Exploring & Analyzing Data

Day 2

Overview

Create basic charts

- Bar chart
- Line chart
- Scatterplot
- Map using geographic data
- Combined axis chart
- Dual axis chart
- Stacked bar
- Chart to show specific values (crosstab, highlight table)

Organize data and apply filters

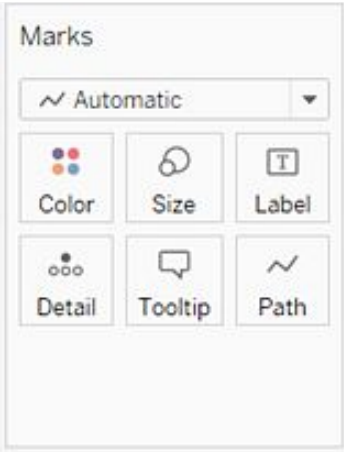
- Create a visual group
- Create a group using labels
- Create a set
- Organize dimensions into a hierarchy
- Filtering
- Add a filter to the view
- Add a context filter
- Add a date filter
- Additional:
- Using the Filter Shelf
- Sorting

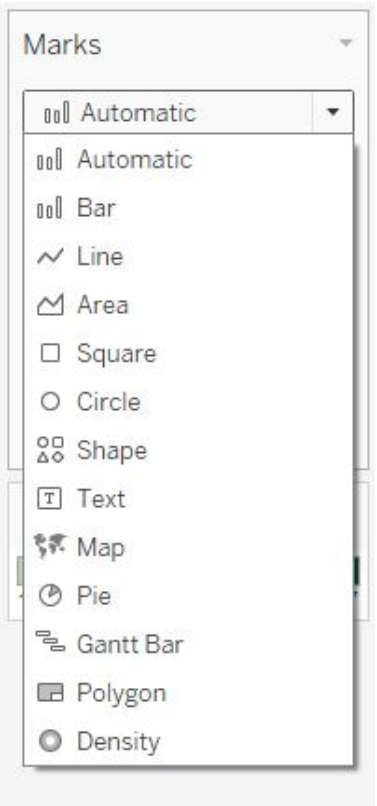
Apply analytics to a worksheet

- Add a manual or a computed sort
- Add a reference line or trend line
- Use a table calculation
- Use bins and histograms
- Create a calculated field (e.g. string, date, simple arithmetic)
- Add a parameter

Creating Basic Charts

Basic Charts: Bar, Scatterplot, Line





- Drag out data, Tableau creates type of chart automatically
  - As long as “Automatic” is selected, it will select the type of chart automatically based off of the data pulled

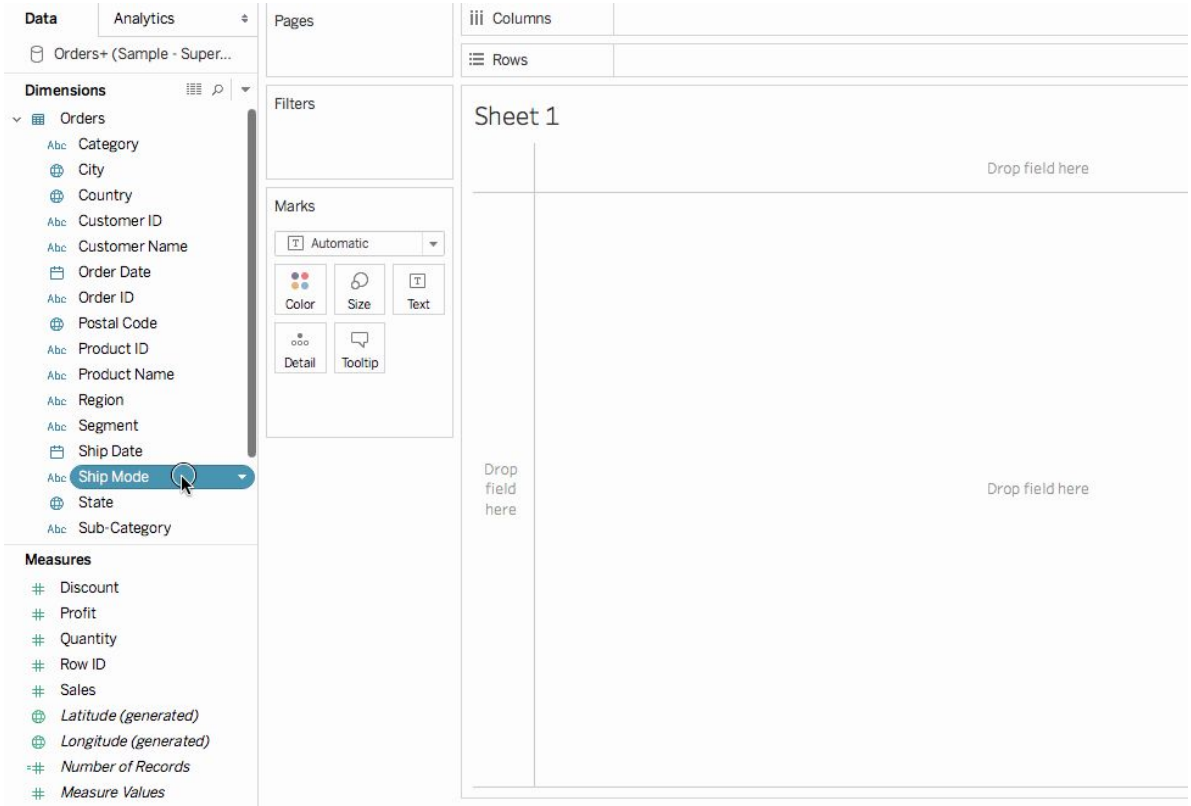
Map using geographic data

If we don’t have latitude and longitude, Tableau will use its database using the 8 fields to the left to assign coordinates (geocoding)

US Area Codes
US-based CBSA / MSA
Cities Worldwide
US Congressional Districts
Worldwide Countries / Regions
US Counties
Worldwide States / Provinces
Postal Codes
Latitude and Longitude

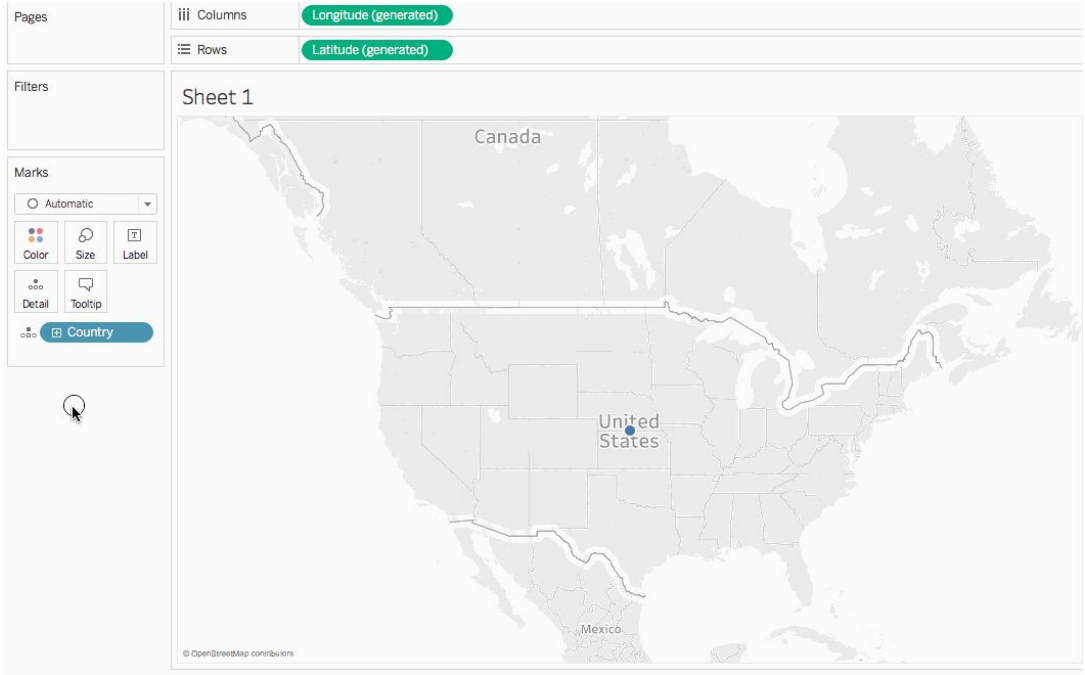
Create Hierarchy

- Country
- State
- City
- Postcode



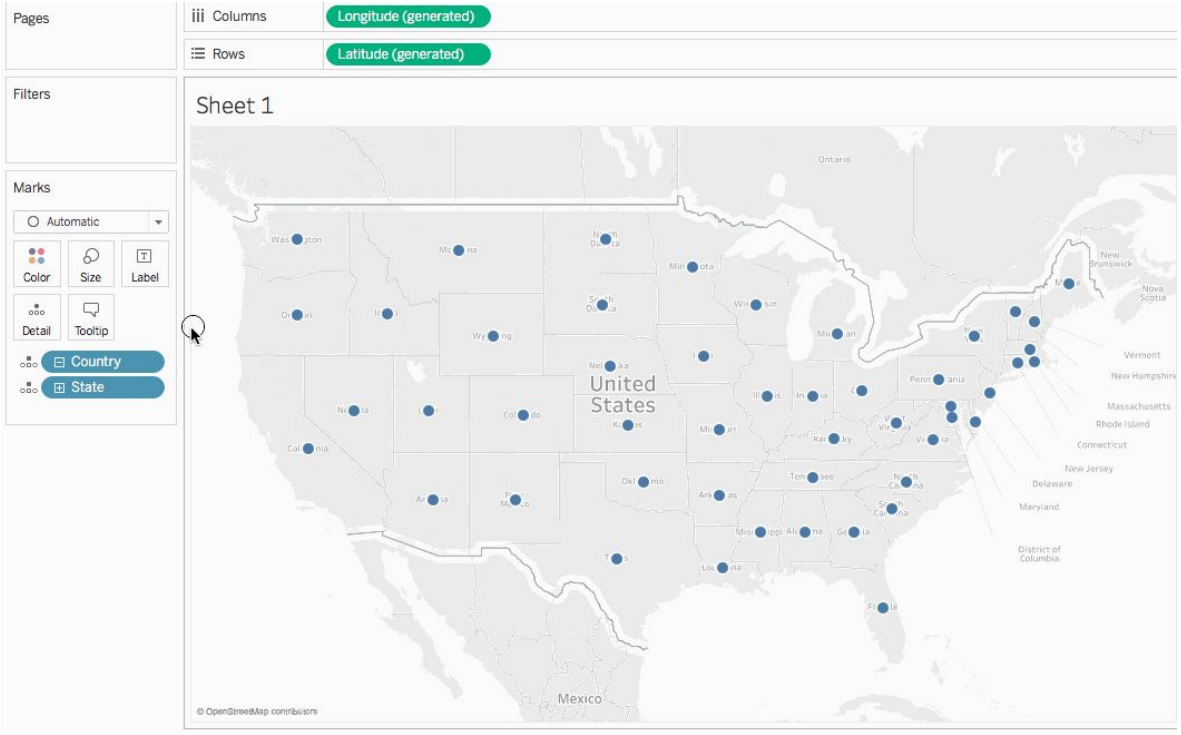
Create Map

- Drag geographic data to *Marks* box
- Tableau will generate a map automatically
- This is a **point or symbol map**



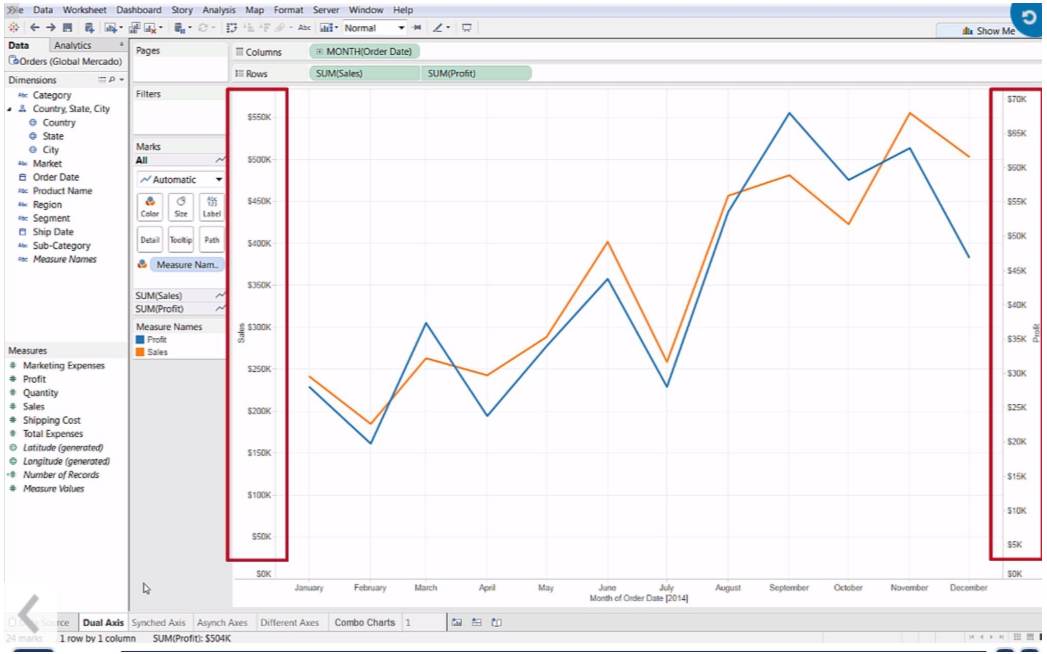
Change to **Filled Map**

- Tableau defaults to point map
- Go to the dropdown in the *Marks* menu
- Select *Filled Map*



