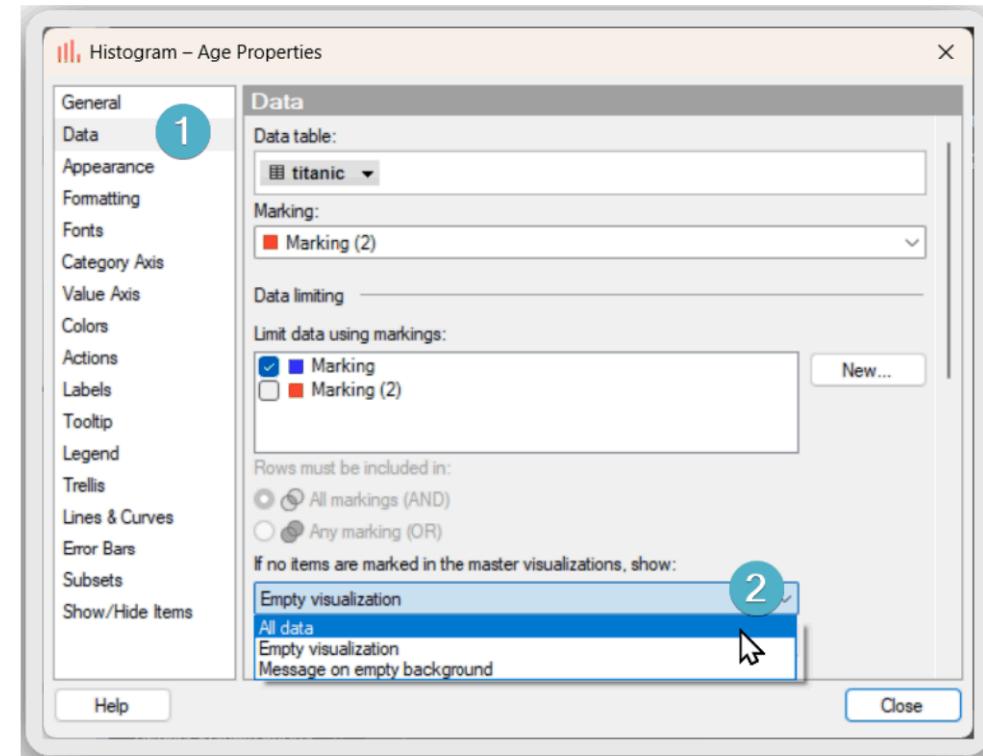
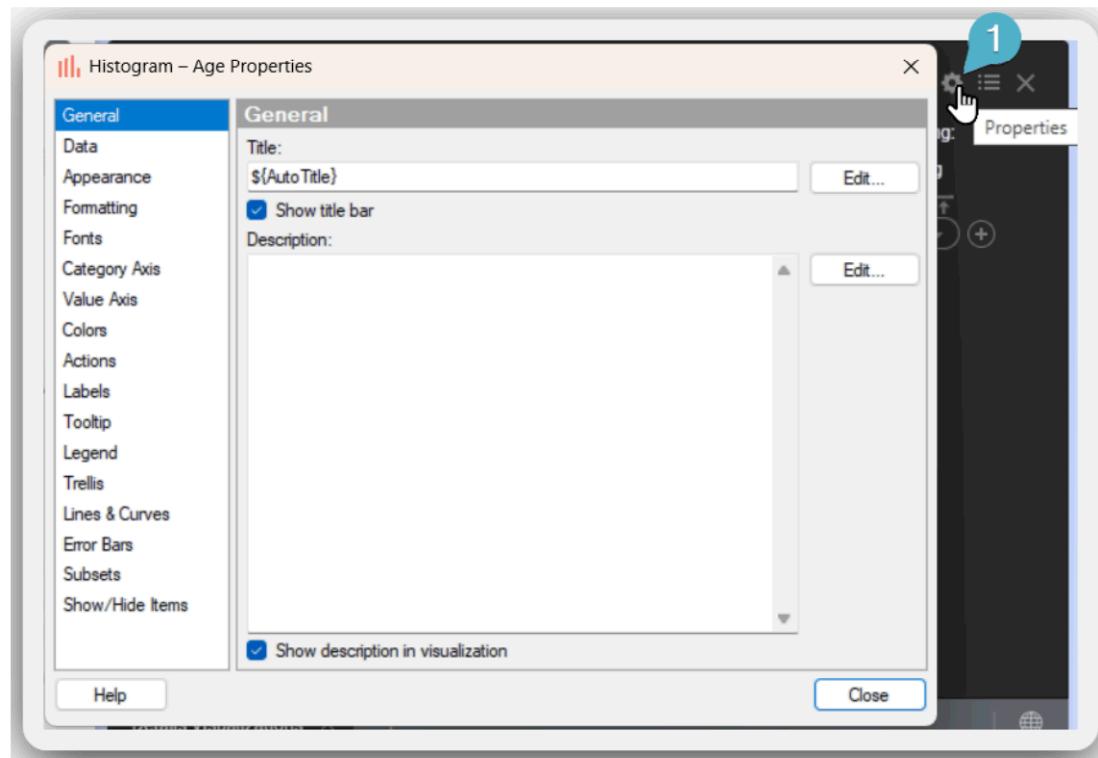
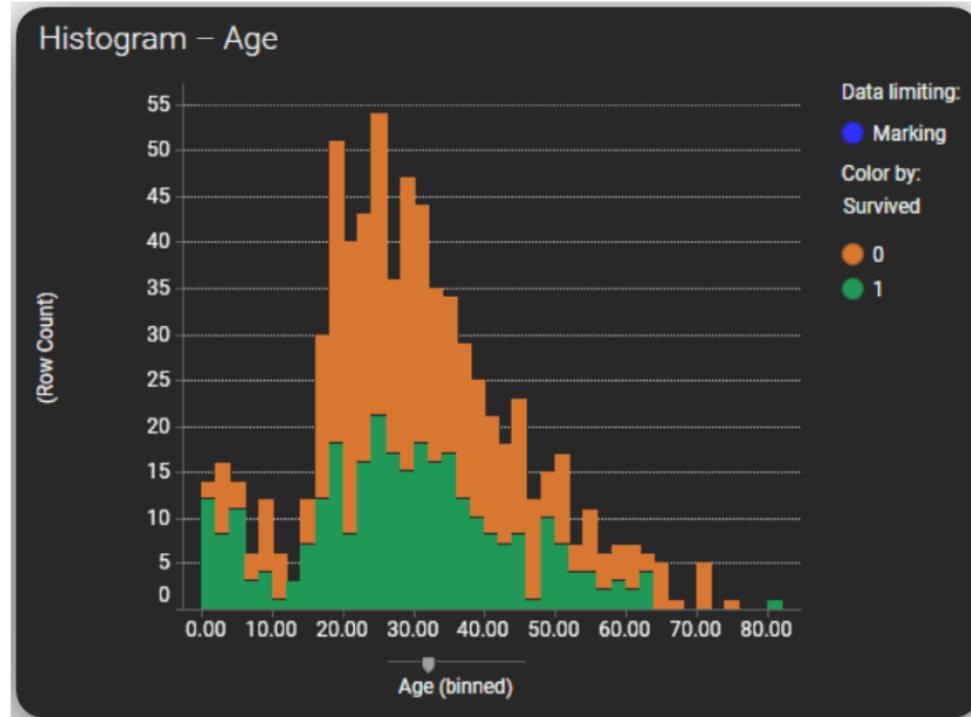
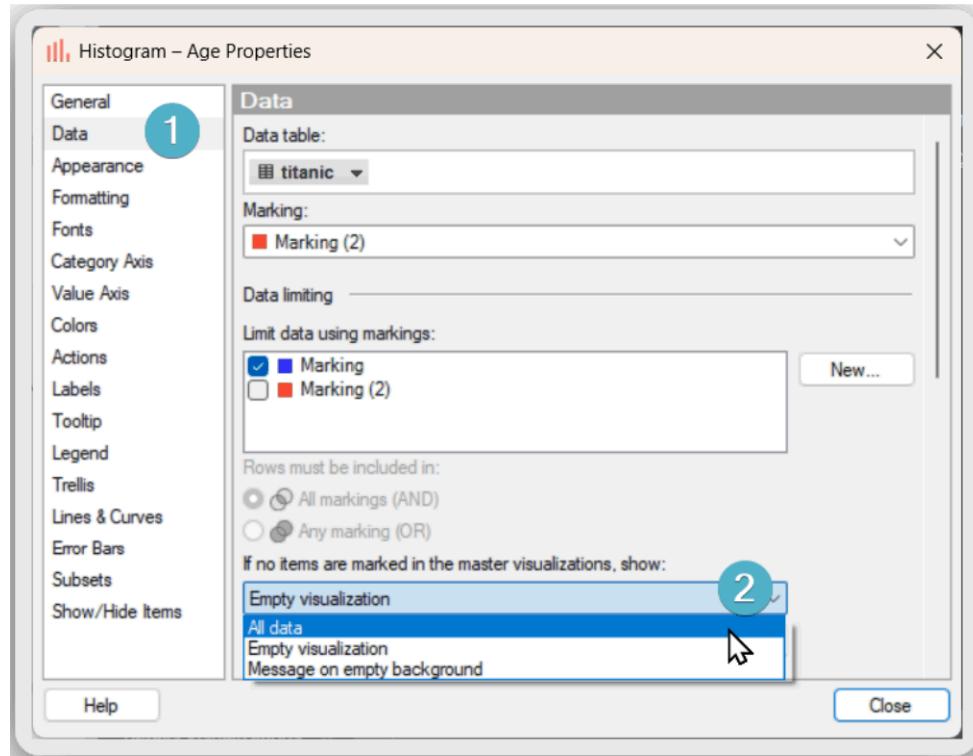


# Configuring Marking Properties.



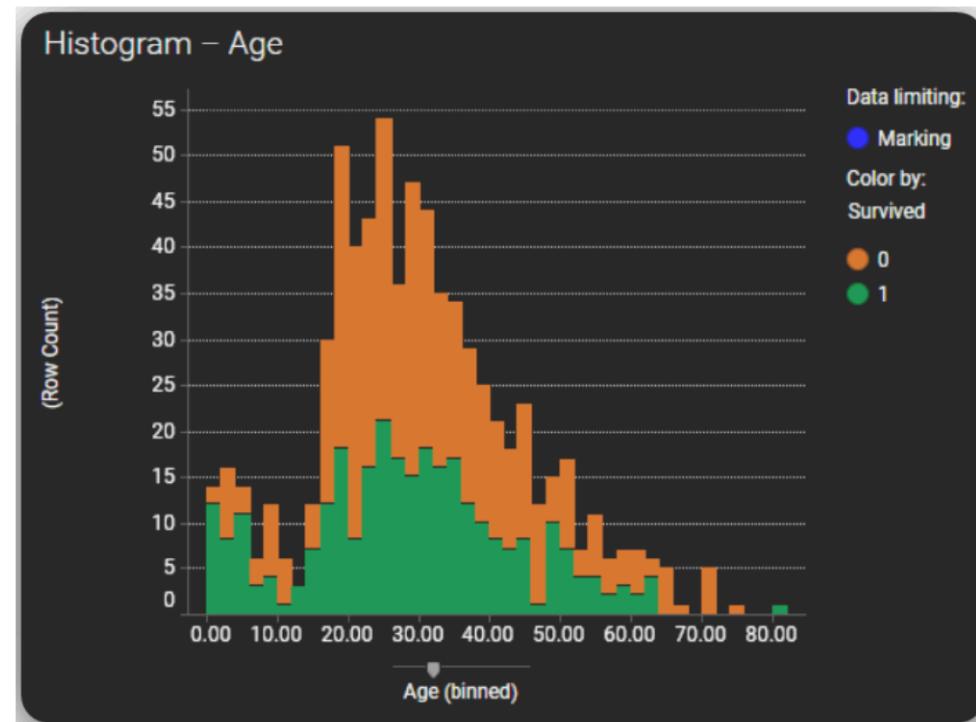
# Configuring Marking Properties.



