




# Tableau Concepts

# Tableau Concepts

- Why are some fields dimensions and others measures?
- What effect will adding a filter have on my view?
- Why is the background color blue for some fields, and green for others?
- The topics in this section attempt to clarify these and other questions about what you can see and experience as you use Tableau Desktop.
- If you're new to Tableau Desktop, also consider working through the [Build-It-Yourself Exercises](#), and check out the [Free Training Videos](#) on the Tableau website.

- Data Types
- Field Types
- Tableau's Order of Operations
- Understanding Data Fields
- Aggregations
- Cube Data Sources

# Data type icons in Tableau

Icon	Data type
Abc	Text (string) values
	Date values
	Date & Time values
#	Numerical values
T F	Boolean values (relational only)
	Geographic values (used with maps)

# Field Types

By default, dimensions are discrete and measures are continuous, but in fact all four combinations are possible:

discrete dimensions	Product Name
continuous dimensions (possible only with Date dimensions)	⊕ QUARTER(Order Date)
discrete measures	SUM(Profit)
continuous measures	SUM(Profit)

# Dimensions and Measures

The screenshot shows the Tableau Desktop interface with the following components:

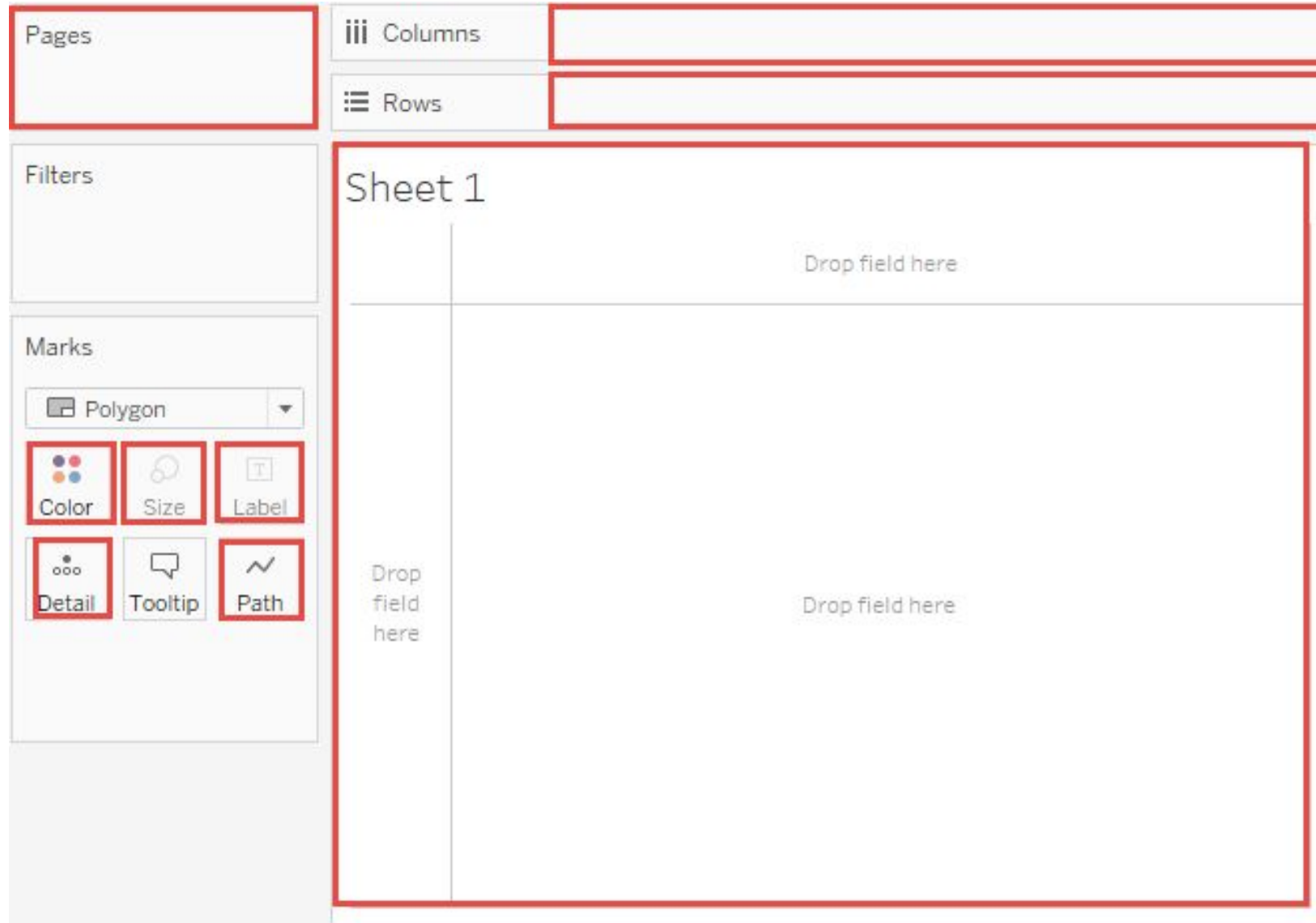
- Menu Bar:** File, Data, Worksheet, Dashboard, Story, Analysis, Map, Format, Server, Window, Help.
- Toolbar:** Includes navigation icons and a 'SUM(Sales)' button.
- Data Pane:** Shows the 'Sample - Superstore' data source.
- Dimensions Pane:** Lists dimensions under 'Location' (Country, State, City, Postal Code) and 'Product' (Category, Sub-Category, Manufacturer, Product Name).
- Measures Pane:** Lists measures including Discount, Profit, Profit Ratio, Quantity, Sales, Latitude (generated), and Longitude (generated).
- Marks Pane:** Shows the 'Automatic' mark type and a 'SUM(Sales)' button.
- Columns Shelf:** Contains 'SUM(Sales)'.
- Rows Shelf:** Contains 'Category'.
- Table:** A pivot table showing Sales by Category.

