

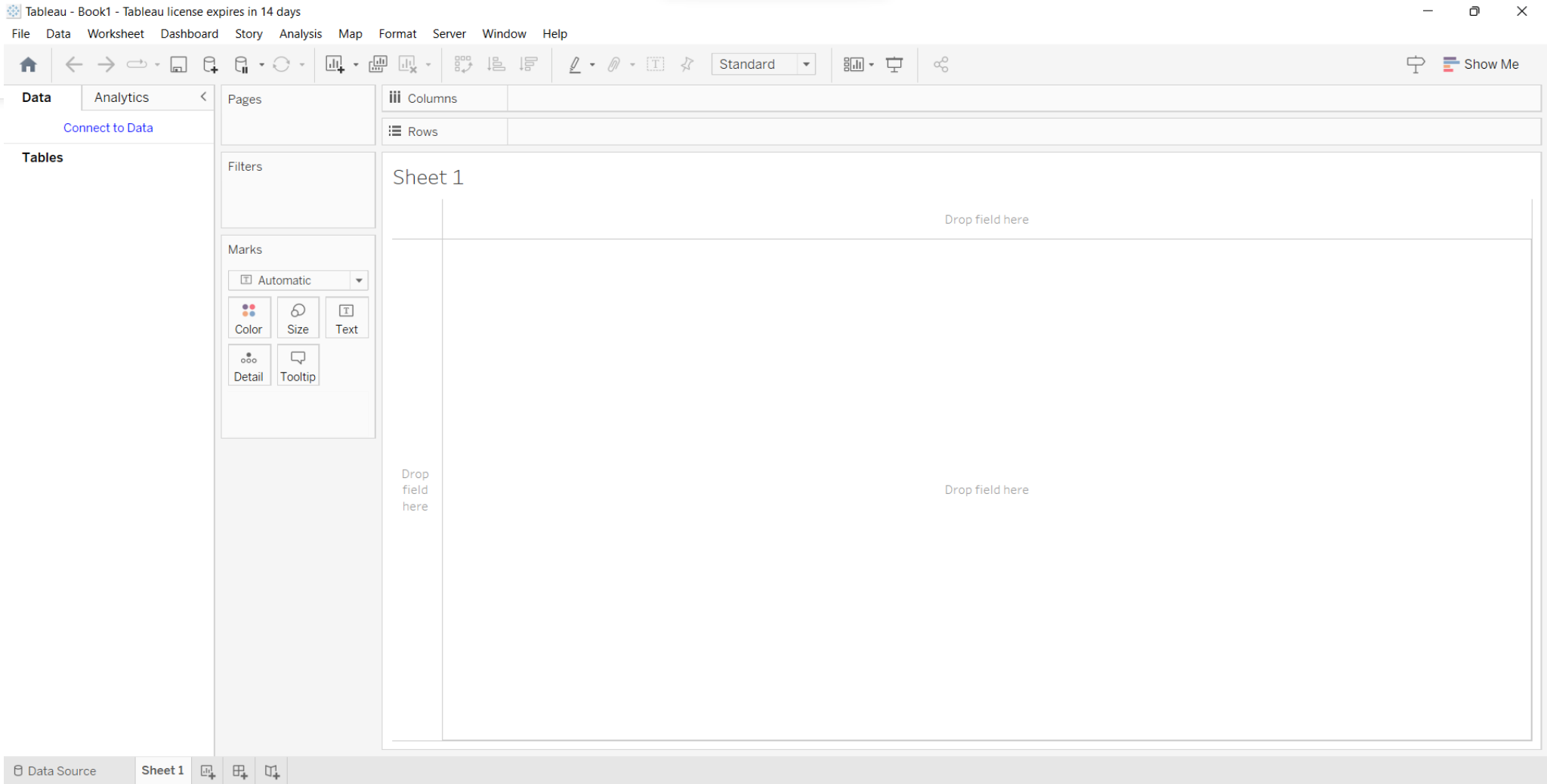
Intro to Tableau

CS 459 Business Intelligence



	Power BI	Tableau	Qlik Sense	ThoughtSpot	Looker
Full-featured Free Version	Yes	Separate tool	Separate tool	No	No
Development Environment	Desktop	Desktop	Web Browser	Implementation	Cloud
R and Python Supported	Yes	Yes	Yes	R Only	Yes
Dynamic Cross-filtering	Yes	Yes	Yes	No	No
AI-enabled Analytics	Yes	Yes	Yes	Yes	No
Search Analytics with NLP	Yes	Yes	Yes	Yes	No
Data Prep Tools	Yes	Separate tool	Separate tool	Yes	No
Data Modeling Tools	Yes	Separate tool	Yes	Yes	Yes
Preferred Data Model	Star-schema	Flat	Snowflake	Star-schema	Flat
Database Independent	Yes	Yes	Yes	Yes	No
Built in Row Level Security	Yes	Yes	Yes	No	No
Mixed Model Types	Yes	No	No	Yes	No
Third-party Data Model Access	Yes	No	No	No	No
Commenting & Collaboration	Yes	Yes	Yes	Yes	No
Embedded Analytics	Yes	Yes	Yes	Yes	Yes
Open-source Custom Visualizations	Yes	No	Yes	No	Yes
Native Mobile App	Yes	Yes	Yes	Yes	No

Create New



Spring 25

Move to Sheet

- One chart per worksheet
- Stories and Dashboard are created separately
- Notice some generated columns in Tableau

DD.Entry.Delay
Delivery.Delay
Delivery.Time
F1
Freight Cost (USD)
Line Item Insurance (USD)
Line Item Quantity
Pack Price
Sales
Unit of Measure (Per Pack)
Unit Price
Weight (Kilograms)
🌐 *Latitude (generated)*
🌐 *Longitude (generated)*
SC dataset - Power BI (Count)
Measure Values

Data

Analytics

SC dataset - Power BI (SC.Dataset.A...

Search 🔍

Tables

Abc

Brand

📅

Delivered to Client Date

📅

Delivery Recorded Date

🌐

Delivery.Country

Abc

Dosage

Abc

Dosage Form

Abc

First Line Designation

Abc

Fulfill Via

Abc

Item Description

Abc

Managed By

🌐

Manuf.Country

Abc

Molecule/Test Type

Abc

Po / So #

Abc

PO Sent to Vendor Date

Abc

Pq #

Abc

PQ First Sent to Client Date

Abc

Product Group

Abc

Project Code

📅

Scheduled Delivery Date

Abc

Shipment Mode

Abc

Sub Classification

Abc

Vendor

Abc

Vendor INCO Term

Abc

Vendor(D)

Abc

Measure Names

#

DD.Entry.Delay

#

Deliverv.Delay



Show Me






- Different charts and required dimensions and measures



Show Me

- Press Ctrl Key and select Delivered to Client Date
- Tableau suggests some charts based on selected columns
- Blue - Dimensions
- Green - Measures / Facts
- Possible charts become visible, recommended is highlighted by orange outline

Tables

 Delivered to Client Date
 Delivery Recorded Date
 Delivery.Country
Abc Dosage
Abc Dosage Form
Abc First Line Designation
Abc Fulfill Via
Abc Item Description
Abc Managed By
 Manuf.Country
Abc Molecule/Test Type
Abc Po / So #
Abc PO Sent to Vendor Date
Abc Pq #
Abc PQ First Sent to Client Date
Abc Product Group
Abc Project Code
 Scheduled Delivery Date
Abc Shipment Mode
Abc Sub Classification
Abc Vendor
Abc Vendor INCO Term
Abc Vendor(D)
Abc *Measure Names*
DD.Entry.Delay
Delivery.Delay
Delivery Time

 Show Me

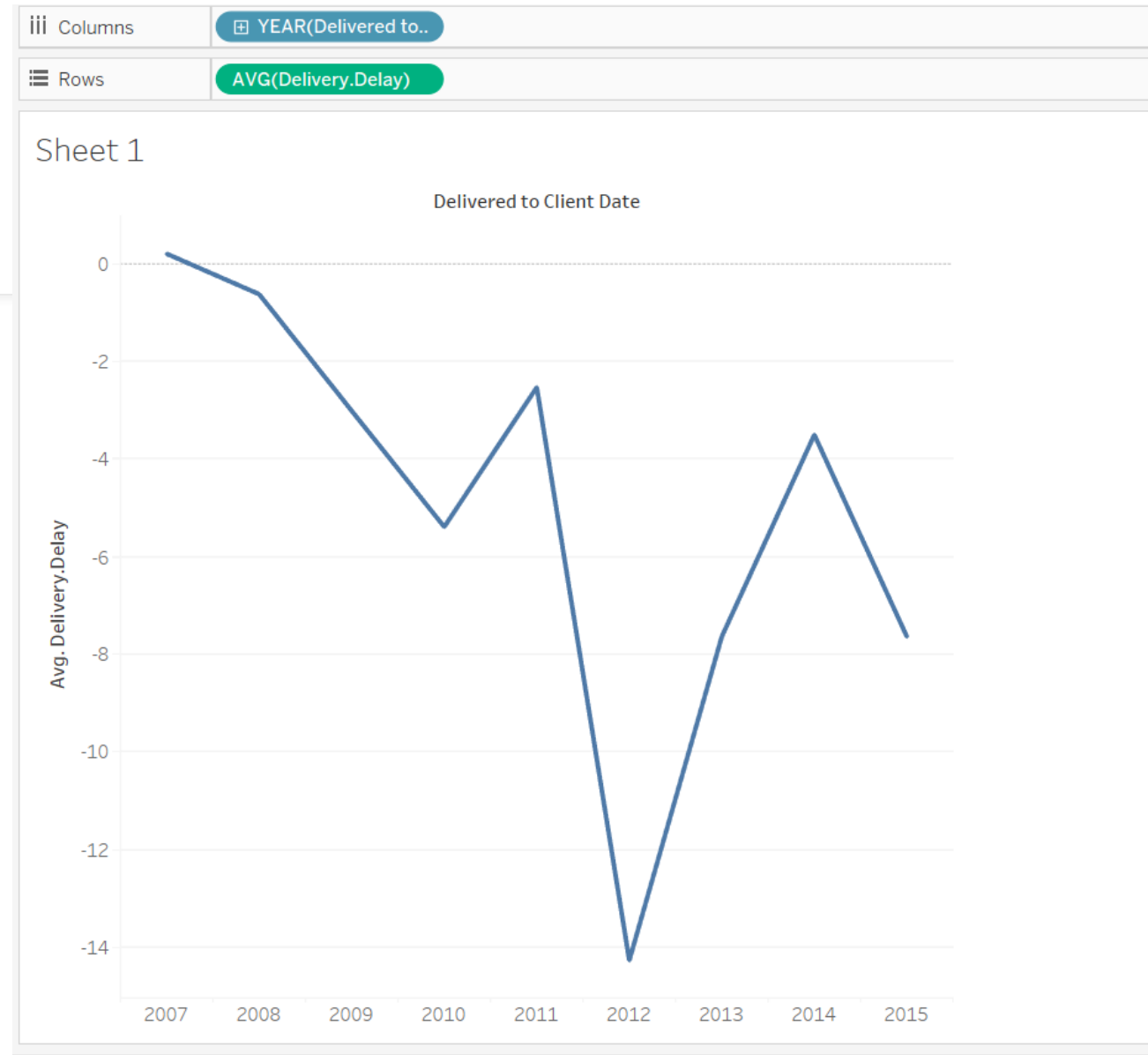


For **lines** (discrete) try
1 date 
0 or more **Dimensions**
1 or more **Measures**