# Insights from details visualizations

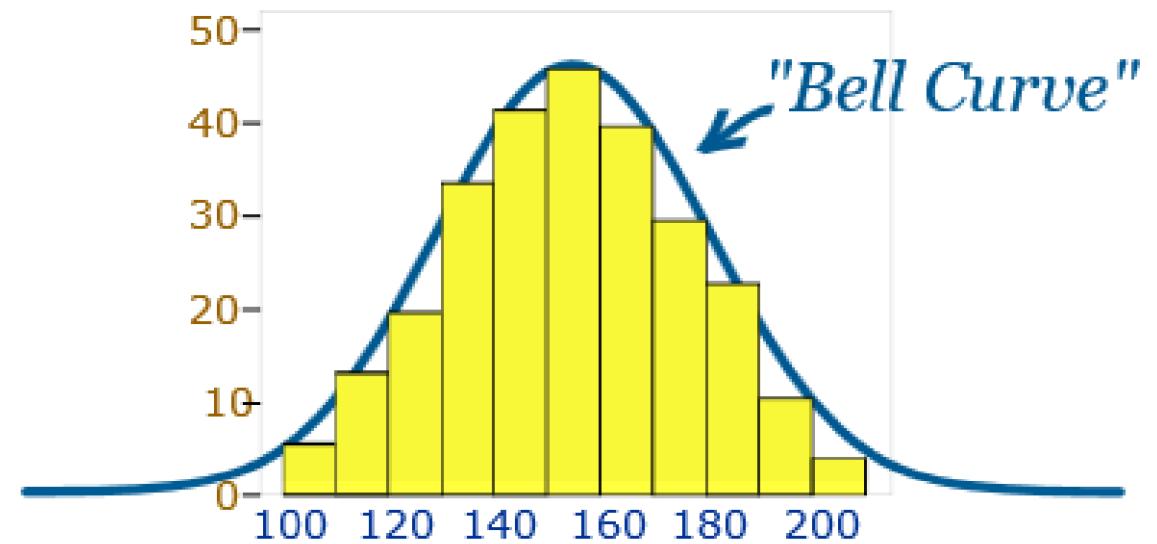
# What are the insights/conclusion?

- ☐ Age is normally distributed



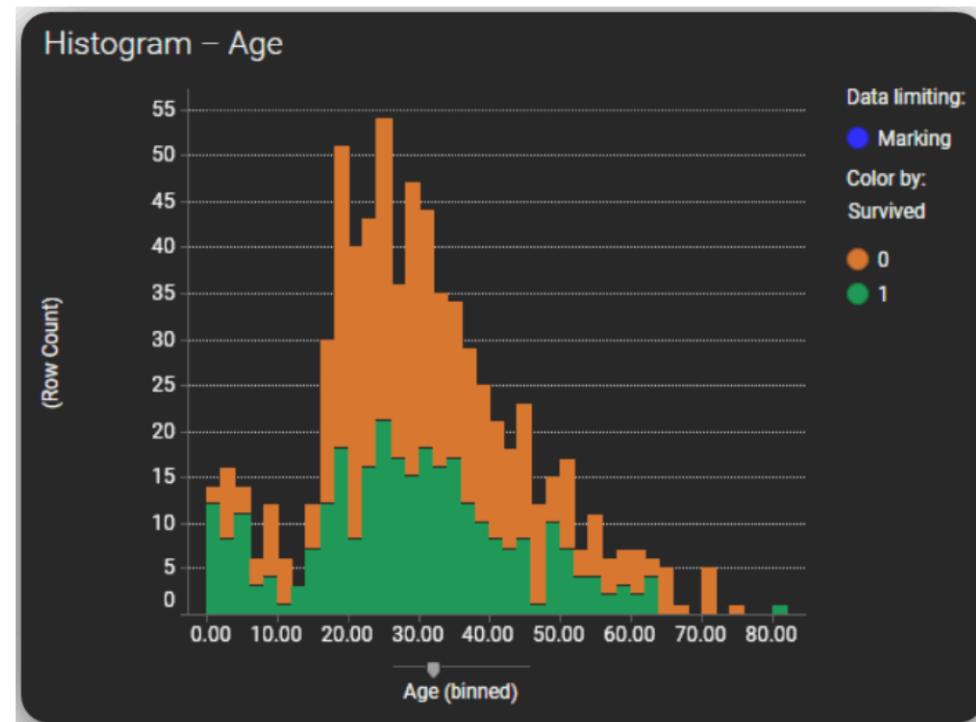
# Normal Distribution (Gaussian Distribution)

Normal distribution, also known as Gaussian distribution, is a statistical concept that describes a **probability distribution** of a random variable. It is a bell-shaped curve that is symmetric around the mean

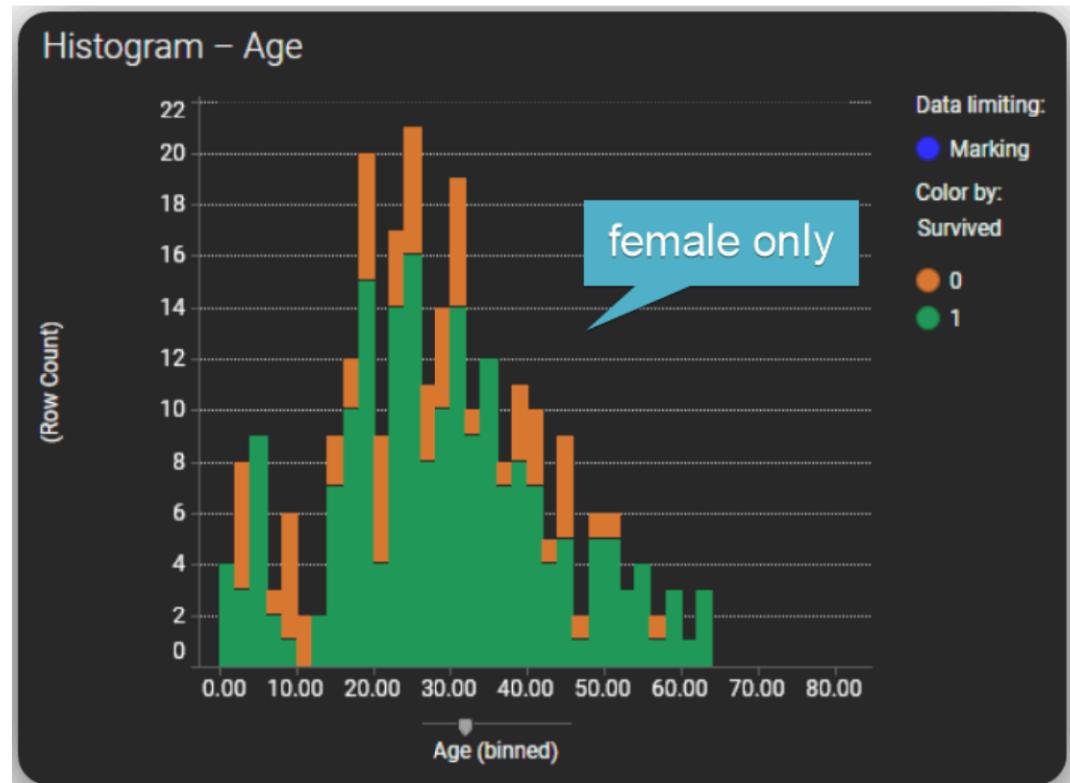
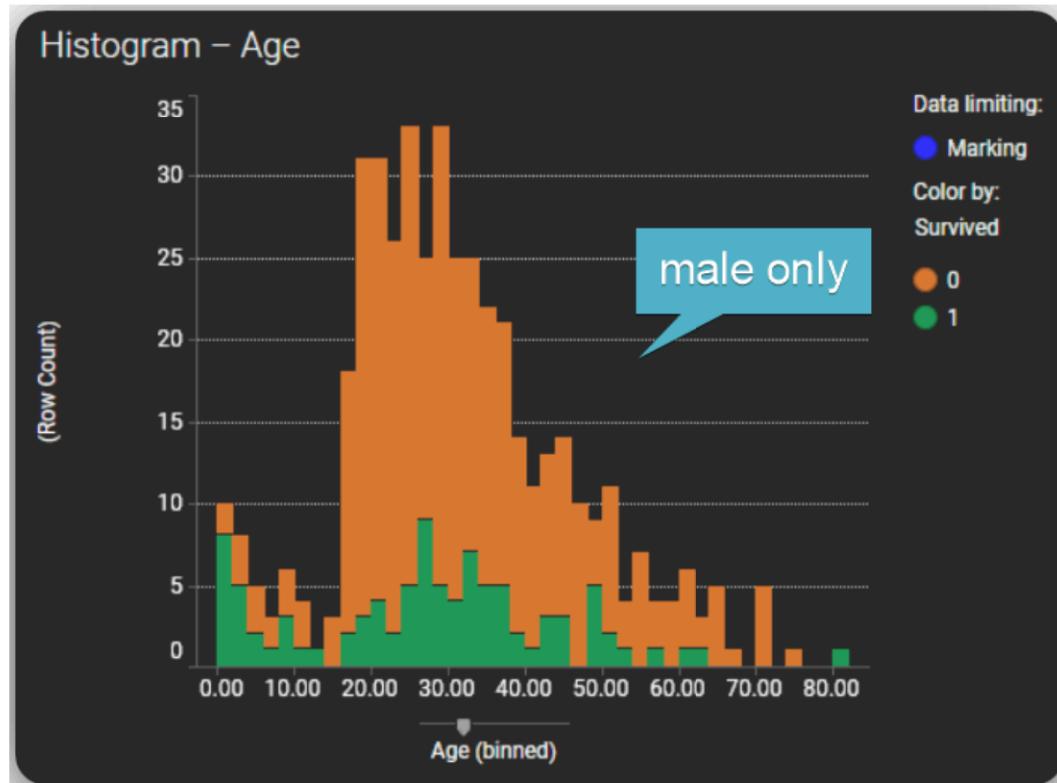


# What are the insights/conclusion?

- Age is normally distributed
- Younger passengers (0-10) had higher survival rates.
- Middle-aged passengers (20-30) had more non-survivors.
- Older passengers (50+) had lower survival rates.



# Compare Males vs Females



"Women and children first" likely influenced survival patterns.

