

DR. ALVIN'S PUBLICATIONS

# LEARNING TABLEAU

## PART VII

---

CALCULATED FIELDS & LOD  
DR. ALVIN ANG



COPYRIGHTED BY DR ALVIN ANG  
[WWW.ALVINANG.SG](http://WWW.ALVINANG.SG)

---

TABLE OF CONTENTS

---

**Table of Contents.....2**

**I. Calculated Fields .....3**

**A. Product Customers Orders.xlsx.....3**

1. Revenue = Price \* Quantity.....3

2. Quantity \* Price.....5

3. Good or Bad Revenue .....6

**B. Global Superstore.xlsx .....8**

1. Running Sum .....8

2. Profit / Sales .....10

3. Running Total .....12

4. Urgency of Order Priority.....14

5. Using Parameter to Create Dynamic Views .....16

**C. Sample Superstore.xlsx .....19**

1. Double Checking our Data .....19

2. Alot / Some / Not Many .....21

a) Try to spot the error.....21

b) Correct Answer .....23

3. Large / Medium / Small Orders.....24

4. Negative Profits.....26

5. Creating A Toggle To View Sales Via Year / quarter / Month.....28

**II. LEVEL OF DETAIL (LOD) .....34**

**A. FIXED LOD.....35**

1. EXAMPLE 1: FIXING THE REGION .....35

2. EXAMPLE 2 : FIXING THE CUSTOMER .....38

**B. INCLUDE LOD.....42**

1. EXAMPLE 1.....42

2. EXAMPLE 2.....45

**C. EXCLUDE LOD.....48**

1. EXAMPLE 1.....48

**About Dr. Alvin Ang .....52**

# I. CALCULATED FIELDS

## A. PRODUCT CUSTOMERS ORDERS.XLSX

### 1. REVENUE = PRICE \* QUANTITY

<https://www.alvinang.sg/s/ProductsCustomersOrders.xlsx>

we will learn how to create a new column (calculated field) called Revenue (which is Quantity x Price)

inner join these 2 sheets

Price is from Products Sheet

Qty is from OrderDetails Sheet

Name	OrderDetails	Products	ProductID (Products)	Product Name	Product Category	Price	Revenue
	1	1	1	Ballet Slippers	Dance	14.950	
	1	1	1	Ballet Slippers	Dance	14.950	
	1	1	1	Ballet Slippers	Dance	14.950	
	3	1	1	Ballet Slippers	Dance	14.950	
	2	1	1	Ballet Slippers	Dance	14.950	
	3	1	1	Ballet Slippers	Dance	14.950	
	1	1	1	Ballet Slippers	Dance	14.950	

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 (Ctrl+W)

Fields

- OrderDetails
  - Quantity
- Products
  - Price

Revenue

$[Price] * [Quantity]$  type this in

this will pop up

click on apply

The calculation is valid.

Apply OK

All

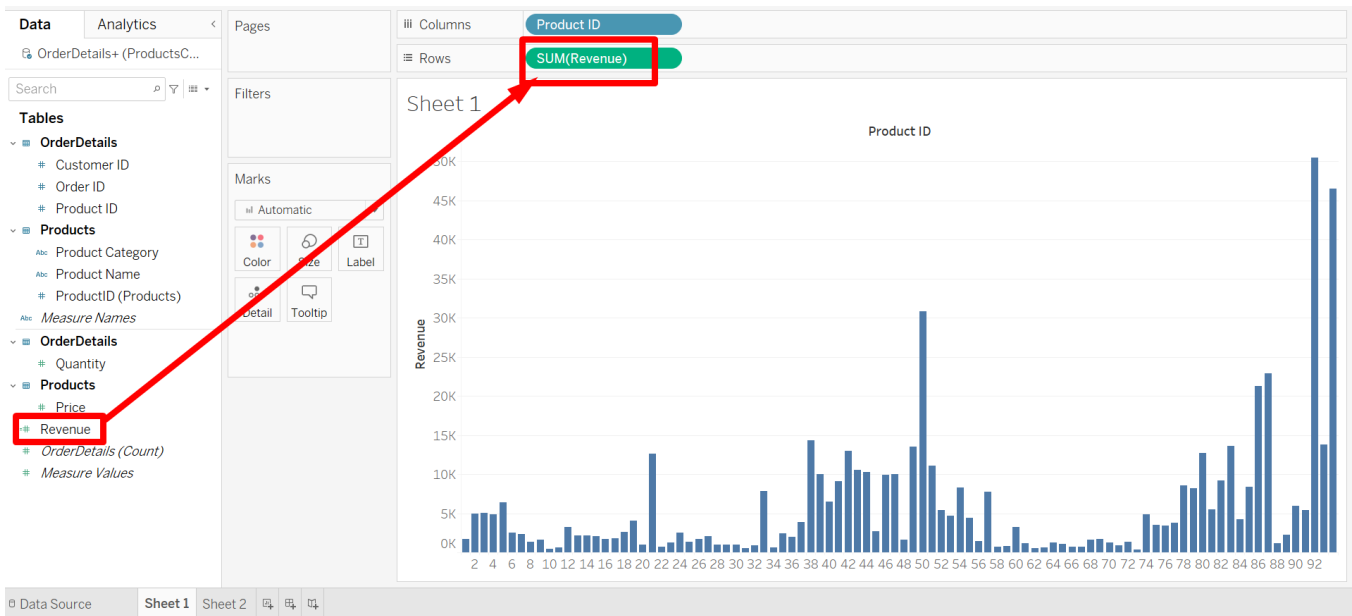
Search

ABS (number)

Returns the absolute value of the given number.

Example:  $ABS(-7) = 7$

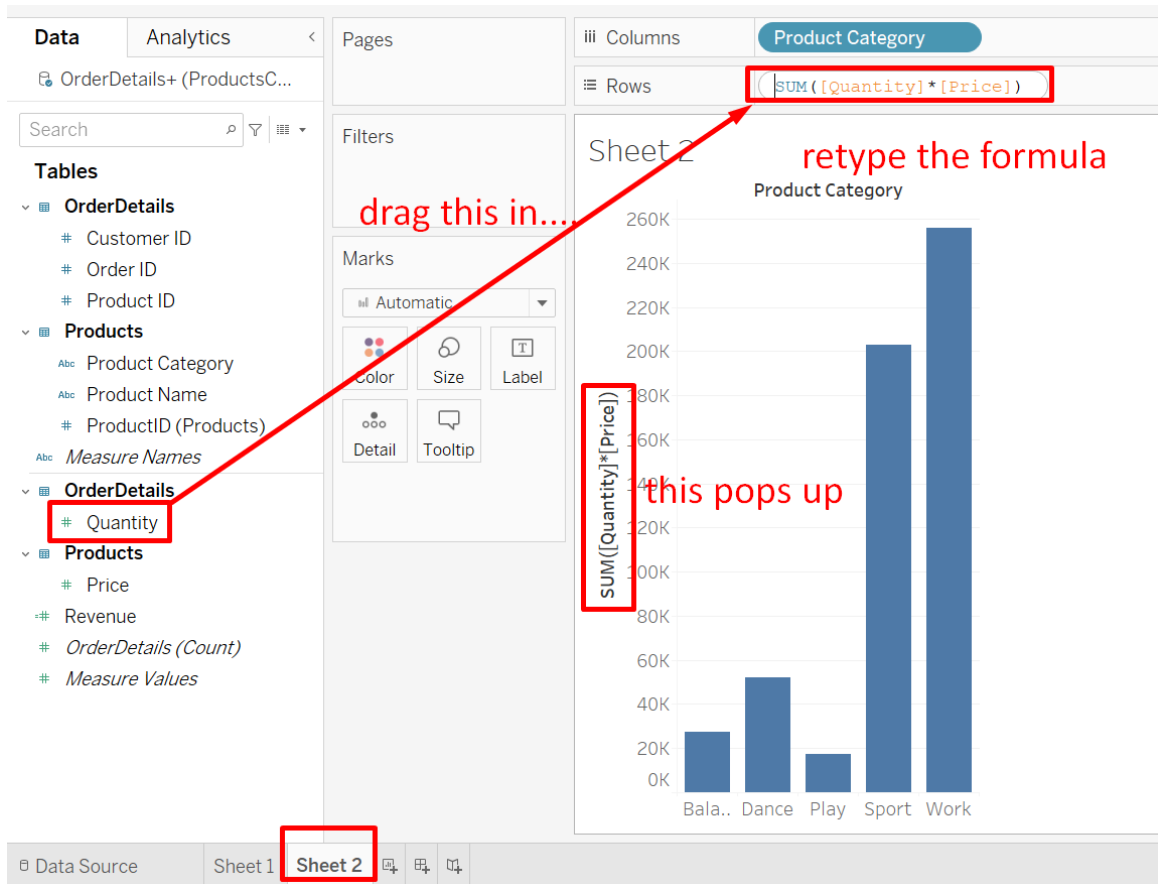
ABS  
ACOS  
AND  
AREA  
ASCII  
ASIN  
ATAN  
ATAN2



## 2. QUANTITY \* PRICE

<https://www.alvinang.sg/s/ProductsCustomersOrders.xlsx>

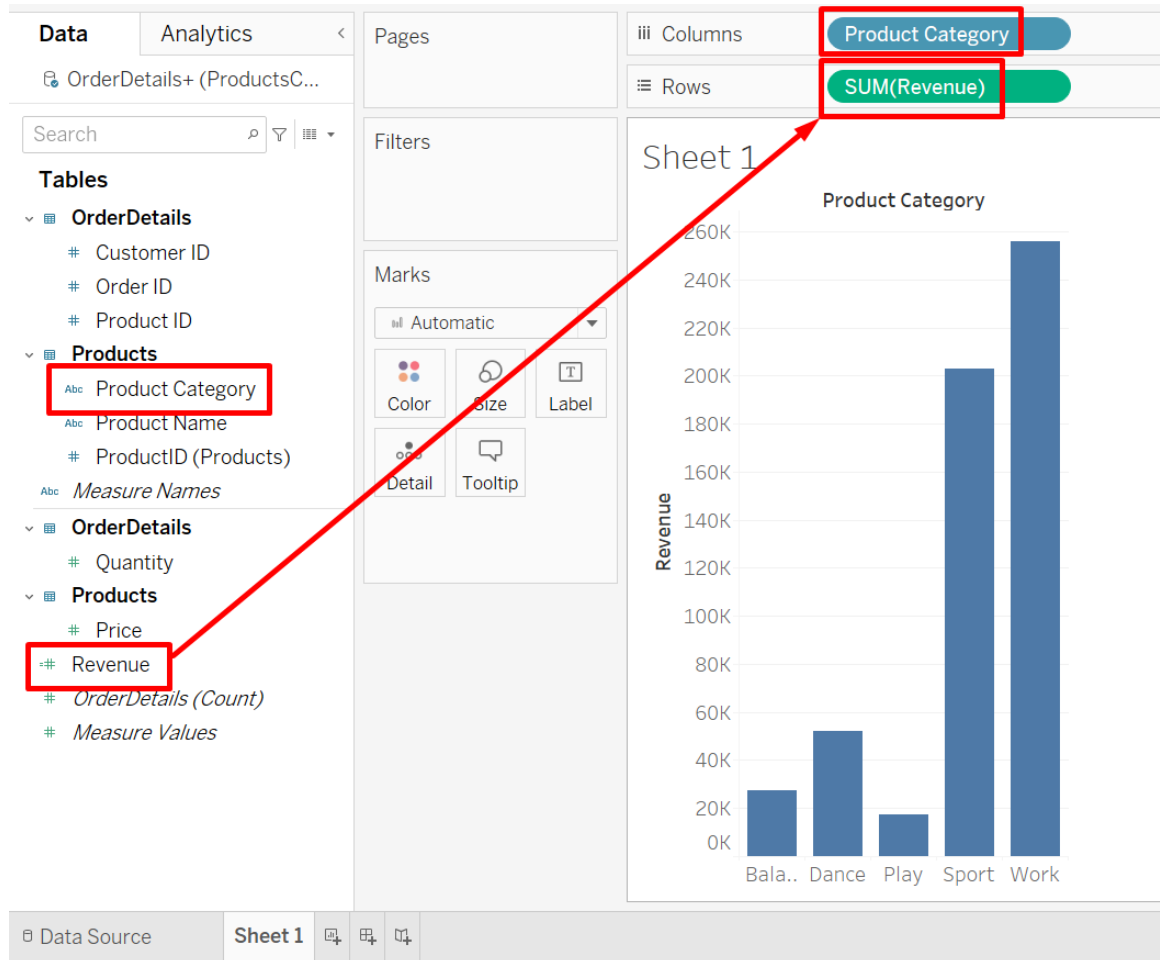
In continuation from previous section, we can shortcut by typing the formula directly into the ROWS....