Dual Axis Charts

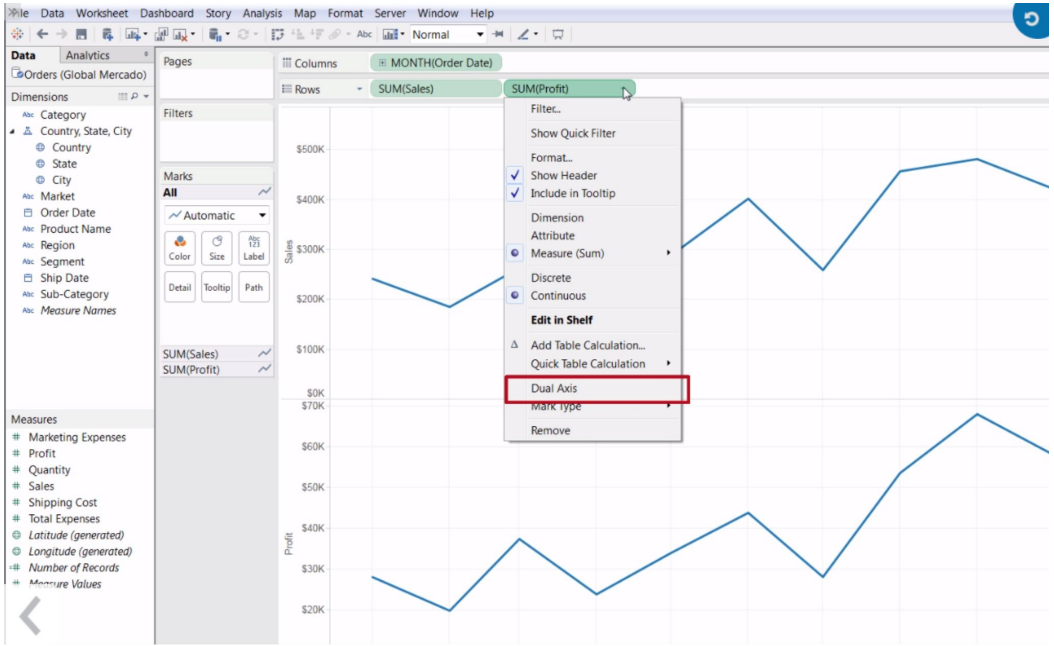
- Show how two different measures compare against each other
- Same or different mark types



Creating Dual Axis Chart

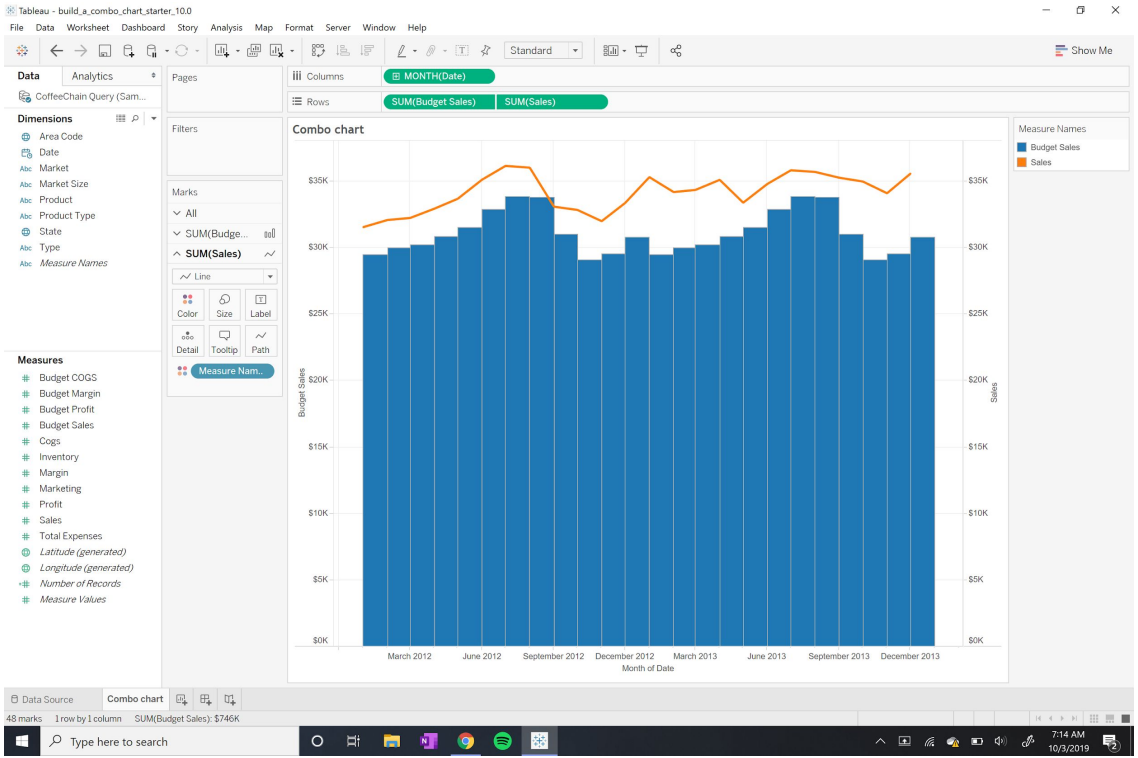
- Select your two measures and drag onto rows
- Drop down > Dual Axis OR drag onto right pane until black dotted line appears

- *Notice Marks card changes*
  - Use this if we want to use different types of graphs



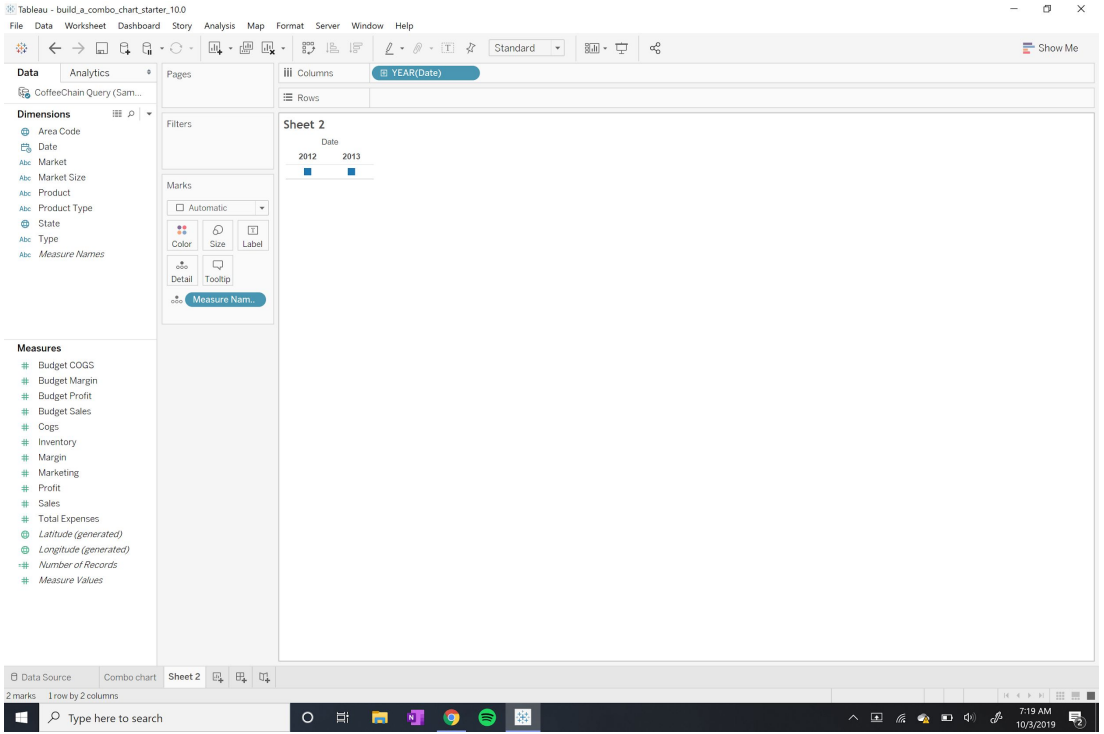
Combined Axis Chart

Combination charts are views that use multiple mark types in the same visualisation.



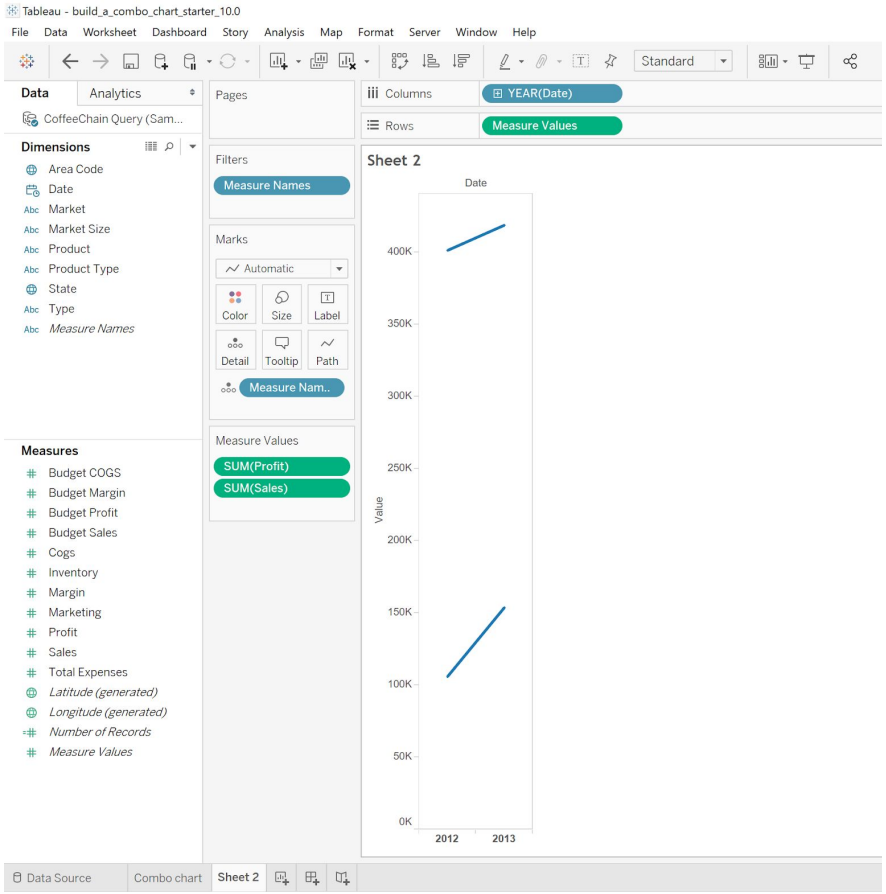
Stacked Bar Chart

- Bring out *Measure Names*
- Right click in *Marks*, select “Filter”
- Unclick all, select only the ones you want



