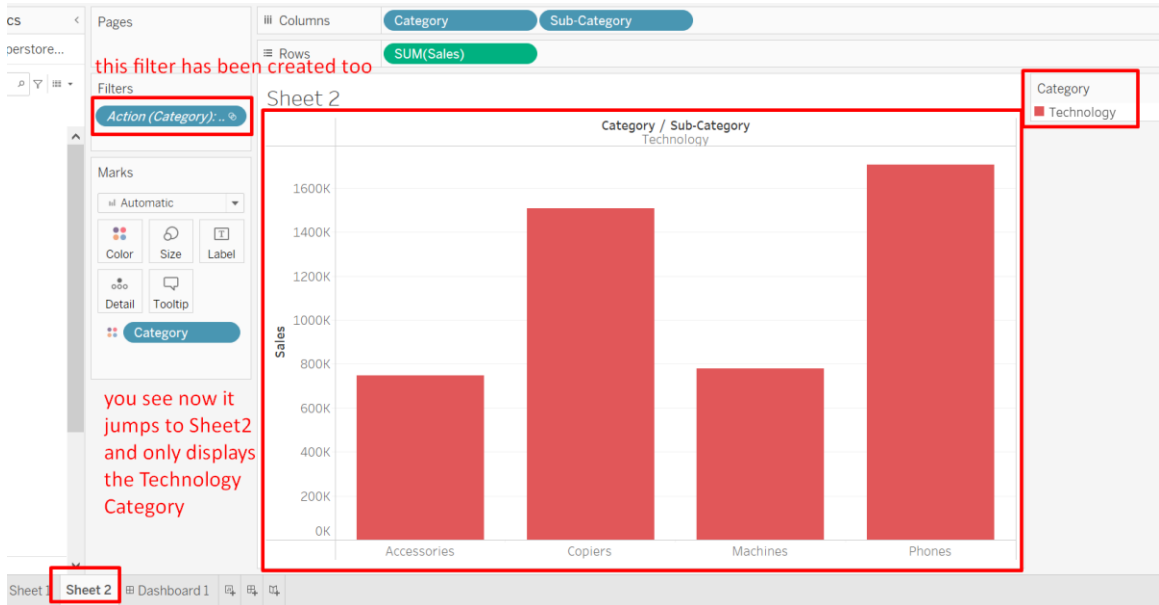
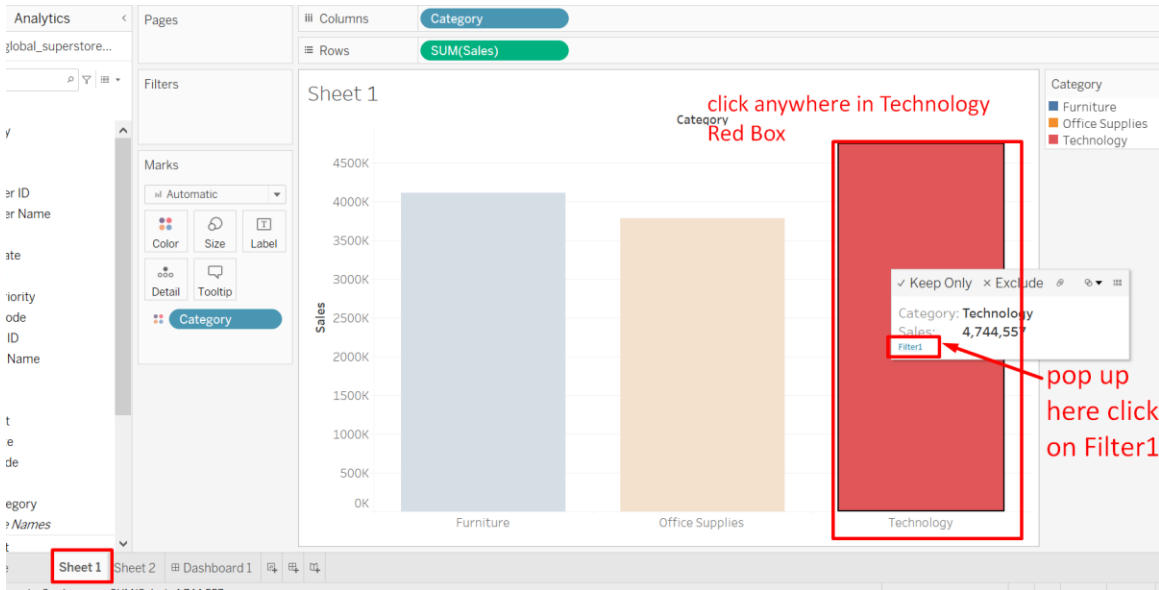
D. ACTION FILTER

1. EXAMPLE 1: WORKSHEET TO WORKSHEET

File can be found here: https://www.alvinang.sg/s/global_superstore_2016.xlsx

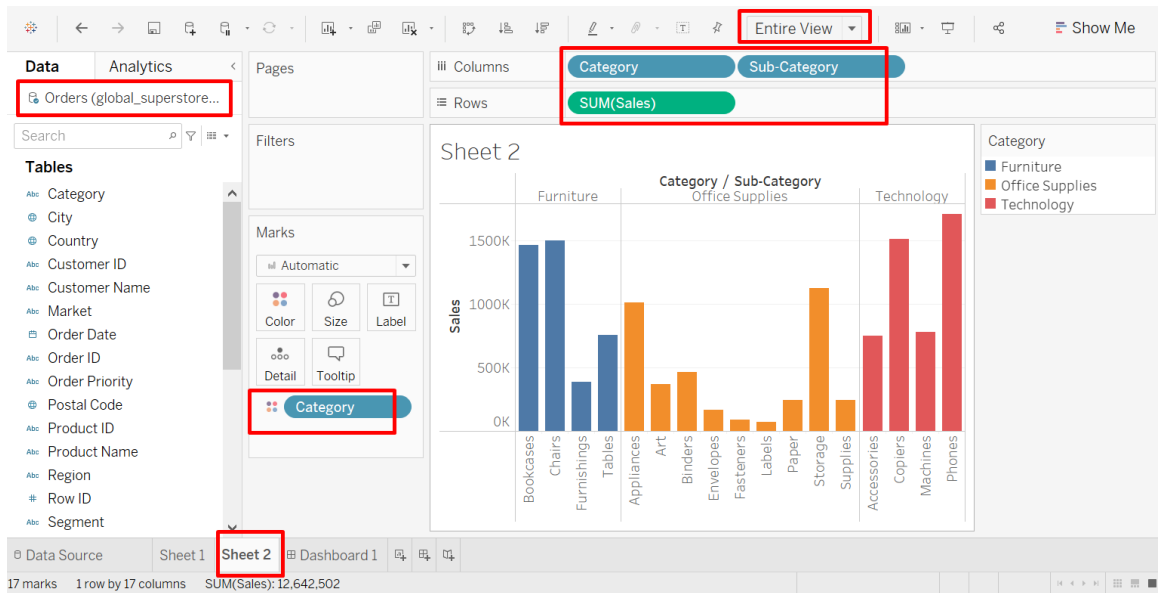
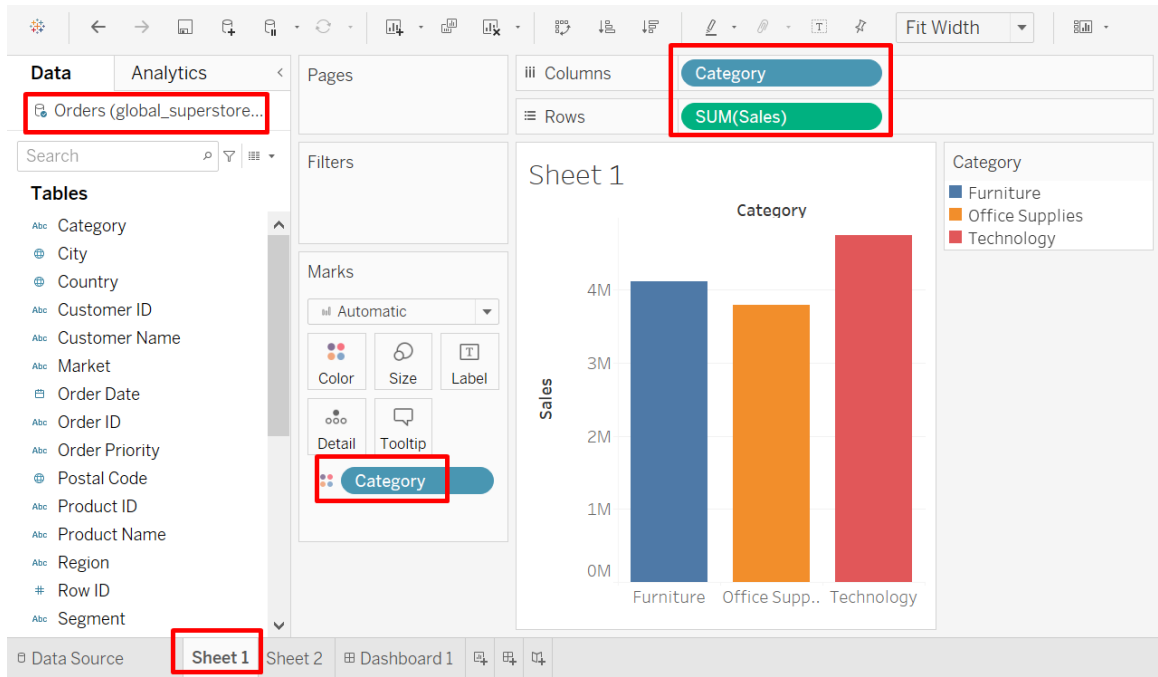


