Deloitte.

Deloitte Analytics
Tableau Desktop
200 Level

February 3rd, 2017

About Me

Name: Patrick McDevitt

Background: Duquesne University (Economics), Evoke Research and Consulting, Deloitte Consulting

Experience with Tableau: ~2 years self-taught

Fun Fact: College book-club participant and avid golfer

Contents

Course Overview

Course Description and Goals

Course Description

- This course will introduce users to Tableau to tell rich stories with data. The activities in this course will lead to the development of a Tableau dashboard.

Course Goals

- To teach students how to connect to data, design visualizations and build interactive dashboards. Users should have a basic understanding of Tableau features including formatting, actions, calculated fields, hierarchies, groups, filters, reference lines and a variety of visualization types.

Course Objectives

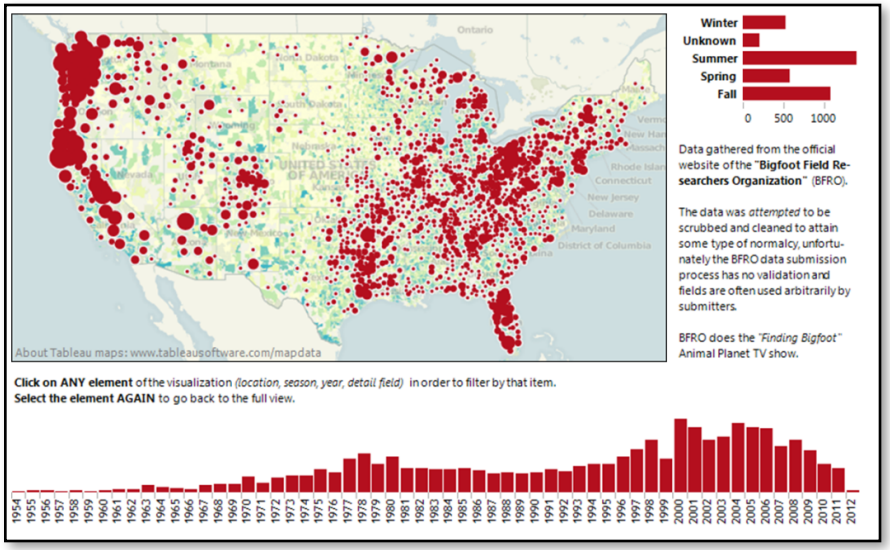
After completing this course, learners will be able to:

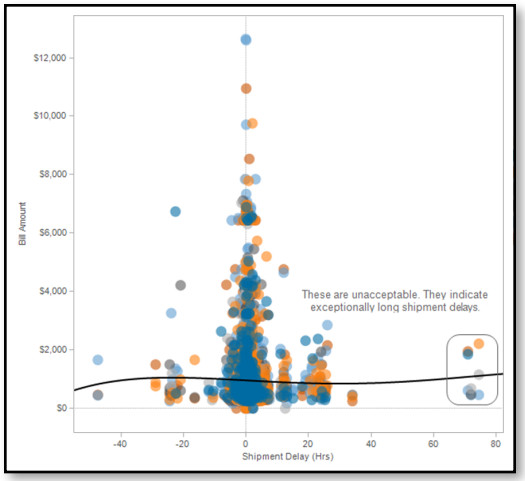
- ☐ Import multiple types of data sources
- ☐ Understand basic controls and navigations of the tool
- ☐ Create hierachies and groups
- ☐ Be able to pick the right visualization for your data type
- ☐ Understand the basic formatting features of Tableau
- ☐ Use action filters and highlights
- ☐ Incorporate parameters into your visualizations
- ☐ Build an interactive dashboard

Tableau Background

Tableau Background

- Tableau Software provides software applications for fast analytical and rapid fire business intelligence.
- Tableau Desktop is a data visualization application that lets you analyze virtually any type of structured data and produce highly interactive, beautiful graphs, dashboards, and reports in just minutes.
- You can connect to virtually any data source from spreadsheets to data warehouses and display information in multiple graphic perspectives.





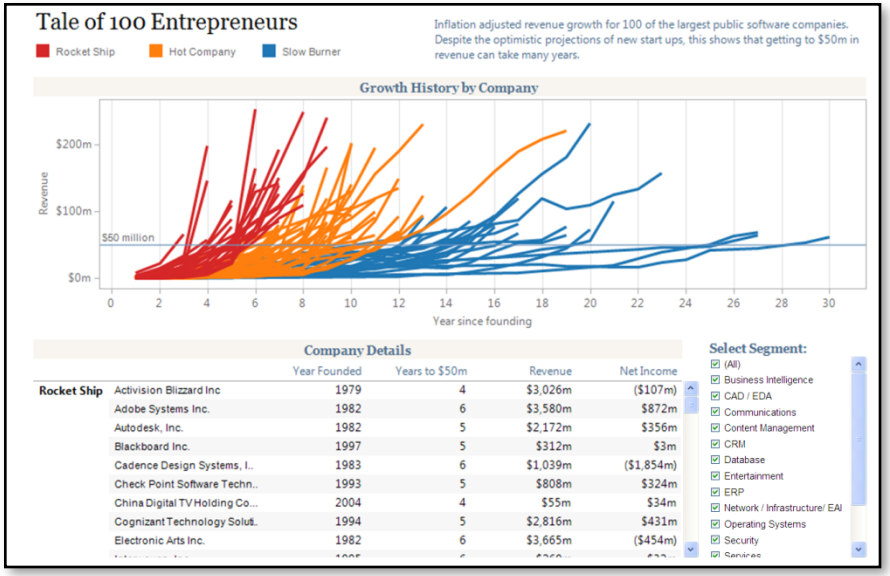


Tableau is an Excellent Tool For Organizing Visual Data

Ease of Use

- Plug and play with data sets, no scripting required
- Link tables to create relational entities
- Drag & drop layout, no programming required

Designed for Comparison & Patterns

- Specifically designed layouts for
  - Time series
  - Comparative functions
  - Pattern analysis

High Data to Ink Ratio

- Supports multivariate analysis (X by Y by Z) in a variety of formats
  - Bubble charts
  - Spark lines
  - Bullet Charts
- Highlighting settings cue up data pre-attentiveness
- Expose parameters for event modeling in real time
- Creates dashboards by embedding multiple visualizations into a single entity

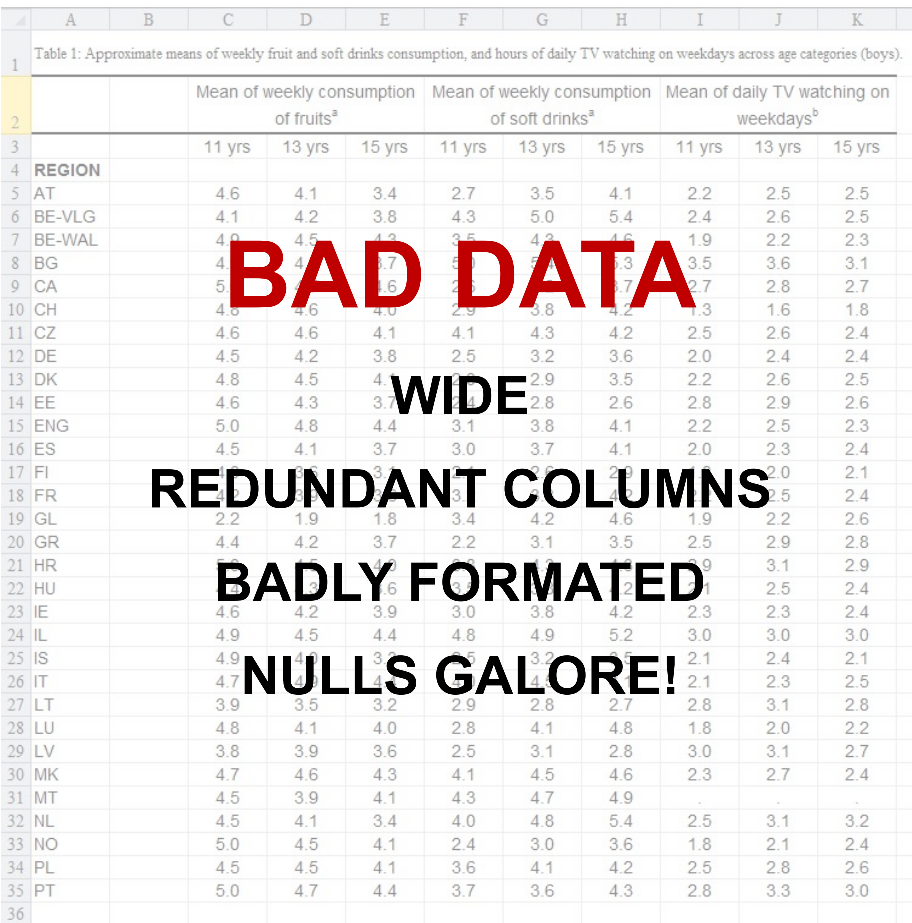
Excellent Engine

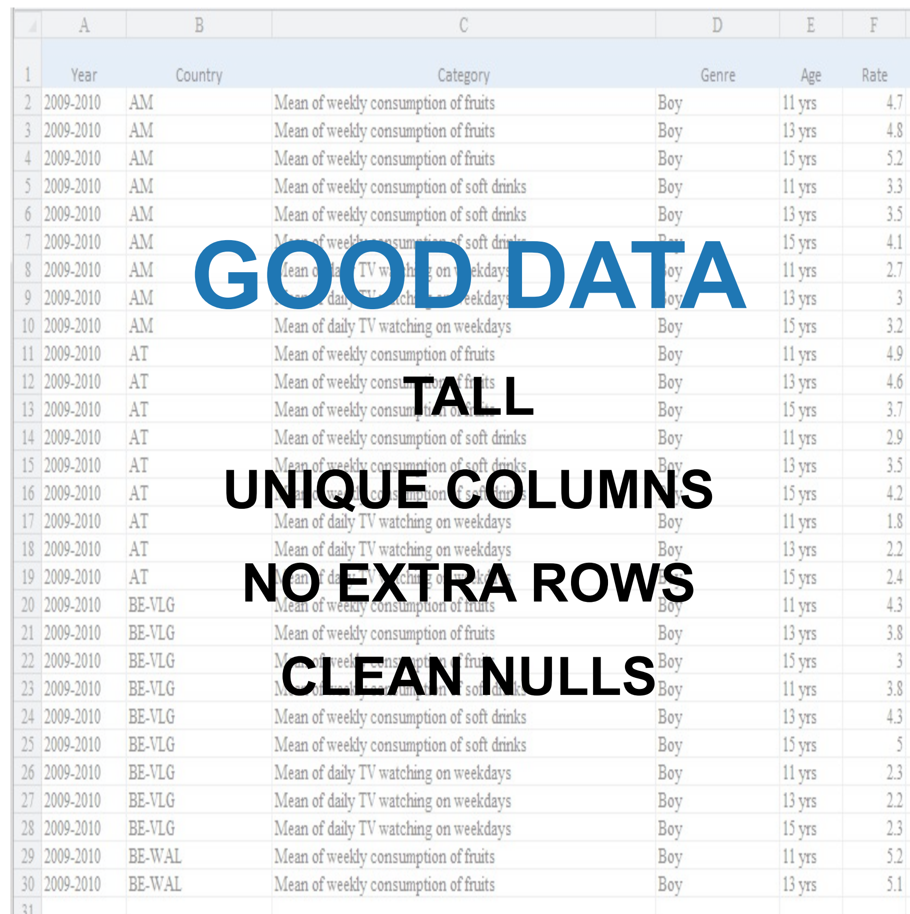
- Supports SQL like equation builder
- Creates running totals, percent of, moving average, etc on the fly
- Supports a high level of dynamic use “out of the box”
- Embeds background data in table format for on the fly details

These factors change the delivery from a presentation to a conversation.

Preparing Data

- **Cleaning** – Remove errors/noise, extraneous columns, normalizing
- **Integration** – Blending multiple data sets either in Tableau or Database
- **Transformation** – Preparing data structure for Tableau, Excel Reshaper





About the Data

- For this presentation we are going to be using Capital Trip History BikeShare data
  - On a quarterly basis, Capital BikeShare releases the data associated with every trip that has taken place. Found HERE
- The original column headers are the following:

Duration (ms)	Start date	End date	Start station number	Start station	End station number	End station	Bike number	Member Type
301295	3/31/2016 23:59	4/1/2016 0:04	31280	11th & S St NW	31506	1st & Rhode Island Ave NW	W00022	Registered

- Using Python and the Google API we can call the exact longitude and latitude of each station number, as well as the zip code

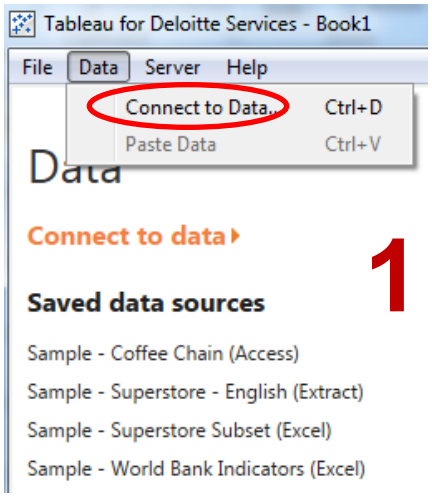
Bike	Duration	End_date	End_station	Start_date	Start_station	Type	End_latitude	End_longitude	End_ZIP	Start_latitude	Start_longitude	Start_ZIP
W00749	1	4/1/2011 0:00	16th & Harvard St NW	3/31/2011 23:58	14th & Harvard St NW	Registered	38.9262766	-77.0364703	20009	38.9265705	-77.0324193	20009

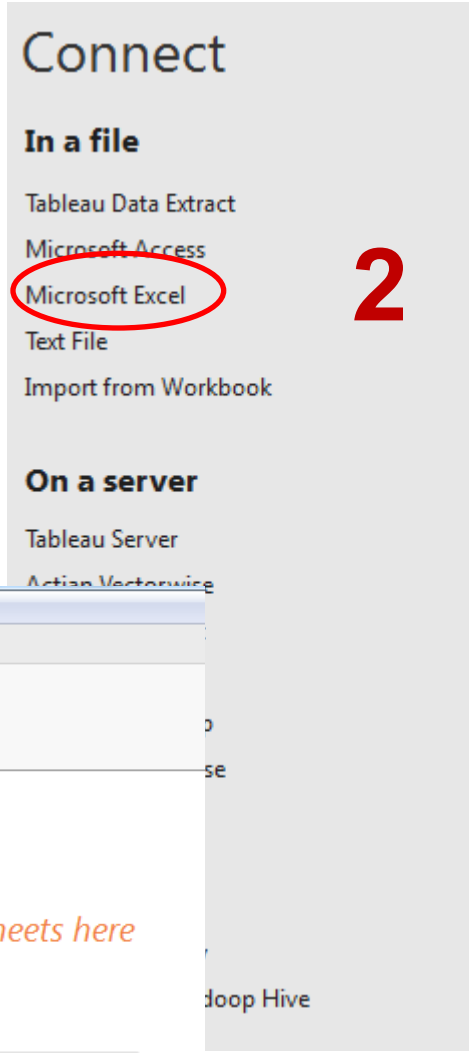
- This dataset contains 1,048,576 unique BikeShare trips from 2011.

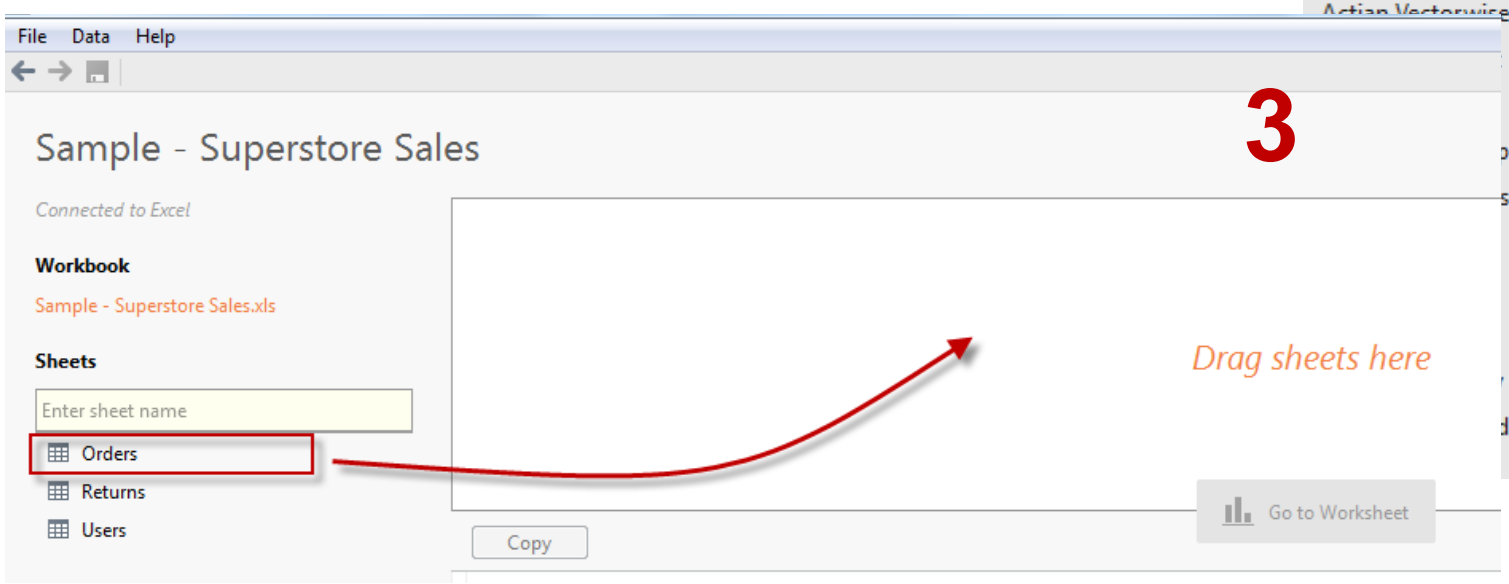
Tableau Demo

Getting Started: Connecting to Data

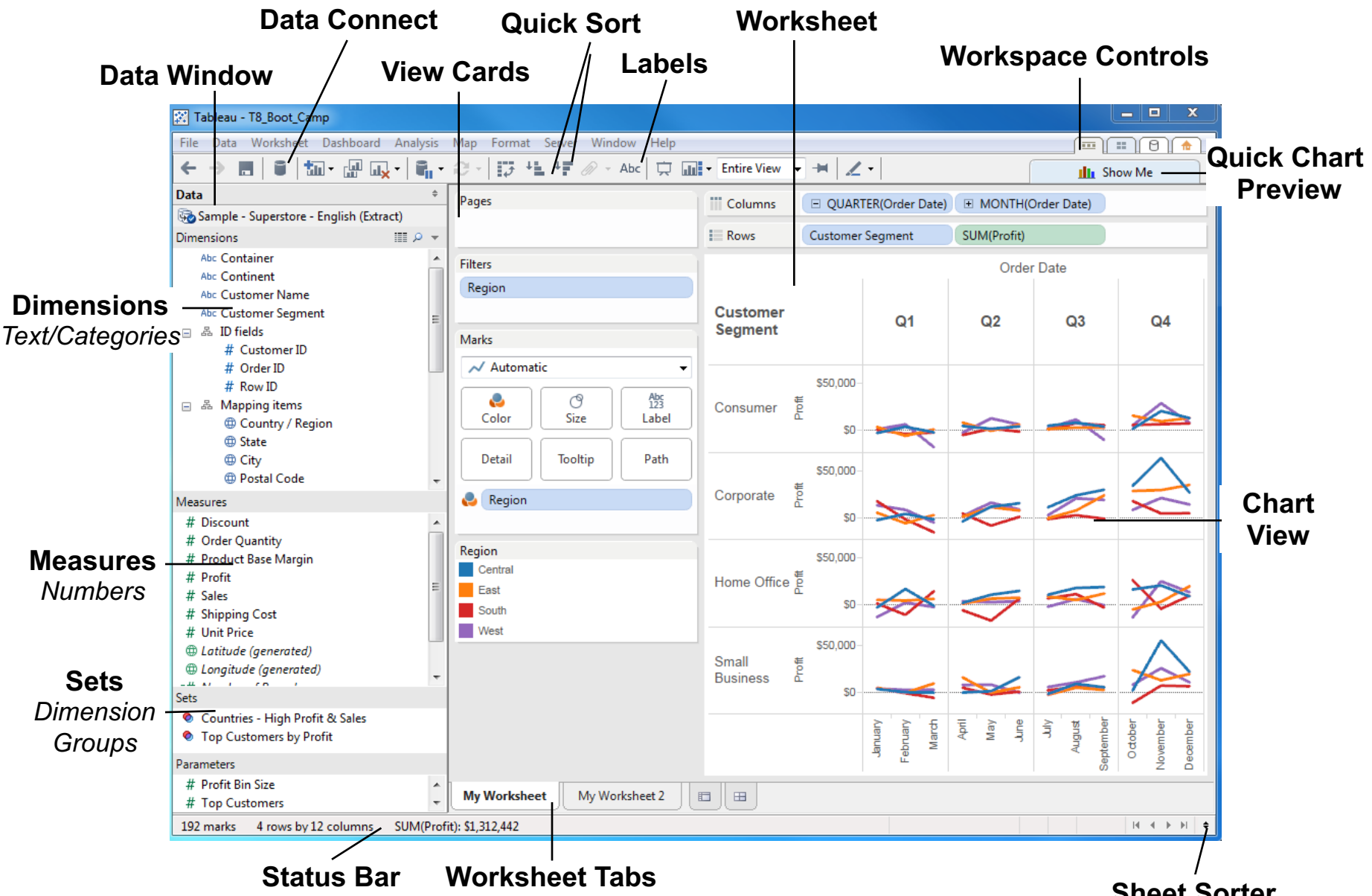
1. Click Connect to Data on left side of page
2. Select data source type
3. Navigate to file you want to connect to
4. Select how you to want to connect to data:
   - **Live:** Direct connect to data. Slows speeds but allows you make updates to source.
   - **Import:** Brings in data to workbook. Improves speed.