**Table Data:**

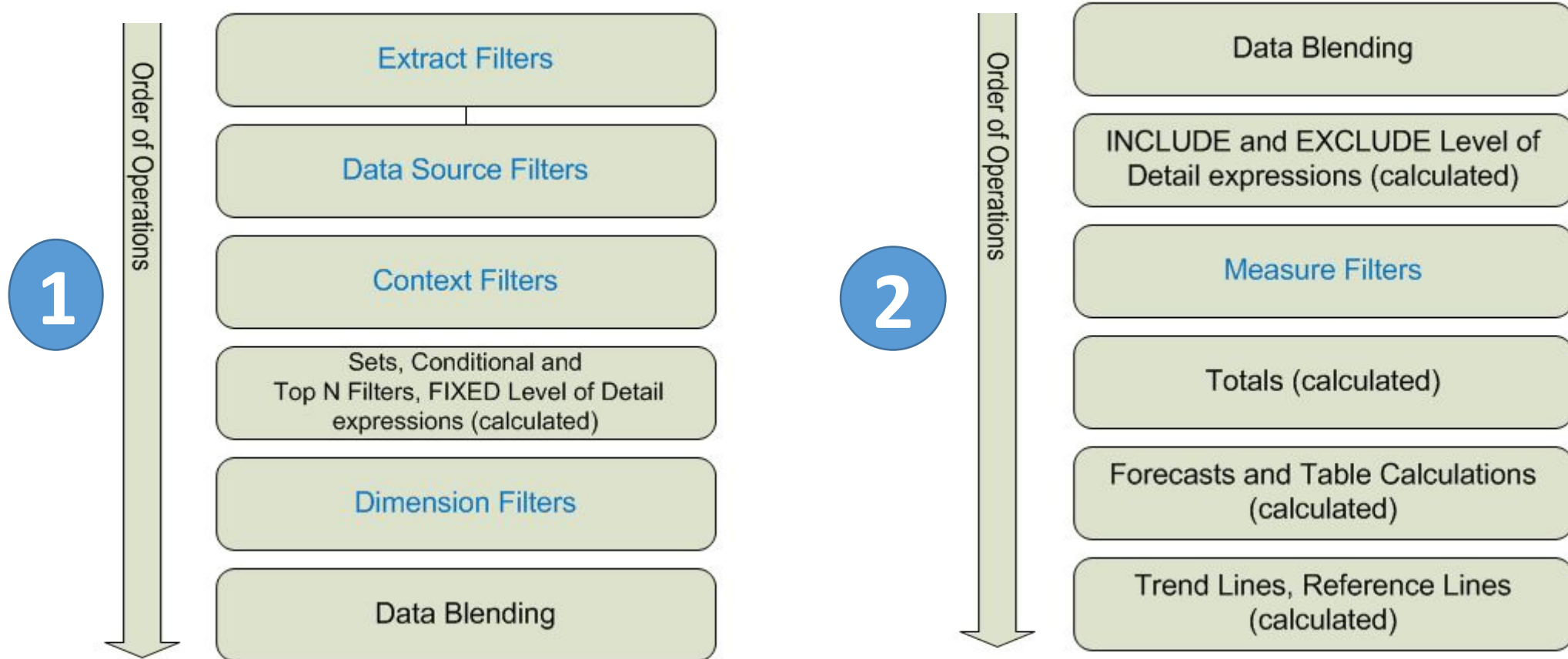
Category	Sales
Furniture	\$719,047
Office Supplies	\$742,000
Technology	\$836,154

← Column headers

# Dimensions and the Level of Detail



# Tableau's Order of Operations





# Convert Fields between Discrete and Continuous

Show Missing Values

Year	2015
Quarter	Q2
Month	May
Day	8
More	▶

☒ Year 2015

Year	2015
Quarter	Q2 2015
Month	May 2015
Week Number	Week 5, 2015
Day	May 8, 2015
More	▶