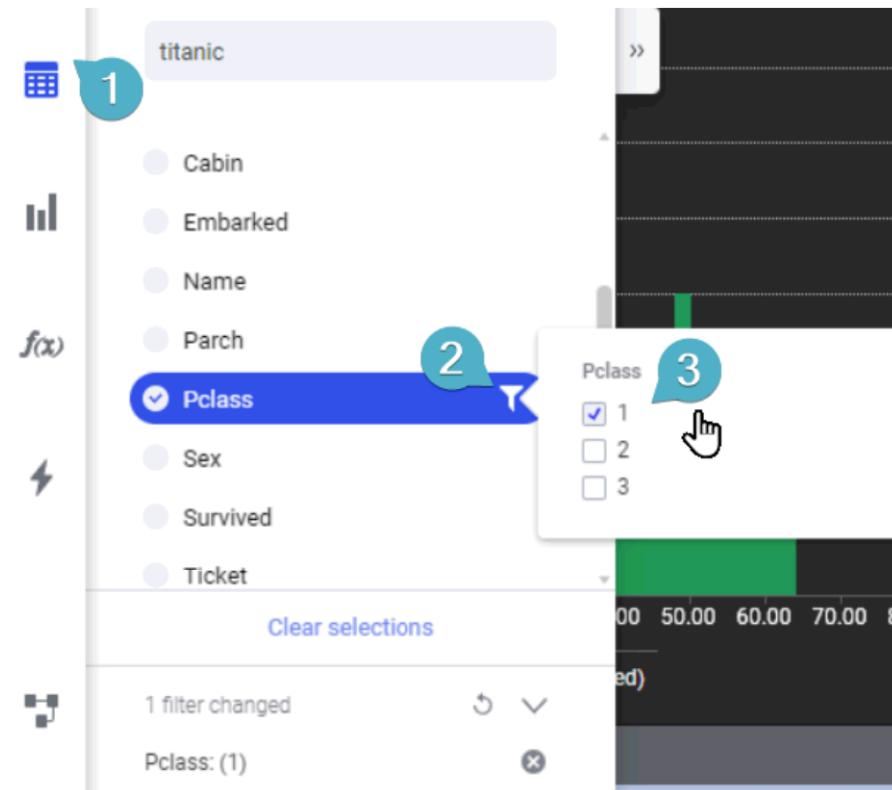
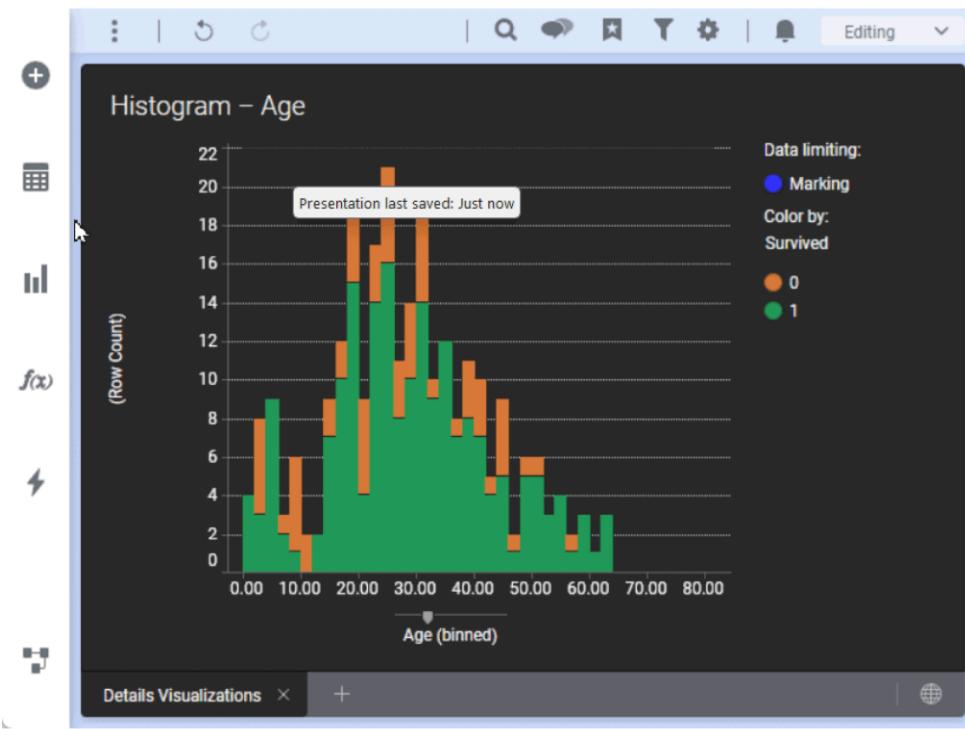
# Filters

# Filters

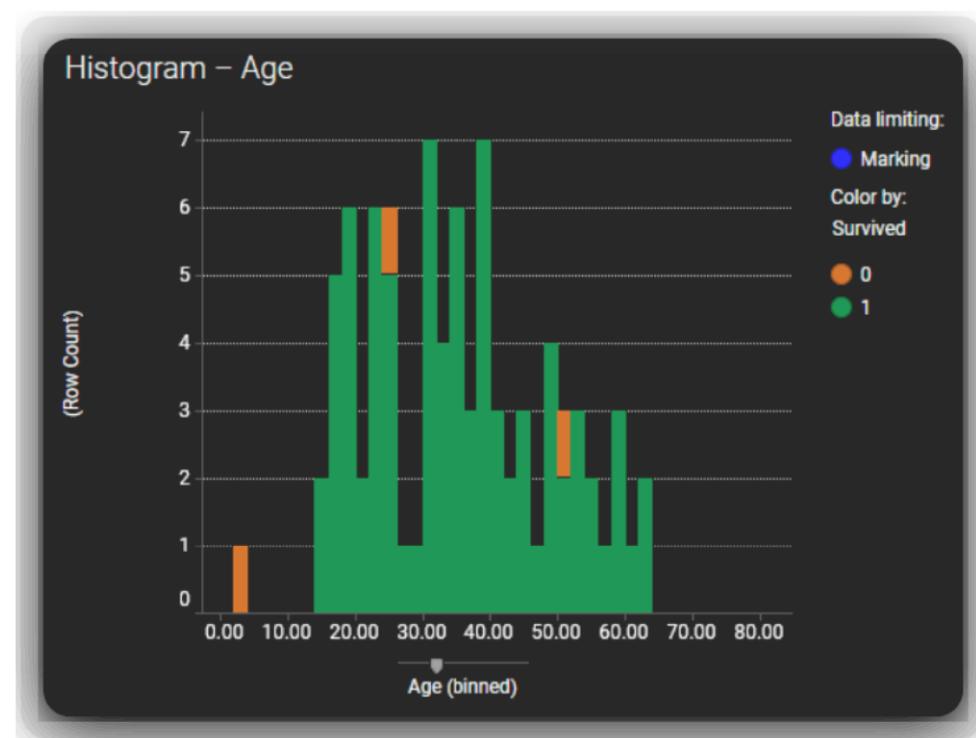
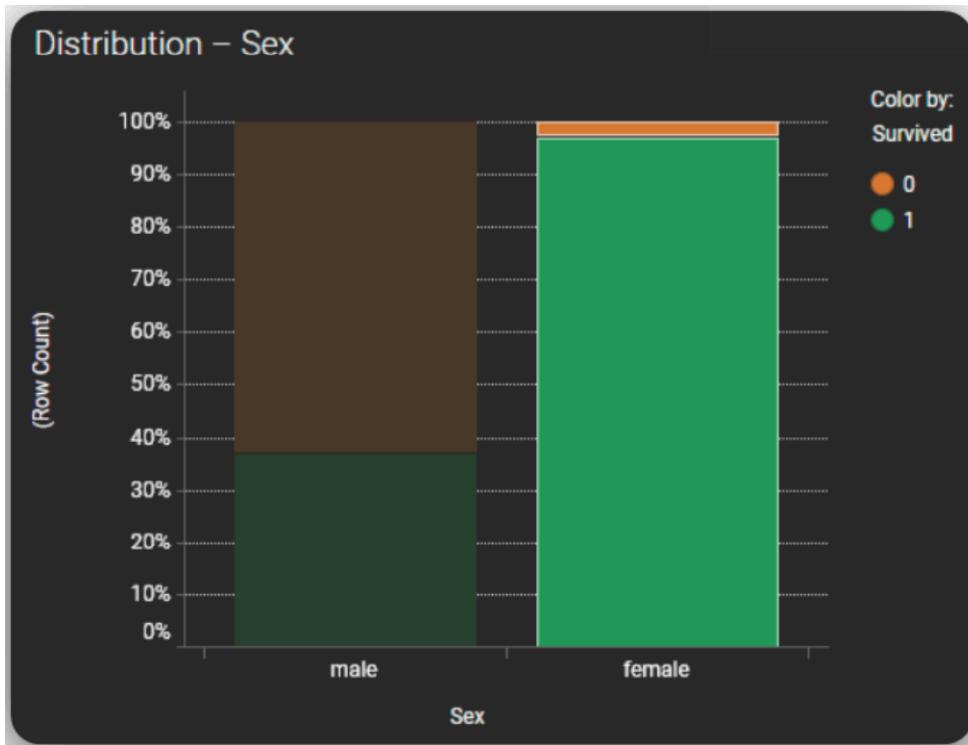
- ❖ **Powerful Filters:** Spotfire automatically creates filters for each column when a data table is added.
- ❖ **Filtering Basis:** Filters are applied based on the values in a data table's columns.
- ❖ **Impact:** Filters correspond directly to column values, allowing analysis on the filtered rows.

Task: Let's filter first-class passengers.