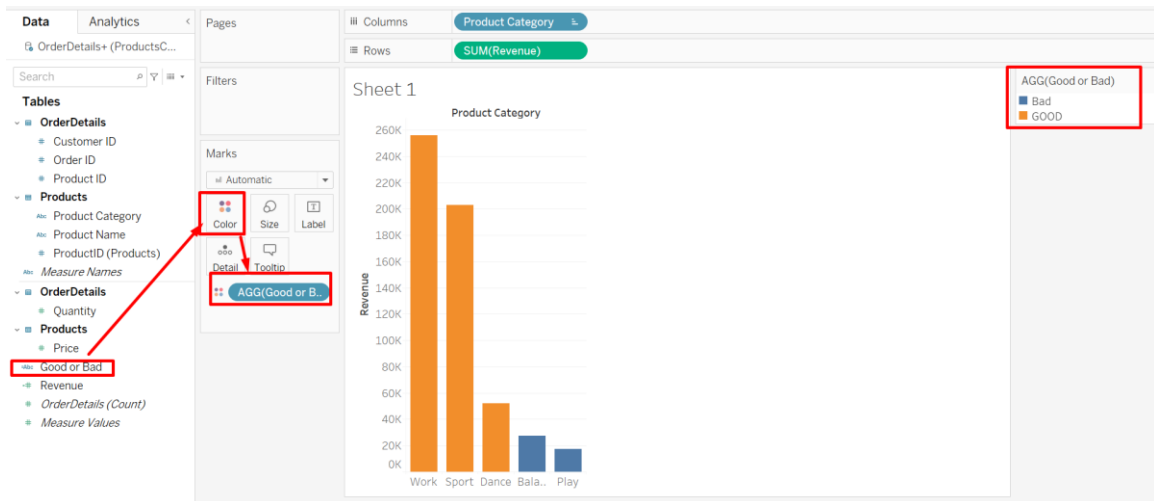
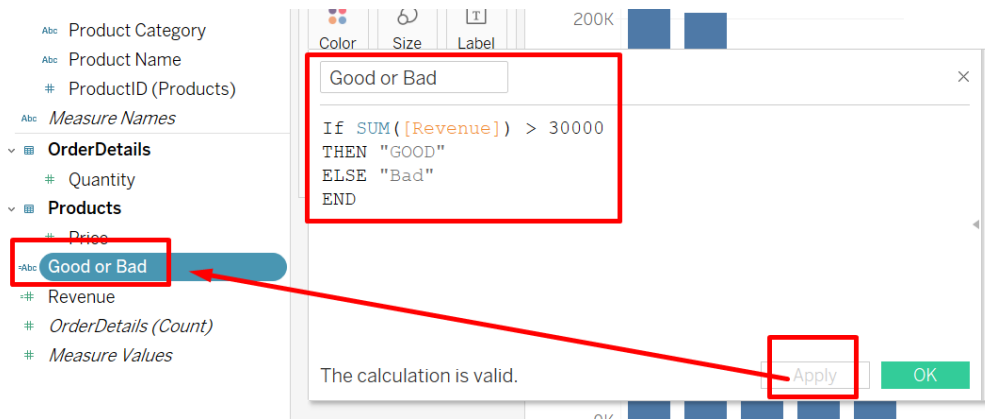
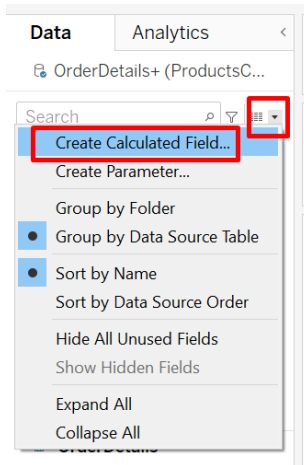
### 3. GOOD OR BAD REVENUE

<https://www.alvinang.sg/s/ProductsCustomersOrders.xlsx>

Continue off from previous section



Recall that Revenue = Quantity \* Price



## B. GLOBAL SUPERSTORE.XLSX

### 1. RUNNING SUM

u may search out the function here

u can read examples how to use it here

Tableau Public - Book1

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Standard

Show Me

Data Analytics Pages Columns Rows Sub-Category

Orders (global\_superstor...)

Filters

Sheet 2

Sales Running Sum

Results are computed along Table (across).

`RUNNING_SUM(SUM([Sales]))`

runnin

RUNNING\_SUM

**RUNNING\_SUM(expression)**

Returns the running sum of the given expression, from the first row in the partition to the current row.

Example:  
`RUNNING_SUM(SUM([Profit])) = running sum of Profit`

Example:  
`RUNNING_SUM(COUNT([Profit])) = running count of Profit`

The calculation is valid. 1 Dependency

Default Table Calculation

Apply OK

Data Source Sheet 1 Sheet 2

u see that SALES and RUNNING SUM are displayed one above the other (which is incorrect)

Tableau Public - Book1

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Standard

Data Analytics Pages Columns Rows Sub-Category

Orders (global\_superstor...)

Search

Tables

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

Filters

Marks

Automatic

Color Size Text

Detail Tooltip

SUM(Sales)

Sales Running Sum

Sheet 2

Sub-Catego..

Sub-Category	Sales
Accessories	749,237
Appliances	1,010,536
Art	2,131,386
Binders	2,593,255
Bookcases	1,466,572
Chairs	1,501,682
Copiers	1,509,436
Envelopes	169,217
Fasteners	89,495
Furnishings	7,714,814
Labels	73,350
Machines	779,060
Paper	241,788

Data Source Sheet 1 Sheet 2



The screenshot shows the Tableau Public interface with a text table displayed on 'Sheet 1'. The table has two columns: 'Sub-Category' and 'Sales'. A red box highlights the 'Columns' shelf containing 'Measure Names' and the 'Rows' shelf containing 'Sub-Category'. Another red box highlights the 'Show Me' button in the top right corner. A red arrow points from the 'Show Me' button to the table with the text 'click here to display correctly'. The 'Marks' card is set to 'Automatic' and 'Measure Values' is selected. The 'Measure Values' shelf contains 'SUM(Sales)' and 'running sum'. The table data is as follows:

Sub-Category	Sales	running su...
Accessories	749,237	749,237
Appliances	1,010,536	1,759,773
Art	371,613	2,131,386
Binders	461,869	2,593,255
Bookcases	1,466,572	4,059,827
Chairs	1,501,682	5,561,509
Copiers	1,509,436	7,070,945
Envelopes	169,217	7,240,163
Fasteners	89,495	7,329,658
Furnishings	385,156	7,714,814
Labels	73,350	7,788,164
Machines	779,060	8,567,224
Paper	241,798	8,809,012
Phones	1,706,824	10,515,836
Storage	1,126,813	11,642,649
Supplies	242,811	11,885,460
Tables	757,042	12,642,502

## 2. PROFIT / SALES

[https://www.alvinang.sg/s/global\\_superstore\\_2016.xlsx](https://www.alvinang.sg/s/global_superstore_2016.xlsx)

The image shows two screenshots from Tableau Desktop. The top screenshot displays the 'Analysis' menu with 'Create Calculated Field...' highlighted. The bottom screenshot shows the 'Create Calculated Field' dialog box with the name 'Profit Over Sale' and the formula  $[Profit] / [Sales]$ . A red arrow points from the 'Apply' button in the dialog to the 'Profit Over Sale' field in the field list on the left.

**Analysis Menu:**

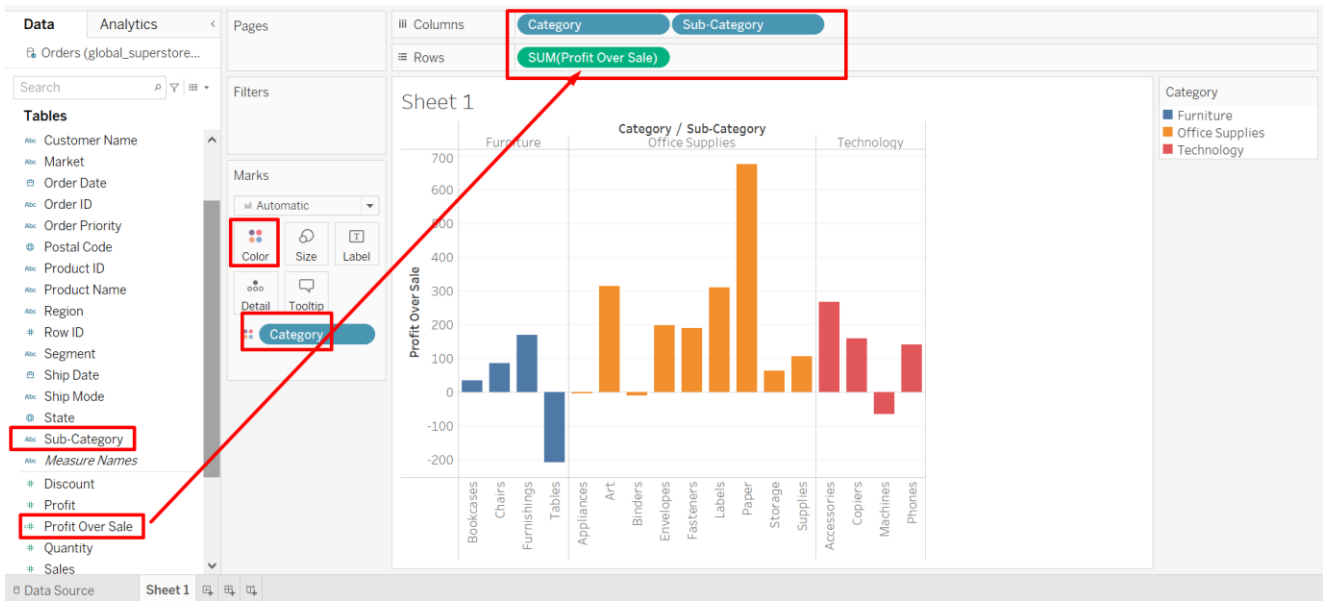
- Show Mark Labels
- Aggregate Measures
- Stack Marks
- Explain Data...
- Reveal Hidden Data
- Percentage Of
- Totals
- Forecast
- Trend Lines
- Special Values
- Table Layout
- Legends
- Filters
- Highlighters
- Parameters
- Create Calculated Field...**
- Edit Calculated Field
- Infer Properties from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

**Create Calculated Field Dialog:**

- Name: Profit Over Sale
- Formula:  $[Profit] / [Sales]$
- Message: The calculation is valid.
- Buttons: Apply, OK

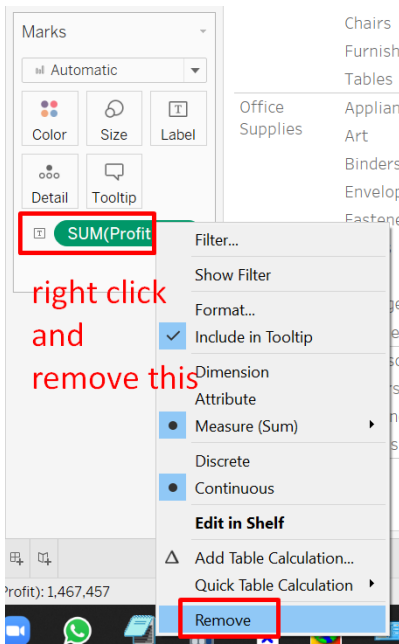
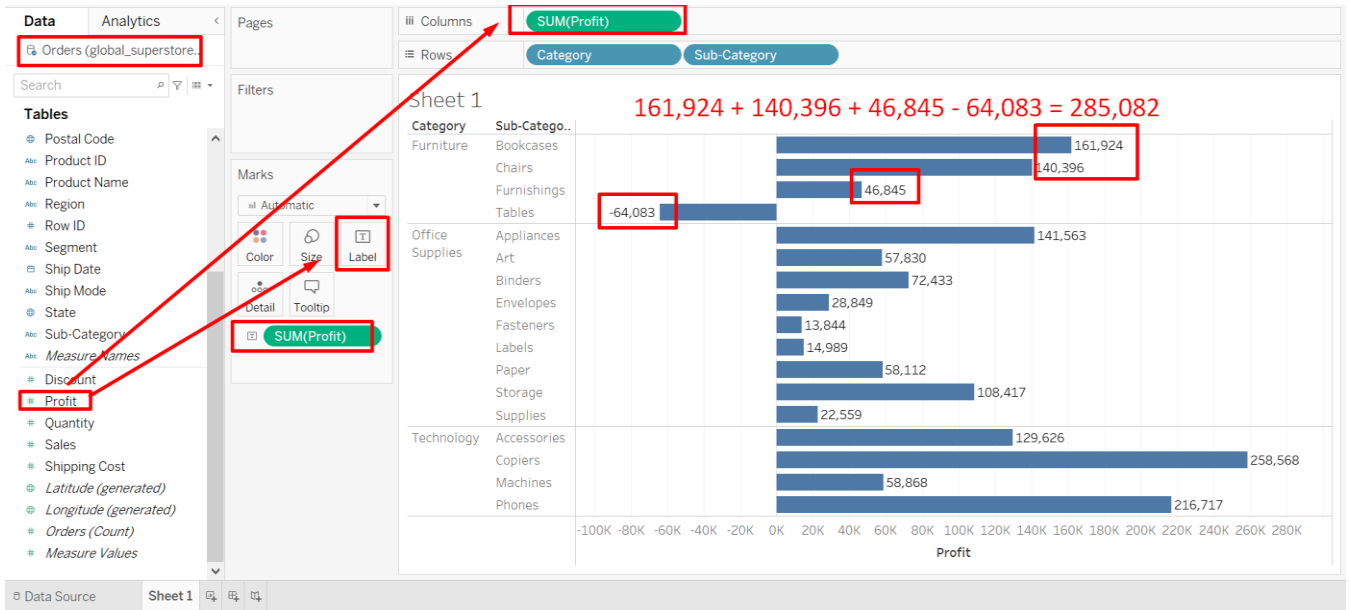
**Field List:**

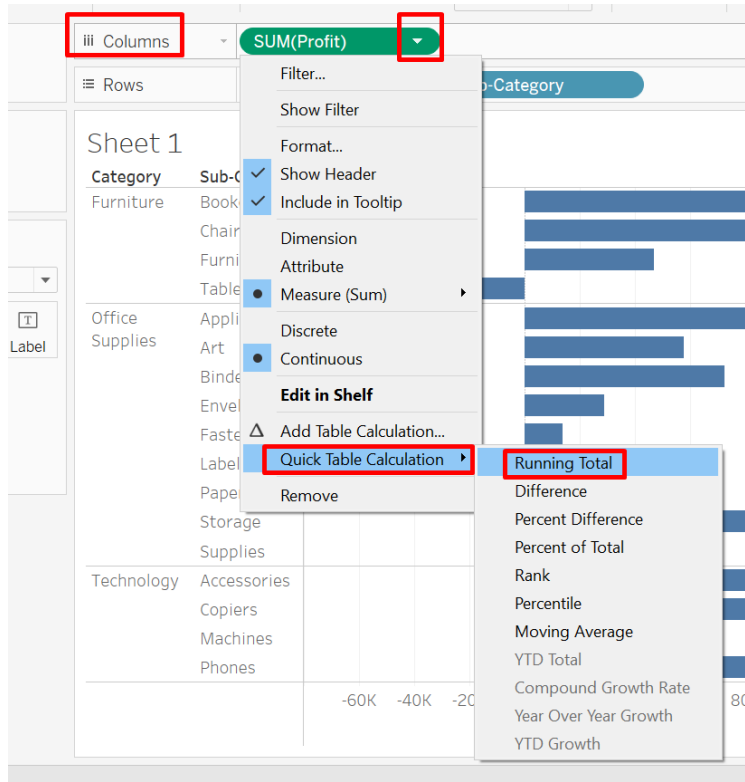
- Order ID
- Order Priority
- Postal Code
- Product ID
- Product Name
- Region
- Row ID
- Segment
- Ship Date
- Ship Mode
- State
- Sub-Category
- Measure Names
- Discount
- Profit
- Profit Over Sale**



### 3. RUNNING TOTAL

[https://www.alvinang.sg/s/global\\_superstore\\_2016.xlsx](https://www.alvinang.sg/s/global_superstore_2016.xlsx)