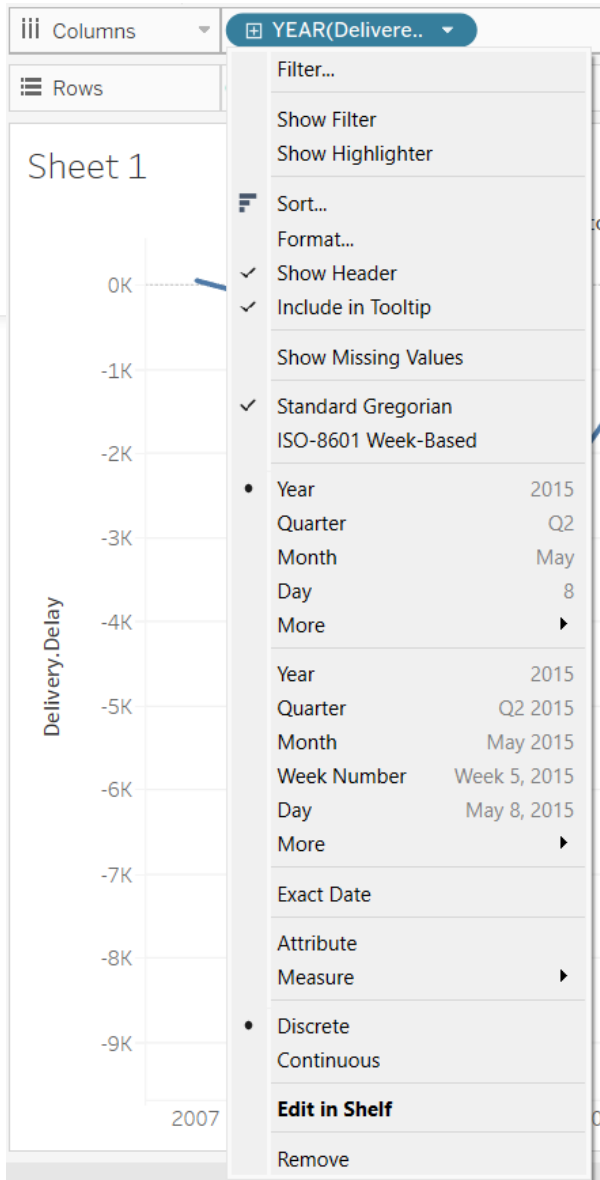
Line Chart

**Switch Measure to
Average of Delivery
Delay**



Blue Date Column VS Green Date Column

Drop down menu in Date attribute





- First Date section → **BLUE** → Discrete
- Second Date section → **GREEN** → Continuous
- Try out both options and understand the difference
- Use the plus button to drill down


Green Vs Blue

- If you know that you want to look at a trend over a continuous period of time → use a continuous date, which will be colored **green** on the view.
- If your analysis requires you to have discrete marks that can be sorted → use the field as discrete, which will be colored **blue** on the view.

Data Guide

  Show Me

Data Guide

 **Sheet 1**

Viz Details —

Viz description

Enter a description that helps users understand this viz


Additional resources


+ Add link

Applied Filters +

Data in This Viz —


SC dataset - Power BI (SC.Dataset.A...

 Year of Delivered to Client Date

 Avg. Delivery.Delay

Data Summary +

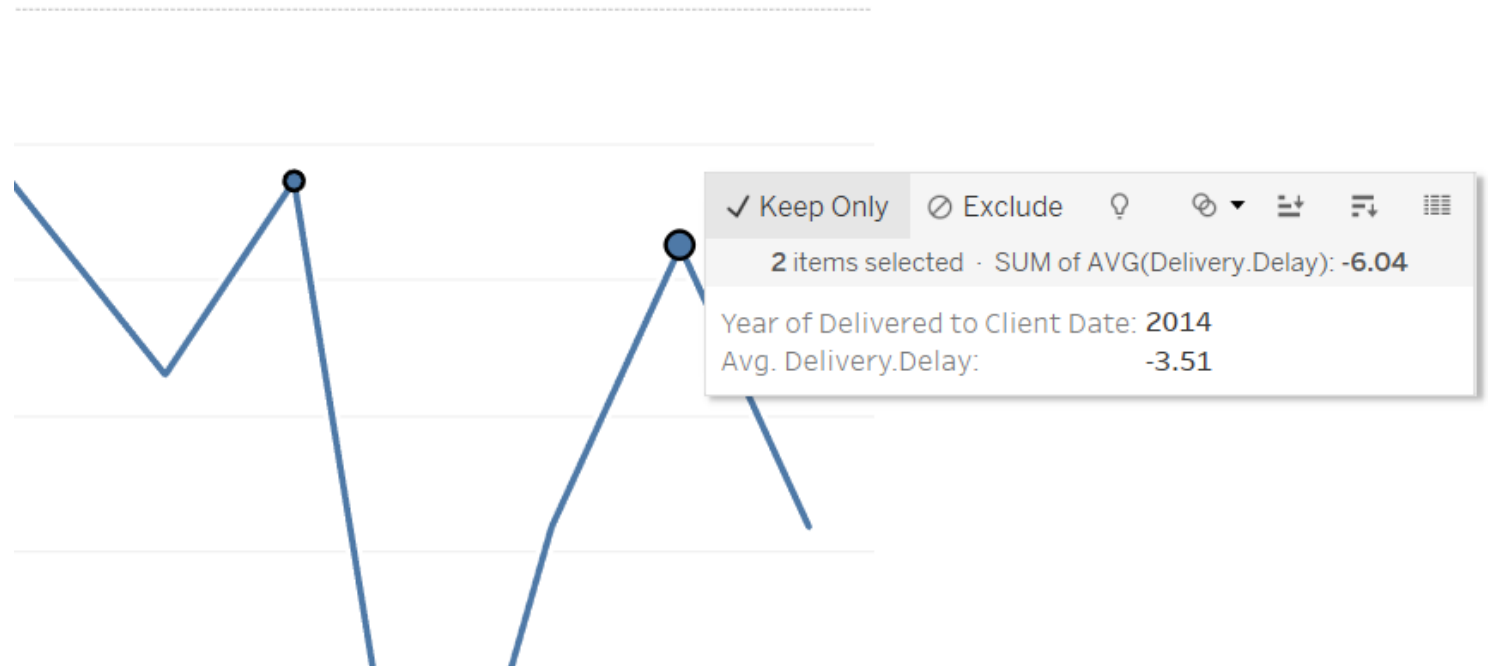
Detected Outliers (3) —

 Tableau detected these marks as unusual compared to other marks in the selected viz.

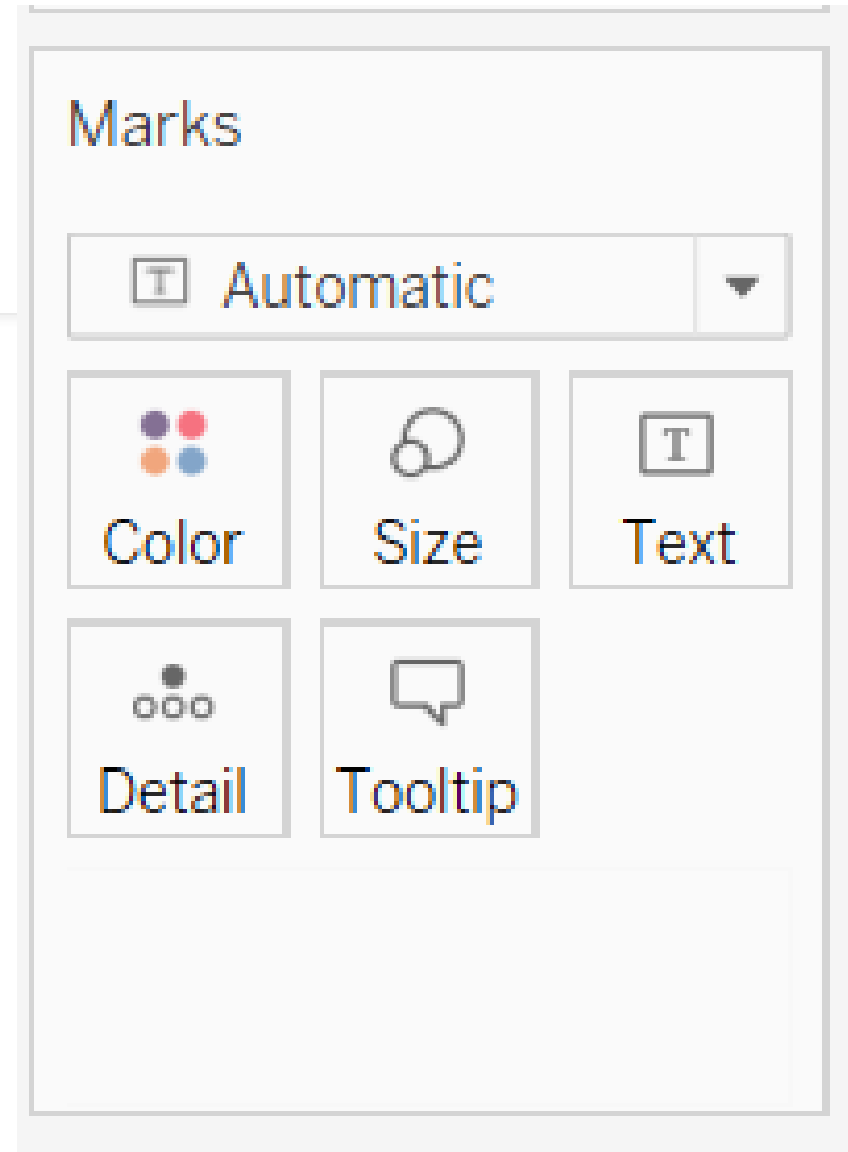
Low

 2012
Average of Delivery.Delay: -14.28 >

Flip, Sort, Keep Only



Marks



Modify the Chart

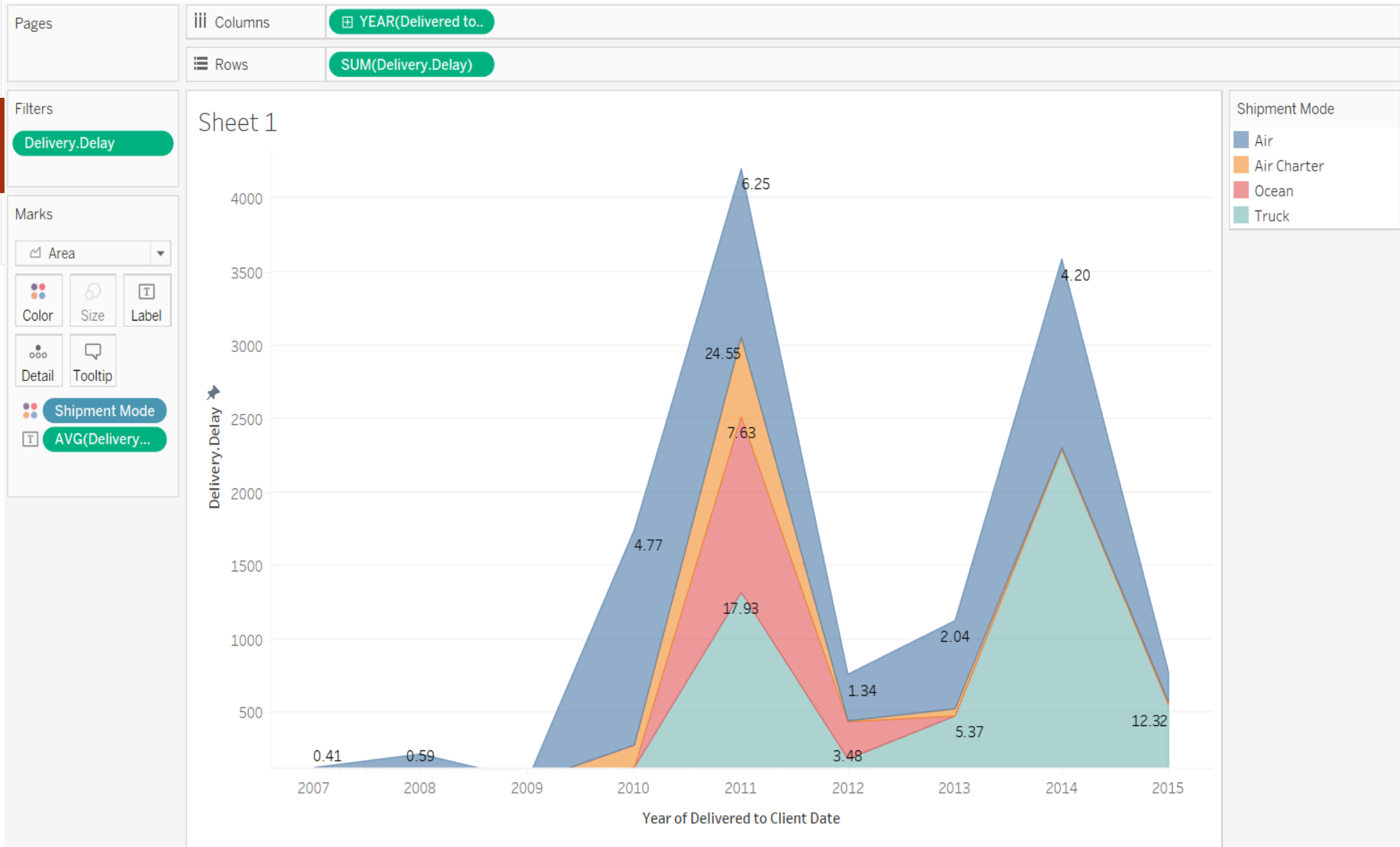
- Shipment mode to colors
- Filter out delivery delay (all values) > 0
- Date as Green attribute (continuous)
- Avg Delivery Delay to Label

Filter Field [Delivery.Delay] ×

How do you want to filter on [Delivery.Delay]?