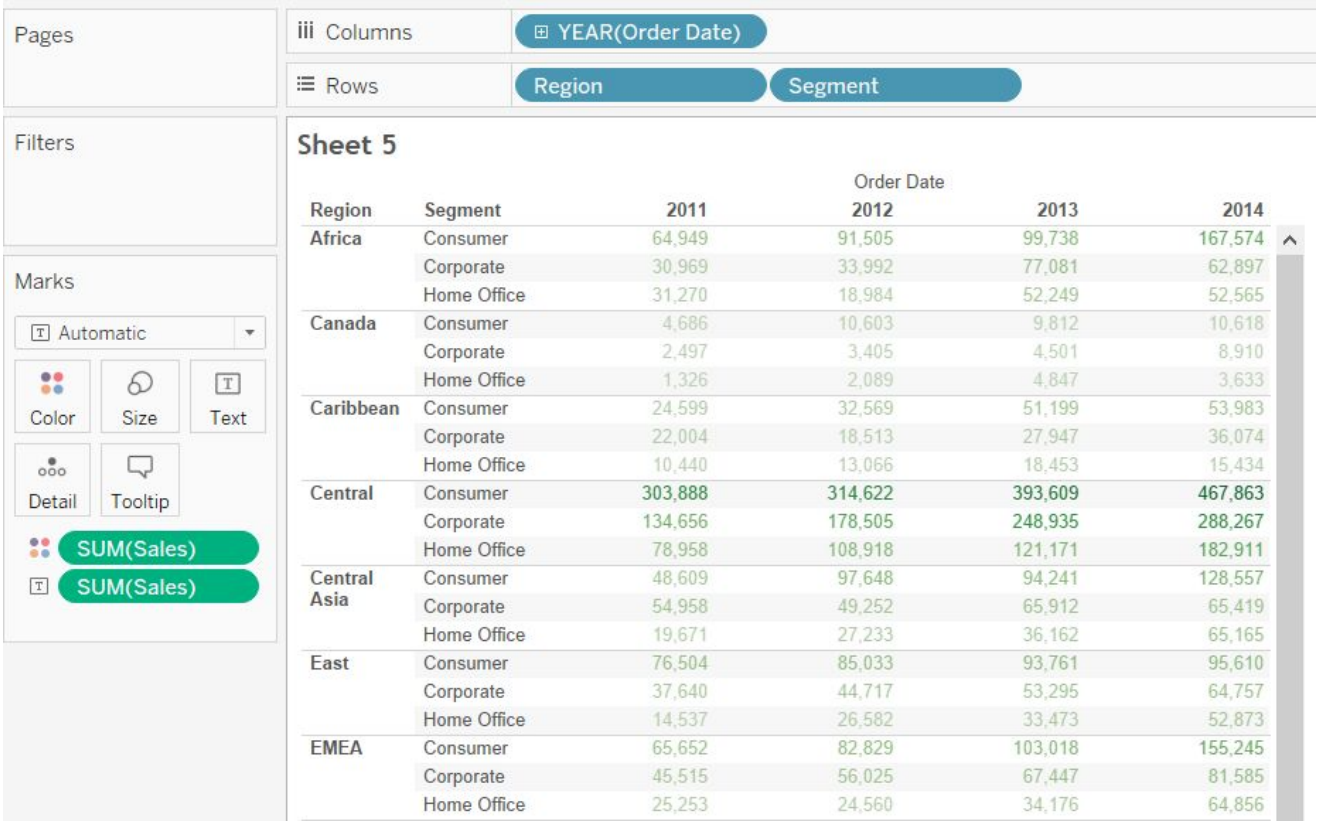
Stacked Bar Chart

- Bring out *Measure Values* to rows
- Select Bar Chart



Crosstab

- Compares categories within categories
- Ex. Each region has its own segments that have sales

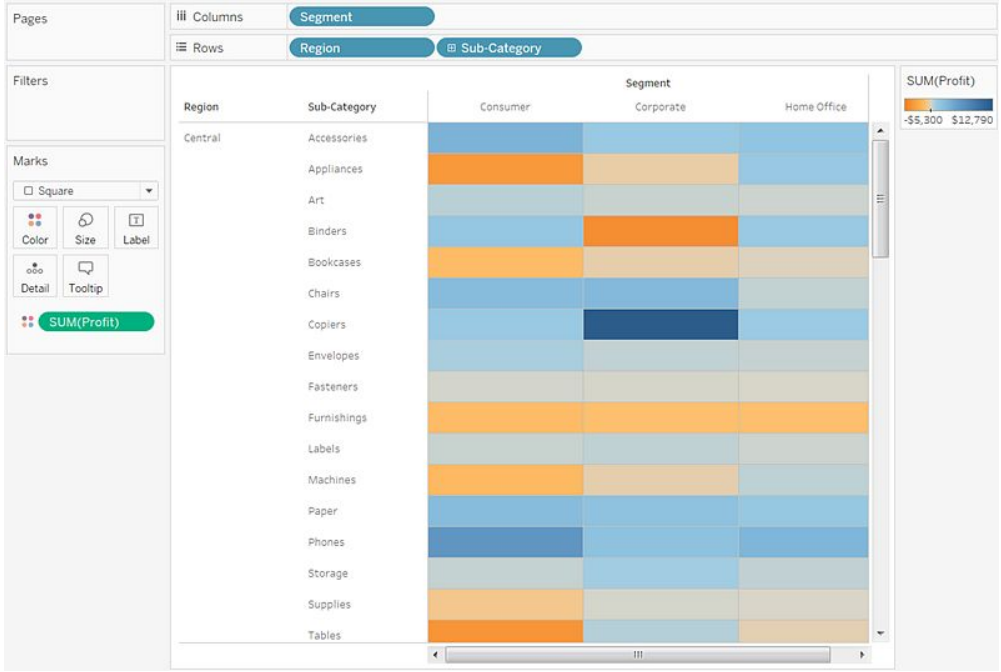


Sheet 5

		Order Date			
Region	Segment	2011	2012	2013	2014
Africa	Consumer	64,949	91,505	99,738	167,574
	Corporate	30,969	33,992	77,081	62,897
	Home Office	31,270	18,984	52,249	52,565
Canada	Consumer	4,686	10,603	9,812	10,618
	Corporate	2,497	3,405	4,501	8,910
	Home Office	1,326	2,089	4,847	3,633
Caribbean	Consumer	24,599	32,569	51,199	53,983
	Corporate	22,004	18,513	27,947	36,074
	Home Office	10,440	13,066	18,453	15,434
Central	Consumer	303,888	314,622	393,609	467,863
	Corporate	134,656	178,505	248,935	288,267
	Home Office	78,958	108,918	121,171	182,911
Central Asia	Consumer	48,609	97,648	94,241	128,557
	Corporate	54,958	49,252	65,912	65,419
	Home Office	19,671	27,233	36,162	65,165
East	Consumer	76,504	85,033	93,761	95,610
	Corporate	37,640	44,717	53,295	64,757
	Home Office	14,537	26,582	33,473	52,873
EMEA	Consumer	65,652	82,829	103,018	155,245
	Corporate	45,515	56,025	67,447	81,585
	Home Office	25,253	24,560	34,176	64,856

Highlight Table

- Create a highlight table by placing one or more dimensions on the **Columns** shelf and one or more dimensions on the **Rows** shelf.
- Select Square as the mark type and place a measure of interest on the Color shelf.

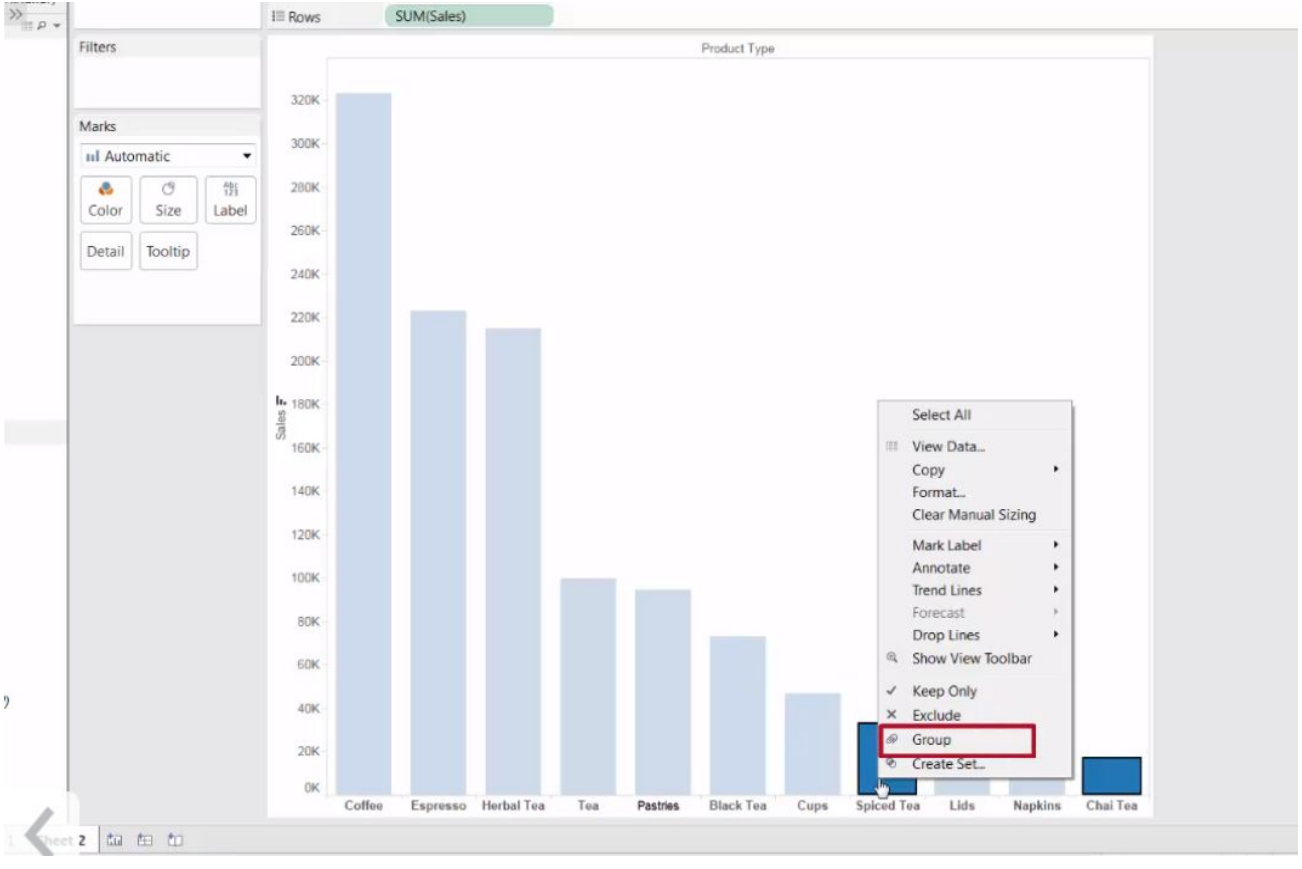


Organize Data and Apply Filters

Groups

- Lets you combine several measure of a single dimension into categories
- Creating a new dimension field
- Ways to create groups
  - View
    - Best for short lists
  - Dimensions Pane
    - Best for long lists