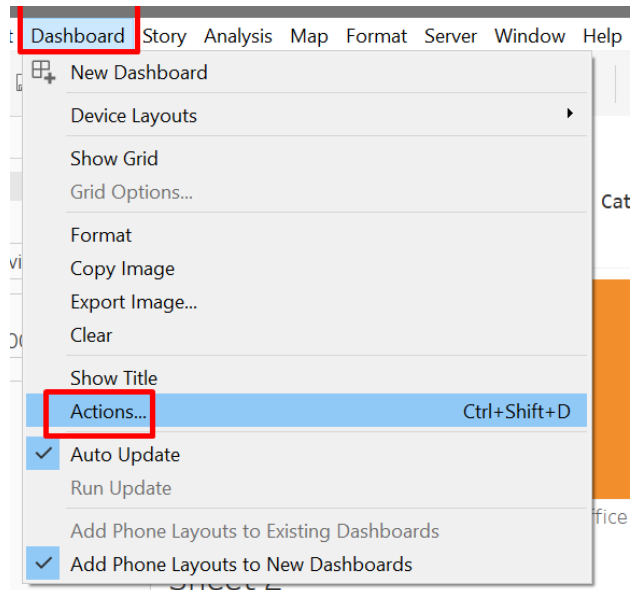
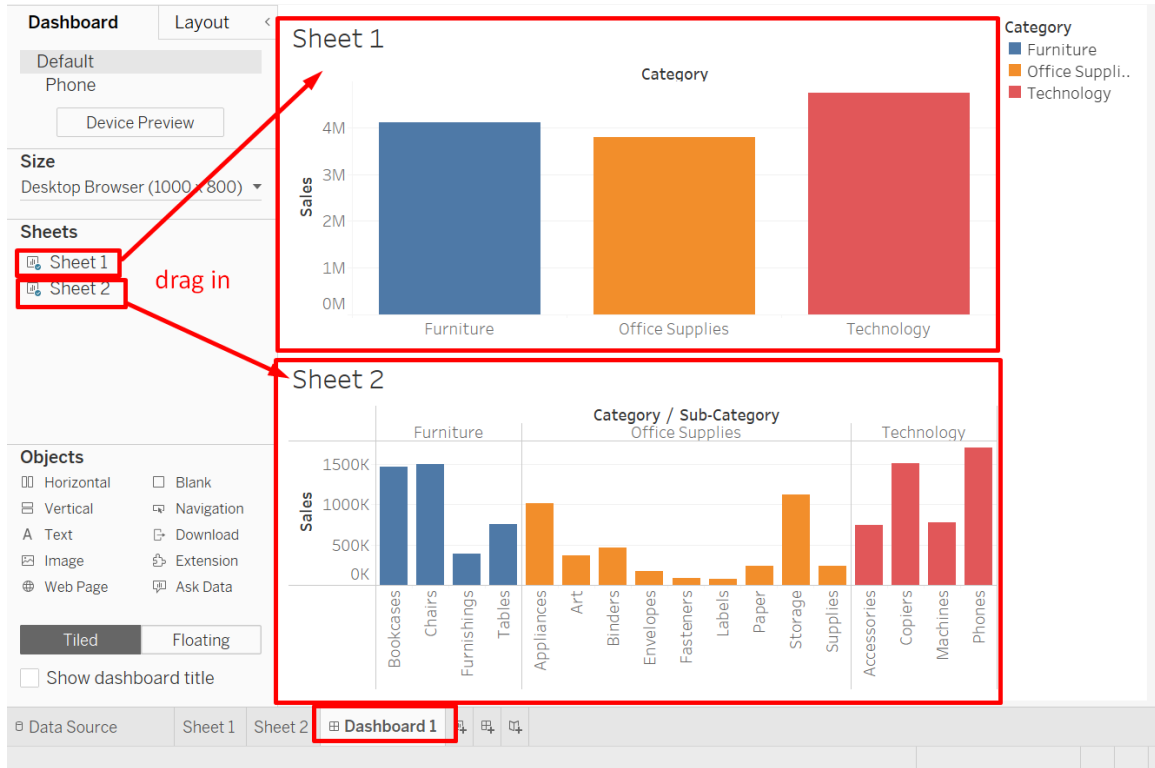


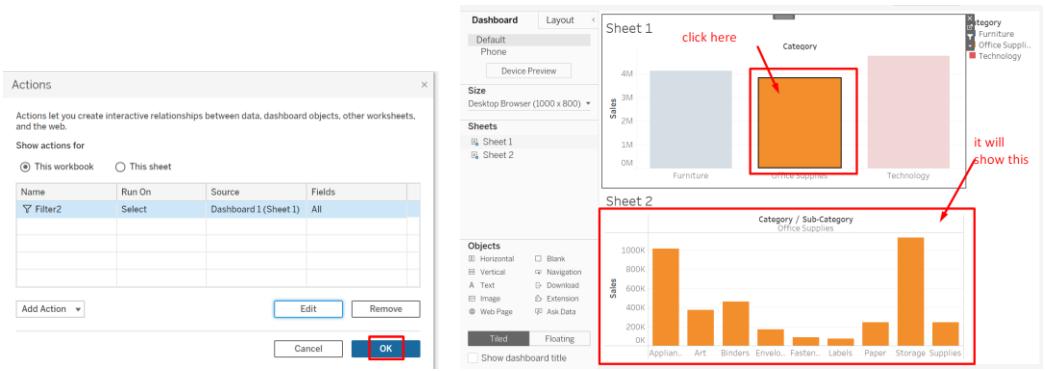
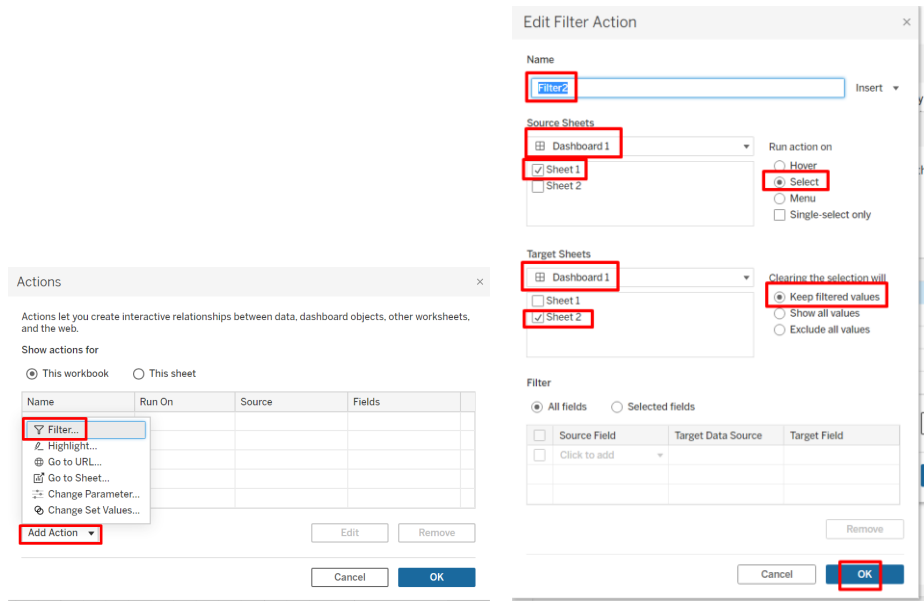