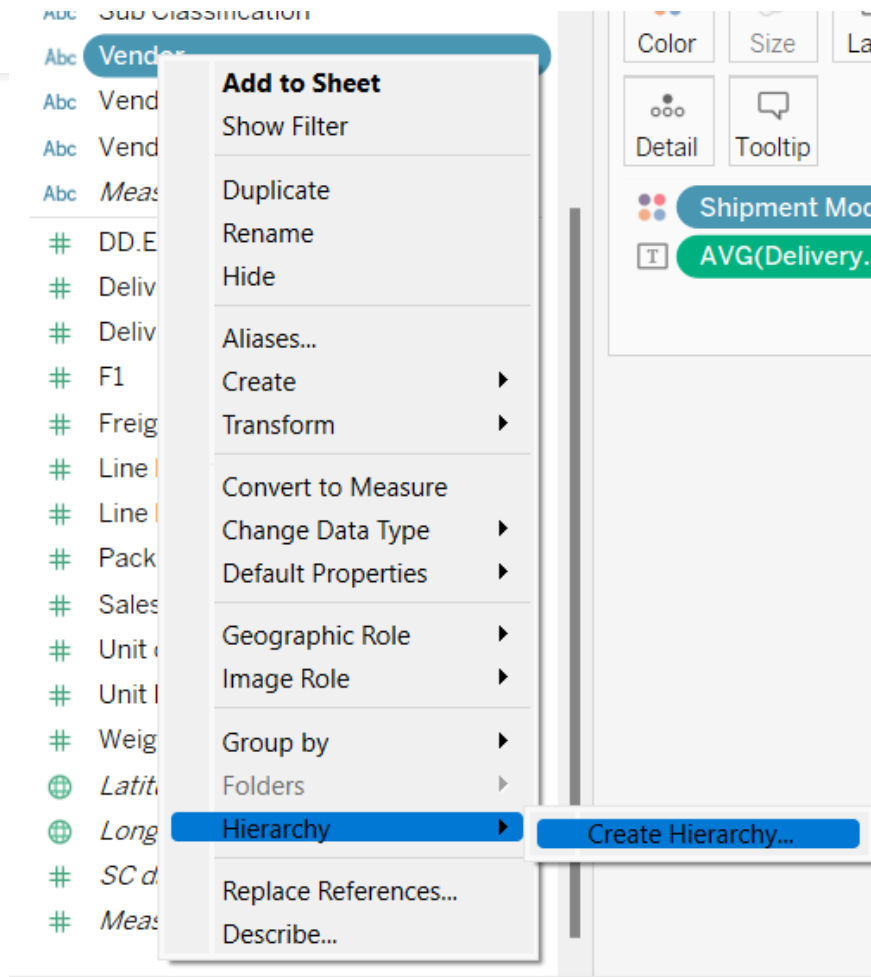
#	All values
#	Sum
#	Average
#	Median
#	Count
#	Count (Distinct)
#	Minimum
#	Maximum
#	Standard deviation
#	Standard deviation (Population)
#	Variance
#	Variance (Population)
#	Attribute

Next >
Cancel



Sheet 2

Vendor Hierarchy with Avg (Delay)



- Create Vendor Hierarchy
 - Vendor
 - Brand
 - (Only 2 levels for practice - you can add more as needed)
- Avg (Delay) to Column
- Vendor.H to Rows
- Filter Delay > 0
- Chart type: Bar

Filter Vendor

Top 3 by Avg (Delay)

- Possible to also select vendors manually from the *General* tab

Filter [Vendor] X

General Wildcard Condition Top

☐ None

☒ By field:

Top 3 by

Delivery.Delay Average

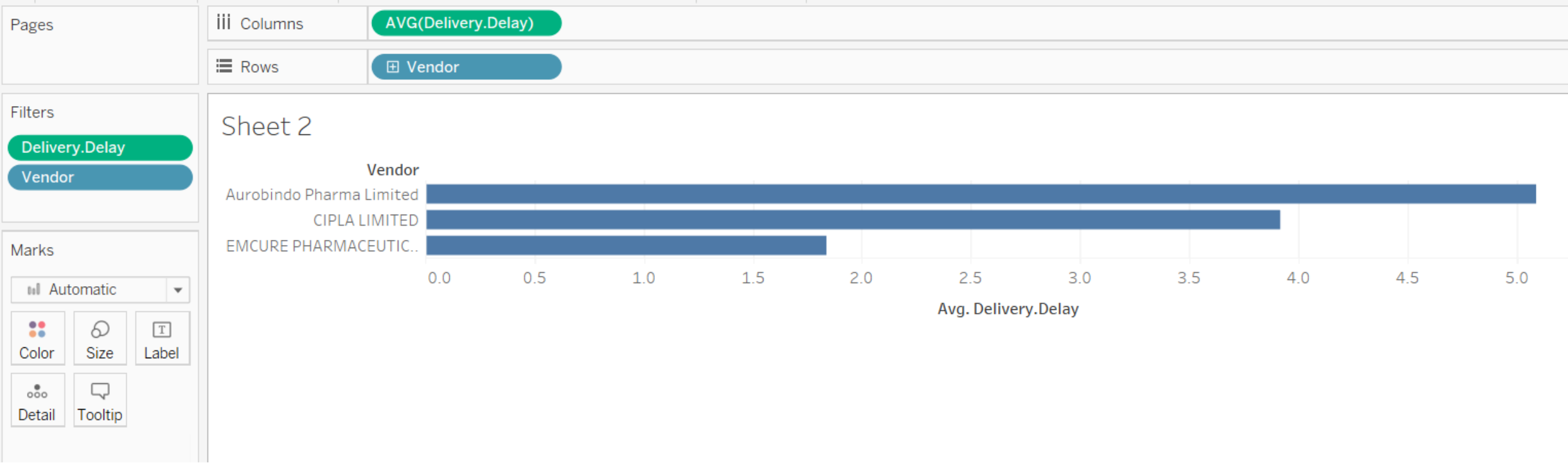
☐ By formula:

Top 10 by

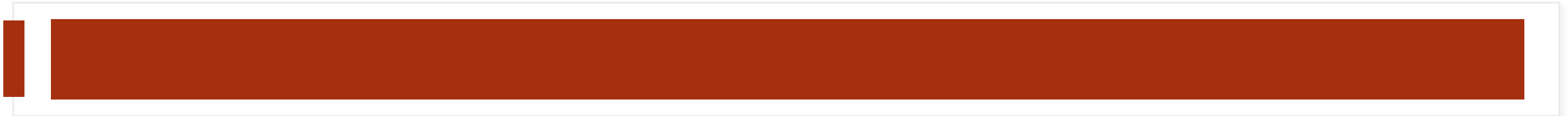
Reset OK Cancel Apply



Vendor Vs Avg (Delay) Bar Chart



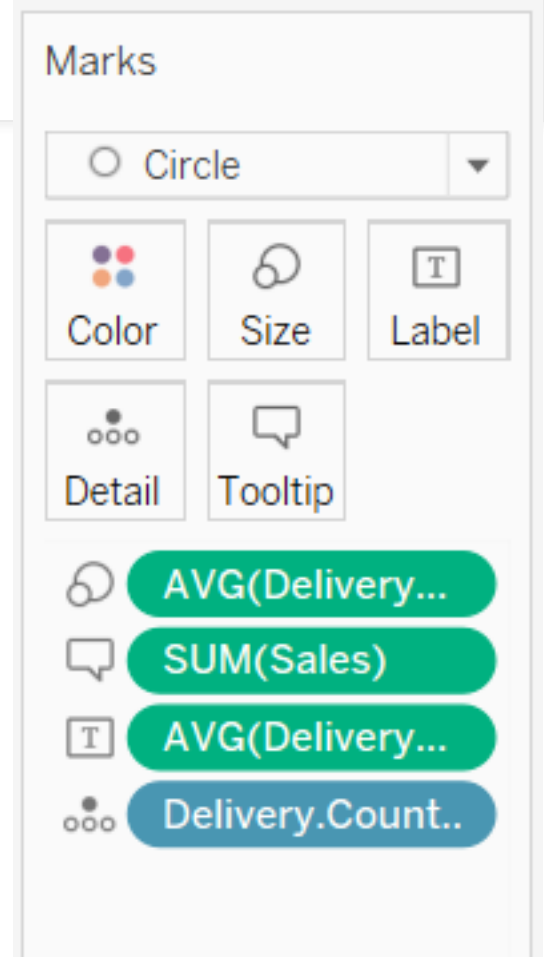
Add a column to **colors** to see the chart transform into a stacked bar chart