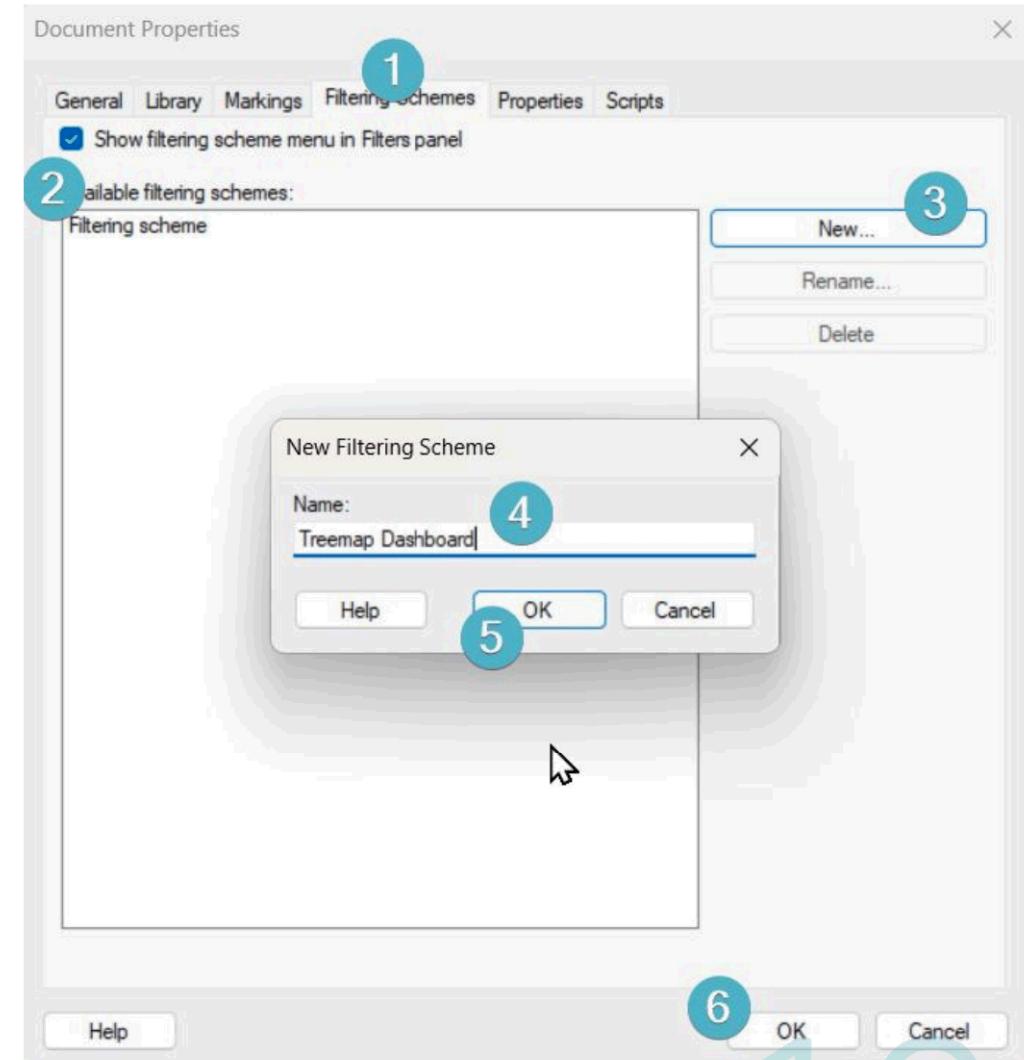
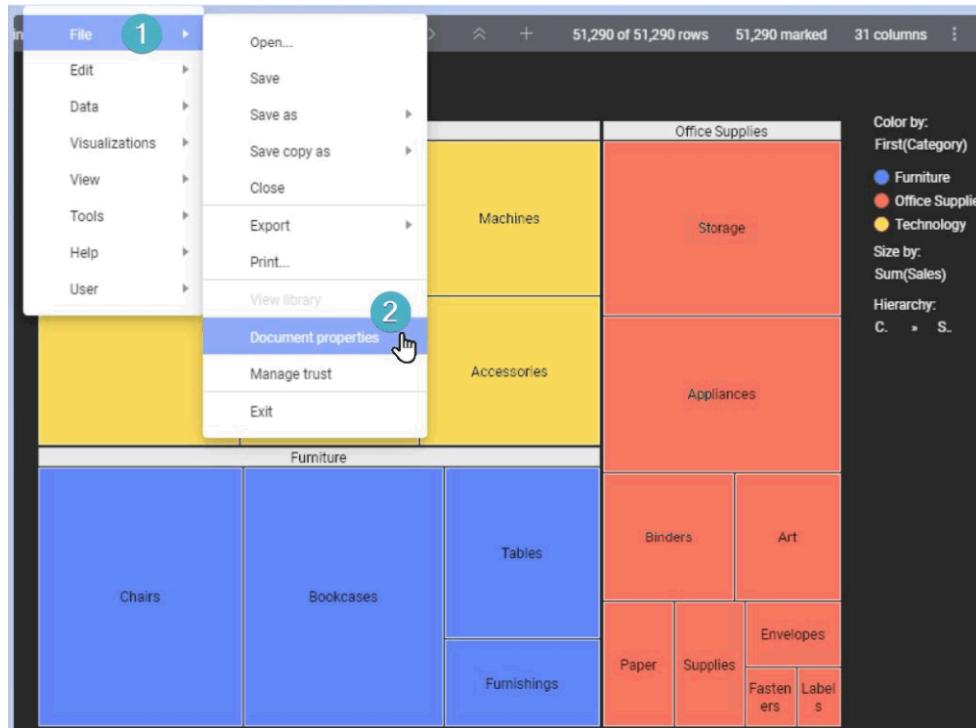
# Filters



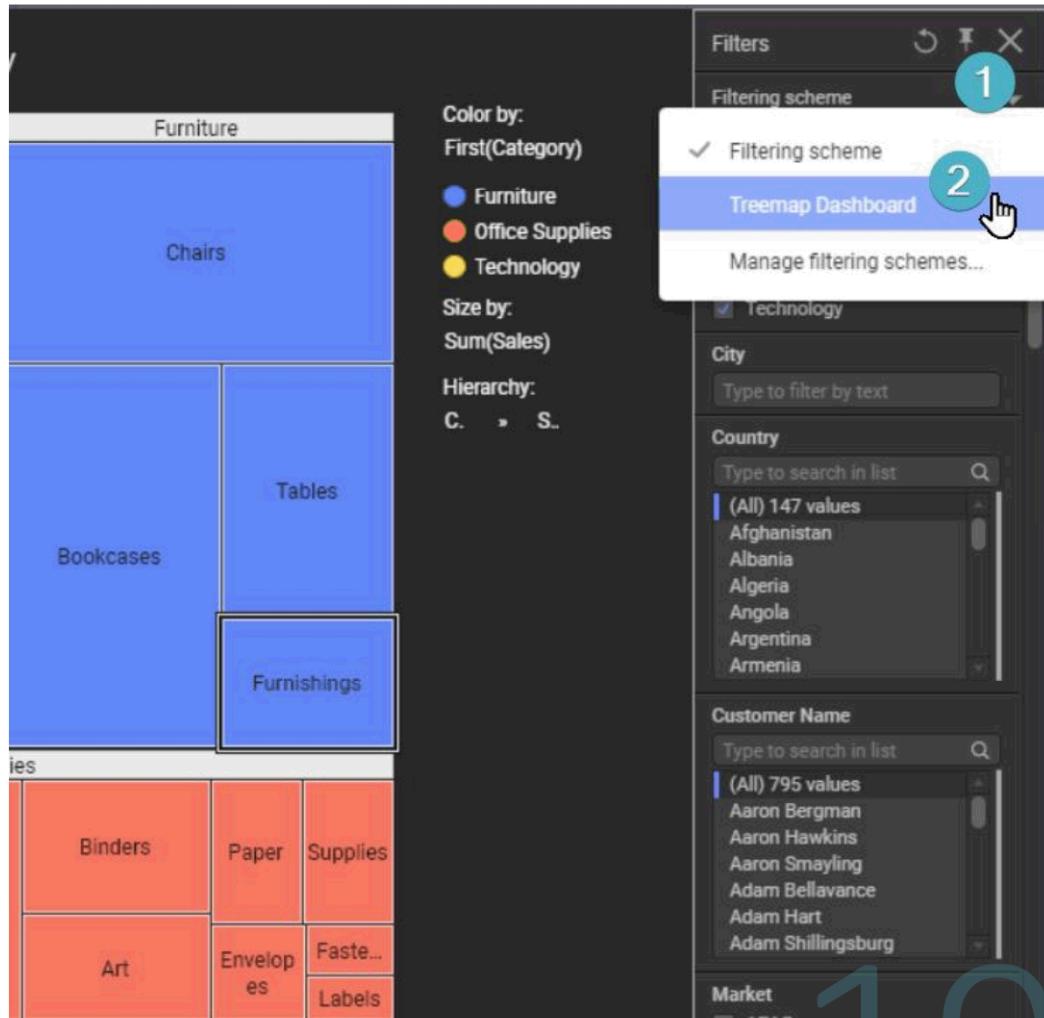
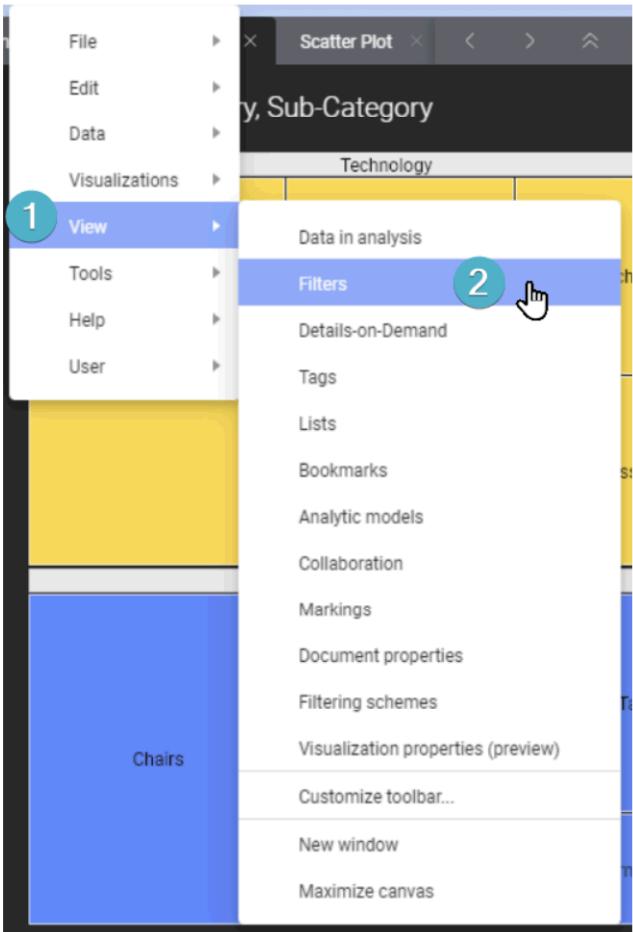
# Filters



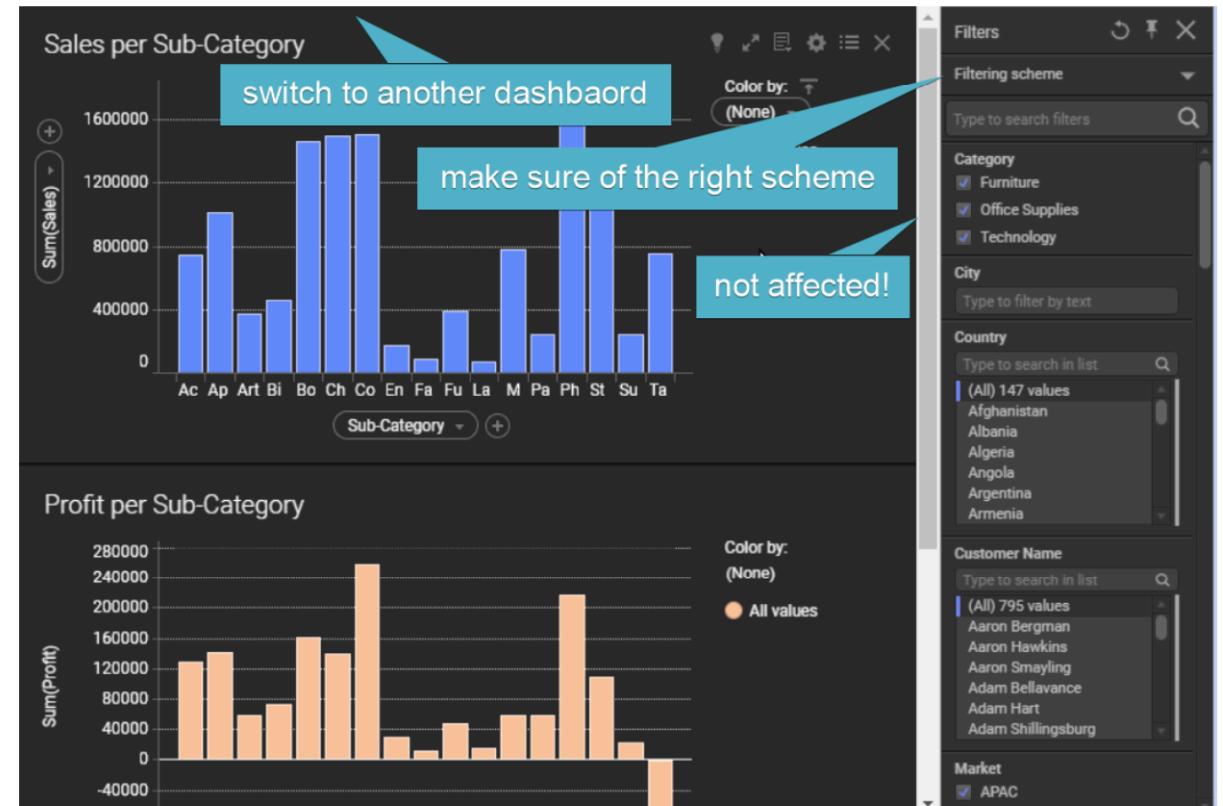
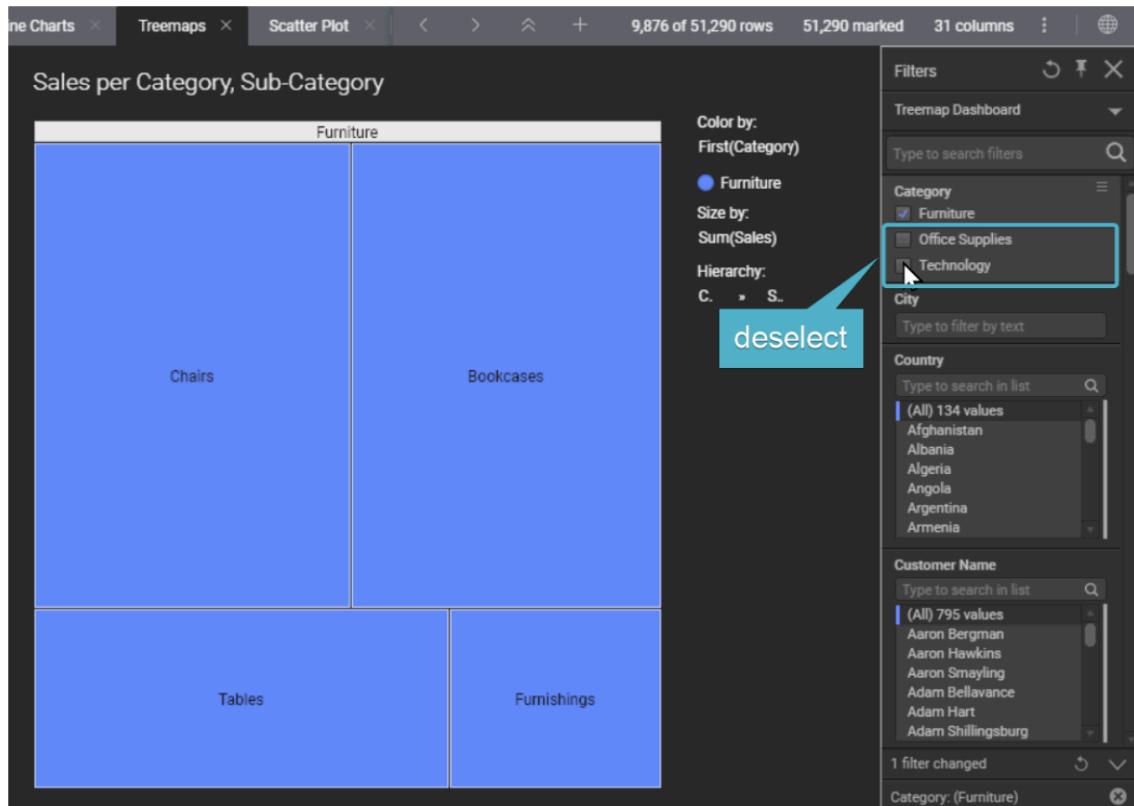
# Different Filters