Screen Basics

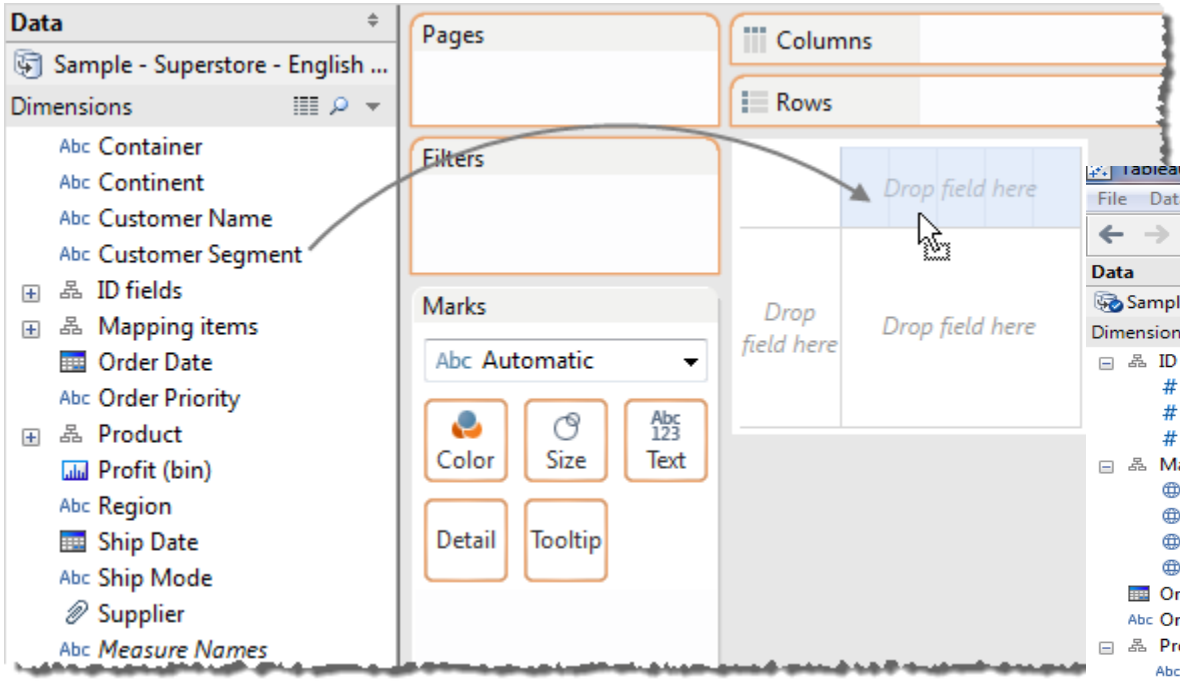


Card Details

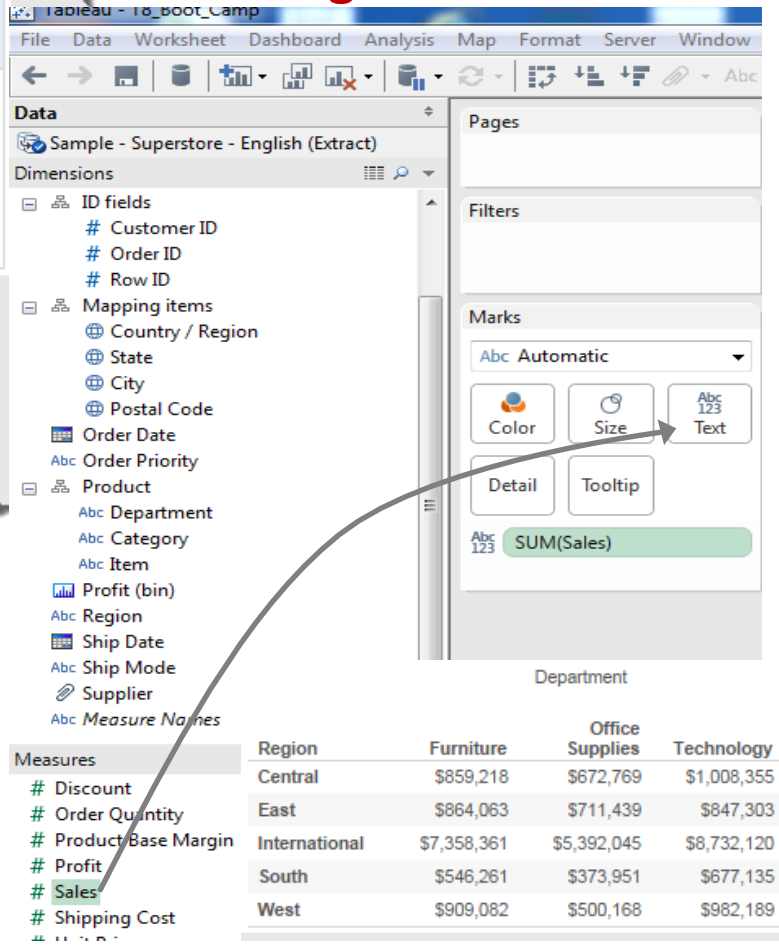
- **Columns Shelf** – where you can drag fields to add columns to the view
- **Rows Shelf** – where you can drag fields to add columns to the view
- **Pages Shelf** – create several different pages with respect to the members in a dimension or the values in a measure
- **Filters Shelf** – contains the Filters shelf; use this shelf to specify the values to include in the view
- **Measure Values Shelf** – use this shelf to use multiple measures along a single axis
- **Quick Filters** – use these cards to easily include and exclude values from the view
- **Parameters** – use these cards to modify parameter values
- **Marks** – contains a mark selector where you can specify the mark type as well as the Path, Shape, Text, Color, Size, Angle, and Level of Detail shelves. NOTE: The availability of these shelves are dependent on the fields in the view
- **Title** – contains the title for the view. Double–click this card to modify the title
- **Caption** – contains a caption that describes the view. Double–click this card to modify the caption
- **Summary** – contains summary of each of the measures in the view including the Min, Max, Sum, and Average

Getting Started: Drag a Dimension and Measure

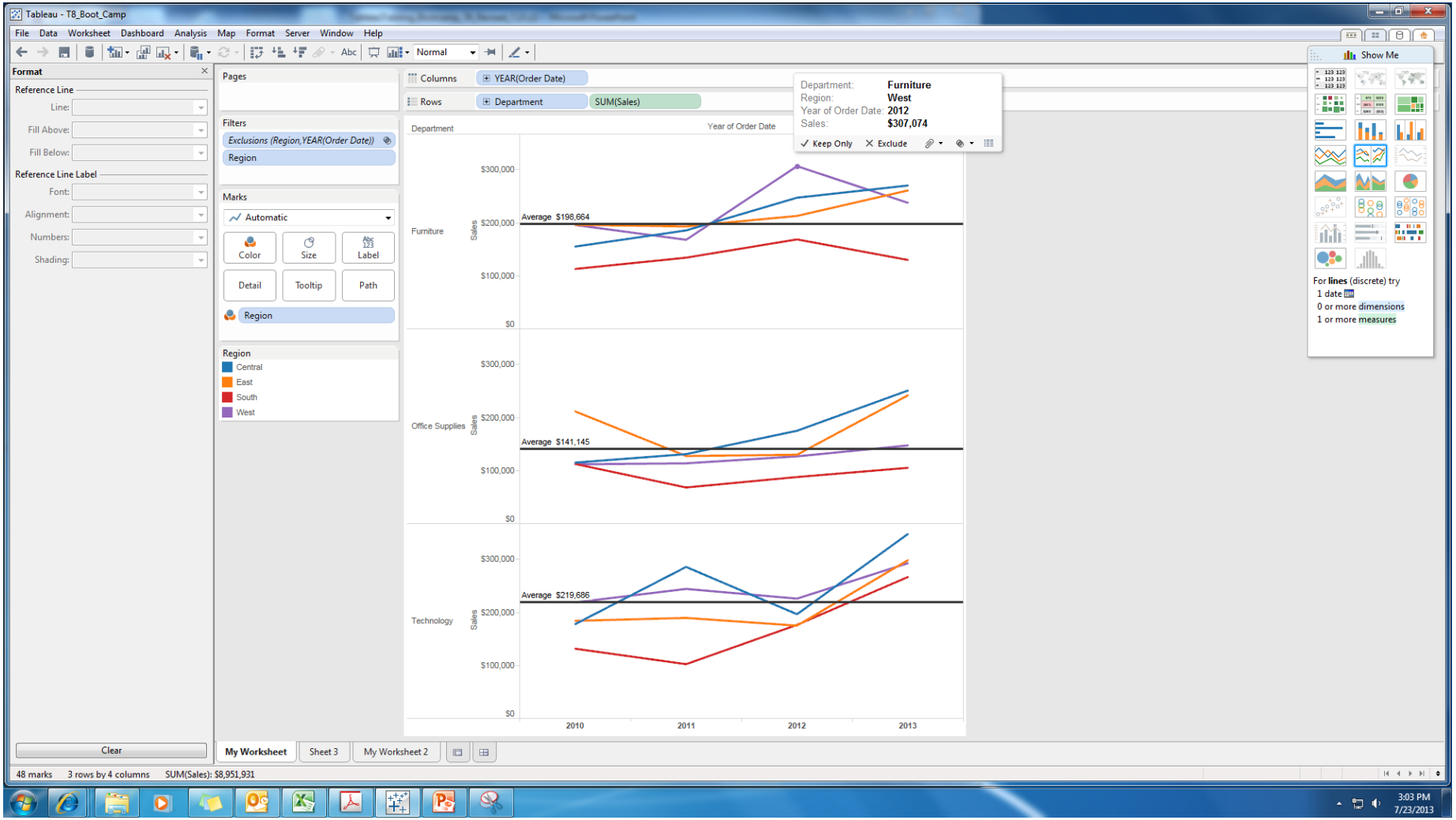
Drag a Dimension



Drag a Measure

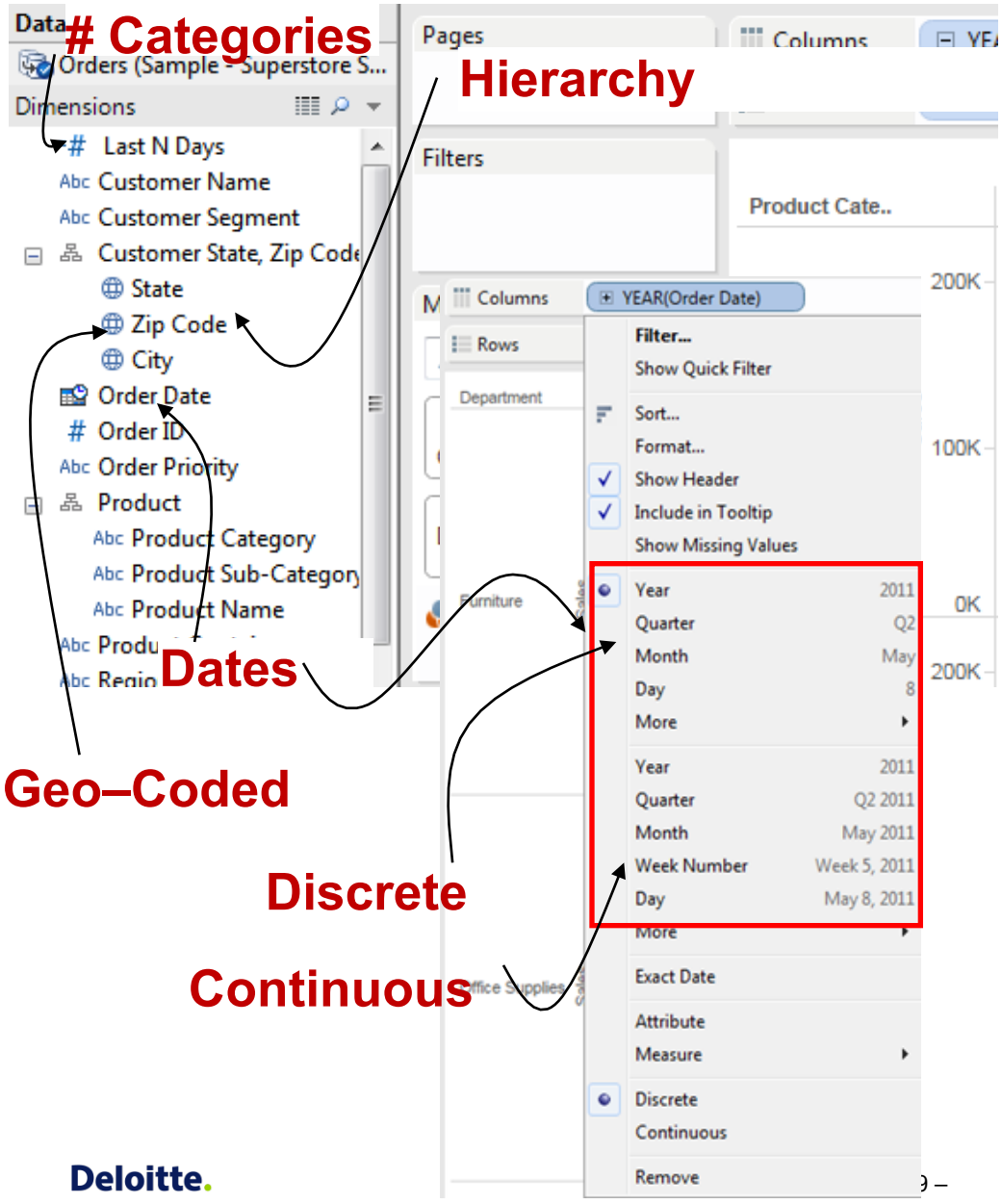


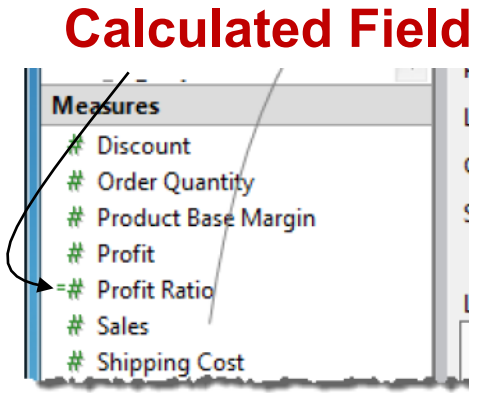
Activity #1 Experiment and Build a Worksheet – 5 Minutes