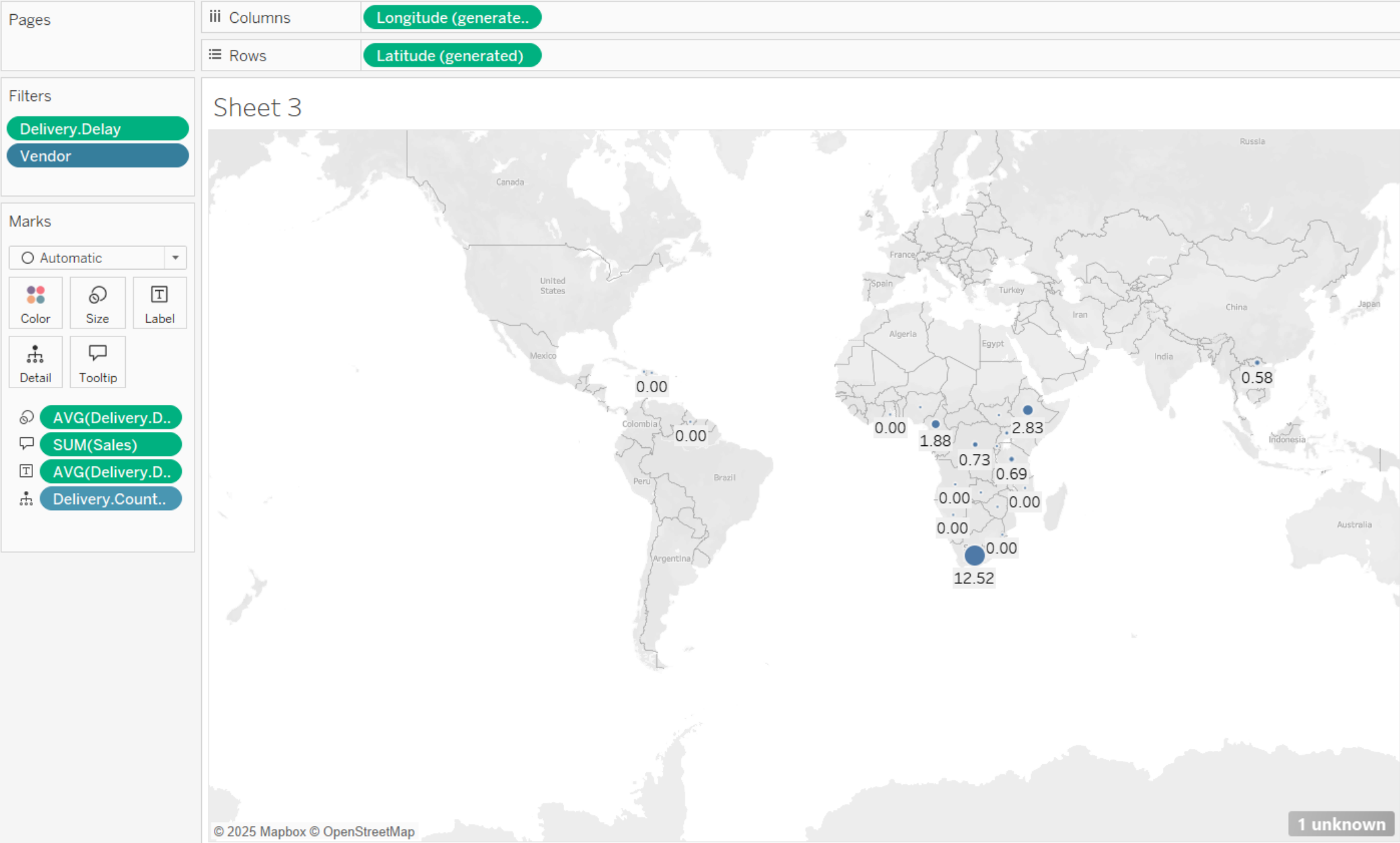


Sheet 3

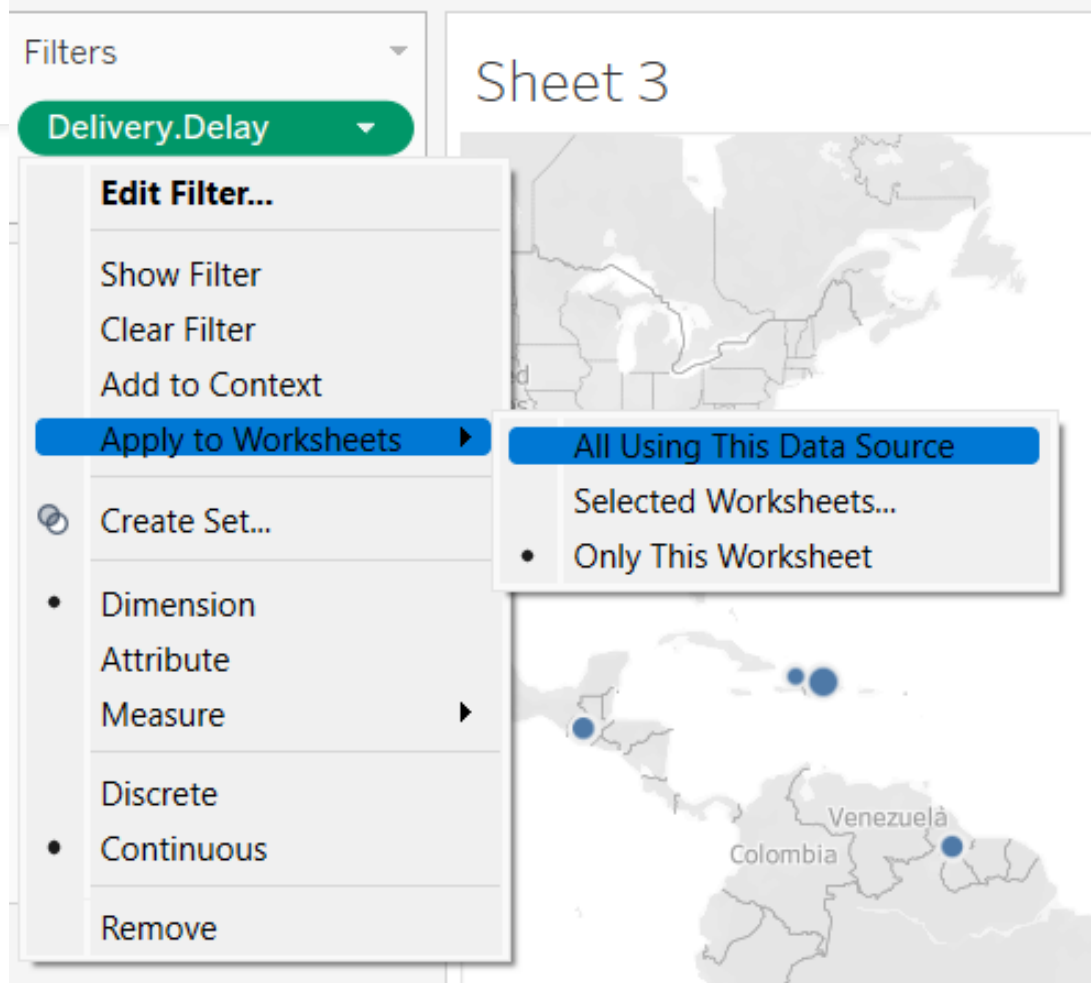
Map for Delivery Country

- Double click on Delivery Country
- Auto-split into Lat and Long and map automatically created. Can also use *lat, long* attributes generated.
- Filter Delay > 0
- Avg (Delay) to Size
- Avg (Delay) to Label
- Sum (Sales) to Tooltip
- Apply filter for selected 3 vendors