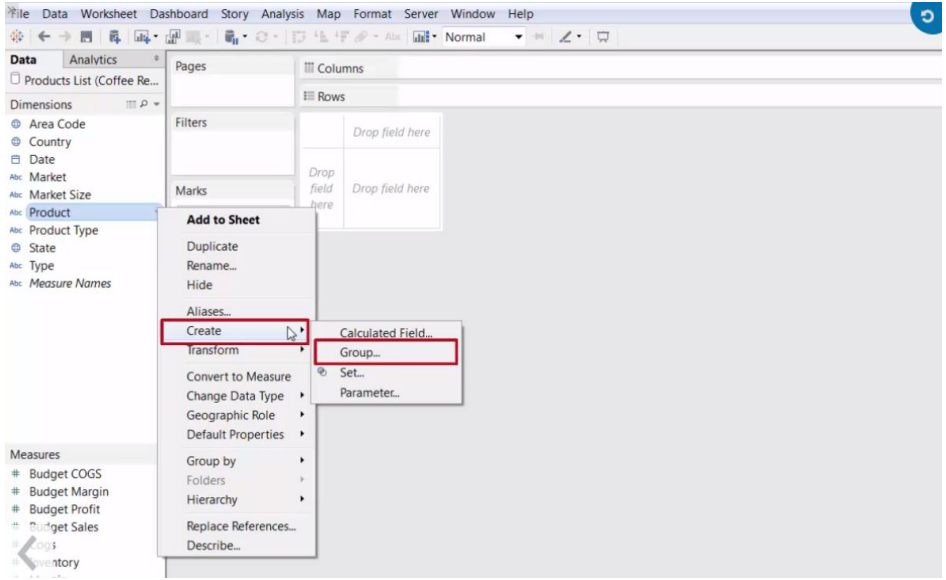
Creating a Visual Group

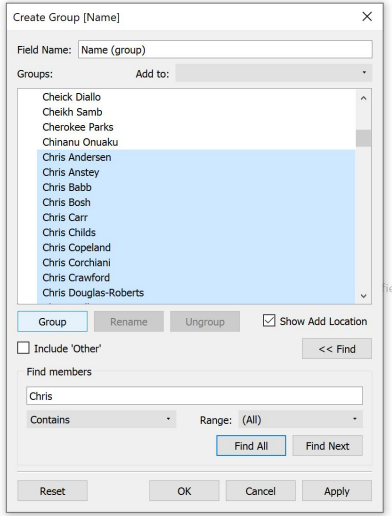


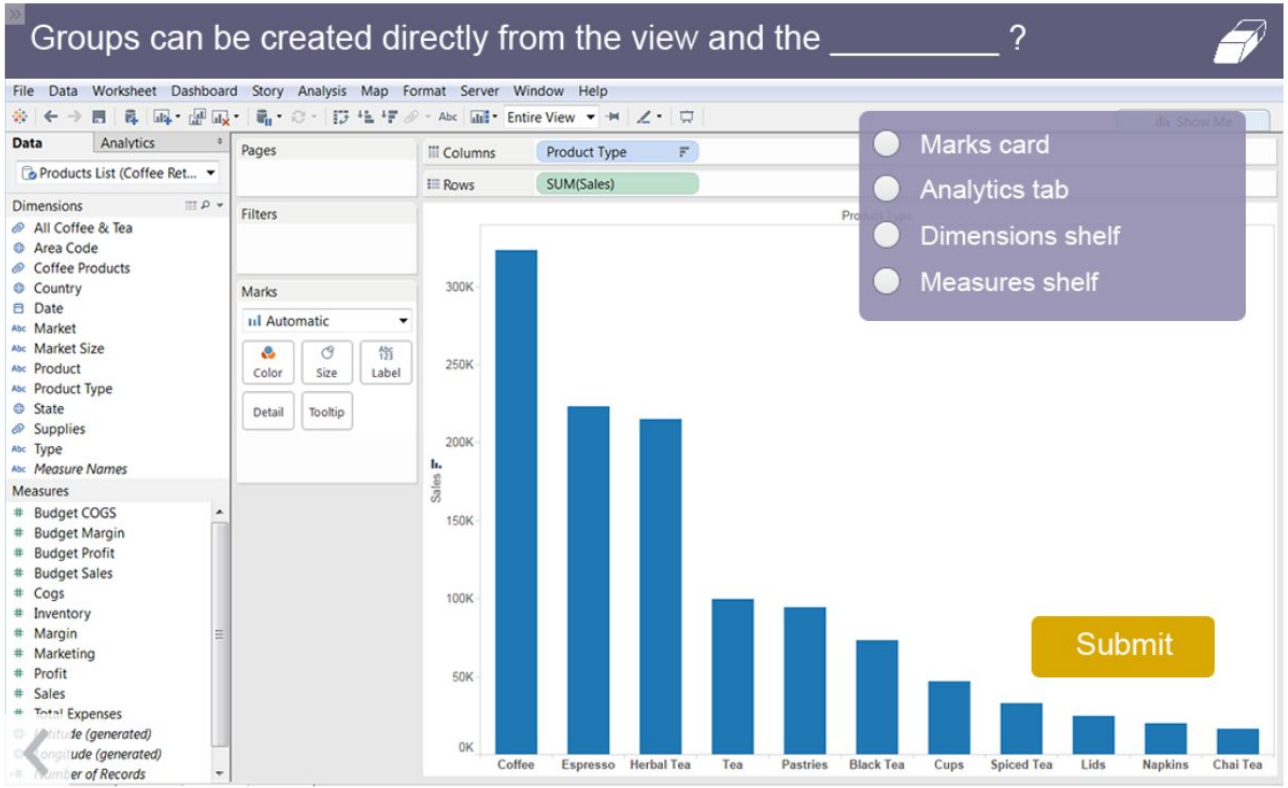
- Ctr + Click OR click and drag
- Right click > Group

Creating a Group in the Dimension Pane

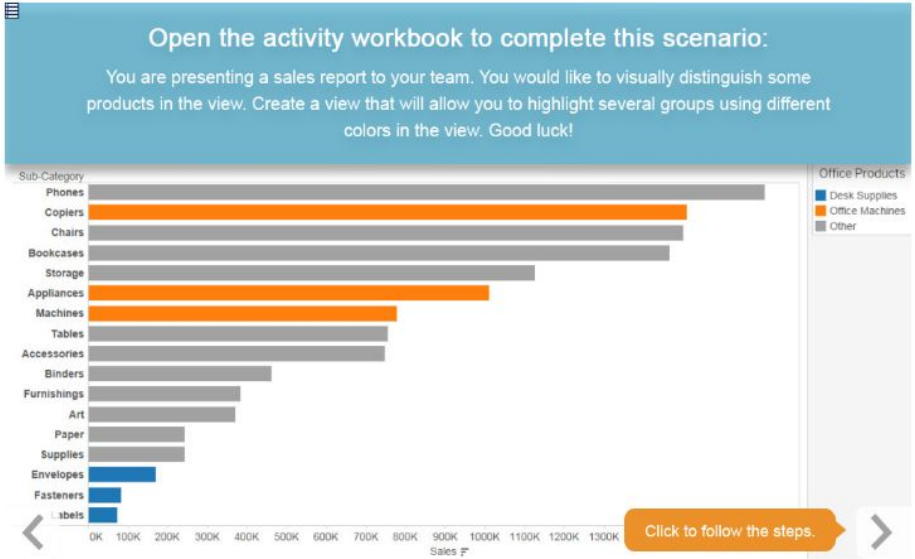
- Right click on dimension > Create > Group
- If you have a long list, *Find,* type criteria, Group

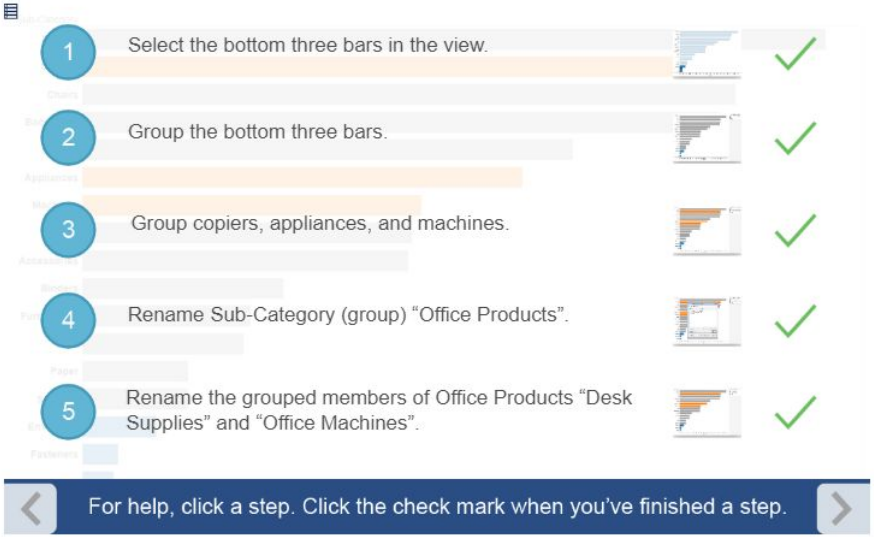





Groups can be created directly from the view and the _____ ?
File Data Worksheet Dashboard Story Analysis Map Format Server Window Help
Entire View
Data
Analytics
Products List (Coffee Ret...
Dimensions
All Coffee & Tea
Area Code
Coffee Products
Country
Date
Market
Market Size
Product
Product Type
State
Supplies
Type
Measure Names
Measures
Budget COGS
Budget Margin
Budget Profit
Budget Sales
Cogs
Inventory
Margin
Marketing
Profit
Sales
Total Expenses
Latitude (generated)
Longitude (generated)
Number of Records
Pages
Filters
Marks
Automatic
Color
Size
Label
Detail
Tooltip
Columns
Product Type
Rows
SUM(Sales)
Marks card
Analytics tab
Dimensions shelf
Measures shelf
300K
250K
200K
150K
100K
50K
0K
Sales
Coffee
Espresso
Herbal Tea
Tea
Pastries
Black Tea
Cups
Spiced Tea
Lids
Napkins
Chai Tea
Submit

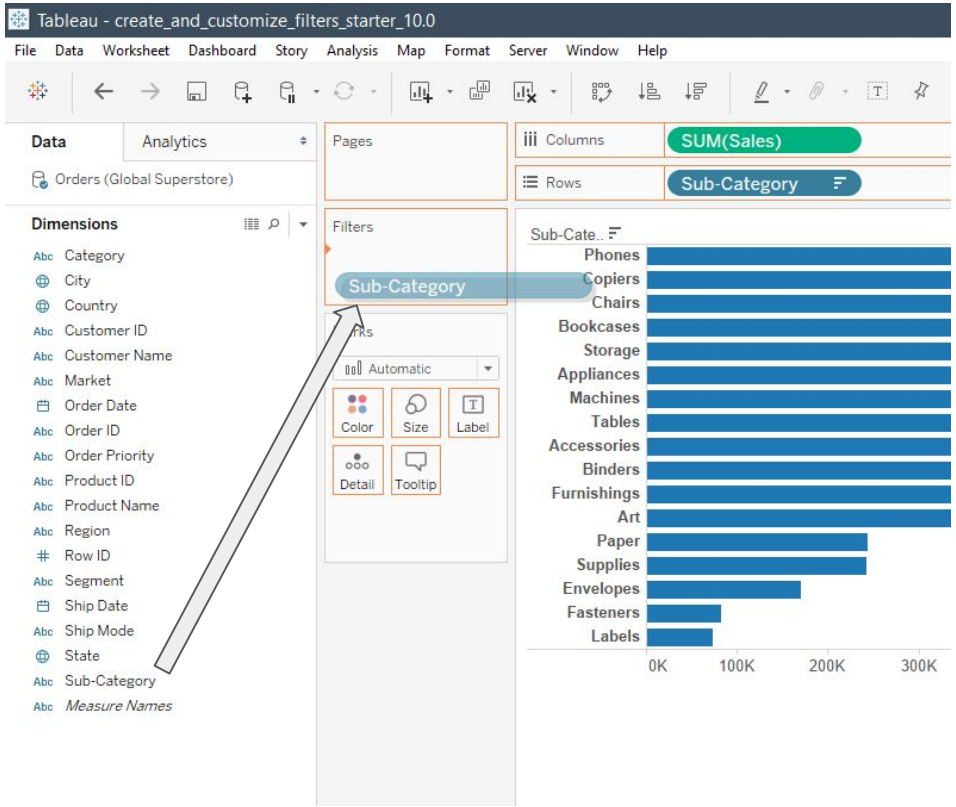
Grouping Activity





Filters

- Allow users to answer more detailed questions
- Are independent of one another

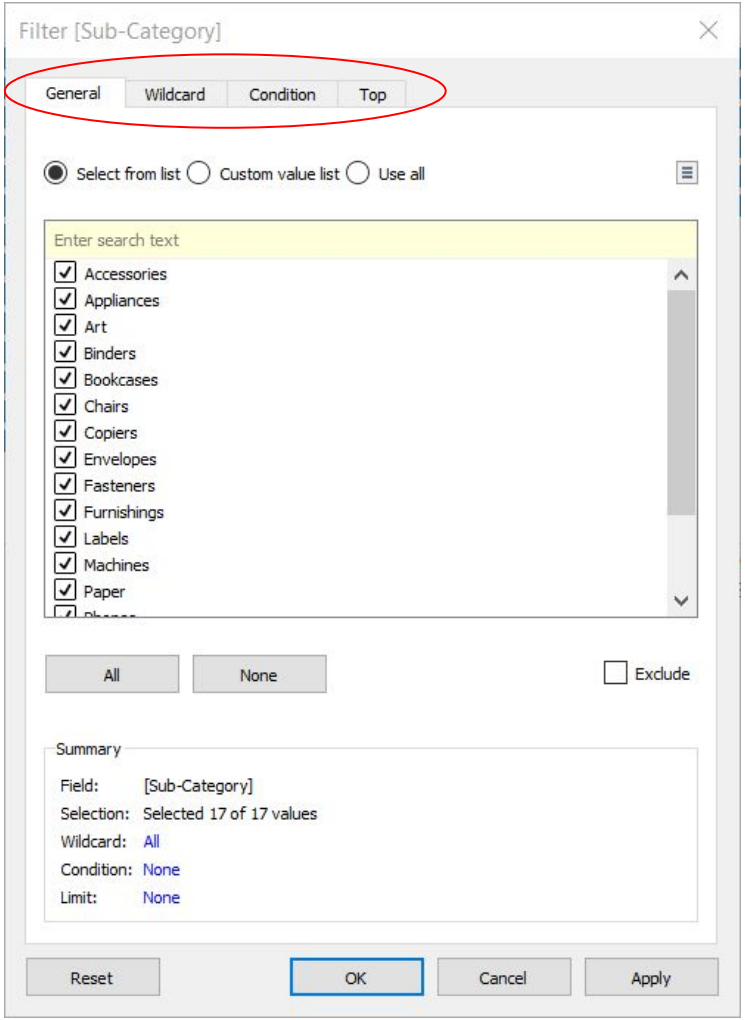


General: Select which categories you want to show or hide with the checkbox.