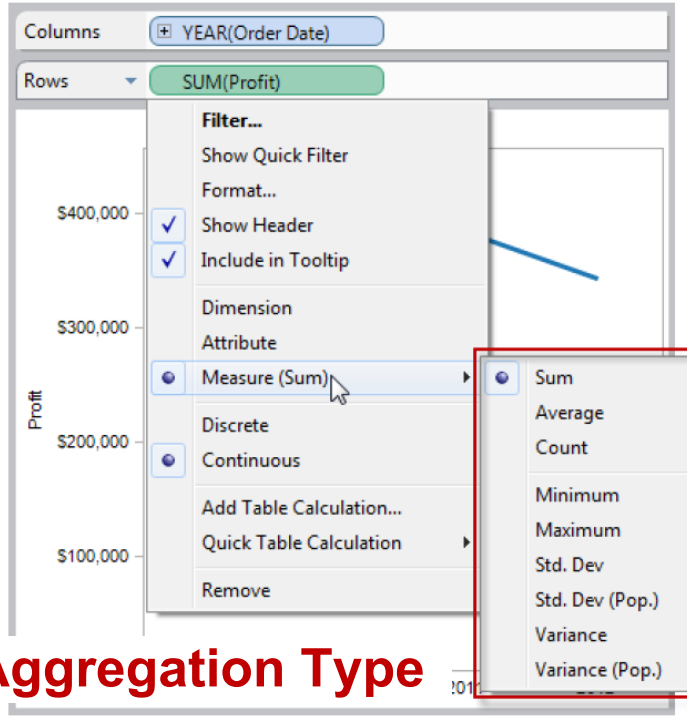


Basic Features

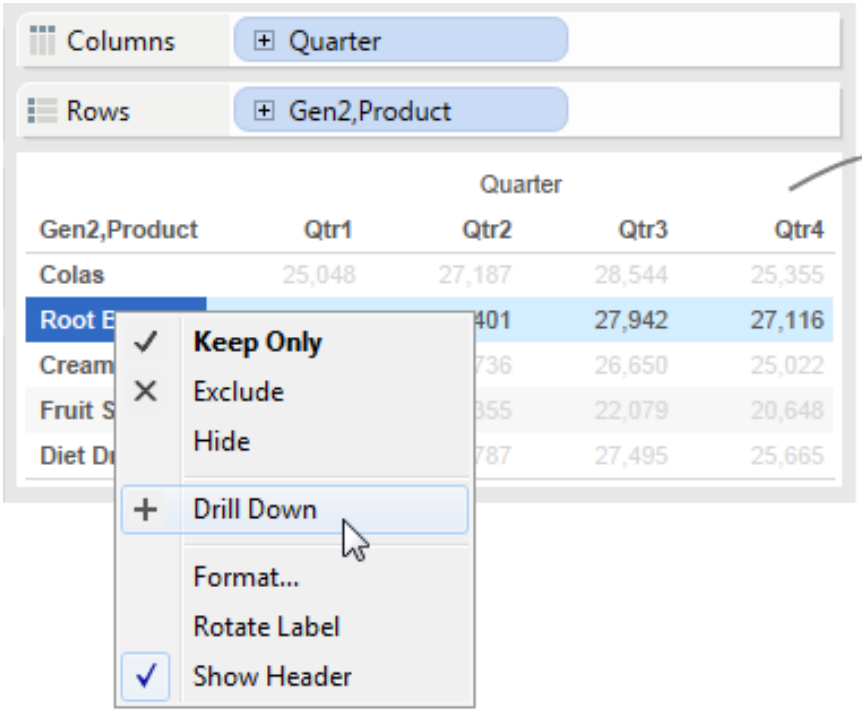
Dimension and Measures

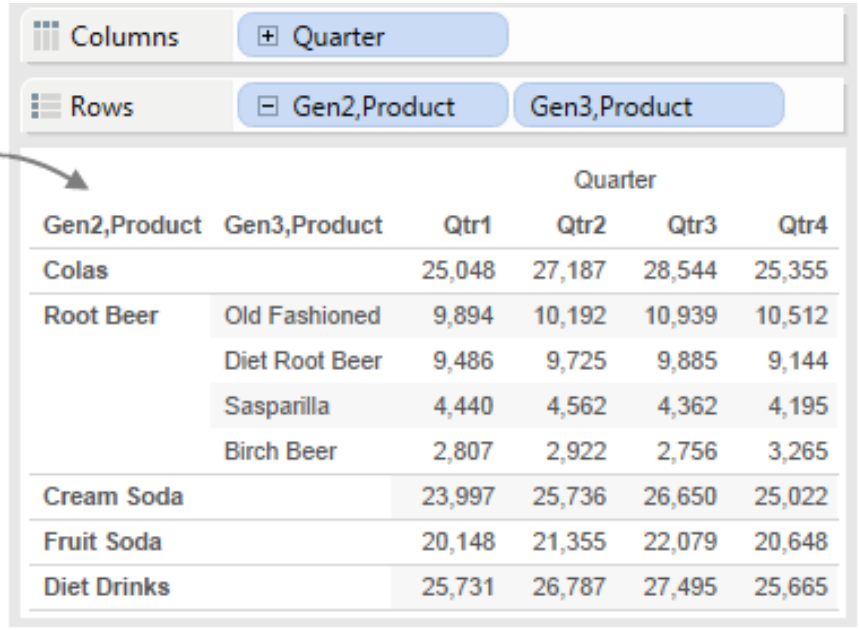






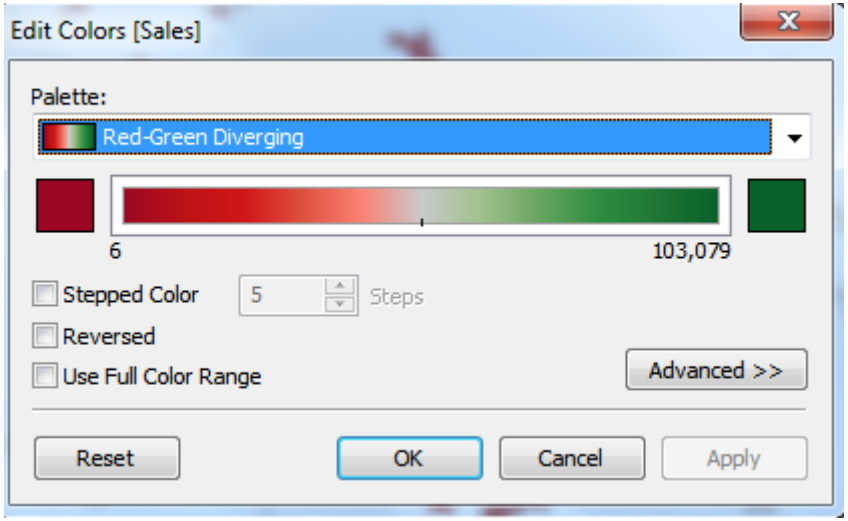
Drilling Down



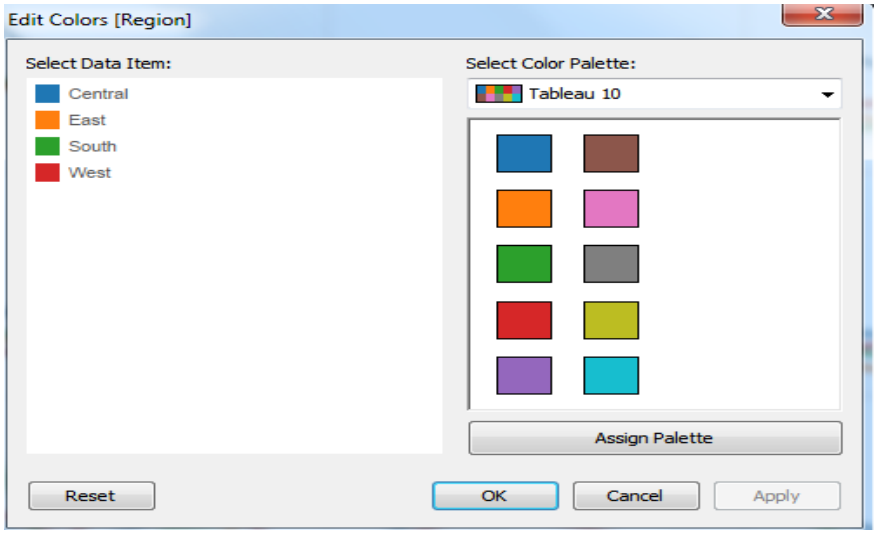


Colors

Quantitative / Scalar Colors

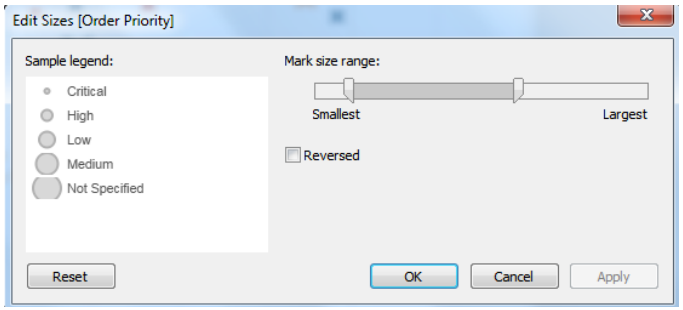


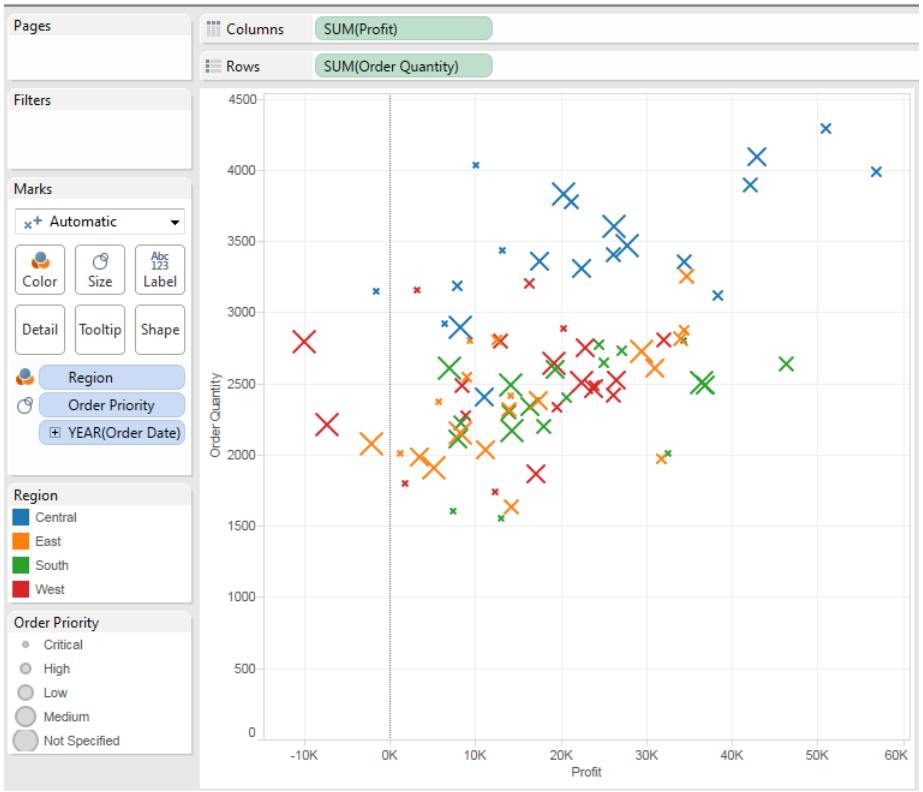
Categorical / Nominal Colors



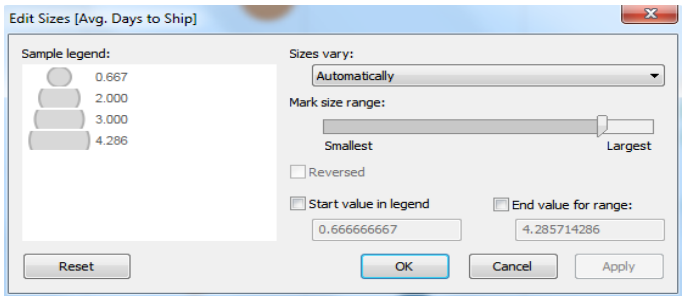
Size

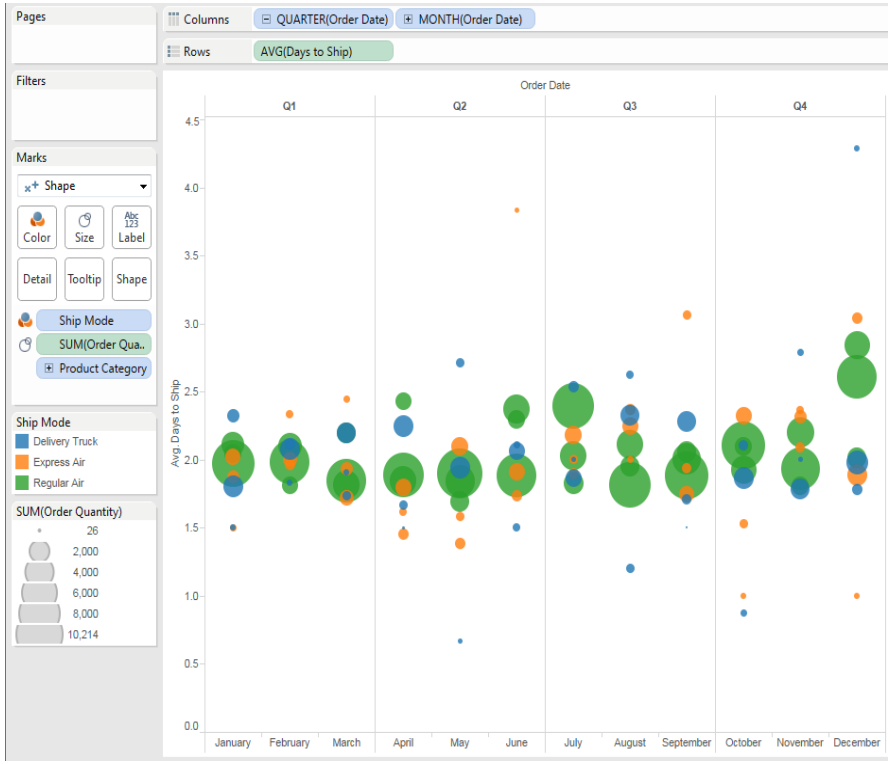
Categorical Size





Quantitative Size

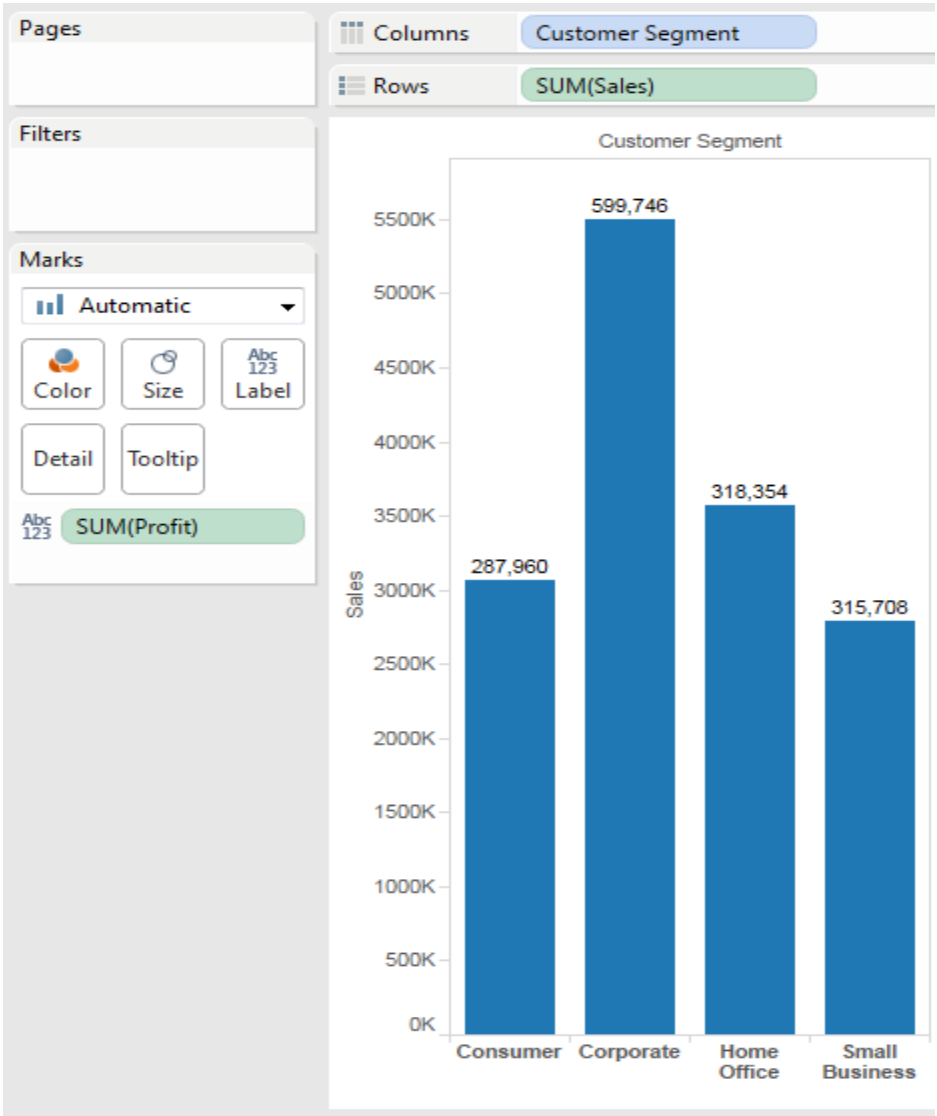




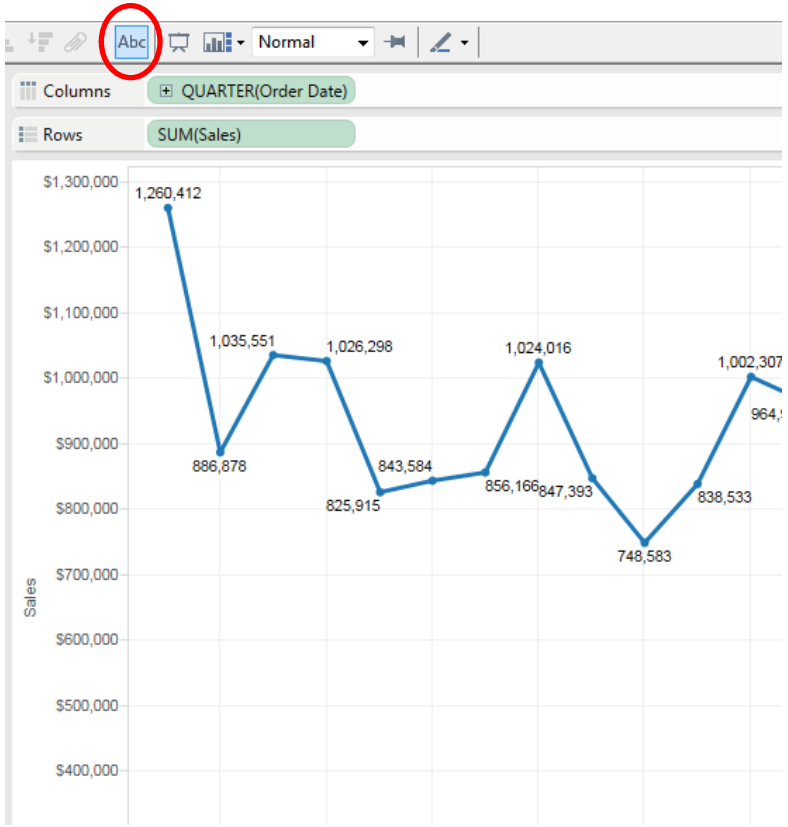
Shapes

Have the ability to add custom shapes

Labels

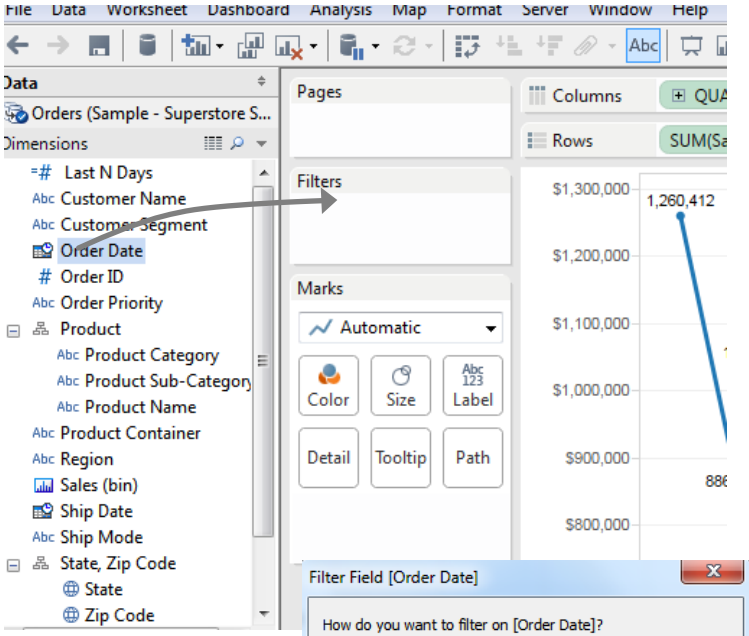


Quick Mark Labels

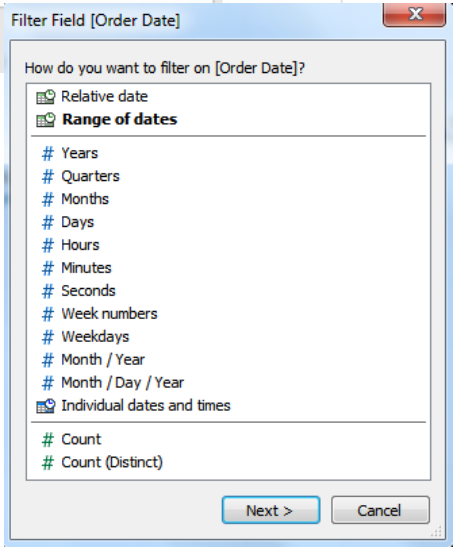


Filters

Drag and Drop to Card or…..

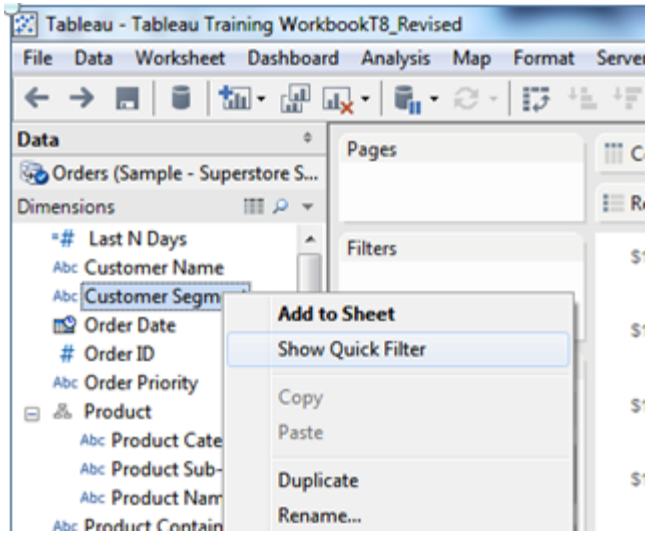


1



2

Right-Click on Measure/Dimension



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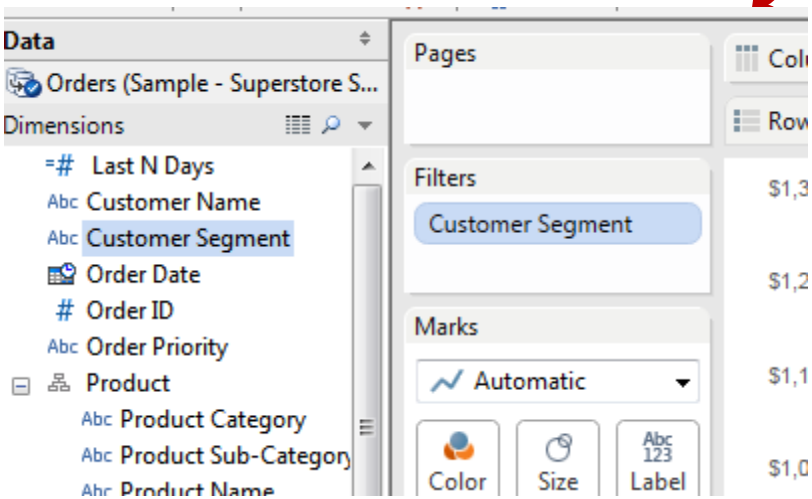
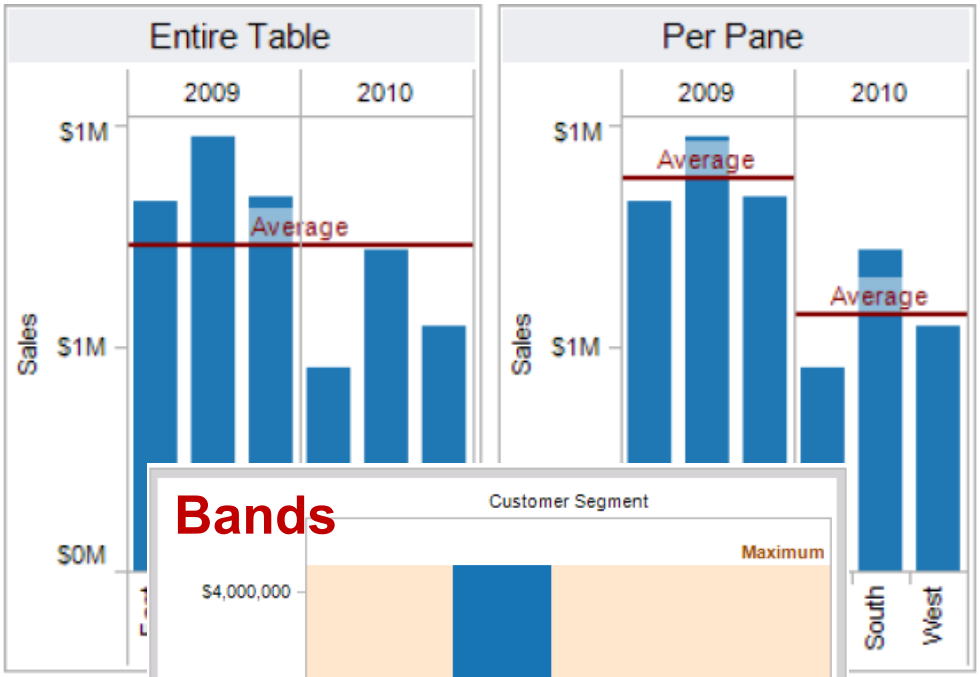
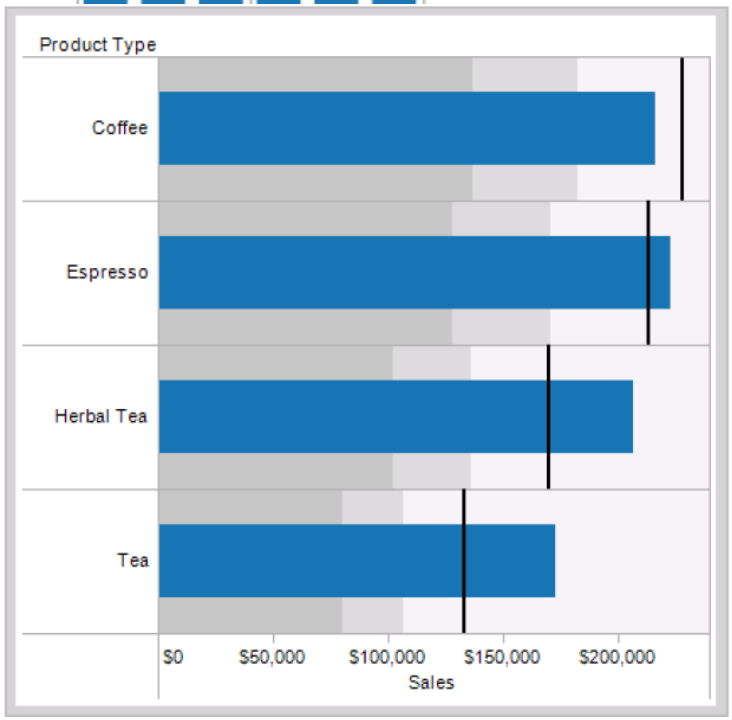


Reference Lines and Banding

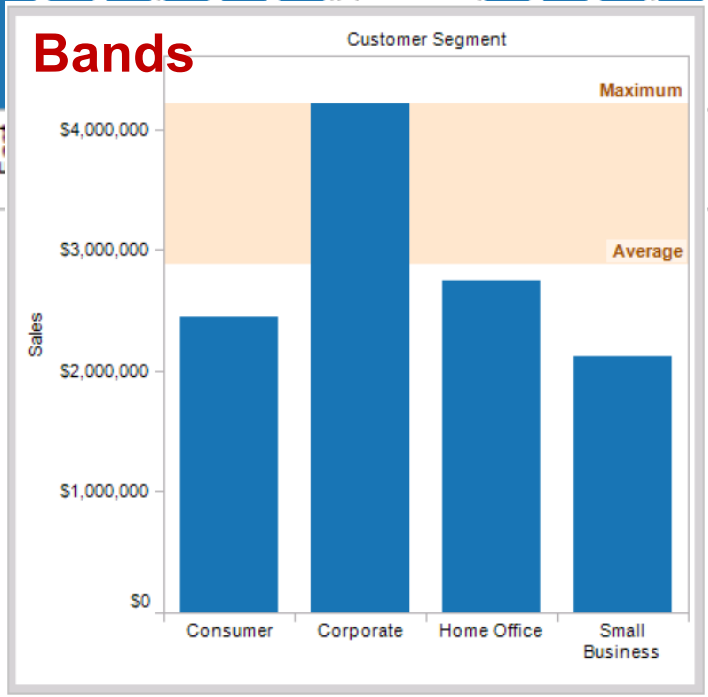
Lines



Distribution



Bands



Activity #2 Create a visualization detailing sales and profit by category – 10 Minutes

1. Drag Profit & Sales into Row and Column
2. Drag Category into Color
3. Drag Sub-Category into level of detail

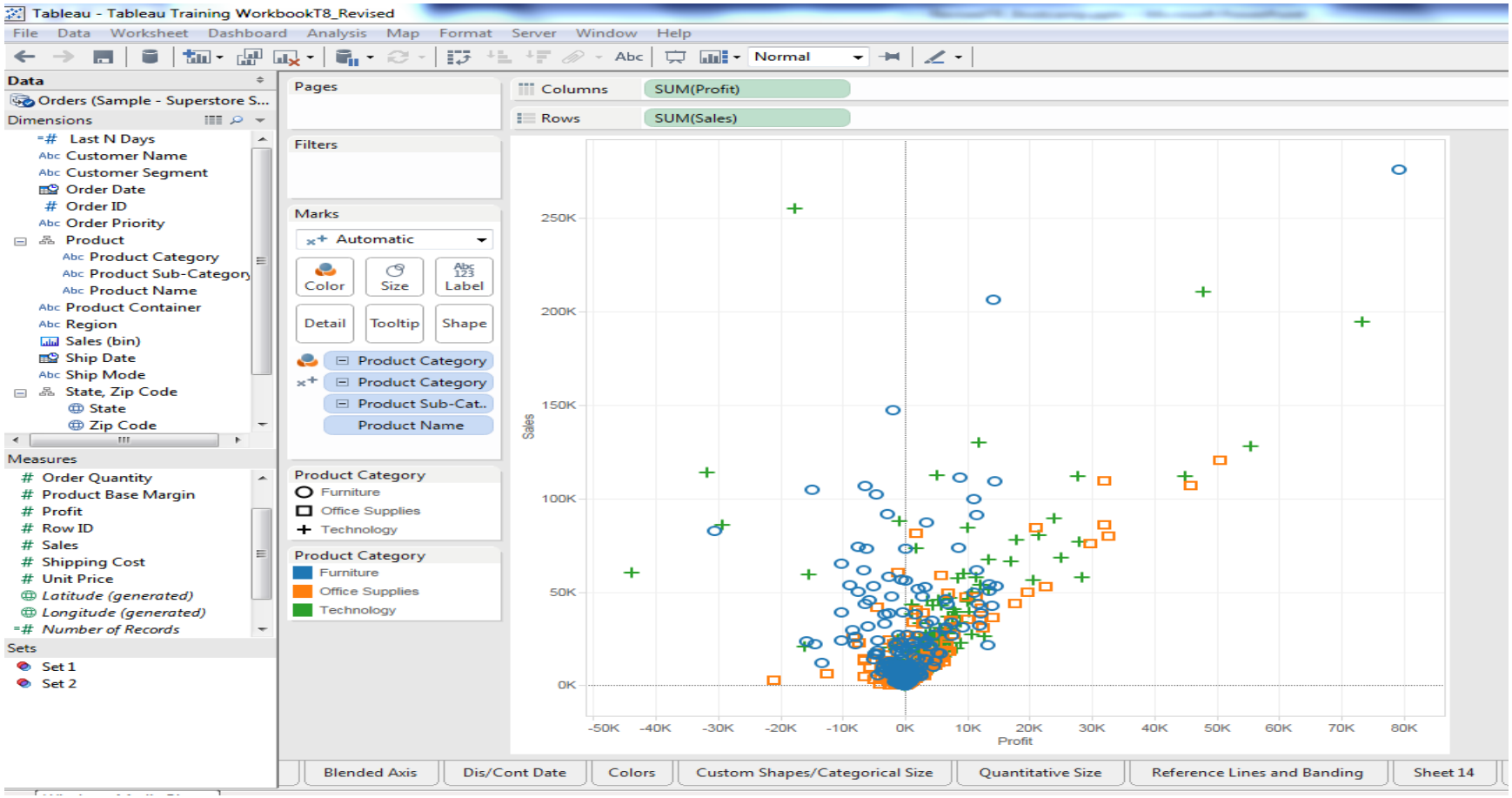


Chart Type & Design Considerations

Show Me!

Hold CTRL and click a combination of dimension(s) and measure(s)

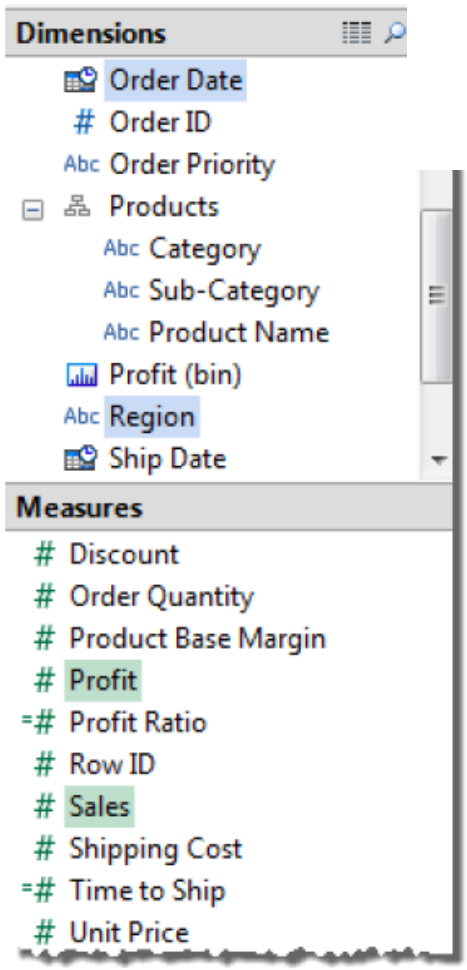
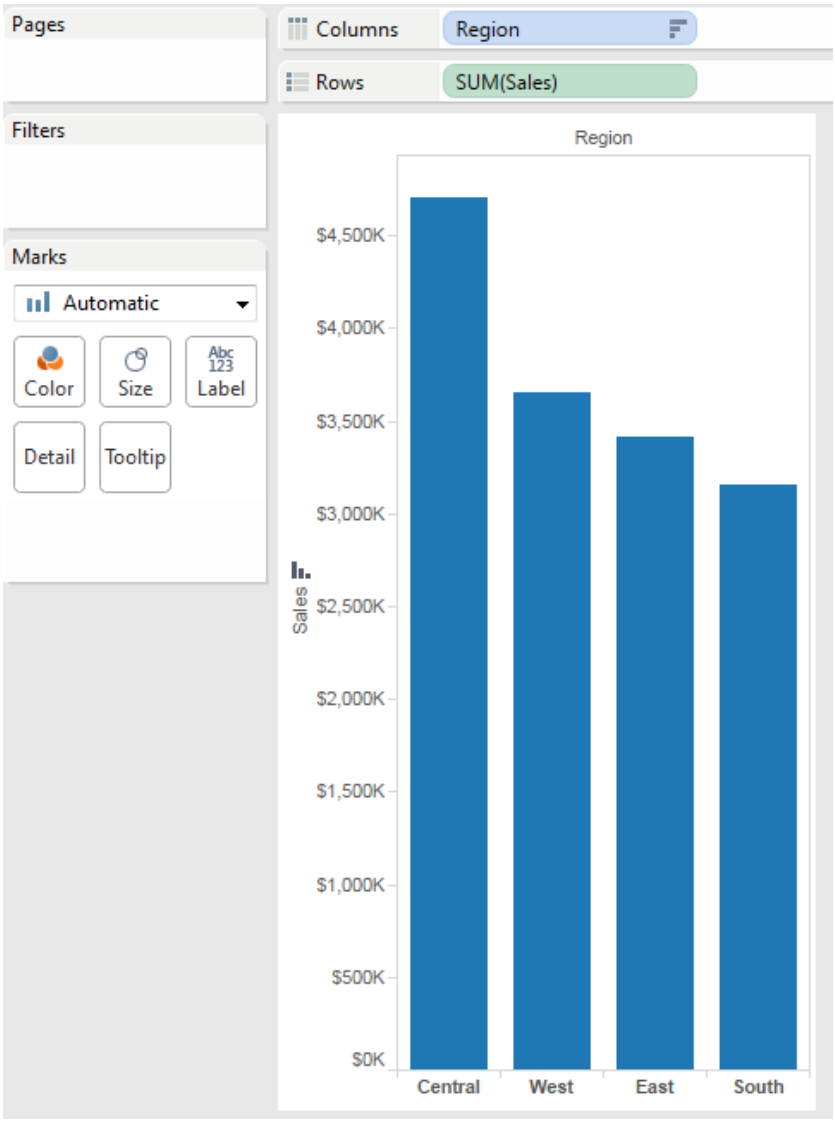


Chart options with appear in Show Me!