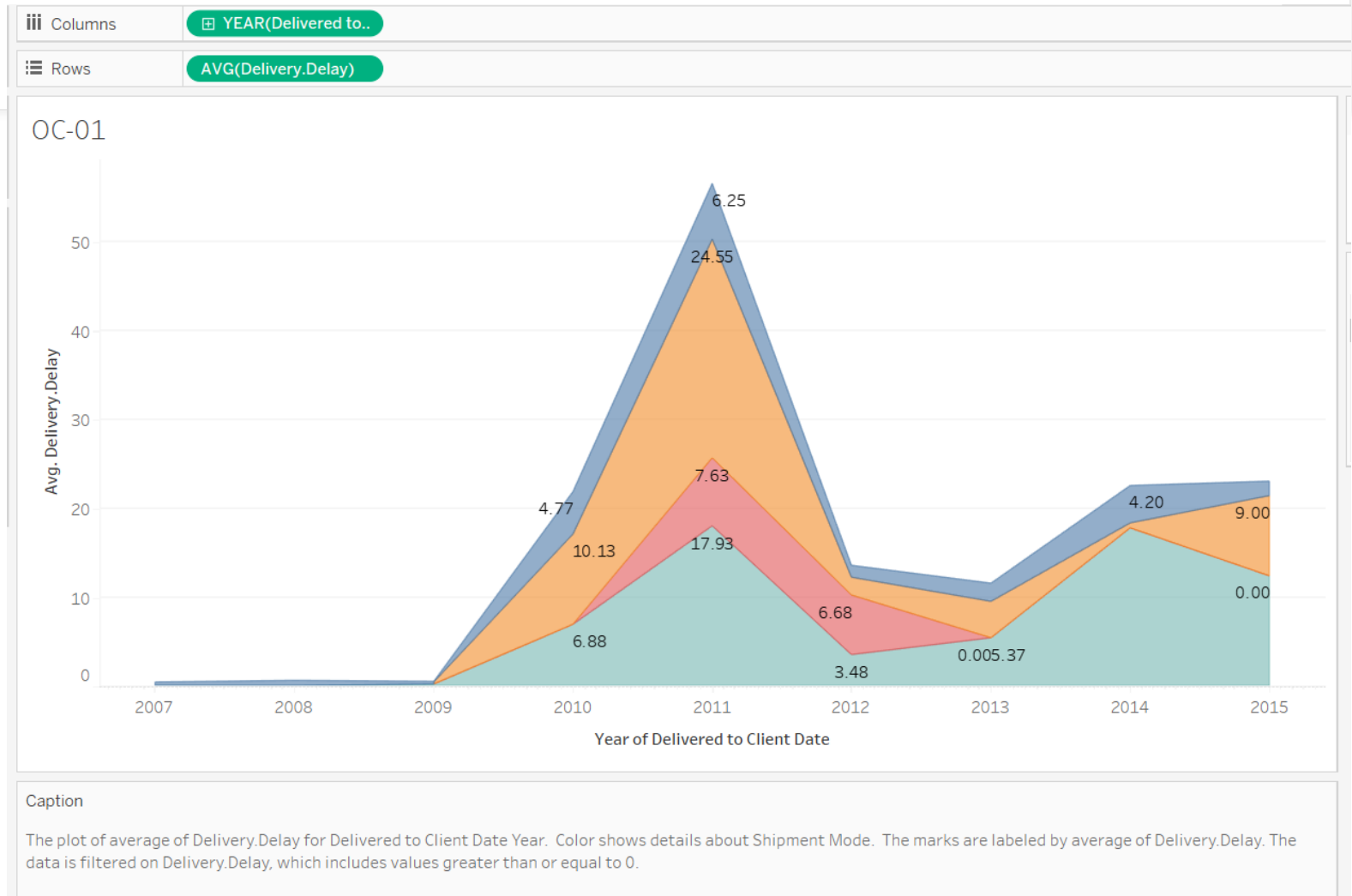
Apply Filters to all Sheets



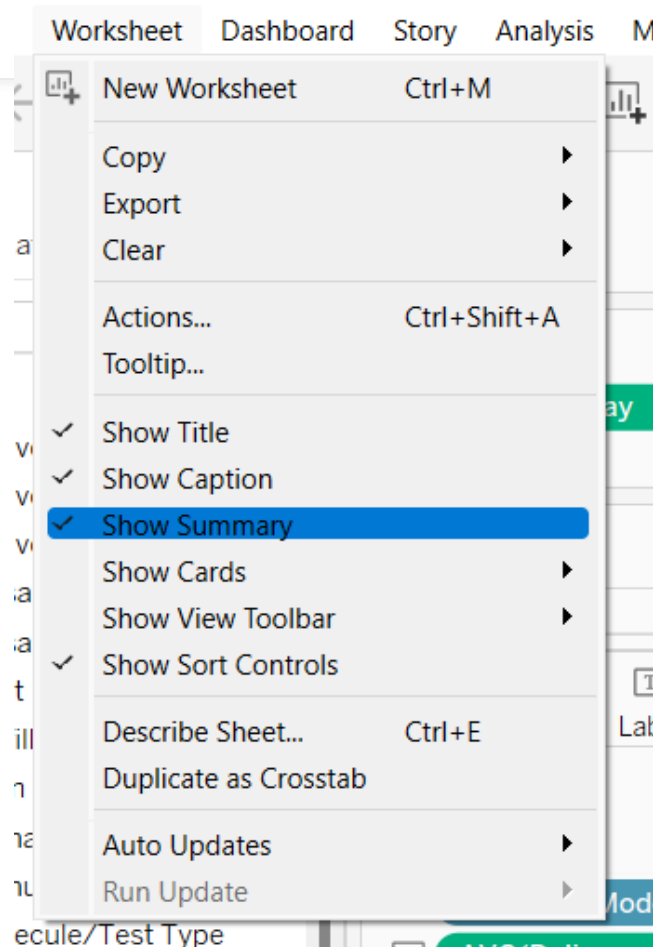
Add Captions Area chart

Worksheet Dashboard Story Analysis

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



Add Summary Area chart



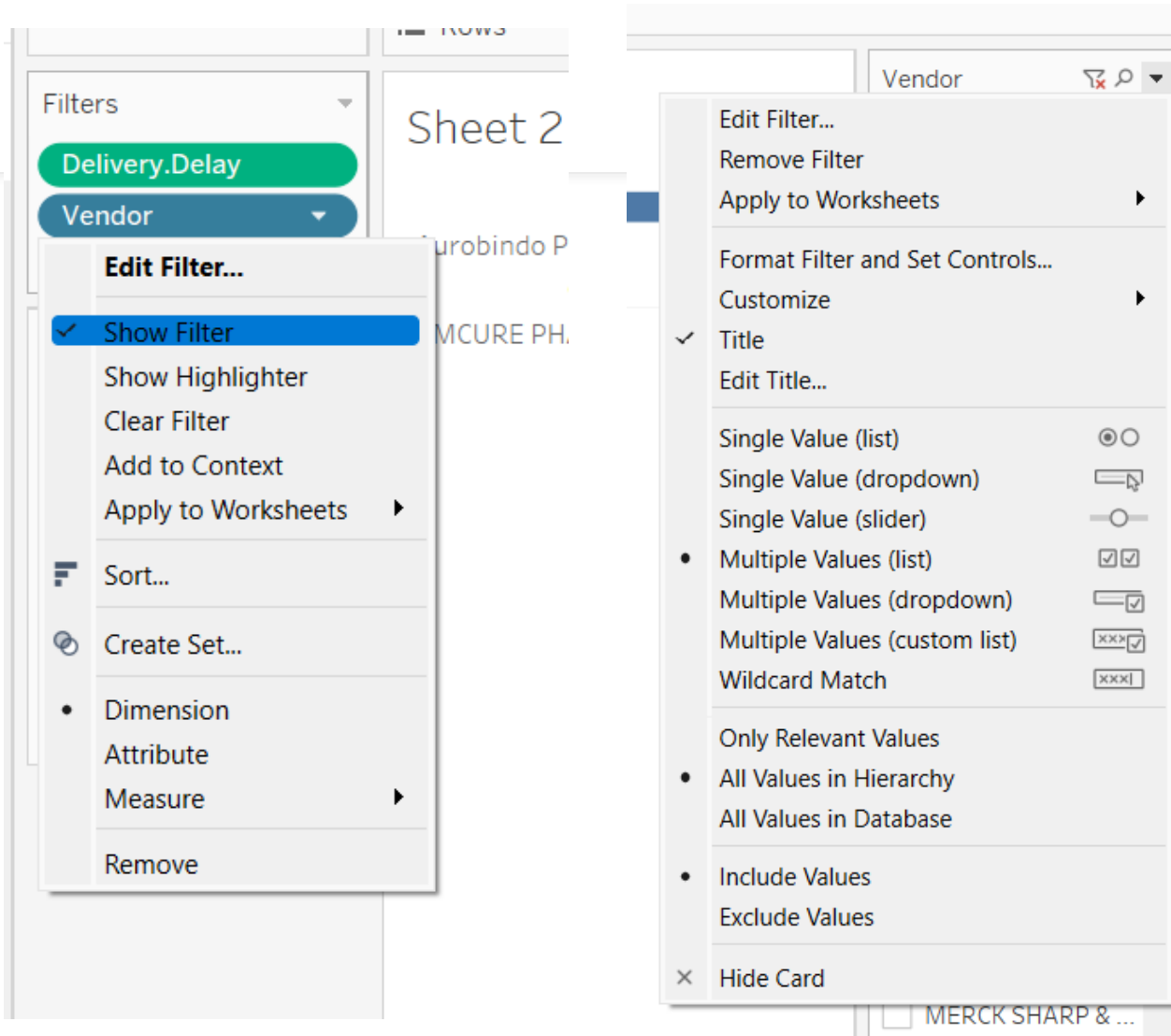
Shipment Mode

- Air
- Air Charter
- Ocean
- Truck

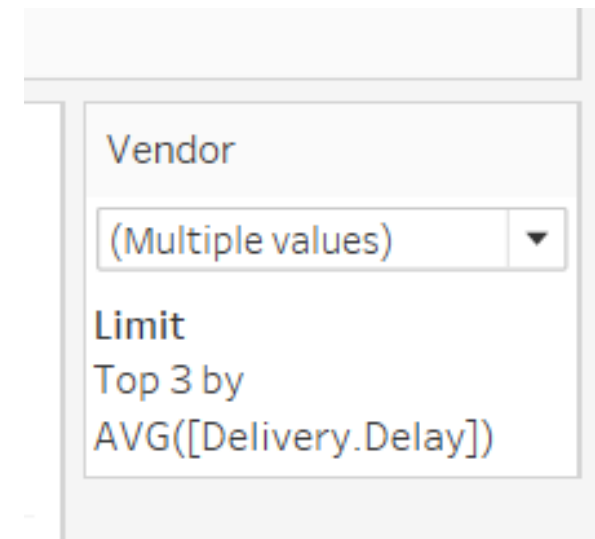
Summary

Count:	32
AVG(Delivery.Delay)	
Sum:	150.04
Average:	4.69
Minimum:	0.00
Maximum:	24.55
Median:	2.02

Add slicers (Vendor.H Vs Avg Delay Bar chart)

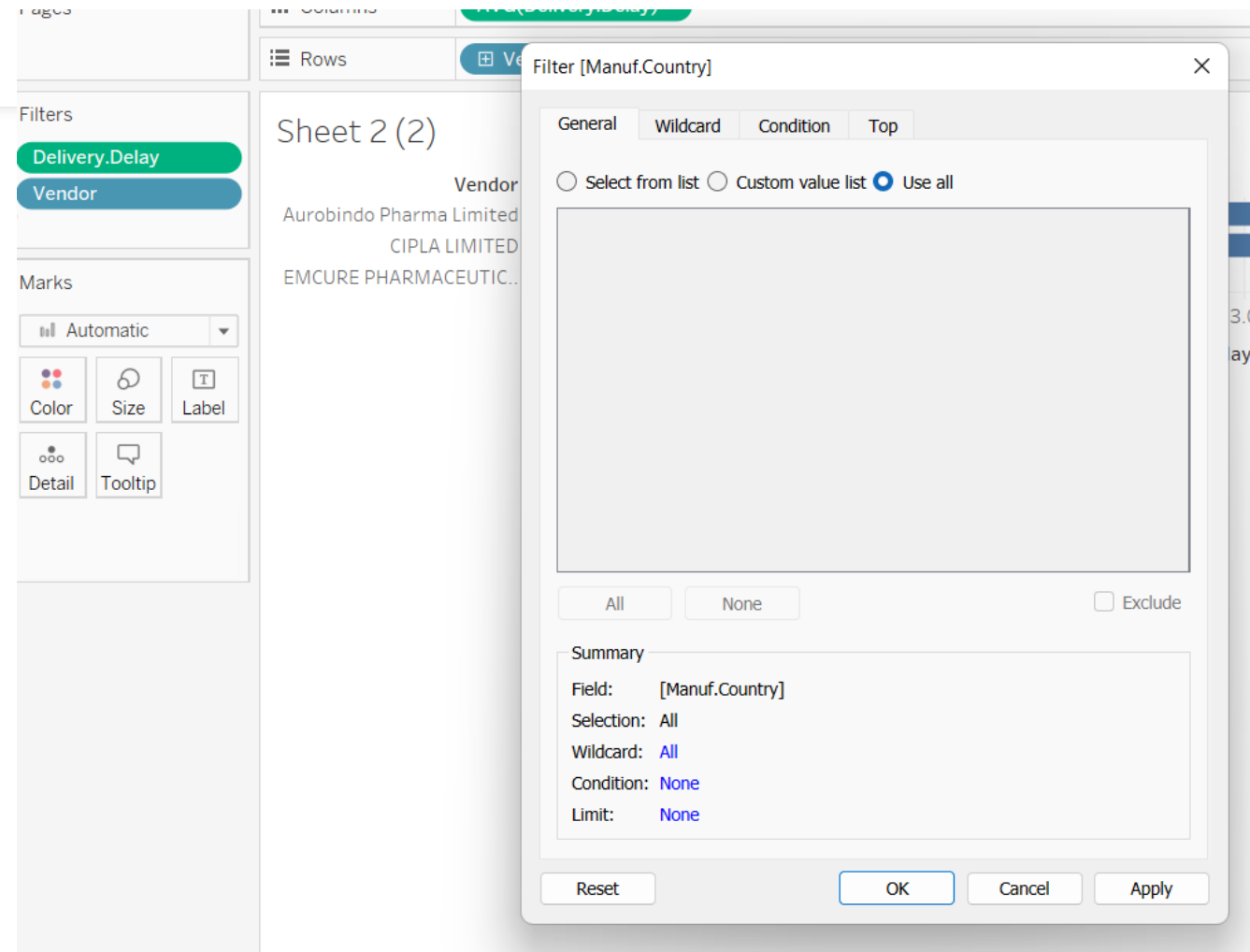


- Show filter
- Switch to Multiple values (drop down)



Create a slicer for Delivery Country

- Add Delivery Country to filters
- Select Use all
- Show filter
- From the side bar, switch the slicer to multiple values (*drop down*)



Create a Dashboard

Dashboard

Layout

Default

Phone

Device Preview

Size

Desktop Browser (1000 x 800)

