Dashboarding with Tableau

BY KUNAAL NAIK

Why Tableau?

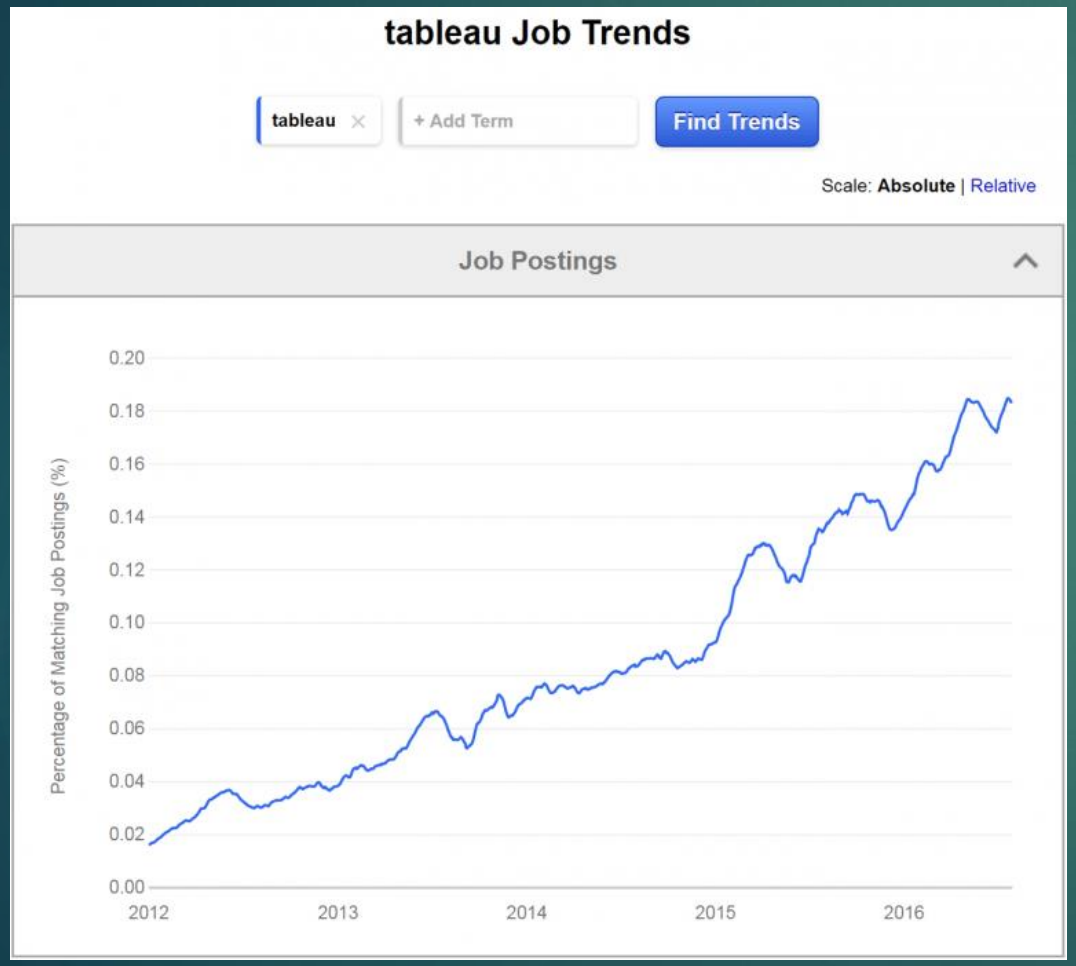
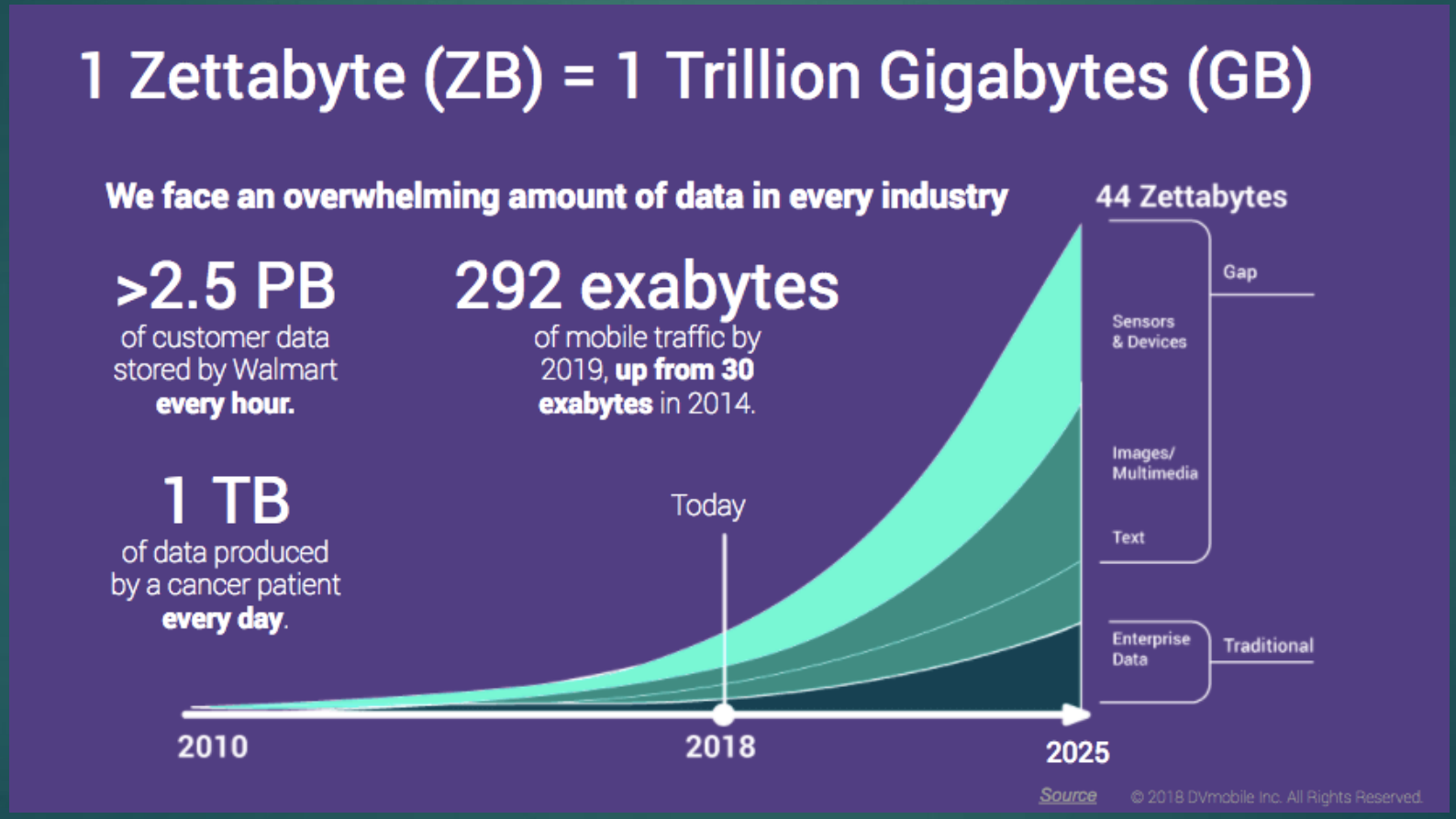


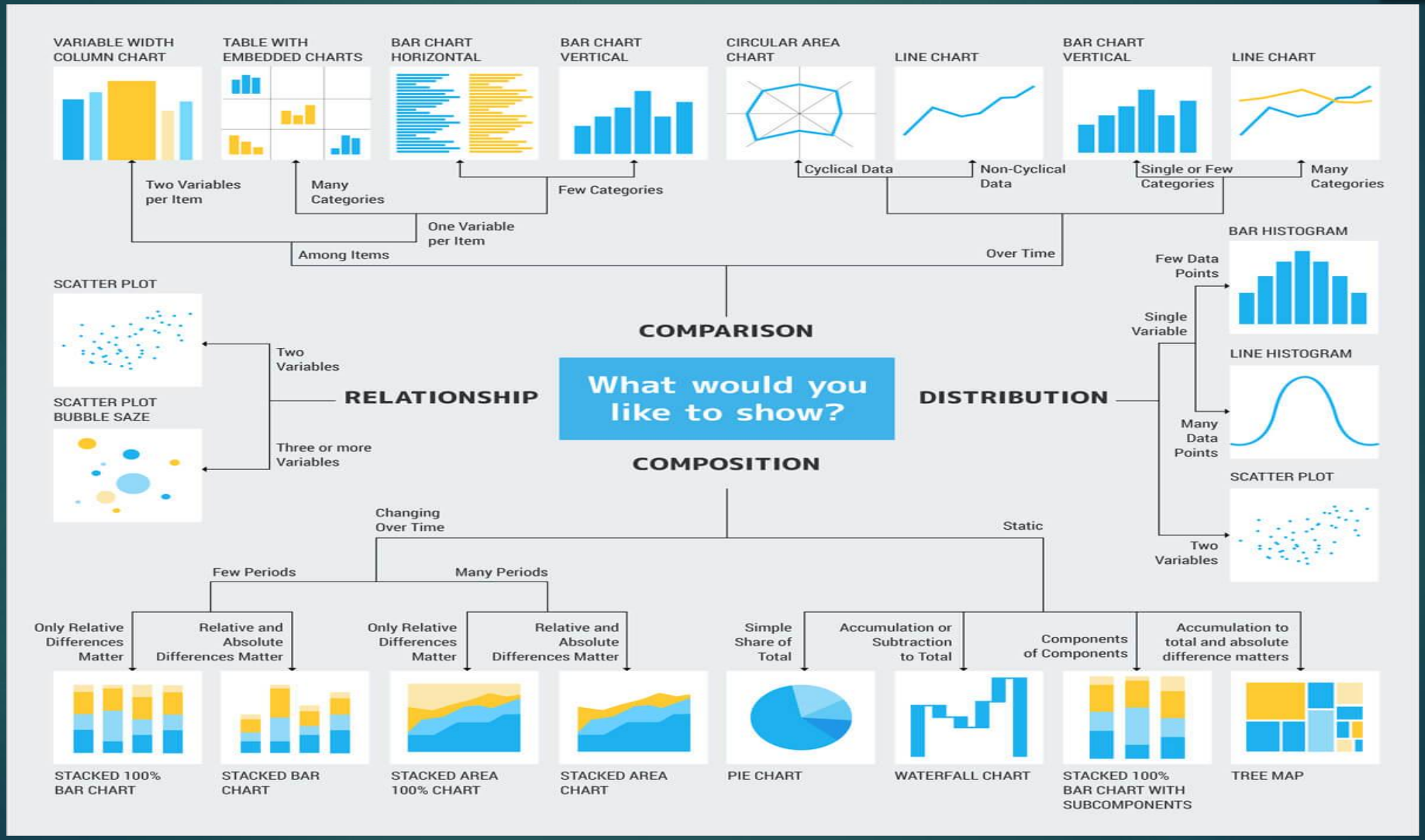
tableau Job Trends
tableau
+ Add Term
Find Trends
Scale: Absolute | Relative
Job Postings
Percentage of Matching Job Postings (%)
0.20
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
2012
2013
2014
2015
2016


CHALLENGERS
LEADERS
NICHE PLAYERS
VISIONARIES
Tableau
Qlik
Birst
Microsoft
Logi Analytics
MicroStrategy
SAS
IBM
SAP
Information Builders
Oracle
Tibco Software
GoodData
Prognoz
Pyramid Analytics
Alteryx
Targit
Pentaho
Board International
Yellowfin
Datawatch
Panorama Software
Salient Management Company
OpenText (Actuate)
ABILITY TO EXECUTE
COMPLETENESS OF VISION
As of February 2015

Other Reasons



Abela's Chart Type Hierarchy



Before going into Tableau some basics …

- Connection to Various Data Sources
- Tableau File types
  - Tableau workbook (.twb) – Does not store data source
  - Tableau data source (.tds) – Stores server address, password and other information
  - Tableau bookmark (.tbm) – Stores a connection to a worksheet in another Tableau workbook
  - Tableau data extract (.tde) – Stores Tableau data as a filtered and aggregated extract
  - Tableau packaged workbook (.twbx) – Stores extracted data and visulaization for viewing in Tableau or Tableau Reader

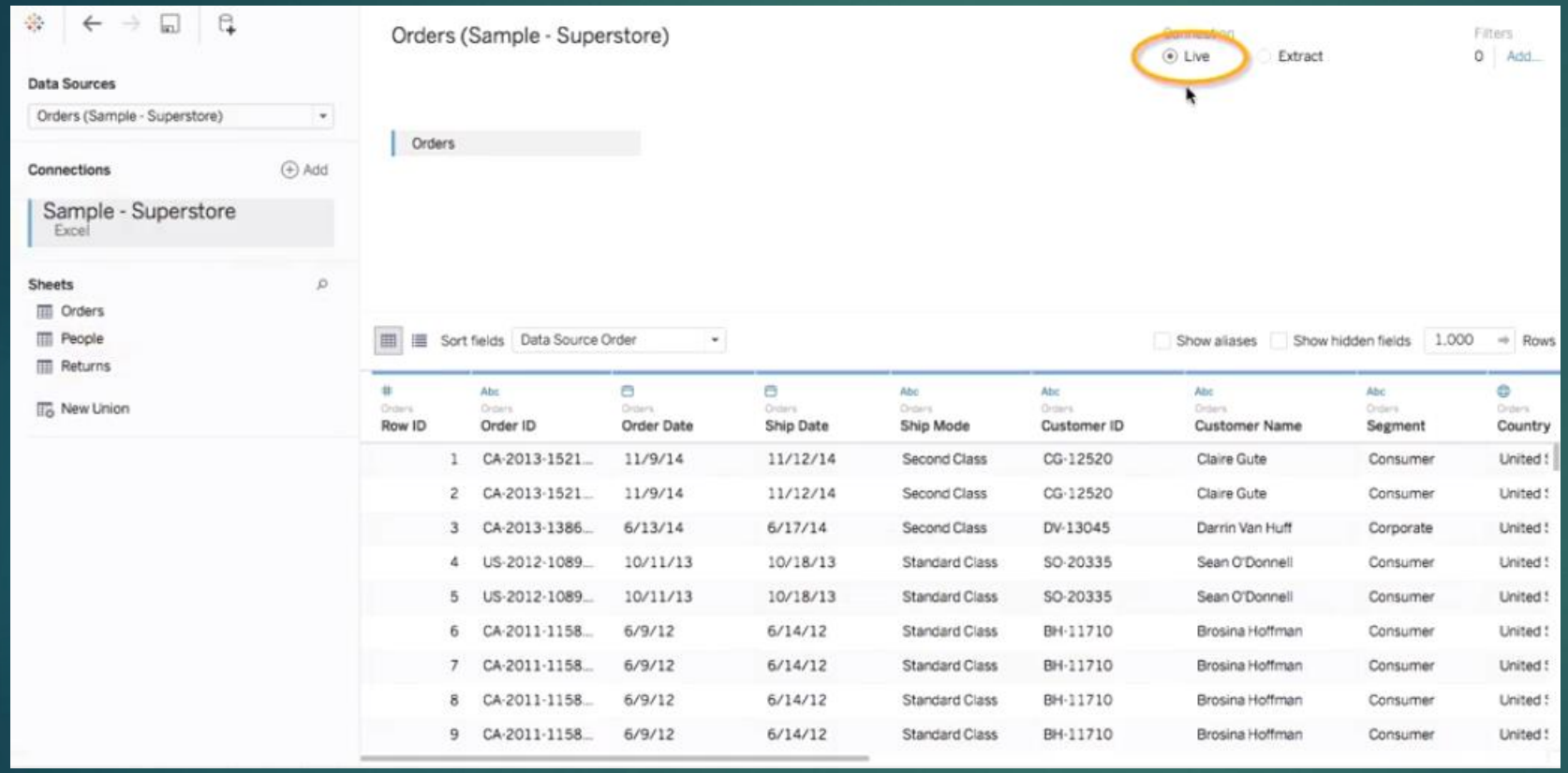
Lets get started!

- Format of Today's session
  - Questions to solve -> followed by What we learned
- Concepts by Abela's Chart Type Hierarchy
  - Comparisons
  - Distribution
  - Relationship
  - Composition
  - Geo Plots
- Concepts covered within each of the above
  - Various techniques will be discussed within the examples

Data: Superstore

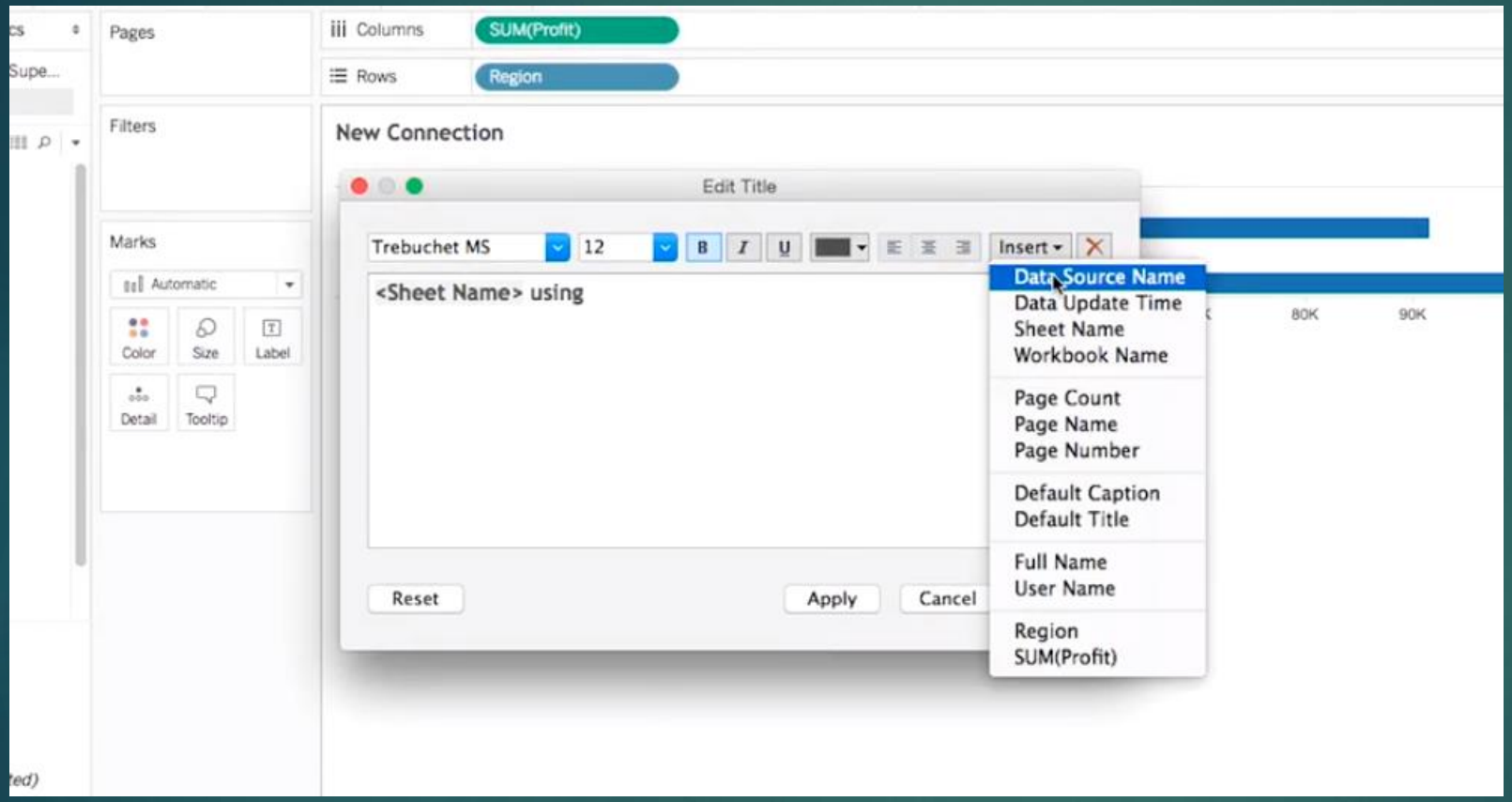
CONNECT AND EXTRACT & GREEN AND BLUE PILLS

Challenge : Import Orders



- Choose between live or Extract
- Any changes made to in live mode will update in Tableau
- Extract is local files with data for faster usage
- Filter Data instead of entire data by using Extract
- Can you extract only South and West regions?

You could modify the title

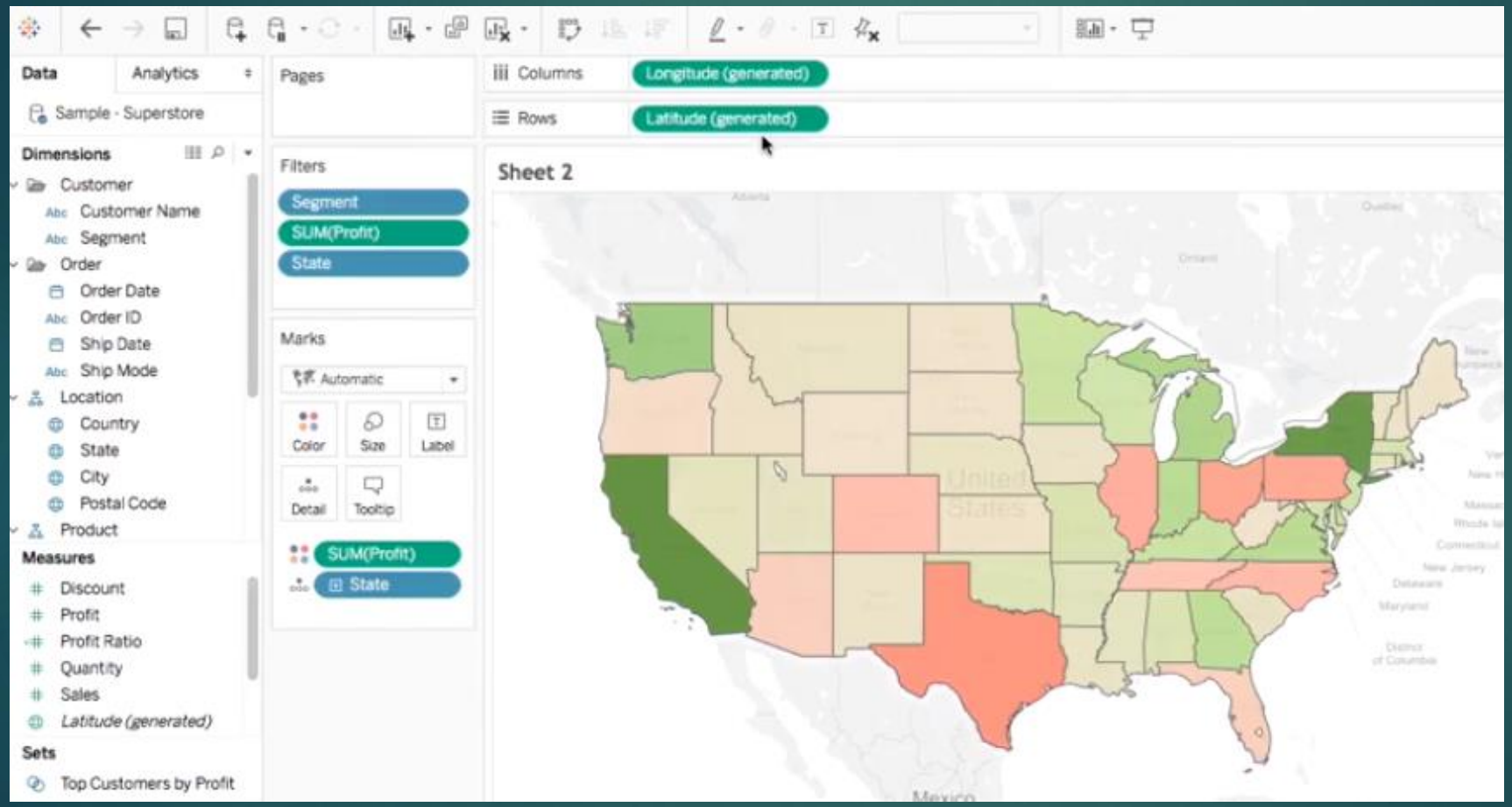


- <Sheet Name> using <Data Source Name> last updated by <Data Update Time>
- Why is it important? – It gives user an idea about the recency of the information

Challenge: Green and Blue Pills

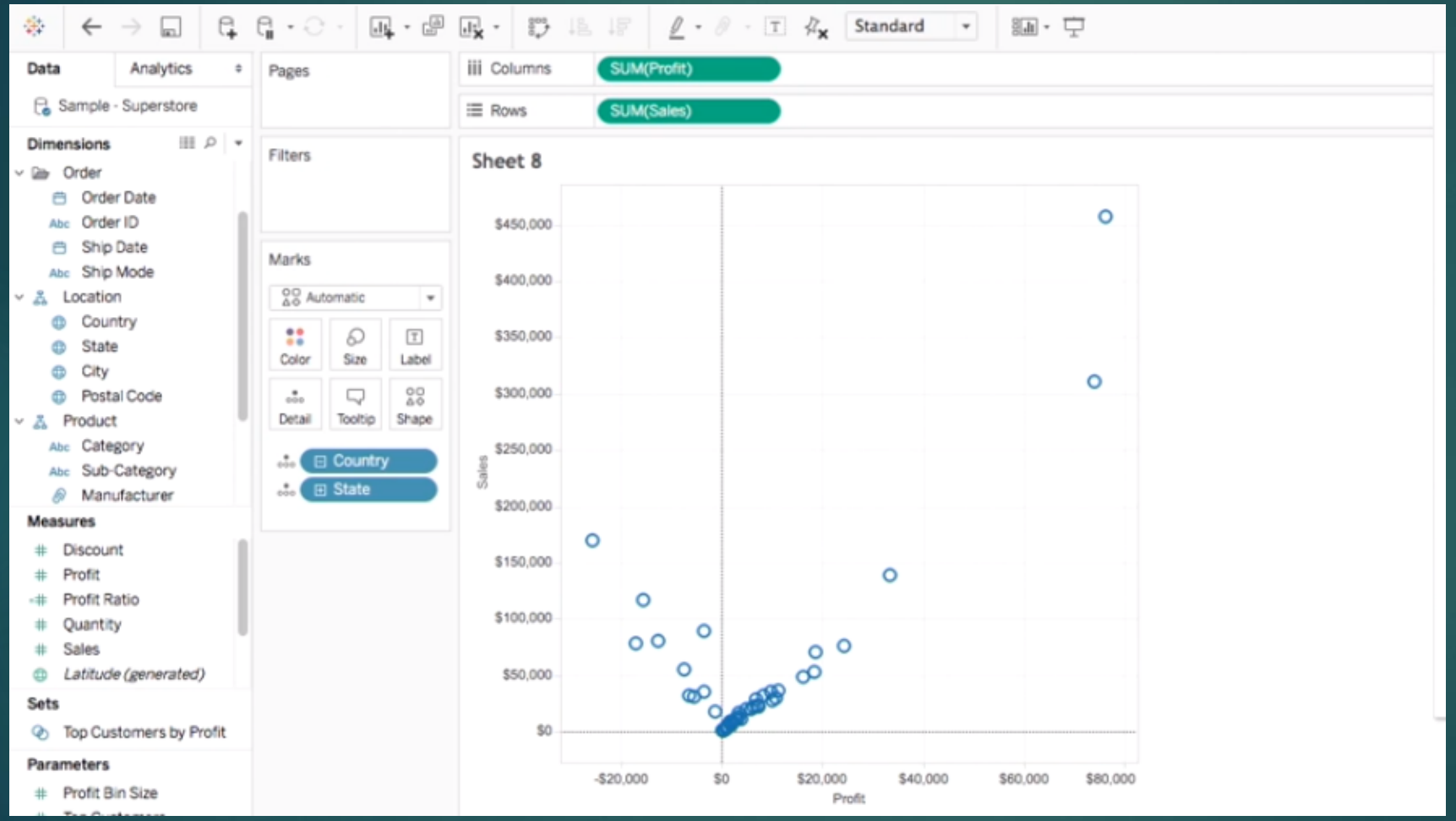
- Show profit by Region and State
- Colour by sum of profit and change the palette to colour-blind safe
- Which category does best(Sales) in each region?