# Different Filters



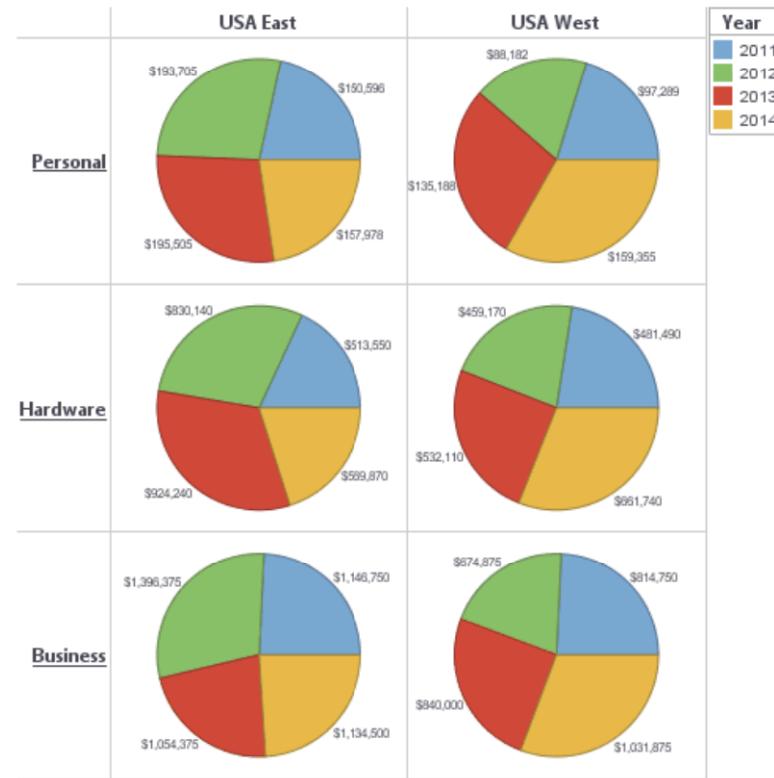
# Different Filters



# Trellising

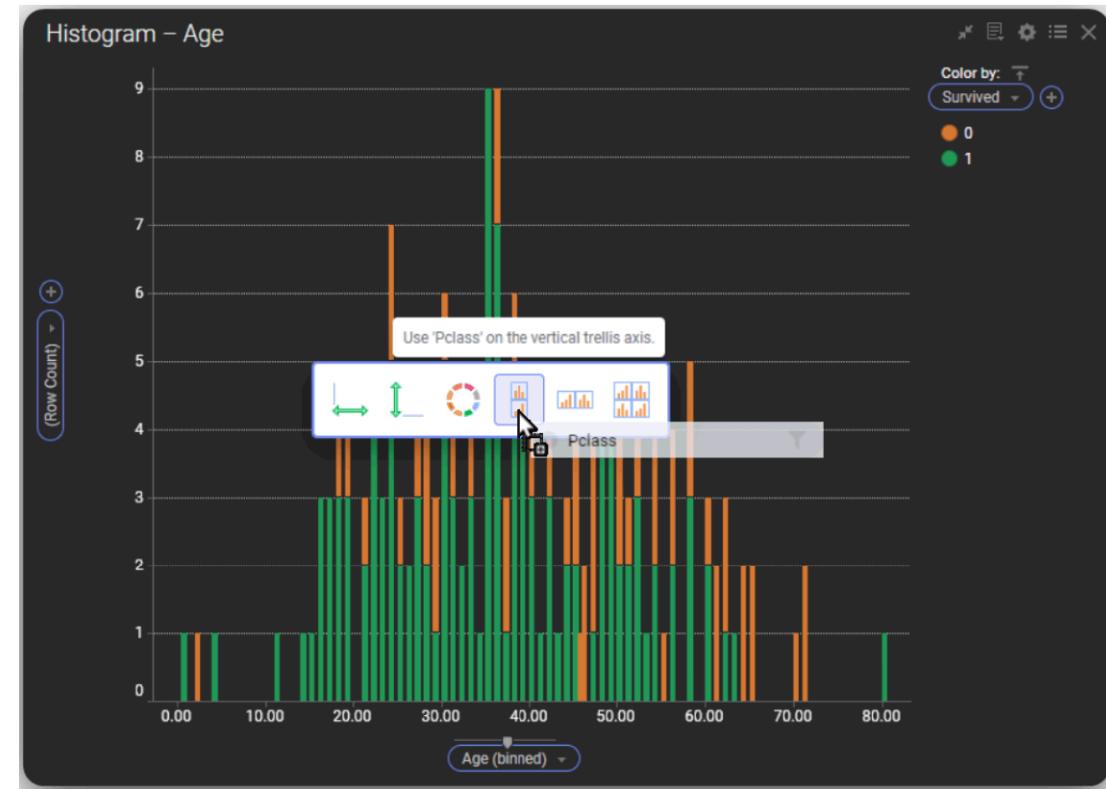
# Trellis Charts (Multiple Minicharts)

- ❖ Break data into small, manageable charts
- ❖ Compare multiple subsets within a single view
- ❖ Each chart represents a specific subcategory
- ❖ Useful for large or complex datasets
- ❖ Helps identify patterns & trends across dimensions

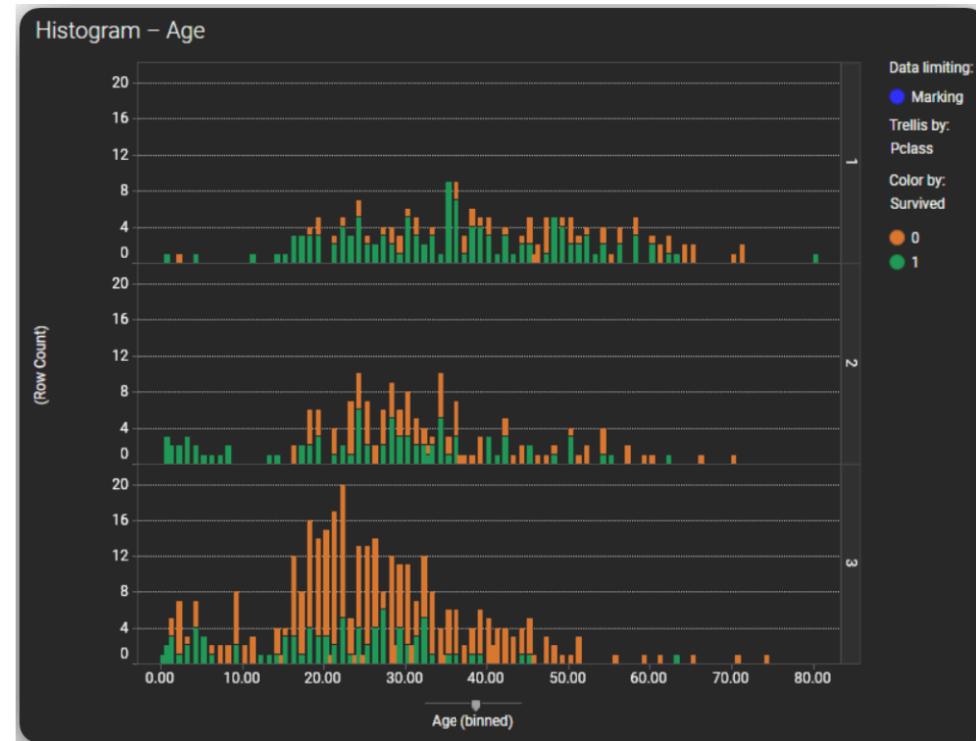
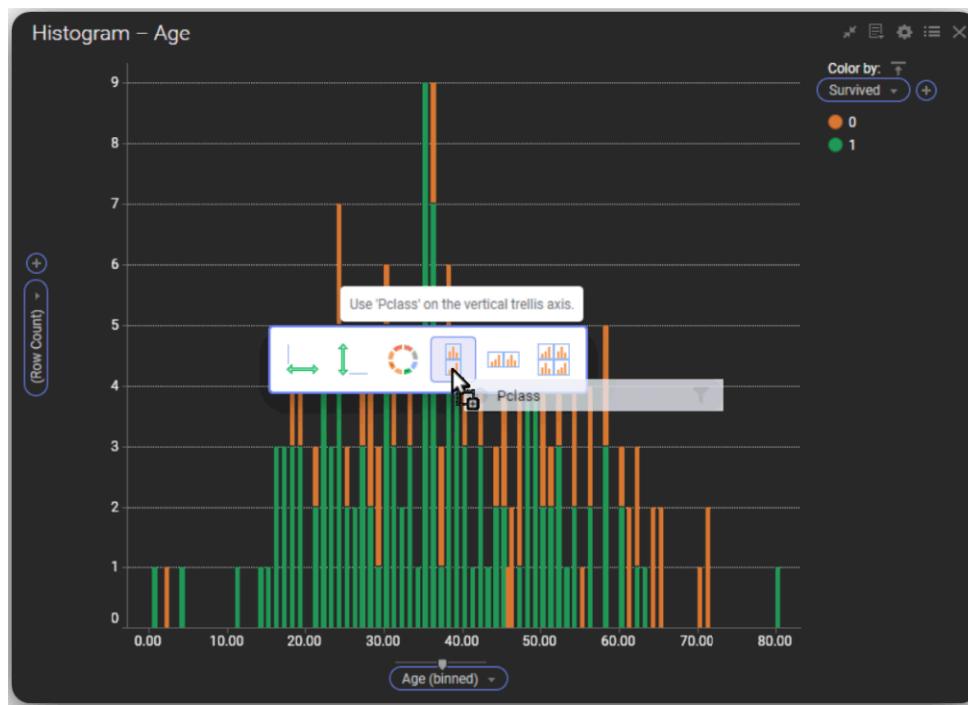