Exact Date

Attribute

Measure ▶

☐ Discrete

☒ Continuous

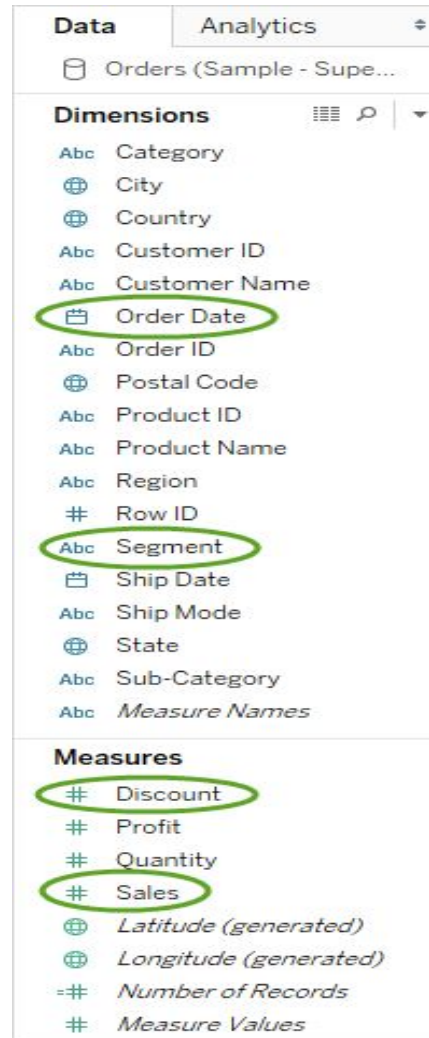
Edit in Shelf

Remove

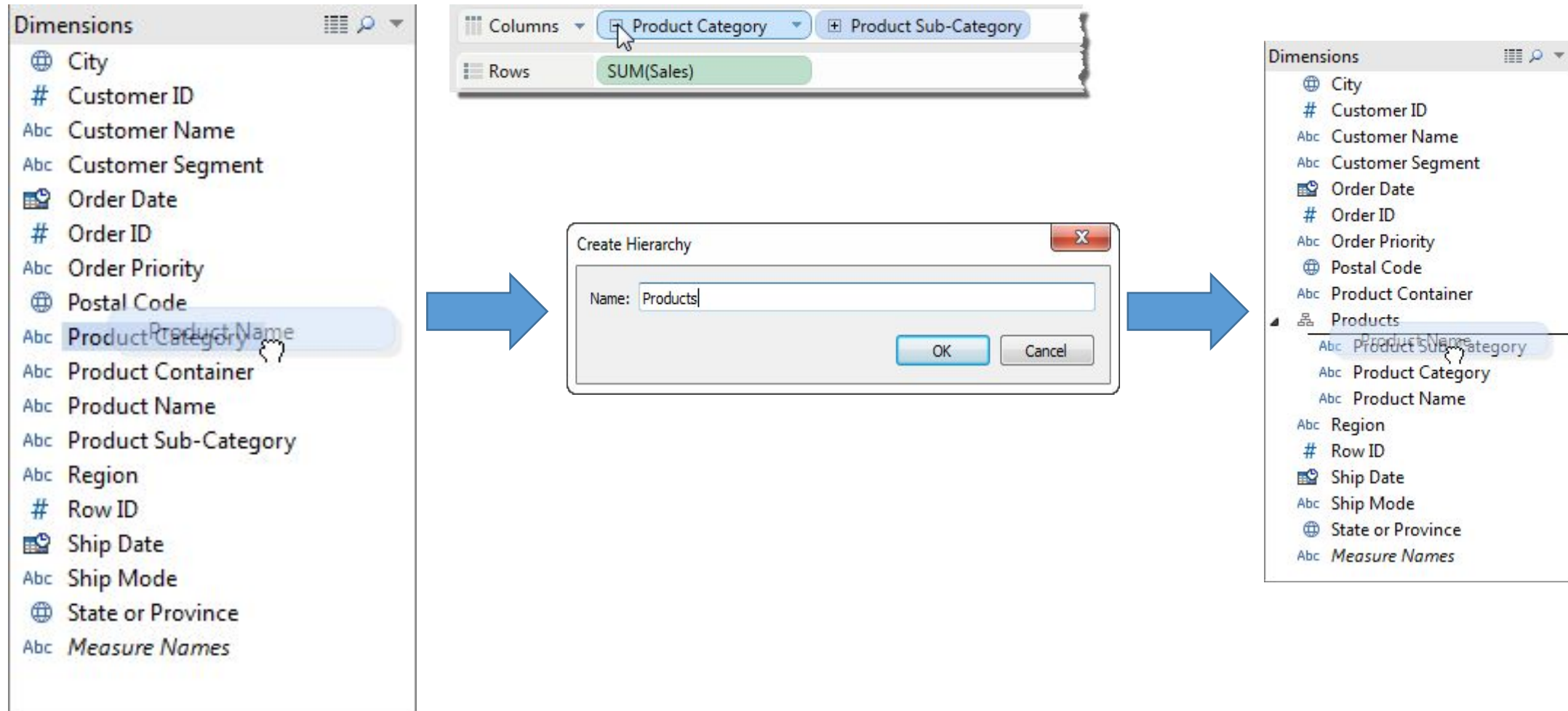
# Understanding Data Fields

- Understanding the Data Pane
- Data Pane Features and Functions
- Editing Field Properties
- Special Values