Green and Blue Pills



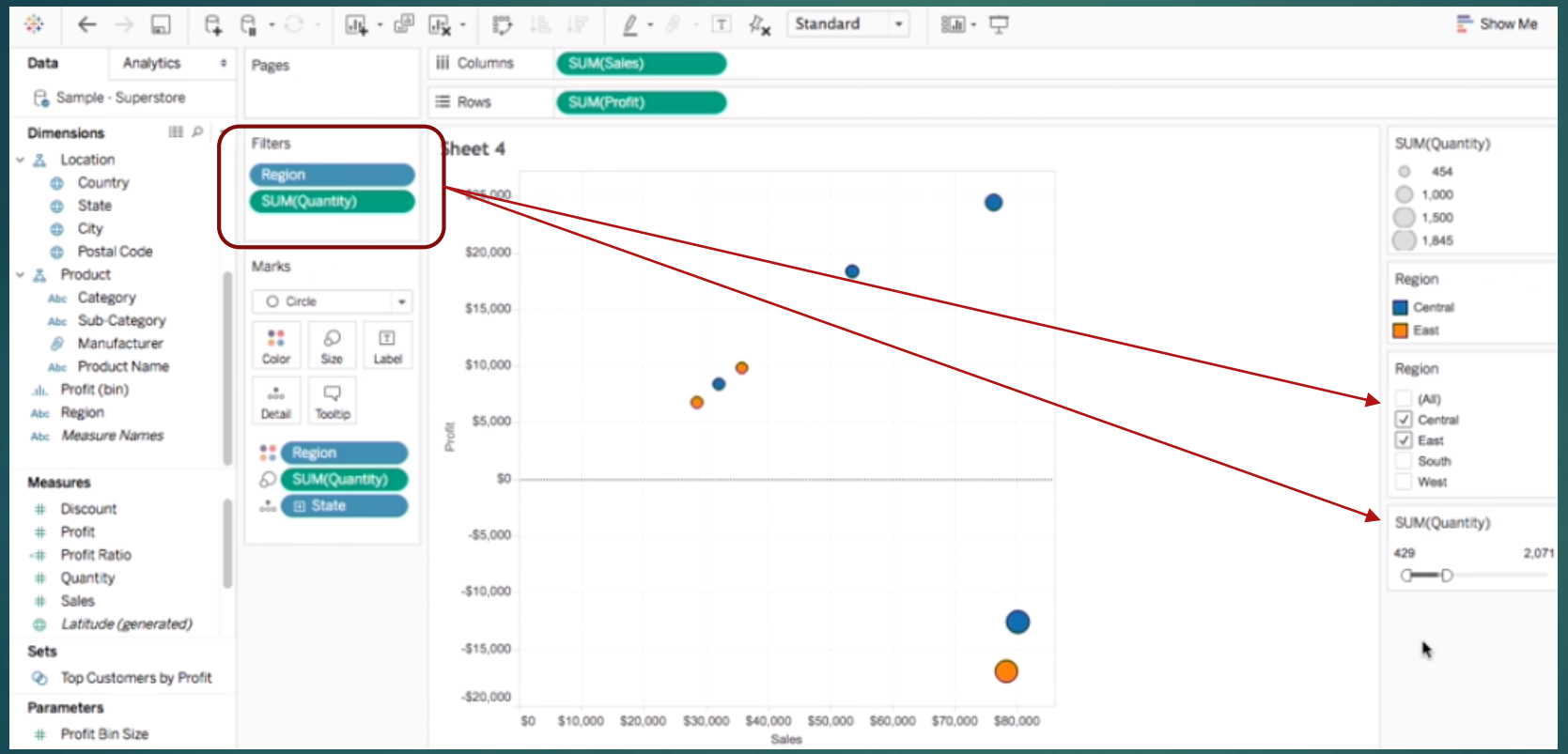
- Green = Continuous
- Blue = Discrete

Rows and Columns – Scatter



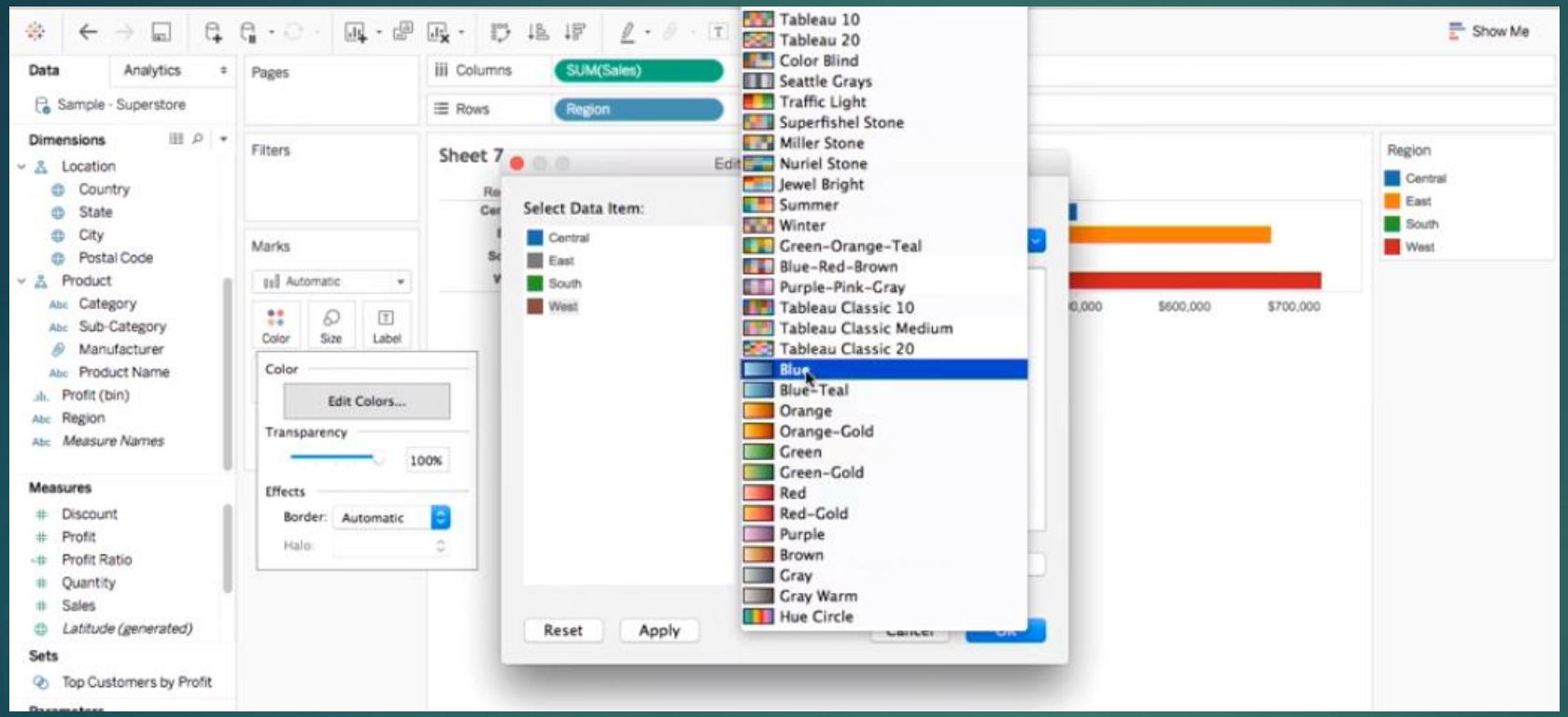
- Adding both the numerical variables and divide it by colour using Country/State

Filters



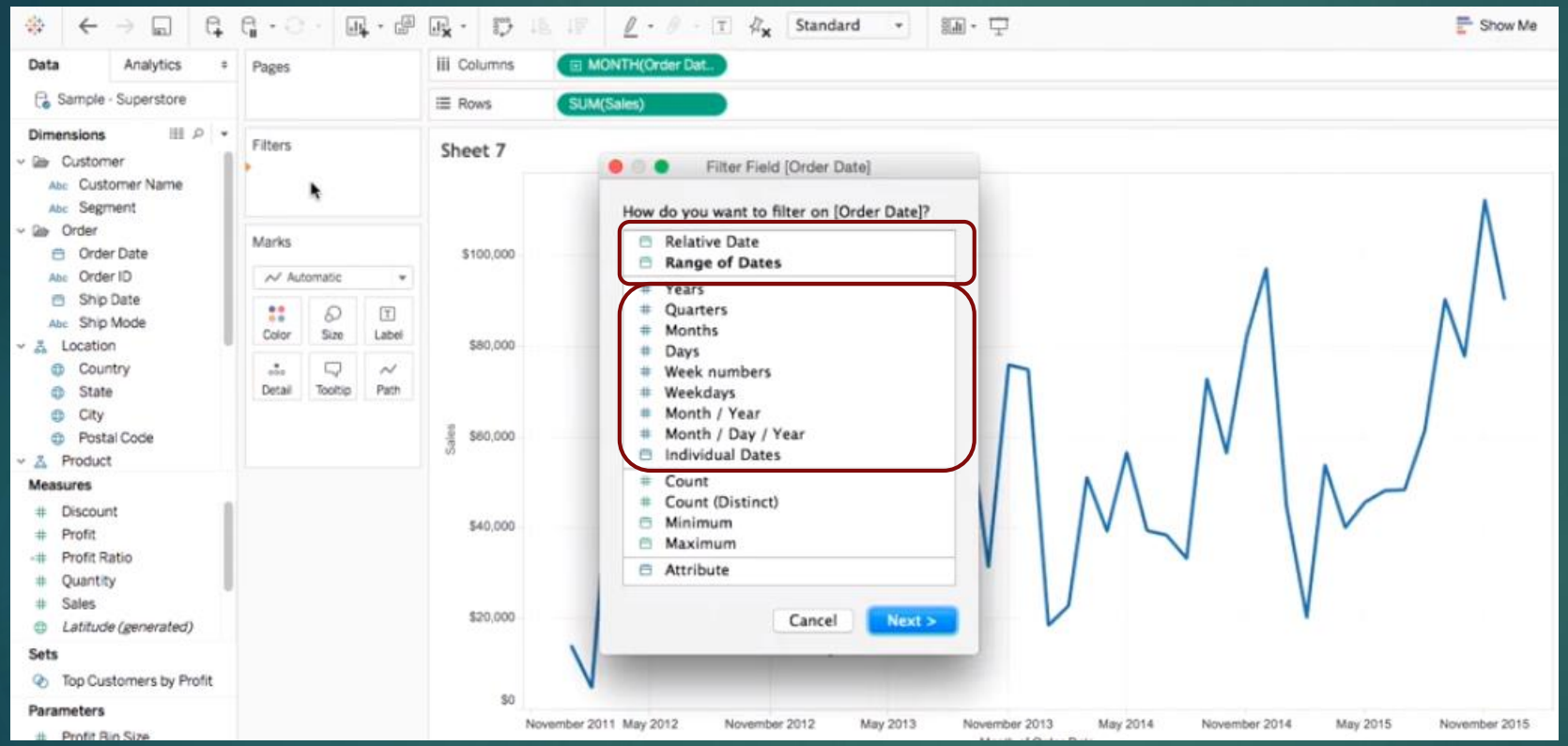
- Click on the filter to show it on the left side

Colours



- Any column added to the colour area can will reflect on the right and can be changed
- Prefer Single colour vs multi colour
- Adding discrete will have sperate colours while discrete will have single colour with intensity varying

Dates



- Adding dates to filter gives us this menu
- We could choose continuous
- Or discrete

Transform Data

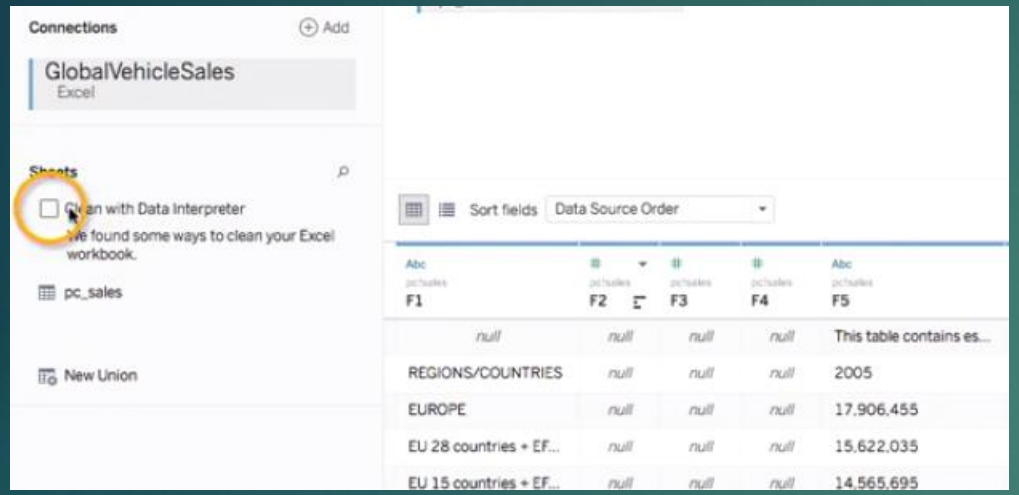
Challenge: Clean Data

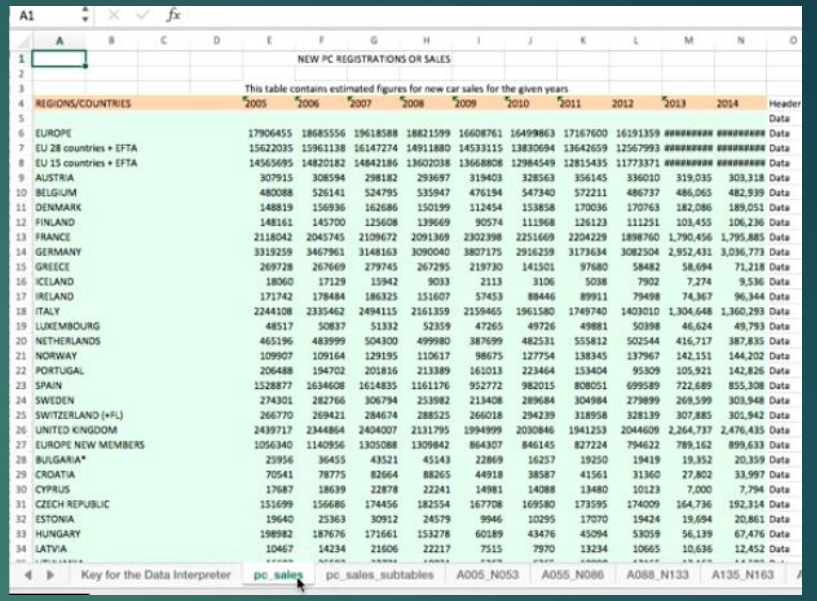
- Clean and Prep your data – Make Region/Countries Upper Case
- Pivot Data – Use Years, Show Yearly Sales Trend, Show by Country Colour
- Split Fields – Split Names into First and Last Name, Overall Custom Split
- Merge data using union – Merge Monthly data, Mismatched filed Rainfall
- Cross database joins – Create Sales Per Capita
- Join transformations – Show orders returned back to the store

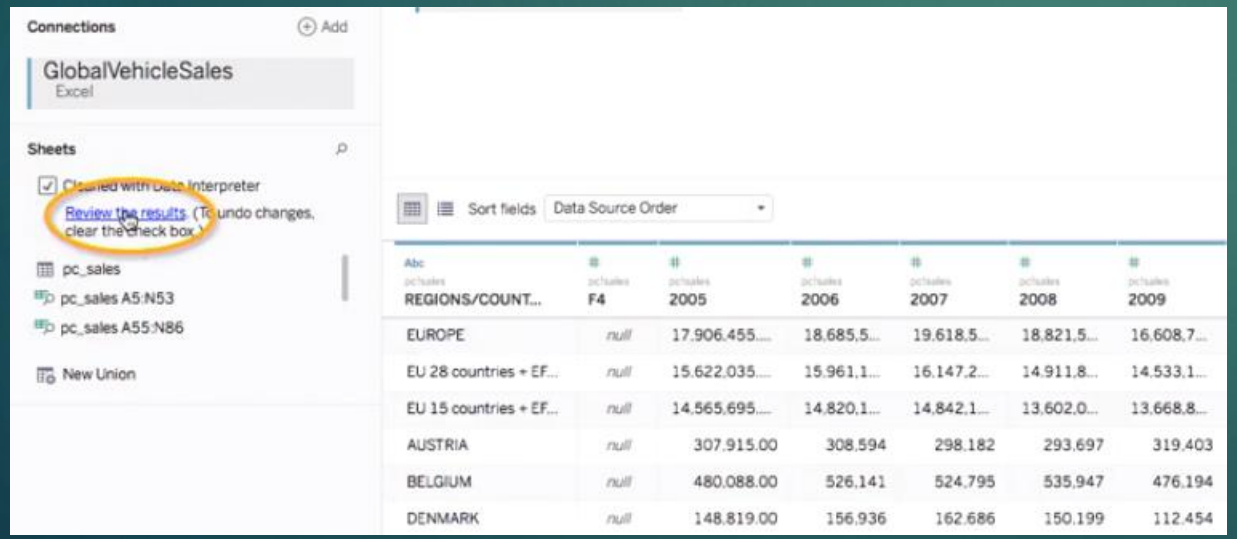
Data: GlobalVehicleSales

CLEAN AND EXTRACT DATA

Clean and Prep Data

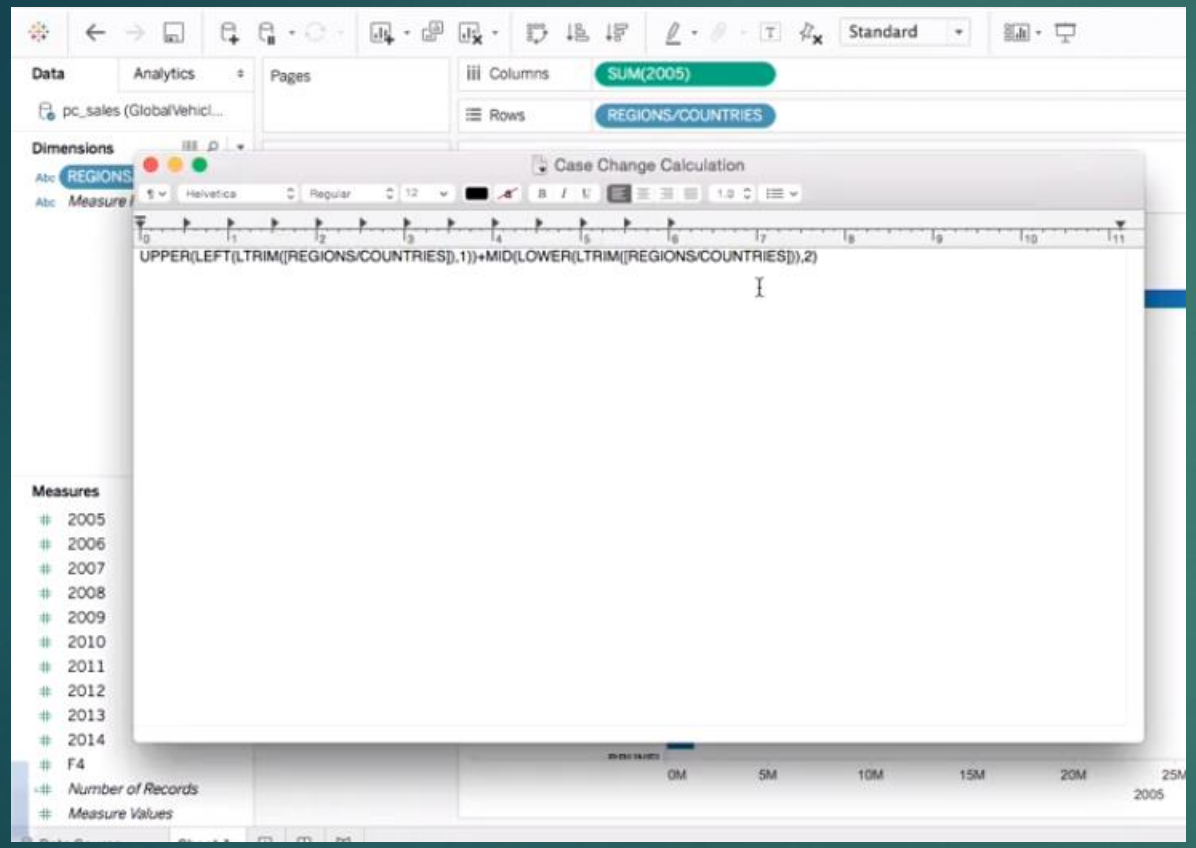






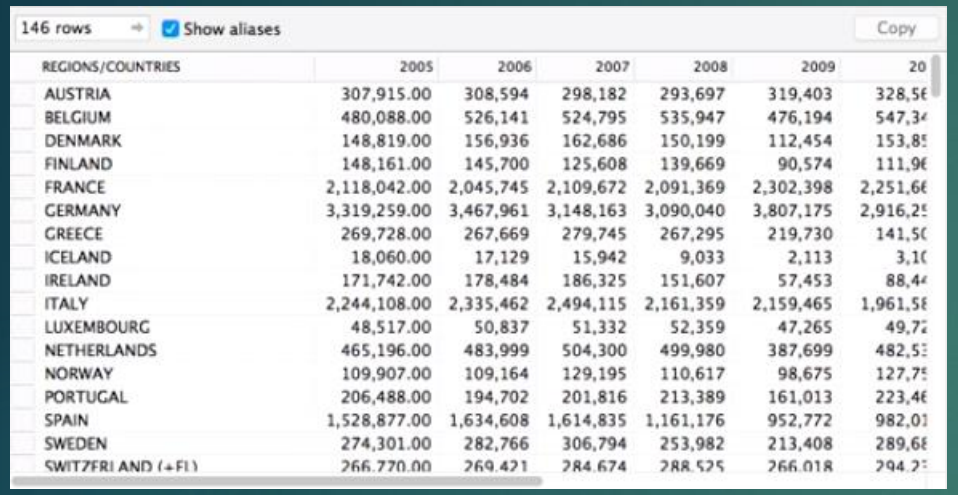
- Clean Data
- Review – Green are columns

Clean Region/Countries

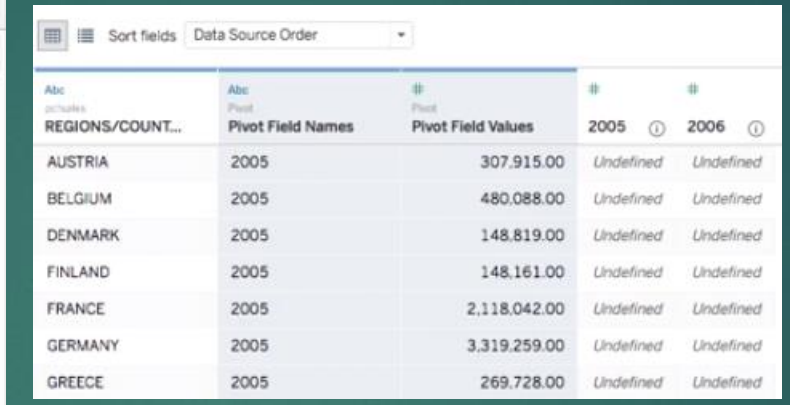


- Create a calculated fiend on Region/Countries and call it Countries
- UPPER(LEFT(LTRIM([REGIONS/COUNTIRES]),1))+MID(LOWER(LTRIM([REGION/COUNTRIES])),2)

Pivot Data



REGIONS/COUNTRIES	2005	2006	2007	2008	2009	20
AUSTRIA	307,915.00	308,594	298,182	293,697	319,403	328,5
BELGIUM	480,088.00	526,141	524,795	535,947	476,194	547,3
DENMARK	148,819.00	156,936	162,686	150,199	112,454	153,8
FINLAND	148,161.00	145,700	125,608	139,669	90,574	111,9
FRANCE	2,118,042.00	2,045,745	2,109,672	2,091,369	2,302,398	2,251,6
GERMANY	3,319,259.00	3,467,961	3,148,163	3,090,040	3,807,175	2,916,2
GREECE	269,728.00	267,669	279,745	267,295	219,730	141,5
ICELAND	18,060.00	17,129	15,942	9,033	2,113	3,1
IRELAND	171,742.00	178,484	186,325	151,607	57,453	88,4
ITALY	2,244,108.00	2,335,462	2,494,115	2,161,359	2,159,465	1,961,5
LUXEMBOURG	48,517.00	50,837	51,332	52,359	47,265	49,7
NETHERLANDS	465,196.00	483,999	504,300	499,980	387,699	482,5
NORWAY	109,907.00	109,164	129,195	110,617	98,675	127,7
PORTUGAL	206,488.00	194,702	201,816	213,389	161,013	223,4
SPAIN	1,528,877.00	1,634,608	1,614,835	1,161,176	952,772	982,0
SWEDEN	274,301.00	282,766	306,794	253,982	213,408	289,6
SWITZERLAND (+FL)	266,770.00	269,421	284,674	288,525	266,018	294,2