Source: What Are Trellis Charts, How to Make Them. (2025). Inetsoft.com. <https://www.inetsoft.com/info/how-to-make-a-trellis-chart-definition-example/#Definition-Trellis-Chart>

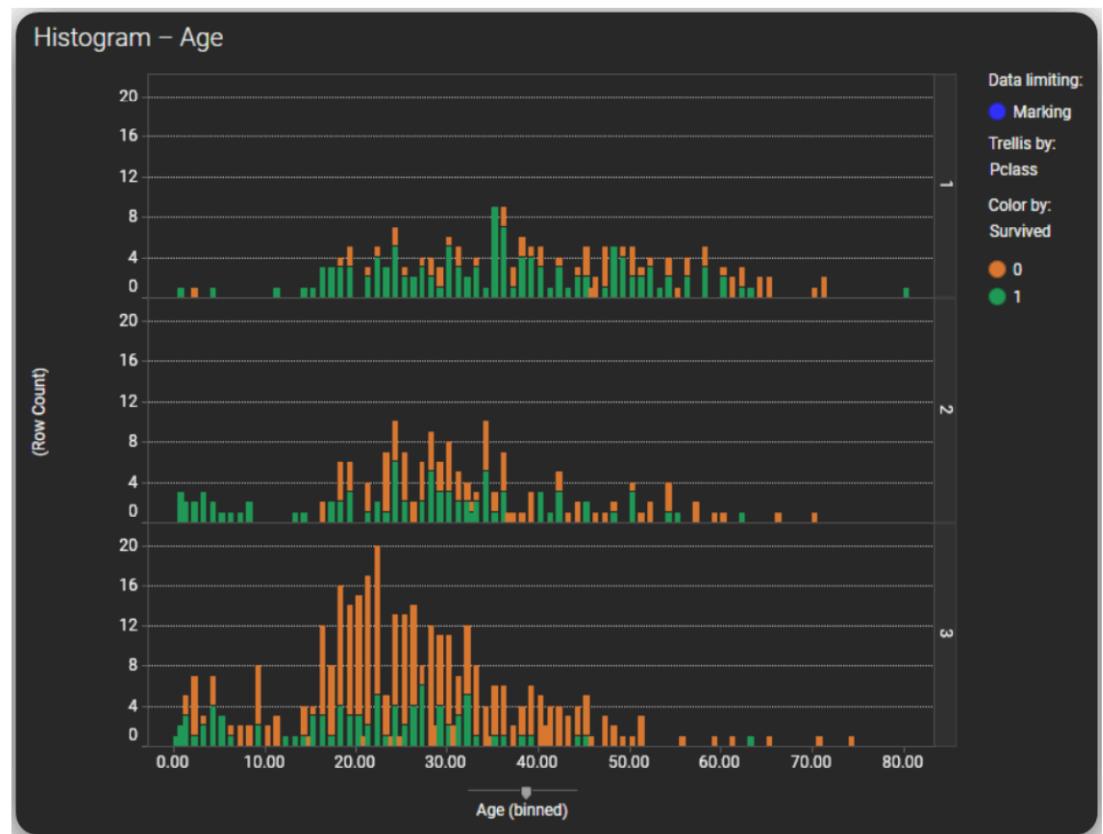
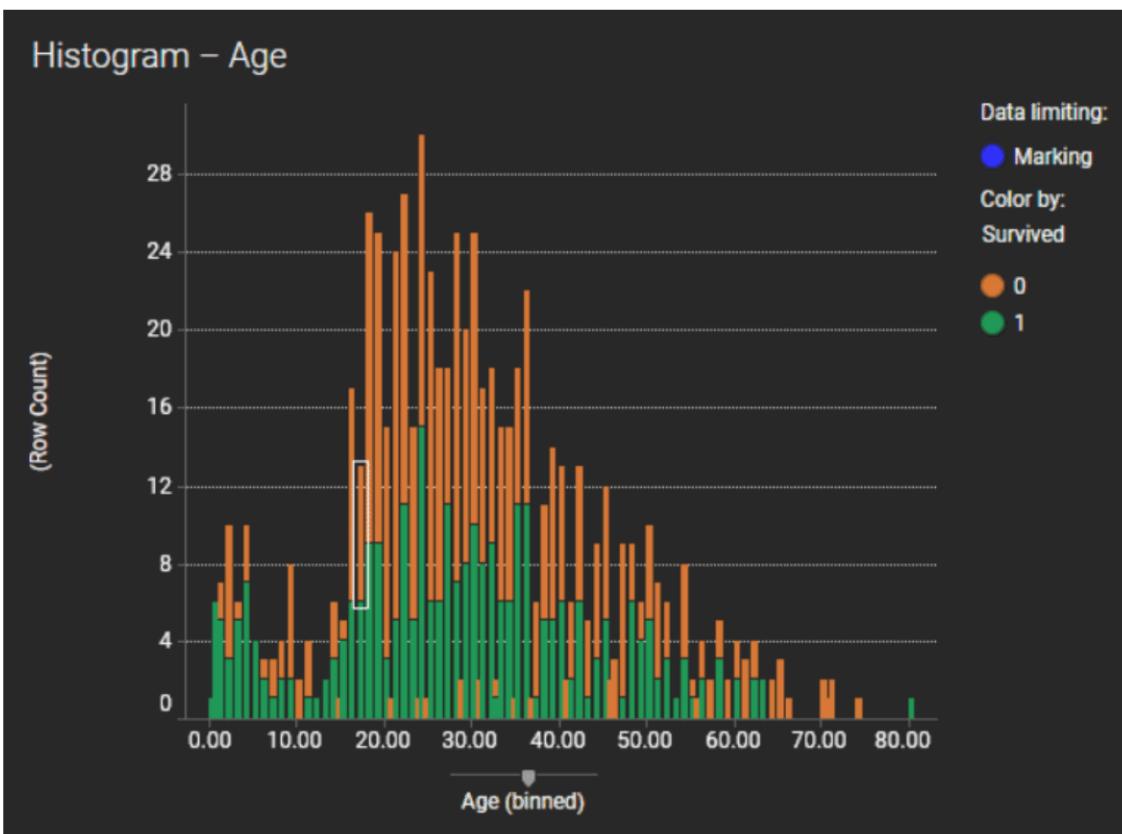
# Trellis Charts (Multiple Minicharts)



# Trellis Charts (Multiple Minicharts)



# Trellis Charts (Multiple Minicharts)



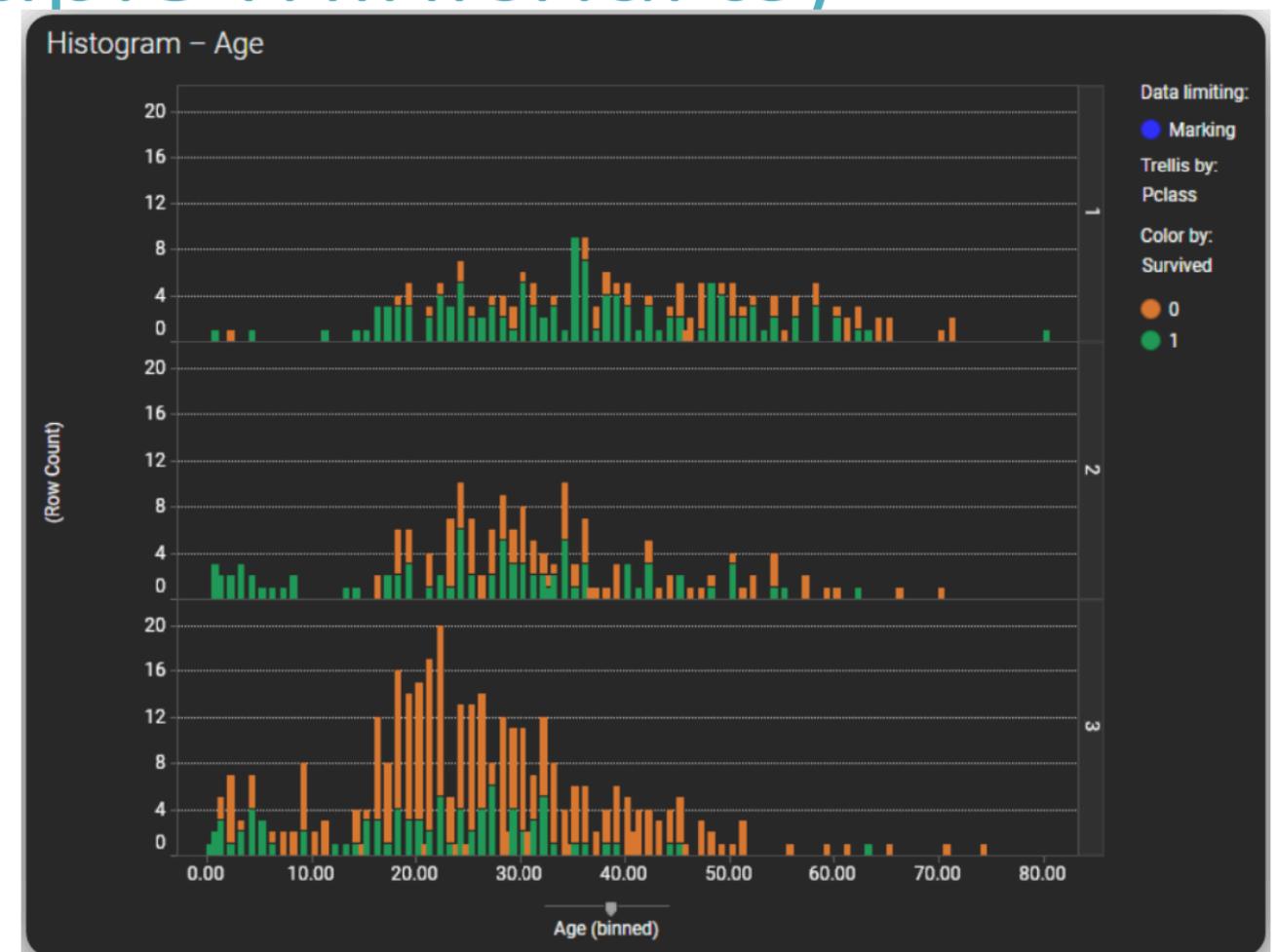
# Trellis Charts (Multiple Minicharts)

What are the insights?

chance of survival was much better  
as a first-class passenger

All second-class children survived.