Bar Chart



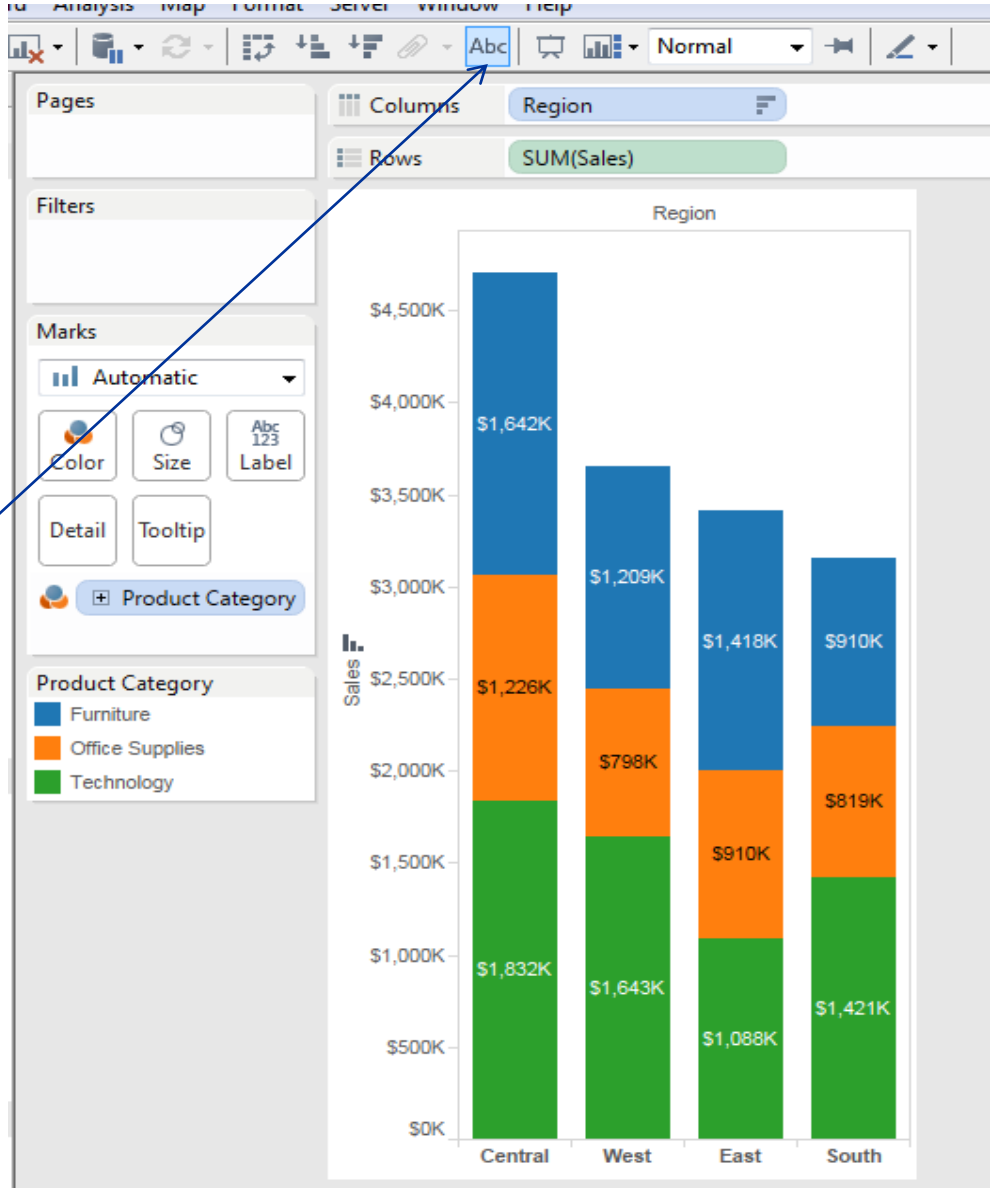
Leading Practices

1. Most effective medium for uni-dimensional categorical comparisons
2. Sort in order to show ranking of elements
3. Comparison is facilitated by common base of reference
4. Use 0 for axis floor to ensure data veracity

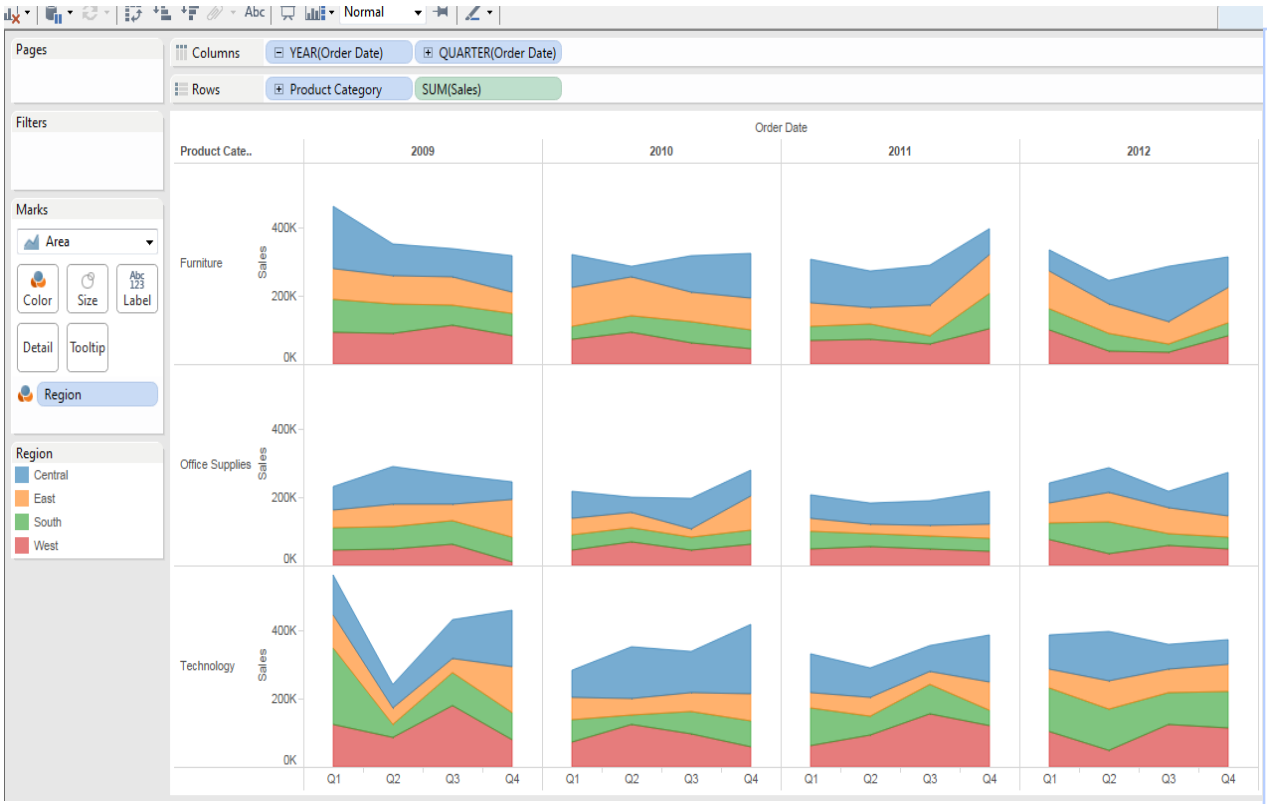
Stacked Bar Chart

Leading Practices

1. Comparing categories within a category
2. Sort in order to show ranking of elements
3. Sub-category comparison is diminished through differing baseline reference point
4. Use data labels to mitigate uneven floors
5. Use 0 for axis floor to ensure data veracity



Nested Charts / Trellis / Small Multiples



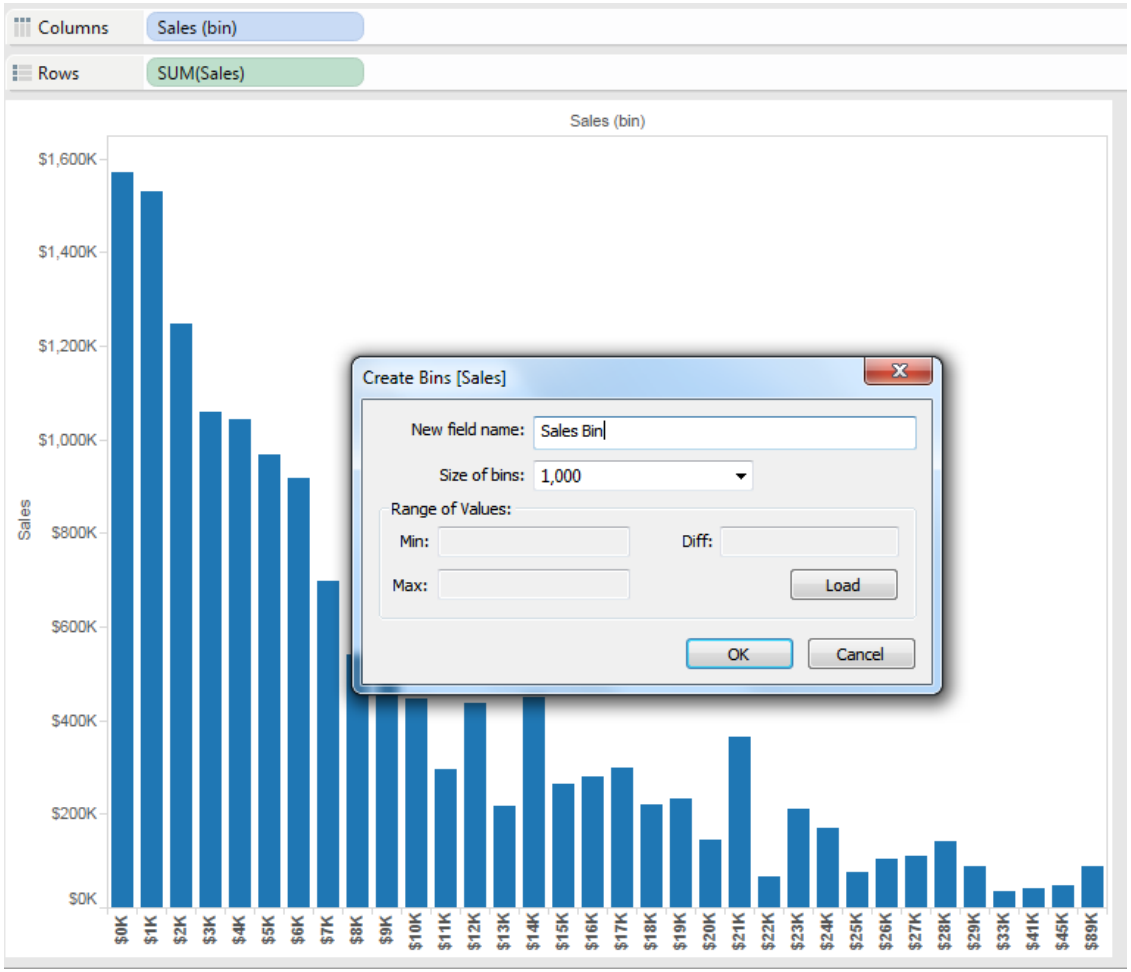
Leading Practices

1. Comparing across multiple categories and within a category
2. Use filtering or highlighting to guide consumer (if using native functionality
3. Use red circles and analytical paragraphs if exporting to flat medium (ex: PPT or PDF)
4. Sub-category comparison is nearly impossible
5. Use highlighted data labels to mitigate

Histogram

Leading Practices

1. Showing distributions across a category (ex: how much sales volume from high dollar sales vs low dollar sales)
2. Turning a measure into a dimension
3. Bins are equal segmentations of the data set (ex: $1,000 increments)
4. For unequal segmentations (ex: 1-3 years & 4-10 years) use a calculated field

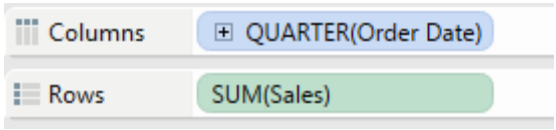


Line Chart

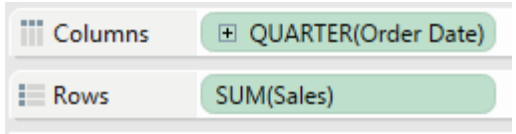
Leading Practices

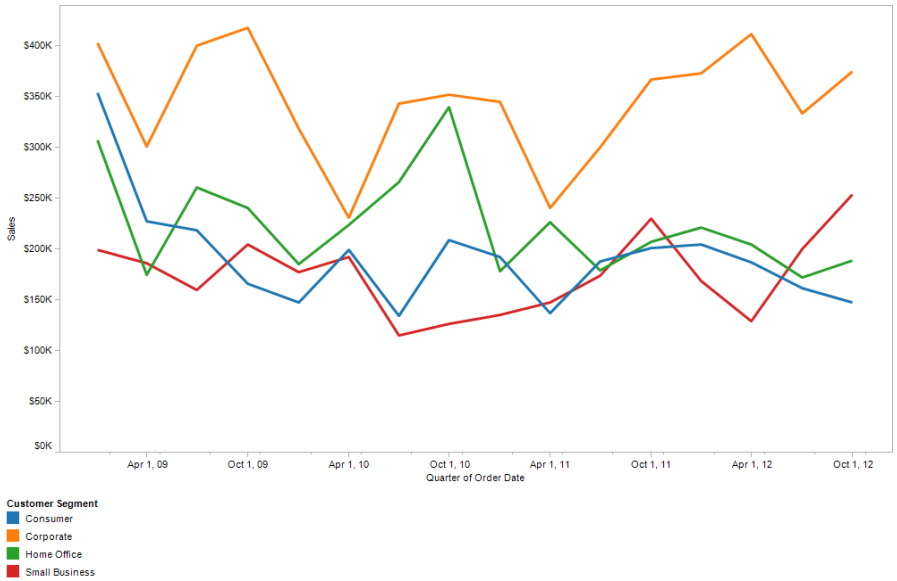
1. Viewing continuous data sets (most often time series data)
2. Dimensional time breaks down into discrete entities and sums them (e.g., Q1 sales over 4 years)
3. Continuous time drills into granularity year, quarter, month, week, day, hour, minute
4. Allows comparison of different dimensions over same period of time

Dimensional Time Scale

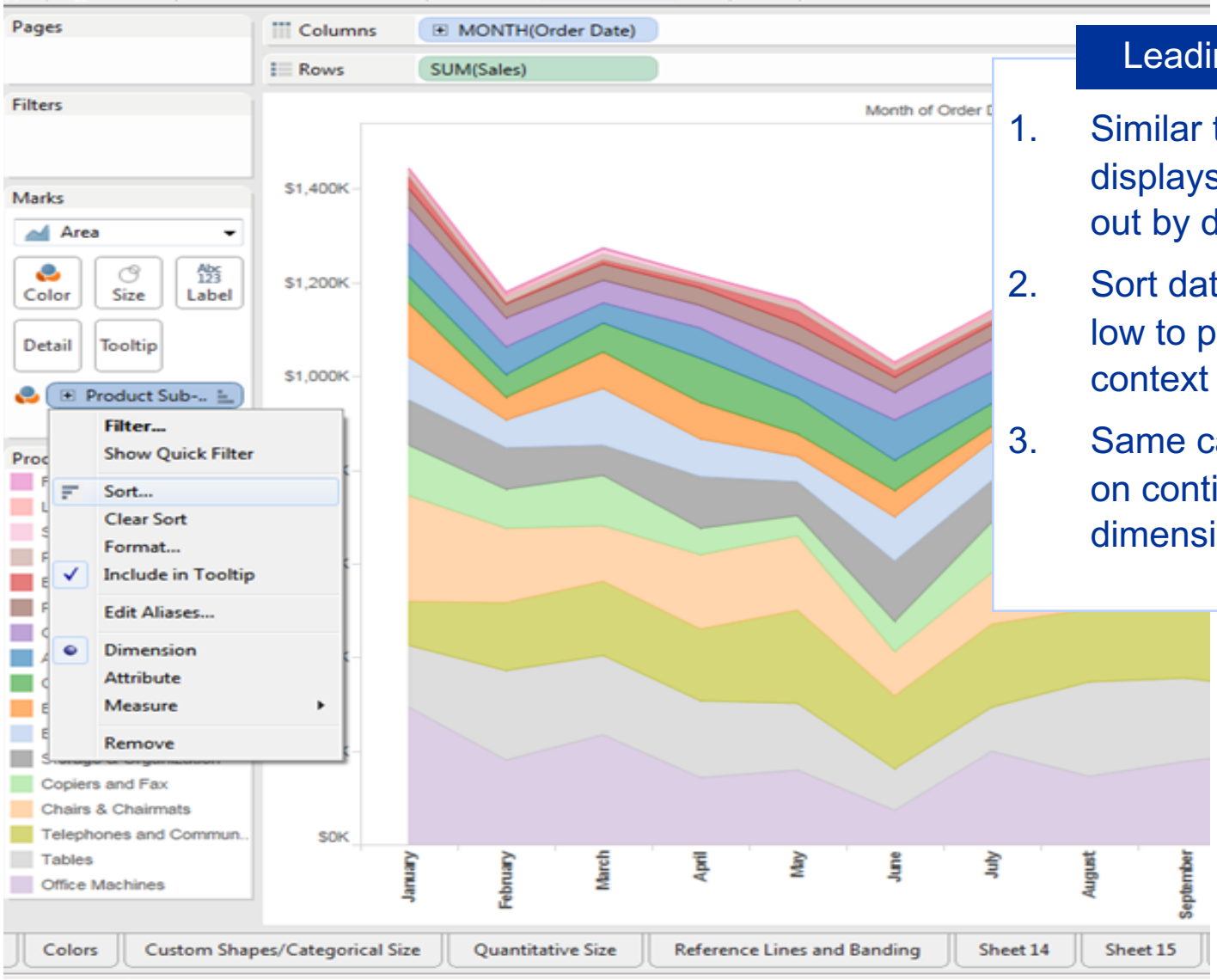


Continuous Time Scale





Area Chart



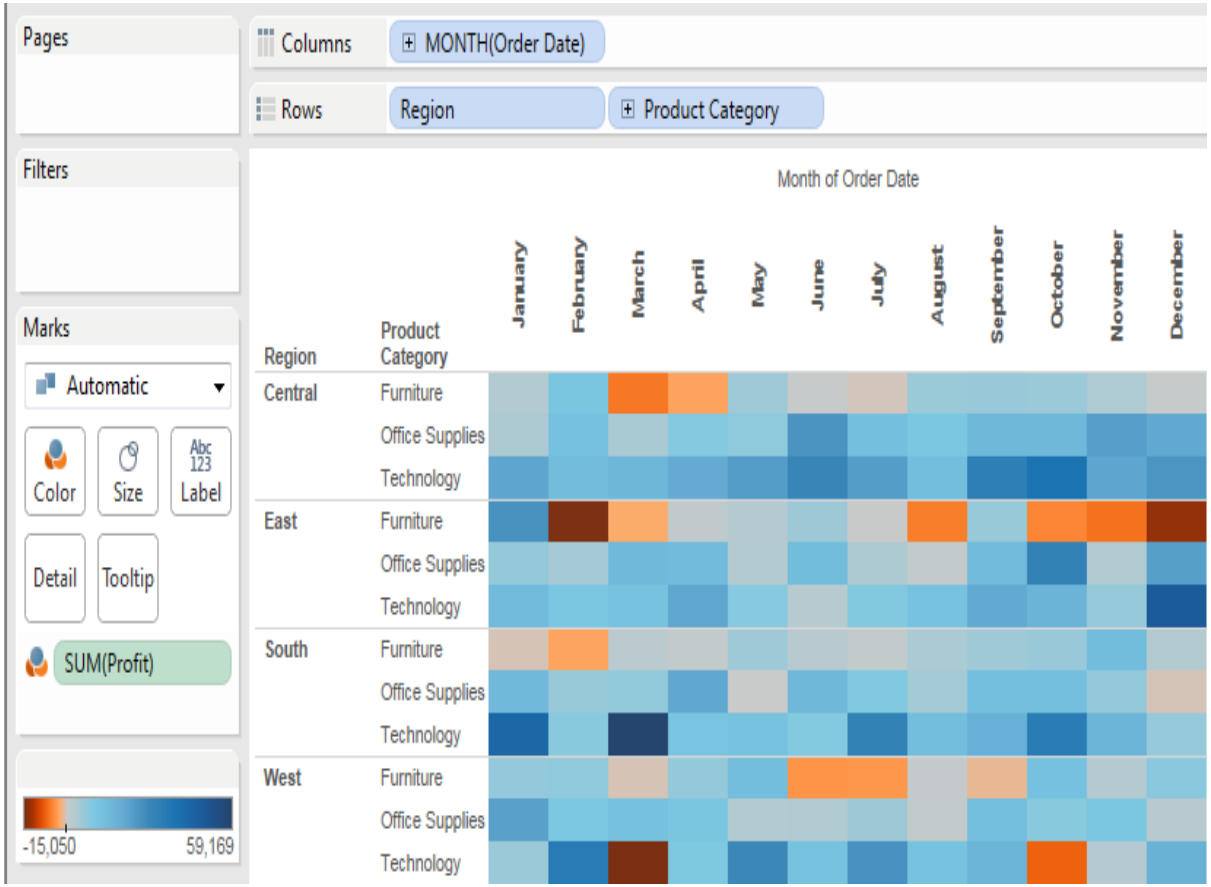
Leading Practices

1. Similar to a line chart but displays total sum broken out by dimension
2. Sort data from a high to low to provide additional context
3. Same calculations based on continuous / dimension date

Heat Map

Leading Practices

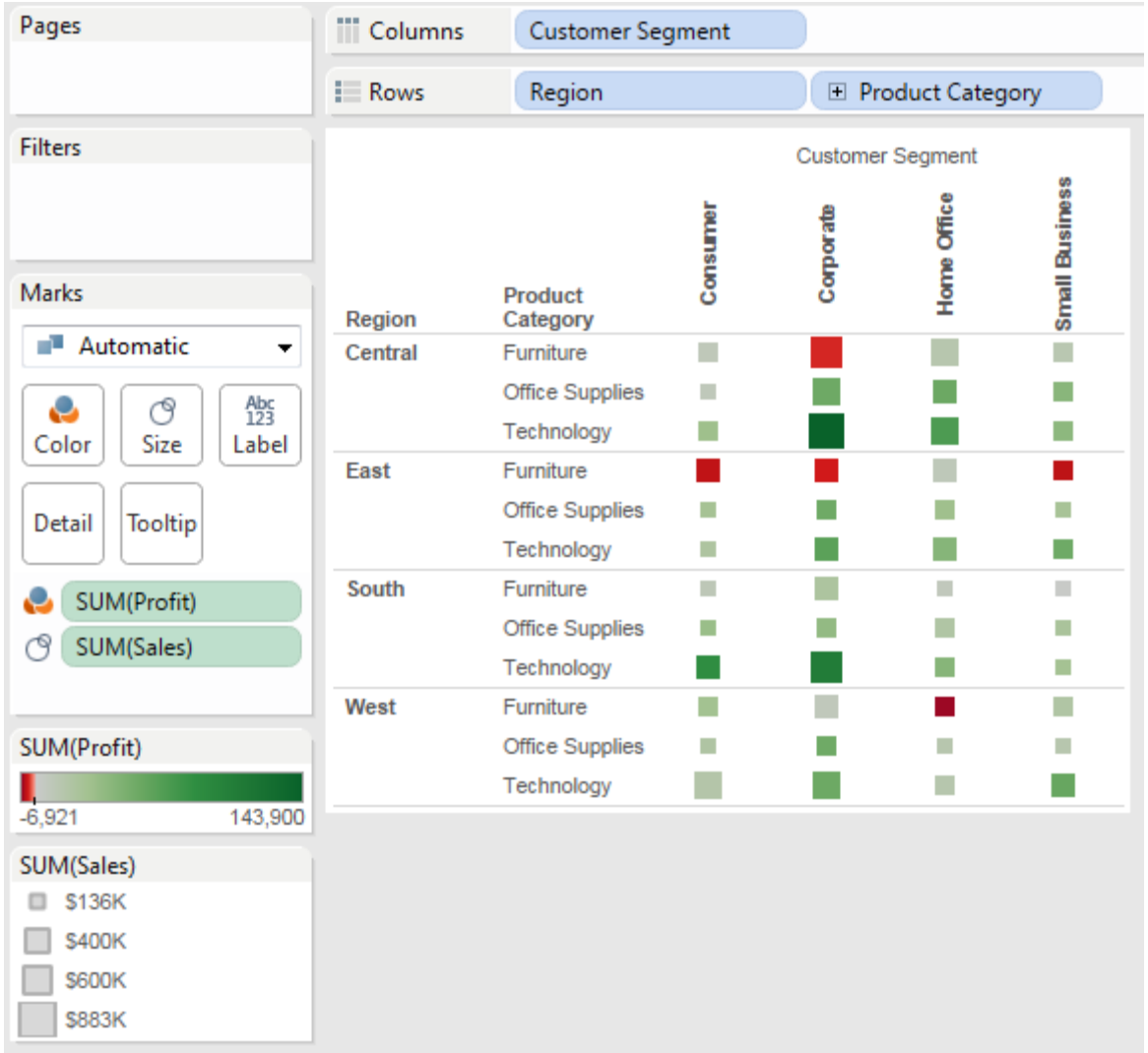
1. Displays metric intensity over a dimensional grid
2. Extremely effective for pinpointing high and low areas
3. Outstanding method for “data discovery’ analysis



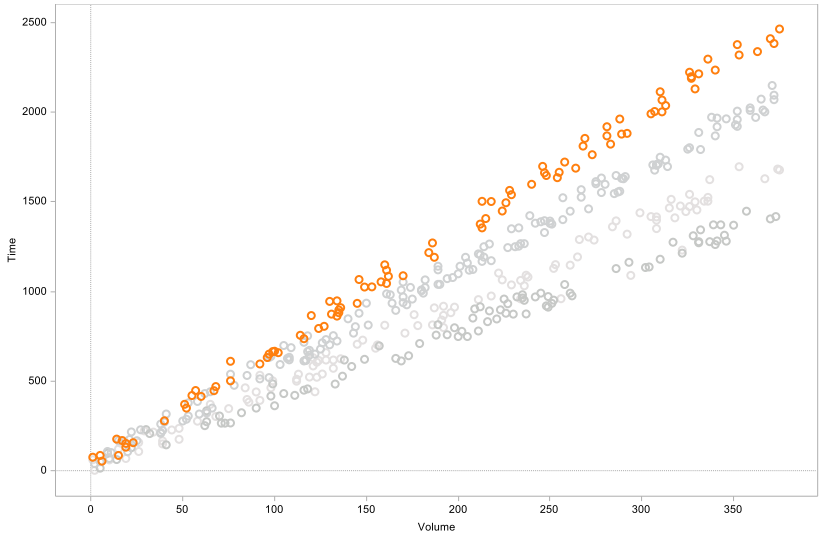
Size-Encoded Heat Map

Leading Practices

1. Same advantages as heat map but adds 2nd metric measurement
2. Excellent visualization for finding outliers across 2 metrics