REGIONS/COUNT...	Pivot Field Names	Pivot Field Values	2005	2006
AUSTRIA	2005	307,915.00	Undefined	Undefined
BELGIUM	2005	480,088.00	Undefined	Undefined
DENMARK	2005	148,819.00	Undefined	Undefined
FINLAND	2005	148,161.00	Undefined	Undefined
FRANCE	2005	2,118,042.00	Undefined	Undefined
GERMANY	2005	3,319,259.00	Undefined	Undefined
GREECE	2005	269,728.00	Undefined	Undefined

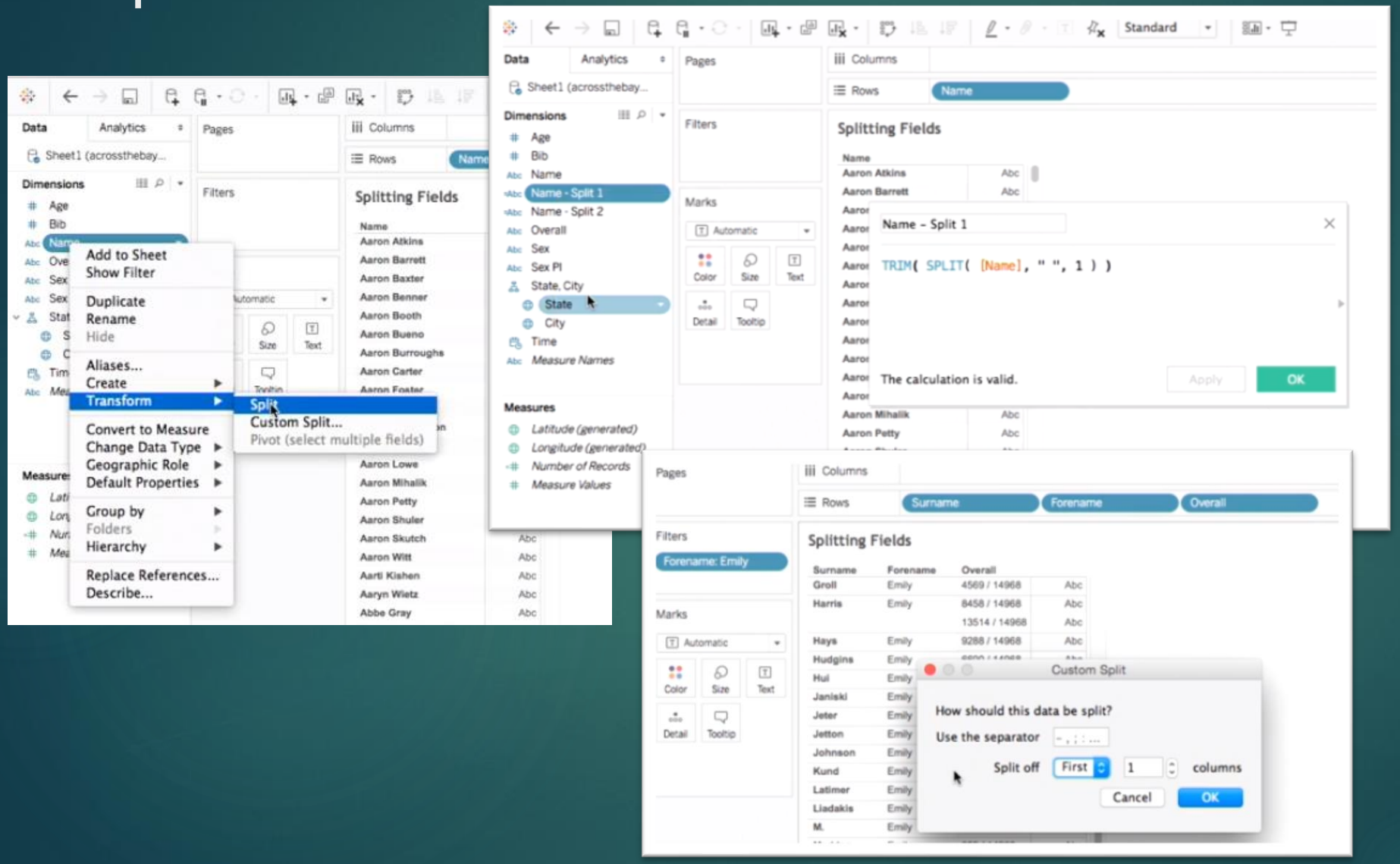
REGIONS/COUNT...	2005	2006	2007	2008	2009	2010	2011	2012
AUSTRIA	307,915.00	308,594	298,182	293,697	319,403	328,563	356,145	336,010
BELGIUM	480,088.00	526,141	524,795	535,947	476,194	547,340	572,211	486,737
DENMARK	148,819.00	156,936	162,686	150,199	112,454	153,858	170,036	170,763
FINLAND	148,161.00	145,700	125,608	139,669	90,574	111,968	126,123	111,251

- Data can be pivoted to change from Crosstab format
- Use Shift+Select and then click on Pivot
- Delete any extra columns
- Rename fields to Year and Sales

Data: acrossthebay10k

SPLIT FIELDS

Split fields

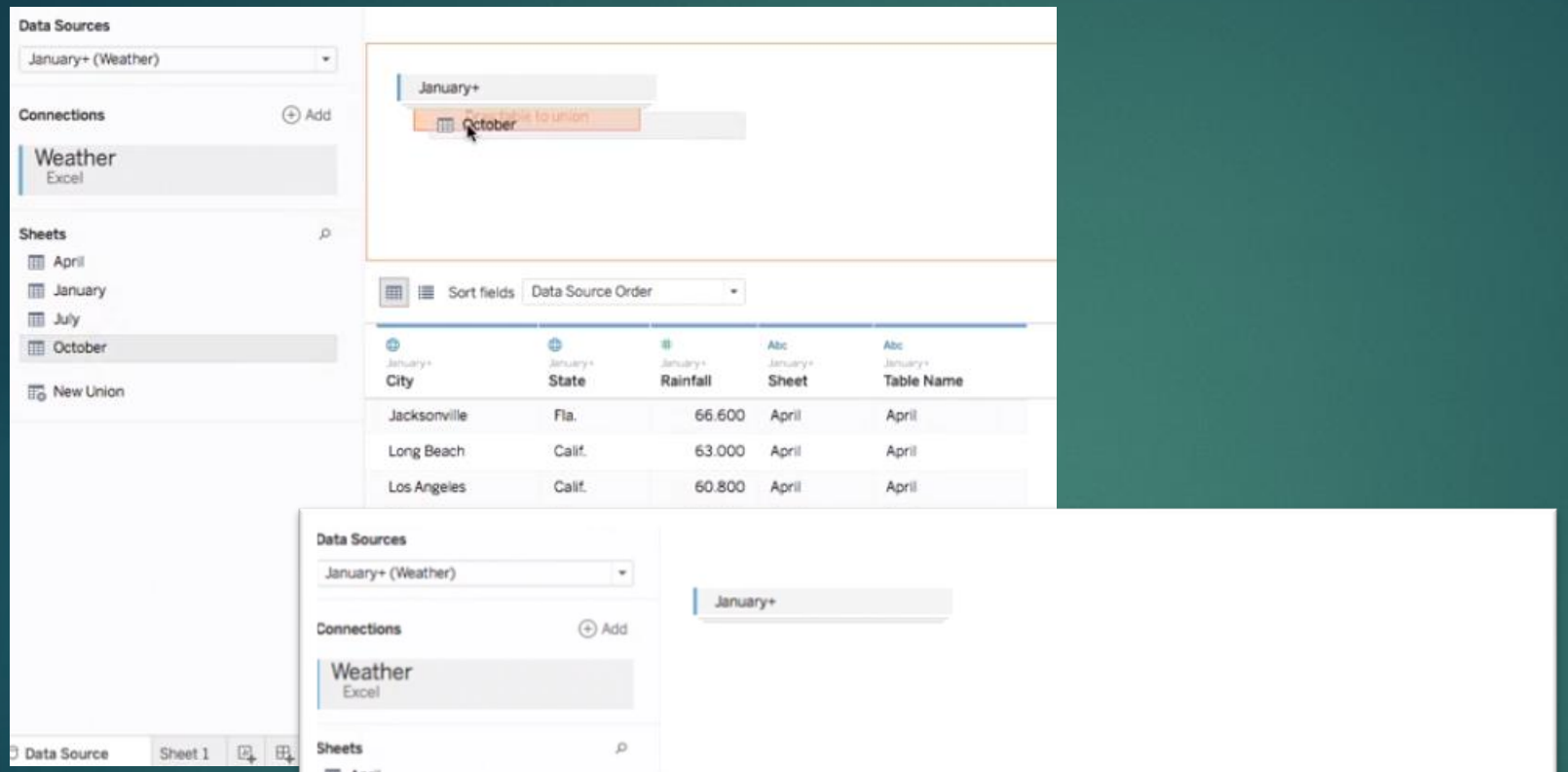


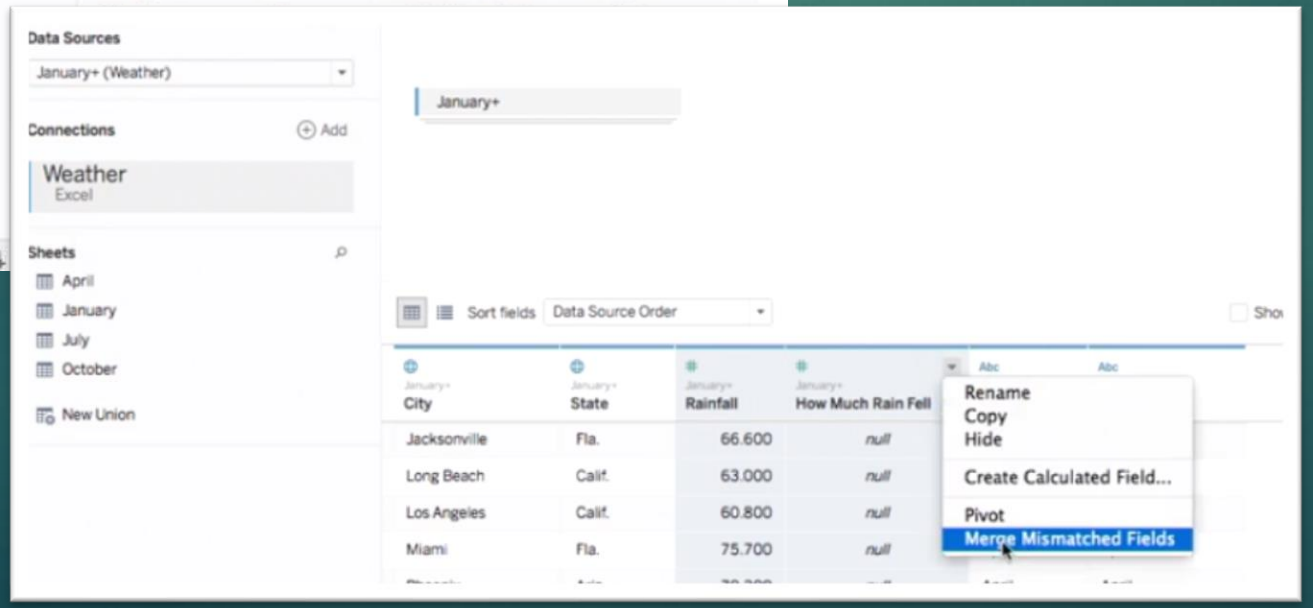
- Use Transform to Split the Name
- You can later edit the Spilt columns to name it or change it
- You also use custom split on Overall (Results/Total Runners

Data: Weather

MERGE DATA USING UNION

Merge data using Unions



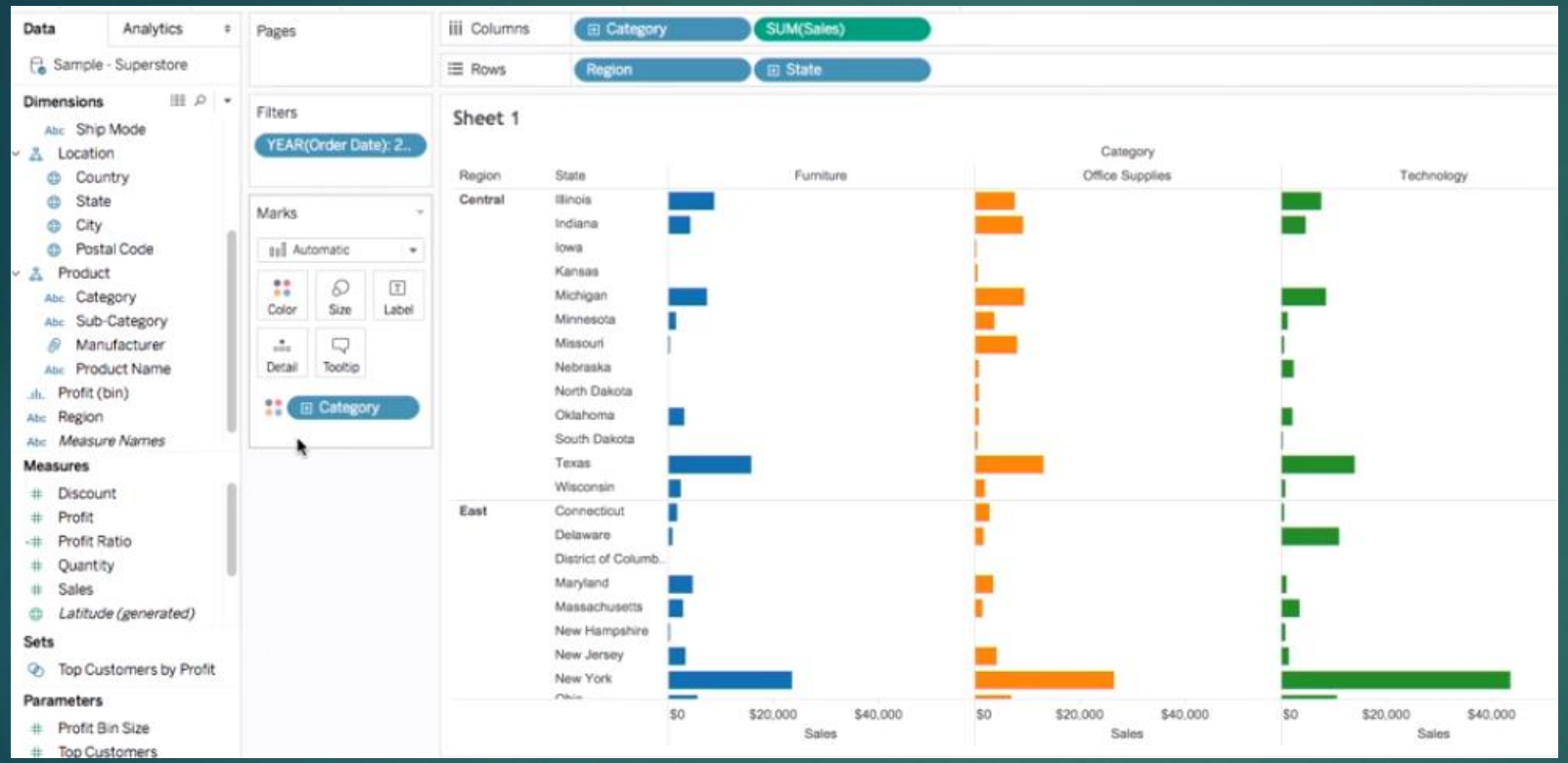


- Add all Months on top of each other
- Merge mismatched fields

Data: Superstore

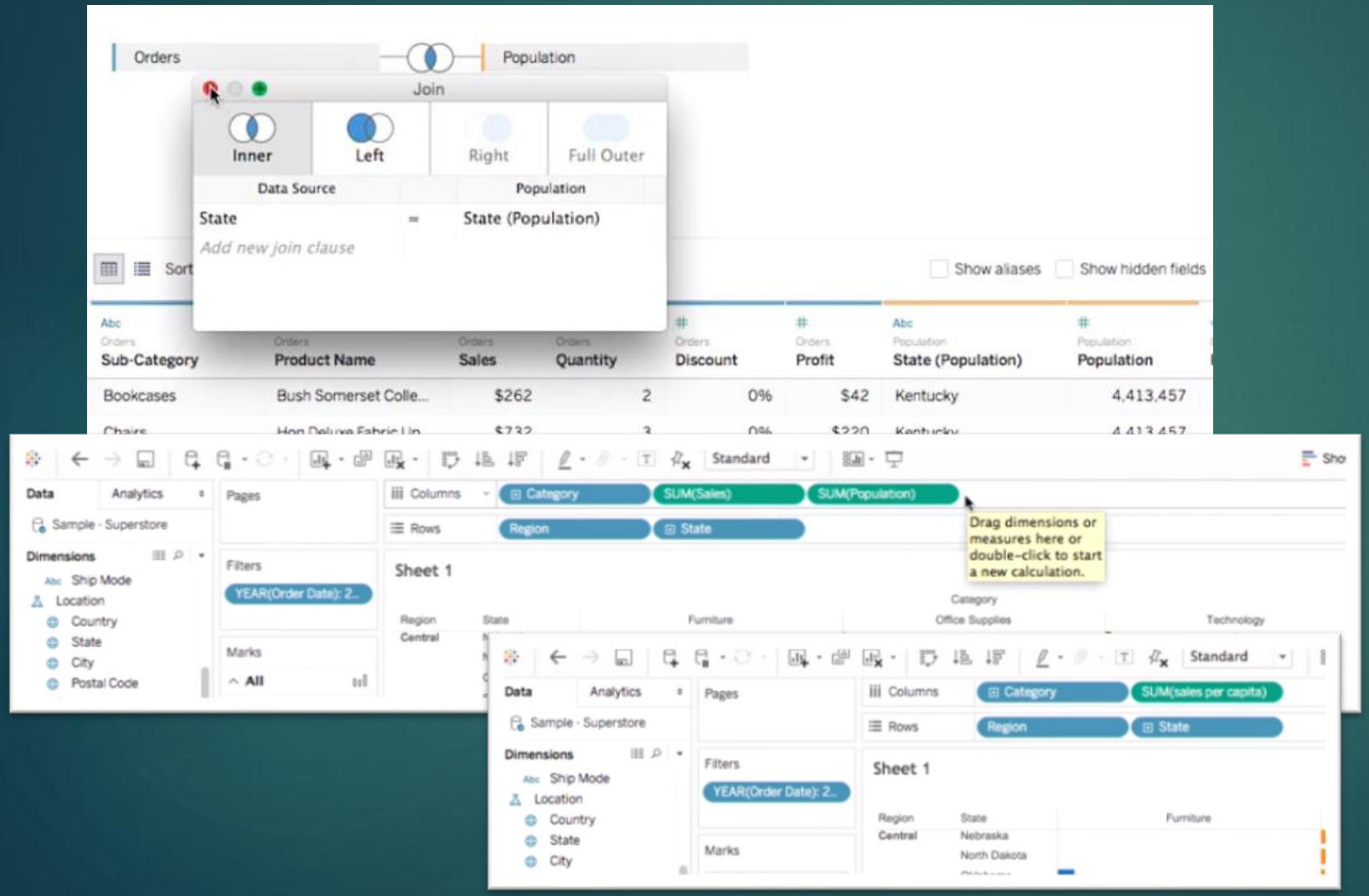
CROSS DATABASE JOINS & JOIN TRANSFORMATIONS

Cross database joins



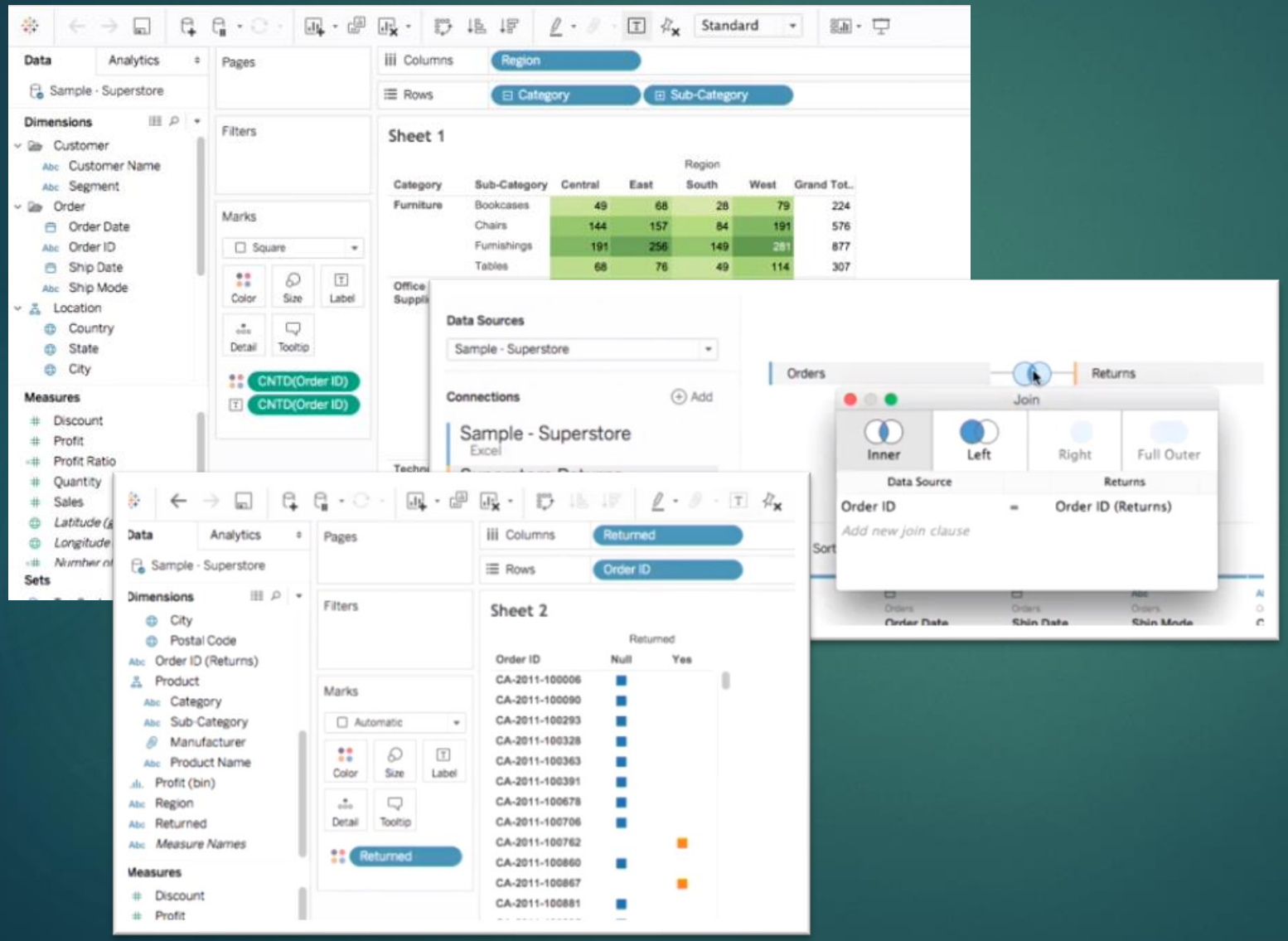
- Overall Sales for 2015
- Very high sales for New York but does not account – Bring in US Census information

Cross database joins



- Edit Data Source and Add New Data Source
- Add Population to the chart and then
- Create Sales per capita by create Sales/Population and then show it

Join transformations



- Analyses the Returned orders using the returned data
- You can use the left join and show a list of orders which returned and which did not