2. EXAMPLE 2: WITHIN DASHBOARD

File can be found here: https://www.alvinang.sg/s/global_superstore_2016.xlsx



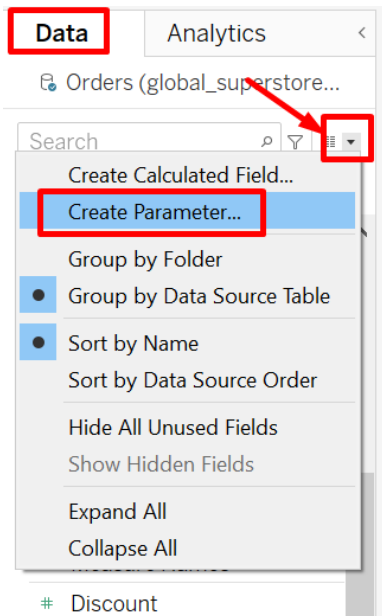
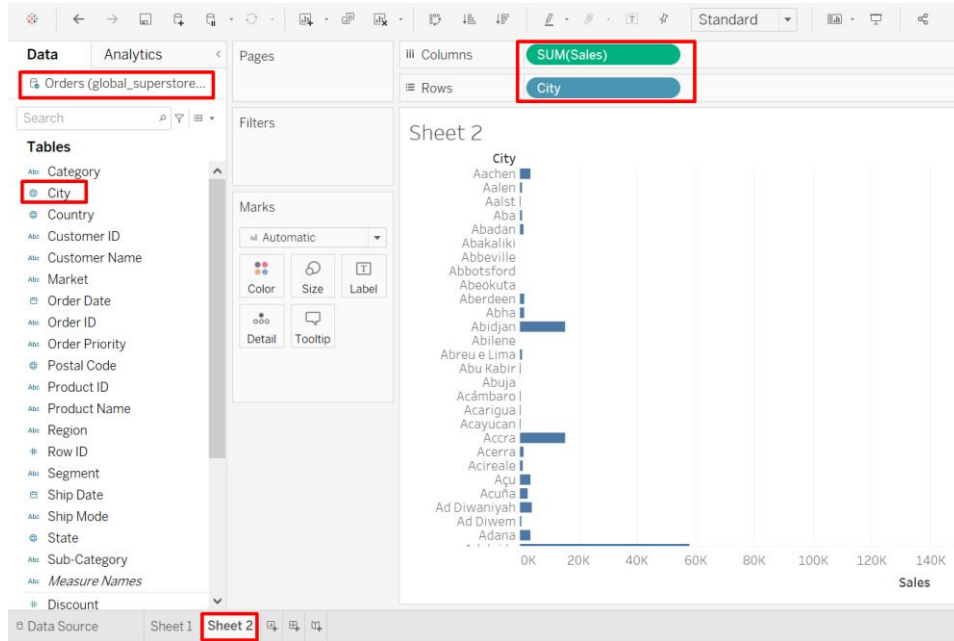


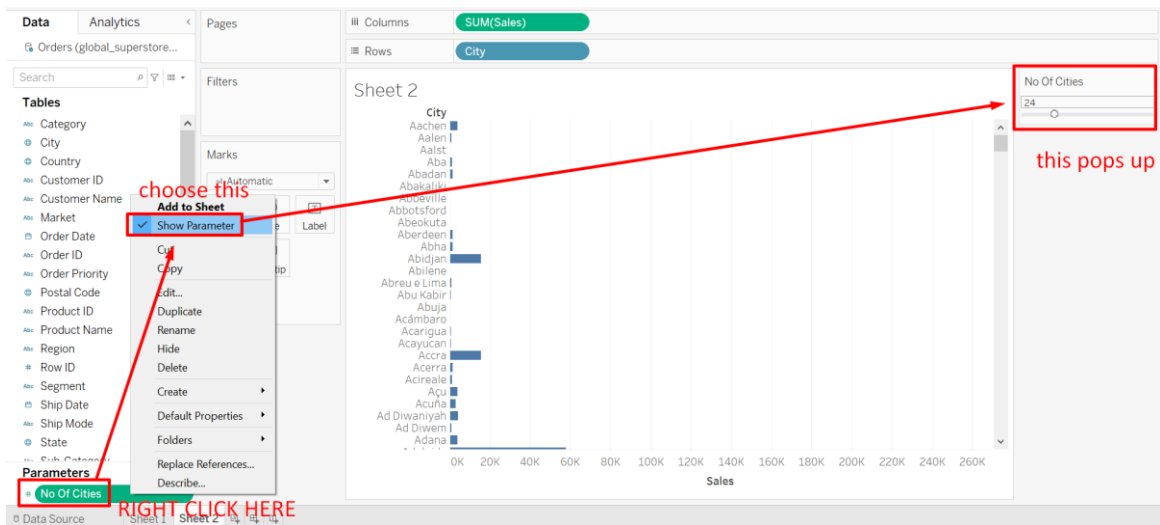
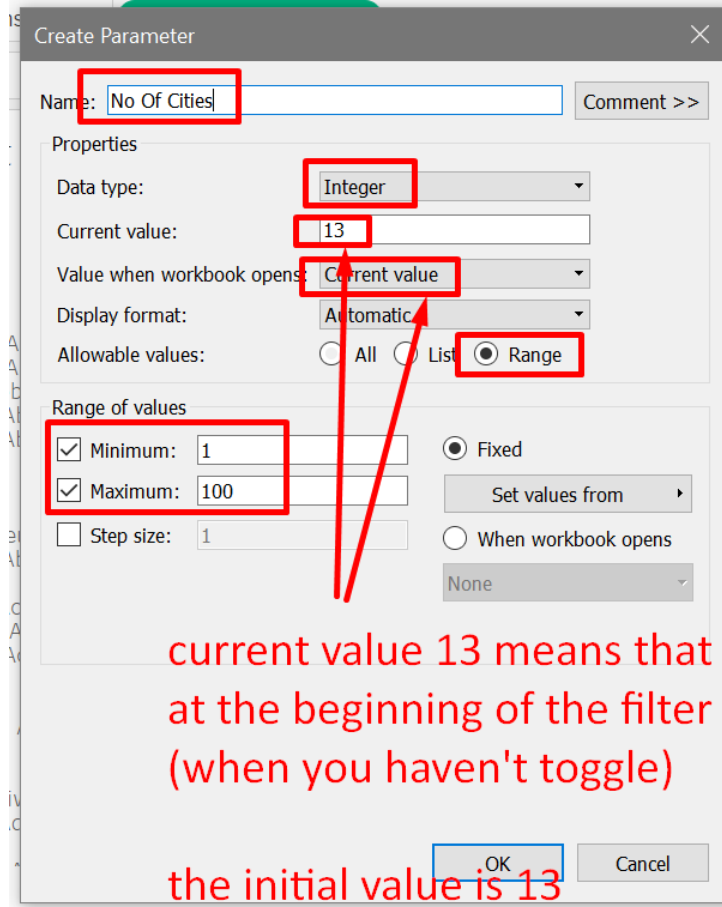