# Understanding the Data Pane



# Hierarchies (For Relational Databases)

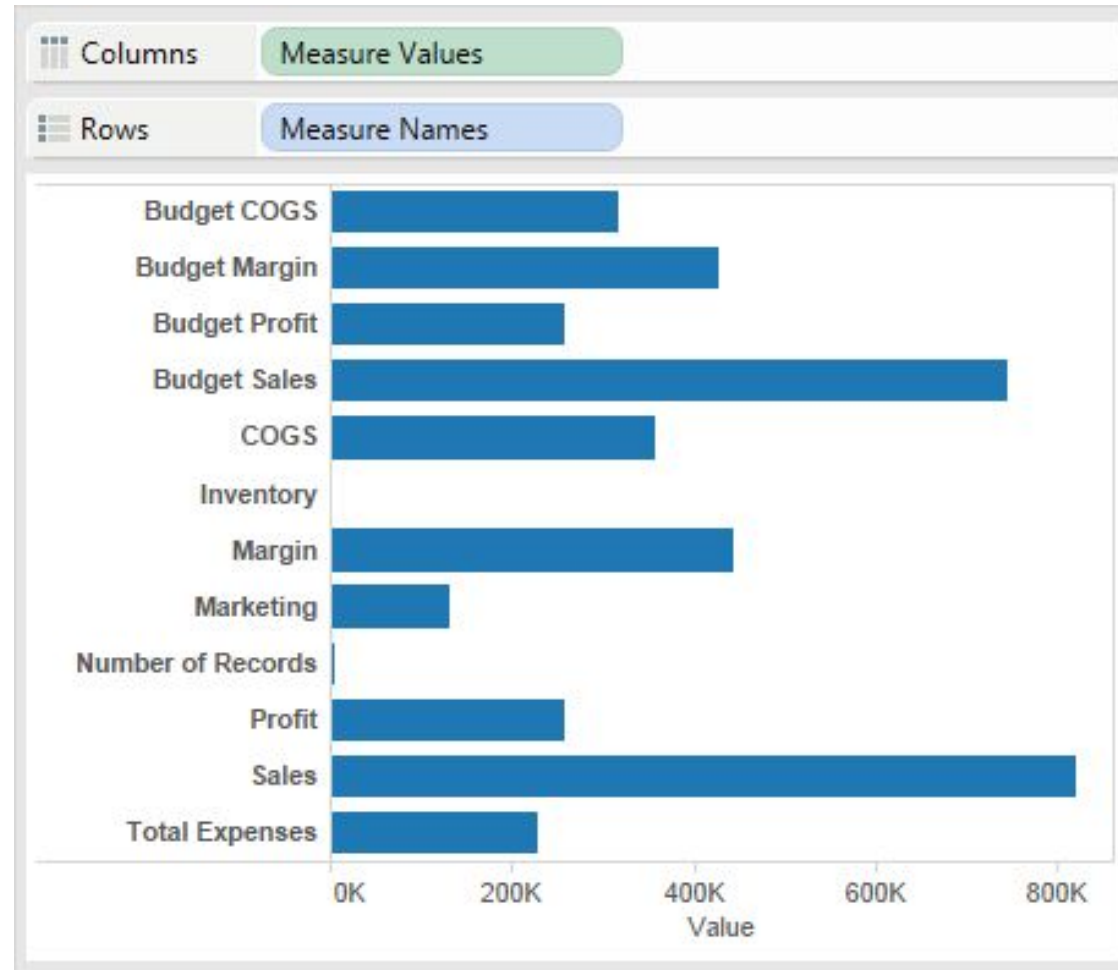


# Relational and Cube Data

Data	Analytics
Orders (Sample - Superstore)	
Dimensions	
Abc	Category
🌐	City
Abc	Customer ID
Abc	Customer Name
Abc	Customer Segment
📅	Order Date
Abc	Order ID
🌐	Postal Code
Abc	Product ID
Abc	Product Name
Abc	Region
#	Row ID
📅	Ship Date
Abc	Ship Mode
🌐	State
Abc	Sub-Category
Abc	Measure Names
Measures	
#	Discount
#	Profit
#	Quantity
#	Sales
🌐	Latitude (generated)
🌐	Longitude (generated)
-#	Number of Records
#	Measure Values

Data	Analytics
Basic	
Dimensions	
▲	<b>Call Center</b>
📦 <sup>1</sup>	Call Center Region
▲	<b>Customer Segment</b>
📦 <sup>1</sup>	Customer Segment
▲	<b>Employee</b>
📦 <sup>1</sup>	Manager Name
📦 <sup>2</sup>	Employee Dept
📦 <sup>3</sup>	Employee Name
▲	<b>Market Segment</b>
📦 <sup>1</sup>	Market Segment
▲	<b>Order Date</b>
📦 <sup>1</sup>	Year
📦 <sup>2</sup>	Quarter
📦 <sup>3</sup>	Month
📦 <sup>4</sup>	Day
▲	<b>Product</b>
📦 <sup>1</sup>	Prod Type1
📦 <sup>2</sup>	Prod Type2
📦 <sup>3</sup>	Prod Type3
Measures	
#	Item Count
#	Order Quantity
#	Sales Total
#	Discount
#	Tax Rate
#	Fill Time
#	Gross Profit
#	Price

# Measure Values and Measure Names



# Number of Records

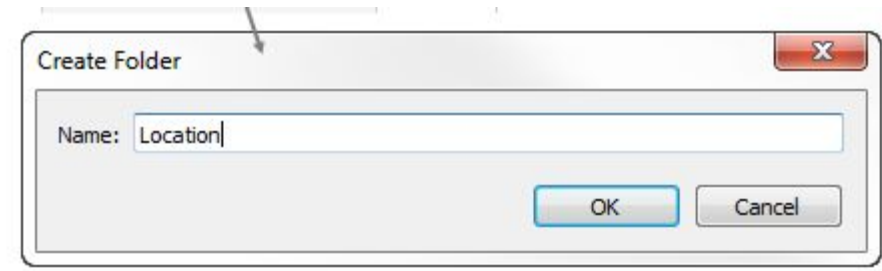
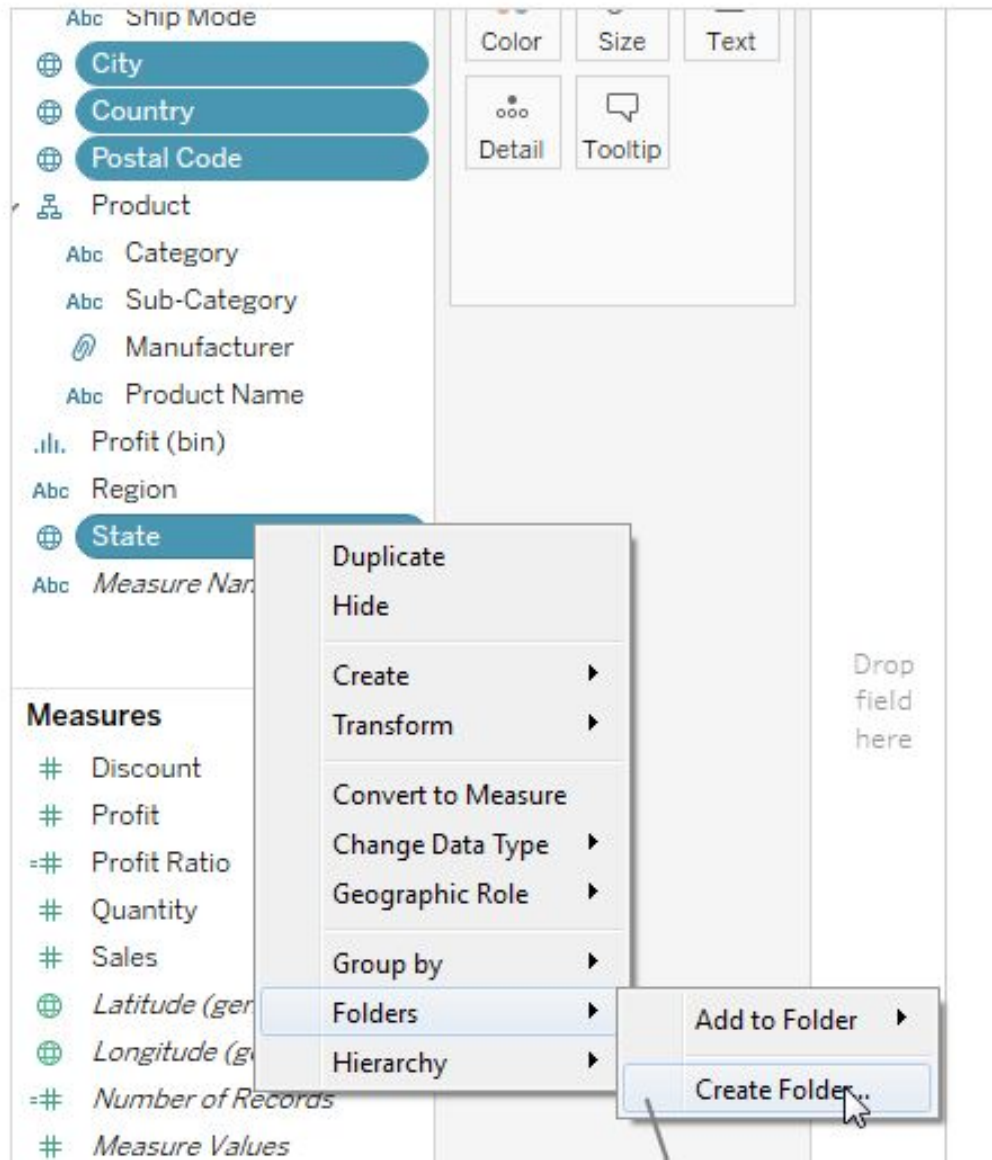
- In addition to the Measure Names and Measure Values fields, the Data pane contains a **Number of Records** field that is also not part of the underlying data. This field represents the number of rows in the data source. It is useful when you are working with a data source that is primarily categorical resulting in very few measures.