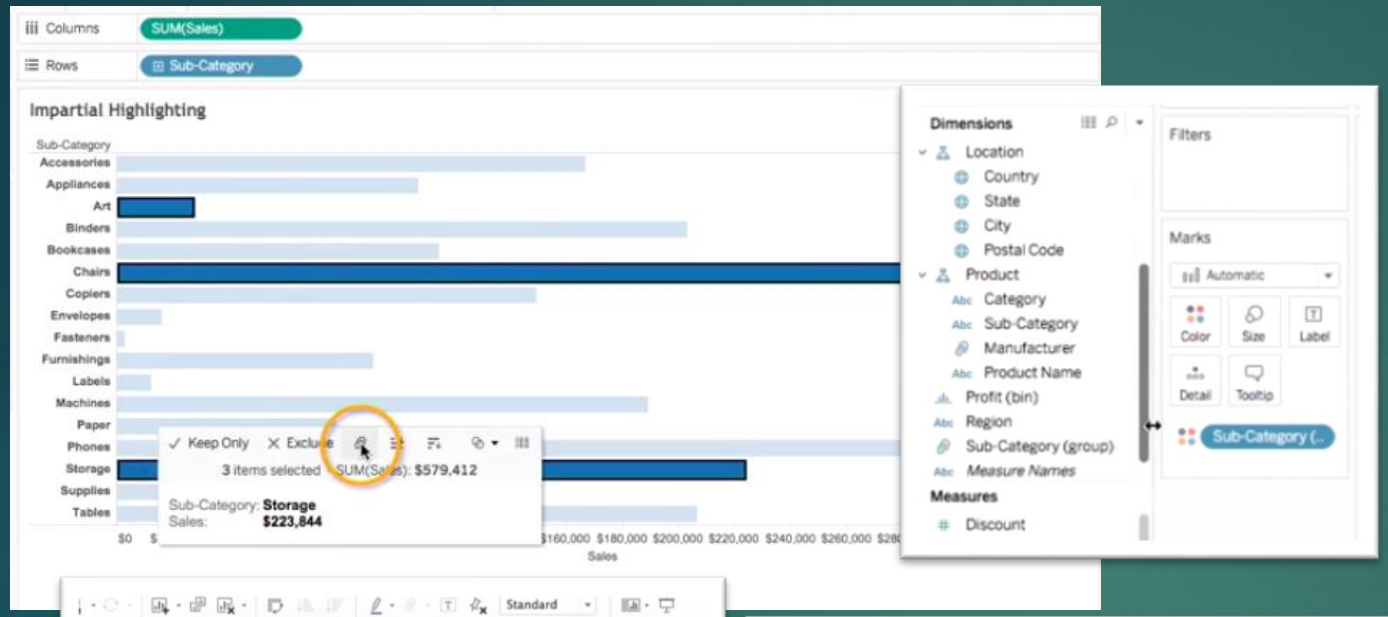
Analytics

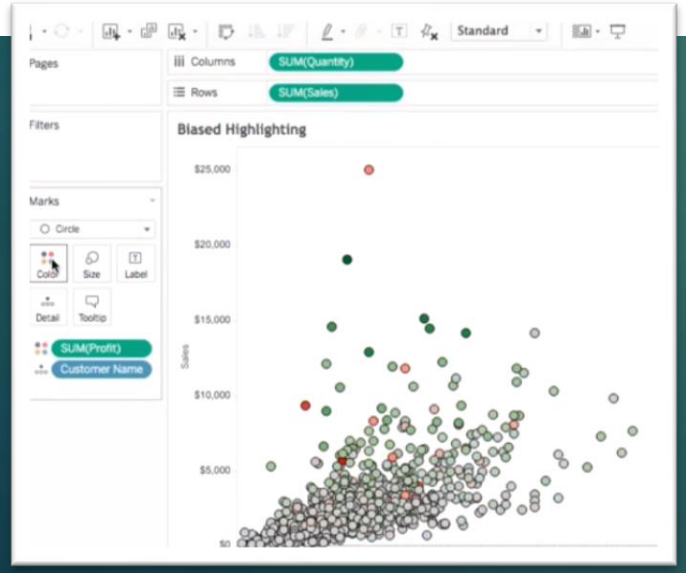
Data: Superstore

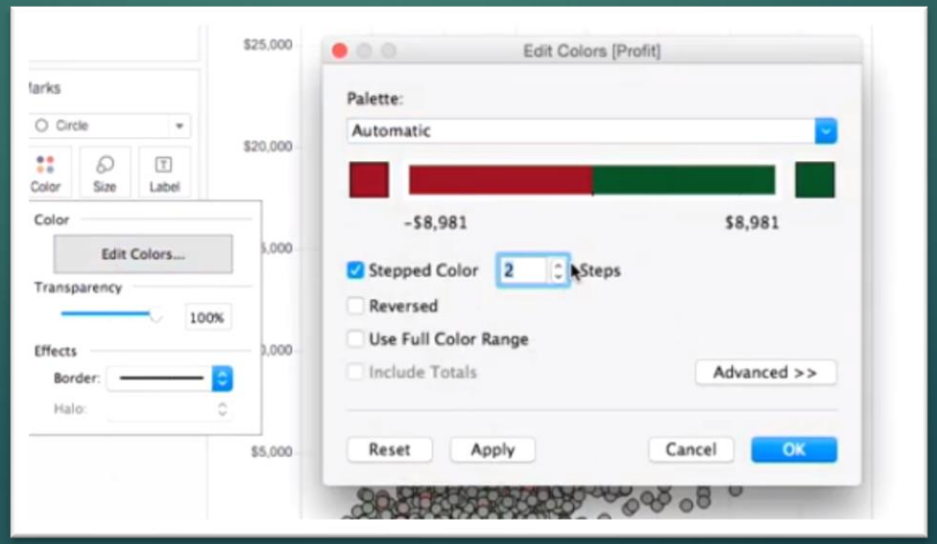
Challenge: Find Insights

- Highlight Storage, Chairs, Phones | Highlight Profitable customers
- Visual Highlighter

Colour to Highlight data

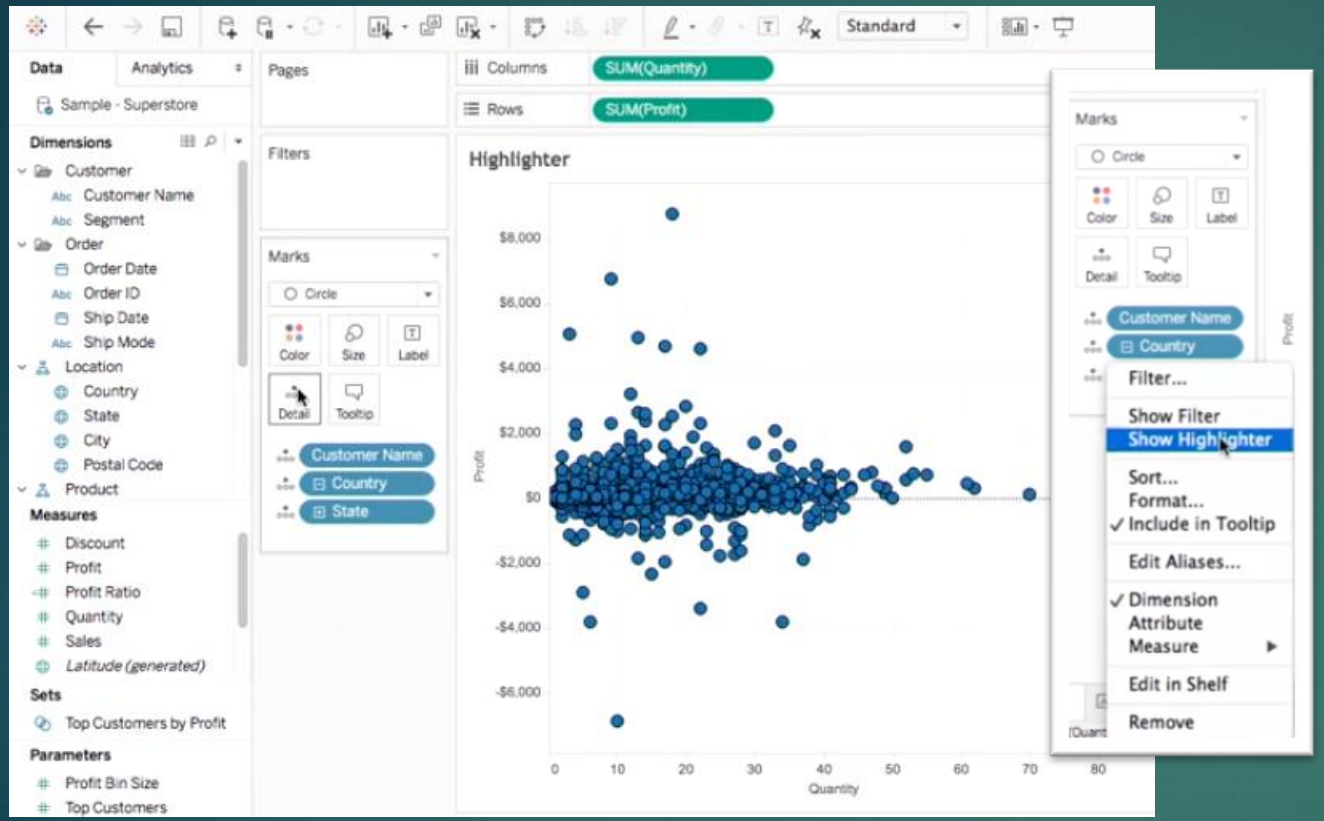






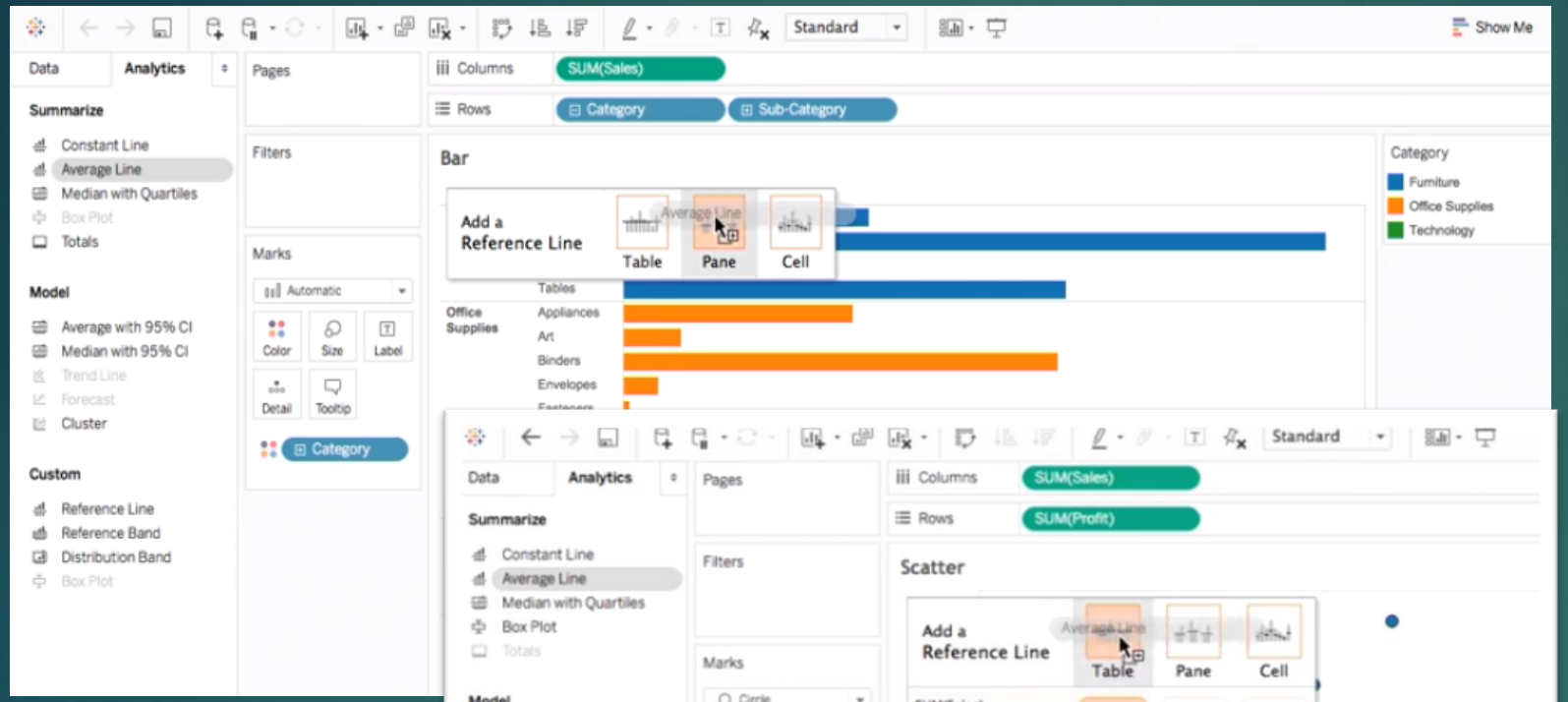
- Create Sub Categories for focused information
- Show Profit and loss by 2 colours

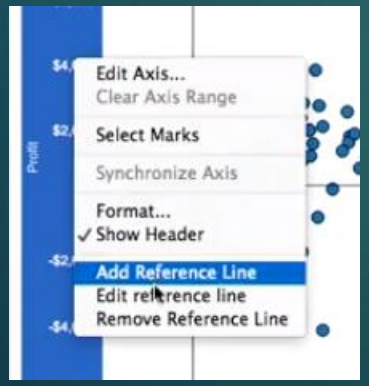
Visual Highlighter

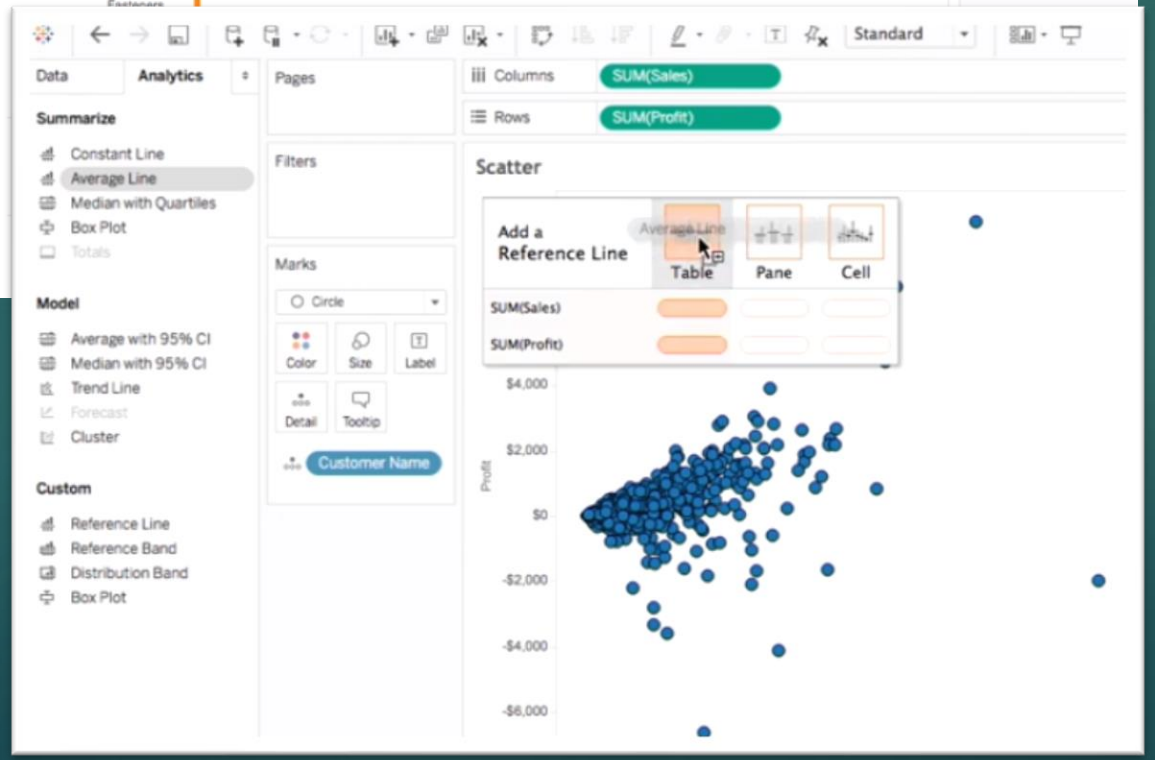


- Use State in the Details section
- Show State Highlighter

Analytics Pane

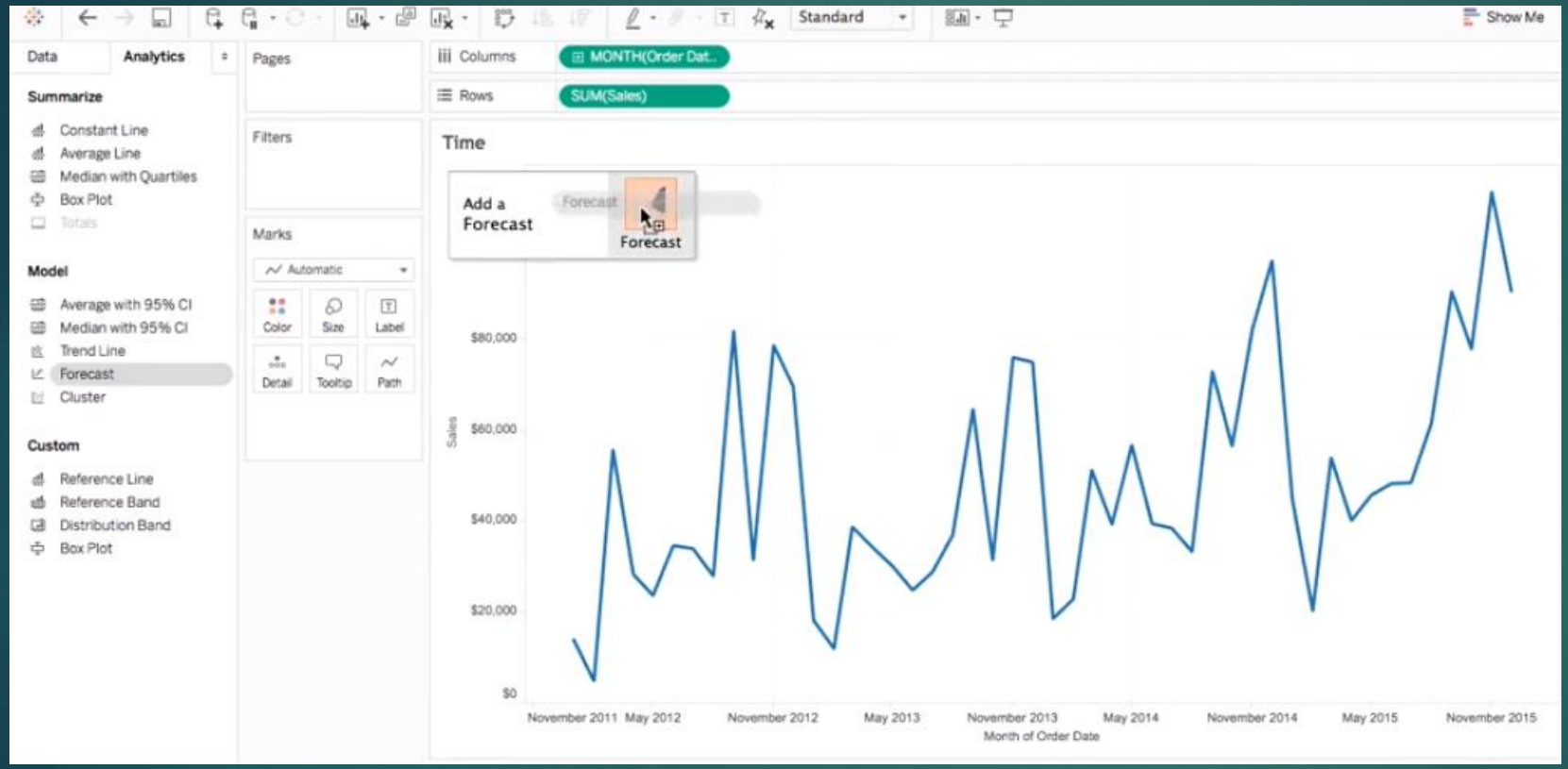






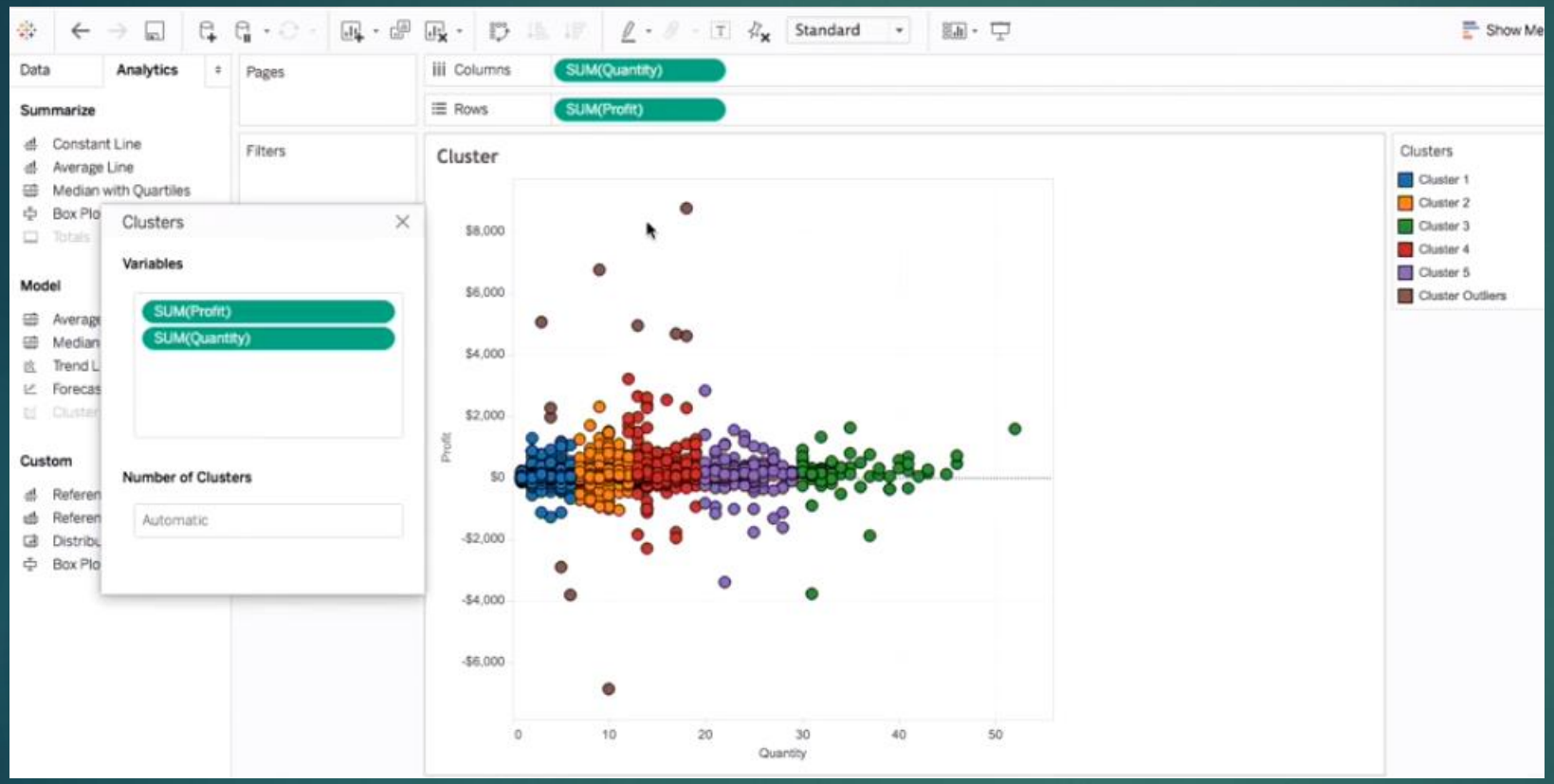
- Use the Average line in each pane to indicate average
- Change label to value to see the actual value
- You can also add average on the Scatter plot

Forecast Model



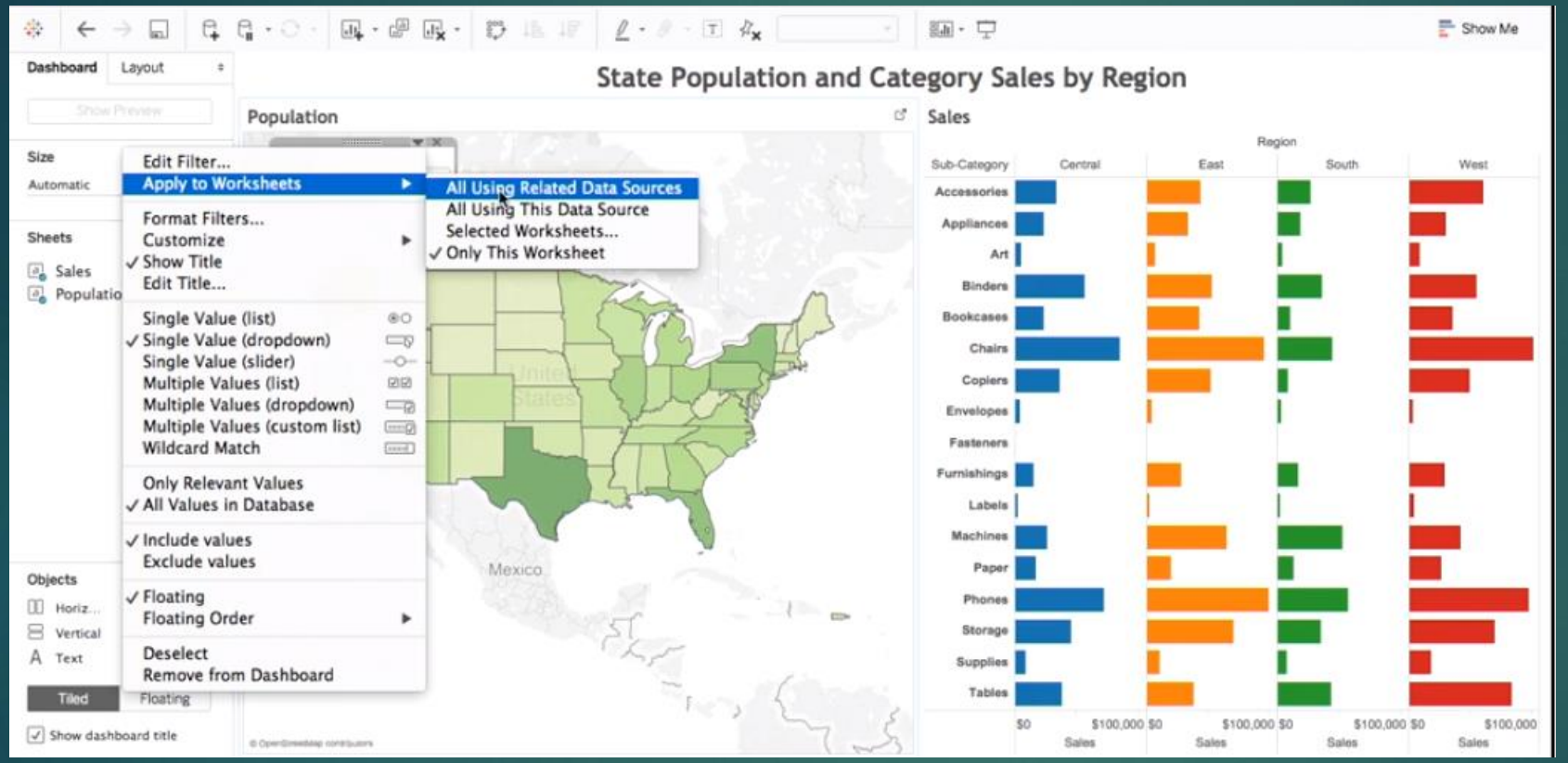
- Use Model Forecast
- Then we can modify its details

Cluster



- Use Model Cluster to from clusters
- Also use only one variable to see a different clustering information

Cross-database filter

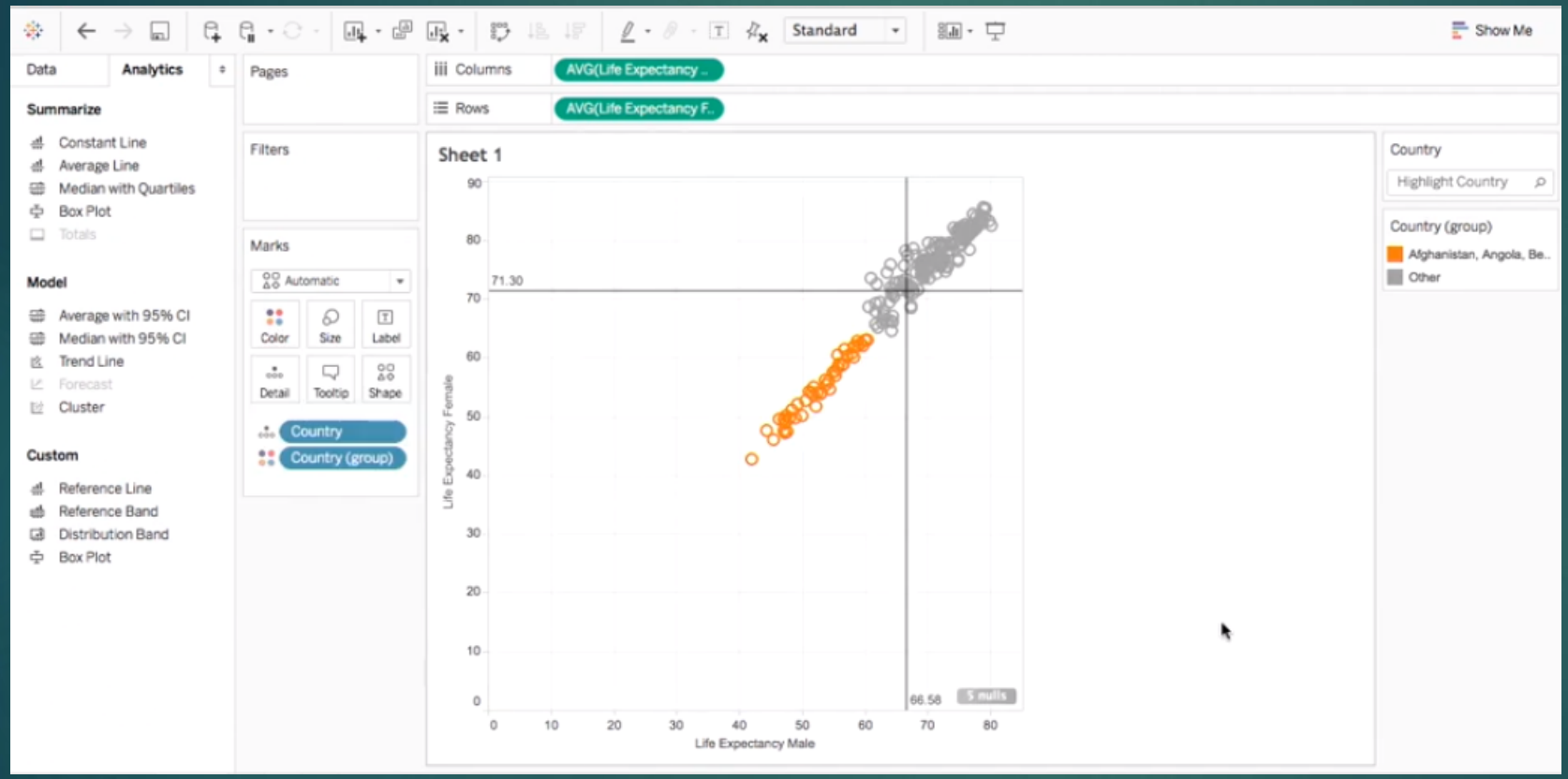


- We can filters across sheets to reflect data change upon changing one filter

Challenge: World Bank Data

- Using World Bank Data, create a scatter plot using any 2 measures and Country as Detail
- Add an Average reference line to each axis and change label to average value
- Create a highlighter for a country in the scatter plot

Challenge: World Bank Data



- Group together to highlight
- Also, do not forget to add Highlighter for Countries

Its Mapping Time!