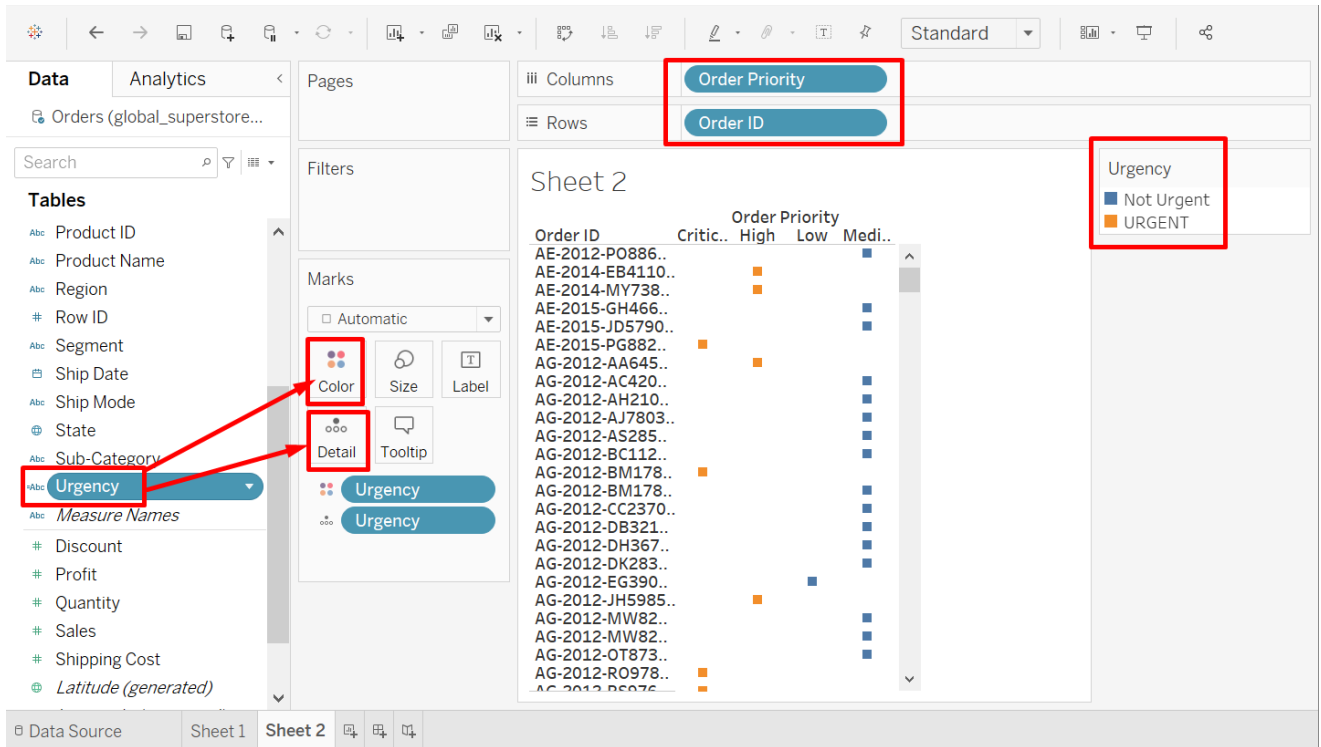




#### 4. URGENCY OF ORDER PRIORITY

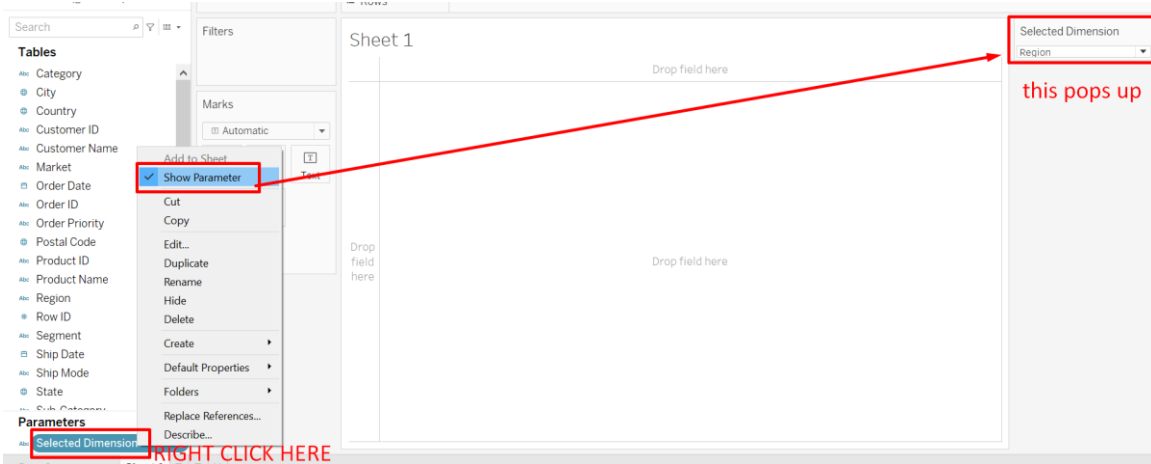
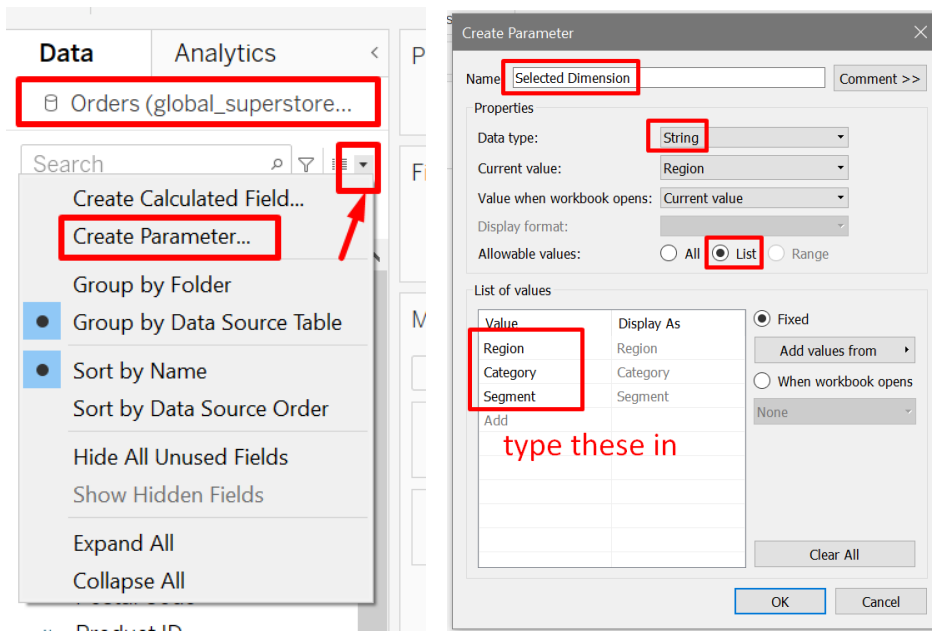
[https://www.alvinang.sg/s/global\\_superstore\\_2016.xlsx](https://www.alvinang.sg/s/global_superstore_2016.xlsx)

The image shows two screenshots from the Tableau software interface. The top screenshot displays the 'Data' pane with the 'Orders (global\_superstore...)' data source selected. A context menu is open over the data source, and the 'Create Calculated Field...' option is highlighted with a red box. The bottom screenshot shows a dialog box titled 'Urgency' where a SQL CASE statement is entered: `CASE [Order Priority] WHEN "Low" THEN "Not Urgent" WHEN "Medium" THEN "Not Urgent" WHEN "High" THEN "URGENT" WHEN "Critical" THEN "URGENT" END`. The 'Apply' button at the bottom of the dialog is also highlighted with a red box. A red arrow points from the 'Urgency' field in the left-hand field list to the dialog box.

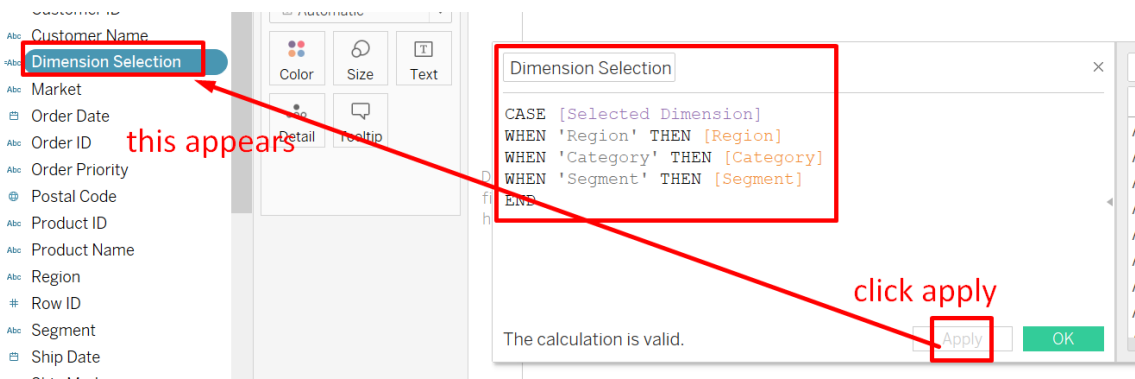
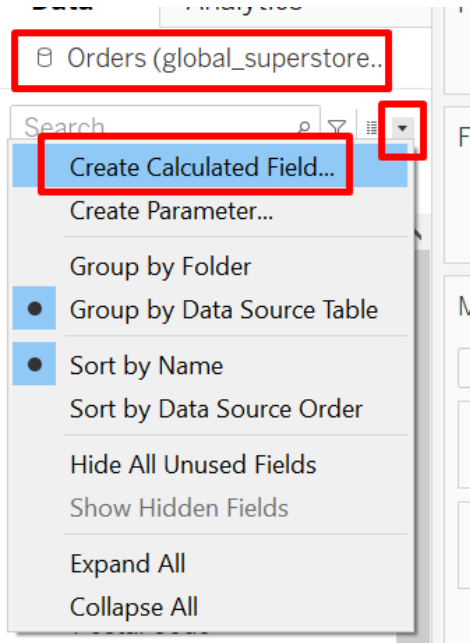


## 5. USING PARAMETER TO CREATE DYNAMIC VIEWS

[https://www.alvinang.sg/s/global\\_superstore\\_2016.xlsx](https://www.alvinang.sg/s/global_superstore_2016.xlsx)







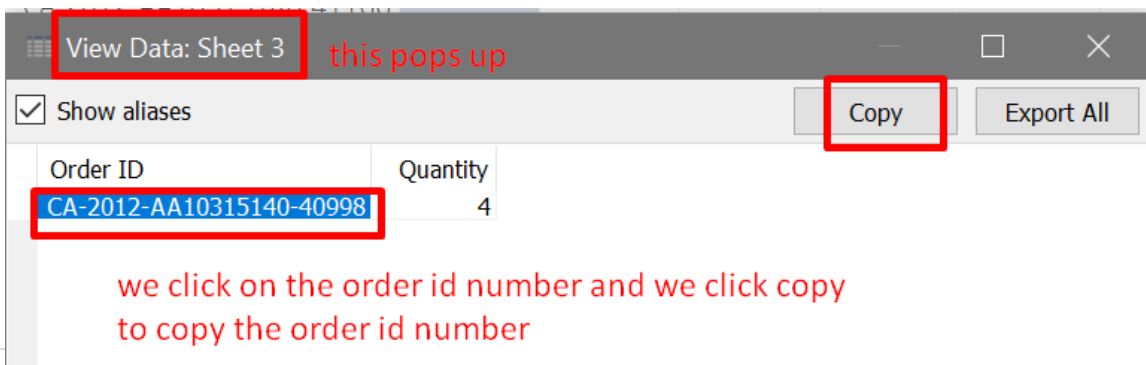
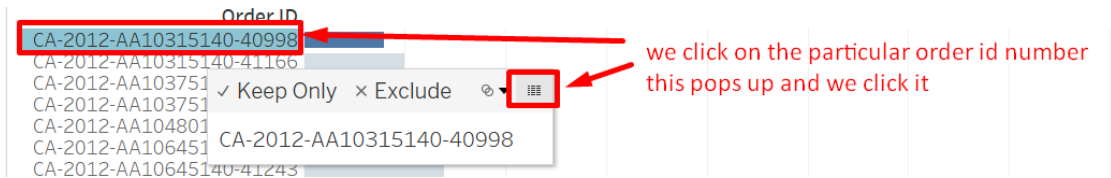
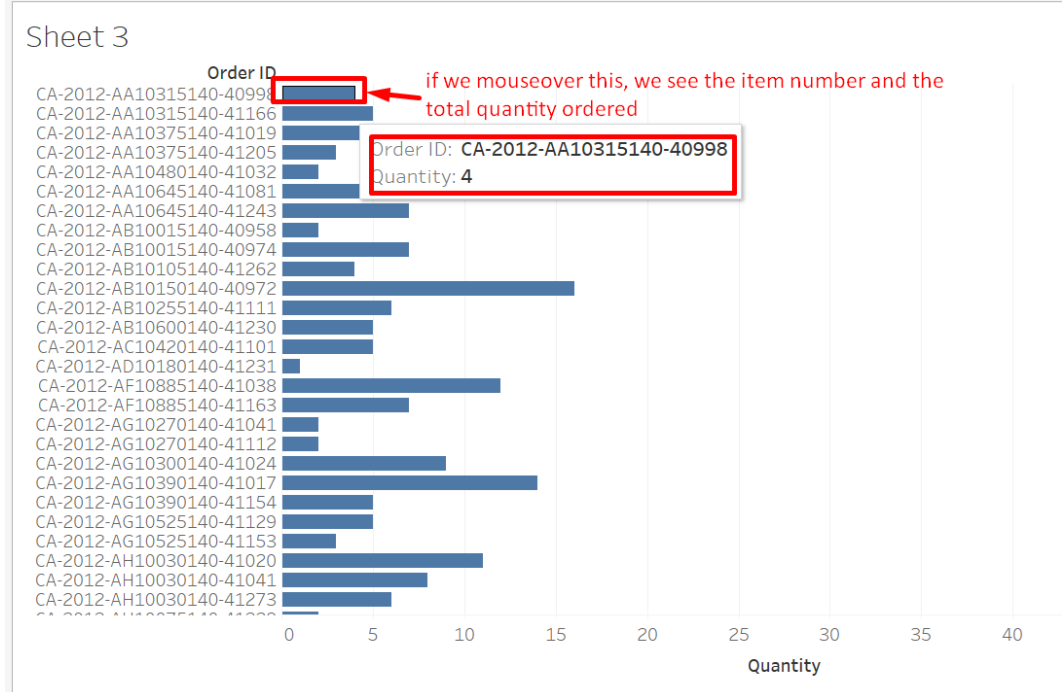


### C. SAMPLE SUPERSTORE.XLSX

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

#### 1. DOUBLE CHECKING OUR DATA

Columns	SUM(Quantity)	we drag in SUM(Quantity) and Order ID
Rows	Order ID	We display the sum of quantity ordered for each individual item