# Data Pane Features and Functions

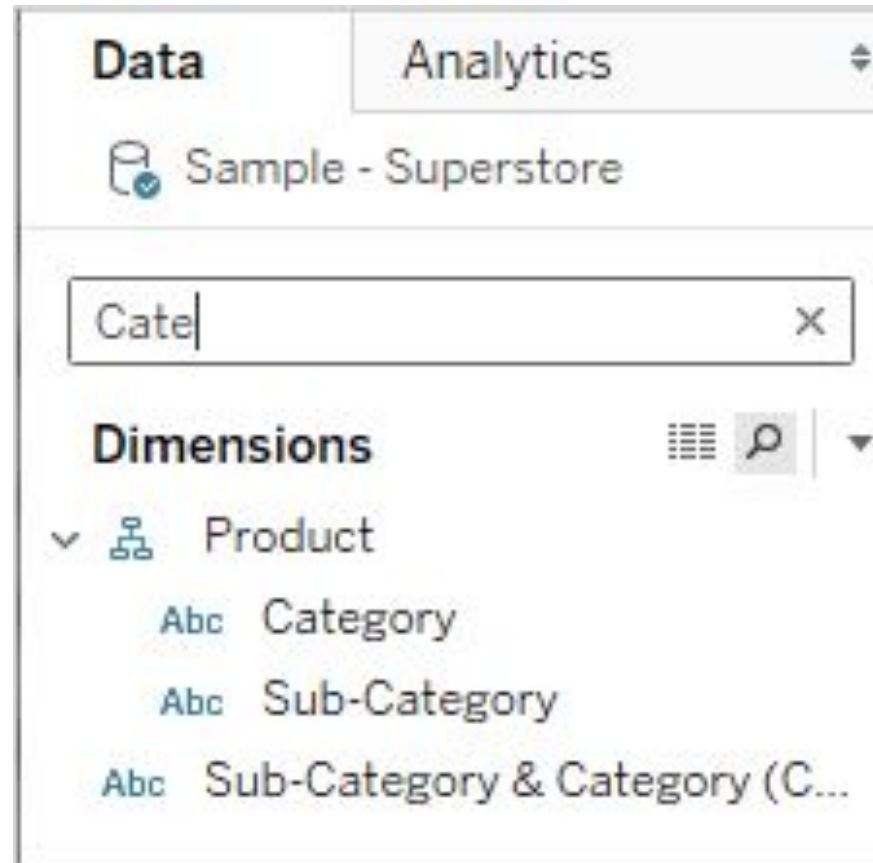
- The Data pane has many features and functions to help you organize your data fields, find specific fields, and hide others.
- [Organize the Data Pane](#)
- [Find Fields](#)
- [Rename Fields](#)
- [Combine Fields](#)
- [Hide or Unhide Fields](#)
- [Add Calculated Fields to the Data Pane](#)
- [Navigate Data Sources in the Data Pane](#)