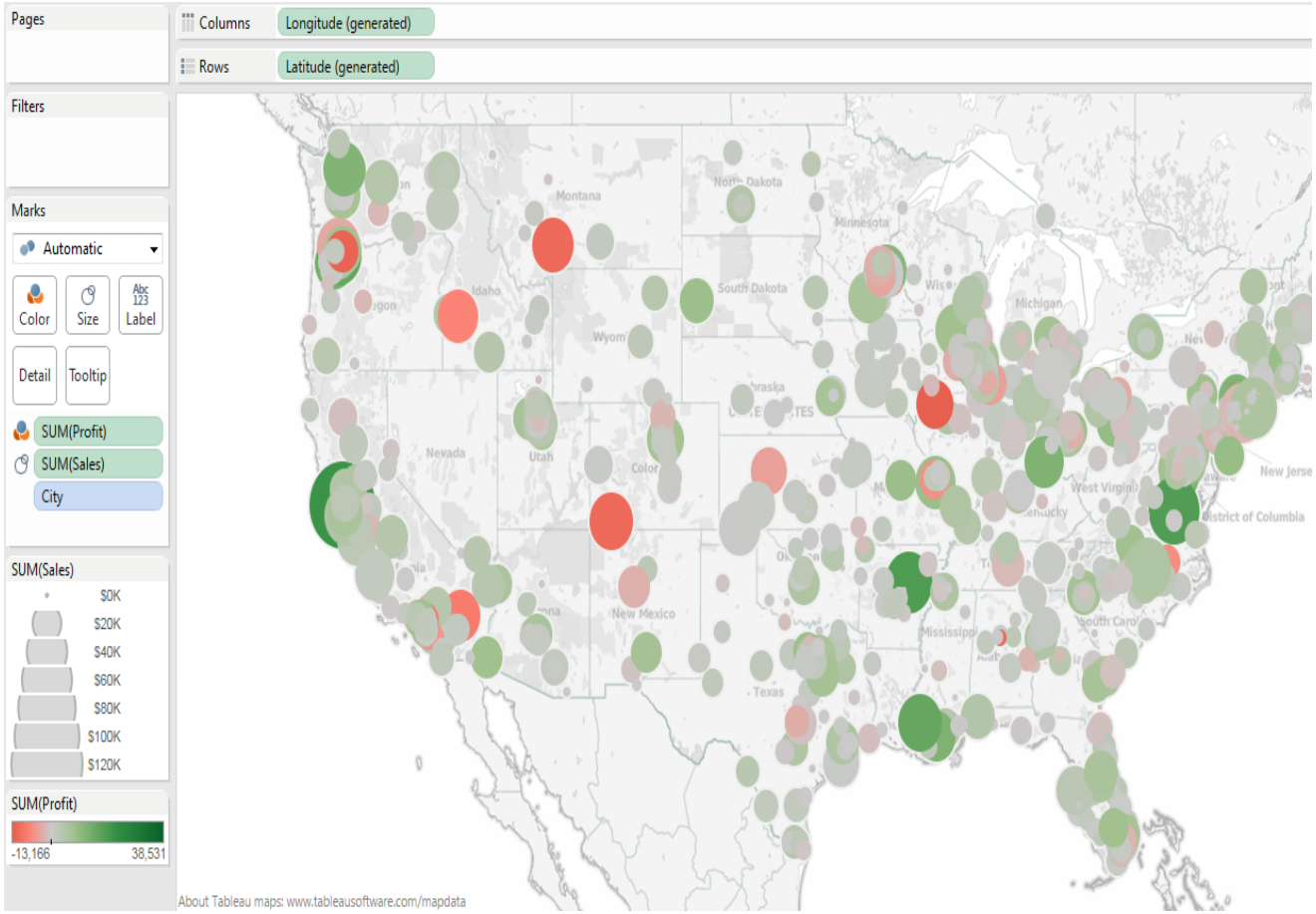
Scatter Plot



Leading Practices

1. Showing correlation among variables
2. Showing concentration among variables
3. Can use up to 5 variables, however recommend using no more than 3 in the following order:
    1. Color
    2. Size
    3. Shape

Bubble Maps



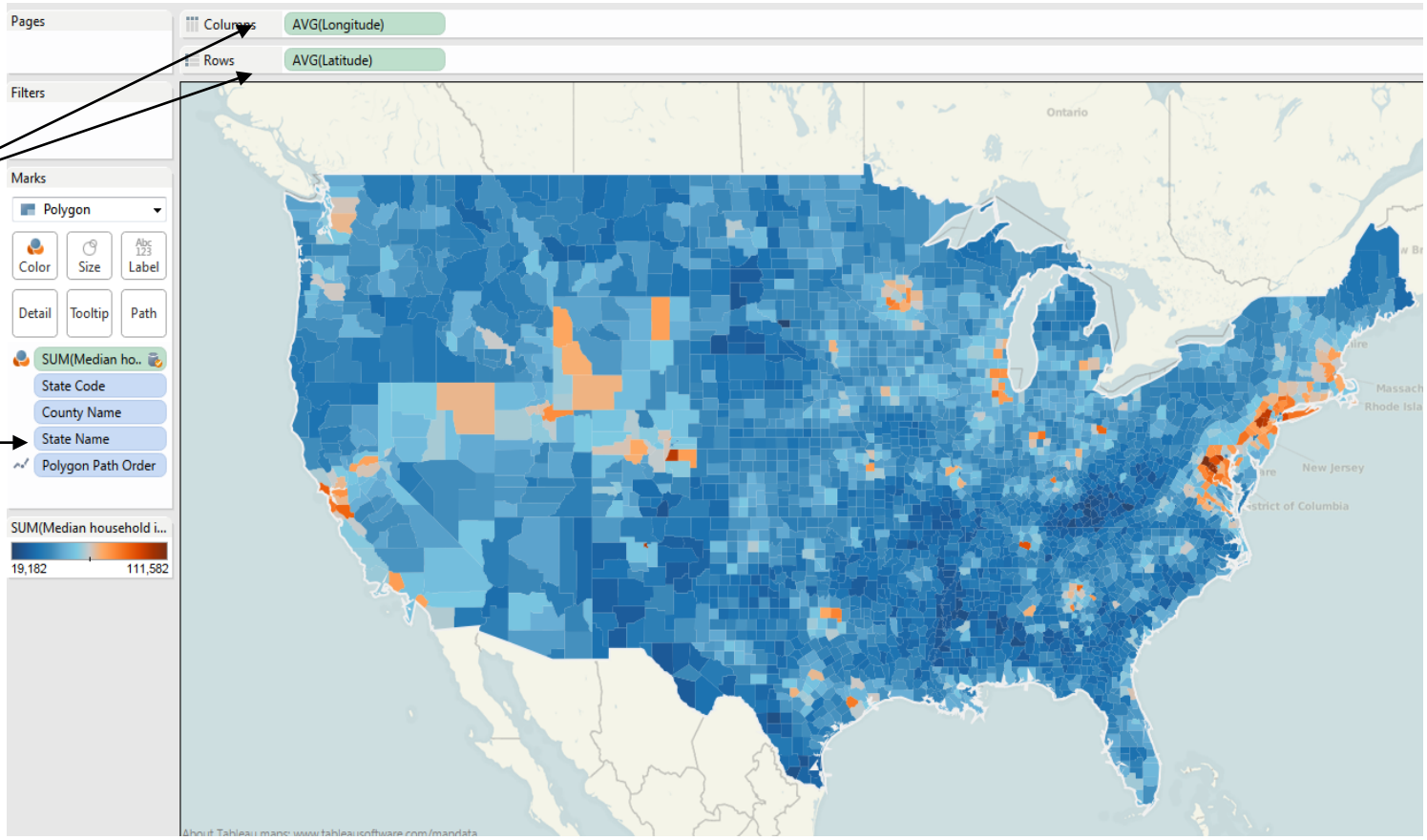
When to use….

Showing multiple values with geo-coded data

Choropleth or Polygon Map

Auto-Generated Measures

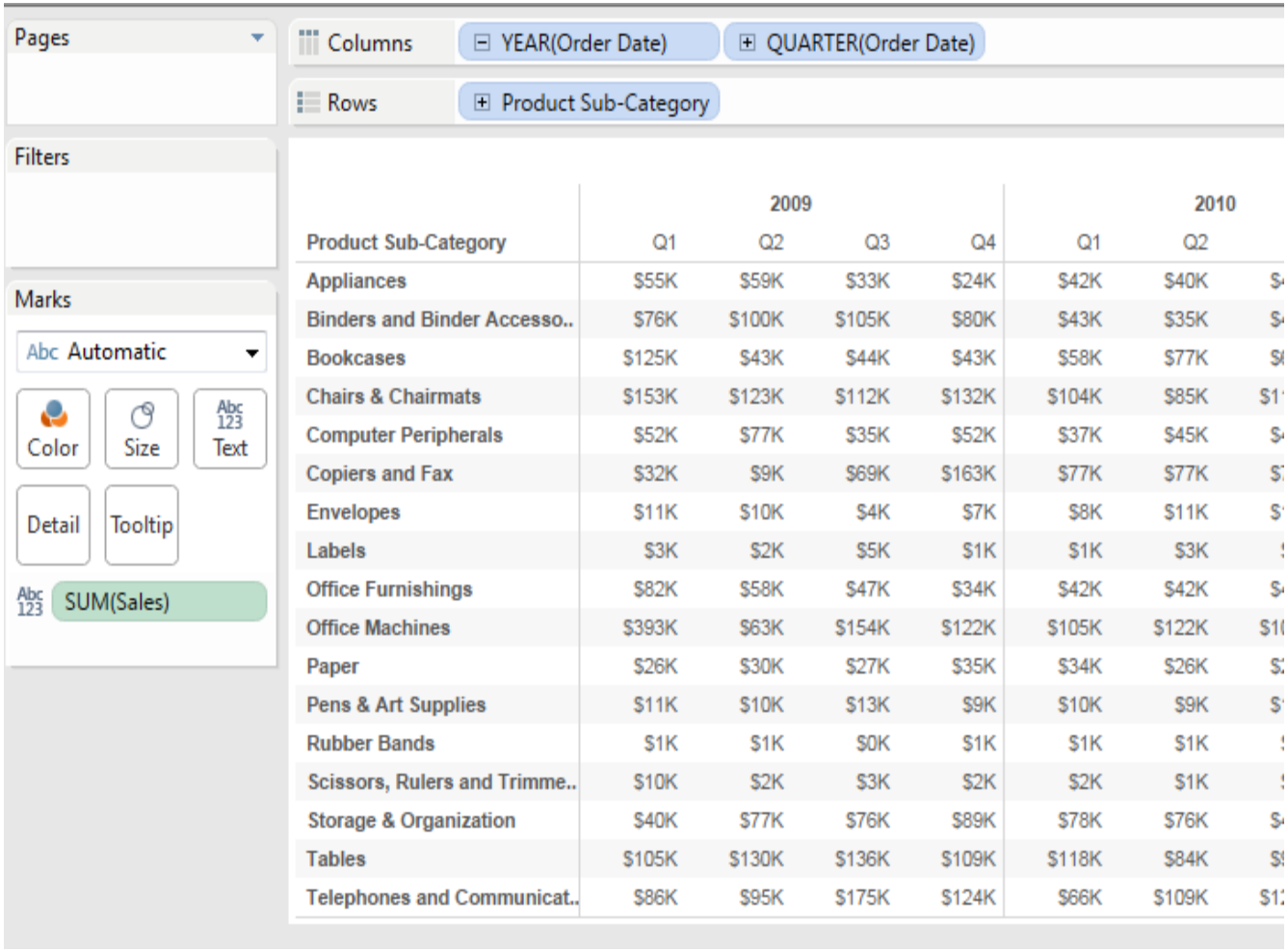
Need Geo–Coded Dimension



Leading Practices

1. Showing geospatial trends
2. Showing data in the context of built in geocoded census data sets

Text Table



	2009				2010		
Product Sub-Category	Q1	Q2	Q3	Q4	Q1	Q2	
Appliances	$55K	$59K	$33K	$24K	$42K	$40K	$4
Binders and Binder Accesso..	$76K	$100K	$105K	$80K	$43K	$35K	$4
Bookcases	$125K	$43K	$44K	$43K	$58K	$77K	$8
Chairs & Chairmats	$153K	$123K	$112K	$132K	$104K	$85K	$1
Computer Peripherals	$52K	$77K	$35K	$52K	$37K	$45K	$4
Copiers and Fax	$32K	$9K	$69K	$163K	$77K	$77K	$7
Envelopes	$11K	$10K	$4K	$7K	$8K	$11K	$1
Labels	$3K	$2K	$5K	$1K	$1K	$3K	$
Office Furnishings	$82K	$58K	$47K	$34K	$42K	$42K	$4
Office Machines	$393K	$63K	$154K	$122K	$105K	$122K	$1
Paper	$26K	$30K	$27K	$35K	$34K	$26K	$2
Pens & Art Supplies	$11K	$10K	$13K	$9K	$10K	$9K	$1
Rubber Bands	$1K	$1K	$0K	$1K	$1K	$1K	$
Scissors, Rulers and Trimme..	$10K	$2K	$3K	$2K	$2K	$1K	$
Storage & Organization	$40K	$77K	$76K	$89K	$78K	$76K	$4
Tables	$105K	$130K	$136K	$109K	$118K	$84K	$9
Telephones and Communicat..	$86K	$95K	$175K	$124K	$66K	$109K	$1

When to use….

Showing a lot of detailed information

Highlight Table

	Container						
Category	Jumbo Box	Jumbo Drum	Large Box	Medium Box	Small Box	Small Pack	Wrap Bag
Furniture	$2,448K	$1,709K	$489K	$230K	$139K	$96K	$68K
Office Supplies		$339K	$337K	$114K	$2,696K	$122K	$145K
Technology	$373K	$1,358K	$1,247K	$351K	$2,255K	$329K	$72K

Sales

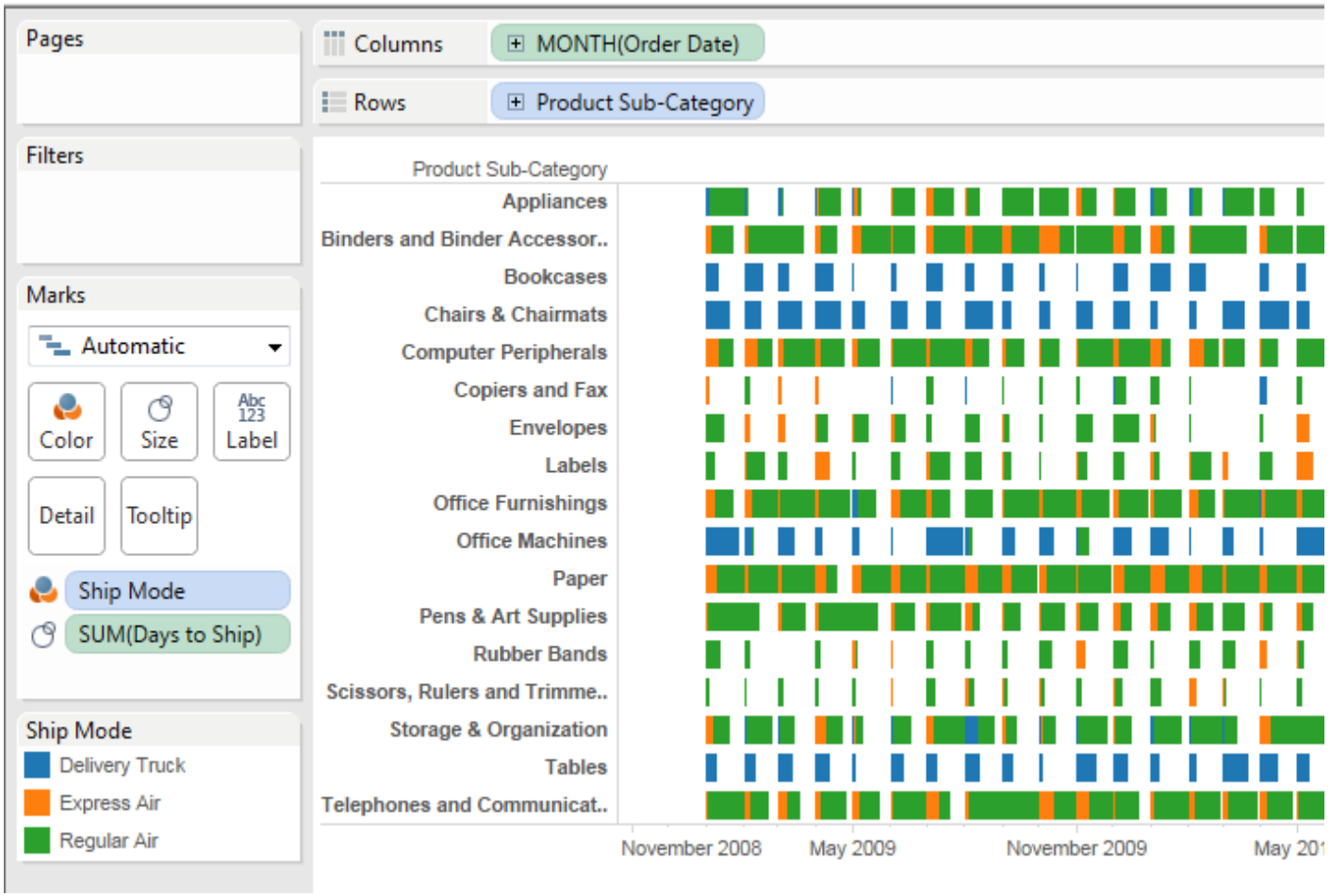
Leading Practices

1. Showing a lot of detailed information with an aspect of the data color coded for highlights

Gantt Bar Chart

When to use….

Displaying durations over time (e.g. project schedule)

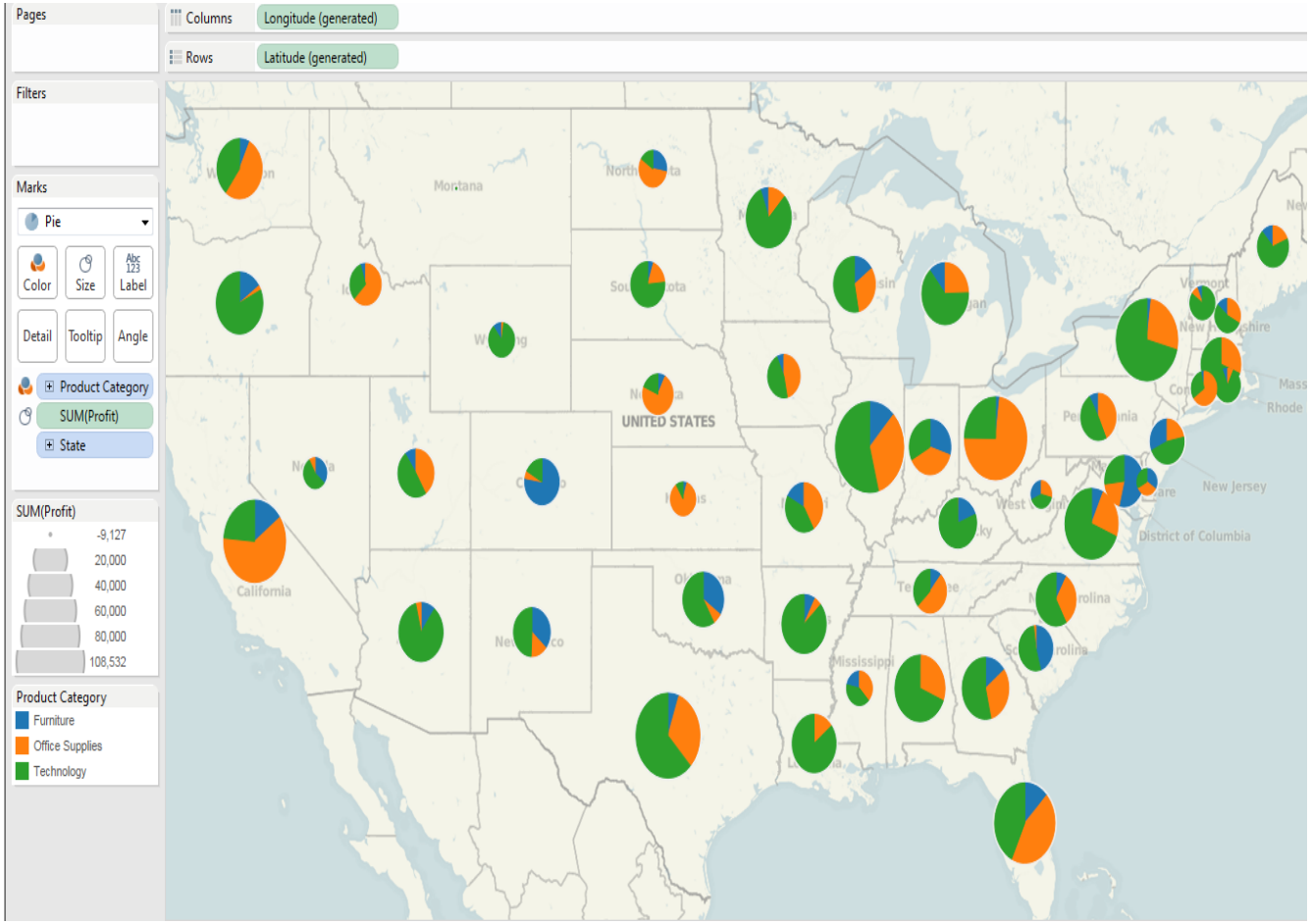


Pie Charts NOOOOOOOOOOOOOOOOO!!!!!!!!!!!!!

When to use….

Never…..or when showing proportions with ONLY two variables

Pie Chart Maps NOOOOOOOOOOOOOOOOO!!!!!!!!!!!!!



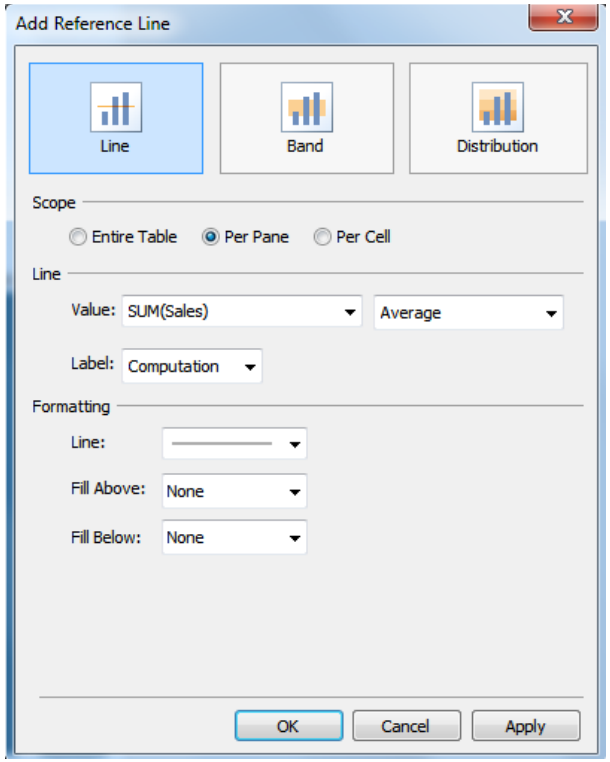
When to use….

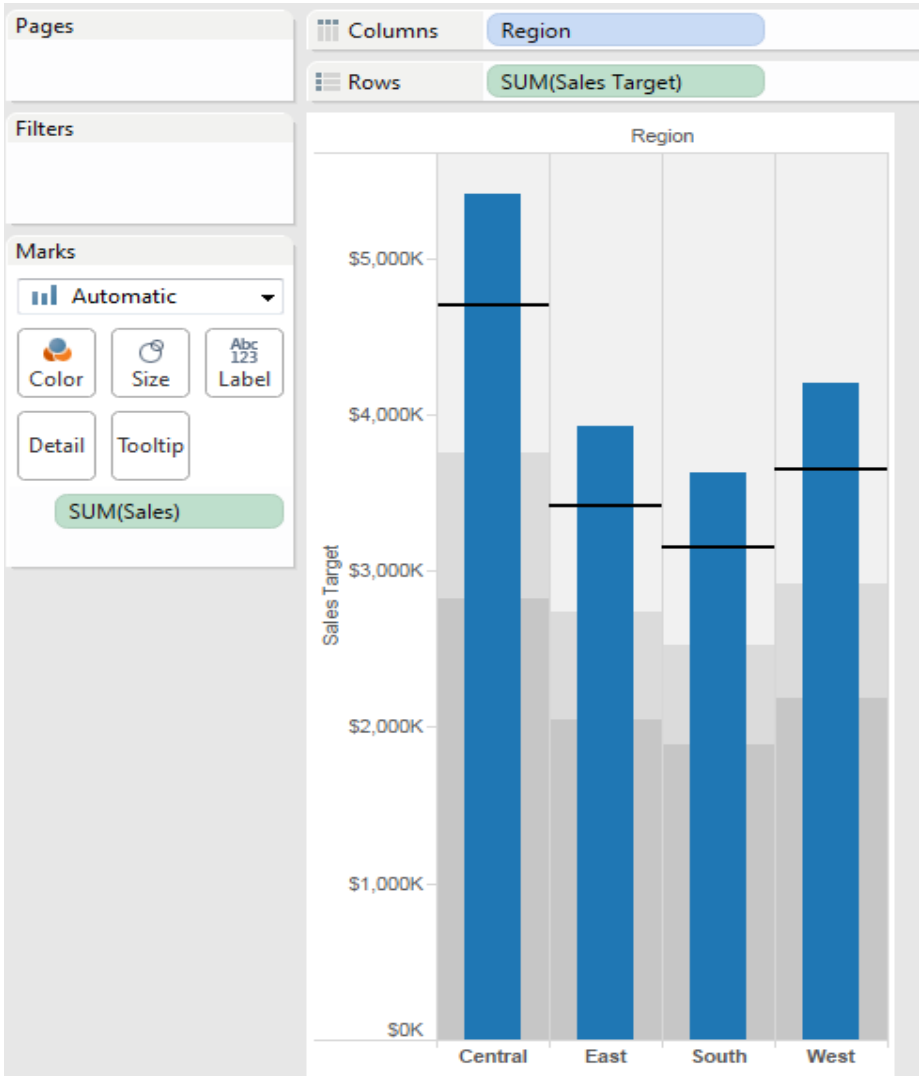
Showing proportions with geo-coded data

Bullet Chart

When to use….