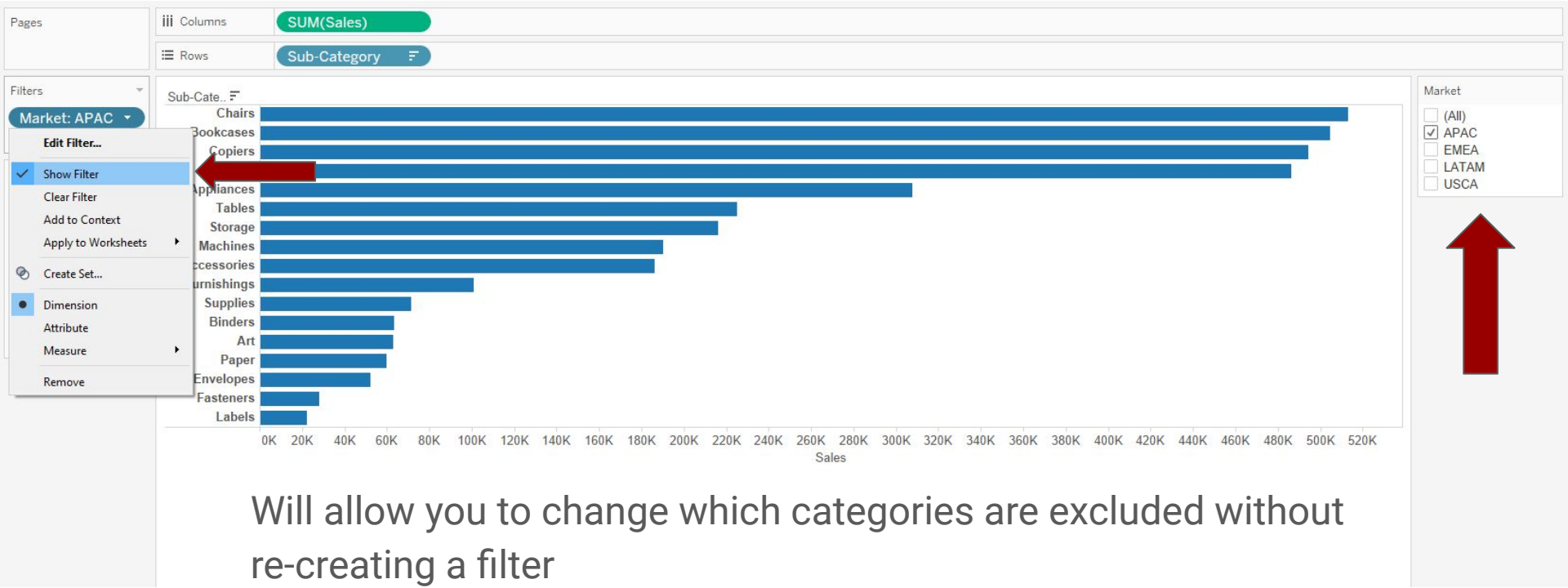
Wildcard: Show all values that include, start with, or end with an entered value.

Condition: Creates an IF statement to only include values in a range or >, <, = an entered value.

Top: Shows only the top or bottom fields by sorting.



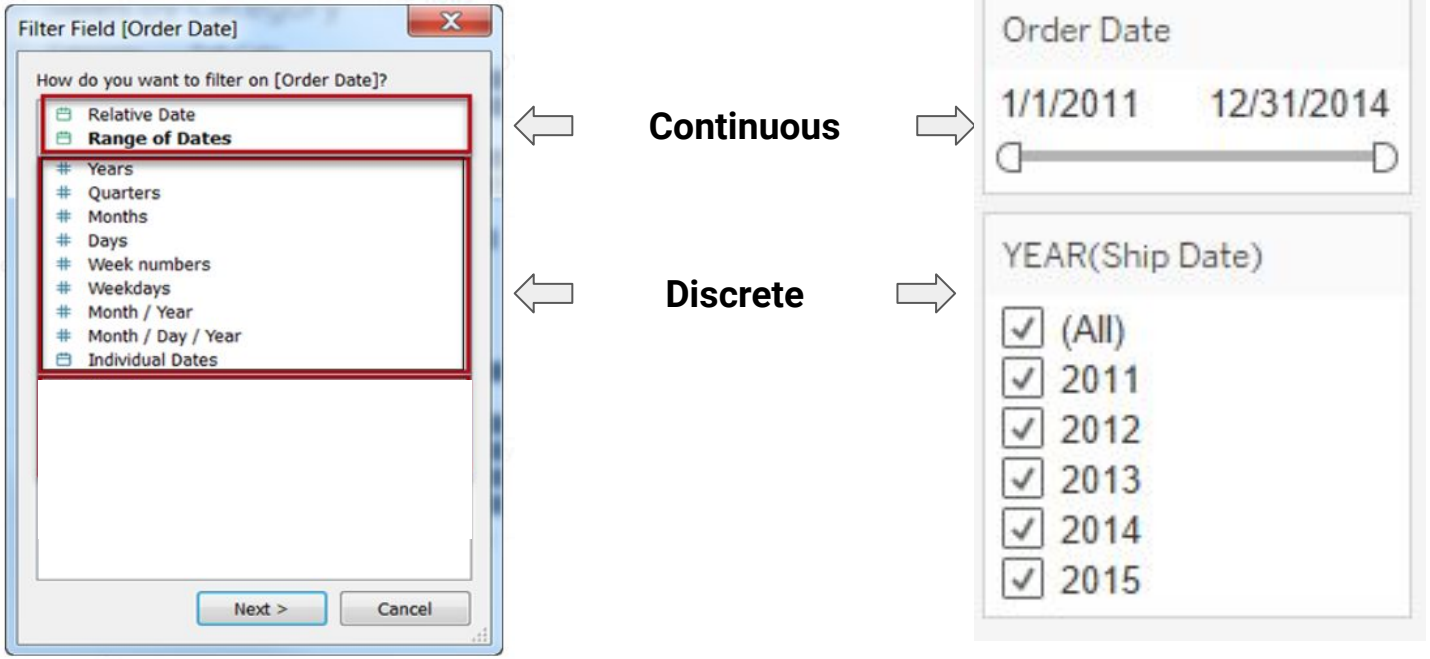
Showing Filters in the Filter Tab



Will allow you to change which categories are excluded without re-creating a filter

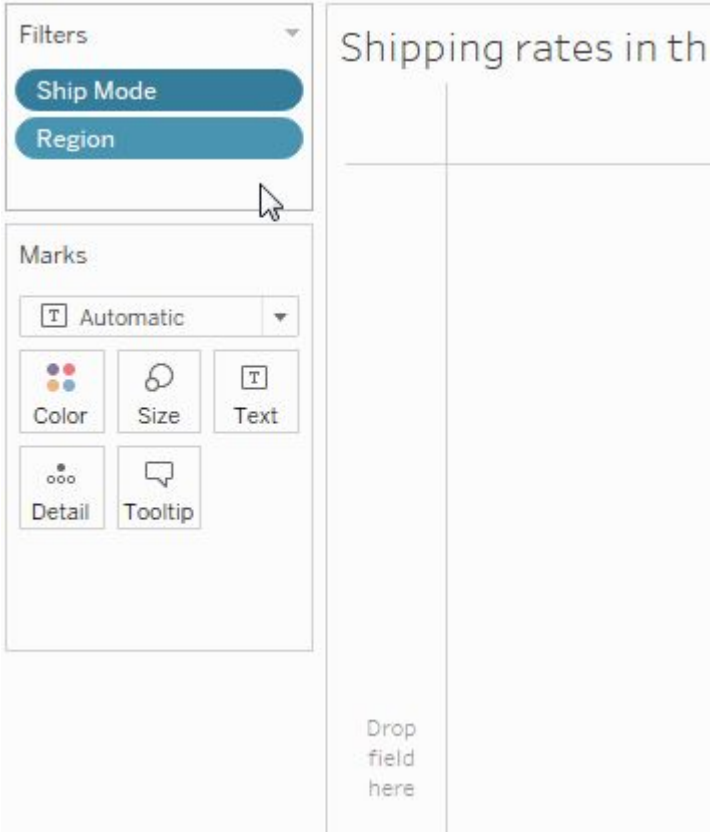
Date Filters

- Add filter to a date field > Edit filter

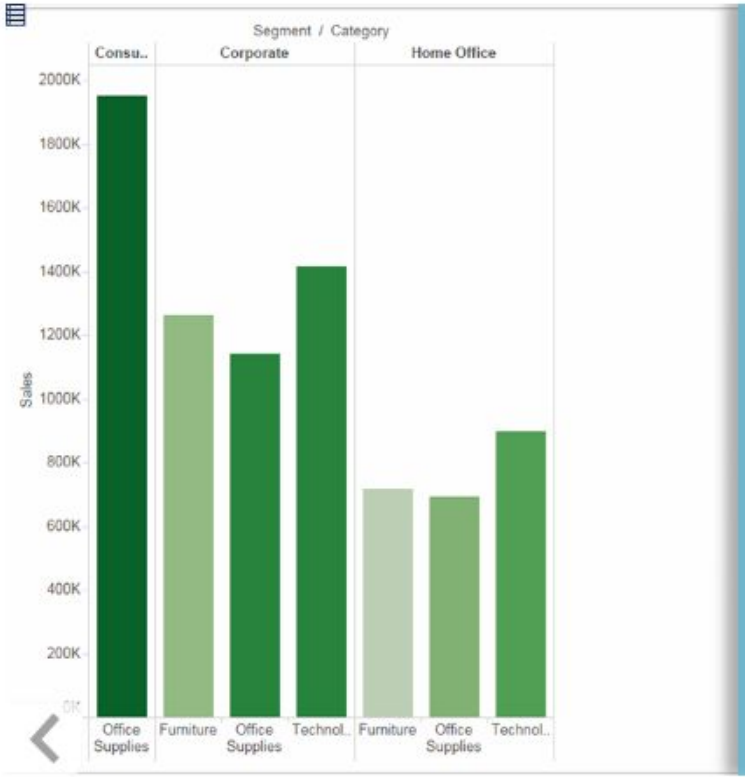


Context Filters

- Usually filters are independent of one another, but context filters restrict other filters
- Can improve performance with large datasets



Filtering Activity



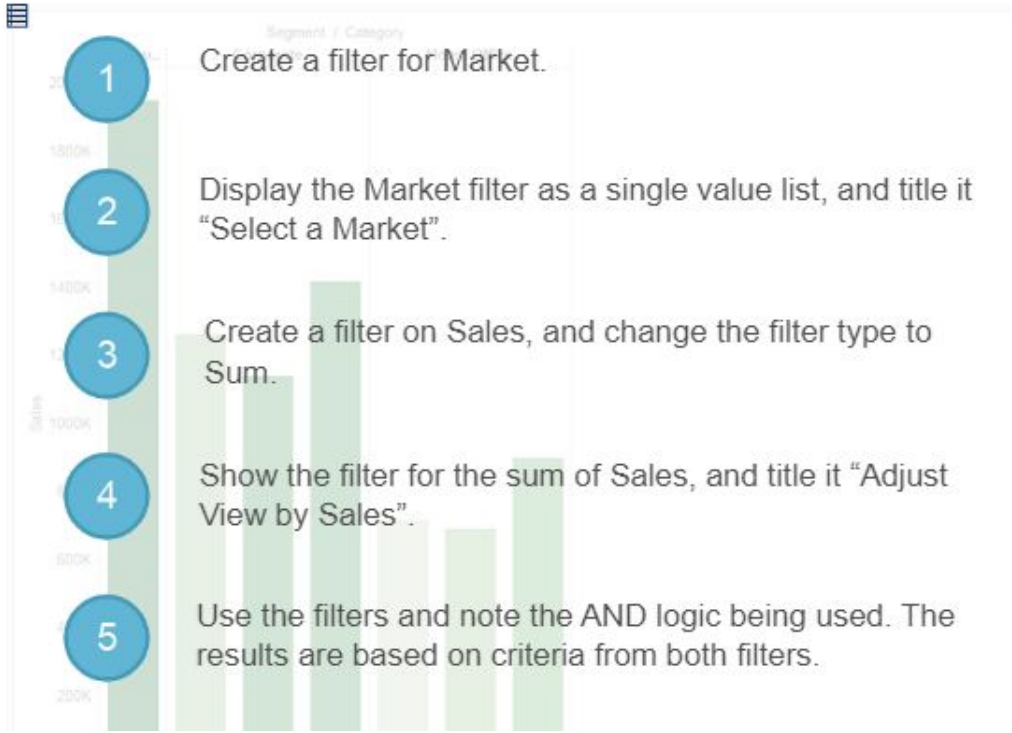
Open the activity workbook to complete this scenario:

You have a view that shows sales data for all your inventory. Create a filter that allows users to filter sales by individual market, and create a second filter to enable people to filter on the sum of sales using a slider.