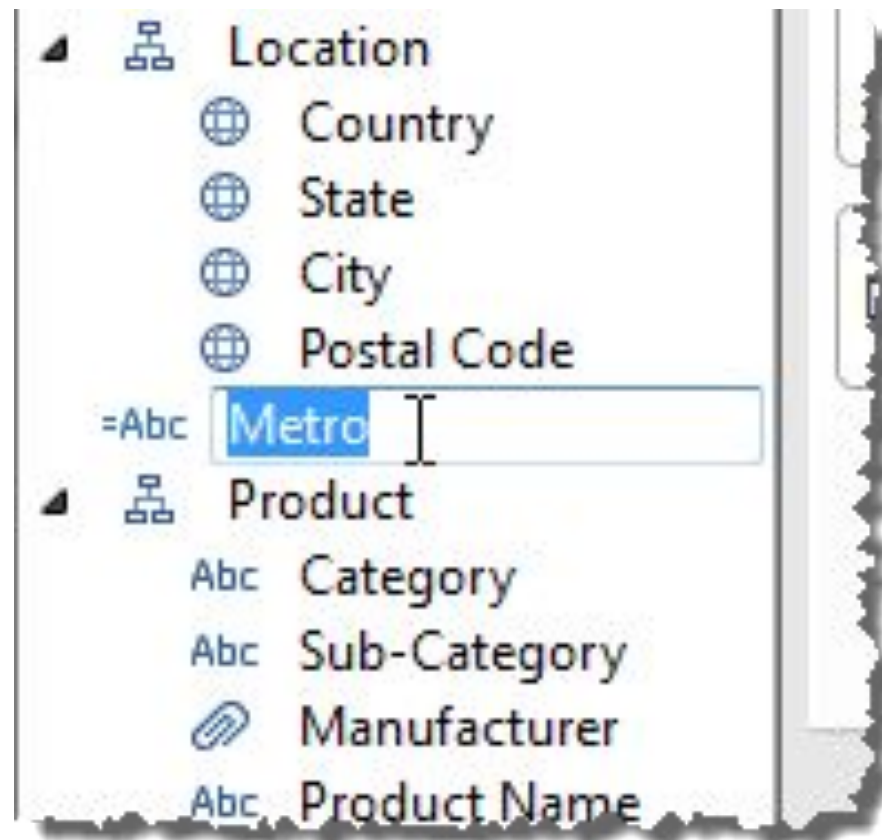
# Organize the Data Pane



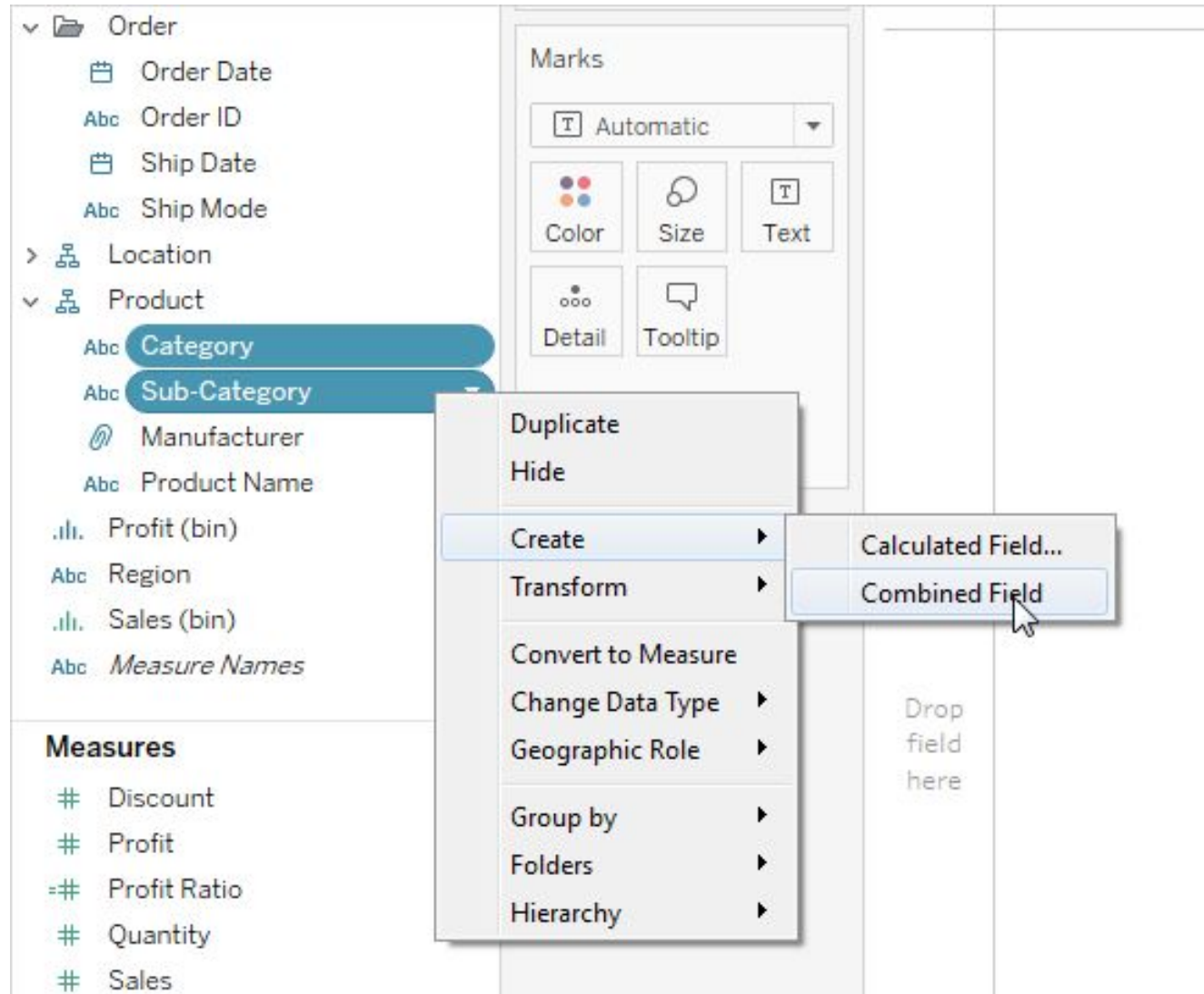