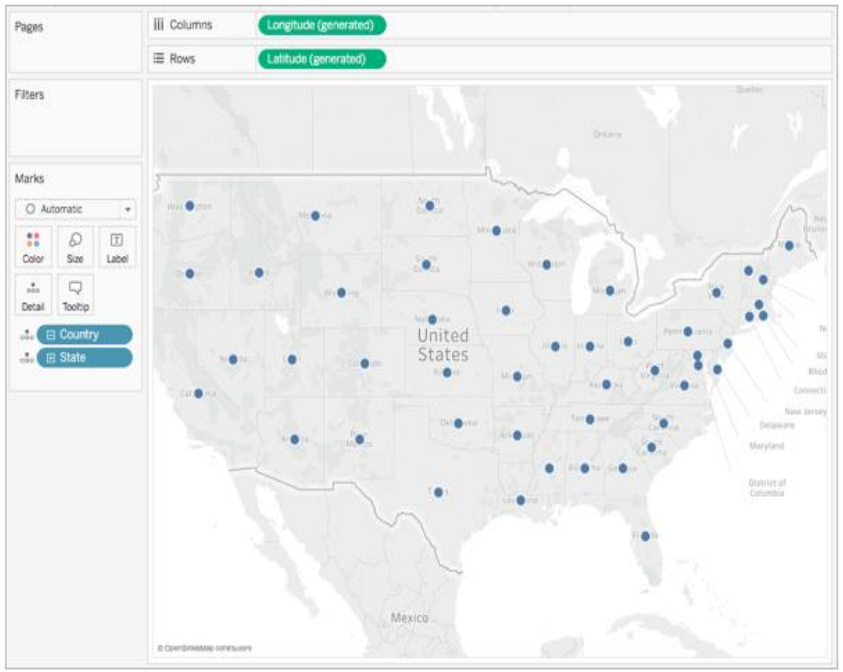
USING SUPERSTORE DATA

Data: Superstore

1. Navigate to a worksheet.

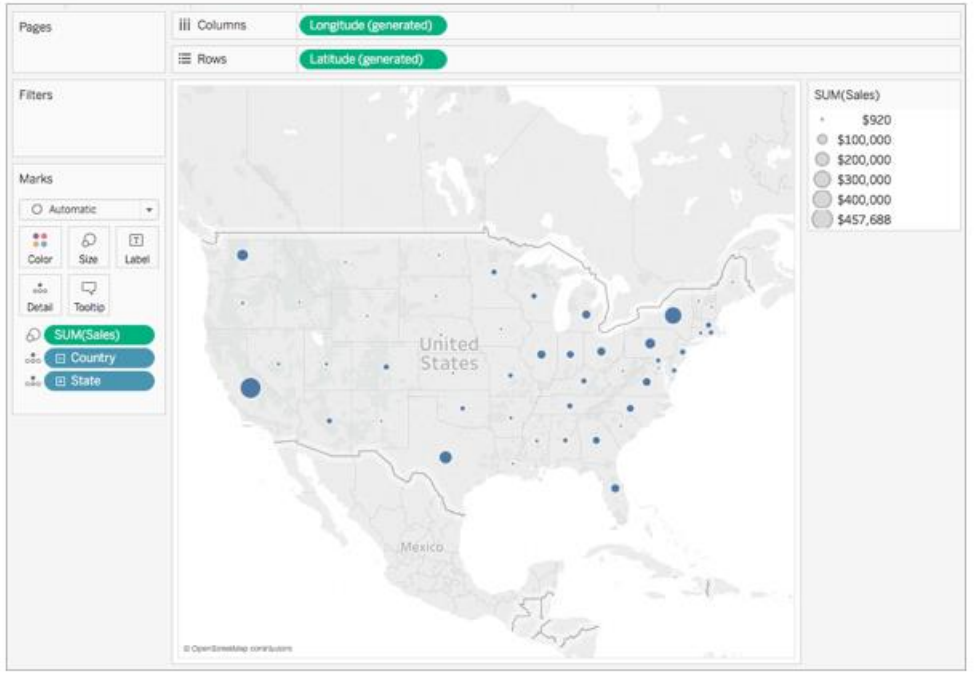
2. In the **Data** pane, under Dimensions, double-click **State**.

   A map view is automatically created because the State field is a geographic field. To learn more about geographic fields and how to create them, see Assign a geographic role to a field.



3. From Measures, drag **Sales** to **Size** on the Marks card.

   The data points on the map update to show the amount of sales proportionally.



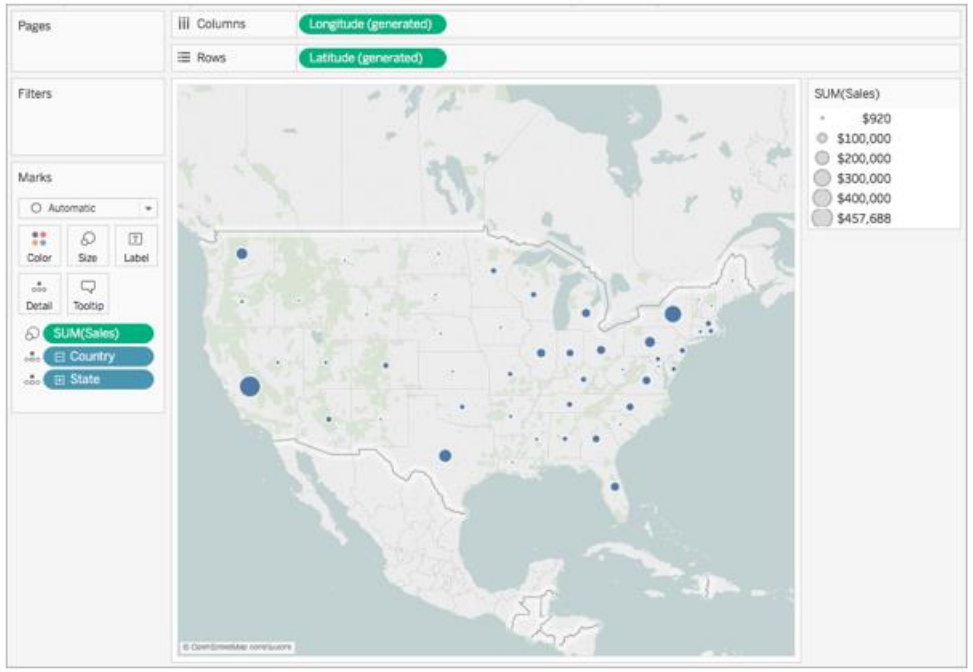
4. Select **Maps** > **Map Layers**.

Data: Superstore

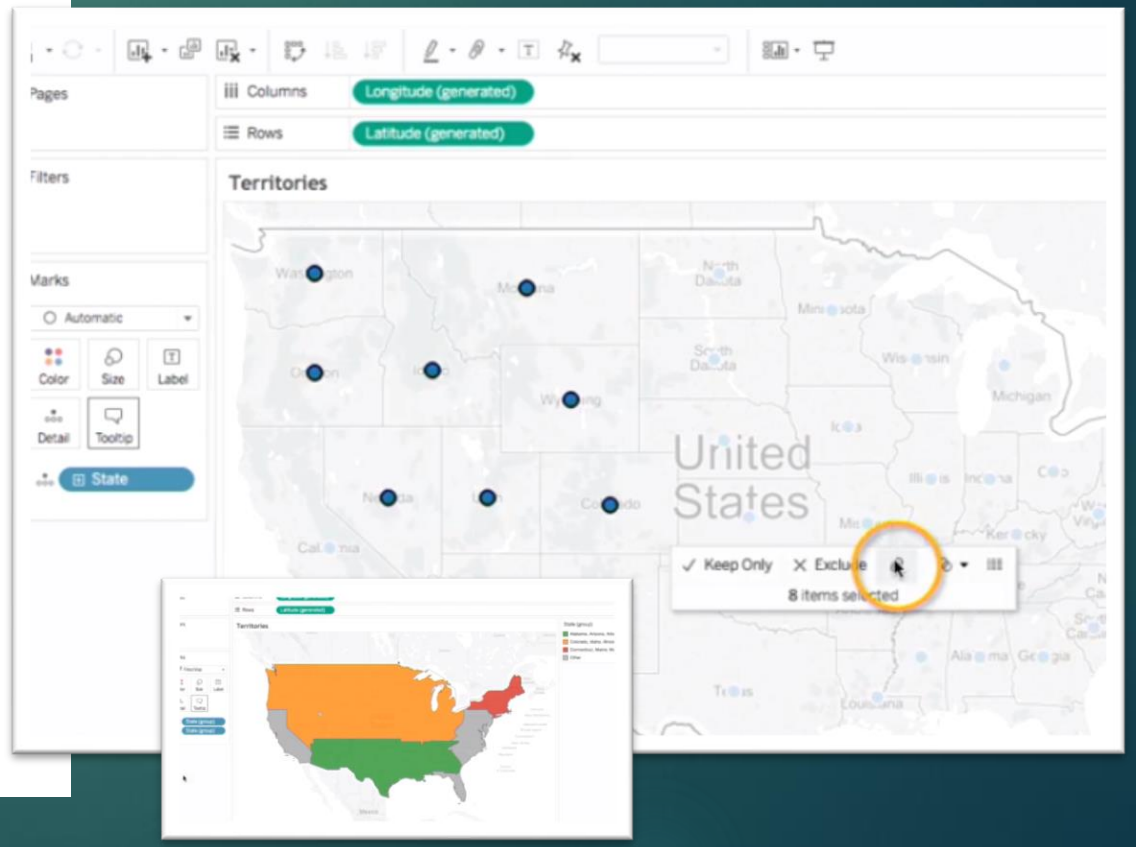
5. In the Map Layers pane, do the following:

   - Click the Style drop-down and select **Normal**.
   - Under Map Layers, clear **Country/Region Names**.

The background map updates with the new settings.



- Group together to areas to create custom territories
- Add State Group to colour to see them on the map

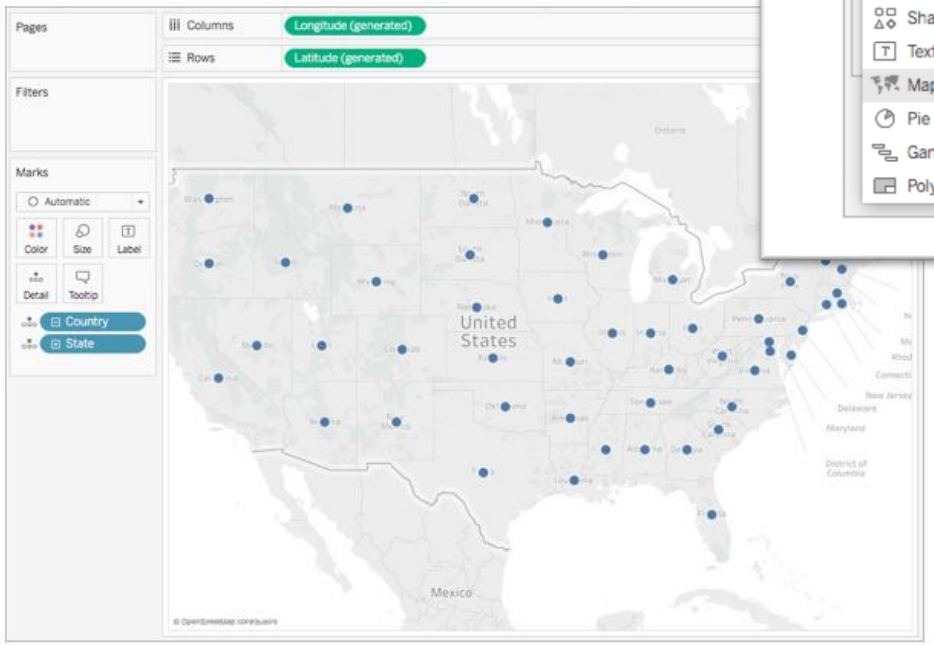


Build Polygon Map

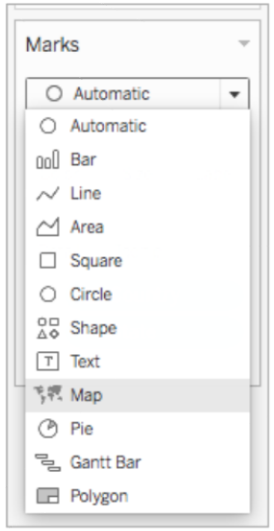
Build a simple filled (polygon) map

1. Navigate to a new worksheet.
2. In the **Data** pane, under Dimensions, double-click **State**.

   A map view is automatically created.



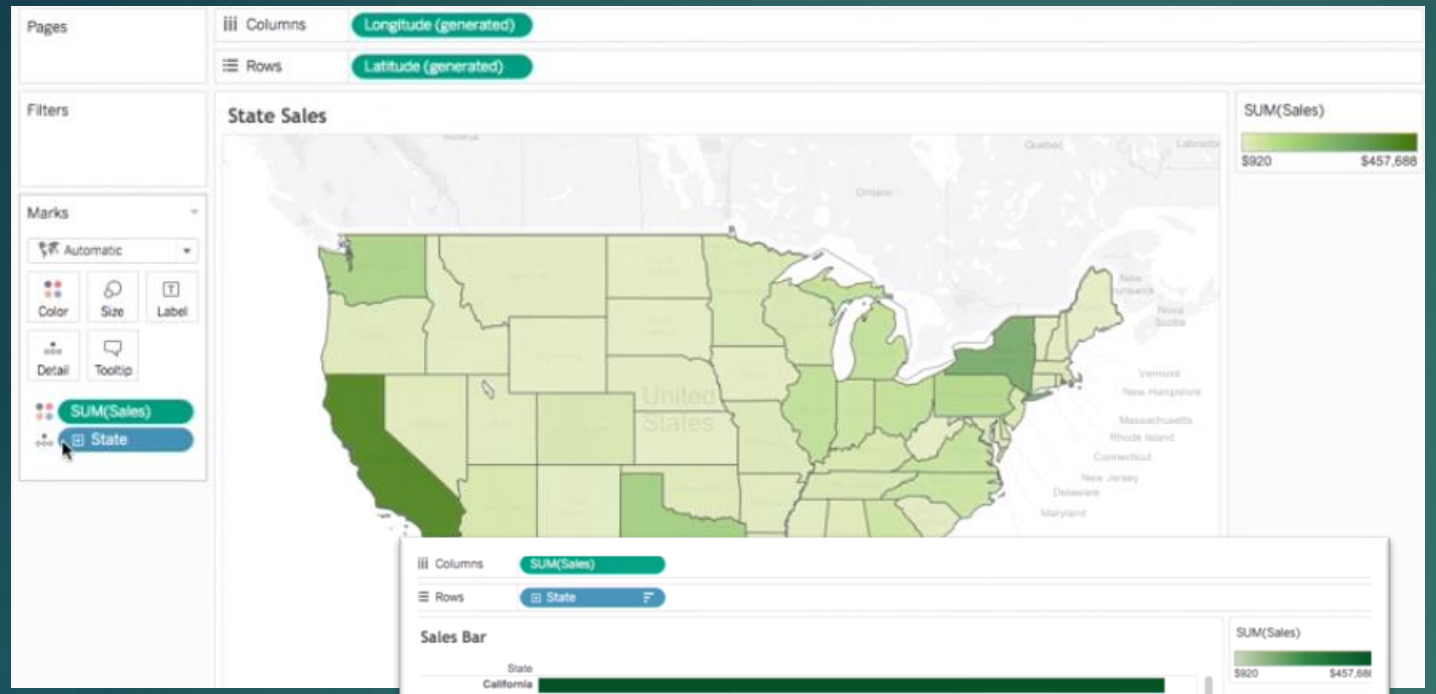
3. On the Marks card, click the Mark Type drop-down and select **Map**.

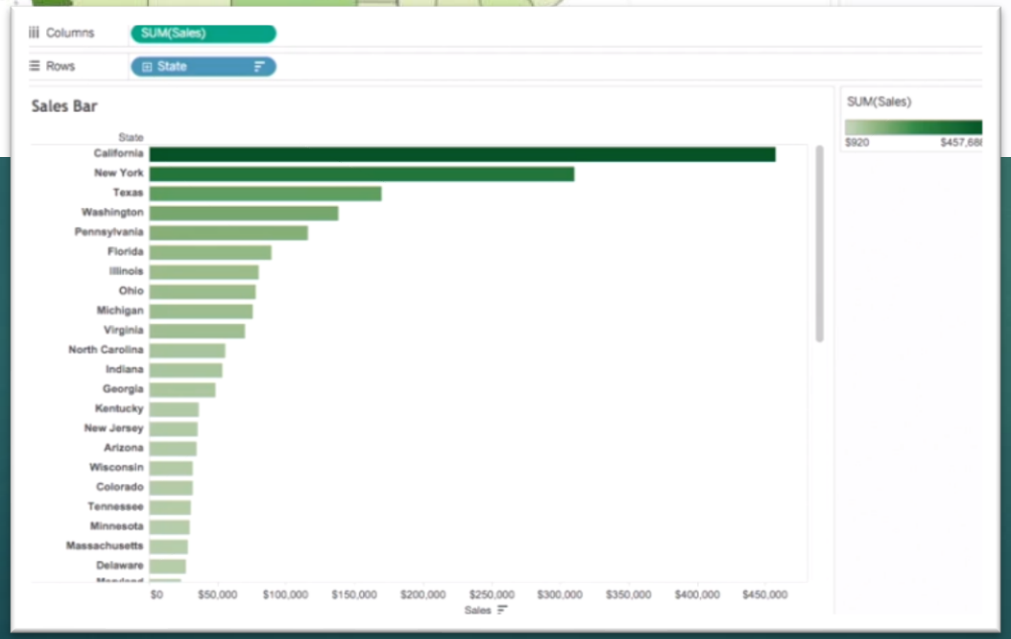


4. From Dimensions, drag **Sales** to **Color** on the Marks card.

   The polygons on the map update to show the amount of sales using color.

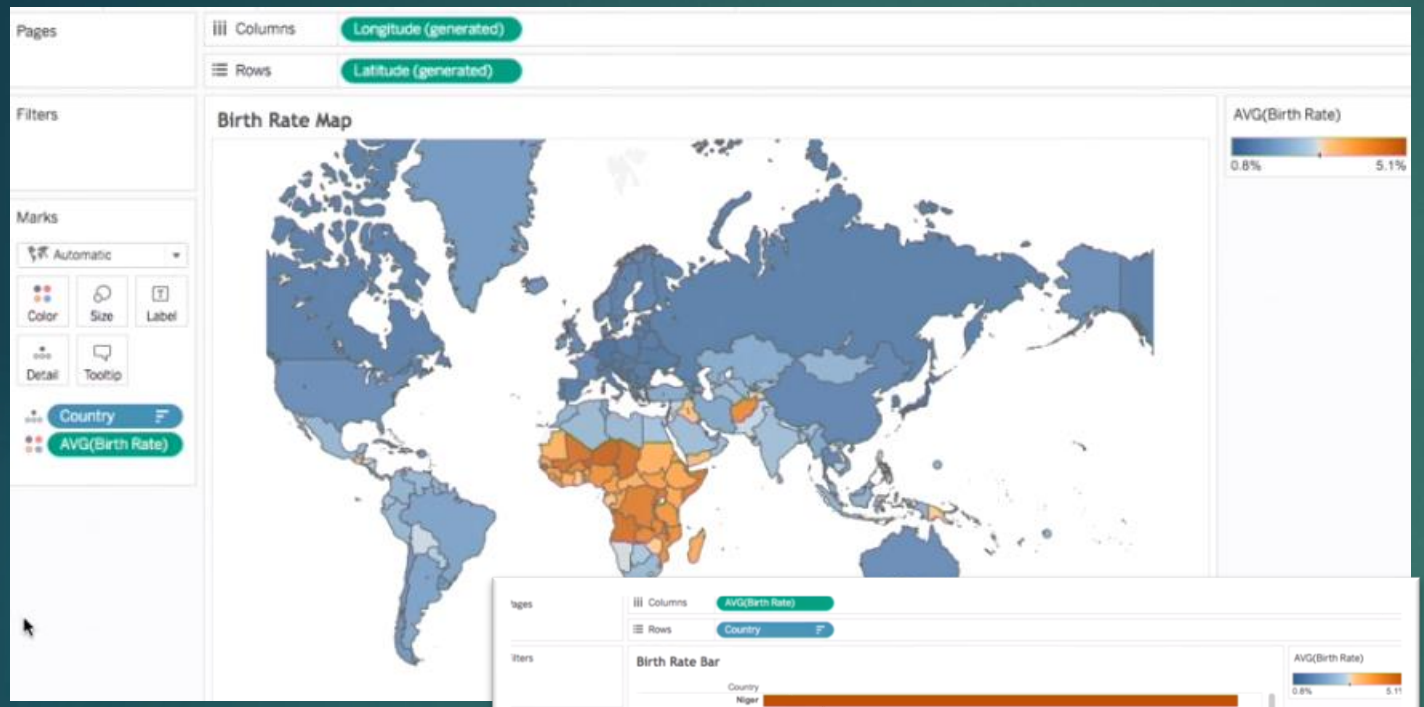
When to use it?