257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280
325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348
CA-2012-AA10315140-40998	CA-2012-AA10315140-40998	CA-2012-AA10315140-40998	CA-2012-AA10315140-40998	CA-2012-AA10315140-40998	CA-2012-AA10315140-40998	CA-2012-AA10315140-40998	CA-2012-AA10315140-40998	CA-2012-AA10315140-40998	CA-2012-AA10315140-40998	CA-2012-AA10315140-40998	CA-2012-AA10315140-40998	CA-2012-AA10315140-40998	CA-2012-AA10315140-40998	CA-2012-AA10315140-40998	CA-2012-AA10315140-40998	CA-2012-AA10315140-40998	CA-2012-AA10315140-40998	CA-2012-AA10315140-40998	CA-2012-AA10315140-40998	CA-2012-AA10315140-40998	CA-2012-AA10315140-40998	CA-2012-AA10315140-40998	CA-2012-AA10315140-40998

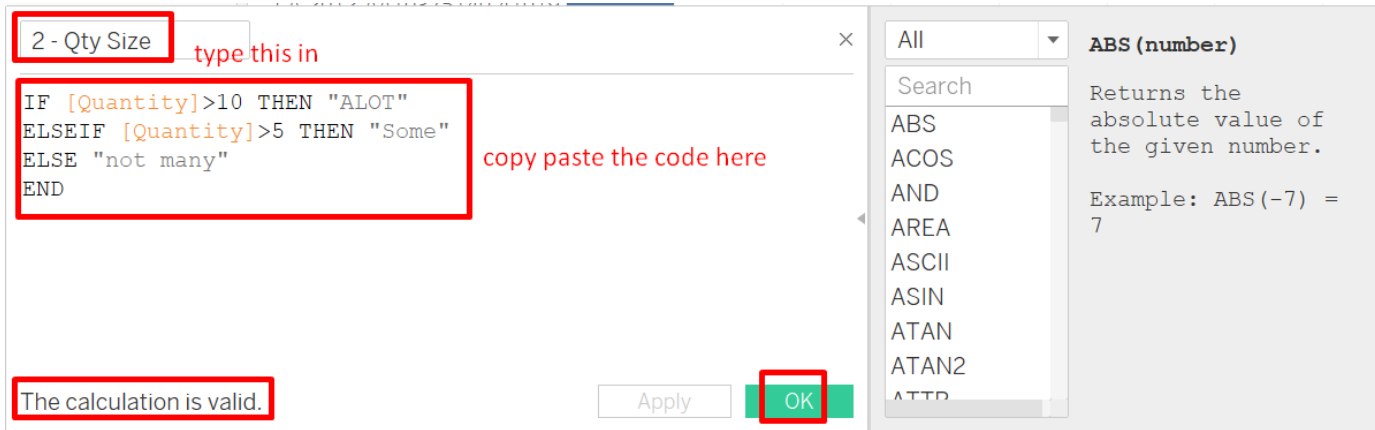
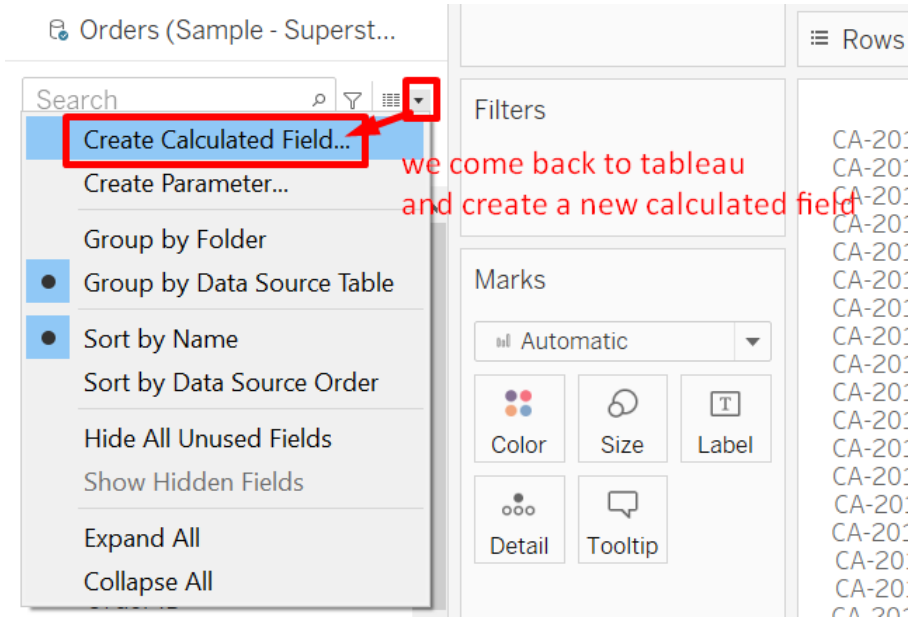
Orders Returns People

Find All Formatted Display Match Case Reached the end of the sheet

we come back to excel, CTRL+F and see that indeed, that particular order ID has only a total of 2 + 2 = 4 orders

2. ALOT / SOME / NOT MANY

a) Try to spot the error...



CODE:

```
IF [Quantity]>10 THEN "ALOT"  
ELSEIF [Quantity]>5 THEN "Some"  
ELSE "not many"  
END
```



Notice the above... "Not Many" is more than "Some"? "Some" is more than "Not Many"? ....

There's something wrong with the code!

Can you find out where's the error?

b) Correct Answer

```
Alot Not MAny Some

IF SUM([Quantity])>10 THEN "ALOT"
ELSEIF SUM([Quantity])>5 THEN "Some"
ELSE "not many"
END
```

IF SUM([Quantity])>10 THEN "ALOT"

ELSEIF SUM([Quantity])>5 THEN "Some"

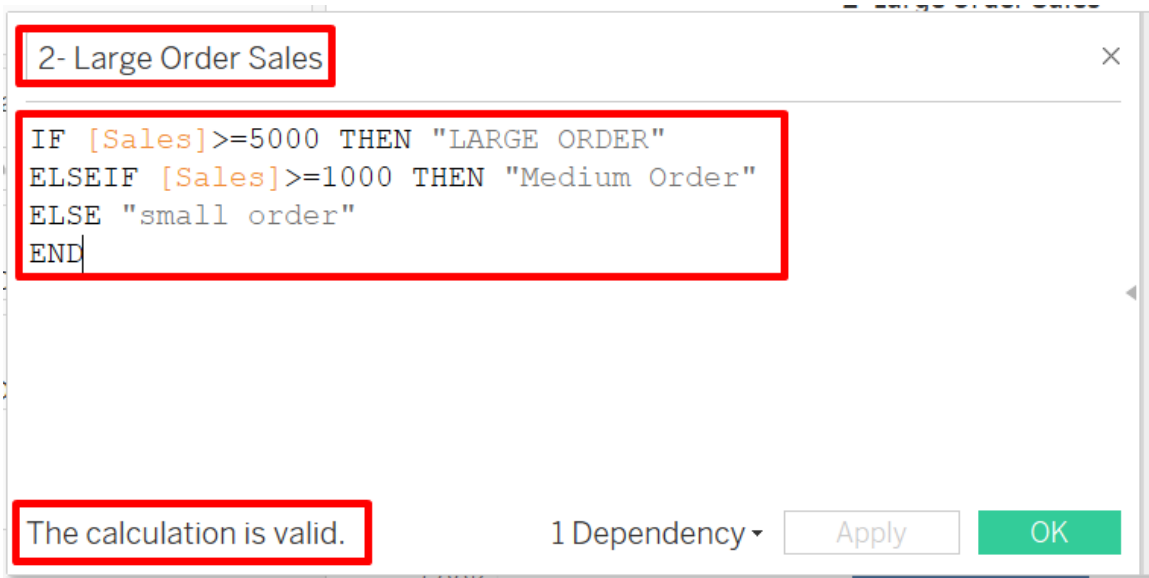
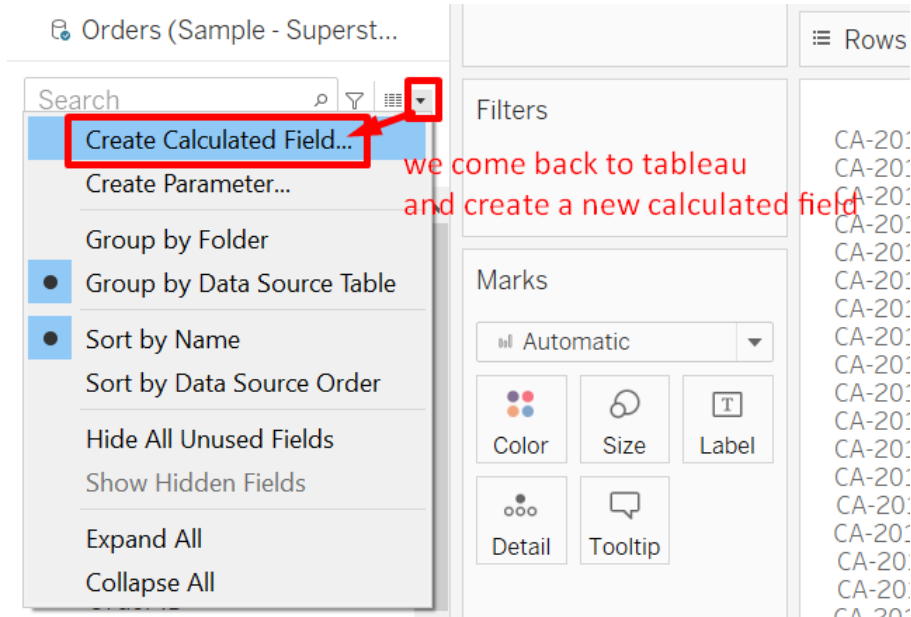
ELSE "not many"

END



3. LARGE / MEDIUM / SMALL ORDERS

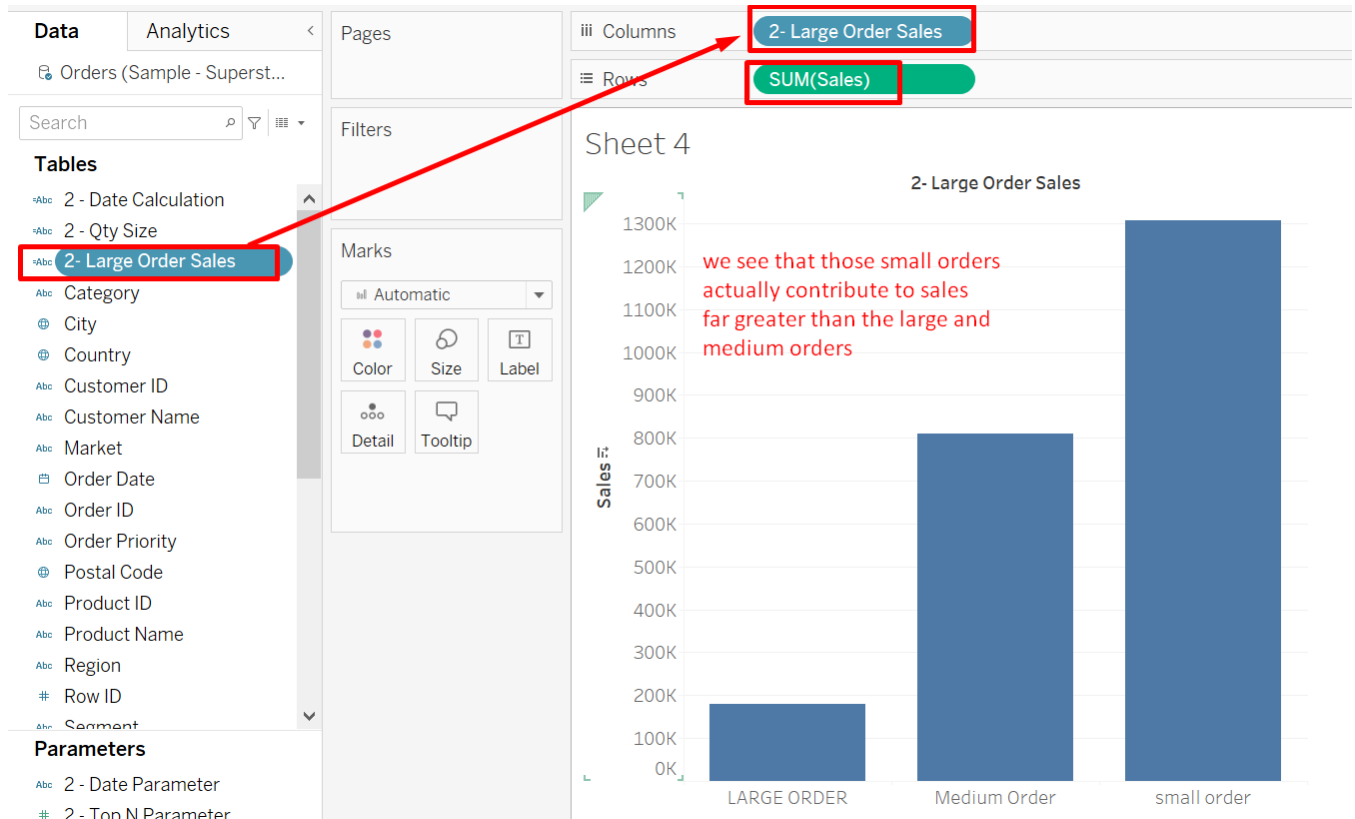
<https://www.alvinang.sg/s/Sample-Superstore-USA.xls>