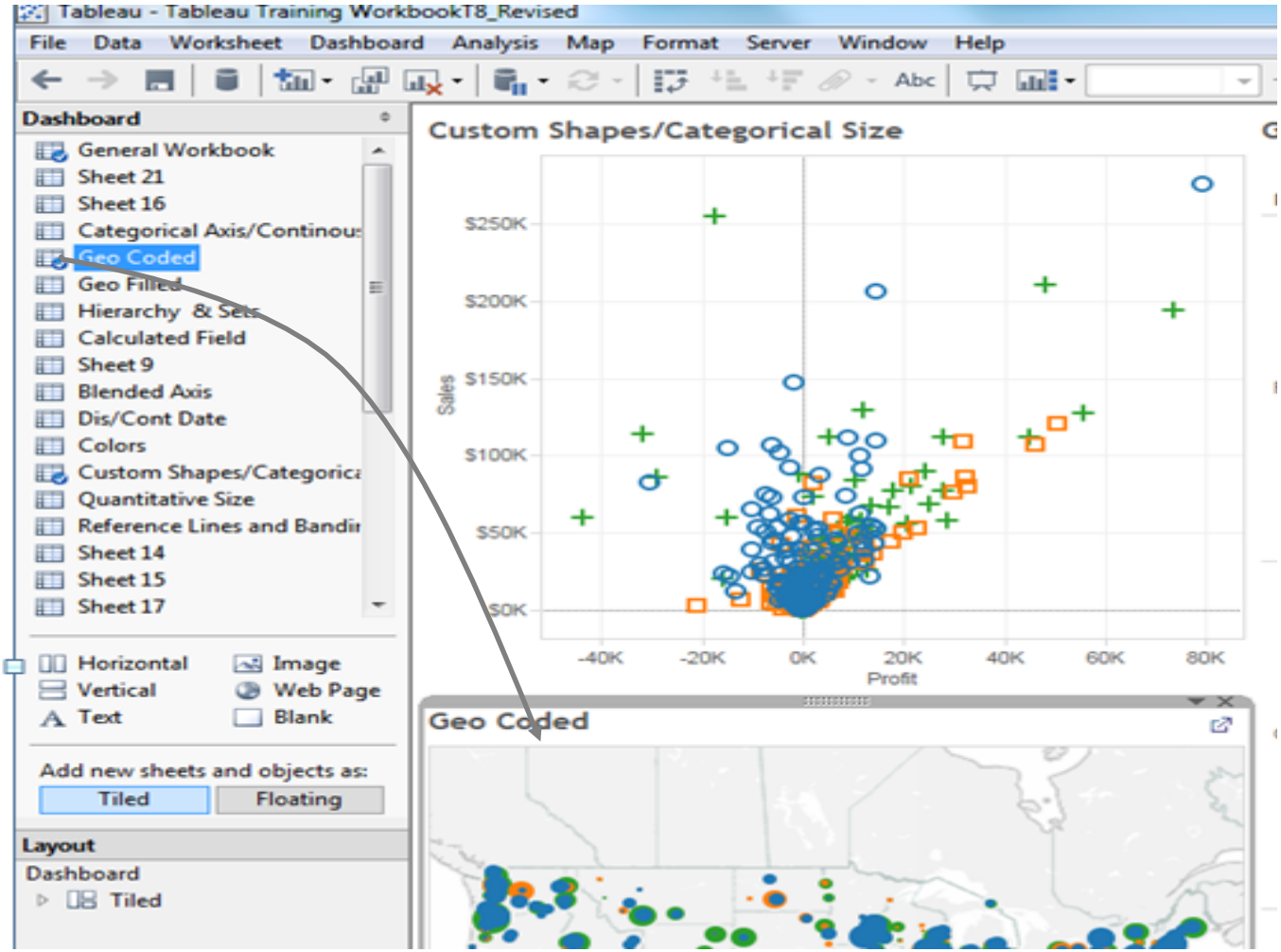
When evaluating performance of a metric against a goal and within a distribution



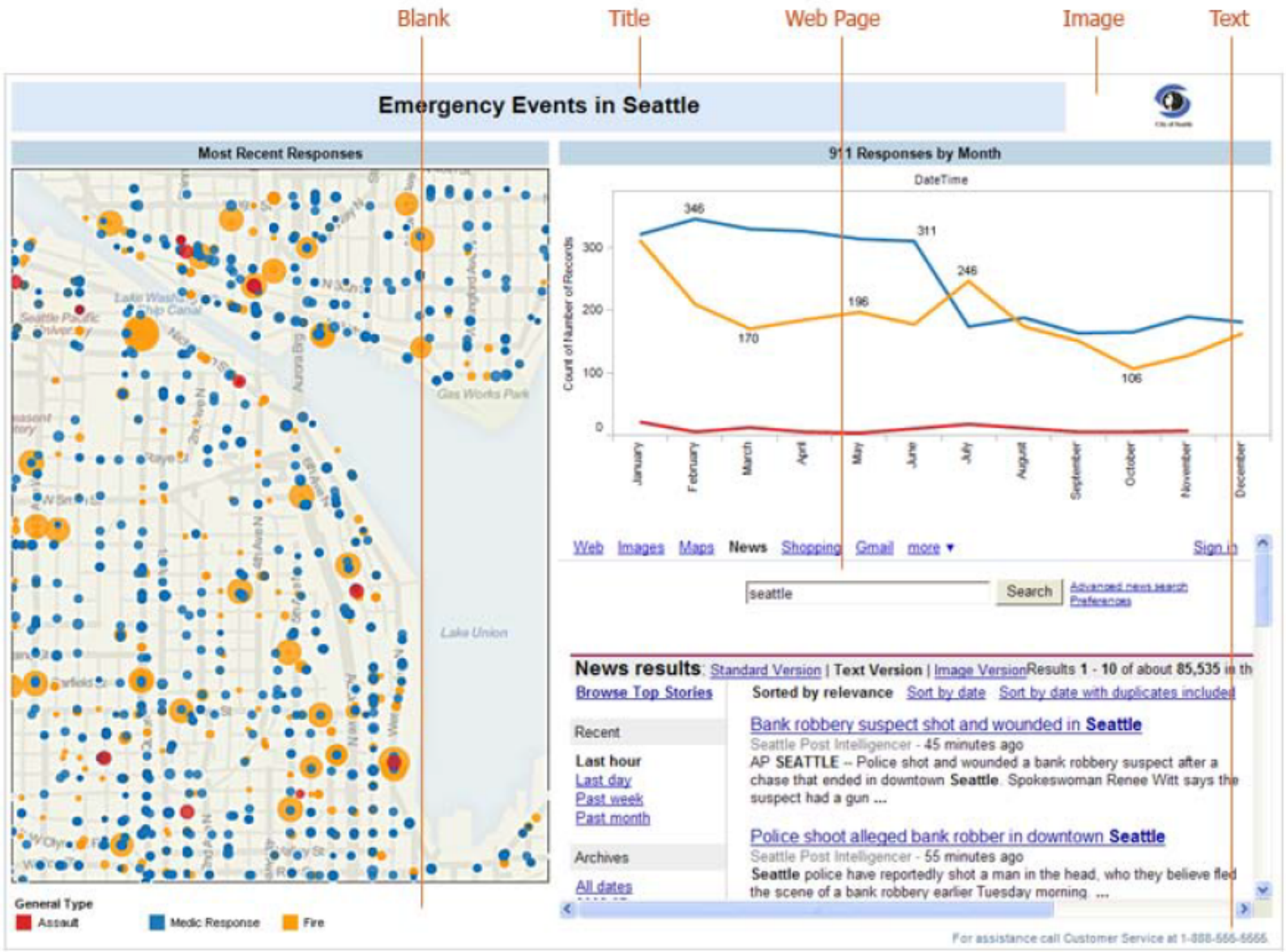


Creating Dashboards

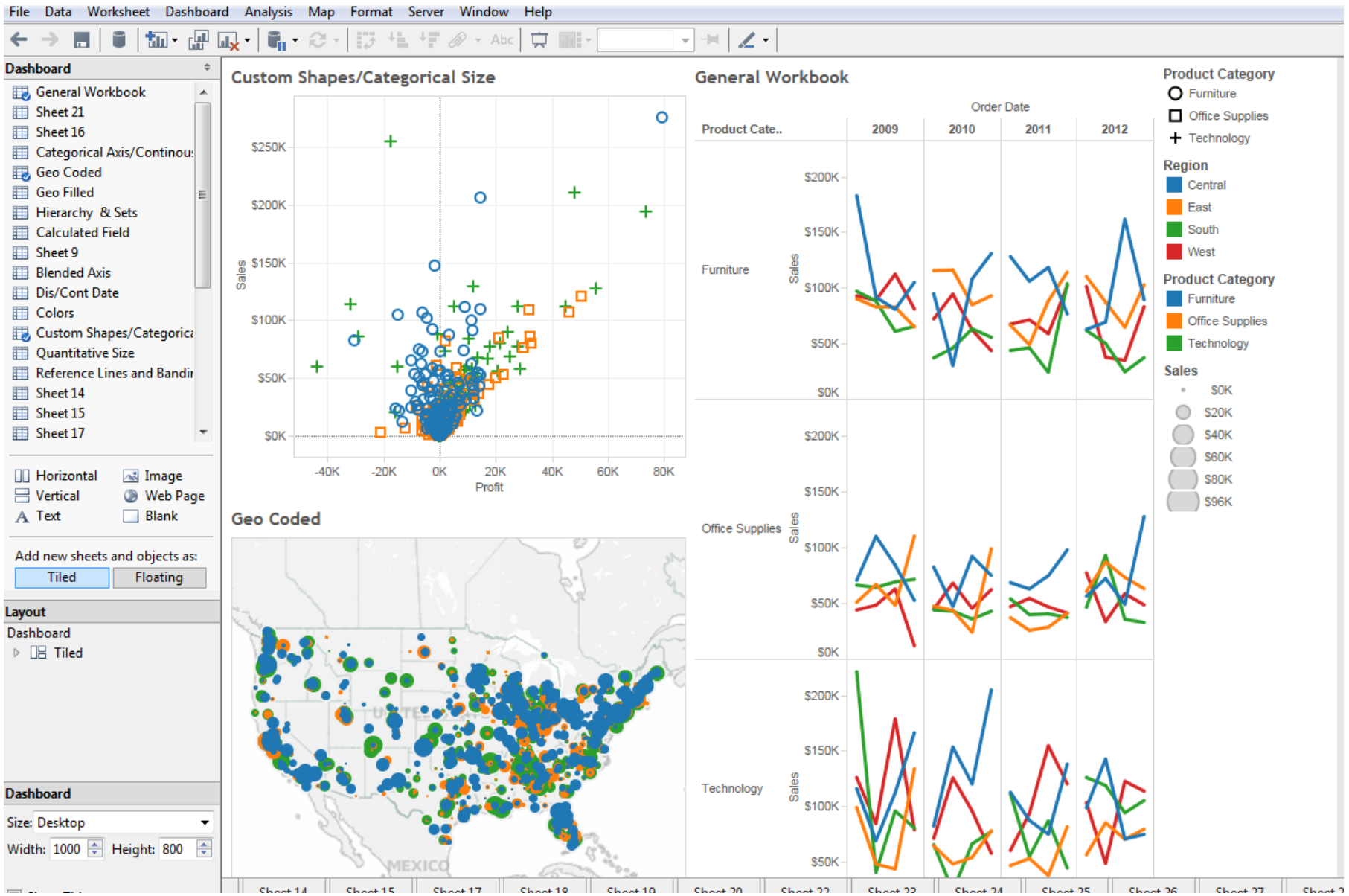
Drag & Drop



Other Dashboard Elements

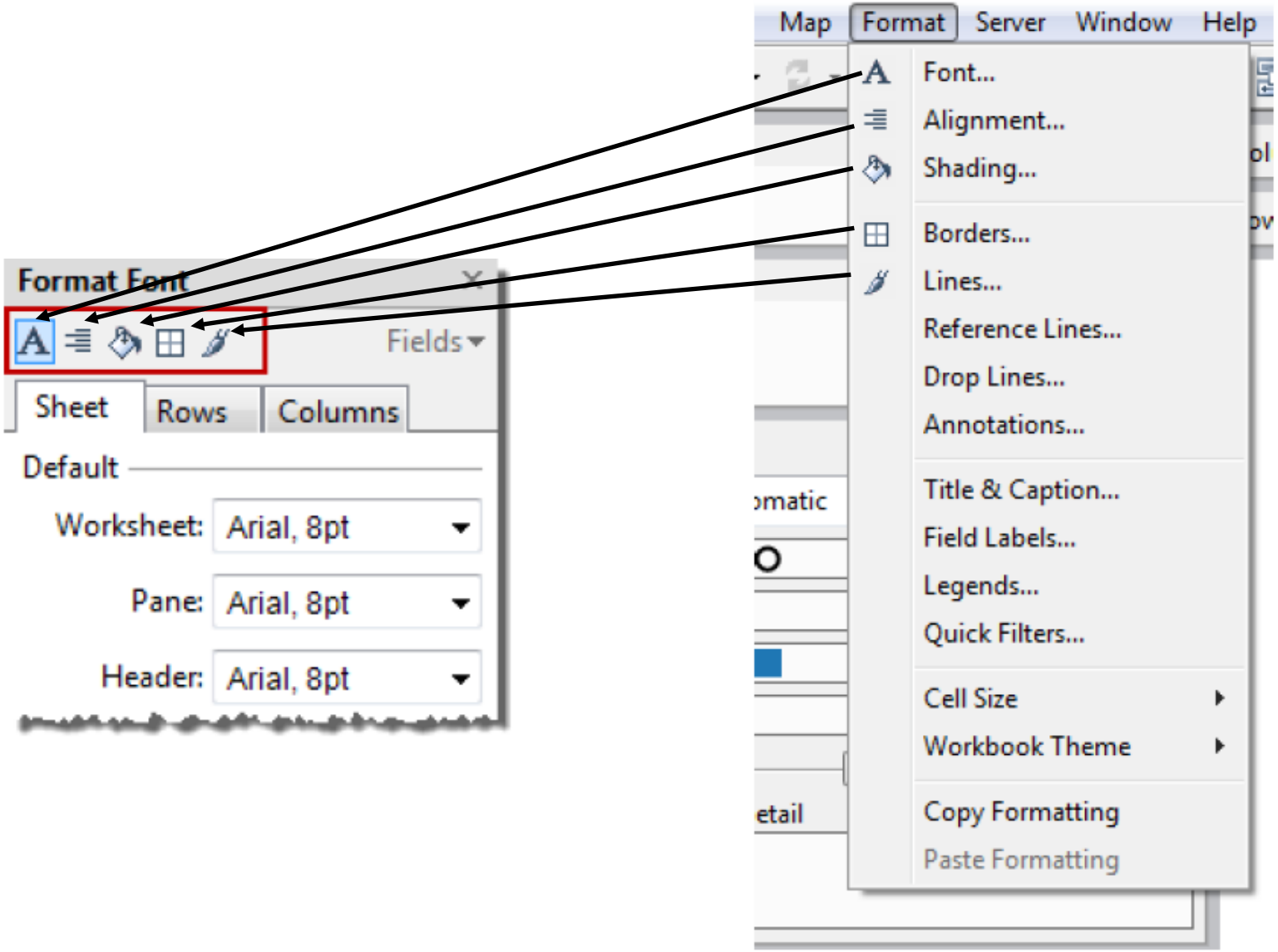


Activity #3 Create 3-4 Visualizations for a Dashboard – 20 Minutes



Intermediate Features

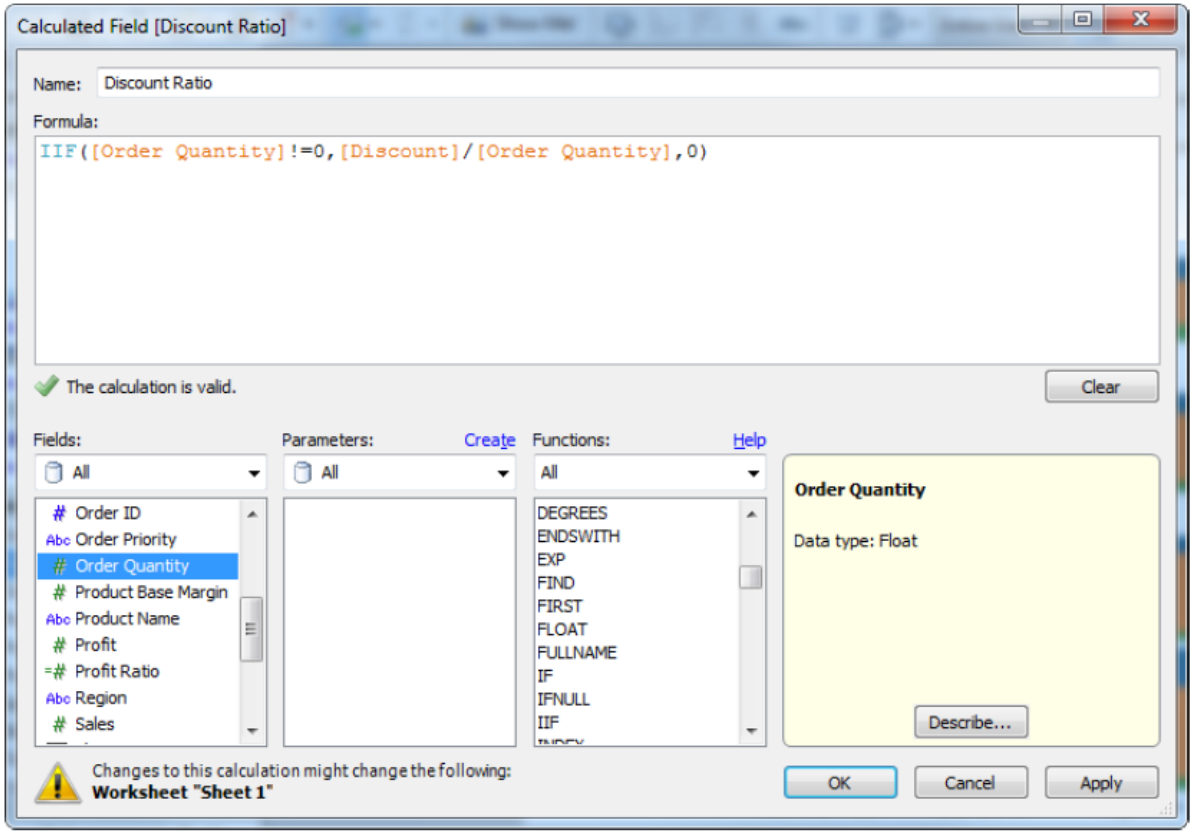
Formatting



Custom Calculations

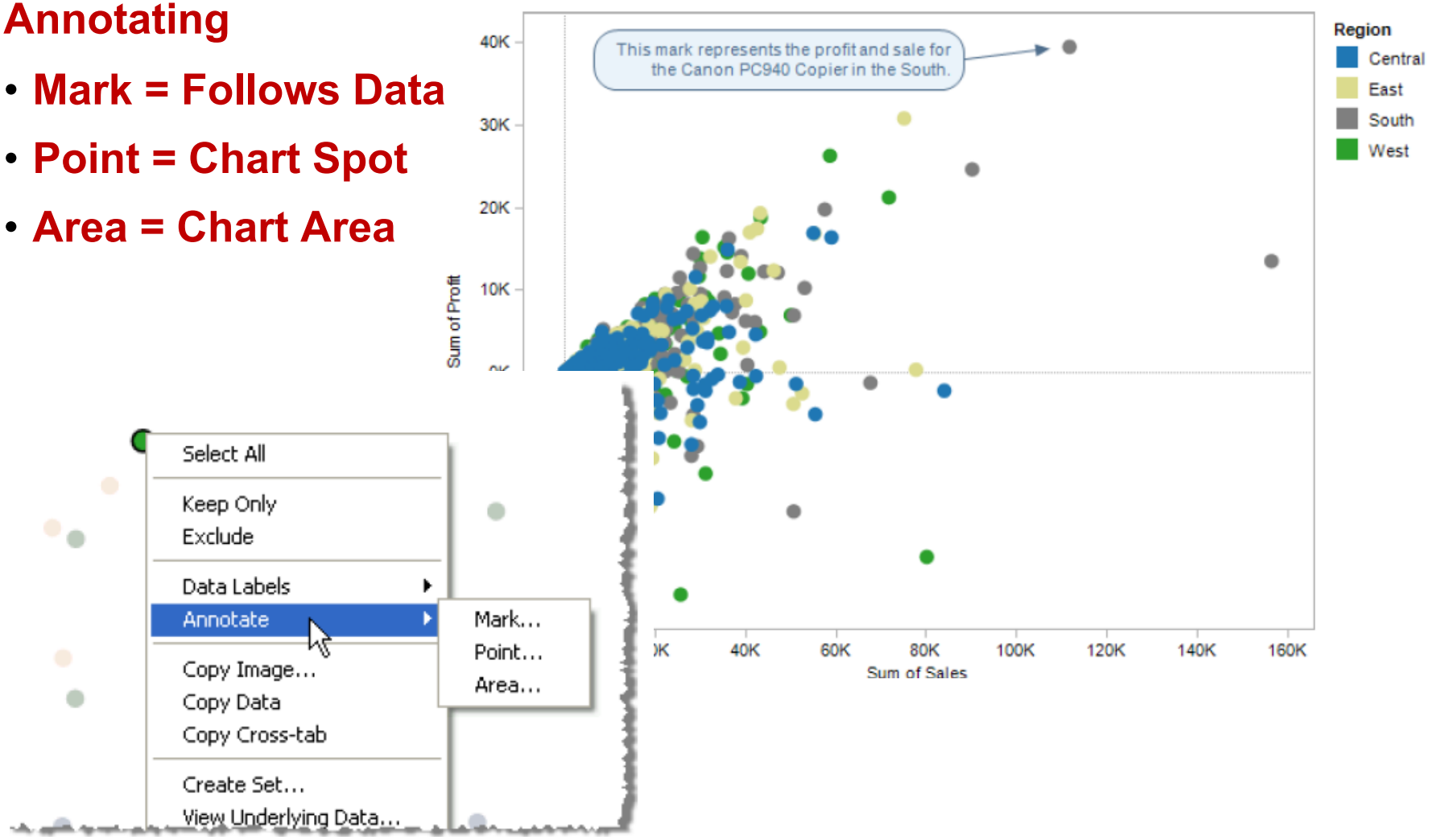
Can create new fields based on existing dimensions and measures

Calculation syntax similar to Excel and MySQL and SAS



Annotating

- Mark = Follows Data
- Point = Chart Spot
- Area = Chart Area



Tooltips

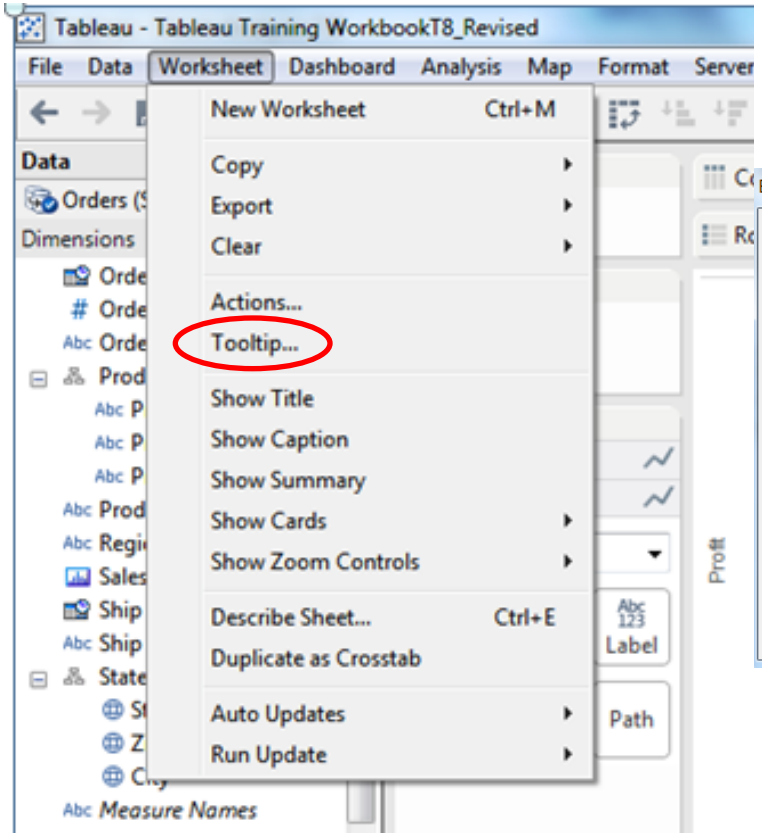
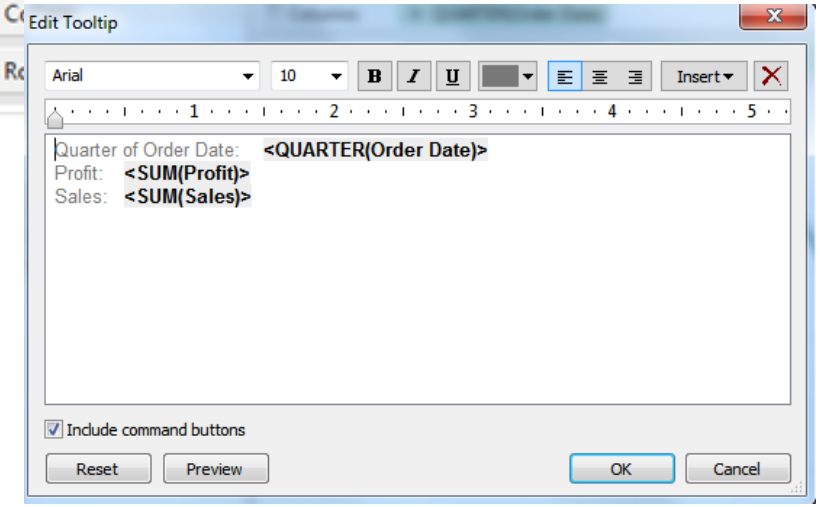
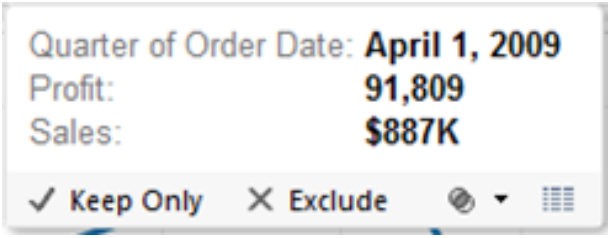
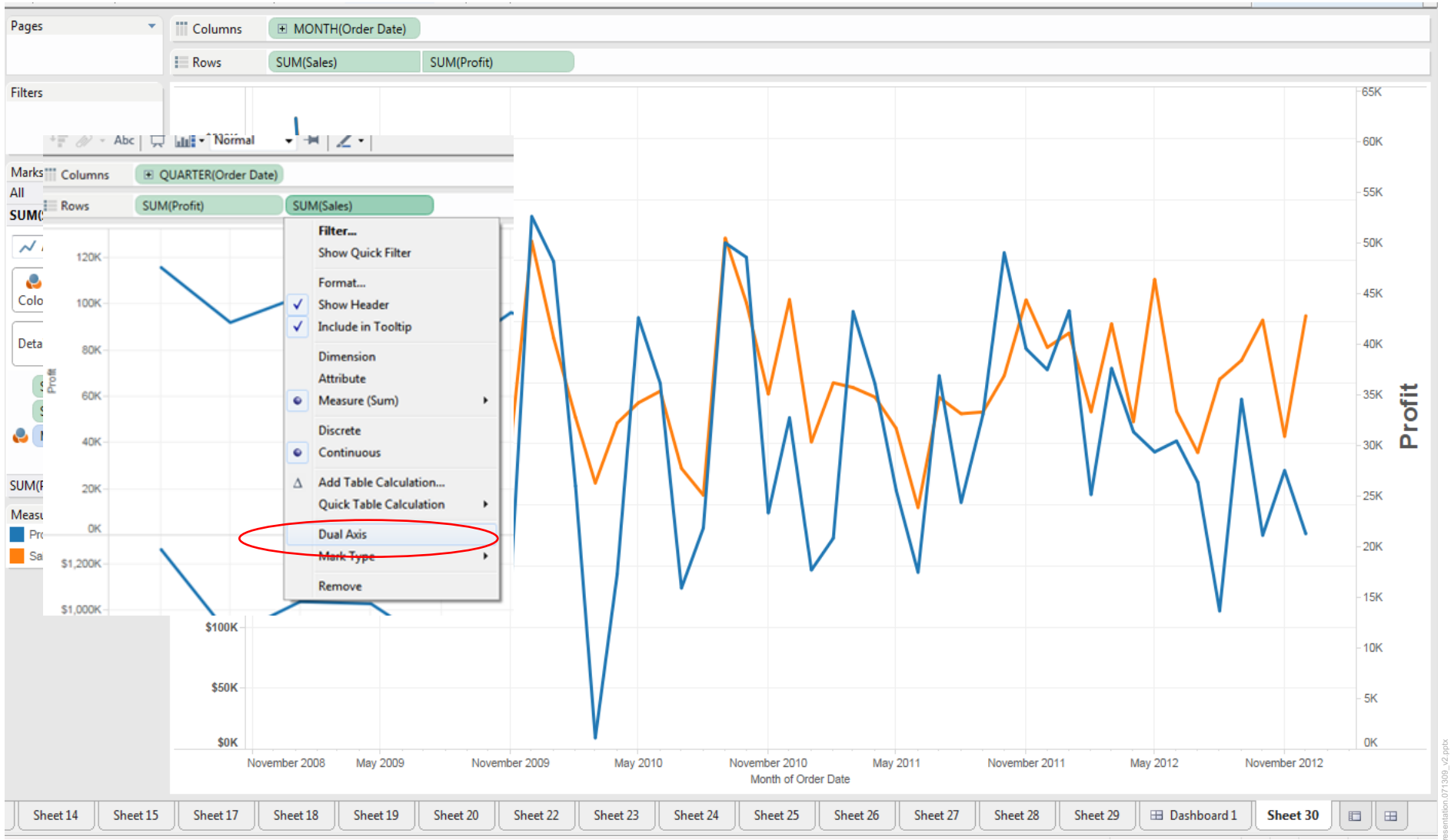