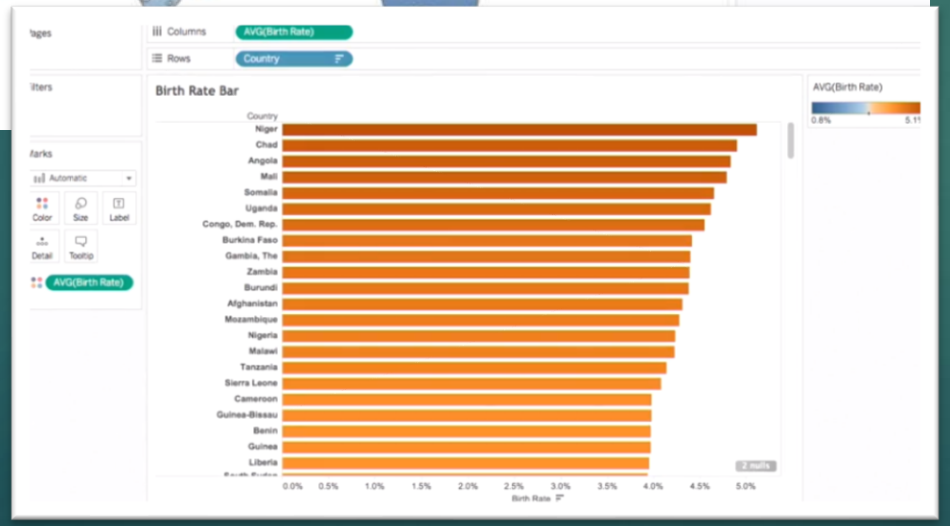




- First map colours are flat; relative size is not visible
- Second one, relative size is possible and we now know by ranks such as first, second, etc …

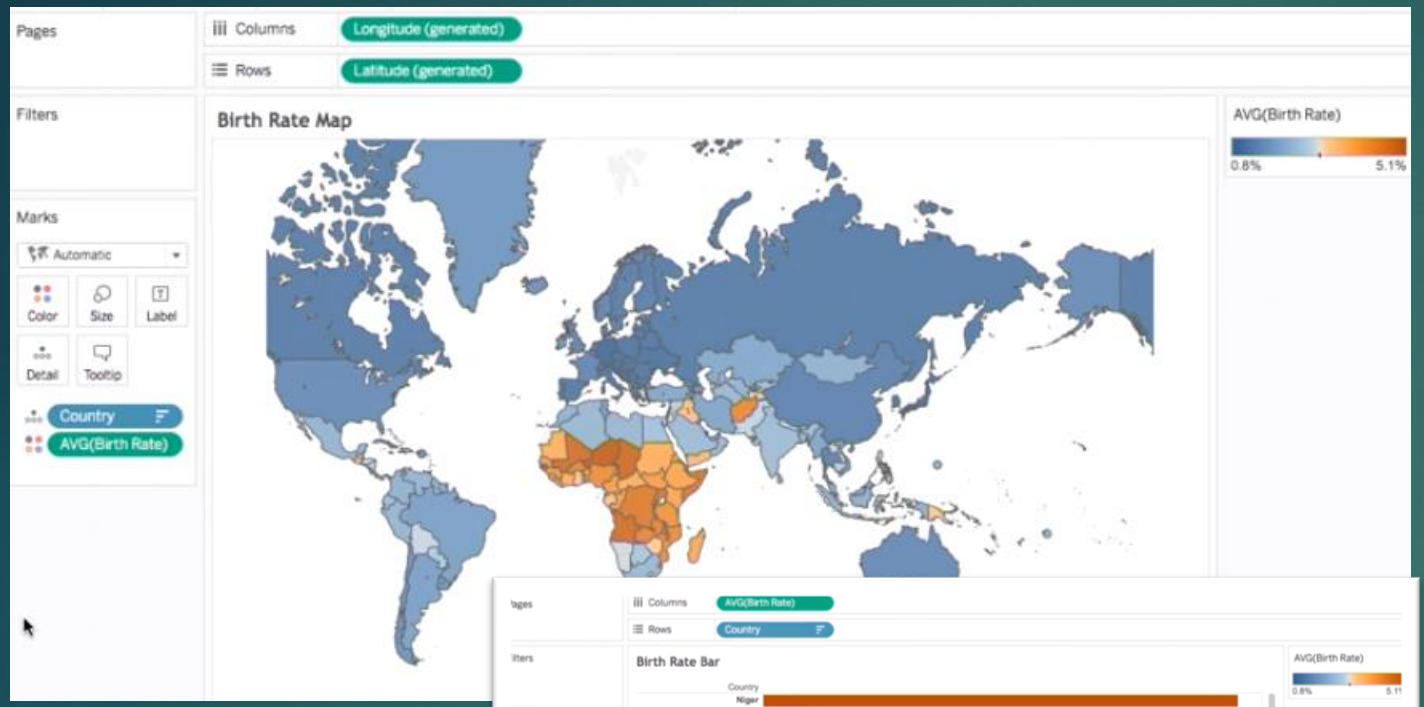
Which is better?

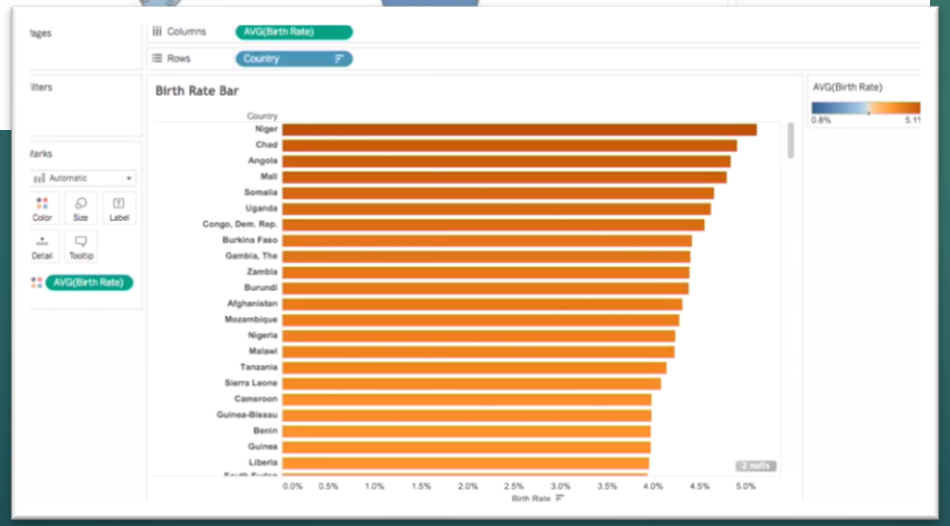




- Plotted the Avg. Birth Rate by Country
- First or Second?

Which is better?



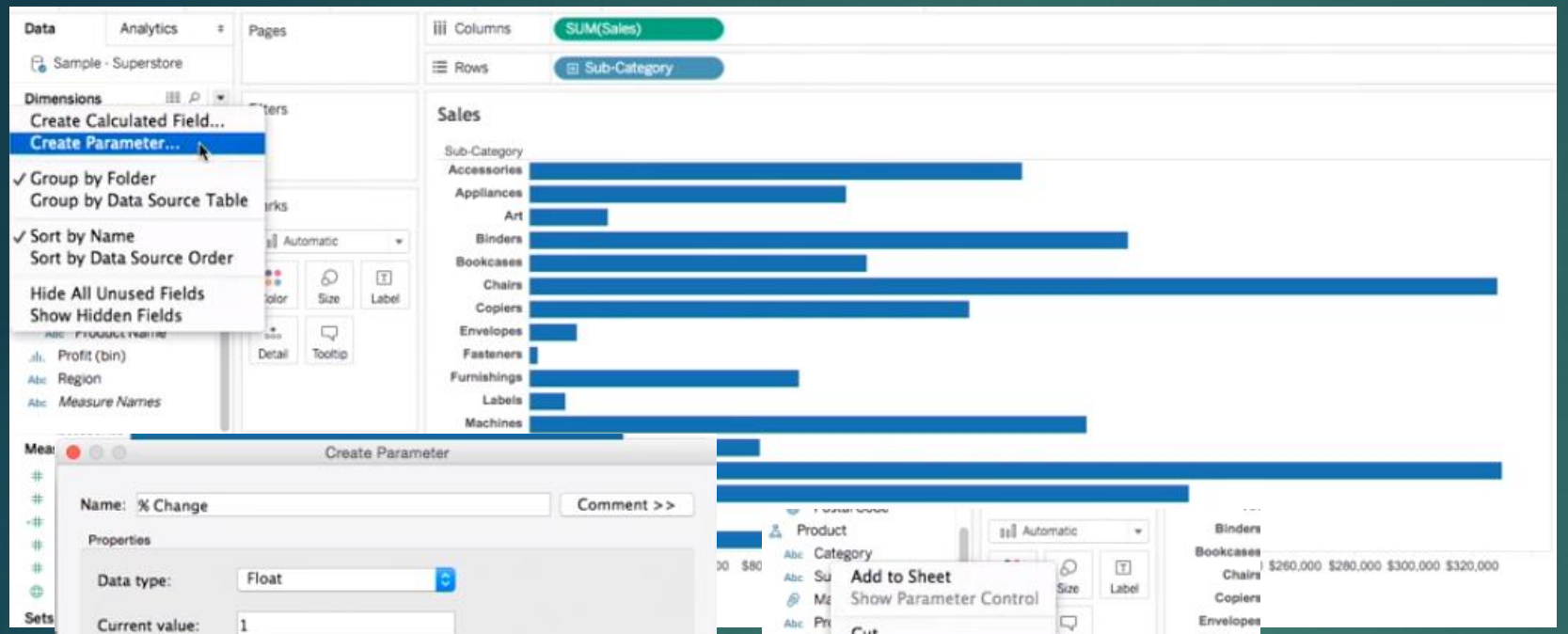


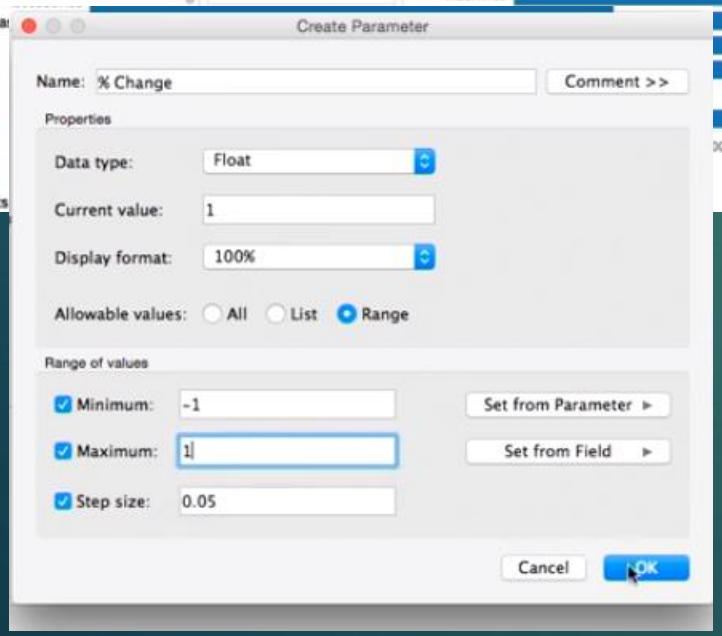
- Plotted the Avg. Birth Rate by Country
- First or Second?

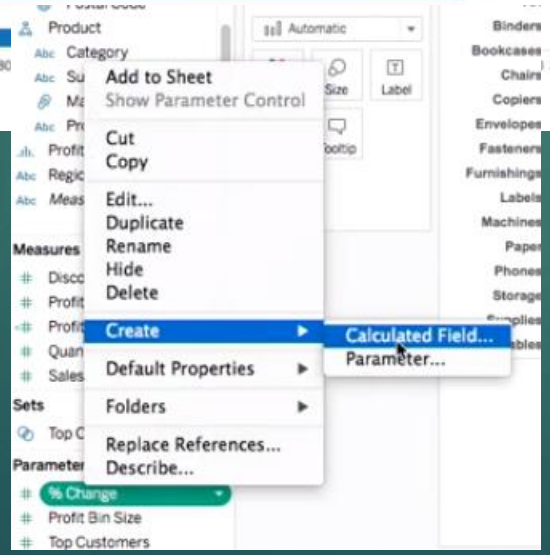
Parameters

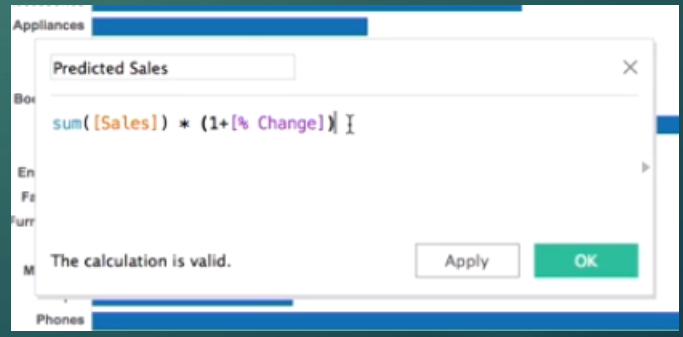
USING SUPERSTORE DATA

Creating calculations based on parameter



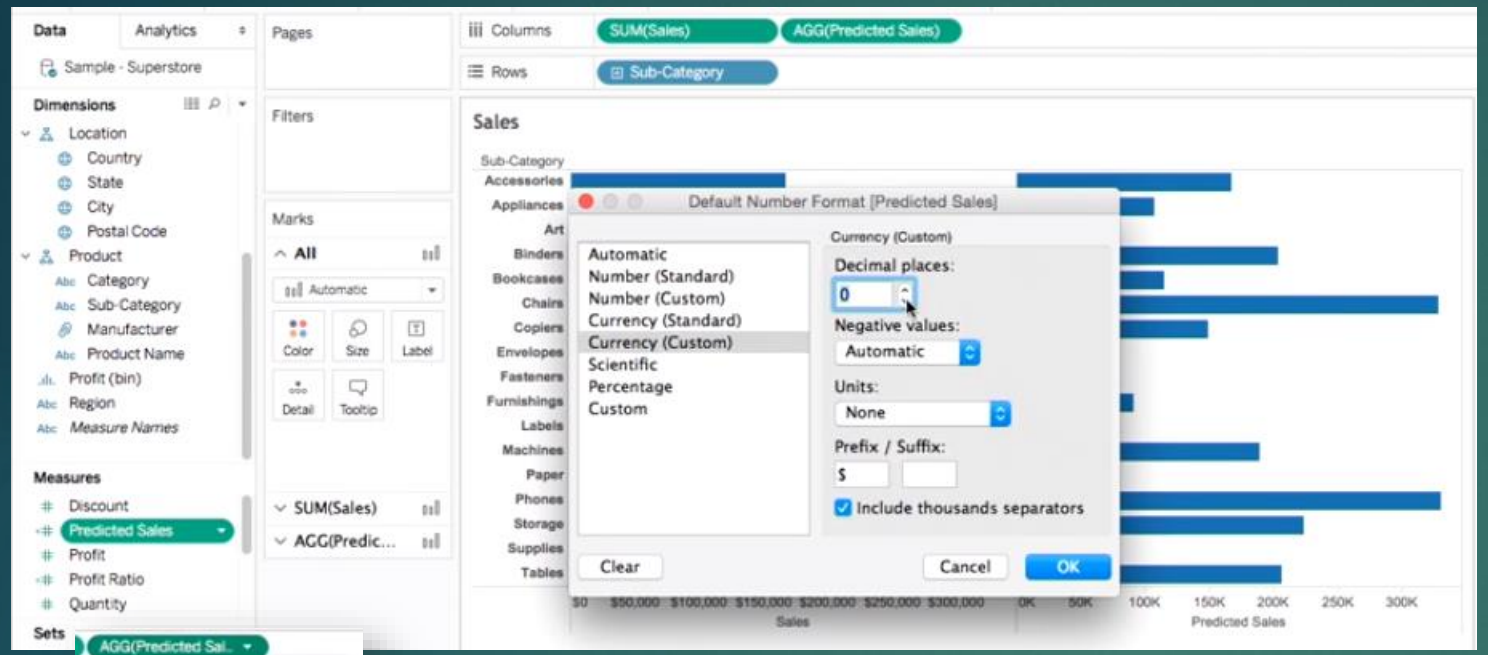


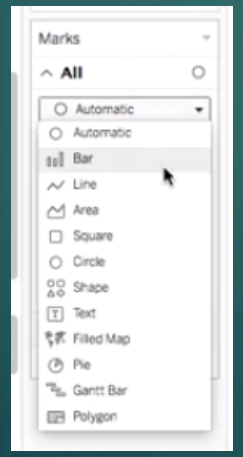


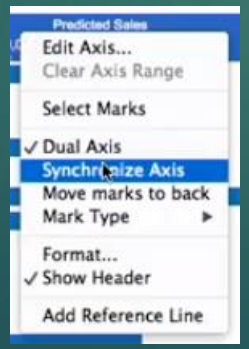


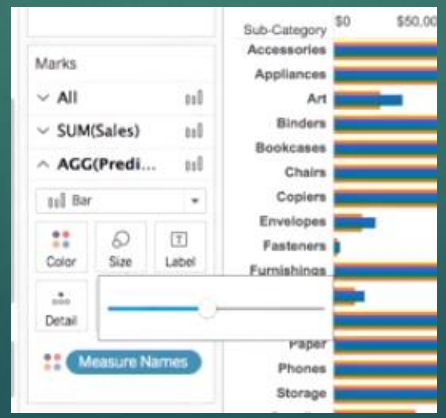
- Click on Add Parameter
- Create % Change
- On top of the Parameter create a Calculated Field(Call it Predicted Sales
- Add it beside Sum(Sales)

Creating calculations based on parameter



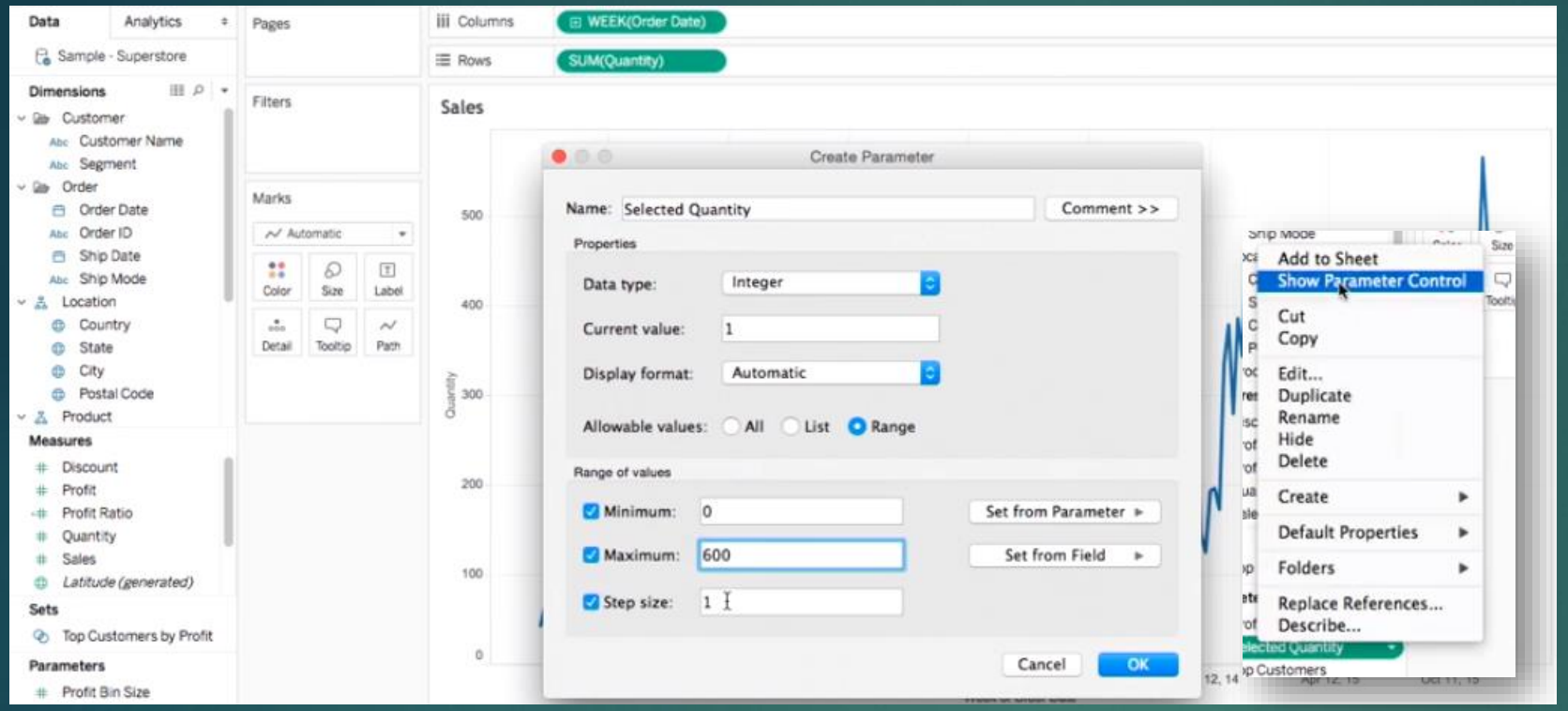


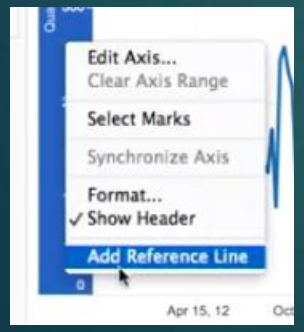


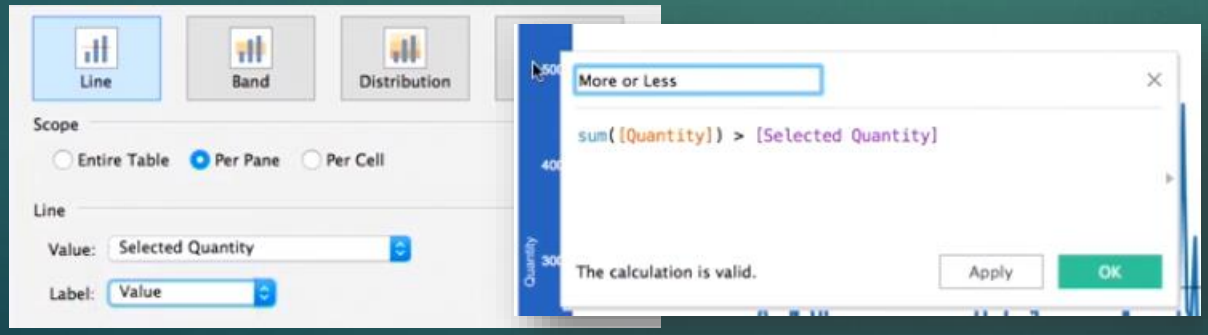


- Change number format since they are different
- Make it Dual Axis to see a change on the chart
- Change to Bar
- Synchronise the axis
- Make Predicted bars smaller

Creating dynamic reference line

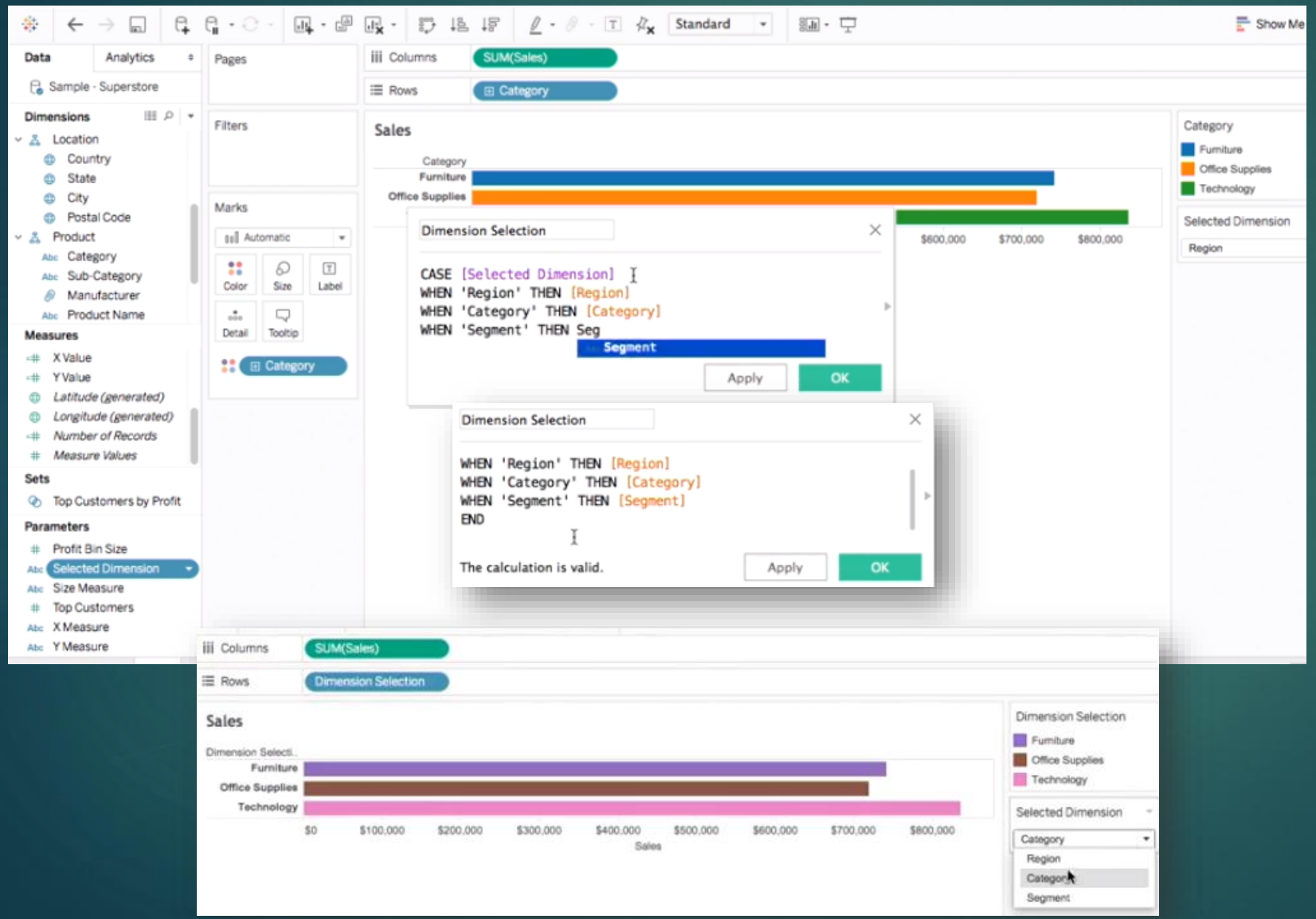






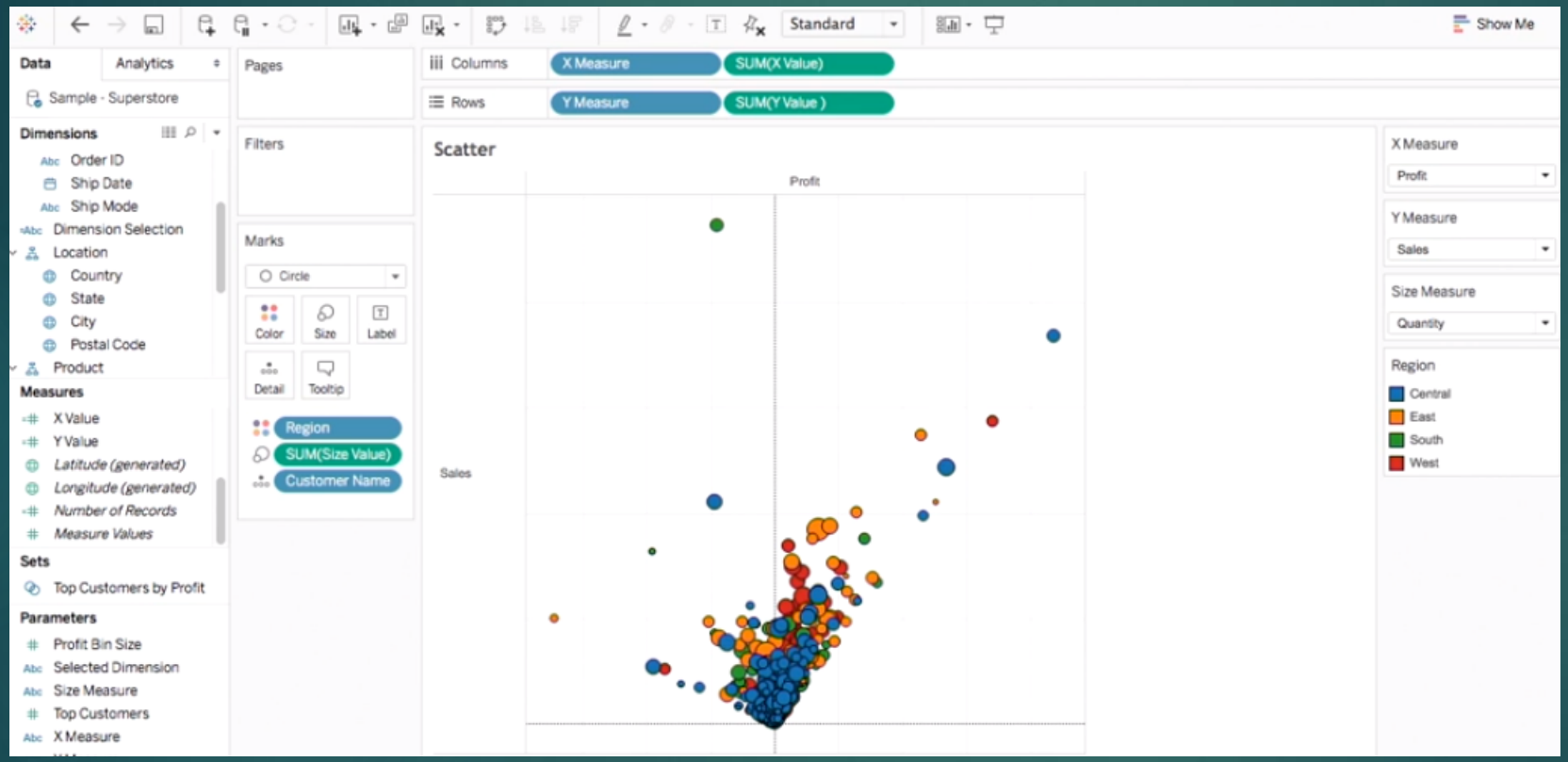
- Add Parameter
- Add it to our view
- Add a refence line from the axis
- Select the parameter and choose the label as value
- Create a calculated field on top of the parameter
- Add “More or Less” to colour