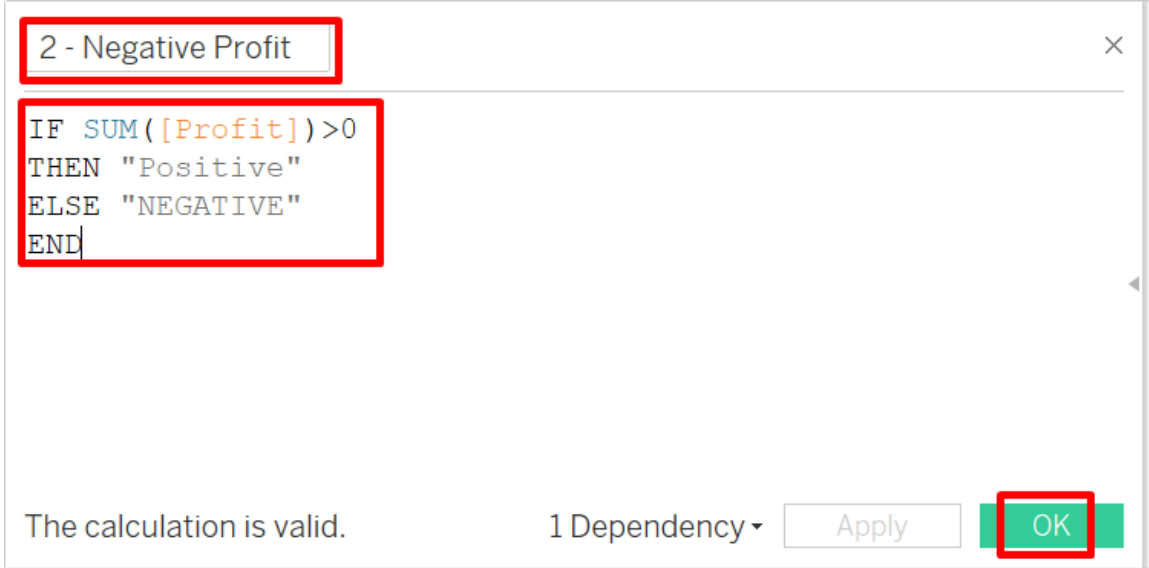
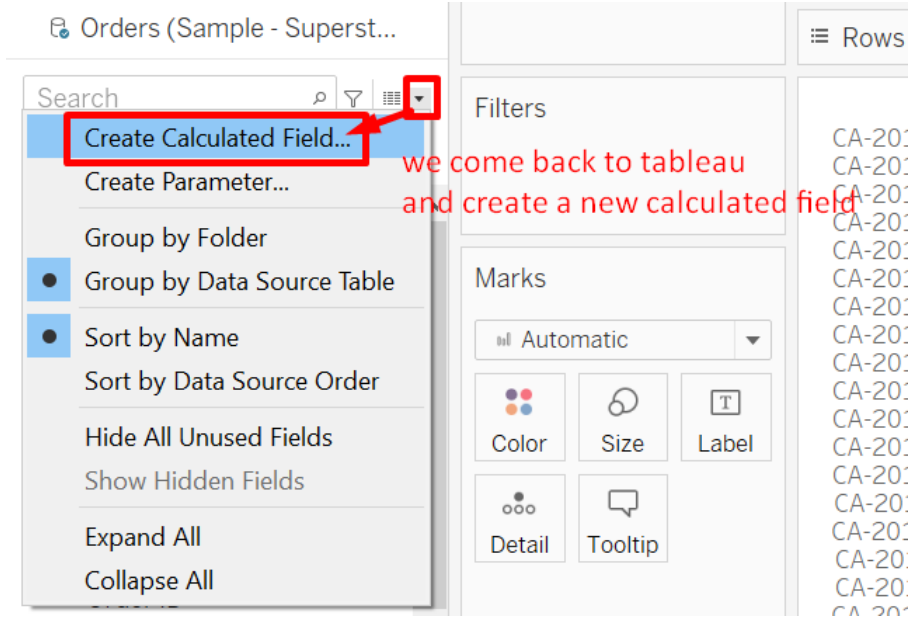
Code:

```
IF [Sales]>=5000 THEN "LARGE ORDER"  
  
ELSEIF [Sales]>=1000 THEN "Medium Order"  
  
ELSE "small order"  
  
END
```



4. NEGATIVE PROFITS

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



Code:

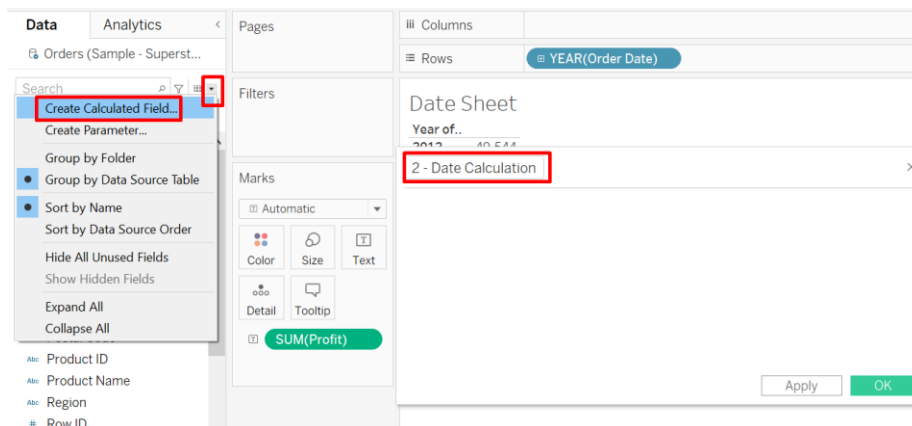
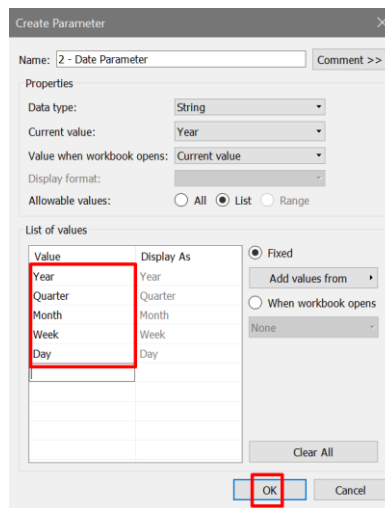
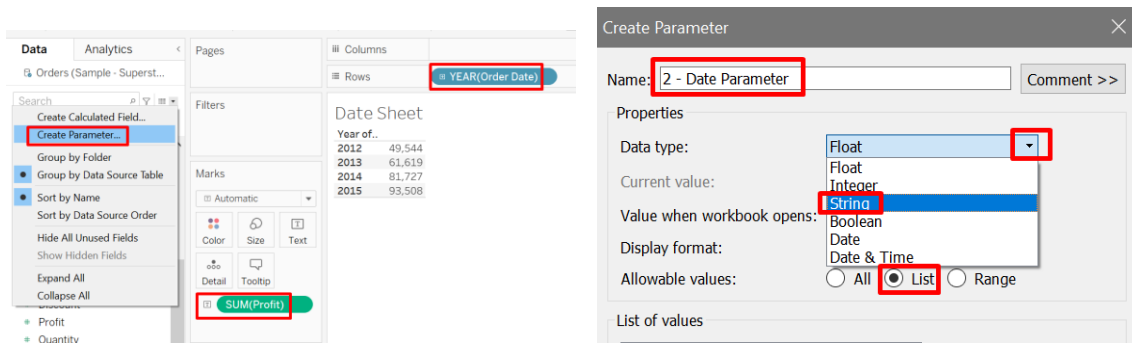
```
IF SUM([Profit])>0  
THEN "Positive"  
ELSE "NEGATIVE"  
END
```

The screenshot shows the Tableau interface with the following elements and annotations:

- Columns Shelf:** Contains 'SUM(Profit)' and 'Sub-Category'. A red box highlights these two fields with the annotation "we drag these 2 fields here".
- Filters Shelf:** Contains 'AGG(2 - Negative Profit)'. A red box highlights this field with the annotation "we right click on it and it pops up 'show filter' and we select".
- Tableau Desktop Elements:** The 'Edit Filter...' dialog box is open, showing the 'Show Filter' option selected with a blue box. The 'AGG(2 - Negative Profit)' field is also highlighted with a blue box in the Filters shelf.
- Chart:** A horizontal bar chart showing profit values ranging from -17K to 0K. The x-axis is labeled 'Profit'.
- Filter Panel:** On the right, the filter panel for 'AGG(2 - Negative Profit)' is shown. It has three options: '(All)', 'NEGATIVE', and 'Positive'. The 'NEGATIVE' option is checked with a red box. A blue arrow points from the 'Show Filter' dialog to this panel with the annotation "the filter pops up at the right hand panel".
- Additional Annotations:** A red arrow points from the 'AGG(2 - Negative Profit)' field in the Filters shelf to the 'Show Filter' dialog with the annotation "we drage the new calculated field into filters". Another red arrow points from the 'NEGATIVE' option in the filter panel to the text "we select NEGATIVE to display all negative profits items".

5. CREATING A TOGGLE TO VIEW SALES VIA YEAR / QUARTER / MONTH...

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



Code:

```
CASE [2 - Date Parameter]
```

```
WHEN "Year" THEN STR (YEAR([Order Date]))
```

```
WHEN "Quarter" THEN STR (YEAR ([Order Date])) + "/Q" + DATENAME('quarter', [Order Date])
```

```
WHEN "Month" THEN DATENAME ('month', [Order Date]) + "" + STR (YEAR ([Order Date]))
```

```
WHEN "Week" THEN "Week" + STR ( DATEPART ('week',[Order Date]))
```

```
WHEN "Day" THEN STR (DATE ([Order Date]))
```

```
END
```

The screenshot shows a software interface with a window titled "2 - Date Calculation". The main area contains a SQL CASE statement, which is highlighted with a red box. Below the code, there is a text prompt: "copy paste the code here... wait for the 'valid' sign to pop up below...". At the bottom left, a status box says "The calculation is valid.", and at the bottom right, there are "Apply" and "OK" buttons, both also highlighted with red boxes. On the right side of the interface, there is a panel with a search bar and a list of functions. The function "ABS (number)" is selected, and its description is shown: "Returns the absolute value of the given number. Example: ABS(-7) = 7". Other functions listed include ACOS, AND, AREA, ASCII, ASIN, ATAN, and ATAN2.

```
CASE [2 - Date Parameter]
WHEN "Year" THEN STR (YEAR([Order Date]))
WHEN "Quarter" THEN STR (YEAR ([Order Date])) + "/Q" + DATENAME('quarter', [Order Date])
WHEN "Month" THEN DATENAME ('month', [Order Date]) + "" + STR (YEAR ([Order Date]))
WHEN " Week" THEN "Week" + STR ( DATEPART ('week',[Order Date]))
WHEN "Day" THEN STR (DATE ([Order Date]))
END
```

copy paste the code here... wait for the "valid" sign to pop up below...

The calculation is valid.

Apply OK

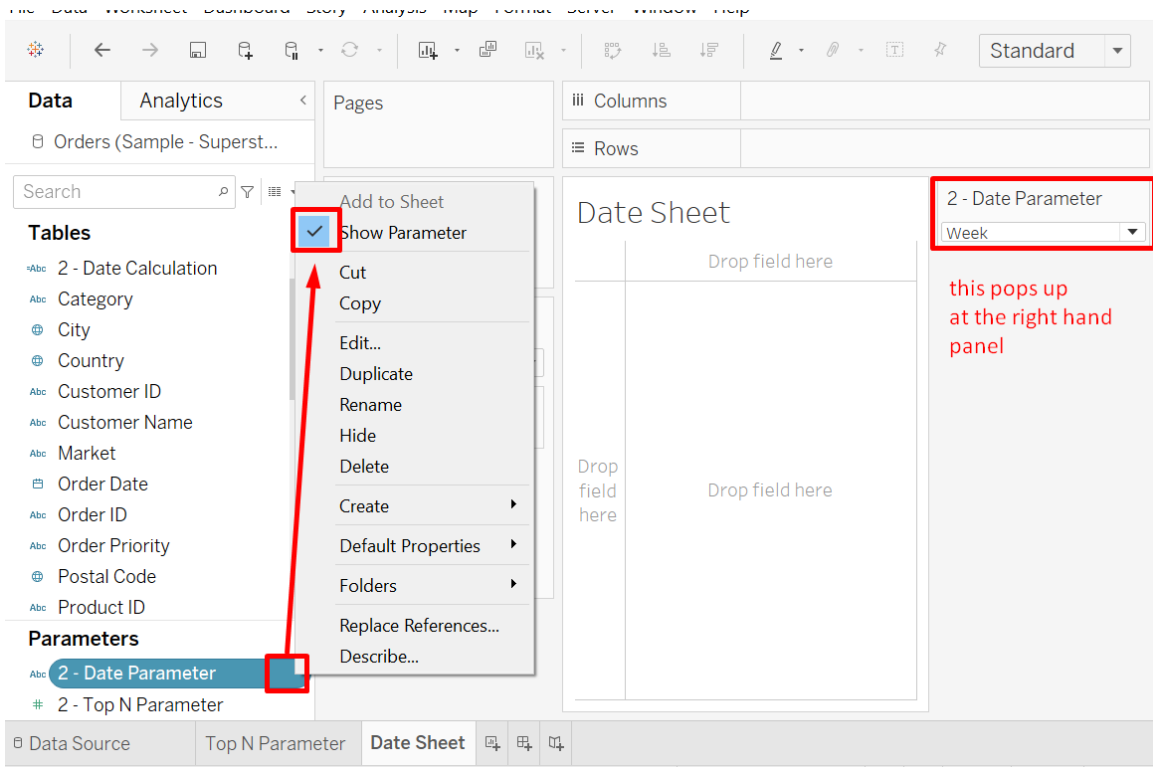
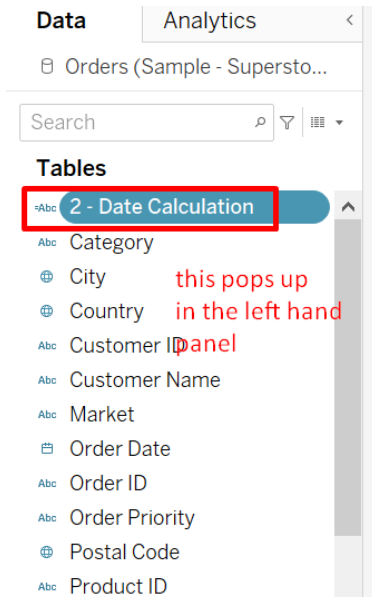
All

Search

ABS (number)