E. FILTERING VIA CREATING PARAMETERS

1. EXAMPLE 1: TOP CITY SALES

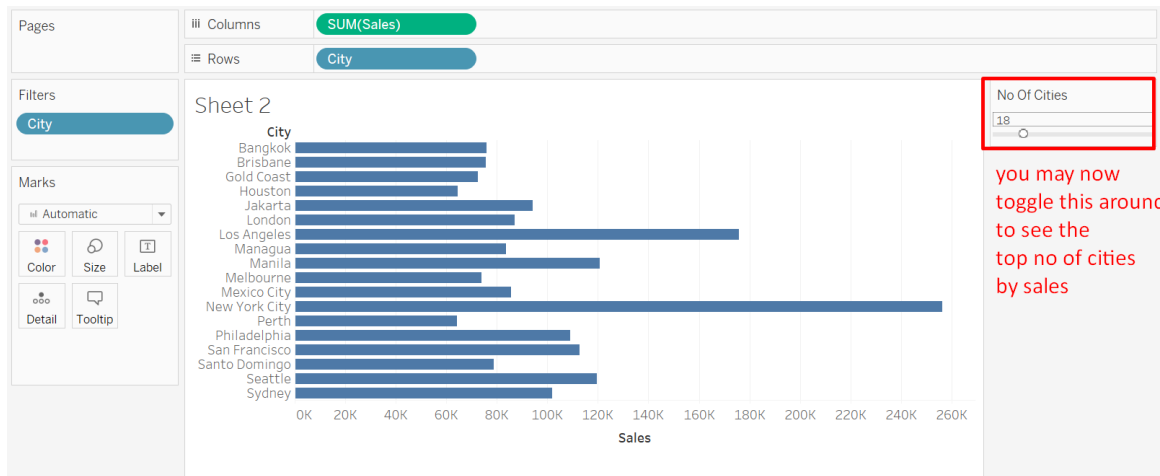
File can be found here: https://www.alvinang.sg/s/global_superstore_2016.xlsx





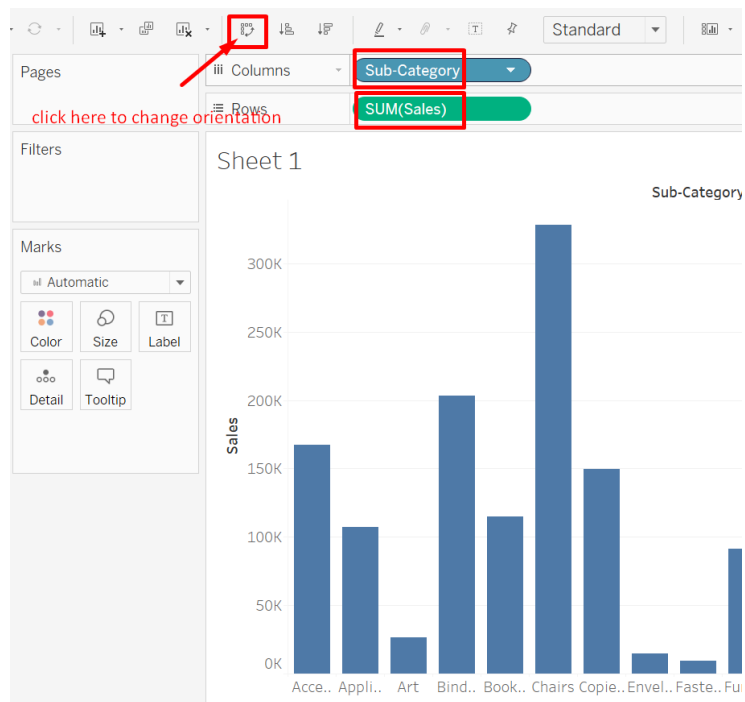
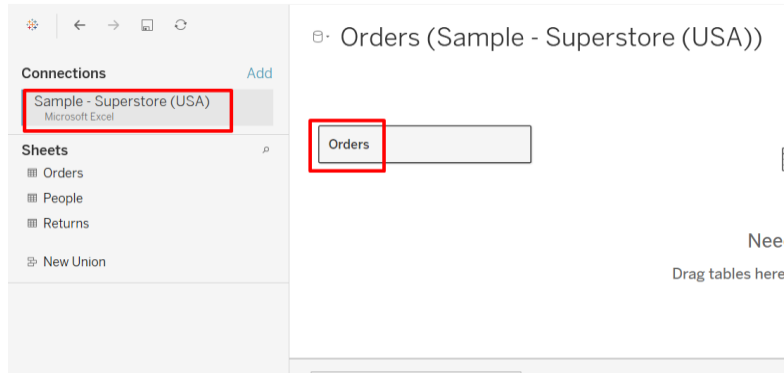
drag this in

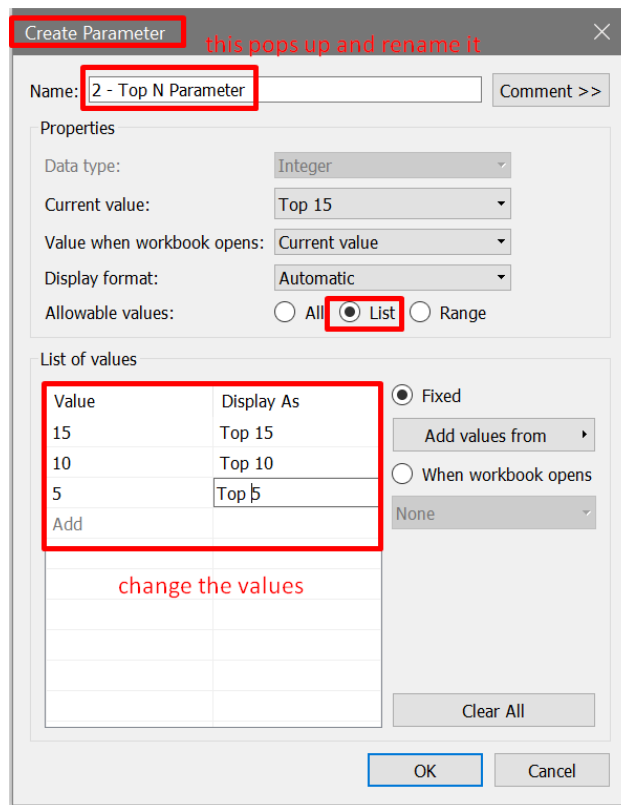
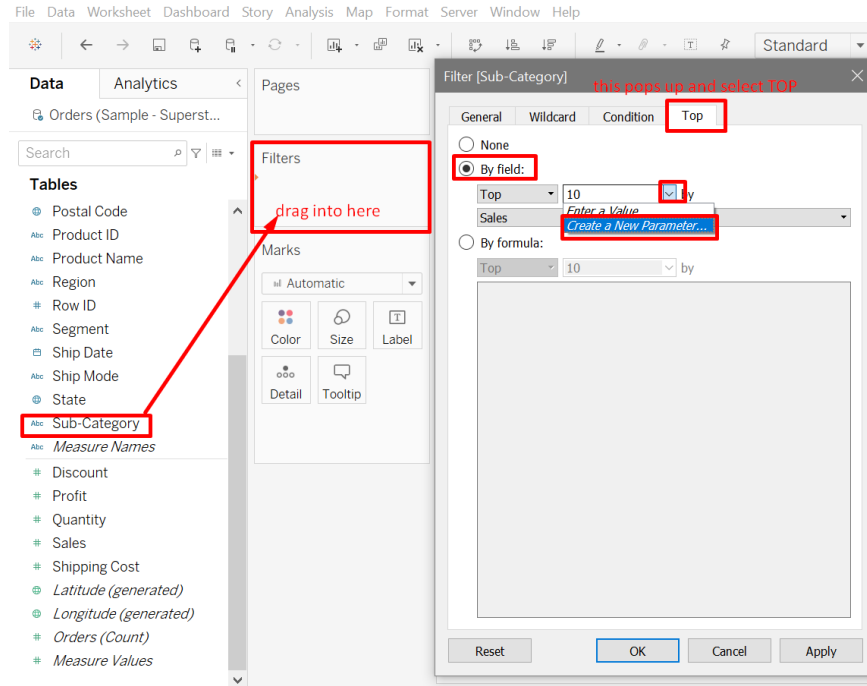
select no of cities parameter (created earlier)
Choose "by sales"