Add Dynamic dimension and measure

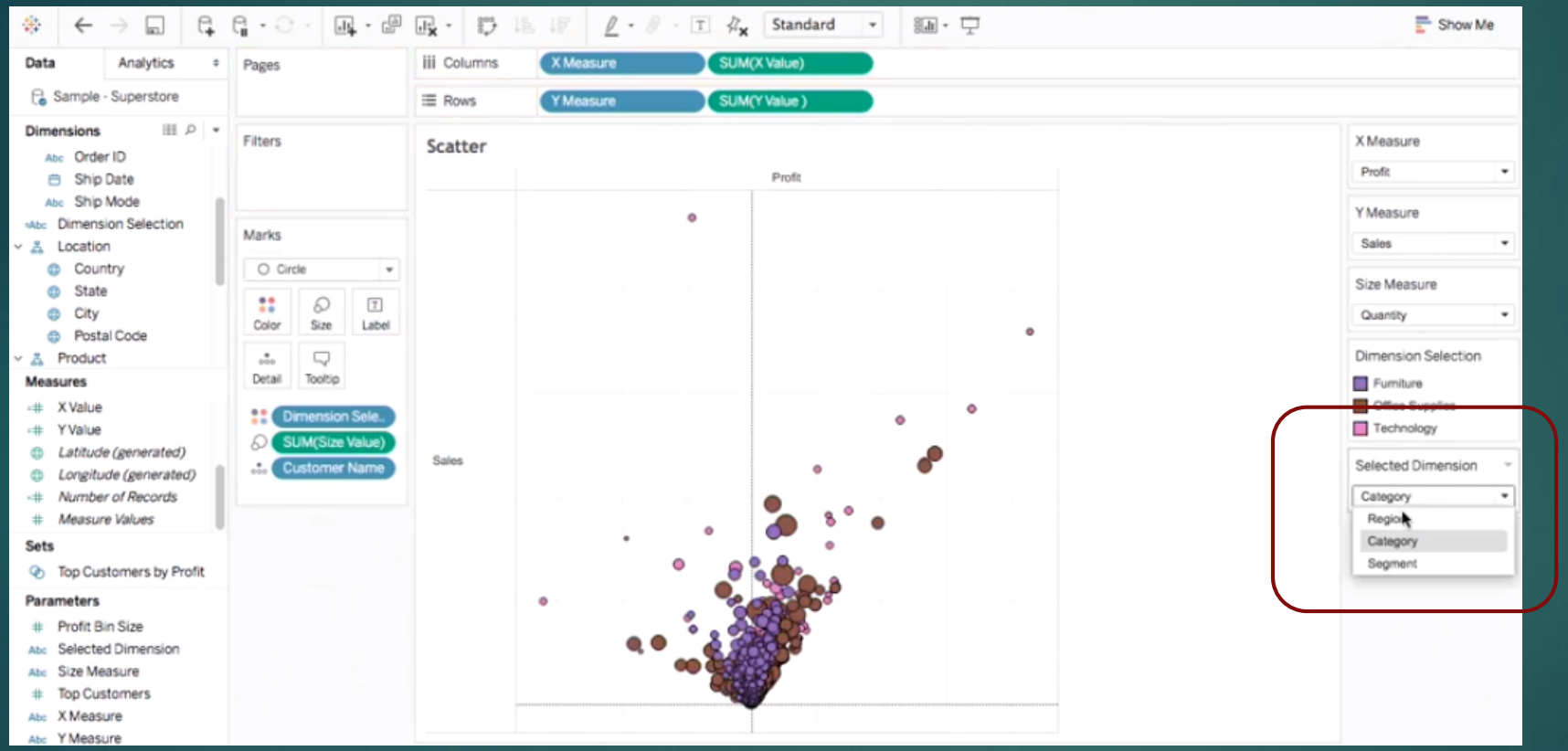


- Add string parameter with List(Region, Category and Segment)
- Show Parameter
- Add calculated field – ensure to use CASE and then END
- Add the Dimension Selection to Row and Colour
- Now you can change parameter

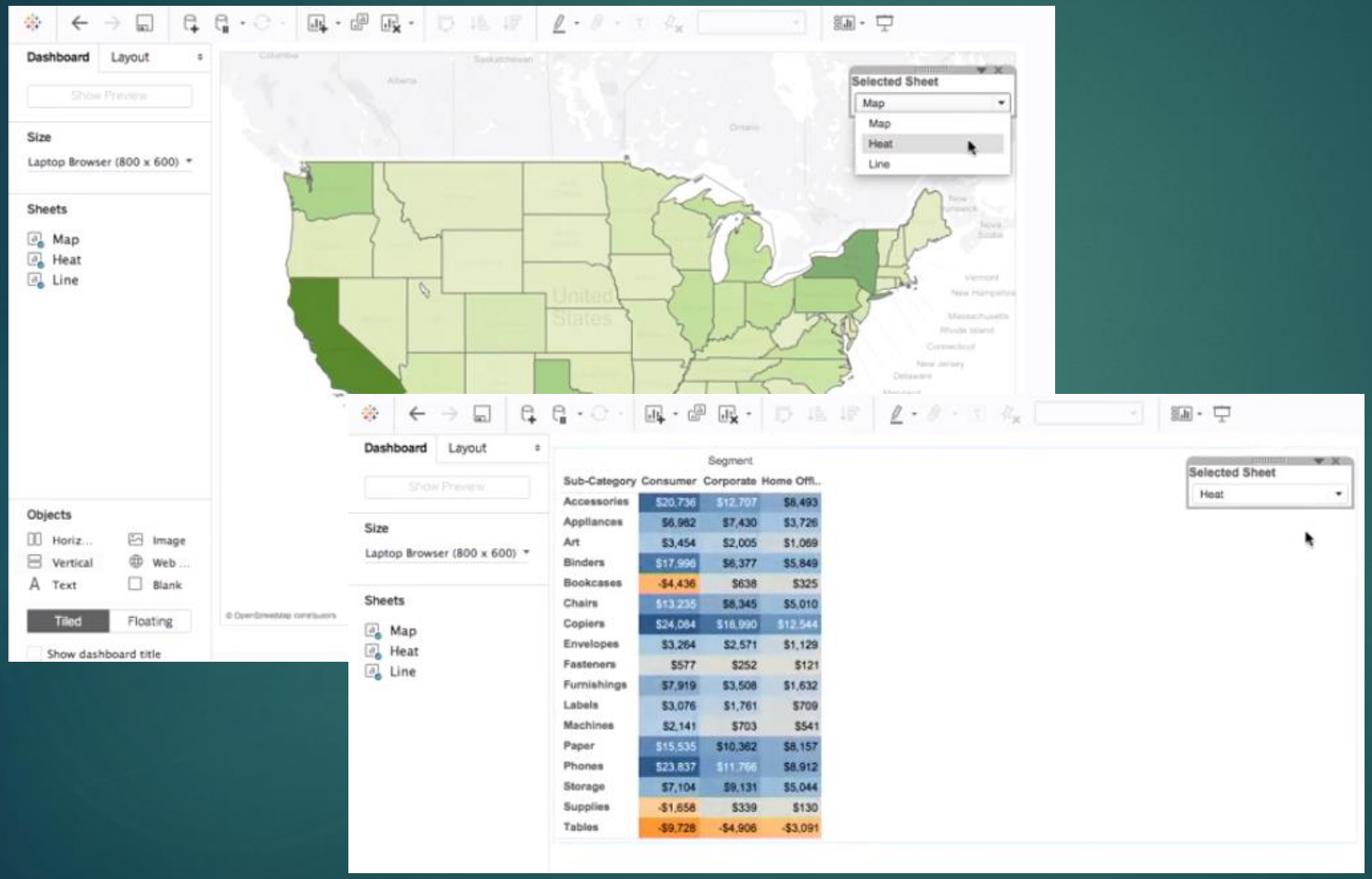
Make a Scatter plot and Dimension Selector



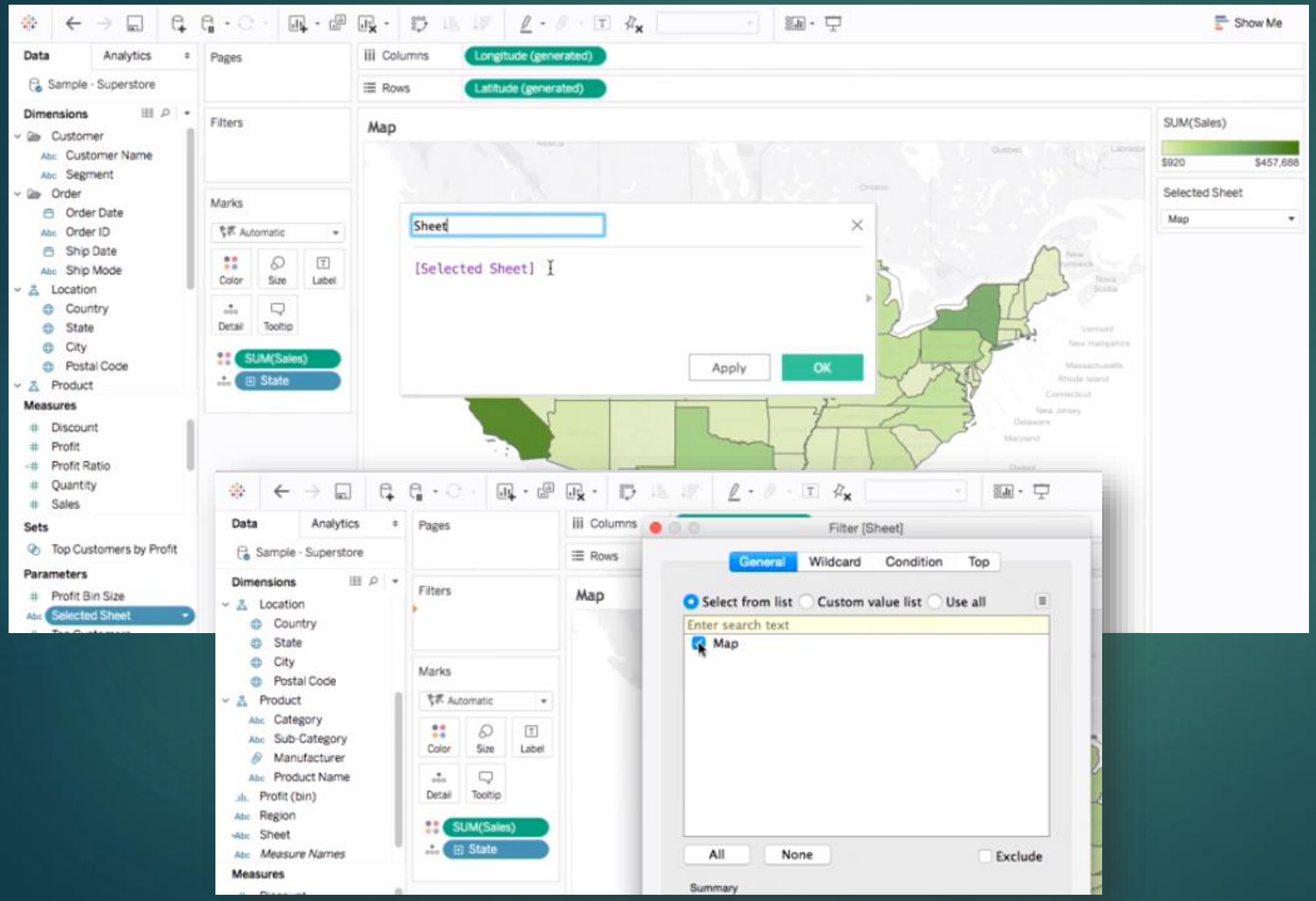
It should look like this



Can you make a Dynamic Sheet selection

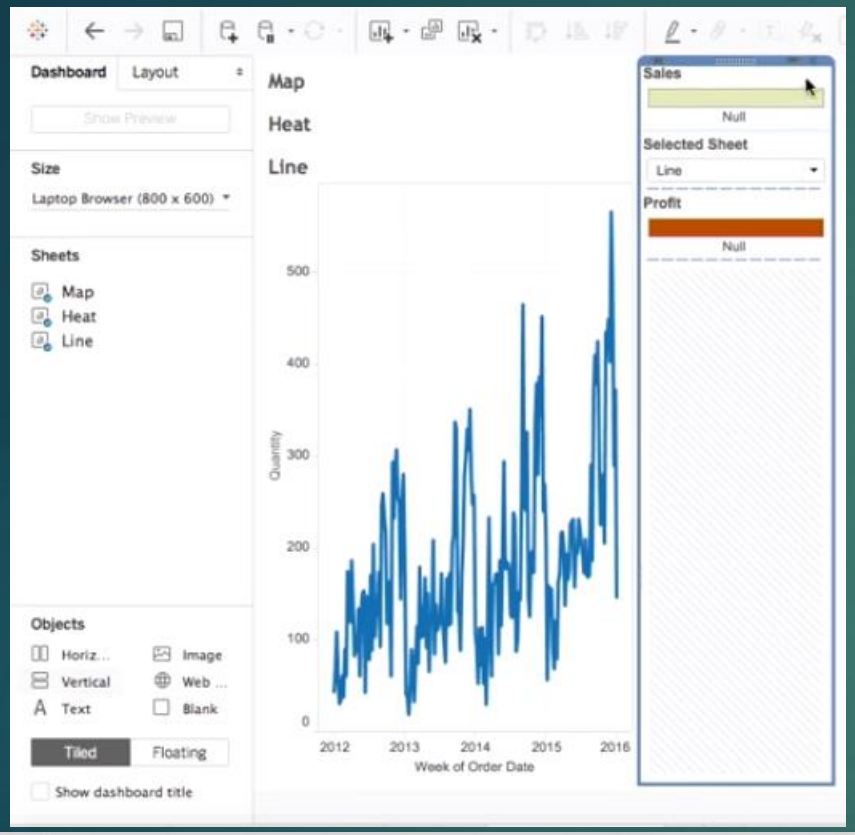


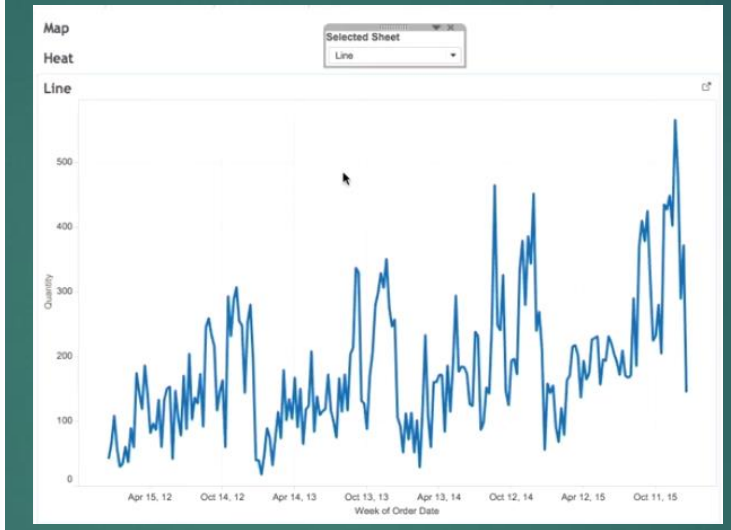
Trick is to create a parameter



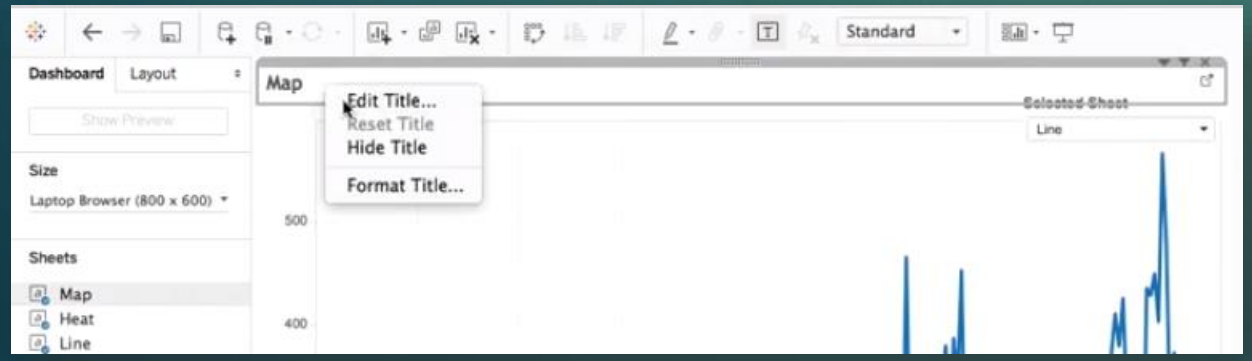
- Add a Calculated field
- Add to the Filter
- Choose Map
- Change to Heat filter
- And then add the Sheet field to Filter again
- Choose Heat
- Repeat for last sheet

Put it on a Dashboard using Vertical Frame





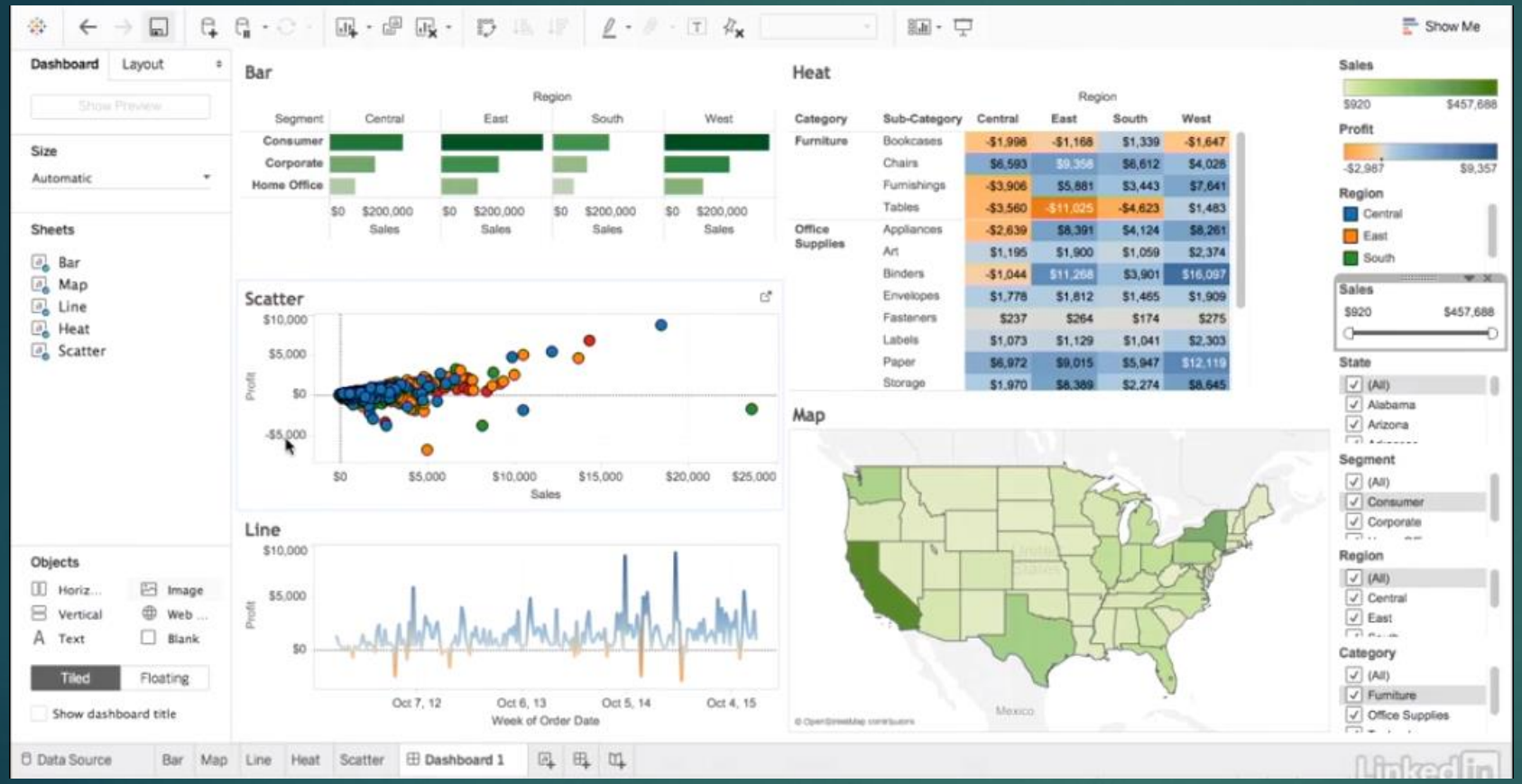
- Add all 3 sheets
- Remove the 2 Legends except the Selected Sheet
- Make Selected Sheet Floating
- Hide Titles
- Change to see the Sheet Change