Returns the absolute value of the given number.  
Example: ABS(-7) = 7

ABS  
ACOS  
AND  
AREA  
ASCII  
ASIN  
ATAN  
ATAN2  
ATN2



**Columns:** 2 - Date Calculation

**Rows:** SUM(Sales)

**Tables:** 2 - Date Calculation

**Marks:** Bar

**Label:** Label

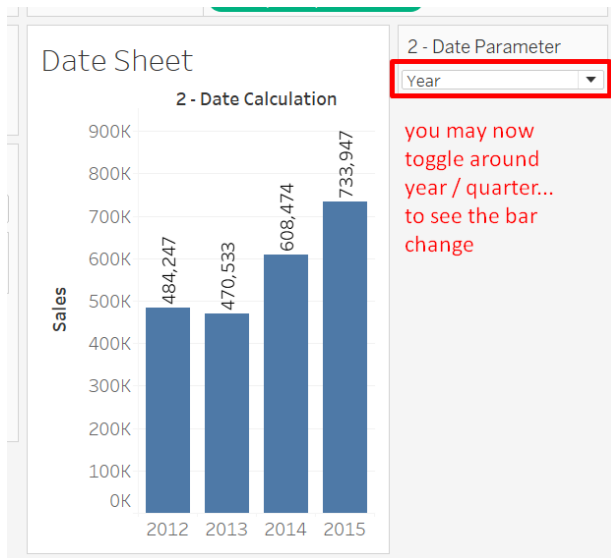
**Show mark labels:**

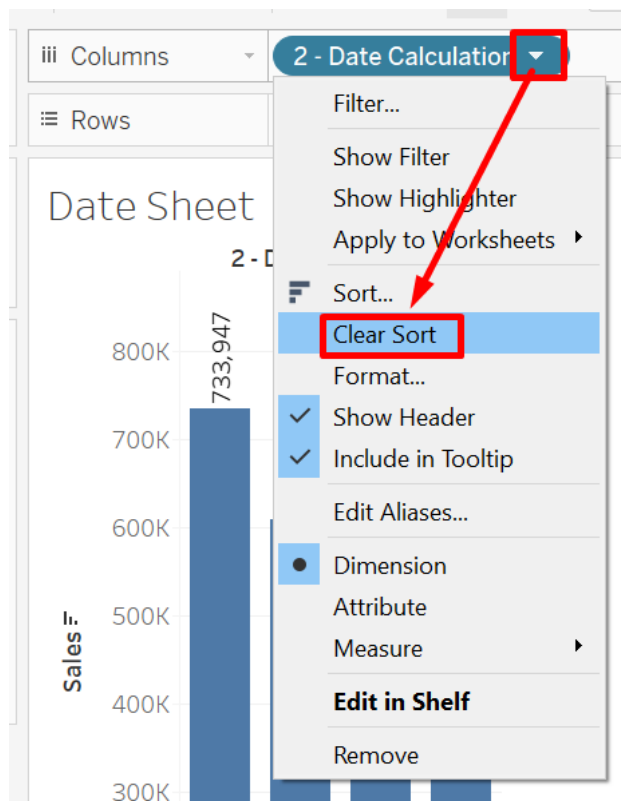
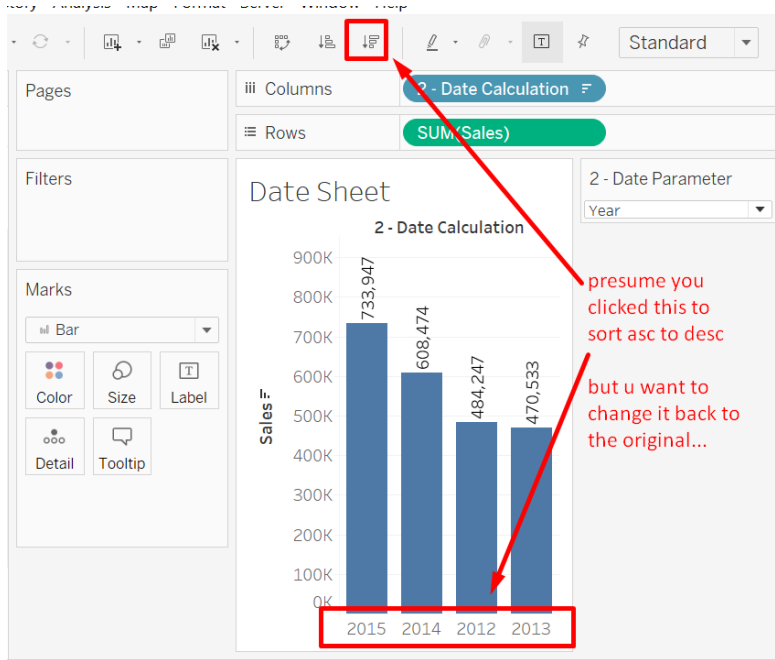
**Label Appearance:** Text: [ ], Font: Tableau Book, 9pt, A., Alignment: Automatic

**Marks to Label:** All, Selected, Min/Max, Highlighted

**2 - Date Calculation Data (Weeks):**

Week	Sales
Week8	14,466
Week10	77,425
Week12	45,982

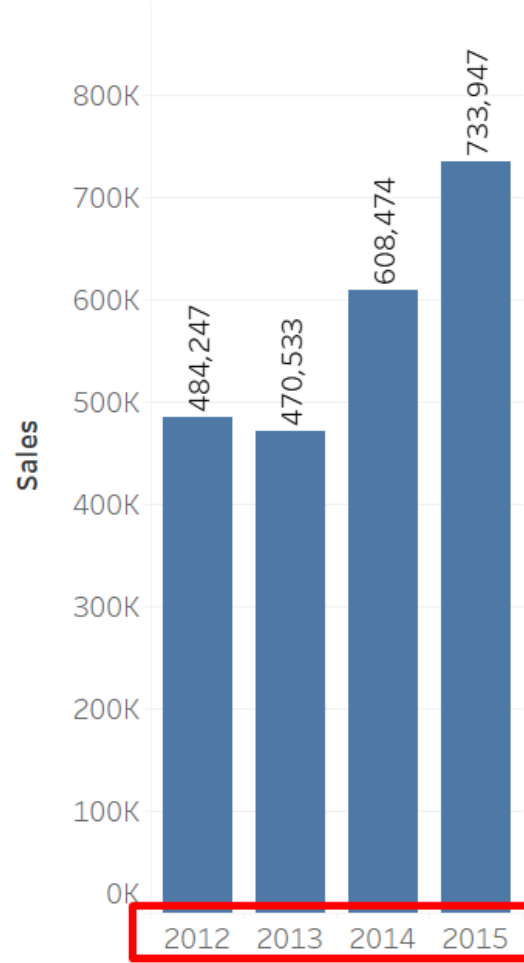






## Date Sheet

### 2 - Date Calculation



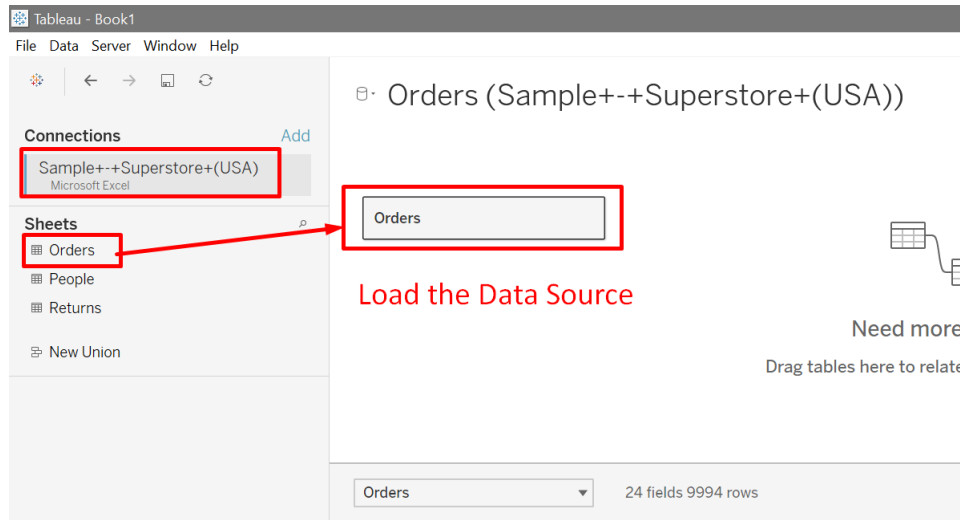
It is now back to running order.

---

## II. LEVEL OF DETAIL (LOD)

---

- <https://www.tableau.com/about/blog/LOD-expressions>
- <https://www.alvinang.sg/s/Sample-Superstore-USA.xlsx>



## A. FIXED LOD

### 1. EXAMPLE 1: FIXING THE REGION

we display the Sales for each State

Region	State	Sales
Central	Illinois	80,166
US	Indiana	53,555
	Iowa	4,580
	Kansas	2,914
	Michigan	76,270
	Minnesota	29,863
	Missouri	22,205
	Nebraska	7,465
	North Dakota	920
	Oklahoma	19,683
	South Dakota	1,316
	Texas	170,188
	Wisconsin	32,115
Eastern	Connecticut	13,384
US	Delaware	27,451
	District of Colum...	2,865
	Maine	1,271
	Maryland	23,706
	Massachusetts	28,634
	New Hampshire	7,293
	New Jersey	35,764
	New York	310,876
	Ohio	78,258
	Pennsylvania	116,512
	Rhode Island	22,628

- Worksheet
- New Worksheet (Ctrl+M)
- Copy
- Export
- Clear
- Actions... (Ctrl+Shift+A)
- Tooltip...
- ✓ Show Title
- Show Caption
- Show Summary
- Show Cards
- Show View Toolbar
- ✓ Show Sort Controls
- Describe Sheet... (Ctrl+E)
- Duplicate as Crosstab
- Auto Updates
- Run Update

drag this from the left pane to the right pane

Region	State	Sales
Central	Illinois	80,166
Central	Indiana	53,555
Central	Iowa	4,580
Central	Kansas	2,914
Central	Michigan	76,270
Central	Minnesota	29,863
Central	Missouri	22,205
Central	Nebraska	7,465
Central	North Dakota	920
Central	Oklahoma	19,683
Central	South Dakota	1,316
Central	Texas	170,188
Central	Wisconsin	32,115
Eastern	Connecticut	13,384

Summary	Value
Count:	49
SUM(Sales)	2,297,201
Average:	46,882
Minimum:	920
Maximum:	457,688
Median:	22,205

notice the sum is 501.24

press ctrl and select all the states in Central US

Region	State	Sales
Central	Illinois	80,166
Central	Indiana	53,555
Central	Iowa	4,580
Central	Kansas	2,914
Central	Michigan	76,270
Central	Minnesota	29,863
Central	Missouri	22,205
Central	Nebraska	7,465
Central	North Dakota	920
Central	Oklahoma	19,683
Central	South Dakota	1,316
Central	Texas	170,188
Central	Wisconsin	32,115

Summary	Value
Count:	13(26.5%)
SUM(Sales)	501,240
Average:	38,557
Minimum:	920
Maximum:	170,188
Median:	22,205

now remove this Sum(Sales)

Remove

Summary	Value
Count:	49
SUM(Sales)	2,297,201
Average:	46,882
Minimum:	920
Maximum:	457,688
Median:	22,205

Search

Filters

Sheet 1

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

# Discount

Regional Sales

{FIXED [Region]: SUM([Sales])}

now create a calculated field

The calculation is valid.

Apply OK

Data Analytics

Pages

Columns

Rows

Region State

Sheet 1

Region State

Central US

Eastern US

Illinois Indiana Iowa Kansas Michigan Minnesota Missouri Nebraska North Dakota Oklahoma South Dakota Texas Wisconsin Connecticut Delaware District of Colum.. Maine Maryland Massachusetts New Hampshire New Jersey New York Ohio Pennsylvania Rhode Island

501,240 501,240 501,240 501,240 501,240 501,240 501,240 501,240 501,240 501,240 501,240 501,240 678,781 678,781 678,781 678,781 678,781 678,781 678,781 678,781 678,781 678,781 678,781

notice that it now displays the Total Sales by Region...

FIXED LOD forces the Level of Detail to be FIXED at the REGION level...

drag the newly created Calculated Field (Regional Sales) into Text

Summary

Count: 49

SUM(Regional Sales)

Sum: 28,308,033

Average: 577,715

Minimum: 391,722

Maximum: 725,458

Median: 678,781

Marks

Automatic

Color Size Text

Detail Tooltip

Region

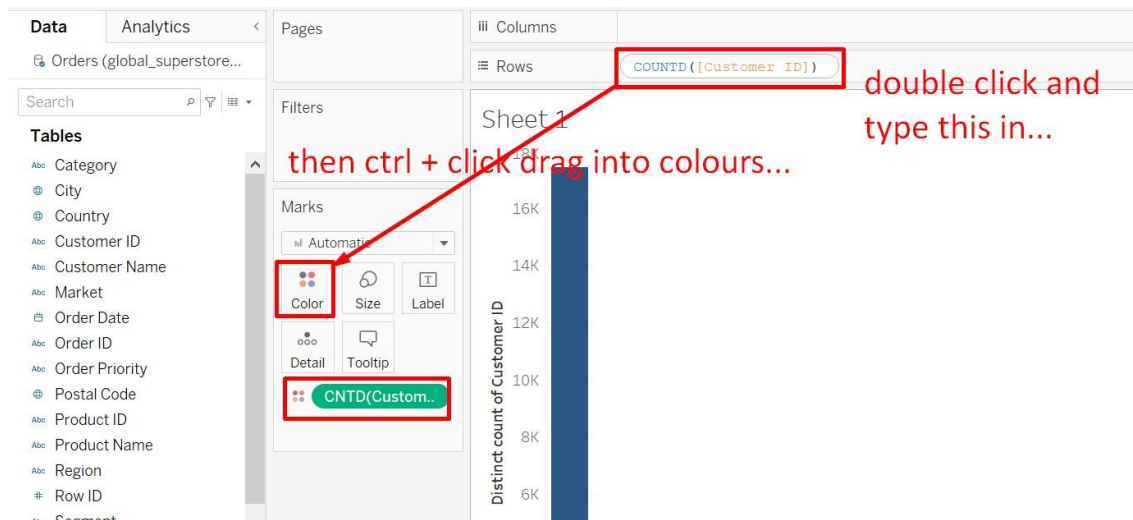
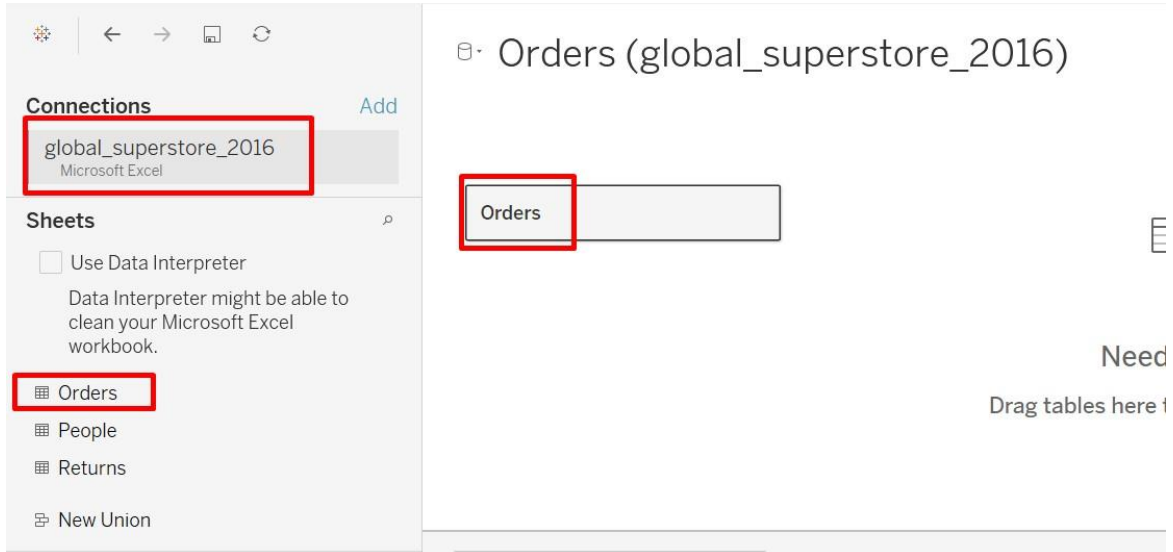
SUM(Regional ..)