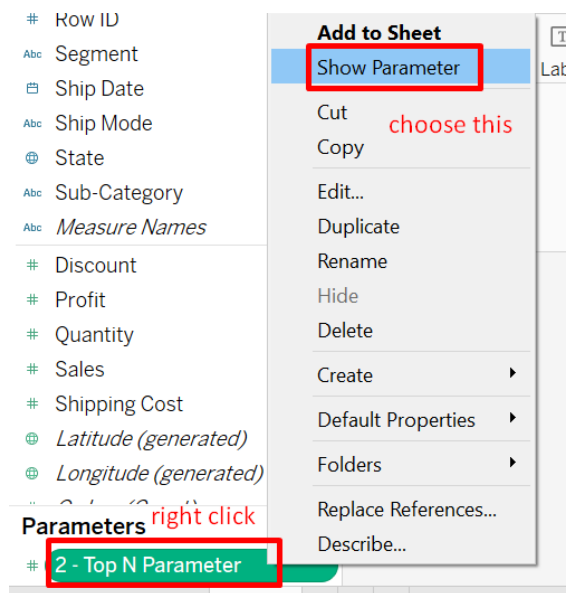
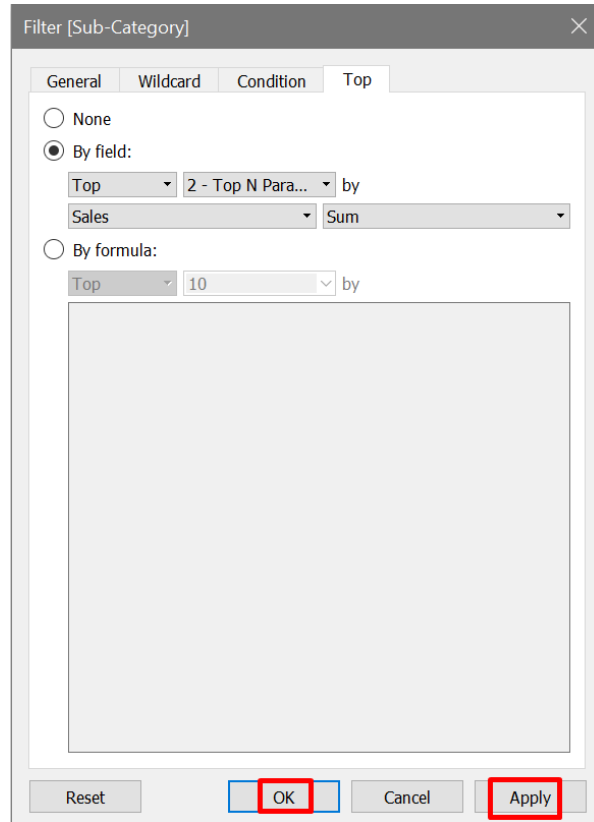


2. EXAMPLE 2: TOP SUB CATEGORY SALES

- We want to create a Parameter that can adjust based on Top 5 / 10 / 15 Sales
- Just bring in the Orders sheet from the Sample Superstore (USA).xls
- <https://www.alvinang.sg/s/Sample-Superstore-USA.xls>







Story Analysis Map Format Server Window Help

The screenshot shows the Tableau interface with the following elements:

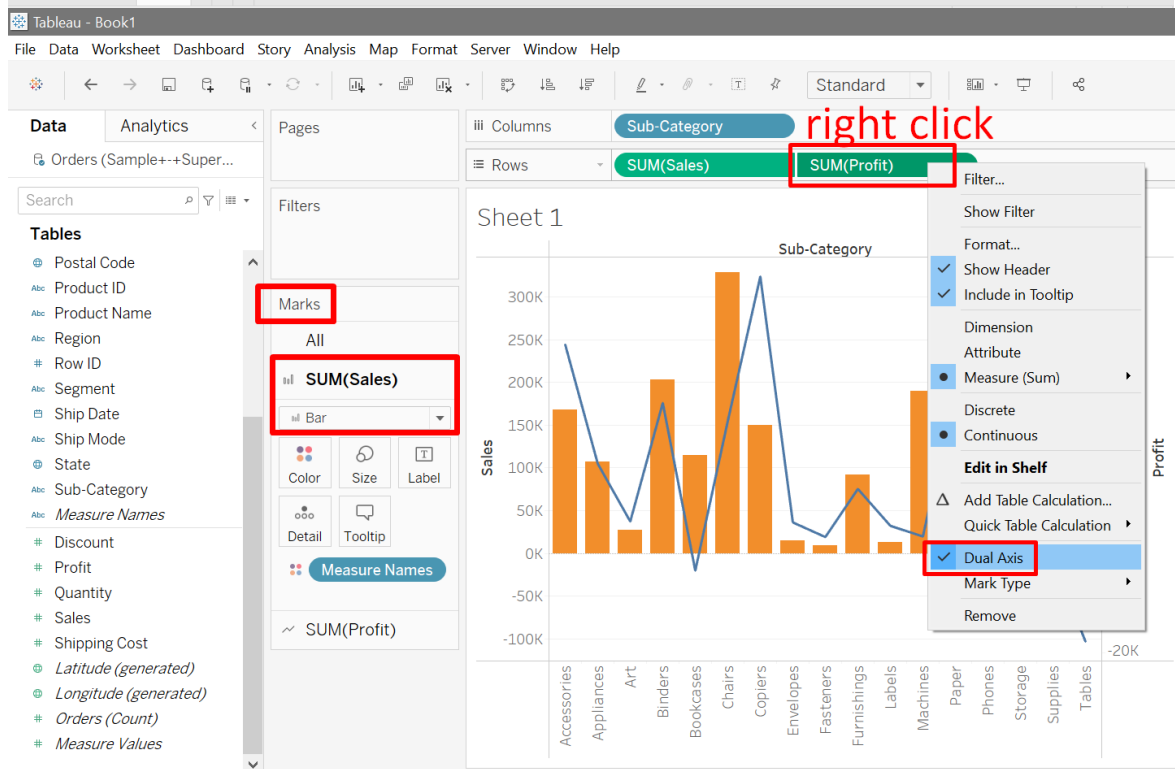
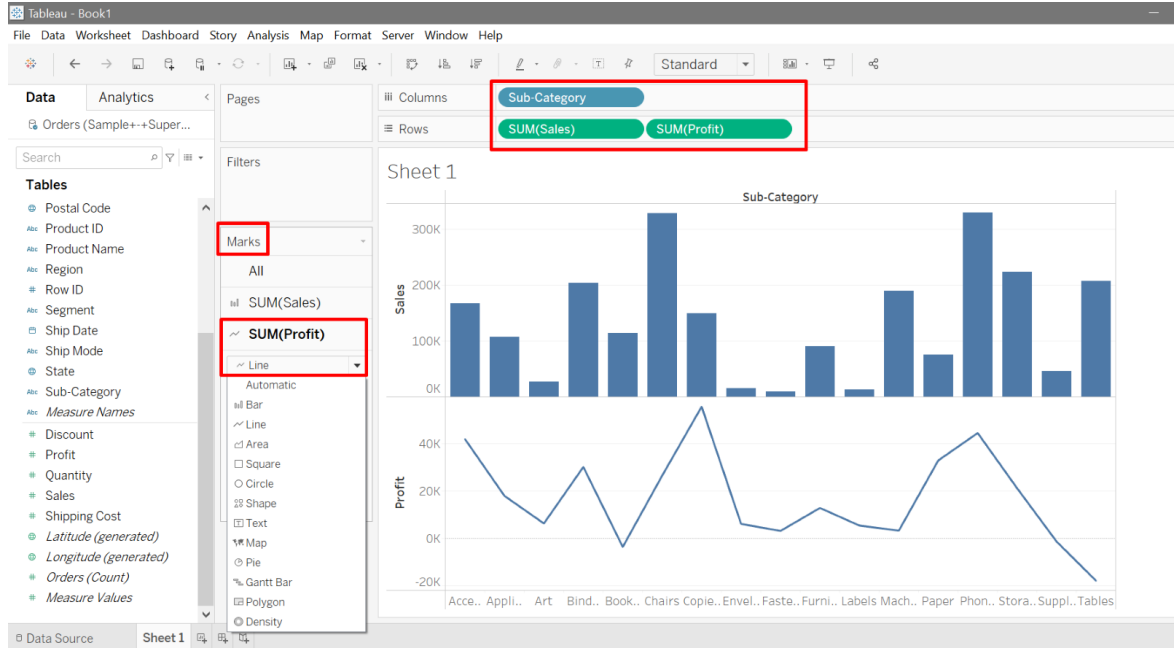
- Columns:** SUM(Sales)
- Rows:** Sub-Category
- Filters:** Sub-Category
- Marks:** Automatic (with a red box around the dropdown arrow)
- Label Properties:**
 - Show mark labels
 - Label Appearance: Text, Font (Tableau Book, 9pt, A...), Alignment (Automatic)
 - Marks to Label: All, Selected, Min/Max, Highlighted
 - Options: Allow labels to overlap other marks
- Chart Data:**