# Find Fields



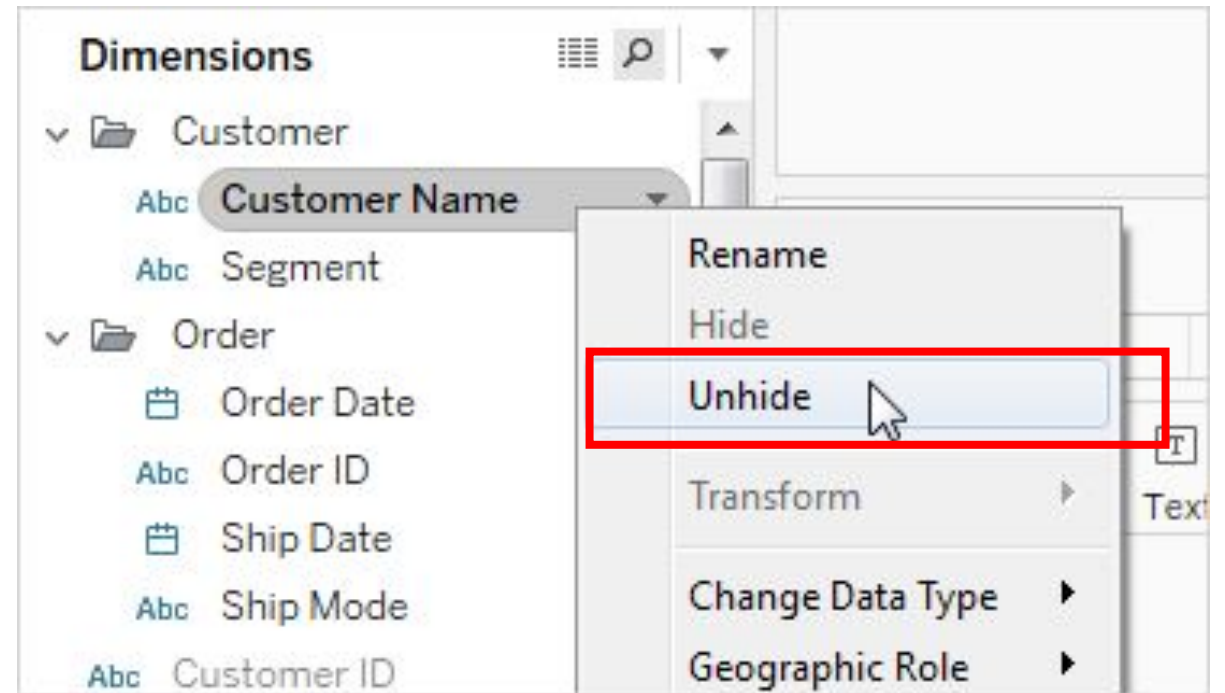
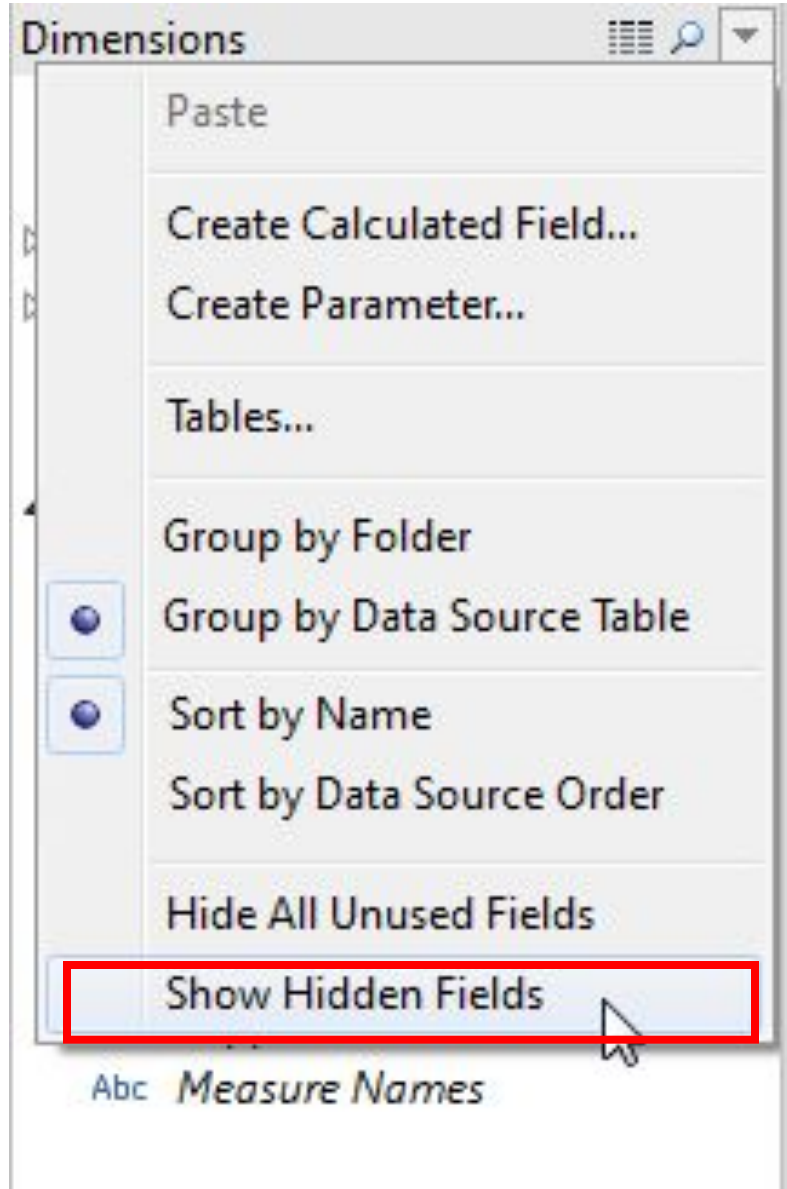
# Rename a Field