Tableau - Tableau Training WorkbookT8_Revised
File
Data
Worksheet
Dashboard
Analysis
Map
Format
Server
New Worksheet Ctrl+M
Copy
Export
Clear
Actions...
Tooltip...
Show Title
Show Caption
Show Summary
Show Cards
Show Zoom Controls
Describe Sheet... Ctrl+E
Duplicate as Crosstab
Auto Updates
Run Update
Data
Dimensions
Measure Names
Label
Path
Profit

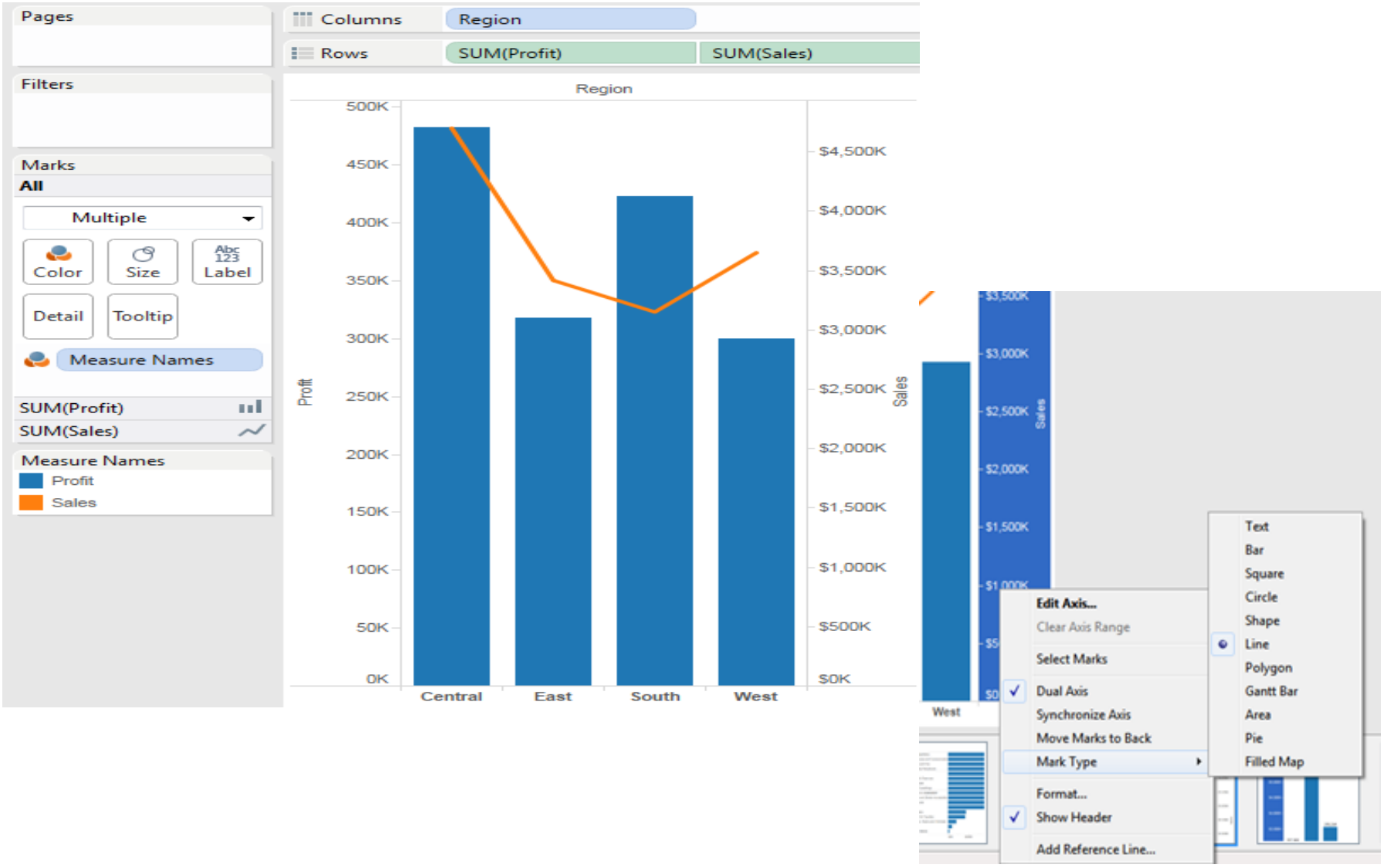

Edit Tooltip
Arial
10
Insert
Quarter of Order Date: <QUARTER(Order Date)>
Profit: <SUM(Profit)>
Sales: <SUM(Sales)>
Include command buttons
Reset
Preview
OK
Cancel


Quarter of Order Date: April 1, 2009
Profit: 91,809
Sales: $887K
Keep Only
Exclude

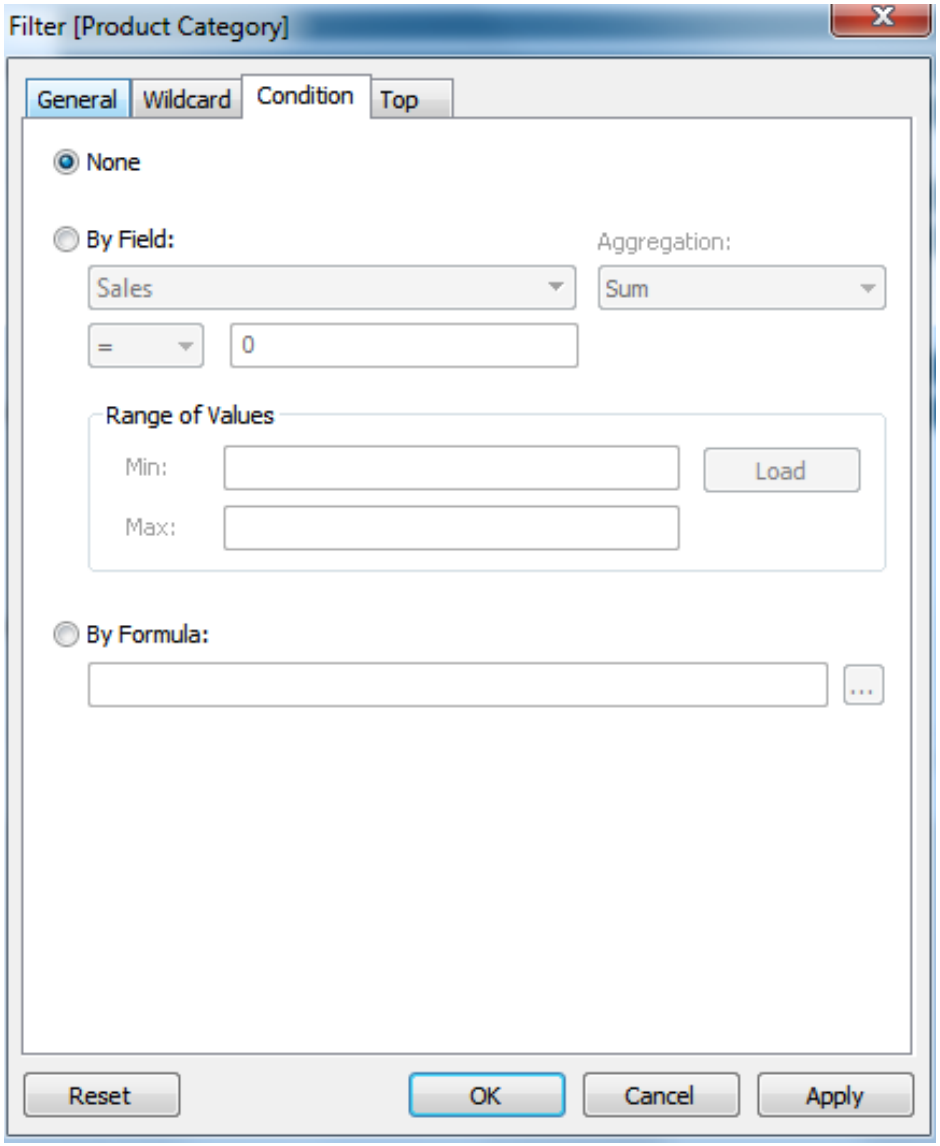
Dual Axes


Pages
Columns
MONTH(Order Date)
Rows
SUM(Sales)
SUM(Profit)
Filters
Marks
All
Columns
QUARTER(Order Date)
Rows
SUM(Profit)
SUM(Sales)
Filter...
Show Quick Filter
Format...
Show Header
Include in Tooltip
Dimension
Attribute
Measure (Sum)
Discrete
Continuous
Add Table Calculation...
Quick Table Calculation
Dual Axis
Mark Type
Remove
120K
100K
80K
60K
40K
20K
0K
$1,200K
$1,000K
$100K
$50K
$0K
65K
60K
55K
50K
45K
40K
35K
30K
25K
20K
15K
10K
5K
0K
Profit
November 2008
May 2009
November 2009
May 2010
November 2010
May 2011
November 2011
May 2012
November 2012
Month of Order Date
Sheet 14
Sheet 15
Sheet 17
Sheet 18
Sheet 19
Sheet 20
Sheet 22
Sheet 23
Sheet 24
Sheet 25
Sheet 26
Sheet 27
Sheet 28
Sheet 29
Dashboard 1
Sheet 30

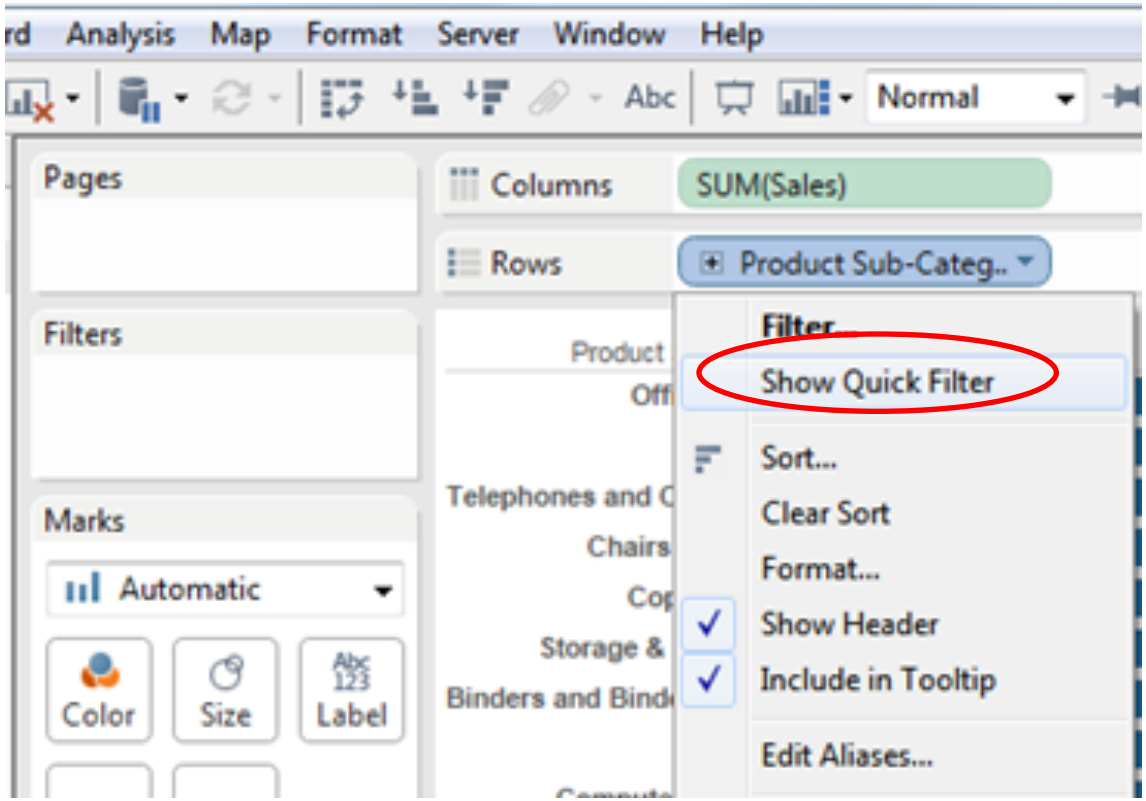
Combination Charts



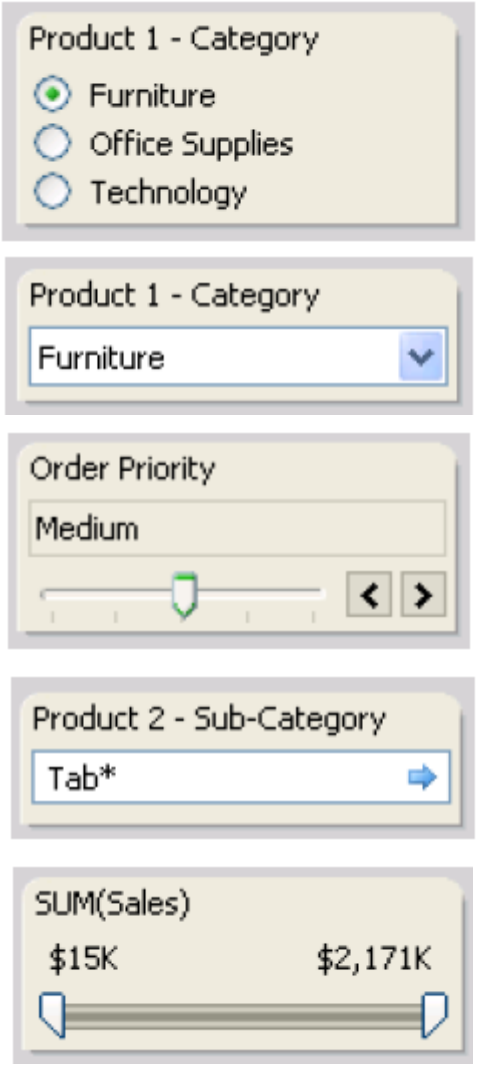
Conditional Filtering



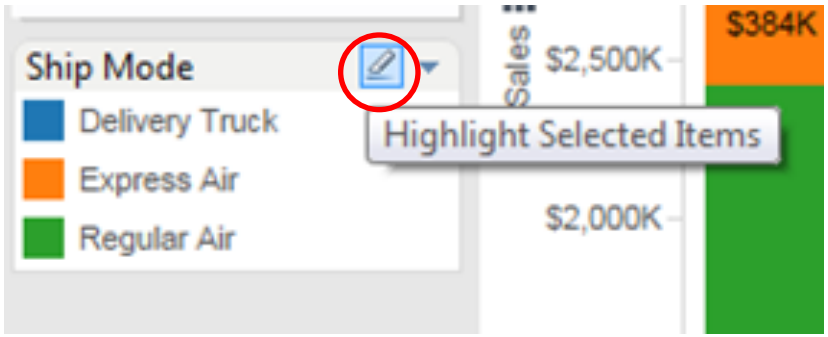
Quick Filtering



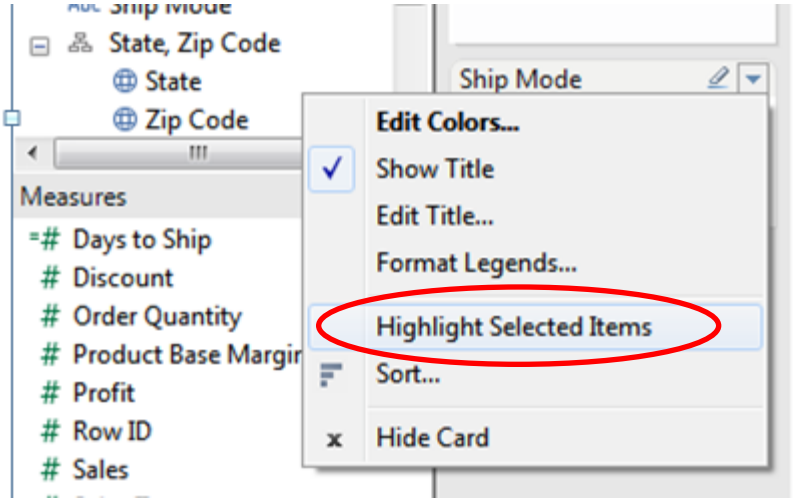
Filter Types



Color Legend Highlighting

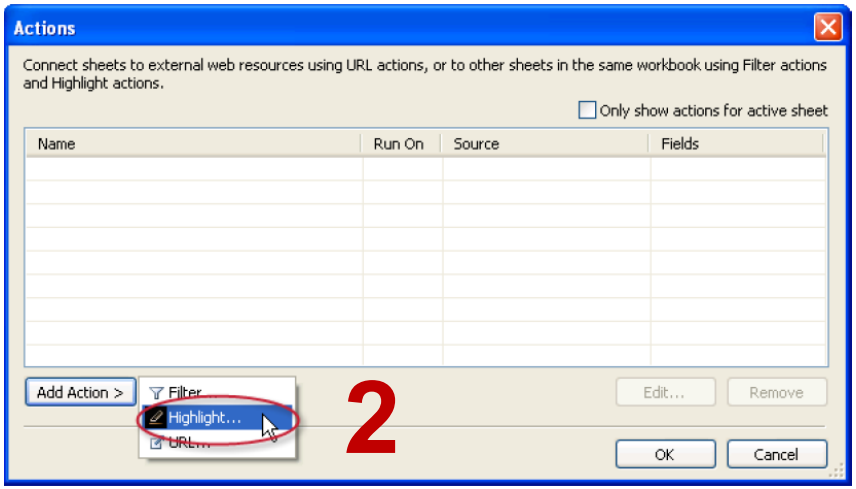


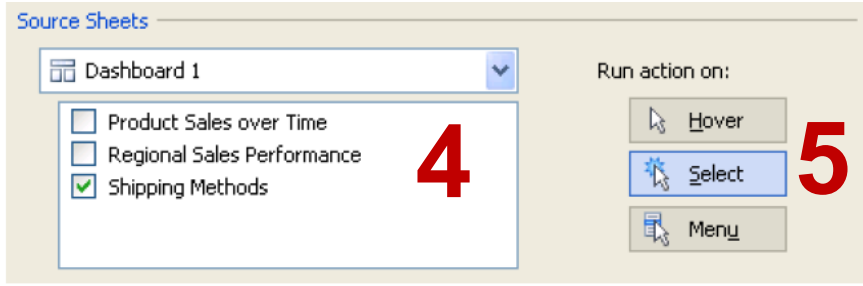
OR

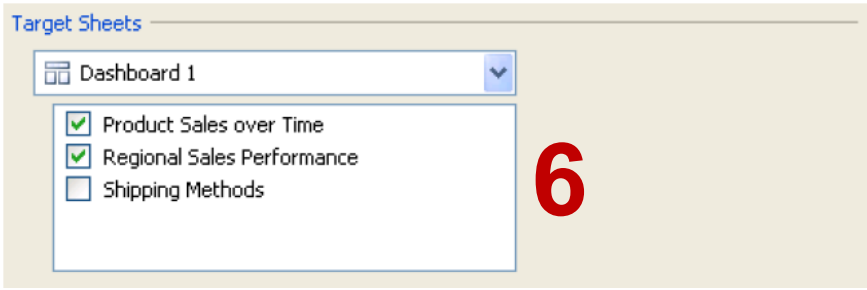


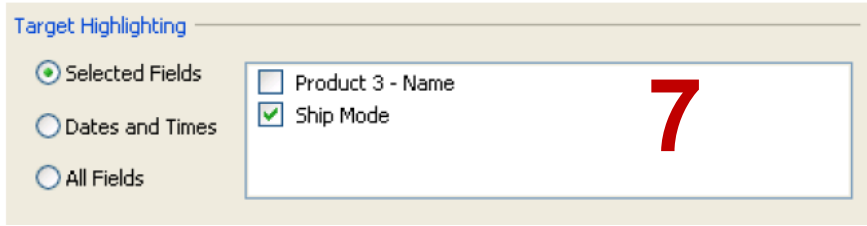
Actions > Highlights Or Filters

1. Select Worksheet > Actions
2. Add Action > Highlight/Filters
3. Give name
4. Select source sheet
5. Select how you want to launch action
6. Select target sheet
7. Select fields you want to highlight



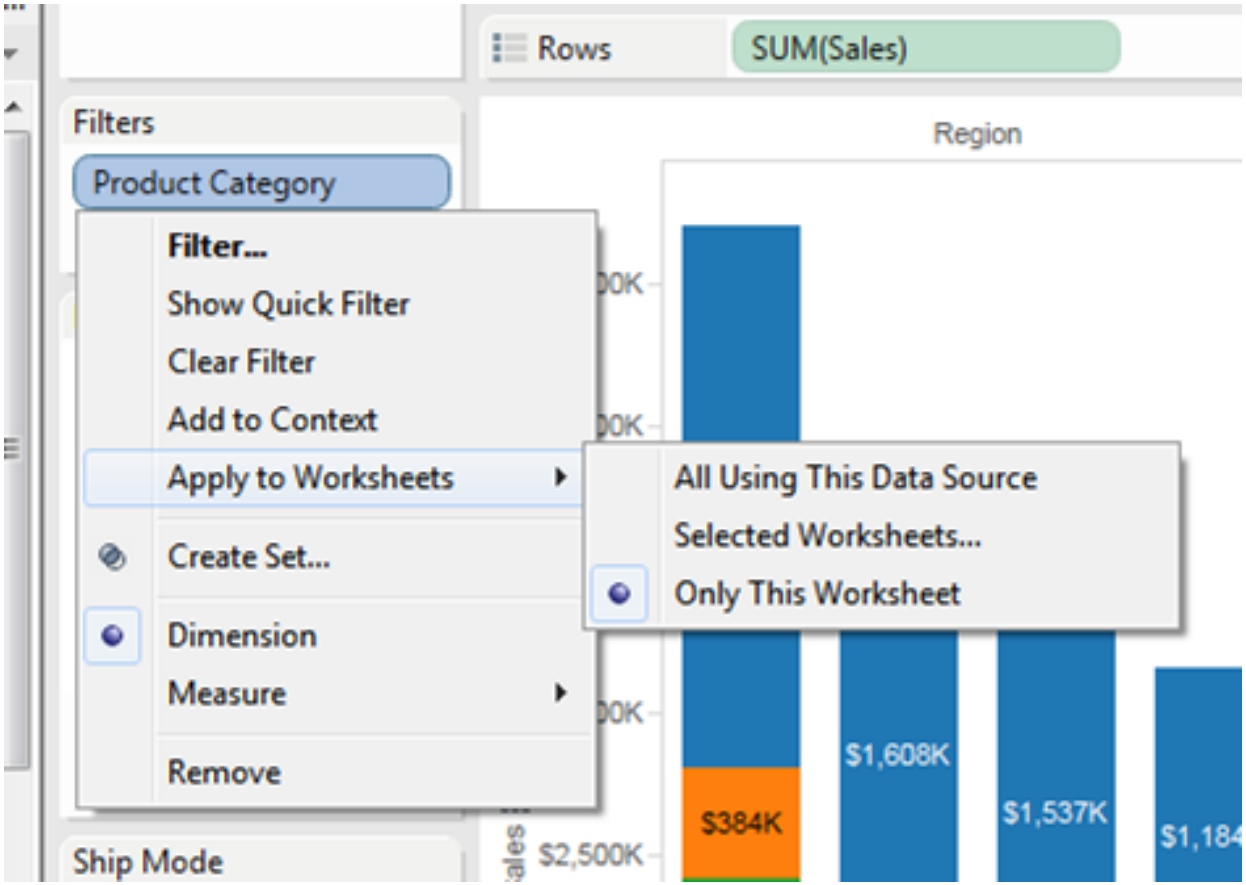




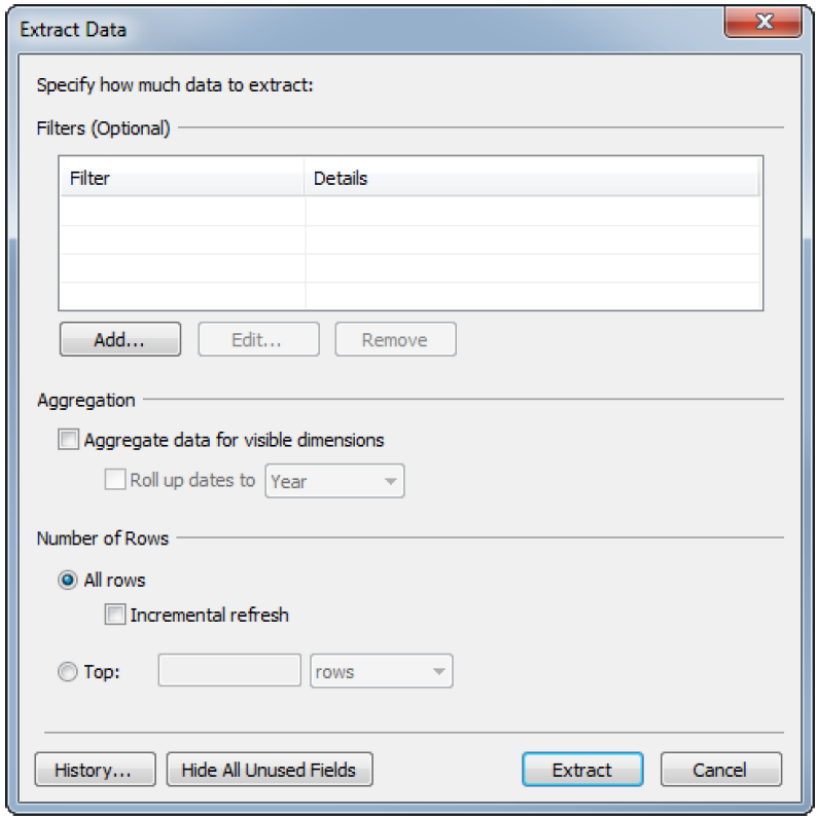


T8 Filters

Gets rid of the old Global Filter, allows you to selectively filter



Extracting and Optimizing Data



When to use…. Done playing with data and views and want to publish and improve speeds and size

Optimizing Data

Extract > Optimize

When to use….