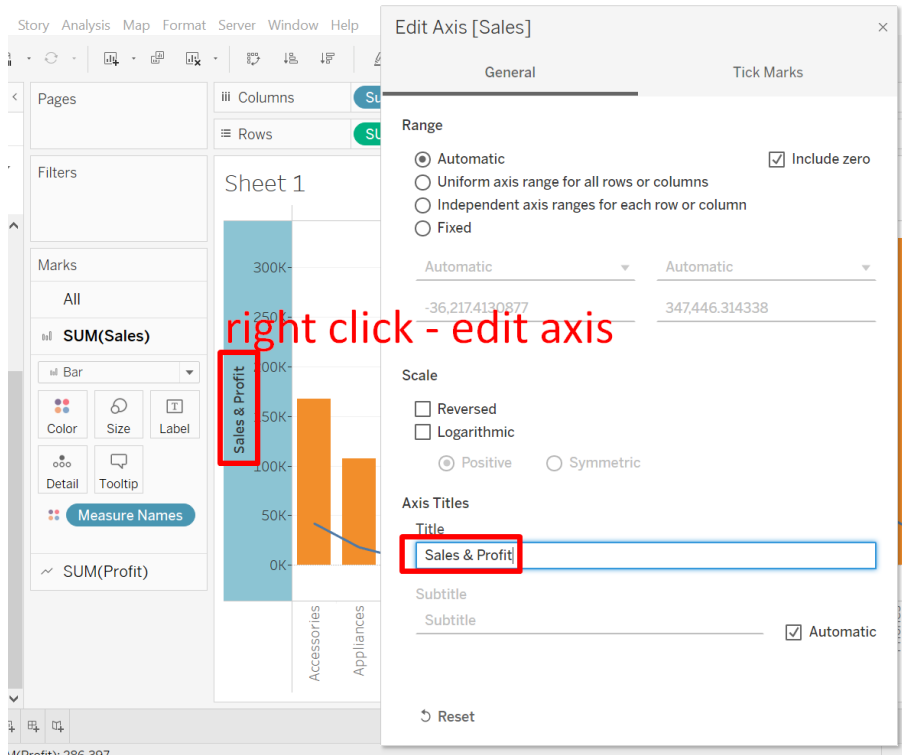
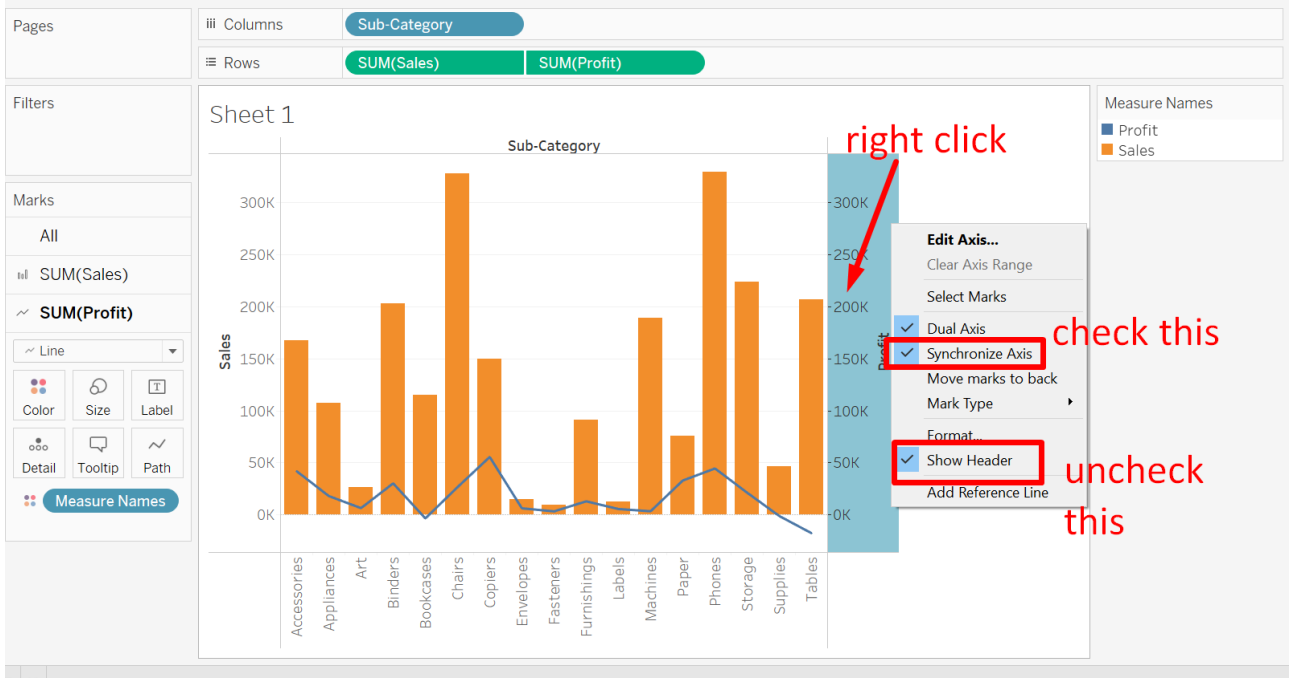
Sub-Category	Sales
Phones	330,007
Chairs	223,571
Storage	203,371
Tables	
Binders	
- Parameter:** 2 - Top N Parameter, set to Top 5 (with a red box around the dropdown arrow)