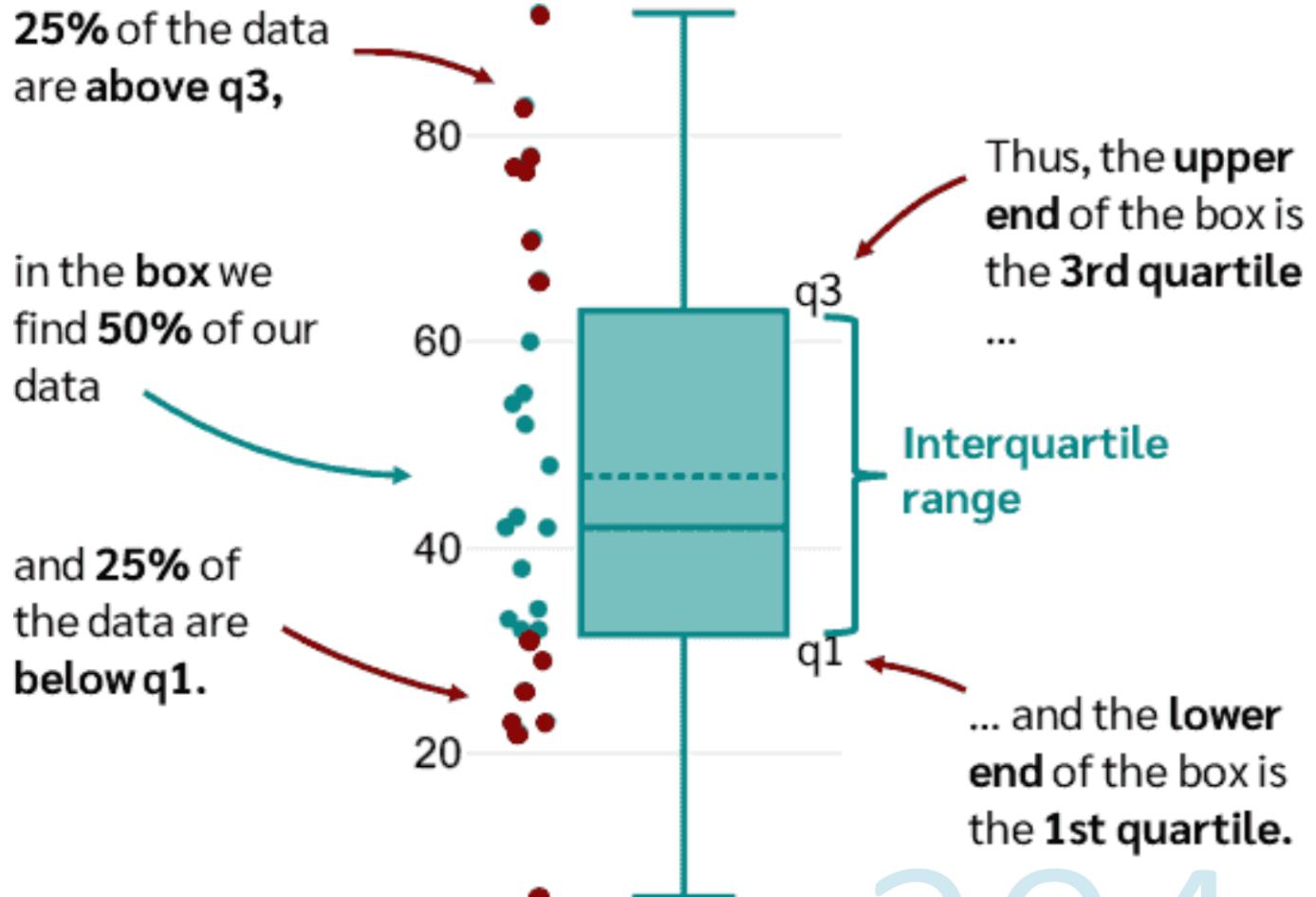
Third-class passengers were worse  
than the other classes'.



# Boxplot

# What is a Box Plot?

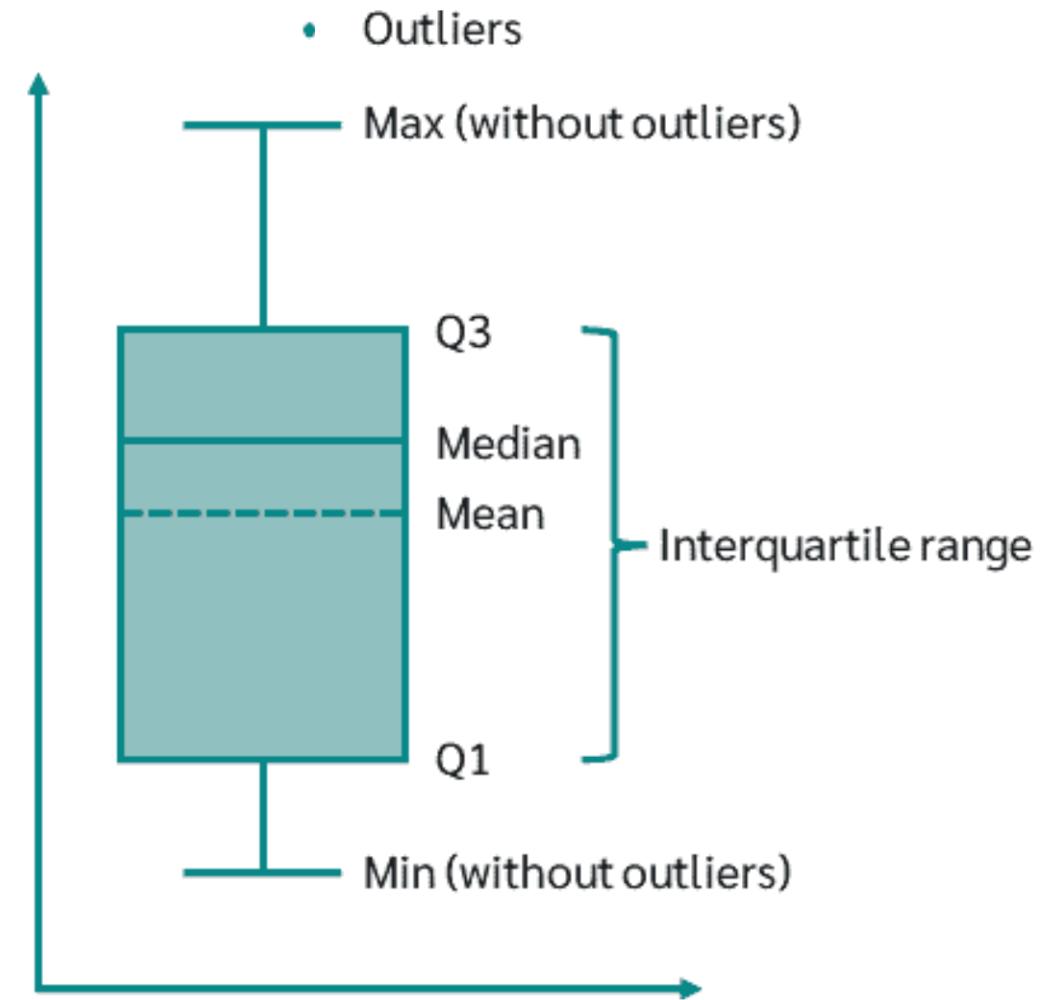
- ✓ A box plot (or box-and-whisker plot) visualizes the distribution of numerical data.
- ✓ Shows key summary statistics:
  - Median
  - Quartiles (Q1 & Q3)
  - Minimum & Maximum
  - Outliers
- ✓ Great for comparing distributions across categories.
- ✓ Quickly highlights spread, central tendency, and skewness.



t-Test, Chi-Square, ANOVA, Regression, Correlation... (2025). Datatab.net.  
<https://datatab.net/tutorial/box-plot>

# How a Box Plot Works

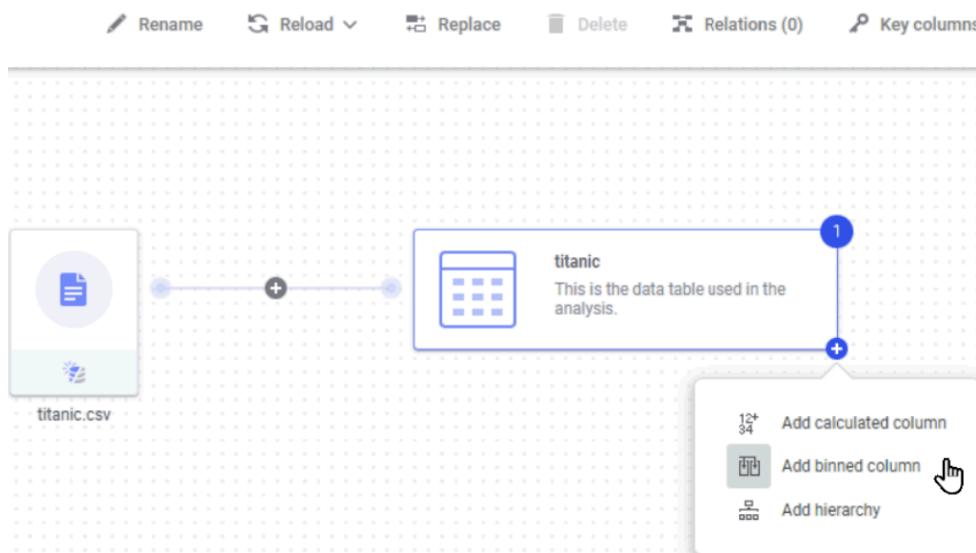
- ✓ Box spans from Q1 (25th percentile) to Q3 (75th percentile)  
→ the Interquartile Range (IQR)
  - ✓ Line inside box = Median (50th percentile)
  - ✓ Whiskers extend to:  
*Min & Max within  $1.5 \times IQR$*
  - ✓ Points outside whiskers = Outliers
  - ✓ Spotfire can group box plots by category (e.g., gender, class) for comparison
-  Ideal for identifying data variability, outliers, and differences between groups.



*t-Test, Chi-Square, ANOVA, Regression, Correlation...* (2025). Datatab.net.  
<https://datatab.net/tutorial/box-plot>

# Binning

# Binning



### Add binned column

Column: Age

Bin method:

Specific limits (for example -1;5;10;40):  
12;19;35;59;60

Even intervals  
Number of bins: 5

Even distribution of unique values  
Number of bins: 5

Based on standard deviation  
+/- std dev to include:  0.5  1  2  3  6

Substring  
Compare from: Beginning  End  
Positions: 3  
 Ignore case

Values

Bin	Values

Add... Edit... Remove

New column name: Binned Age\_

OK Cancel Help

# Binning



Added calculated column: Survival Rate

Added binned column: Binned Age



Added calculated column: Binned\_Named\_Age

Edit calculated column

Available columns:

Name	Data Type
PassengerId	Integer
Survived	Integer
Pclass	Integer
Name	String
Sex	String
Age	Real
SibSp	Integer
Parch	Integer
Ticket	String
Fare	Real
Cabin	String
Embarked	String
Survival Rate	Real
Binned Age	String
Binned_Named_Age	String

Available properties for column: PassengerId

Name	Data Type	Property ...	Value
FiscalYearOffset	Integer	Document	0
MaxMissingTime...	Integer	Document	500000
Description	String	Table	
ExternalId	String	Table	
Keywords	String List	Table	
Transformation	String	Table	
ContentType	String	Column	
DefaultCategoric...	String	Column	
DefaultContinuo...	String	Column	
DerivedExpression	String	Column	
Description	String	Column	
Expression	String	Column	
ExternalId	String	Column	
ExternalName	String	Column	
Geocod...	String	Column	
		PassengerId	

Functions

Category: Binning functions

Function: BinBySpecificLimits

Groups the values in the specified column by defined limits for the bins (groups). The first argument is the column to bin and the following arguments are the limits for the bins.