Good luck!

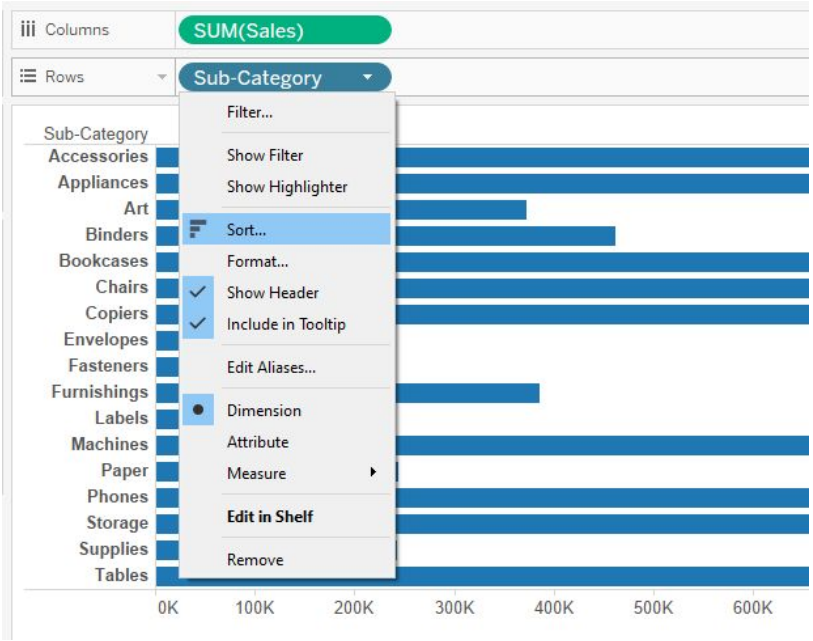
Click to follow the steps.

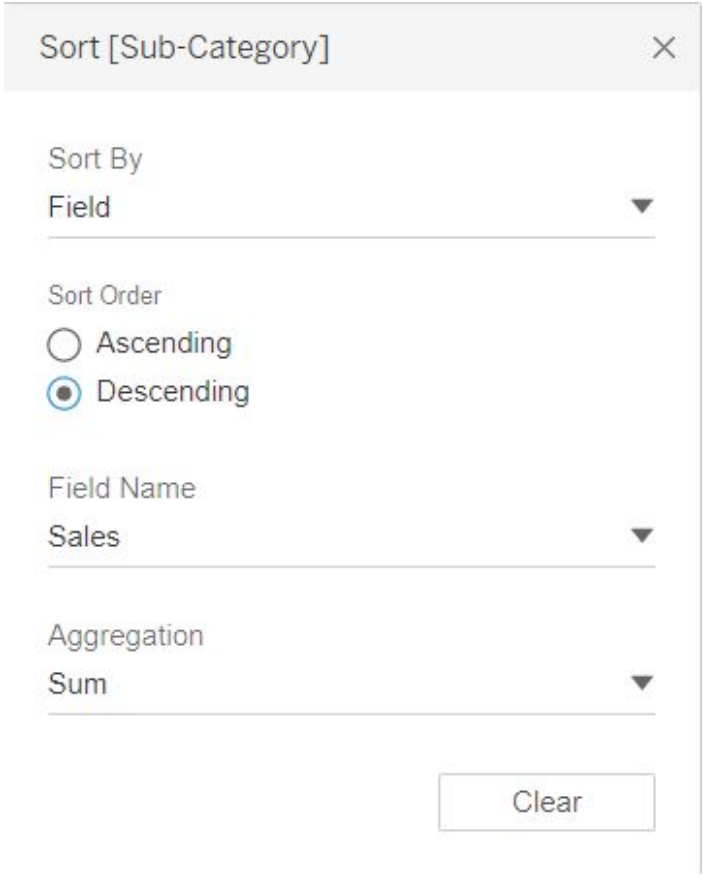
Filtering Activity



1. Create a filter for Market.
2. Display the Market filter as a single value list, and title it “Select a Market”.
3. Create a filter on Sales, and change the filter type to Sum.
4. Show the filter for the sum of Sales, and title it “Adjust View by Sales”.
5. Use the filters and note the AND logic being used. The results are based on criteria from both filters.

Sorting

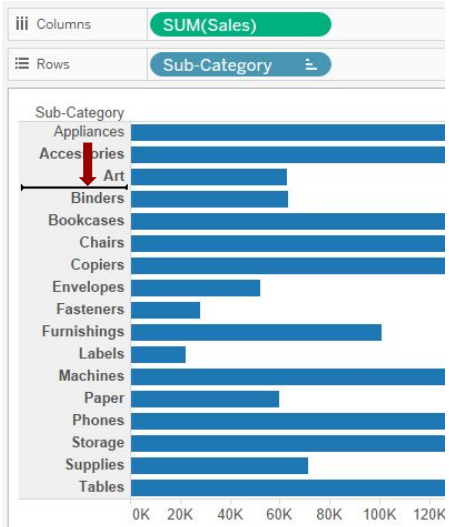

Columns
SUM(Sales)
Rows
Sub-Category
Filter...
Show Filter
Show Highlighter
Sort...
Format...
Show Header
Include in Tooltip
Edit Aliases...
Dimension
Attribute
Measure
Edit in Shelf
Remove
Sub-Category
Accessories
Appliances
Art
Binders
Bookcases
Chairs
Copiers
Envelopes
Fasteners
Furnishings
Labels
Machines
Paper
Phones
Storage
Supplies
Tables
0K
100K
200K
300K
400K
500K
600K


Sort [Sub-Category]
Sort By
Field
Sort Order
Ascending
Descending
Field Name
Sales
Aggregation
Sum
Clear

Manual or Computed Sort

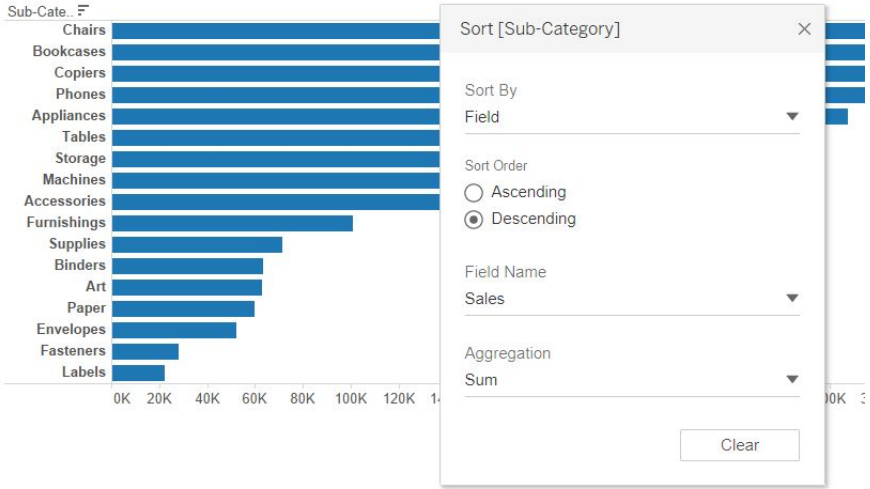
Manual

- Drag and drop columns or rows to where you want them



Computed

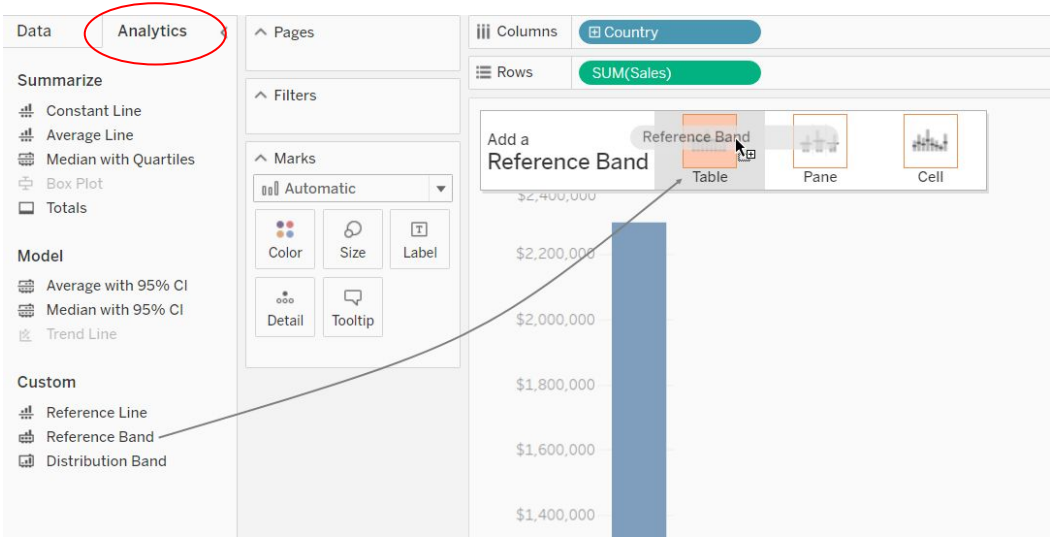
- Sorts by comparing values for each row and ordering them in ascending/descending order

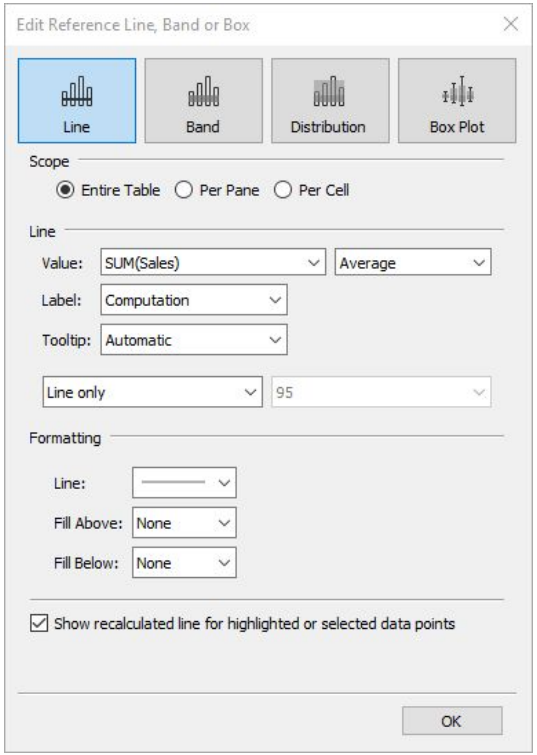


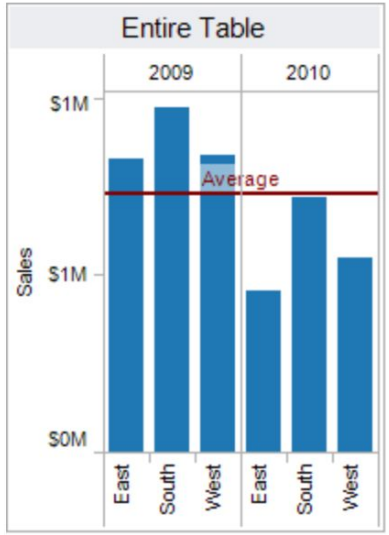
Apply Analytics to A Worksheet

Add a reference line

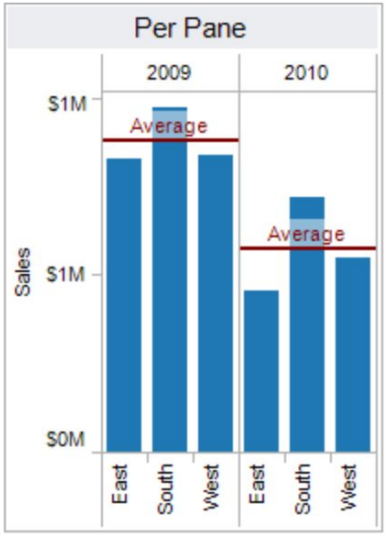
Drag Reference Line from the Analytics pane into the view. Tableau shows the possible destinations. The range of choices varies depending on the type of item and the current view.