Sheets

Sheet 1

Sheet 2

Sheet 3

Objects

Horizontal Container

Vertical Container

Text

Extension

Ask Data

Data Story

Image

Blank

Workflow

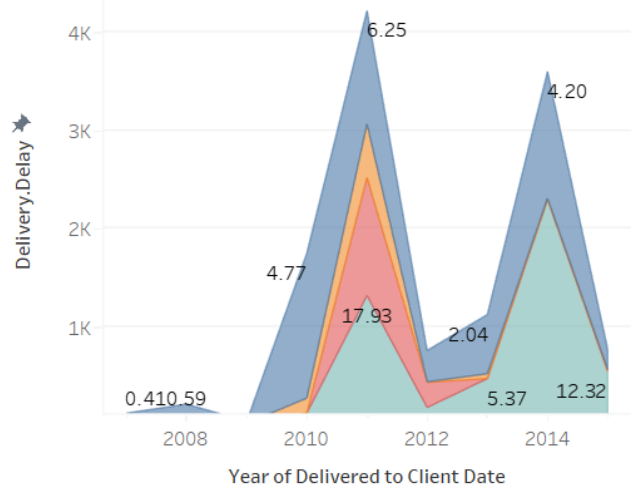
Web Page

TiledFloating

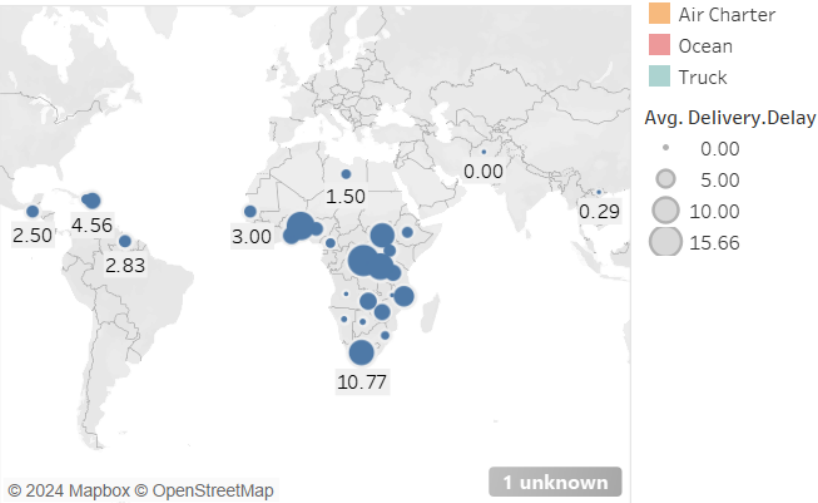
☒ Show dashboard title

Dashboard 1

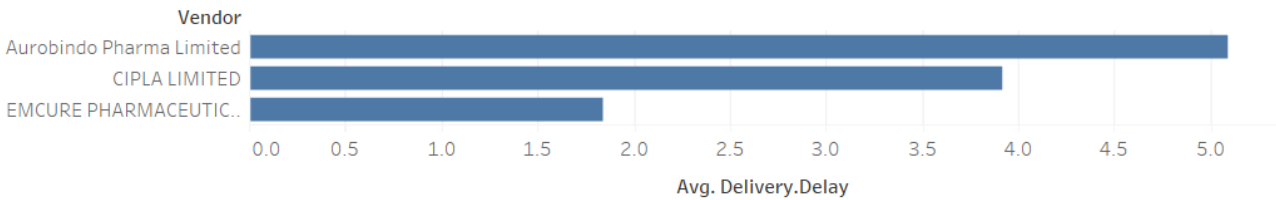
Sheet 1



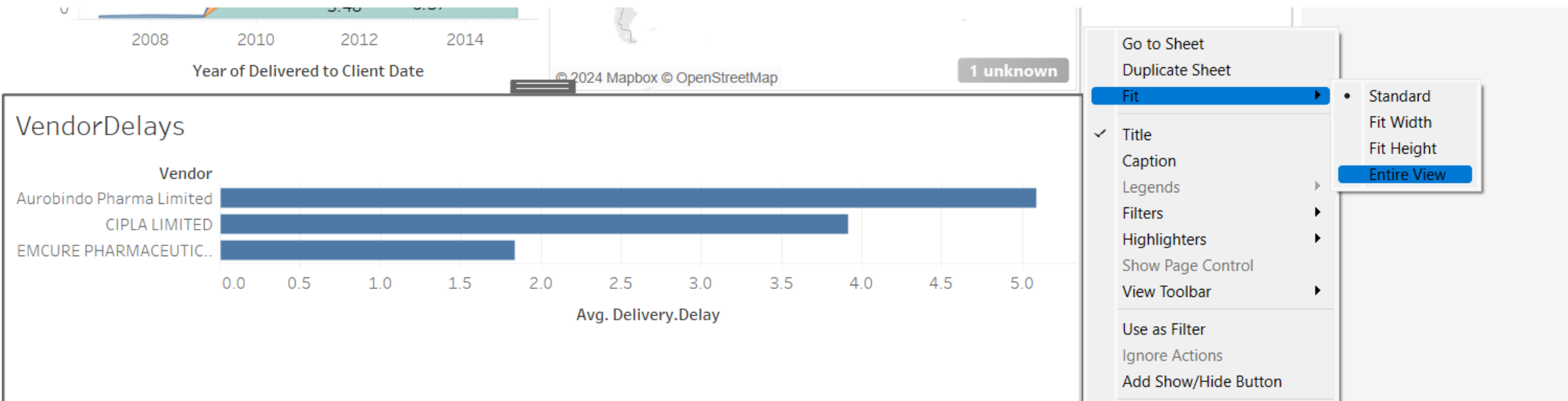
Sheet 3



Sheet 2

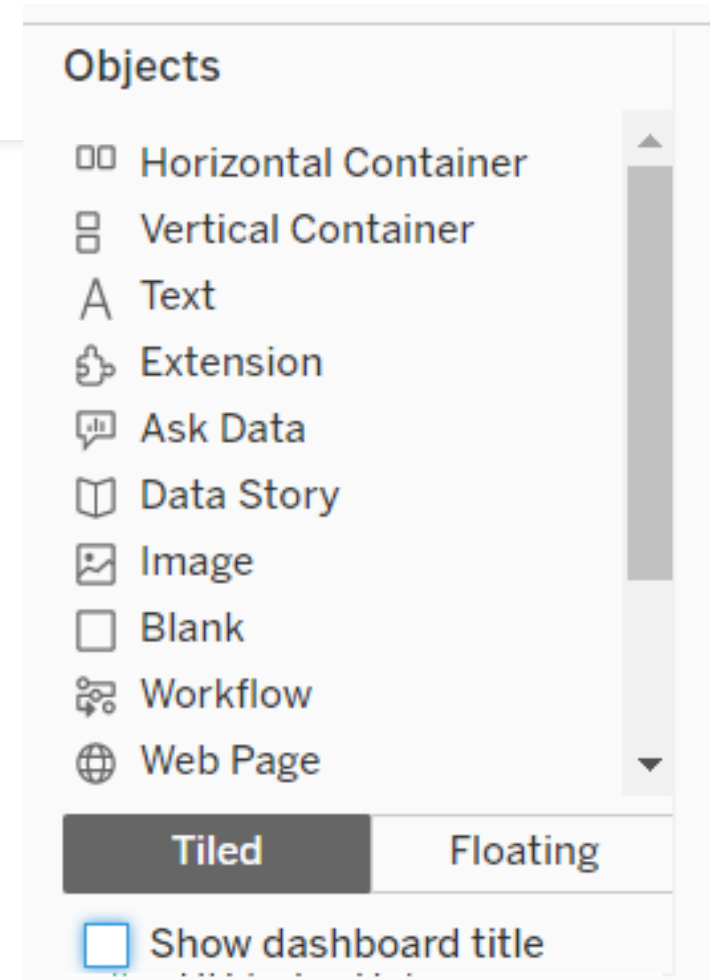


Fit to Entire View



Tiled to Floating

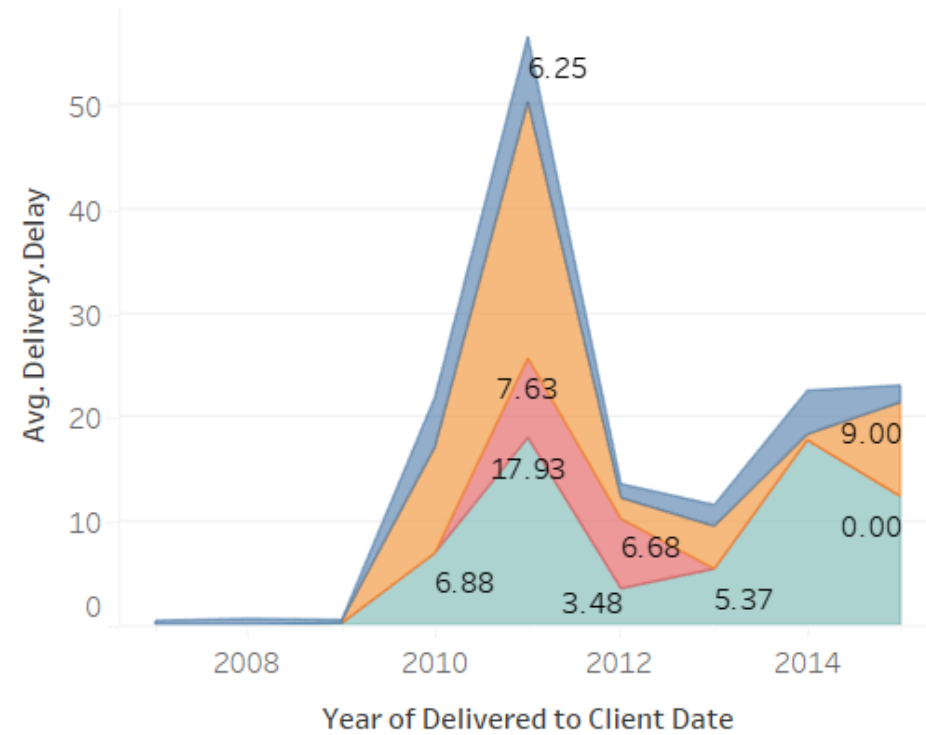
- Either switch before adding item so automatically object floats and lets you place wherever you like.
- If previously set to tiled, you can modify each chart on canvas to set as floating by choosing from the drop-down menu.



Dashboard 1



TimeSeries



DelayMap

- Go to Sheet
- Duplicate Sheet
- Fit
- ✓ Title
- Caption
- Legends
- Filters
- Highlighters
- Show Page Control
- View Toolbar
- Use as Filter
- Ignore Actions
- Add Show/Hide Button
- Floating
- Select Container: Tiled
- Deselect
- Remove from Dashboard
- Rename Dashboard Item...

VendorDelays

Vendor

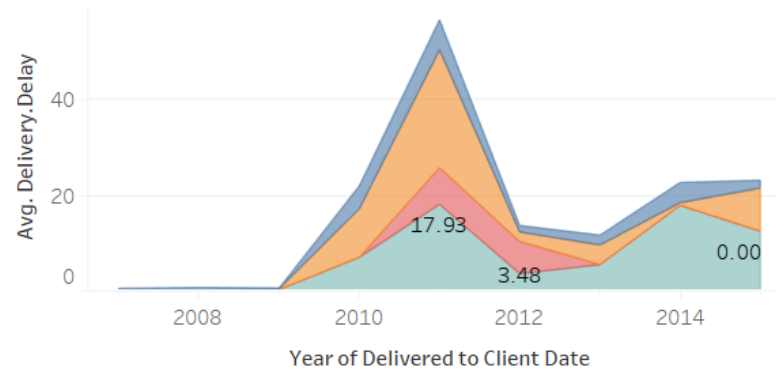
Aurobindo Pharma Limited

Adjust the Charts

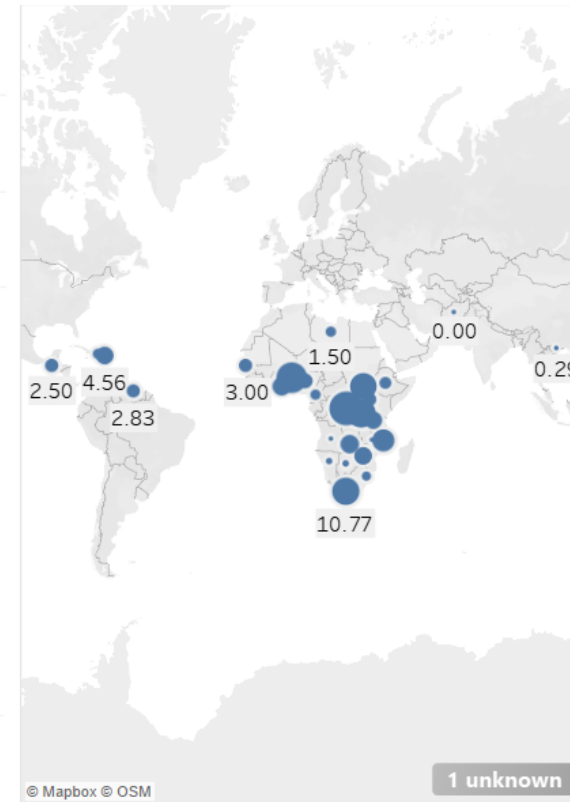
Formatted



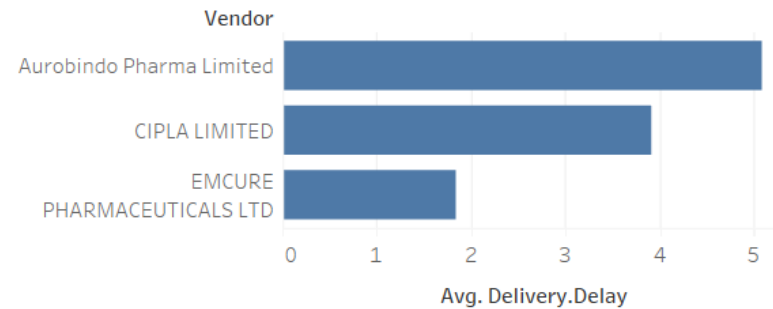
TimeSeries



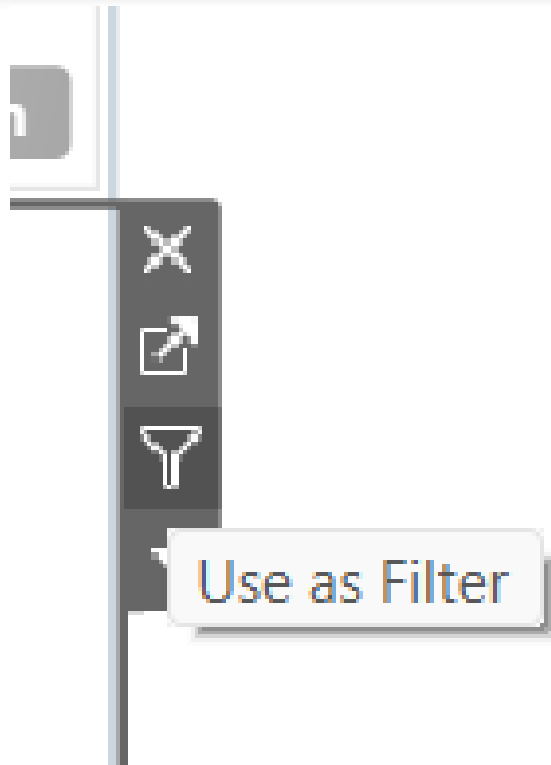
DelayMap



VendorDelays



Charts as Filters - Interactive



- The selections in this chart will show on the dashboard.
- Do this for all charts.