Dashboards

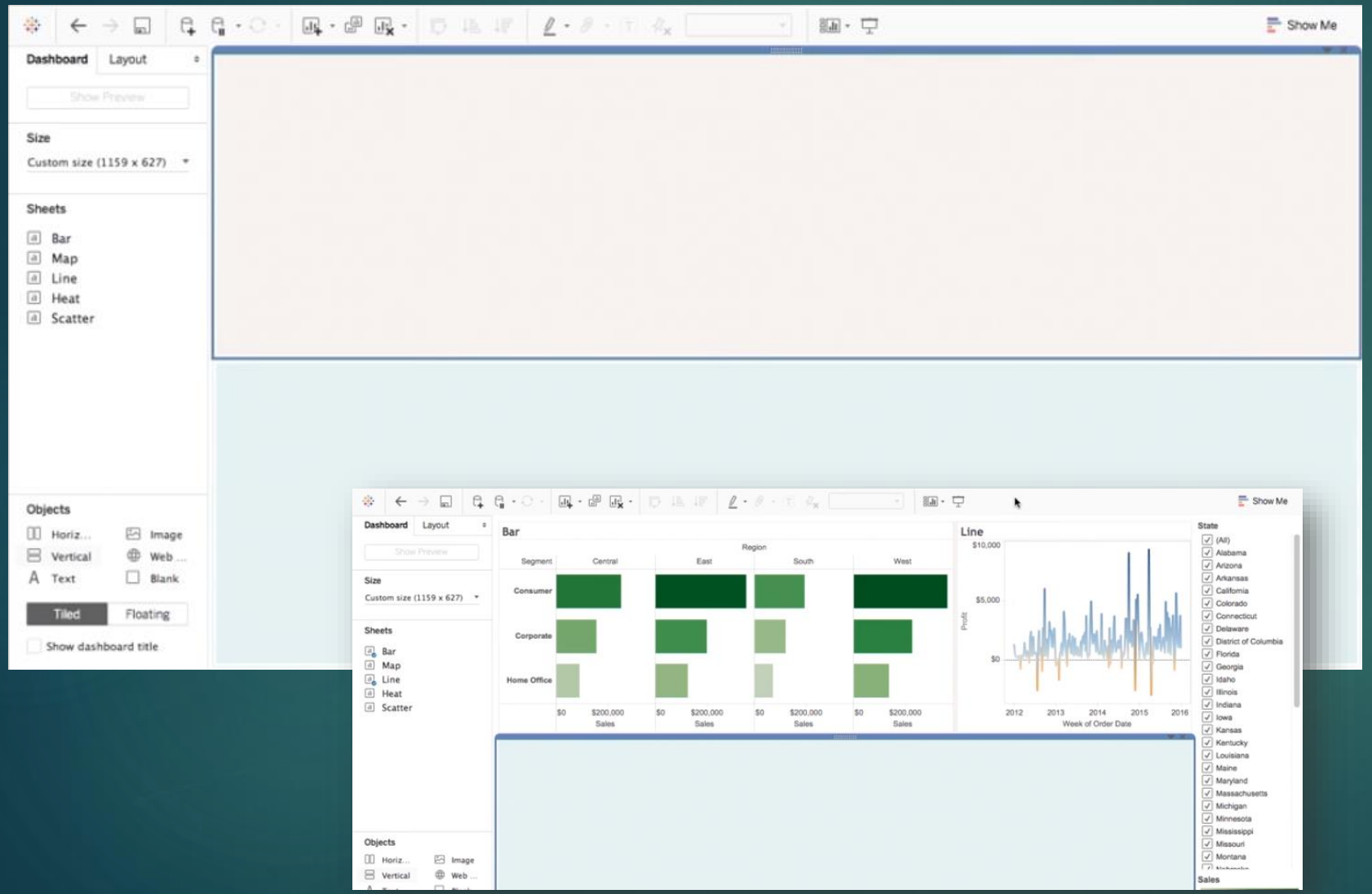
USING SUPERSTORE DATA

Create Individual Elements and put them together



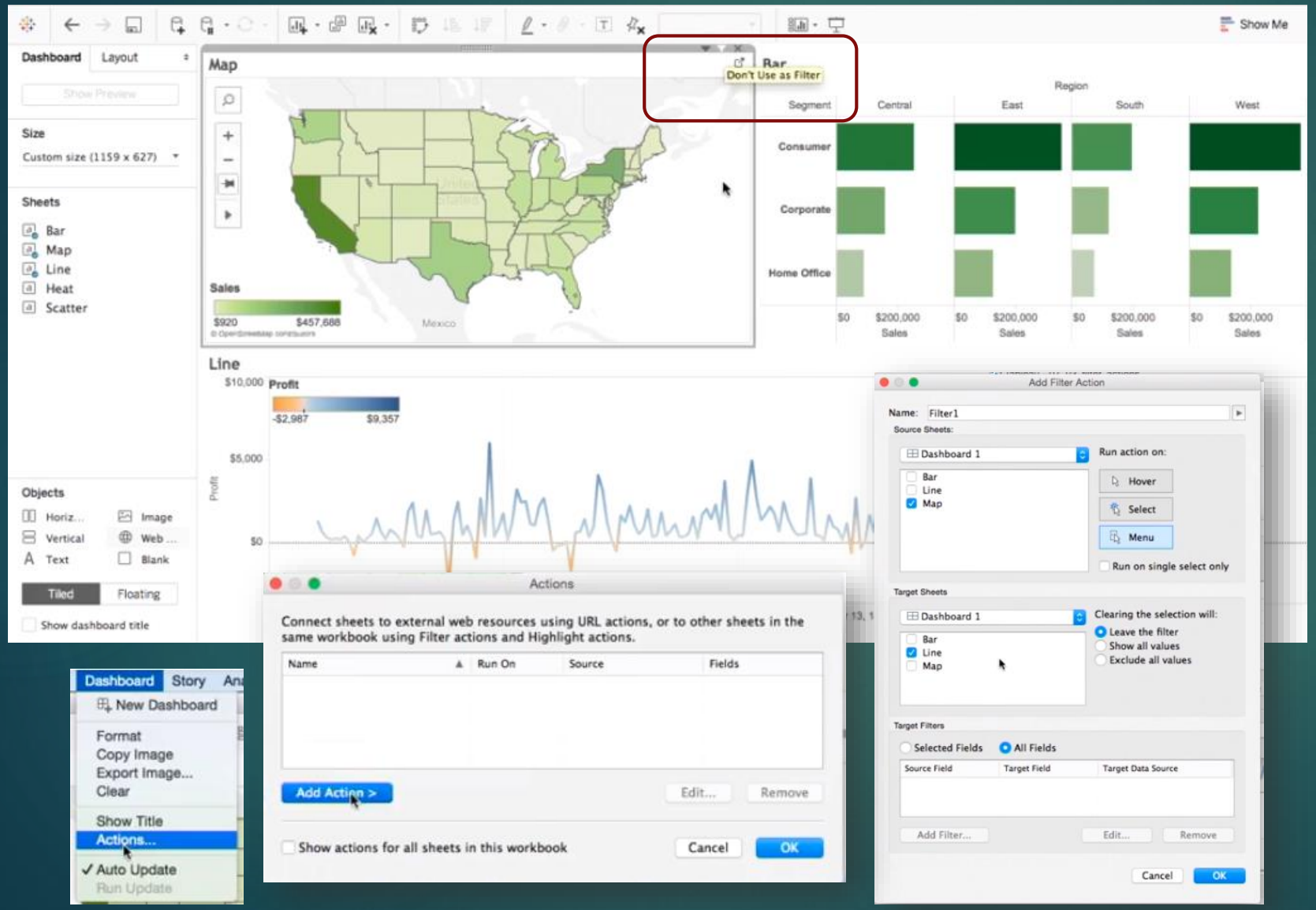
- Create Bar, Map, Line, Heat, Scatter
- Choose Size of Dashboard
- Change chart lables
- Float the legends and put it on relevant charts
- Use containers
- Make selection multiple values dropdown to save space

Containers



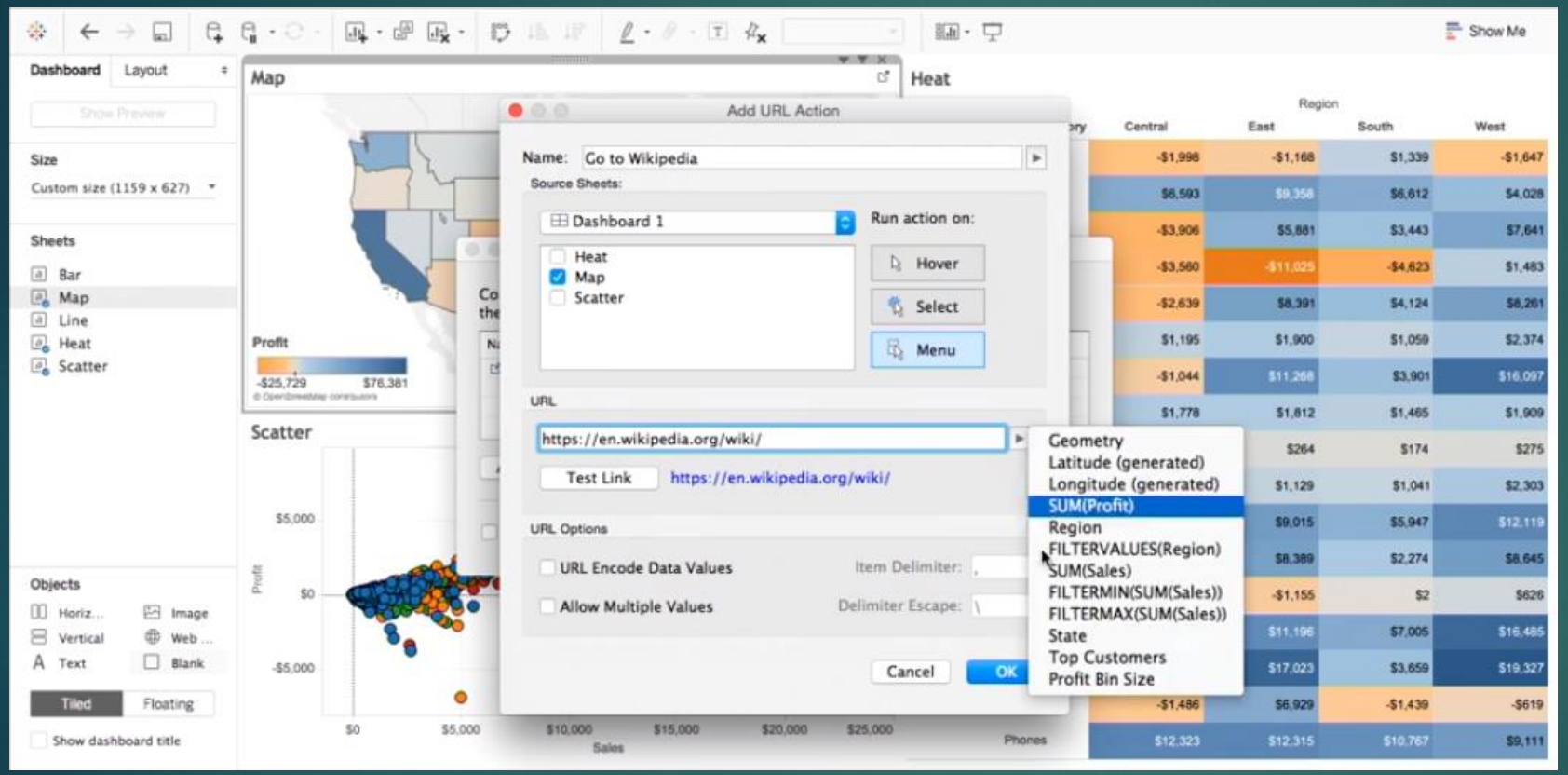
- Used to organise your charts
- Fits based on the information shown

Filter Actions



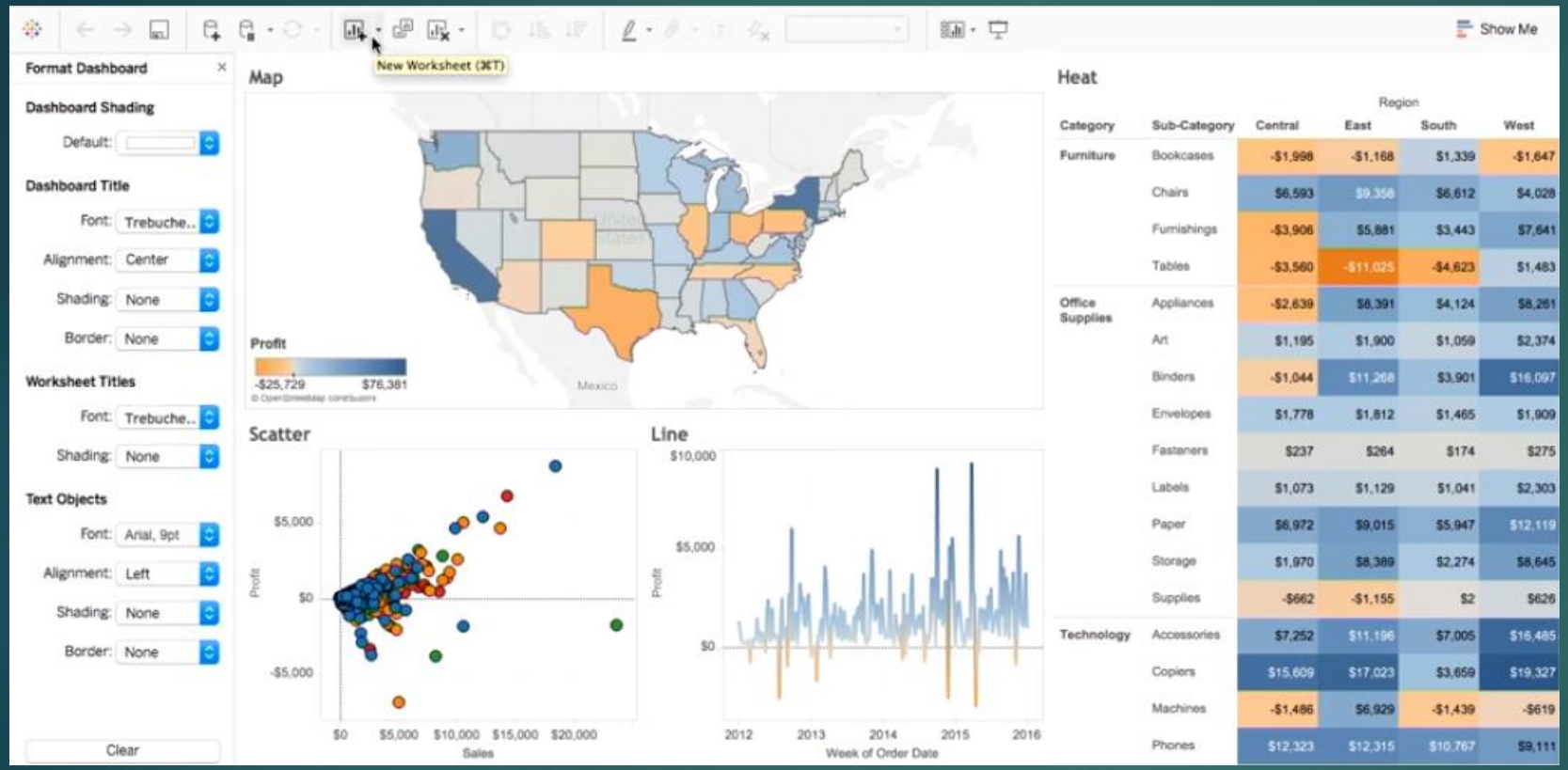
- Can be directedly done on the each chart by clicking on filter icon of the chart
- Or by adding actions(Filter)
- It has more control than doing it directly from the chart
- Choose “Run action on” such as Hover, Select, Menu

Filter Actions



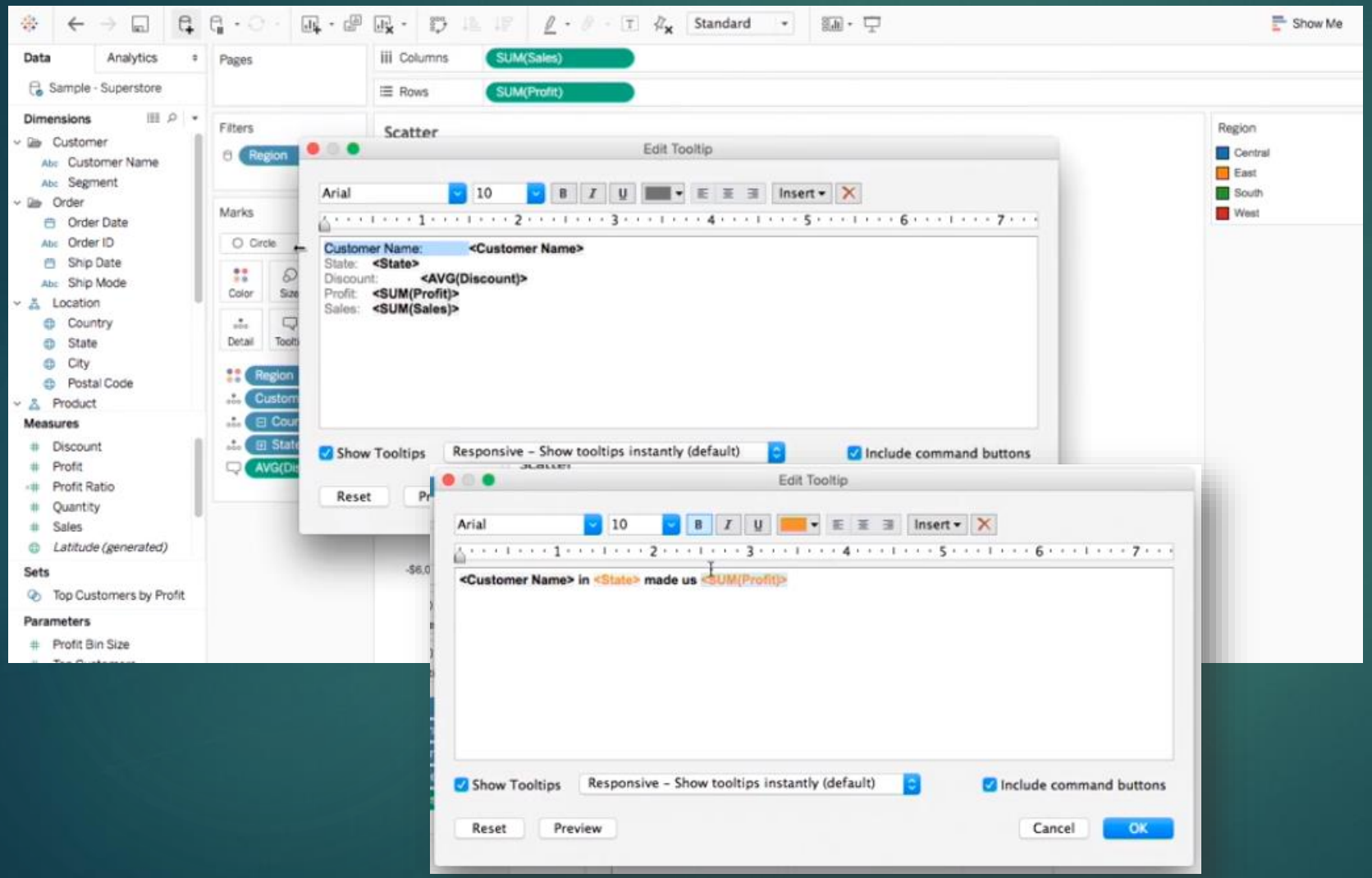
- Other Actions are Highlight and URL Link

Format Dashboards



- Choose Dashboard from the Menu
- Then select Format
- Change each section to suite the Branding

Change Tooltips

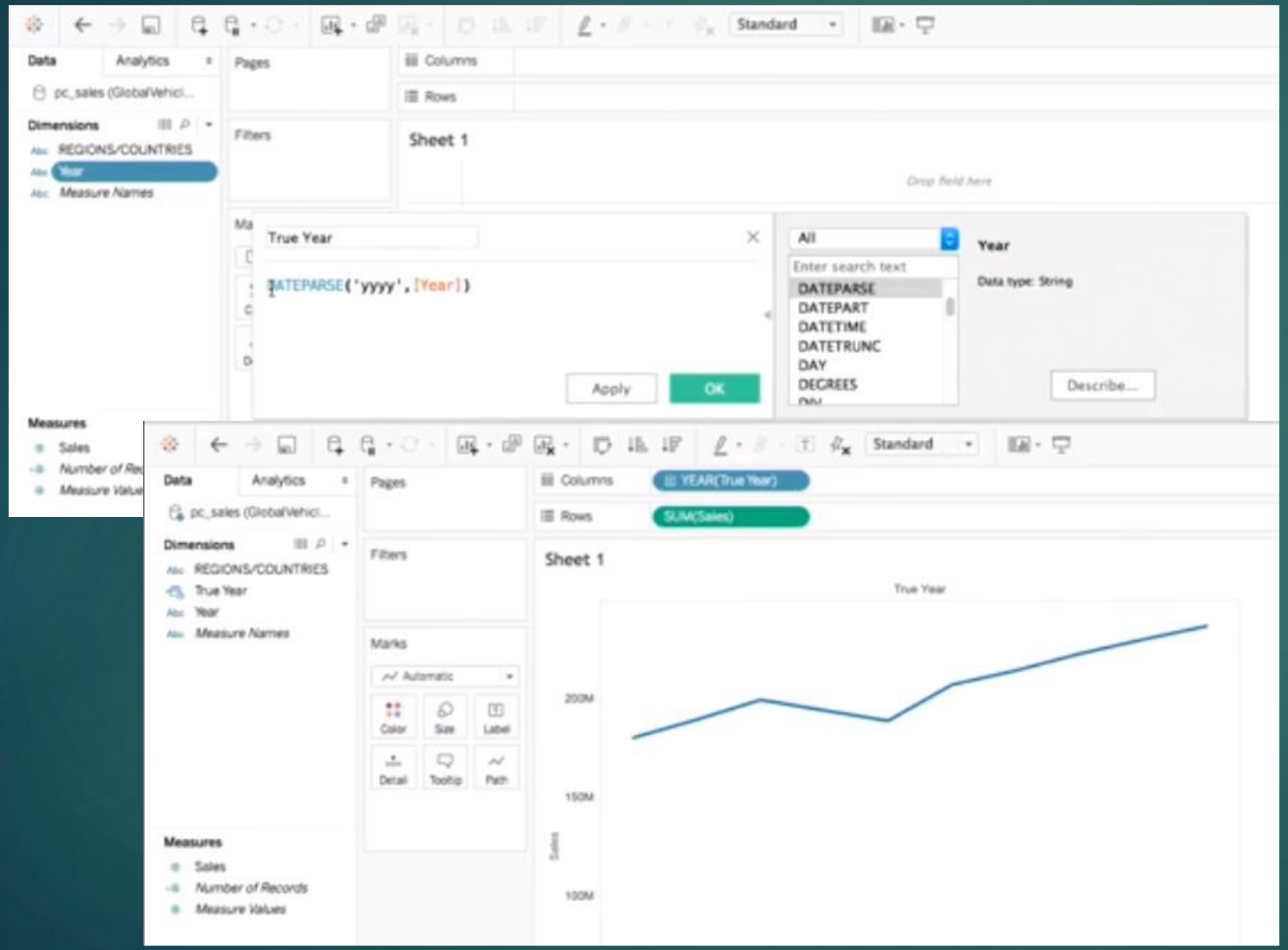


- By Adding a Field to Details it shows up on the Tooltip but it clutters
- So just add it to the Tooltip
- More changes can be made from the Worksheet Menu by selecting Tooltip
- Make is as sentence

Other Useful tips

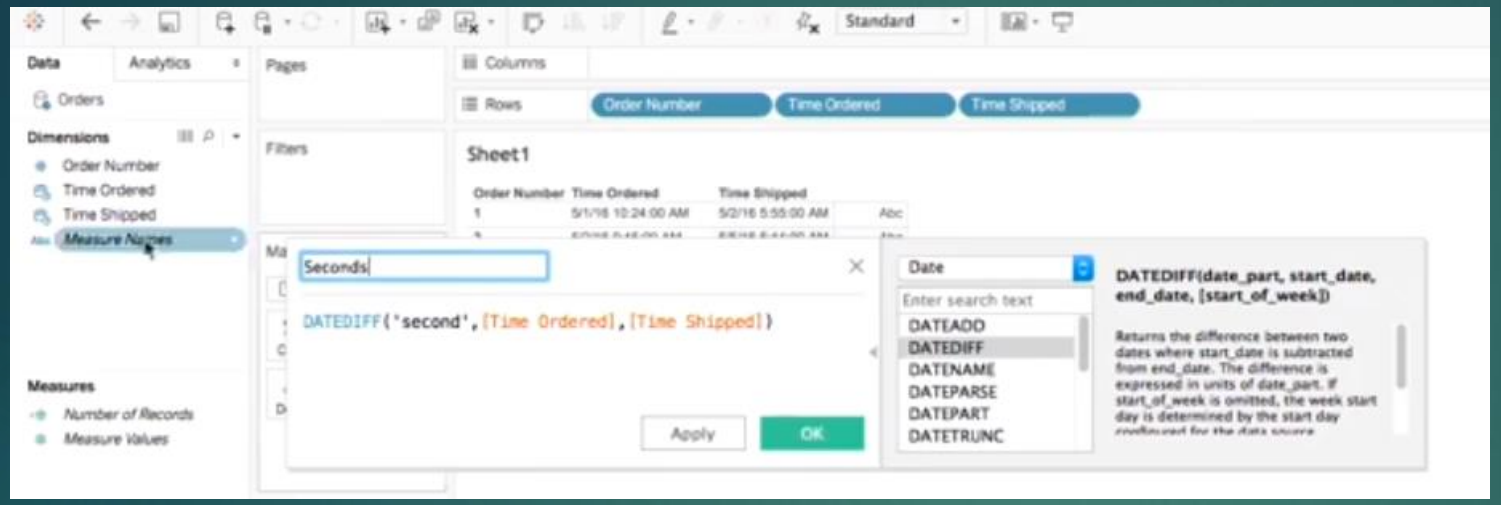
USING GLOBALVEHICLESALES

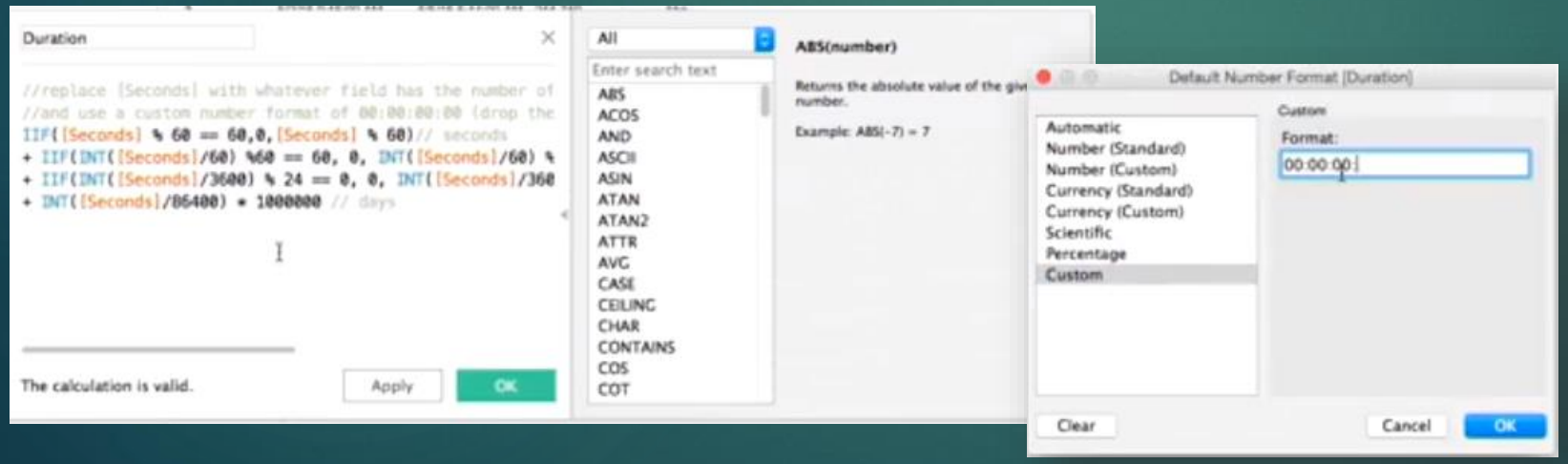
Converting String to Dates using Calculated Field



- Create a Calculate Field on Year
- Use the DATEPARSE function using the formula as shown
- Use to create Charts as Date

Calculate time durations





- Convert the Different to Seconds
- Use DateDiff function to find second difference
- Add it to the chart and convert to discrete
- Now use the second difference to calculate minutes/hours
- Use the formula shown to calculate the duration
- Format and add to get the duration(make it discrete)

Lifeaholic Channel

fxexcel@gmail.com
FunXExcel.com
Youtube.com/fxexcel
Lifeaholic.in

@Lifeaholism

Stay in touch!