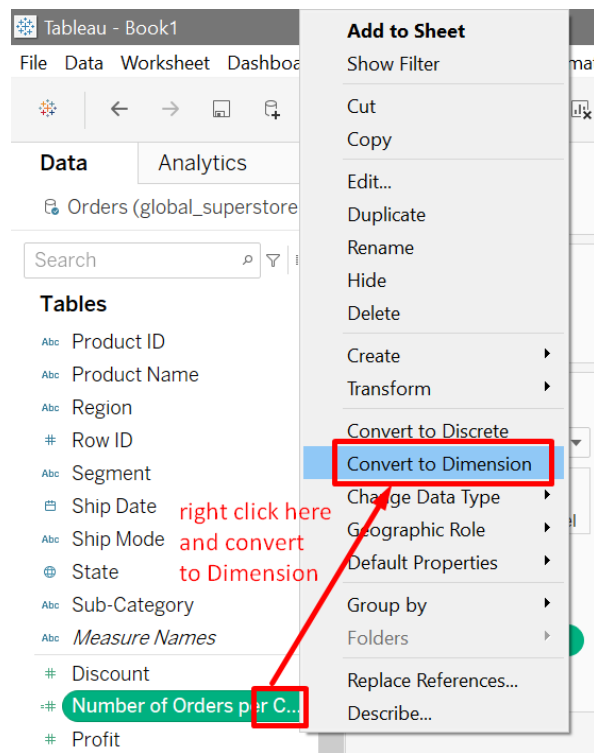
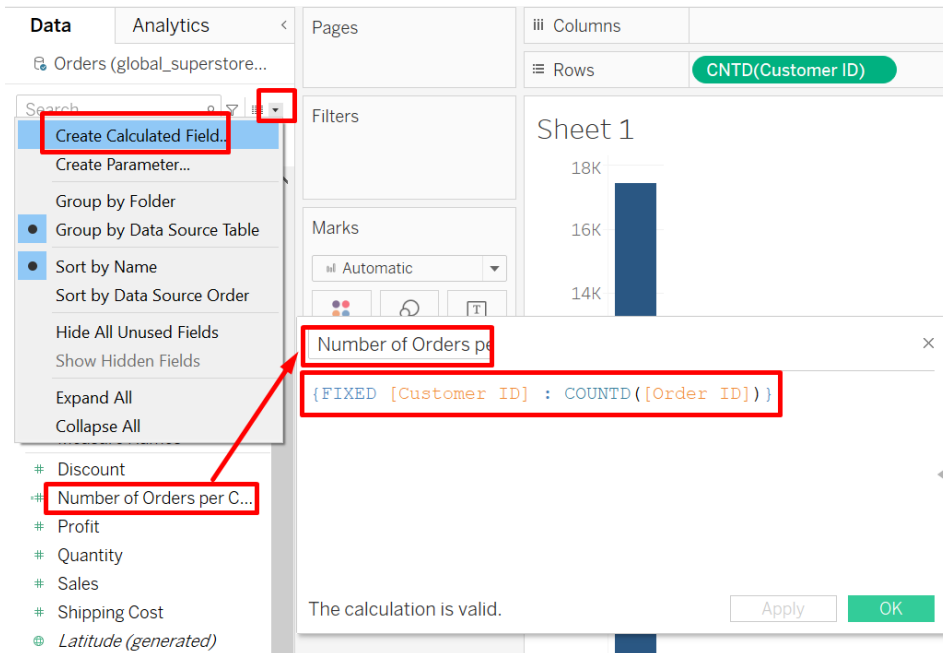
Data Source Sheet 1

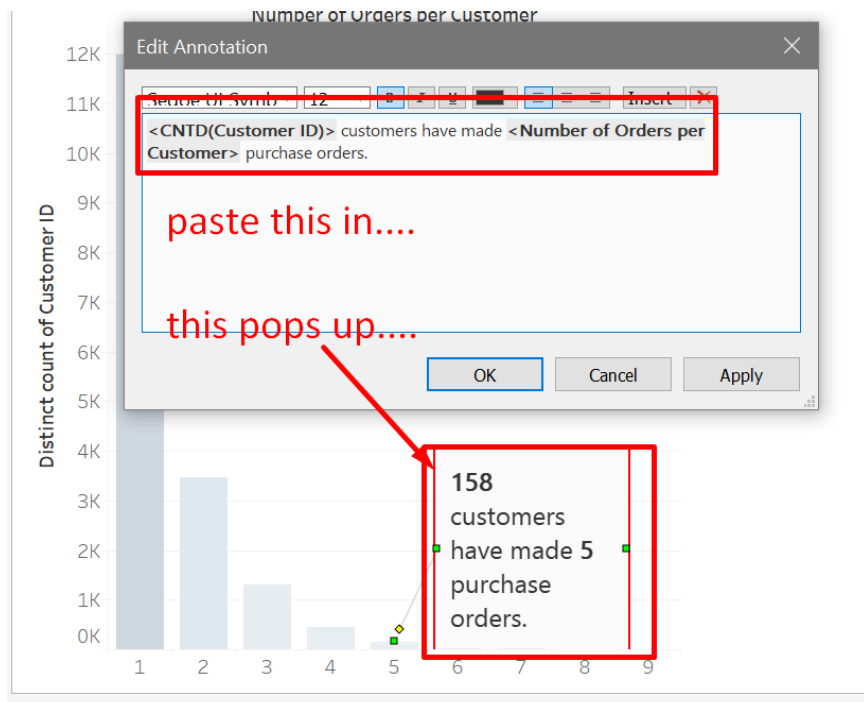
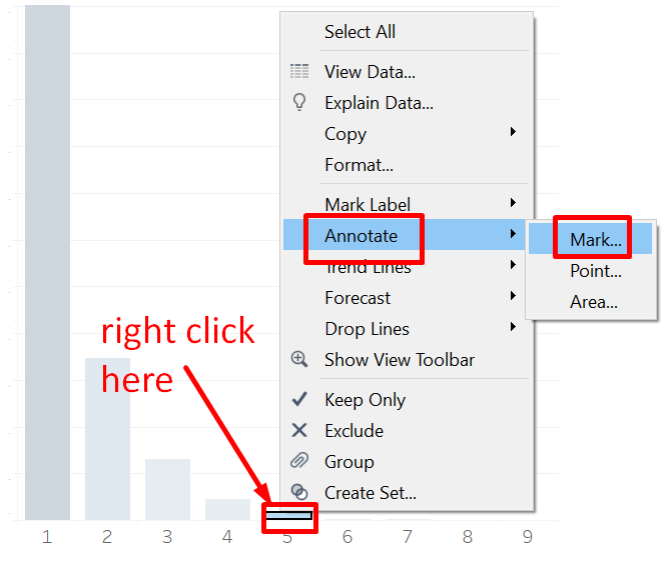
## 2. EXAMPLE 2 : FIXING THE CUSTOMER

- How many customers have made 1, 2, 3, N orders?

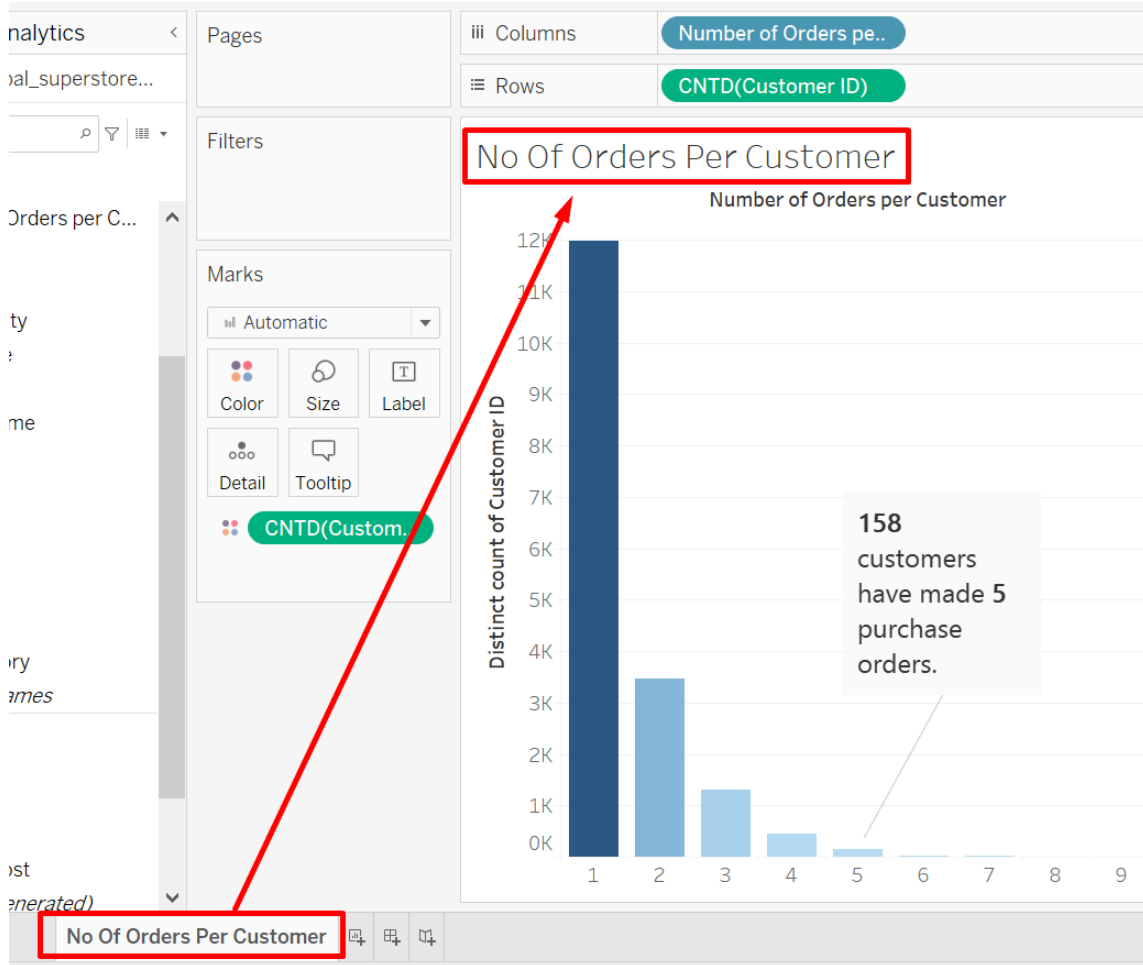
File can be found here: [https://www.alvinang.sg/s/global\\_superstore\\_2016.xlsx](https://www.alvinang.sg/s/global_superstore_2016.xlsx)











**B. INCLUDE LOD**

1. EXAMPLE 1

Order ID	Name	Sales		Order ID	Name	Sales
1	Alvin	46		1	Alvin	46
2	Bobo	15		2	Bobo	15
3	Cat	256		3	Cat	256
4	David	15		4, 5	David	561
5	David	546				
6	Eugene	104		6,7	Eugene	119
7	Eugene	15				
8	Gina	190		8	Gina	190
9	Helen	516		9,10,11	Helen	1837
10	Helen	156				
11	Helen	1165				
12	Ivan	35		12	Ivan	35
	Average=	254.9166667	How INCLUDE LOD does		Average =	382.375

AVG([Sales]) **How Tableau Does Average**      AVG {INCLUDE [Name] : Sum (Sales)} **Average by INCLUDING only the Names**  
 Total / 12      Total / 8

File can be found here: <https://www.alvinang.sg/s/12-rows-of-customer-sales.xlsx>

The left table shows: Average per Order ID.

The right table shows Average per Customer.

Customers (12 Rows of Data) Connector  
● Live

**Connections** Add  
12 Rows of Data  
Microsoft Excel

**Customers**

bring in the 12 rows of customer sales data

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

Customers 3 fields 12 rows

#	Order ID	Name	Sales
1	Alvin	46	
2	Bobo	15	
3	Cat	256	
4	David	15	
5	David	546	
6	Eugene	104	
7	Eugene	15	

Type	Field Name	Physical Table	Remote Field Name
#	Order ID	Customers	Order ID
Abc	Name	Customers	Name
#	Sales	Customers	Sales

Customers (12 Rows of Da... Rows AVG([Sales])

Search

**Tables**

- Abc Name
- # Order ID
- Abc Measure Names
- # Sales
- # Customers (Count)
- # Measure Values

Filters

Marks

Automatic

Color Size Label

Detail Tooltip

Sheet 1

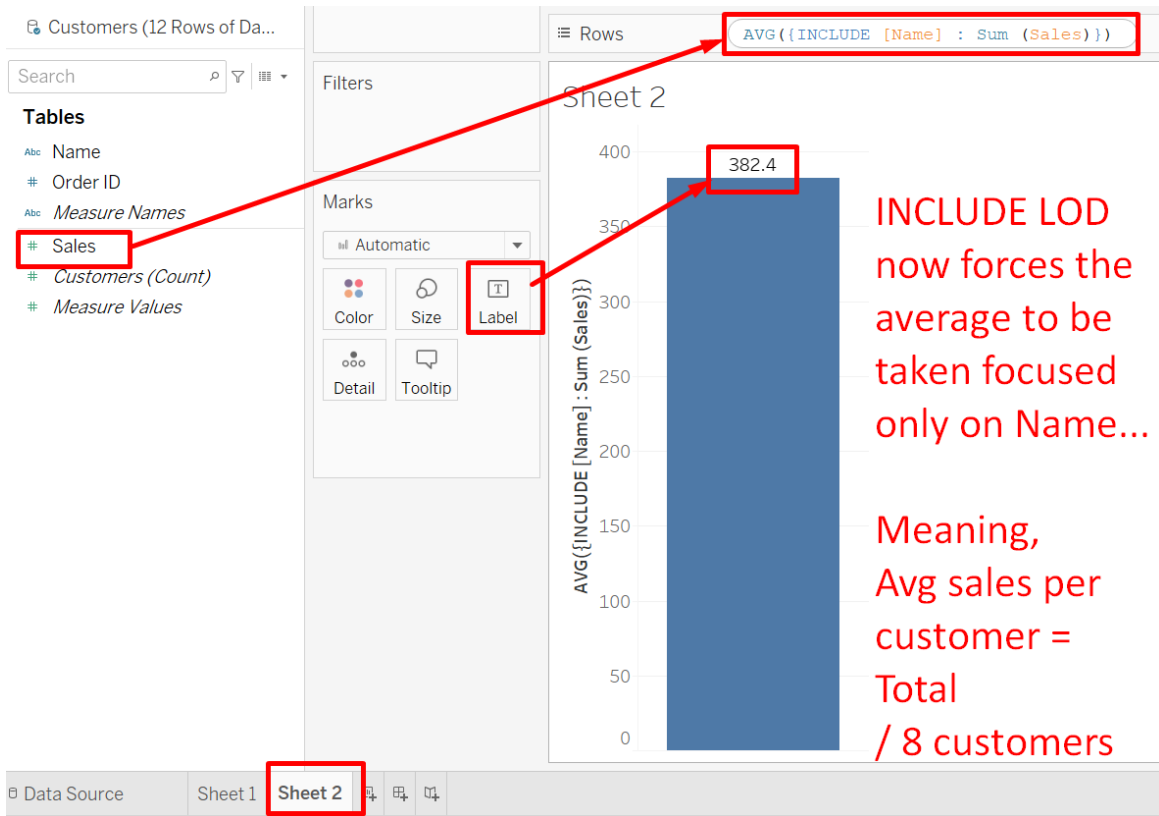
Avg. Sales

254.9

u see that the average sales for the 12 rows of customer data is:

Total / 12

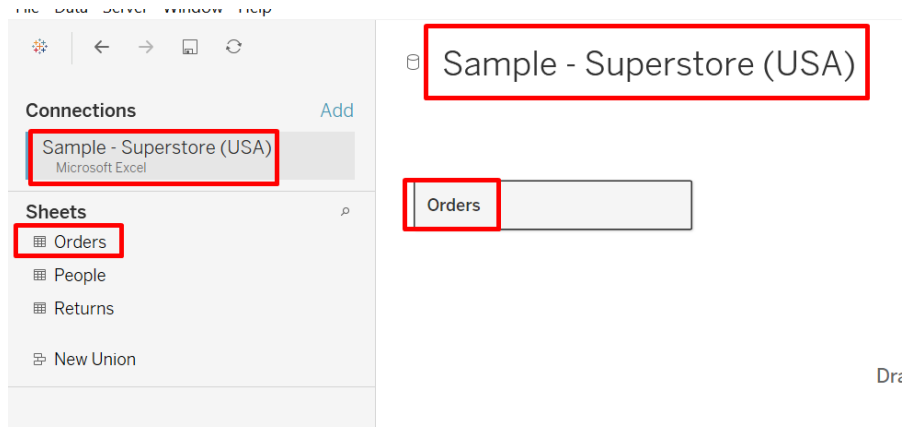
Data Source **Sheet 1** Sheet 2



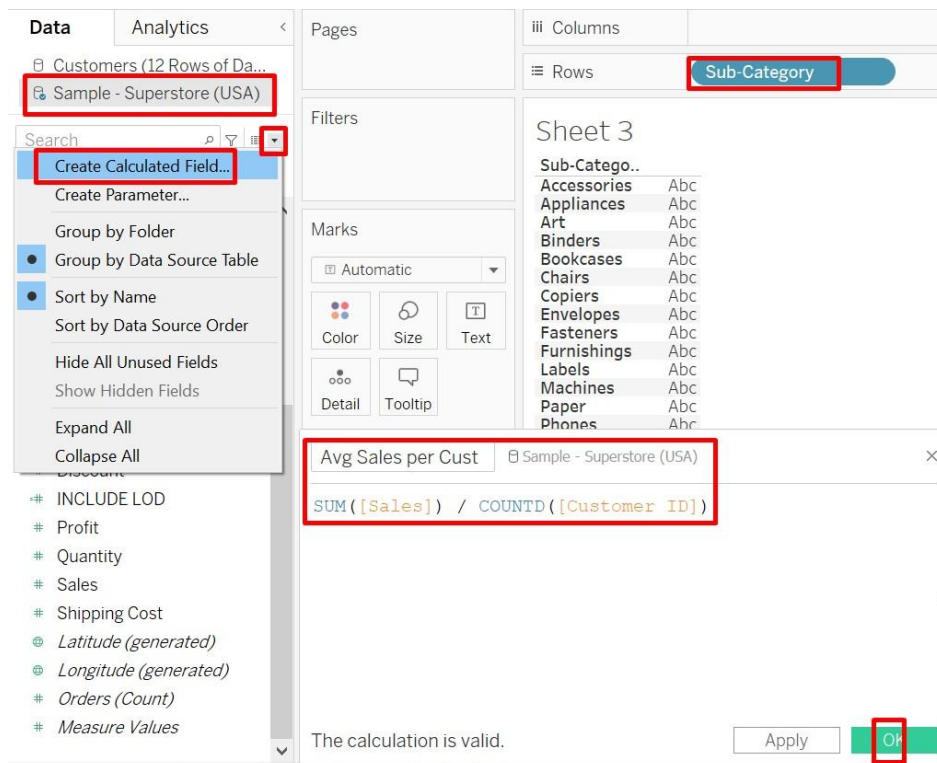
**AVG({INCLUDE [Name] : Sum (Sales)})**

## 2. EXAMPLE 2

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



$SUM([Sales]) / COUNTD([Customer ID])$



{INCLUDE [Customer ID] : 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

INCLUDE LOD Sample - Superstore (USA)

{INCLUDE [Customer ID] : SUM ([Sales])}

The calculation contains errors

Apply OK

Sample - Superstore (USA)

Search

Tables

- Product Name
- Region
- Row ID
- Segment
- Ship Date
- Ship Mode
- State
- Sub-Category
- Measure Names
- Avg Sales per Cust
- Discount
- INCLUDE LOD
- Profit
- Quantity
- Sales
- Shipping Cost
- Latitude (generated)
- Longitude (generated)

Filters

Measure Names

Marks

Automatic

Color Size Text

Detail Tooltip

Filter [Measure Names]

General

Enter search text

- Avg Sales per Cust
- Count of Orders
- Discount
- INCLUDE LOD
- Profit
- Quantity
- Sales
- Shipping Cost

All None

Summary

Field: [Measure Names]

Selection: Selected 2 of 8 values

Wildcard: All

Condition: None

Limit: None

Reset OK Cancel Apply

these 2 new calculated fields are created

right click and change Measure to Average

now you see that both are the same  
Avg Sales per Cust = Avg. INCLUDE LOD

Sub-Catego..	Avg Sales per Cust	Avg. INCLUDE LOD
Accessories	267	267
Appliances	259	259
Art	42	42
Binders	189	189
Bookcases	527	527
Chairs	629	629
Copiers	2,199	2,199
Envelopes	77	77
Fasteners	25	25
Furnishings	122	122
Labels	38	38
Machines	1,736	1,736
Paper	80	80
Phones	455	455
Storage	324	324
Supplies	286	286
Tables	695	695

## C. EXCLUDE LOD

### 1. EXAMPLE 1

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

The screenshot shows the Tableau Desktop interface. In the 'Columns' shelf, 'Region' is placed. In the 'Marks' shelf, 'SUM(Sales)' is placed, and the mark type is set to 'Text'. The 'Tables' list on the left includes 'Region', 'Row ID', 'Segment', 'Ship Date', 'Ship Mode', 'State', 'Sub-Category', 'Measure Names', 'Avg Sales per Cust', 'Discount', and 'INCLUDE LOD'.

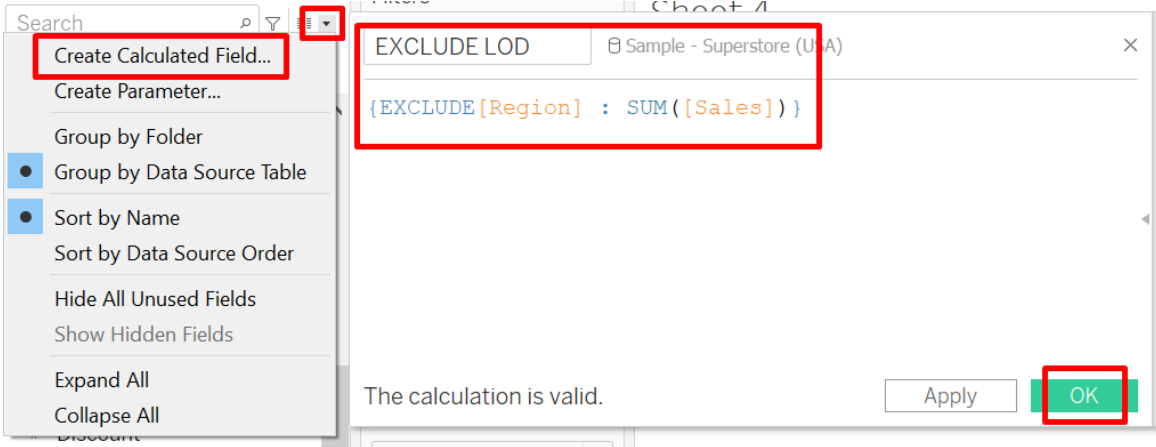
The screenshot shows the 'Worksheet' menu open. The 'Show Summary' option is highlighted. A red arrow points from the 'Show Summary' option to a summary table on the right. The summary table shows:

Summary	
Count:	4
SUM(Sales)	2,297,201
Sum:	2,297,201
Average:	574,300
Minimum:	391,722
Maximum:	725,458
Median:	590,011

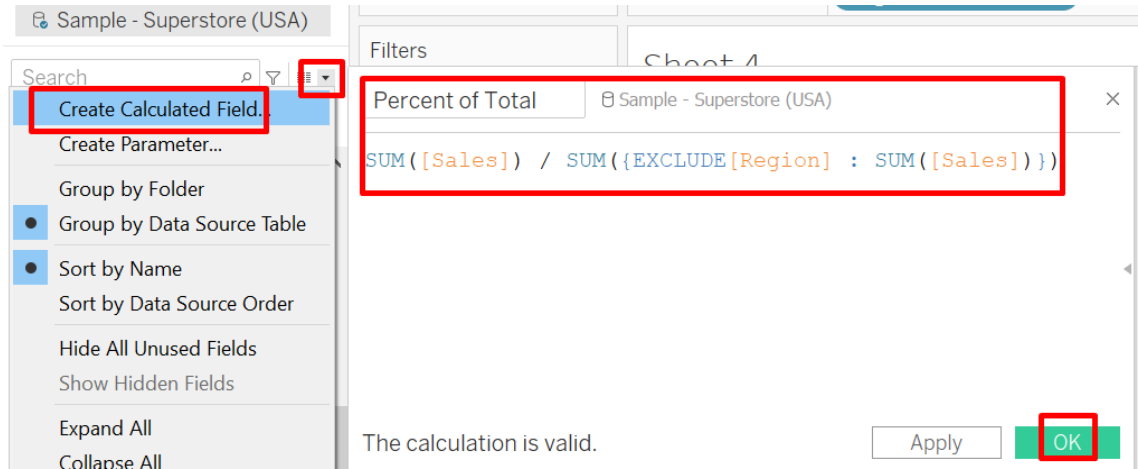
Notice that the summary gives us the total sum of all regions = 2,297,201.

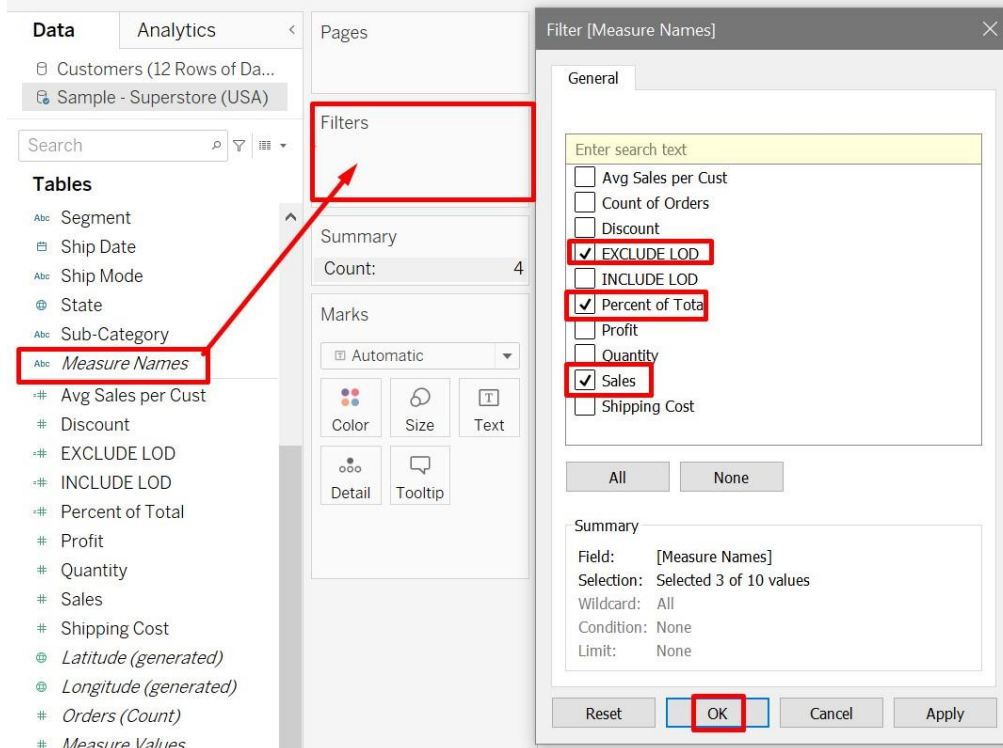


{EXCLUDE[Region] : SUM([Sales])}



SUM([Sales]) / SUM({EXCLUDE[Region] : SUM([Sales])})





The total sales of all regions = \$2,297,201

EXCLUDE LOD means EXCLUDE Region  
Thus, the Sales here refer to the Country Sales (not individual Region Sales)

right click here and click on format

Region	Sales	EXCLUDE LOD	Percent of Total
Central US	501,240	2,297,201	21.82%
Eastern US	678,781	2,297,201	29.55%
Southern US	391,722	2,297,201	17.05%
Western US	725,458	2,297,201	31.58%

Default

Numbers: 12345600.00... ▾

Summary

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

Percentage  
Decimal places:  
2 ▾

Region	Sales	EXCLUDE LOD	Percent of Total
Central US	501,240	2,297,201	21.82%
Eastern US	678,781	2,297,201	29.55%
Southern US	391,722	2,297,201	17.05%
Western US	725,458	2,297,201	31.58%

select percentage and this will appear

Region	Sales	EXCLUDE LOD	Percent of Total
Central US	501,240	2,297,201	21.82%
Eastern US	678,781	2,297,201	29.55%
Southern US	391,722	2,297,201	17.05%
Western US	725,458	2,297,201	31.58%

Percent of Total =  
Individual Region Sales / Total Country Sales

EXCLUDE LOD = Total Country Sales  
= Sum of all Region Sales (because u exclude the level of detail, which is generalizing to country)

---

## 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](http://www.AlvinAng.sg)