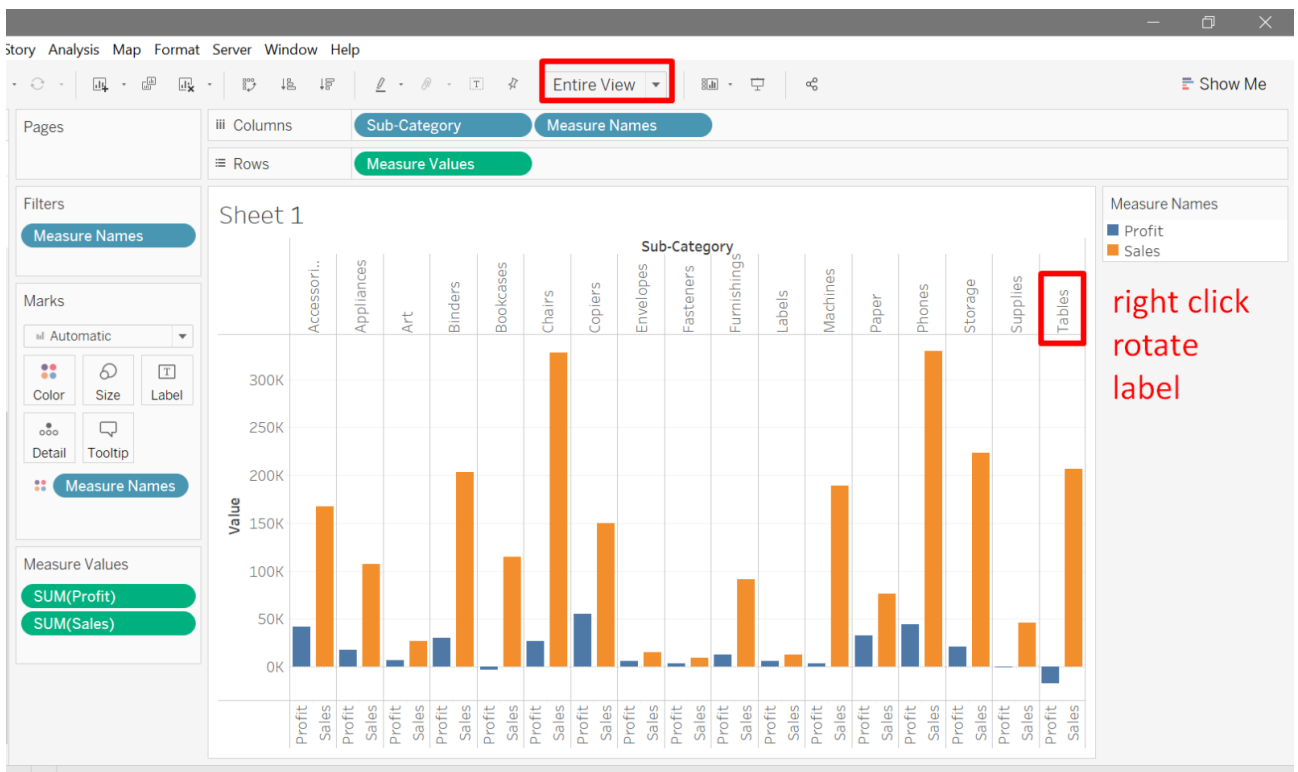
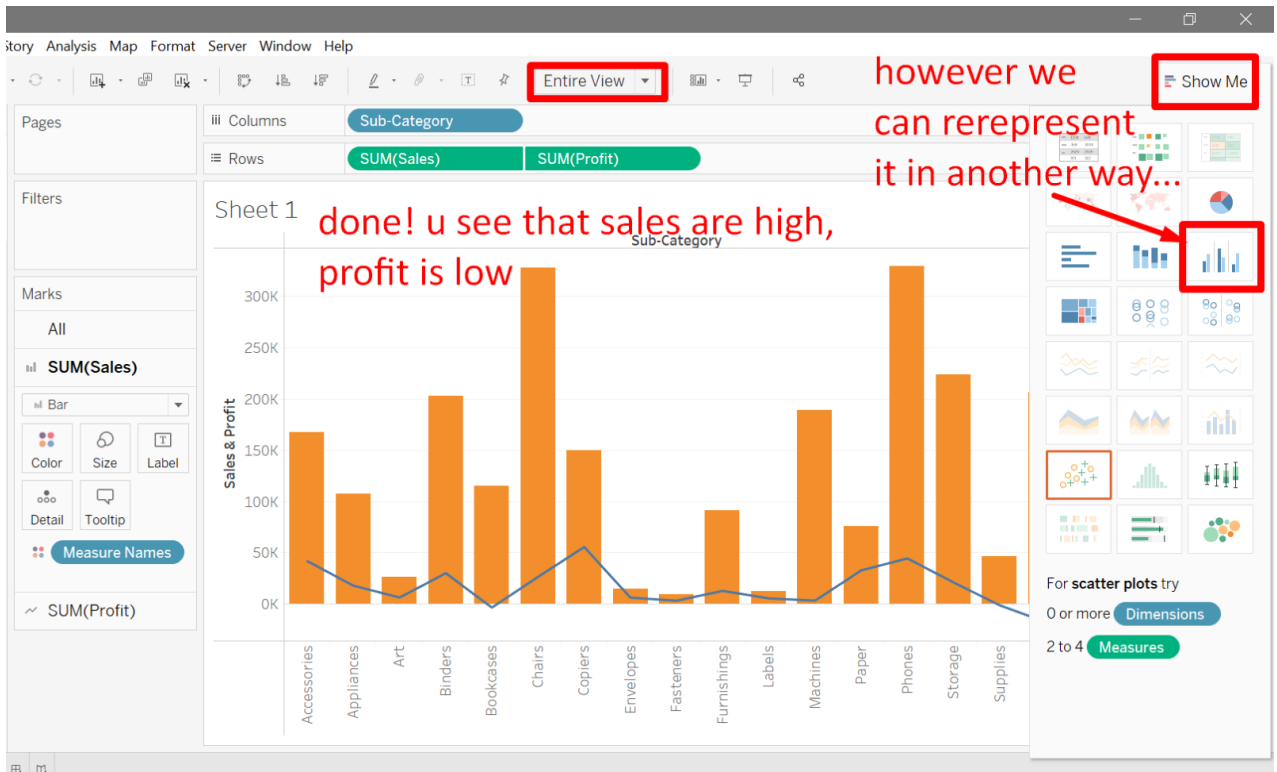
- We have created a Parameter that we can filter thru top 5 / 10 / 15 sales.

VI. DUAL AXIS

<https://www.alvinang.sg/s/Sample-Superstore-USA.xls>

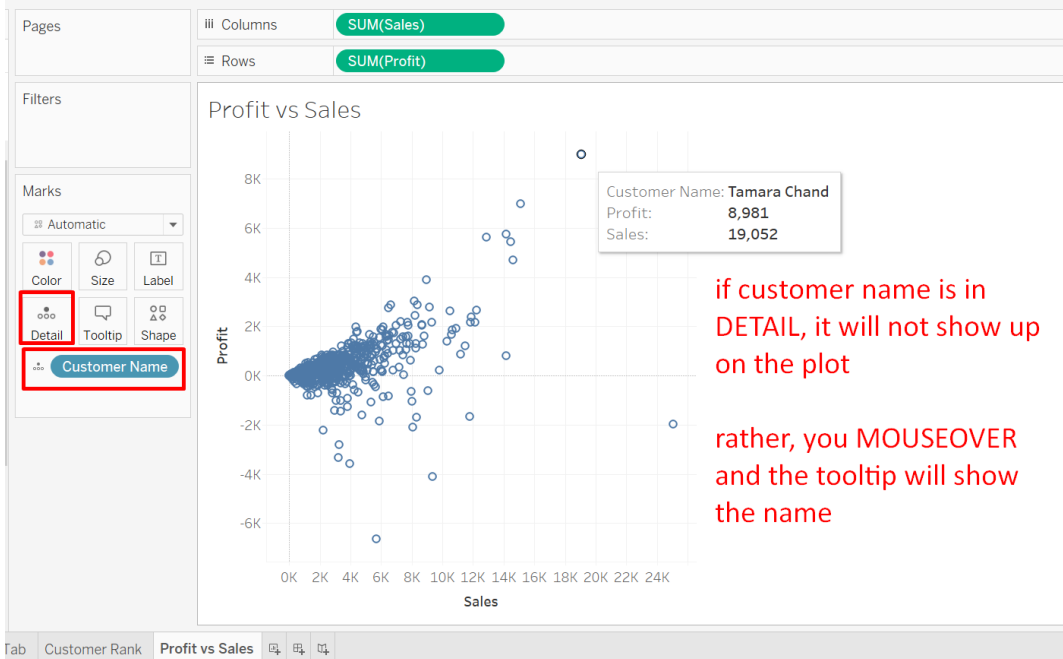
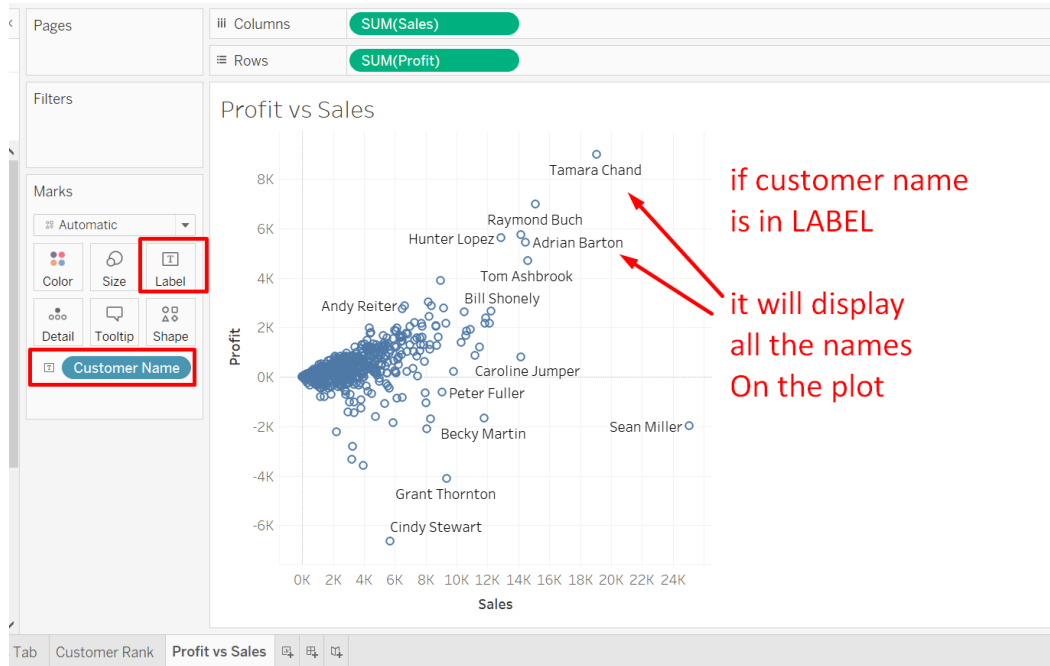