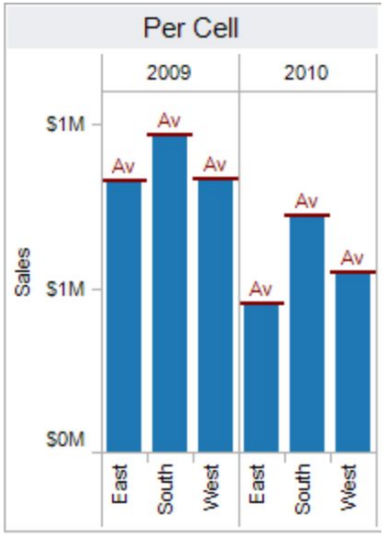




Adds a reference line to the entire table across all panes.



Adds a reference line on a per pane basis. Computed reference lines are recalculated for each pane in the view.

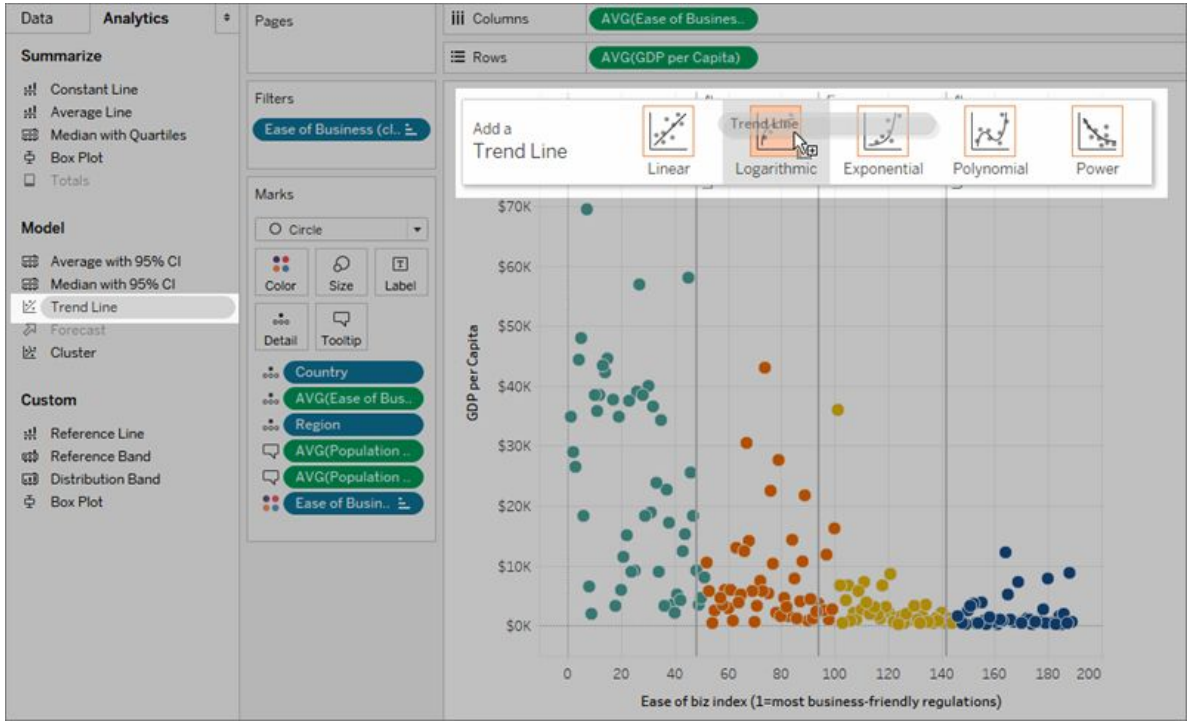


Adds a reference line within each cell. Computed reference lines are recalculated for each cell in the view.

Add a Trend Line

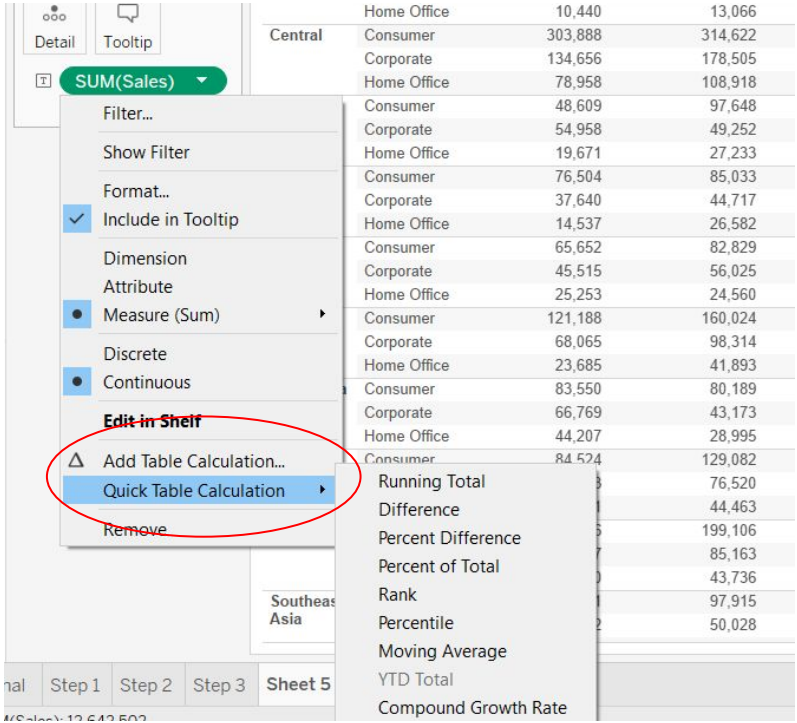
Easy when you have <u>numerical</u> values on both axes

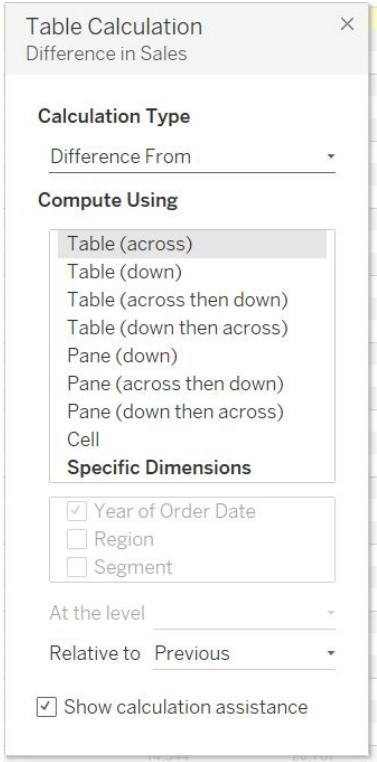
Analytics pane > Drag Trendline



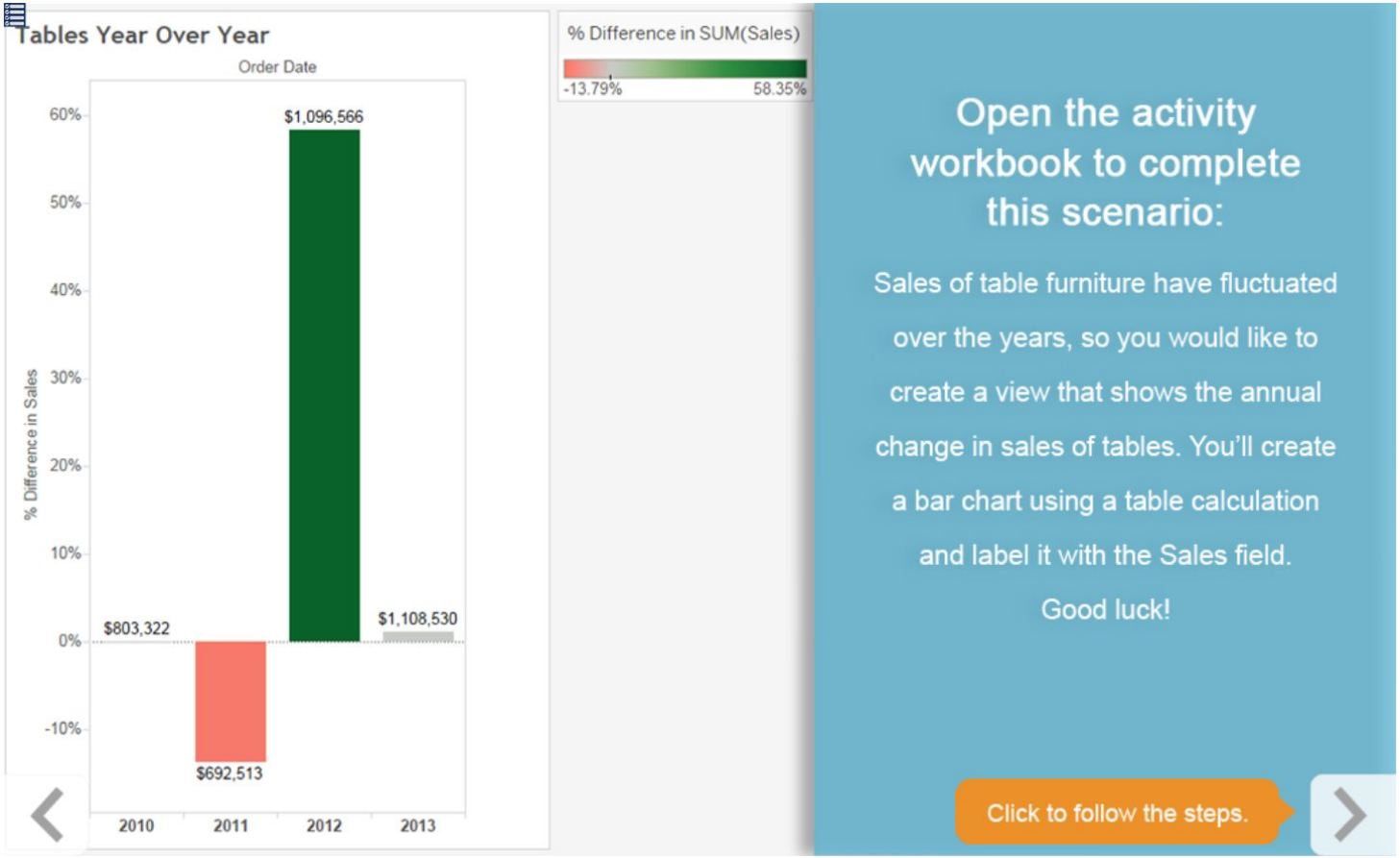
Use a table calculation

- Field > Quick Table Calculation **OR** Add Table Calculation
- Compute Using
- Add these to change values



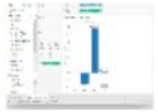


Exercise


Tables Year Over Year
Order Date
% Difference in Sales
60%
50%
40%
30%
20%
10%
0%
-10%
$1,096,566
$803,322
$1,108,530
$692,513
2010
2011
2012
2013
% Difference in SUM(Sales)
-13.79%
58.35%
Open the activity workbook to complete this scenario:
Sales of table furniture have fluctuated over the years, so you would like to create a view that shows the annual change in sales of tables. You'll create a bar chart using a table calculation and label it with the Sales field.
Good luck!
Click to follow the steps.

1. Create a bar chart that shows Sales by year of order.

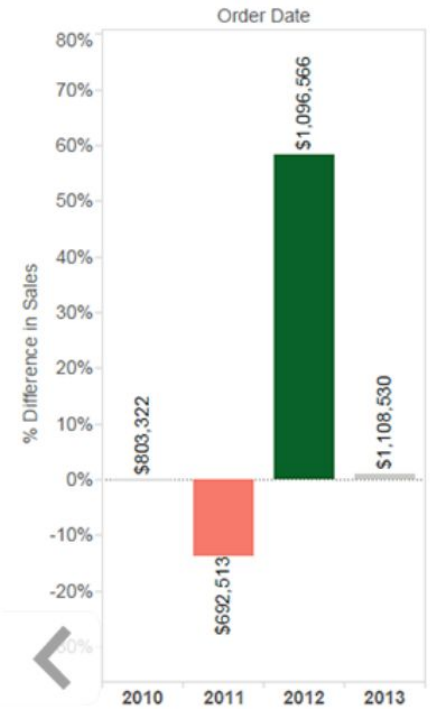
2. Apply a Year Over Year Growth quick table calculation to the existing Sales measure on Rows.