# Combine Fields



# Hide or Unhide Fields

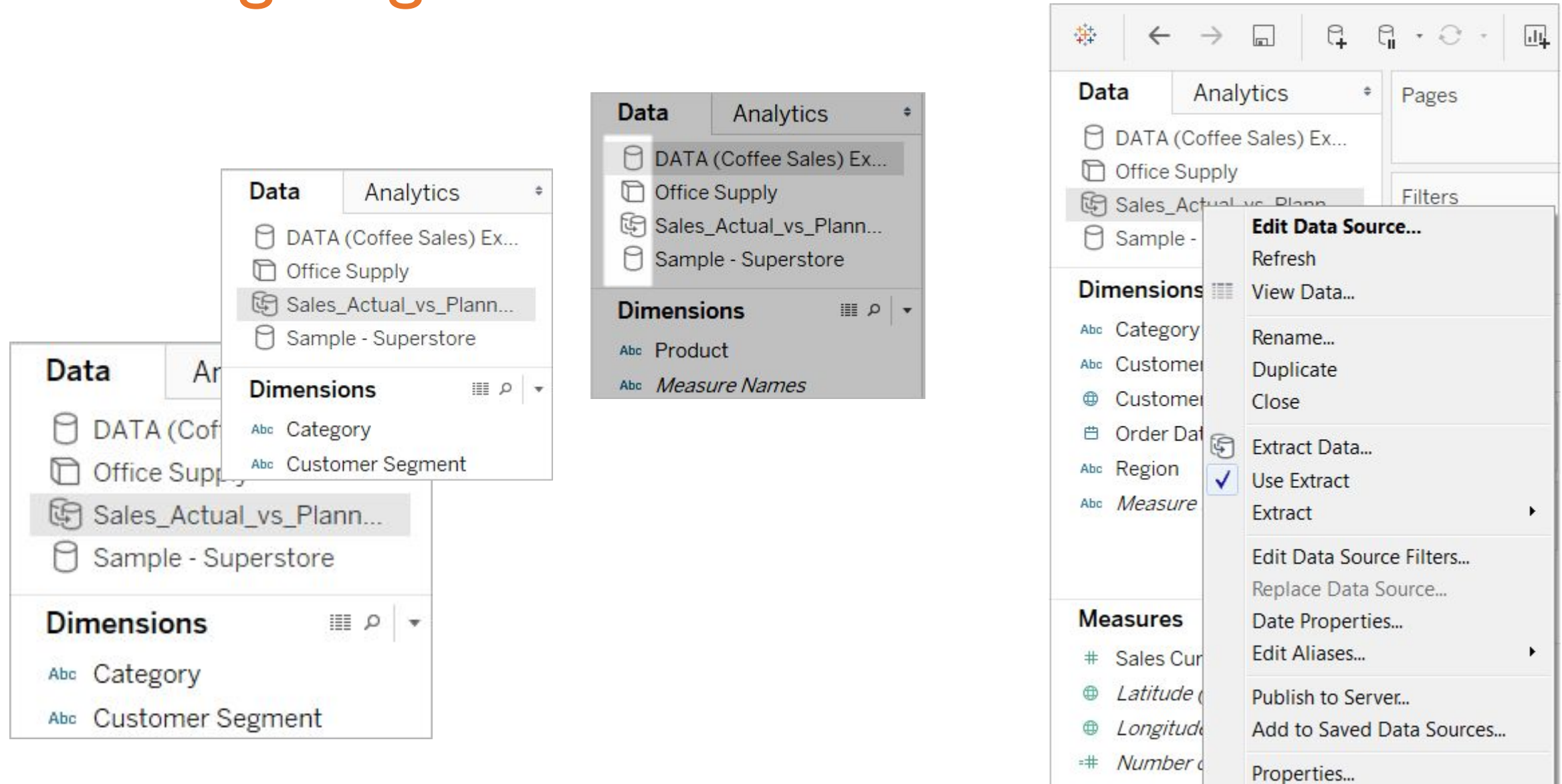


# Add Calculated Fields to the Data Pane

- You can create calculated fields that appear in the Data pane. These new computed fields can be used like any other field. Select **Create Calculated Field** on the Data pane menu. Alternatively, select **Analysis > Create Calculated Field**.



# Navigating Data Sources in the Data Pane



# Editing Field Properties

- Comments
- Aliases
- Colors
- Shapes
- Formats
- Sort
- Aggregation
- Measure Names



# Aggregations - default

SUM(Budget Margin)

Filter...

Show Filter

Format...

☒ Show Header

☒ Include in Tooltip

Dimension

Attribute

☒ Measure (Sum) ▶

Discrete

☒ Continuous

△ Add Table Calculation...

Quick Table Calculation ▶

Remove

Sum

Average

Median

Count

Count (Distinct)

Minimum

Maximum

Percentile ▶

Std. Dev

Std. Dev (Pop.)

Variance

Variance (Pop.)

Columns		Measure Names		
Rows		Market	Market Size	State
Market	Market Size	State	Sales	% of Total Sales along State
Central	Major Market	Colorado	\$48,179	31.58%
		Illinois	\$69,883	45.80%
		Ohio	\$34,517	22.62%
	Small Market	Iowa	\$54,750	48.68%
		Missouri	\$24,647	21.92%
		Wisconsin	\$33,069	29.40%
East	Major Market	Florida	\$37,443	27.08%
		Massachusetts	\$29,965	21.67%
		New York	\$70,852	51.25%
	Small Market	Connecticut	\$25,429	63.07%
		New Hampshire	\$14,887	36.93%
South	Major Market	Texas	\$37,410	100.00%
	Small Market	Louisiana	\$23,161	34.82%
		New Mexico	\$15,892	23.89%

# Example – Scatter Plots and Aggregation