Add KPIs

- New sheet – **Text table**
- Drag attributes to Rows
- Count of Delay
- Sum of Sales
- Sum of Freight
- Avg of Line Item Quantity

Pages

Columns

Rows

Measure Names

Filters

Delivery.Delay

Measure Nam..

Marks

Automatic

Color

Size

Text

Detail

Tooltip

Measure Values

Measure Values

CNT(Delivery.Delay)

SUM(Sales)

SUM(Freight Cost (..

AVG(Line Item Quan..

KPIs

Count of Delivery.Delay	3,222
Sales	591,073,262
Freight Cost (USD)	31,880,136
Avg. Line Item Quantity	24,513



Adjust as KPI cards

- Flip and Format

A

Sheet

Rows

Columns

Format Font

Worksheet: Tableau Book, 9pt

Pane: Tableau Book, 9pt

Header: Tableau Book, 9pt

Tooltip: Tableau Book, 10pt

Title: Tableau Light, 15pt

Total

Pane: Tableau Medium, 9pt

Header: Tableau Book, 9pt

Grand Total

Pane: Tableau Medium, 9pt

Header: Tableau Book, 9pt

Pages

Filters

Delivery.Delay

Measure Nam..

Marks

Automatic

Color

Size

Text

Detail

Tooltip

Measure Values

Measure Values

CNT(Delivery.Delay)

SUM(Sales)

Columns

Measure Names

Rows

KPIs

Count of Delivery.De..	Sales	Freight Cost (USD)	Avg. Line Item Quant..
3,222	591,073,262	31,880,136	24,513

Format the KPIs

Format Font

Fields ▾

Sheet Rows Columns

Default

Worksheet: Tableau Book, 16pt ▾

Pane: Tableau Semibold, 16pt ▾

Header: Tableau Book, 16pt ▾

Tooltip: Tableau Book, 10pt ▾

Title: Tableau Light, 15pt ▾

Total

Pane: Tableau Semibold, 16pt ▾

Header: Tableau Book, 16pt ▾

Grand Total

Pane: Tableau Semibold, 16pt ▾

Header: Tableau Book, 16pt ▾

Format Alignment

Fields ▾

Sheet Rows Columns

Default

Pane: Middle Center ▾

Header: Horizontal Direction ▾

Total

Pane: Automatic Automatic ▾

Header: Automatic Automatic ▾

Grand Total

Pane: Automatic Automatic ▾

Header: Middle Center ▾

- Font size: 12
- Pane to Tableau Semi bold
- Middle center alignment

Format Shading

KPIs

Count of Delivery.Delay	Sales	Freight Cost (USD)	Avg. Line Item Quantity
3,222	591,073,262	31,880,136	24,513

- Add to dashboard
- Fit to entire view
- Adjust on top of the dashboard.

Format Shading

A

Fields

Sheet

Rows

Columns

Default

Worksheet:

Pane:

Header:

Total

Pane:

Header:

Grand Total

Pane:

Header:

Column Banding

Pane:

Header:

Band Size:

Level:

None

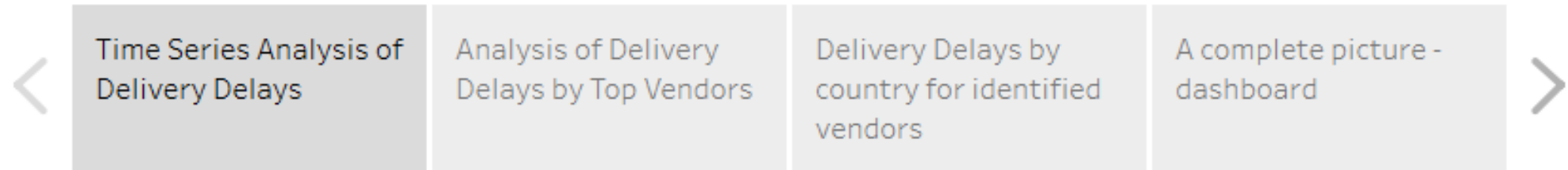
More colors...

Data Story Telling in Tableau



Create a Story

<Delivery Delays Analysis>



<Delivery Delays Analysis>

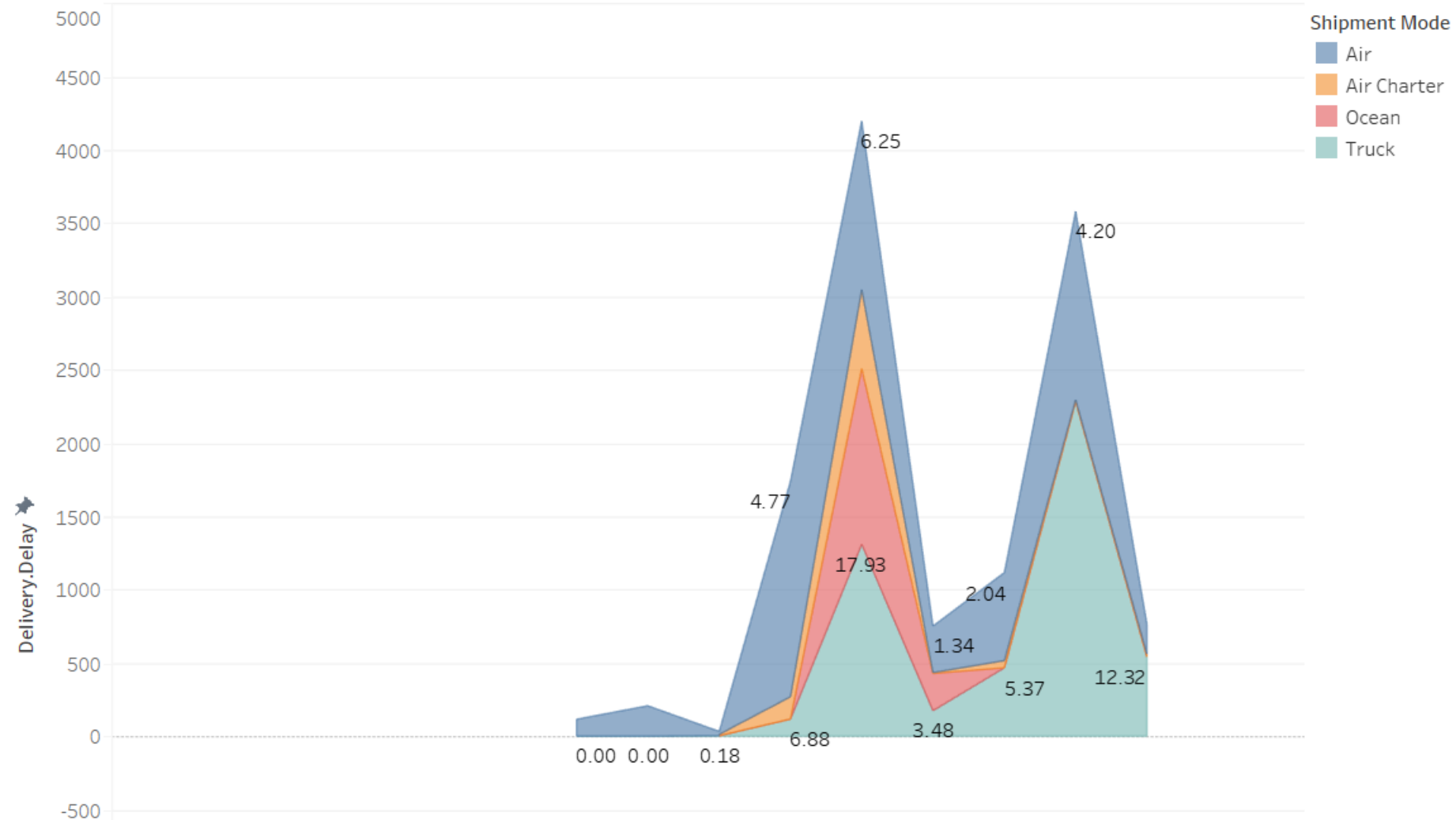


Time Series Analysis of
Delivery Delays

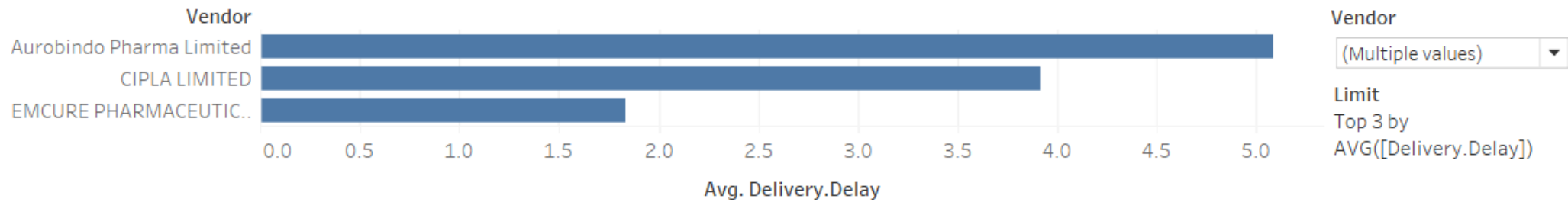
Analysis of Delivery
Delays by Top Vendors

Delivery Delays by
country for identified
vendors

A complete picture -
dashboard



<Delivery Delays Analysis>



<Delivery Delays Analysis>



Time Series Analysis of
Delivery Delays

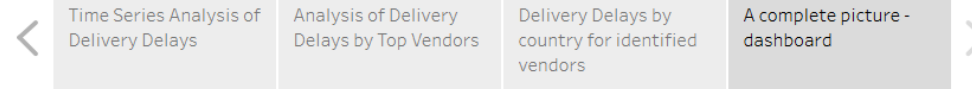
Analysis of Delivery
Delays by Top Vendors