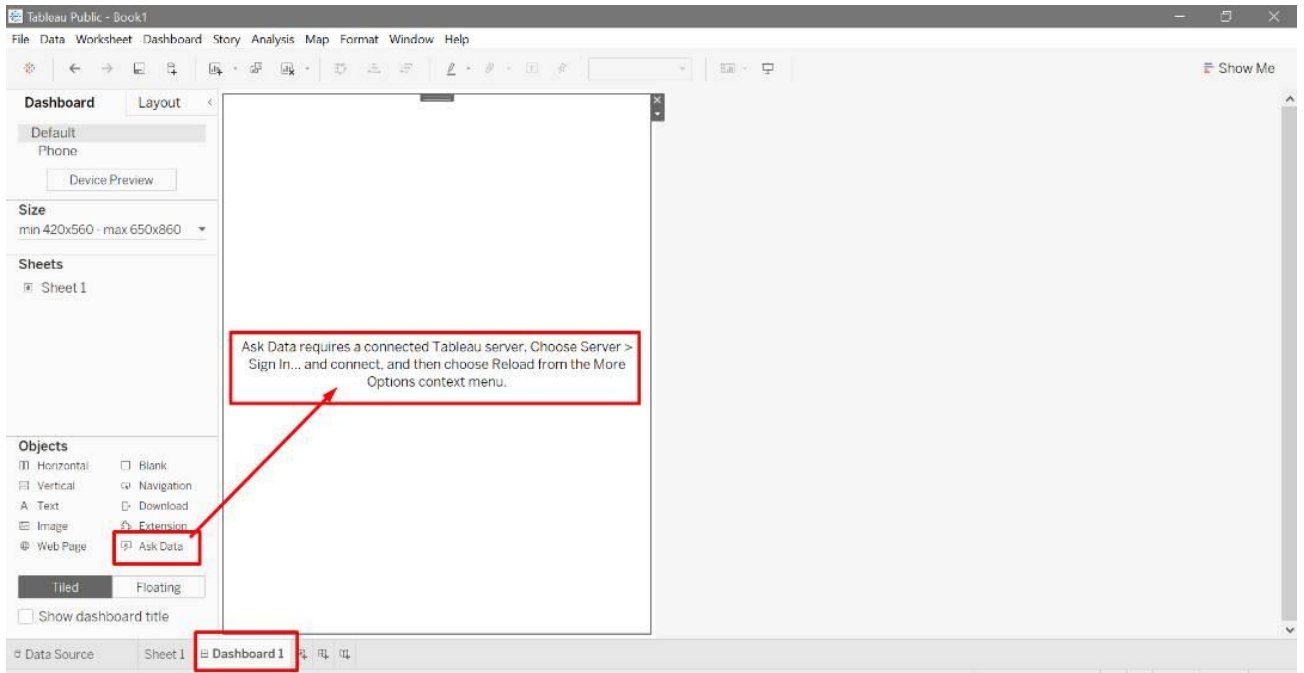
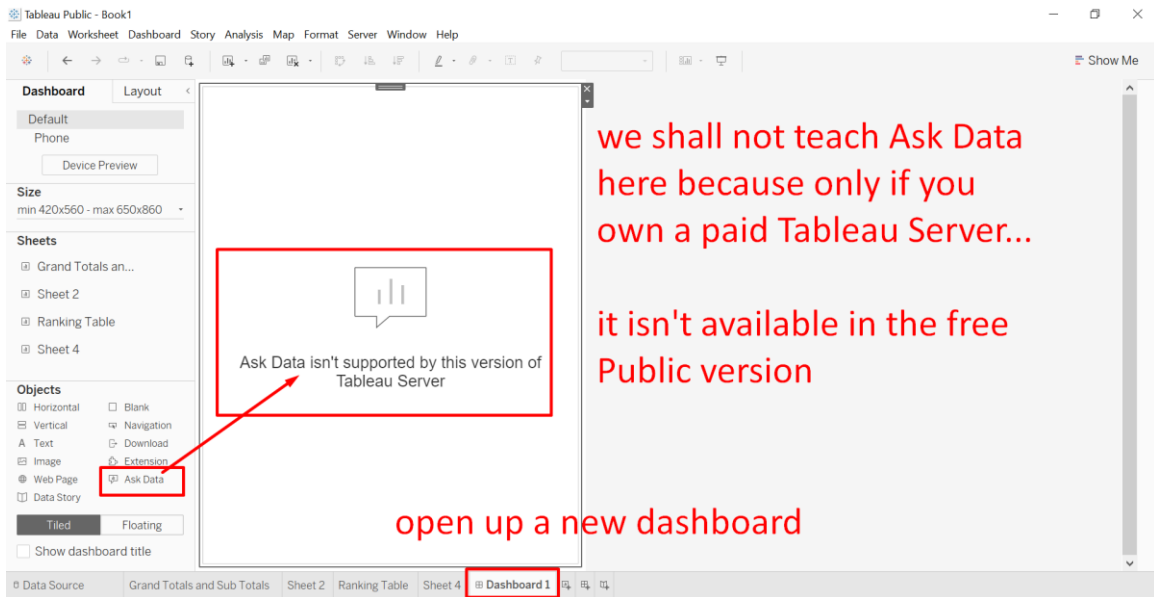


VII. DIFFERENCE BETWEEN LABEL AND DETAIL

File can be found here: <https://www.alvinang.sg/s/Sample-Superstore-USA.xls>



VIII. ASK DATA



ABOUT DR. ALVIN ANG



Dr. Alvin Ang earned his Ph.D., Masters and Bachelor degrees from NTU, Singapore. He was a Professor, Scientist and Financial Consultant. Currently, he owns a self-started business and is a Personal/Business Advisor.

More about him at www.AlvinAng.sg