Optimizing moves calculated fields into the extract so they don't have to be computed locally every time

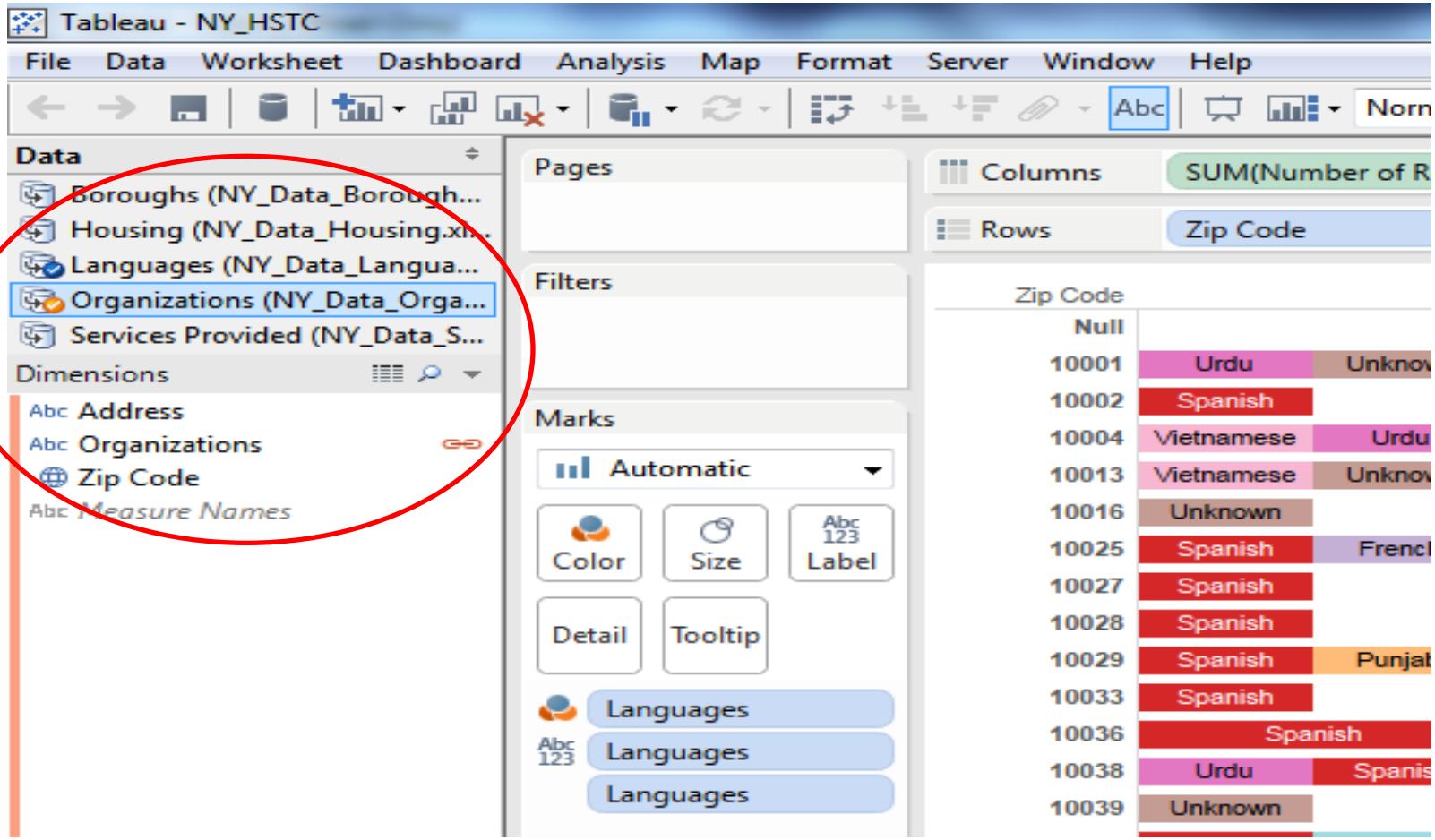
Each time you optimize the extract, any deleted calculations will be removed fro the extract, new ones will be added, and modified ones will be updated.

Multiple Data Connections

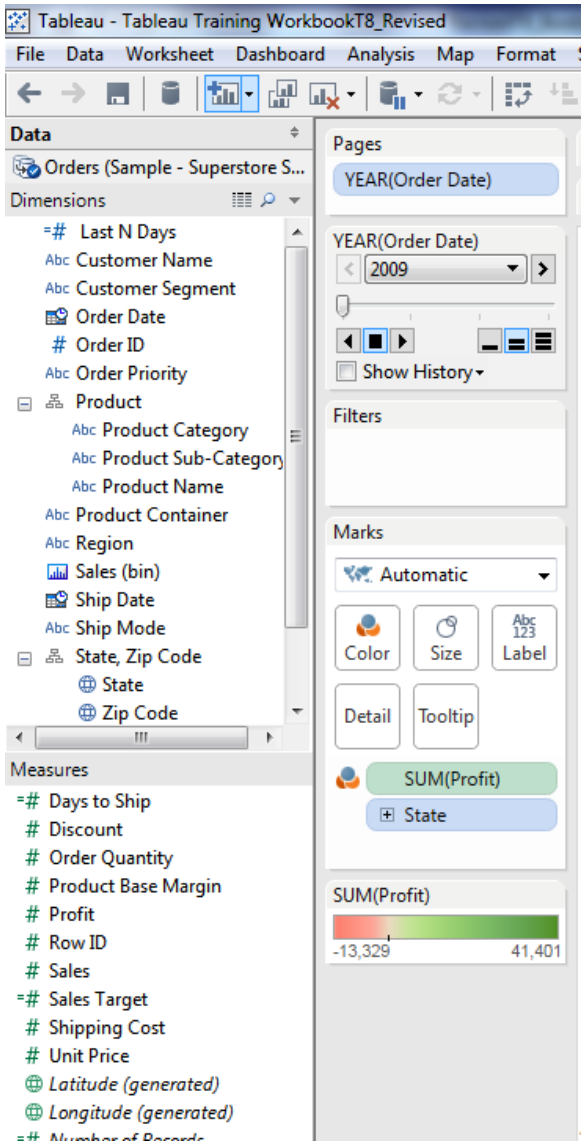
Blue Check = Primary

Orange Check = Secondary

Link = Data Relationship

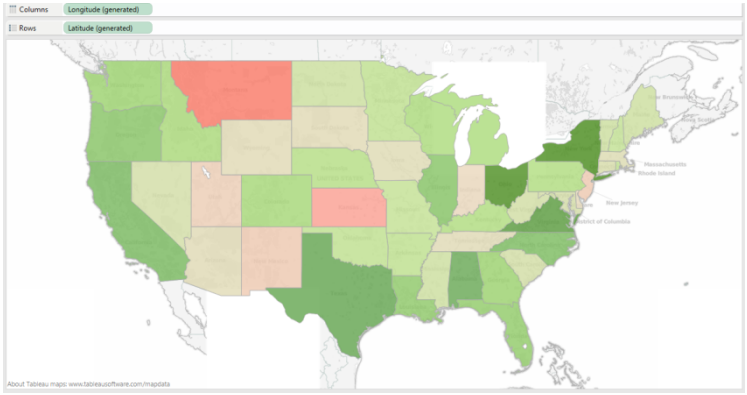


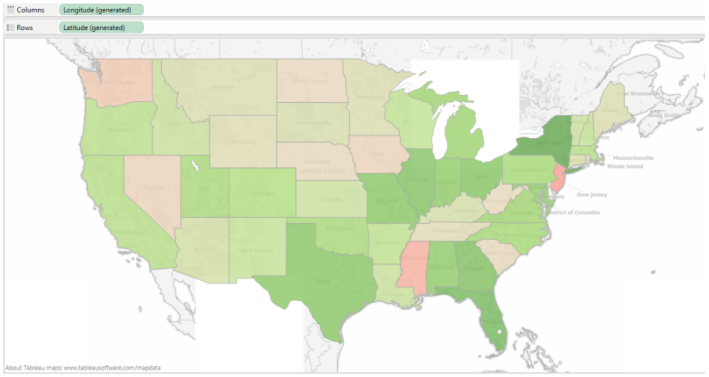
Animating Through Pages Shelf



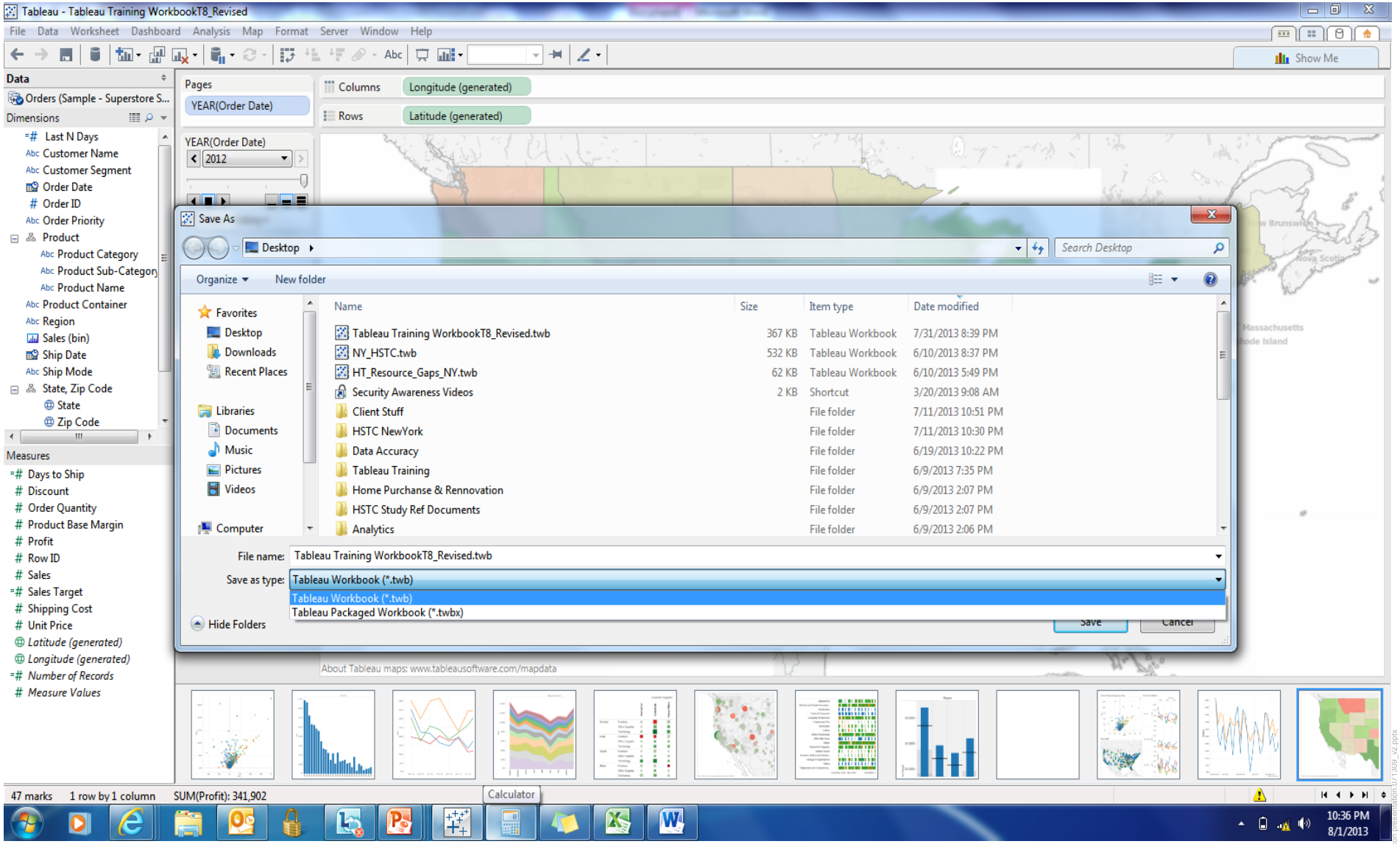
1. Drag dimension to Page Shelf

2. Animate design





Saving Your Workbook



Appendix A: Visual Cues

Various Visual Cues (1 of 2)

Visual Cue	Description
	The field contains text values.
	The field contains numeric values.
	The field contains only date values.
	The field contains both date and time values.
	The field contains geographical data and has been assigned a geographic role. Use these field when building map views.
	The field contains boolean (true or false) values.
	The field is a calculation that is defined in the database by an administrator. These fields are marked with a cylinder icon and are not available for all data sources.
	The field is a user-defined set.
	The field is a server named set.
	The field is a user filter, used when publishing to Tableau Server.
	The field is a numeric bin.
	The field is an ad-hoc group.

Various Visual Cues (2 of 2)

Visual Cue	Description
State	A blue field on a shelf indicates a discrete field.
Sales	A green field on a shelf indicates a continuous field.
State	A bold name indicates a sorted field.
Σ Year	The Σ icon indicates a calculation filter (slicer).
MyGroup	The icon indicates a set.
MyGroup	An italicized name indicates a filtered set.
MyGroup	A grey field with the icon and indicates a context filter.
△ Profit	The delta icon indicates that the field is a table calculation.
⊞ Region ⊟ Quarter	The plus and minus controls appear when the field is part of a hierarchy that you can drill down and up in.

Appendix B: Glossary

Glossary (1 of 8)

Action: An action is interactivity that you can add to your views. There are three kinds of actions: Filter, Highlight, and URL.

Aggregation: An aggregation results from a mathematical operation applied to a measure. Predefined aggregations include summation, average, and so on. Dimensions can be converted to measures by aggregating them as a count.

Alias: An alias is an alternative name assigned to a field or to a dimension member. Tableau supports both field aliases and member aliases.

Axis: An axis is displayed in a table when you place a continuous field on the Rows or Columns shelf. The axis labels are given by the name of the measure.

Bookmarks Bookmarks contain the data view from a single worksheet. You can create and display bookmarks using the Bookmark menu. Bookmarks behave like web browser bookmarks. They can be accessed without opening any other document and are a convenient way to quickly display different analyses. You should save bookmarks in the bookmarks folder of the Tableau repository.

Caption: A description of the current view on the active worksheet. For example, “Sum of Sales for each Market”. Captions can be automatically generated or custom. Show and hide the caption by selecting Worksheet > Show Caption

Cell: Any table you create in Tableau has the cell as its basic element. Controlling cells to enhance your data view is useful for text tables and heat maps

Glossary (2 of 8)

Color Legend: The color legend displays the colors associated with a measure or dimension members. The default legend is modified when you place a dimension or a measure on the Color shelf.

Color Shelf: The Color shelf allows you to encode data by assigning different colors to the marks in a data view. The shelf accepts a measures or a dimension. When you place a dimension on the Color shelf, Tableau separates the marks according to the members in the dimension, and assigns a unique color to each member. When you place a measure on the Color shelf, Tableau draws each mark with a different color using a continuous range. In both cases, a legend describes the color encoding.

Columns Shelf: The Columns shelf allows you to create the columns of a data table. The shelf accepts any number of dimensions and measures. When you place a dimension on the Columns shelf, headers for the members of that dimension are created. When you place a measure on the Columns shelf, quantitative axes for that measure are created.

Cross-tab: In Tableau, a cross-tab is another name for a text table. Text tables provide an easy way to display the numbers associated with dimension members.

Custom Geocoding: Tableau comes with built in geocoding data so that you can plot your data on a map. Custom Geocoding is when you add your own location data to extend the built in geocoding.

Dashboard: A dashboard is a collection of several worksheets shown in a single location where you can compare and monitor a variety of data simultaneously.

Glossary (3 of 8)

Data View / View: A data view, also referred to simply as a view, is a representation of your data in a Tableau worksheet or dashboard. You can create data views by placing fields on shelves.

Data window: The Data window displays the fields of the data sources to which Tableau is connected. The fields are divided into dimensions and measures. The Data window also displays custom fields such as calculations, binned fields, and groups. You build views of your data by dragging fields from the Data window onto the various shelves that are a part of every worksheet.

Data Source: To build data views, you must connect to a data source. Tableau supports many standard relational and multidimensional (OLAP) sources. When connected, Tableau does not save a copy of your data. Instead, it saves information about where the data source is located. When you build data views, Tableau sends the appropriate queries to your data source. A convenient location to save data sources is the data sources folder of the Tableau repository.

Dimensions: Dimensions are independent fields. Dimensions typically hold discrete data such as hierarchies and members that cannot be aggregated. Examples of dimensions include dates, customer names, and customer segments. Tableau does, however, support continuous dimensions.

Encoding: In Tableau, encoding refers to a particular visual representation of your data. You can encode your data by color, shape, size, and path using the associated worksheet shelves.

Fields: Field is another name for a dimension or a measure. All databases contain fields. Fields contain data. For relational data sources, fields are the columns of a table. For multidimensional (OLAP) data sources, fields are the dimensions of a cube. Each dimension or column contains a unique attribute of the data such as customer name, sales, product type, and so on.

Glossary (4 of 8)

Field Label: Field labels are titles that indicate the fields that are used in a view. For example, in a view that has rows for East, Central, and West might have a Region field label at the top of the column indicating that each row is a member of the Region field.

Filters Shelf: The Filters shelf allows you to exclude data from a view. You can filter data using measures, dimensions, and both measures and dimensions at the same time. You can filter data based on the fields that make up the columns and rows of the table. This is called an internal filter. You can also filter data based on fields that do not compose the table. This is called an external filter.

Format window: The Format window is a pane that, when open, displays on the left side of the workbook. The Format window contains formatting settings that control the entire worksheet as well as individual fields in the view.

Group: A group is a field consisting of dimension members that have been combined into higher level categories. For example, a dimension that contains states could be grouped into regions using Groups. Groups are marked with a paper clip icon in the Data window.

Headers: Headers are displayed in a table when you place a dimension on the Rows or Columns shelf. The header labels are given by the dimension member names.

Level of Detail Shelf: The Level of Detail shelf allows you to separate the marks in a data view according to the level of detail (members) of a dimension. The shelf works only if your data are aggregated. If your data are disaggregated, then it isn't possible to separate the marks into additional levels of detail. Additionally, placing a measure on the shelf has no effect on the table structure because measures do not contain members.

Glossary (5 of 8)

Marks: Marks visually represent one or more rows in a data source. Mark types can be a bar, line, square, and so on. You can control the type, color, and size of marks. Tableau can automatically select a mark type, or you can manually select the mark type from the Mark menu.

Measures: Measures are fields that are dependent variables. They are typically quantitative fields or calculated fields like sales, temperature or frequency. Discrete measures can also be created in Tableau.

Pages Shelf: The page shelf lets you split a view into a sequence of pages based on the members and values in a discrete or continuous field. Adding a field to the Page shelf is like adding a field to the Rows shelf except a new page is created for each new row.

Pane: Tables consist of one or more panes. The number of panes in a view depends on the number and type of fields placed on the Rows and Columns shelves.

Path Shelf: The Path shelf allows you to encode data by connecting marks using a particular drawing order. The shelf accepts measures and dimensions. Dimensions connect the marks according to the members in the dimension. If the dimension is a date, the drawing order is given by the date order. If the dimension holds words, the line is drawn based on the order of the words in the data source. Measures connect the marks according to the values of the measure. The measure can be aggregated or disaggregated.

Glossary (6 of 8)

Query: Tableau communicates with your databases with queries. Queries are questions that databases can understand and answer. Common query languages include SQL and MDX. Every time you build a view of your data, Tableau translates your actions into queries and retrieves the requested information from the data source. If you are building a dense data view, you can turn queries off until all desired fields are placed on shelves.

Relational Data Source: In Tableau, a relational data source can be an Excel workbook, an Access database, a comma delimited text file, a MySQL database, an Oracle database, a SQL Server database, a Firebird database, a PostgreSQL database, or a Tableau Data Extract file.

Repository: The Tableau repository holds workbooks, bookmarks, and data sources. It is located in a folder called My Tableau Repository inside of your My Documents folder.

Rows Shelf: The Rows shelf allows you to create the rows of a data table. The shelf accepts any number of dimensions and measures. When you place a dimension on the Rows shelf, headers for the members of that dimension are created. When you place a measure on the Rows shelf, quantitative axes for that measure are created.

Set: A set is a custom field you create by filtering existing dimensions. They appear at the bottom of the Data window in the Sets area. The three main uses of a set are to create a subset of the data, apply a numerical or a top N filter, and to create unique encodings. You can use sets in data views just like any other dimension.

Shape Legend: The shape legend displays the shapes associated with dimension members. The legend appears on worksheets that have a dimension placed on the Shape shelf.

Glossary (7 of 8)

Shape Shelf: The Shape shelf allows you to encode data by assigning different shapes to the marks in a data view. The shelf accepts dimensions only. When you place a dimension on the shelf, Tableau separates the marks according to the members of the dimension, and a legend describes the encoding. You cannot place a measure on the shelf because measures do not contain members.

Shelves: You build views of your data by placing fields onto the shelves that are a part of every worksheet. Some shelves are available only when certain mark types are selected. For example, the Shape shelf is available only with the Shape mark type.

Size Shelf: The Size shelf allows you to encode data by assigning different sizes to the marks in a data view. The shelf accepts measures and dimensions. When you place a dimension on the shelf, Tableau separates the marks according to the members in the dimension, and assigns a unique size to each member. When you place a measure on the shelf, Tableau assigns a different size to each mark using a continuous range.

Table: The visual presentation of a data view is contained within a table. Tables consist of panes, headers, axes, and cells.

Text Shelf: The Text shelf allows you to view the numbers associated with a data view, and to encode data by assigning text labels to the marks. The most common view using the Text shelf is a text table. The shelf accepts measures and dimensions.

Glossary (8 of 8)

Undo/Redo: You can undo any action in Tableau by clicking Undo on the toolbar. Likewise, you can redo any action by clicking Redo on the toolbar. Using Undo and Redo, you can quickly return to a previous view or you can browse all the views of a data source that you have created. The undo/redo history is not saved between Tableau sessions.

Workbooks / Packaged Workbooks: Workbooks hold one or more worksheets and dashboards. By saving a workbook, you can save all open sheets in one file that can then be easily shared.

Worksheets: Worksheets hold your data views. You can save individual worksheets as bookmarks. Each worksheet can be connected to only one data source. However, different worksheets in a workbook can be connected to different data sources.

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