Delivery Delays by
country for identified
vendors

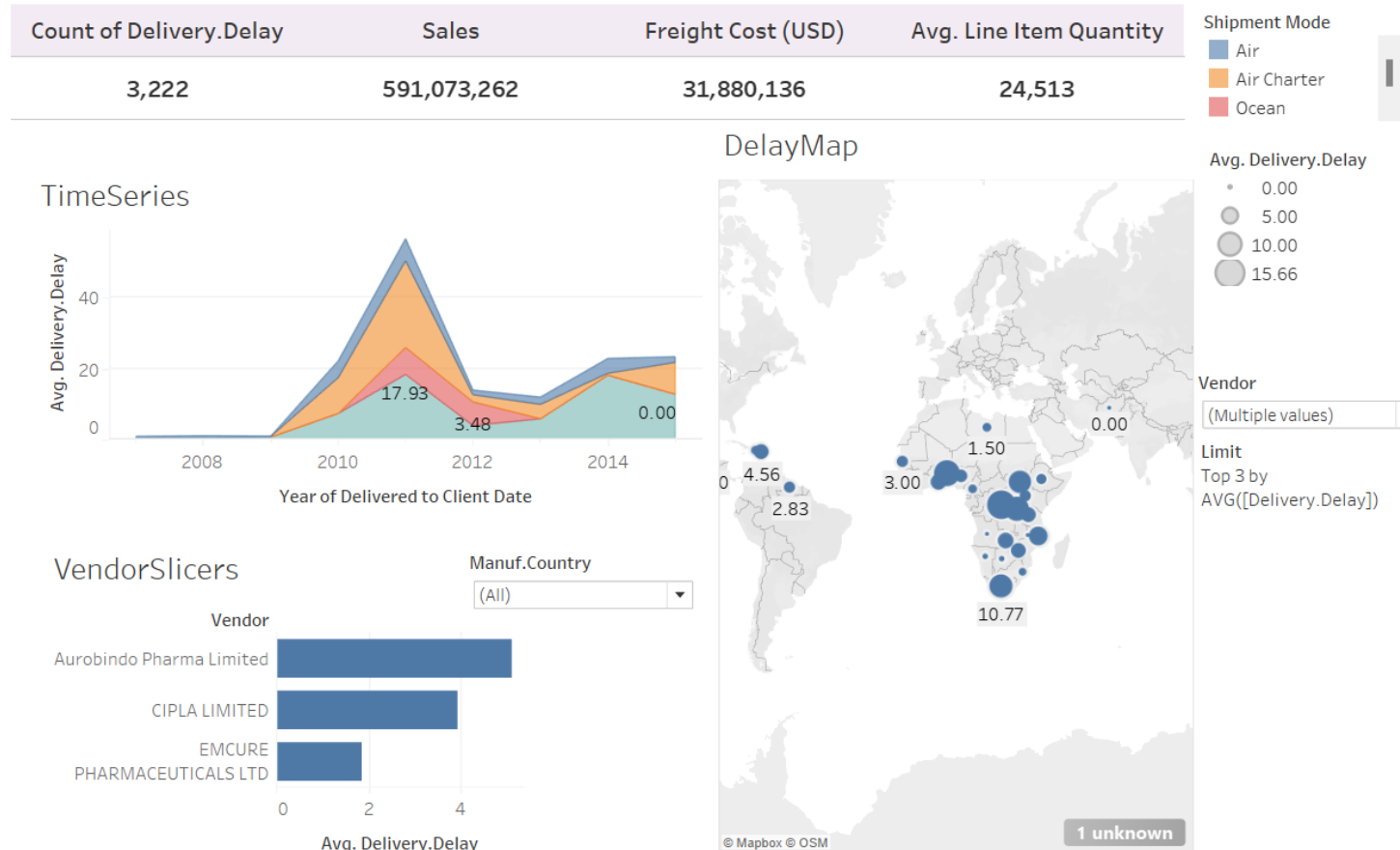
A complete picture -
dashboard



<Delivery Delays Analysis>

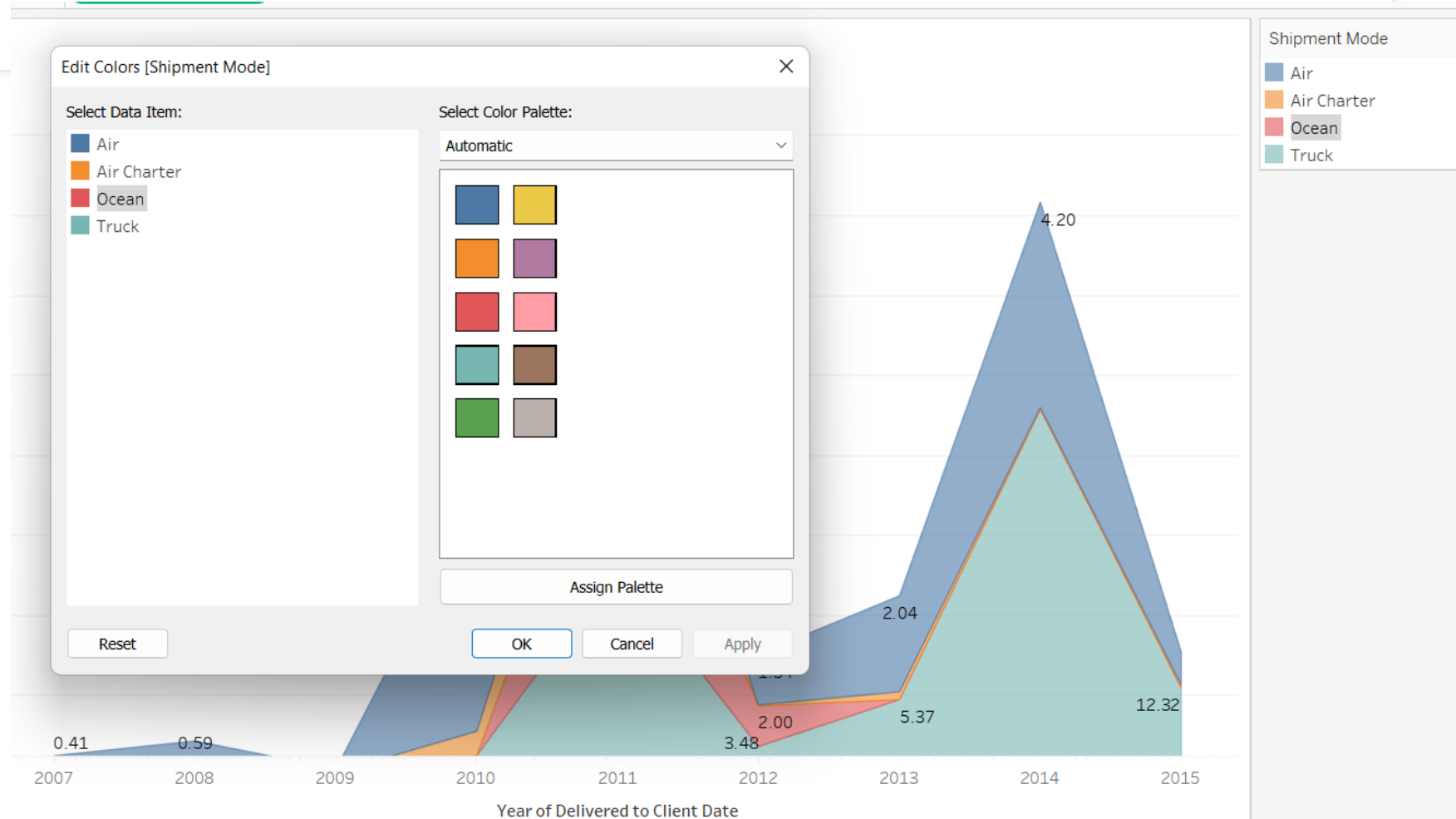


Dashboard_with_KPIs



Modify Colors

- Double click legend colors to modify the color palette.



Presentation Mode to Present

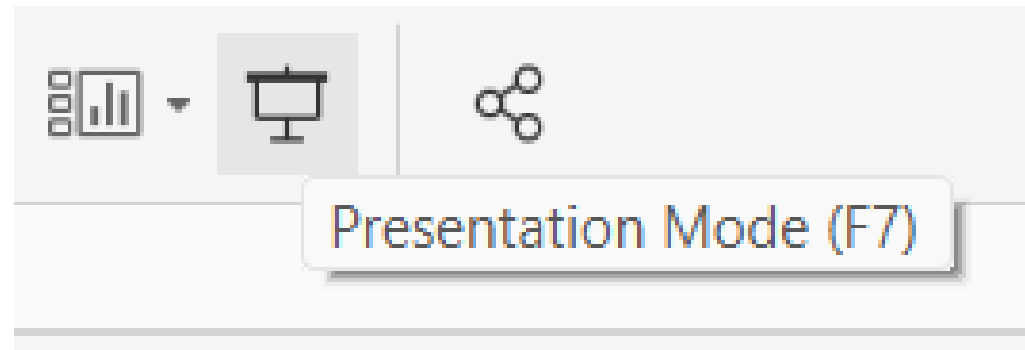


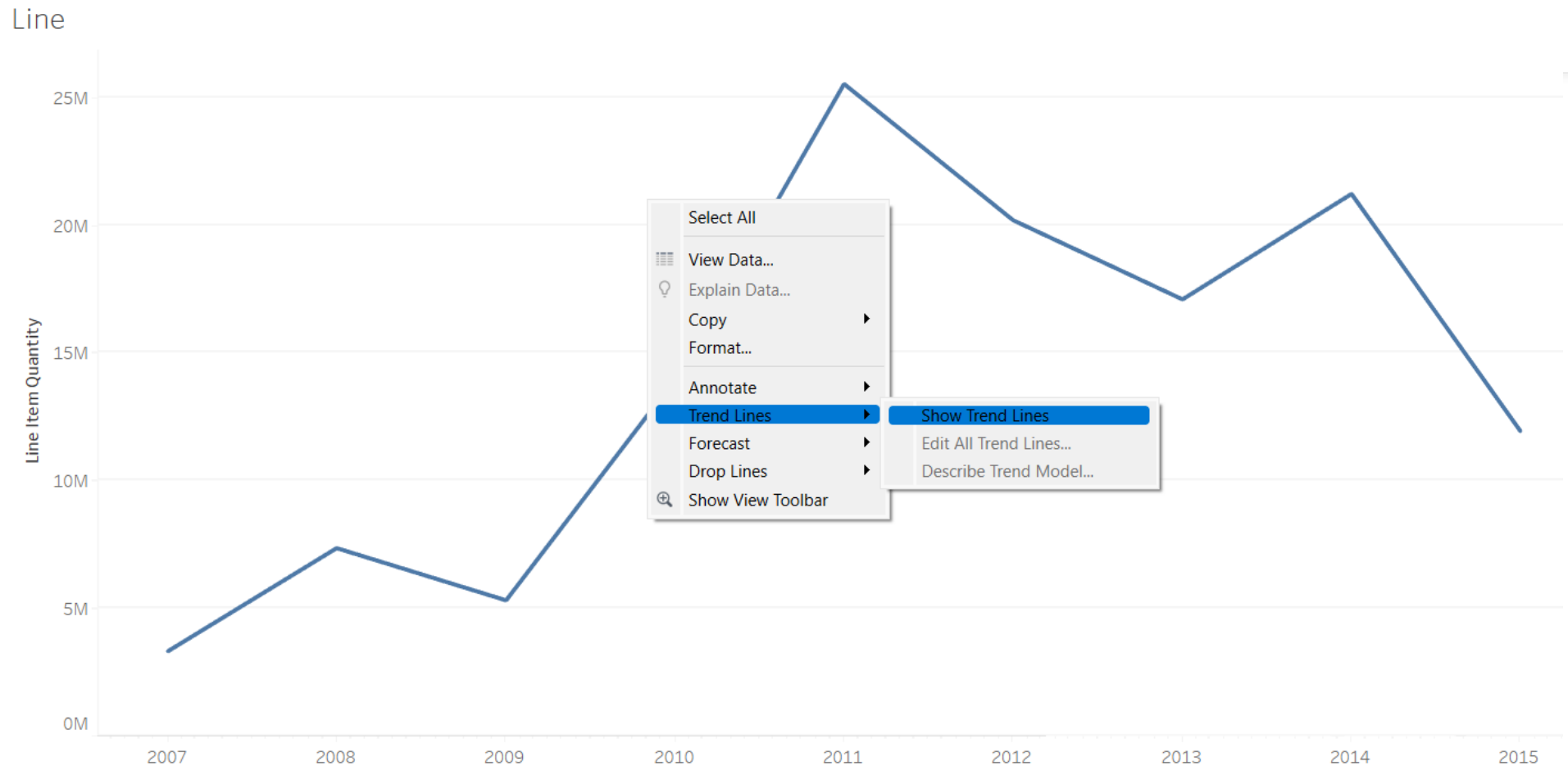
Tableau Charts



Follow the Tableau workbook for Charts Tutorial.

Instructions mentioned as captions.

Trend Lines on the Line chart



Analytics

- Add Average Line to the Line Chart

DataAnalytics<

Summarize

Constant Line

Average Line

Median with Quartiles

Box Plot

Totals

Model

Average with 95% CI

Median with 95% CI

Trend Line

Forecast

Cluster

Custom

Reference Line

Reference Band

Distribution Band

Box Plot