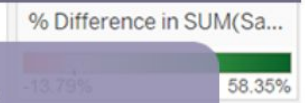
3. Use color to encode the bars with the % difference, and show null values at the default position.

Great work! You've added a quick table calculation.

We have one more question for you. In 2011, what was the % difference in sales of tables compared with 2010?



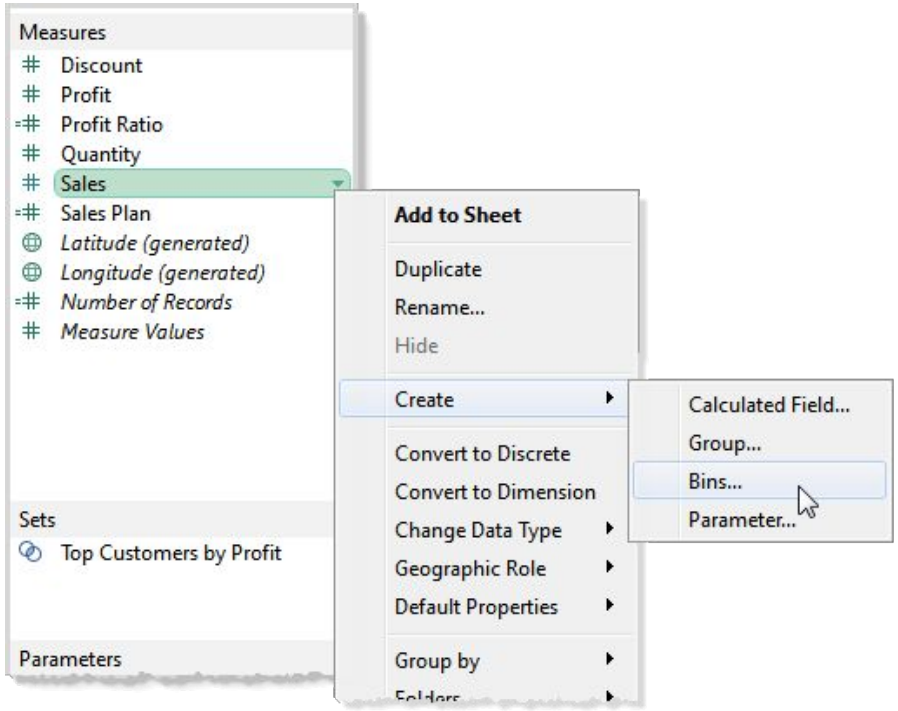
- -58.35%
- -13.79%
- -21.12%
- 0%



Submit

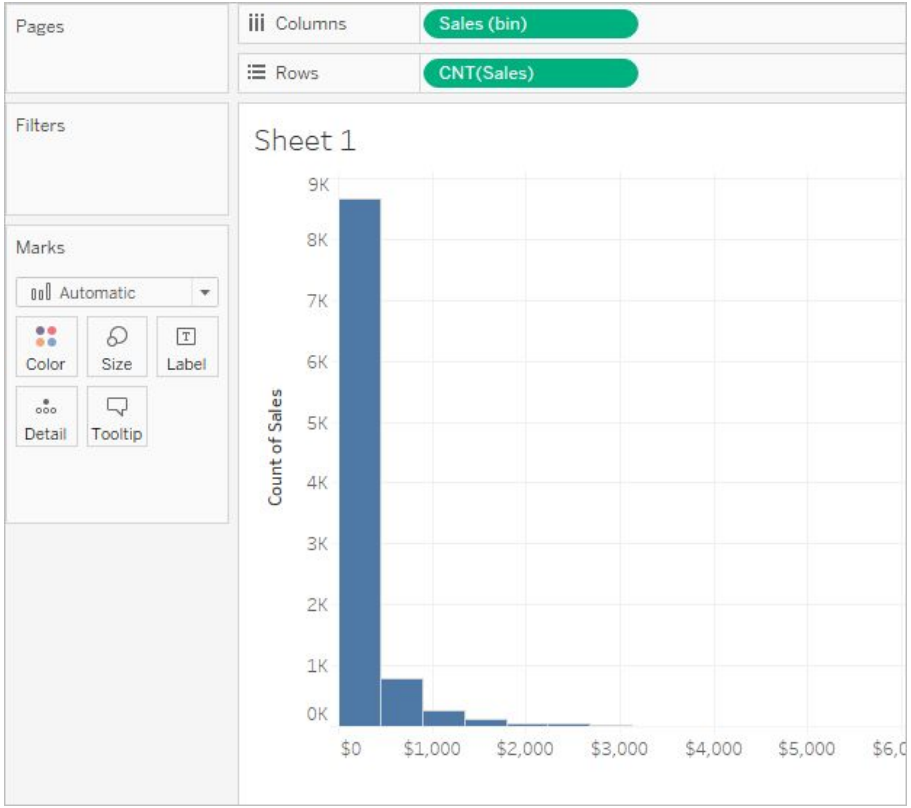
Use bins and histograms

1. Create bins
2. Use bins as a starting point for histogram



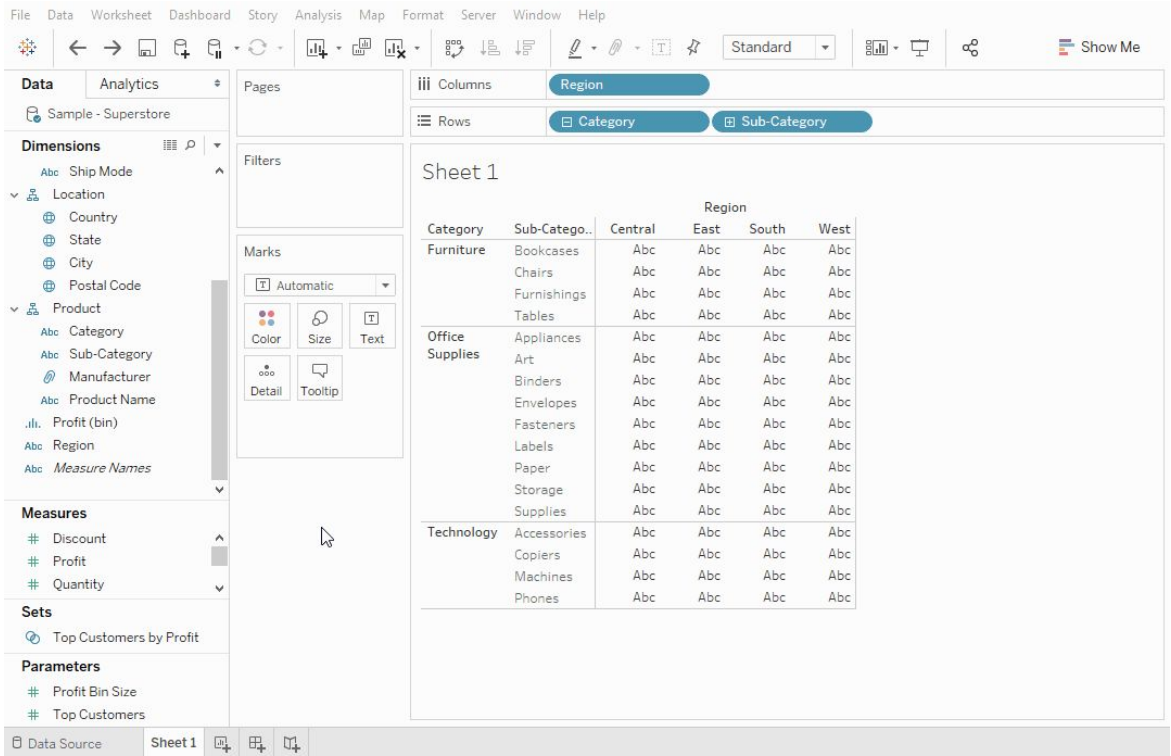
Create a Histogram from a Binned Dimension

1. Click the Sales (bin) dimension in the Data pane and choose Convert to continuous.
2. Drag the Sales (bin) dimension from the Data pane and drop it on the Columns shelf.
3. Drag the original Sales field from the Measures area of the Data pane and drop it on the Rows shelf.
4. Click SUM(Sales) on Rows and change the aggregation from Sum to Count.



Create a calculated field (e.g. string, date, simple arithmetic)

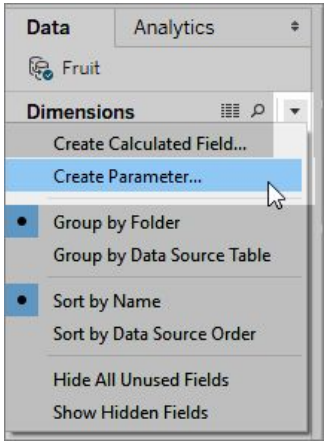
- Analysis Tab > Create calculated Field
- In the Calculation Editor, enter a formula



Parameters

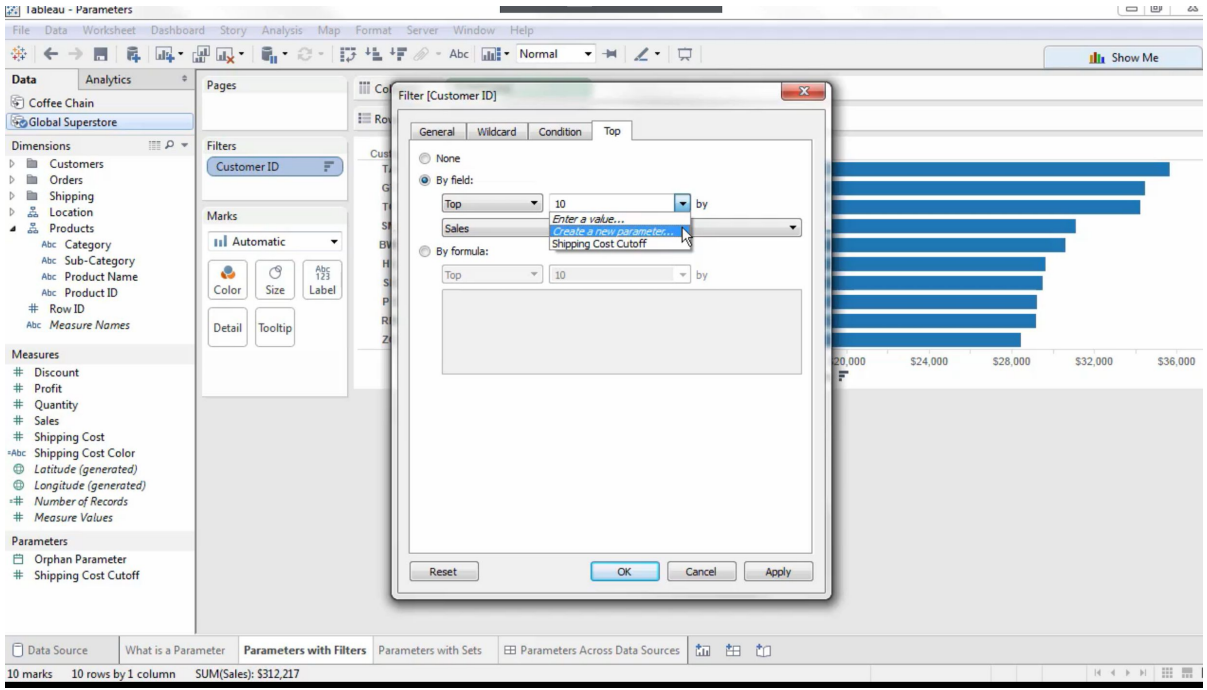
- Parameters are dynamic values that can replace constant values in calculations, filters, and reference lines.
- Add interactivity and flexibility to a workbook
- Variable in a equation whose value can be controlled by user

In the **Data** pane, click the drop-down arrow in the upper right corner and select **Create Parameter**.



Add A Parameter

Filters > Top > *Create a new parameter...*



Review

Create basic charts

- Bar chart
- Line chart
- Scatterplot
- Map using geographic data
- Combined axis chart
- Dual axis chart
- Stacked bar
- Chart to show specific values (crosstab, highlight table)

Organize data and apply filters

- Create a visual group
- Create a group using labels
- Create a set
- Organize dimensions into a hierarchy
- Filtering
- Add a filter to the view
- Add a context filter
- Add a date filter
- Additional:
- Using the Filter Shelf
- Sorting

Apply analytics to a worksheet

- Add a manual or a computed sort
- Add a reference line or trend line
- Use a table calculation
- Use bins and histograms
- Create a calculated field (e.g. string, date, simple arithmetic)
- Add a parameter