Example: BinBySpecificLimits([Age], 12, 19, 35, 59, 60)

Expression: 1 BinBySpecificLimits([Age], 12, 19, 35, 59, 60)

Recent expressions: If([Age] <= 12, "Child", If([Age] <= 19, "Teen", If([Age] <= 35, "Young Adult",

Insert

Column name: Binned Age

Resulting expression: Not applicable.

Sample result: 19.00 < x < 35

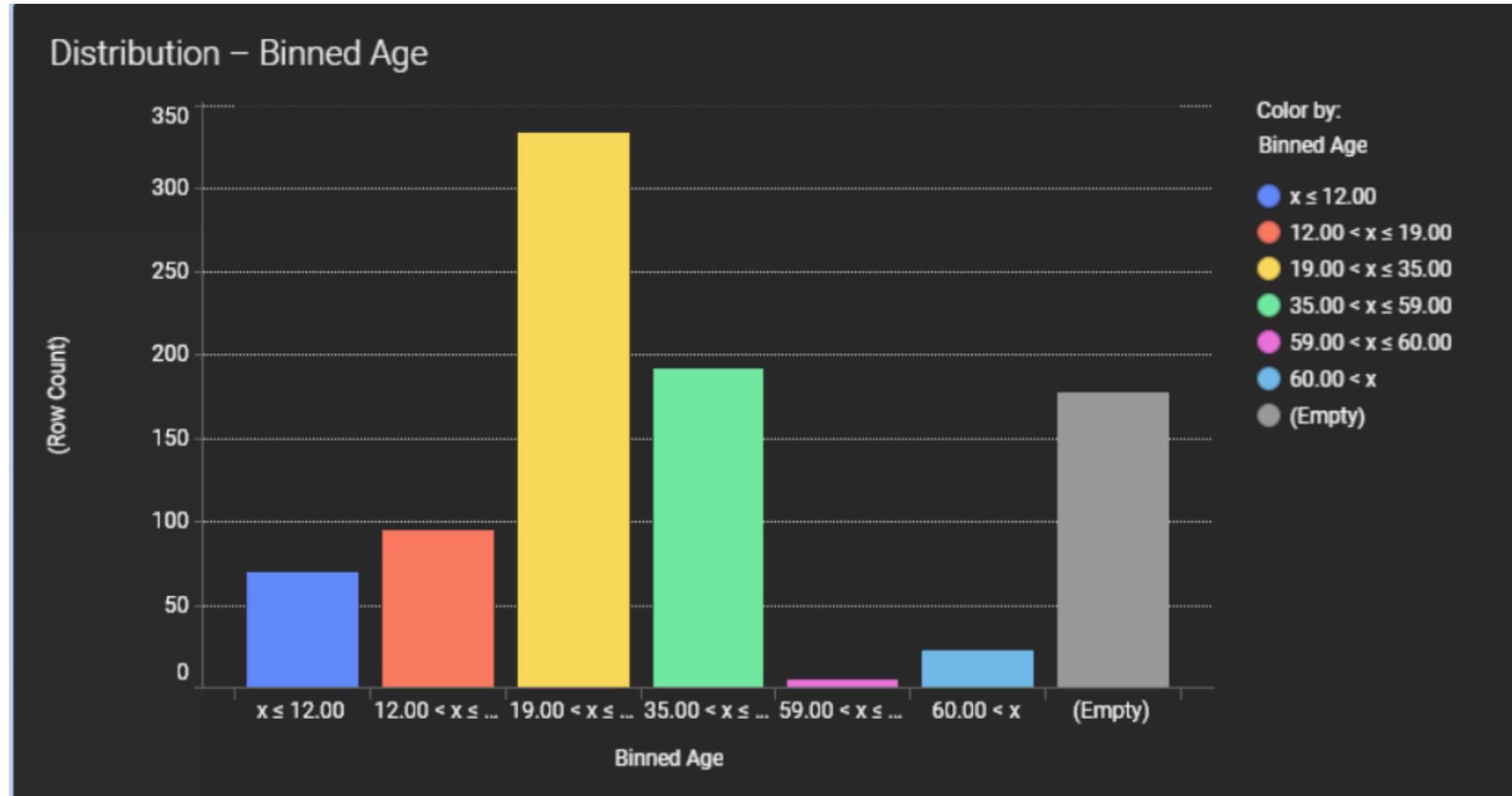
Type: String

Formatting...

OK Cancel

208

# Binning

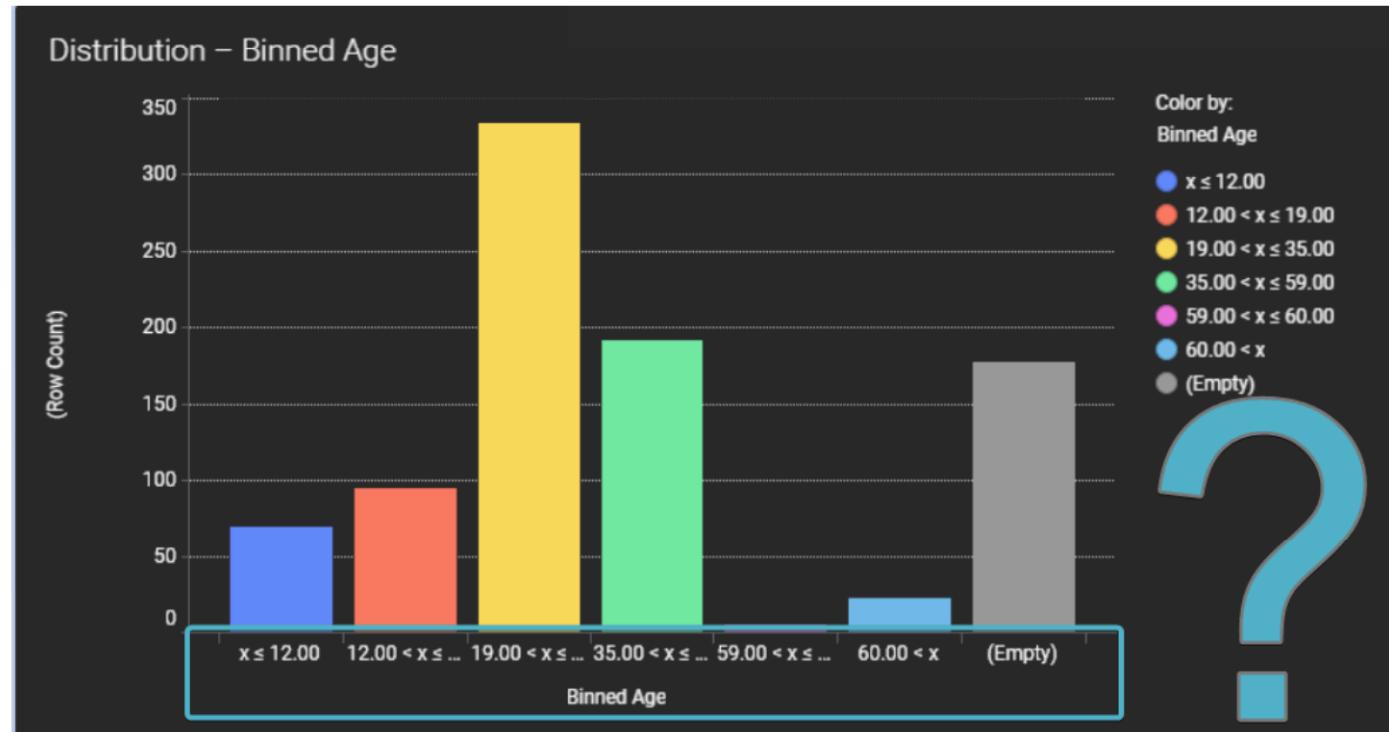


# Binning

How to add Description?

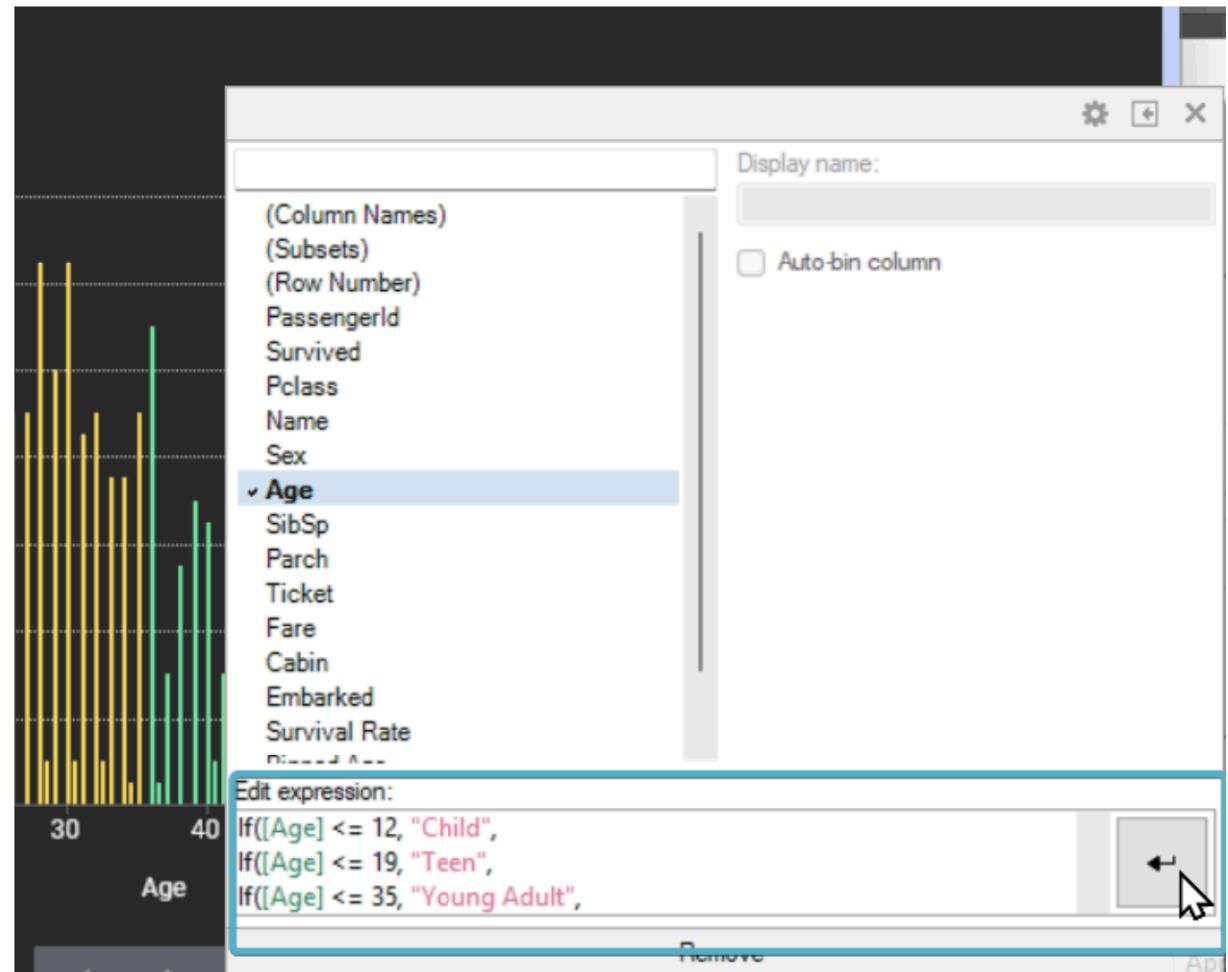
Two ways:

- Using custom expression with If statement
- Using calculated column with if statement



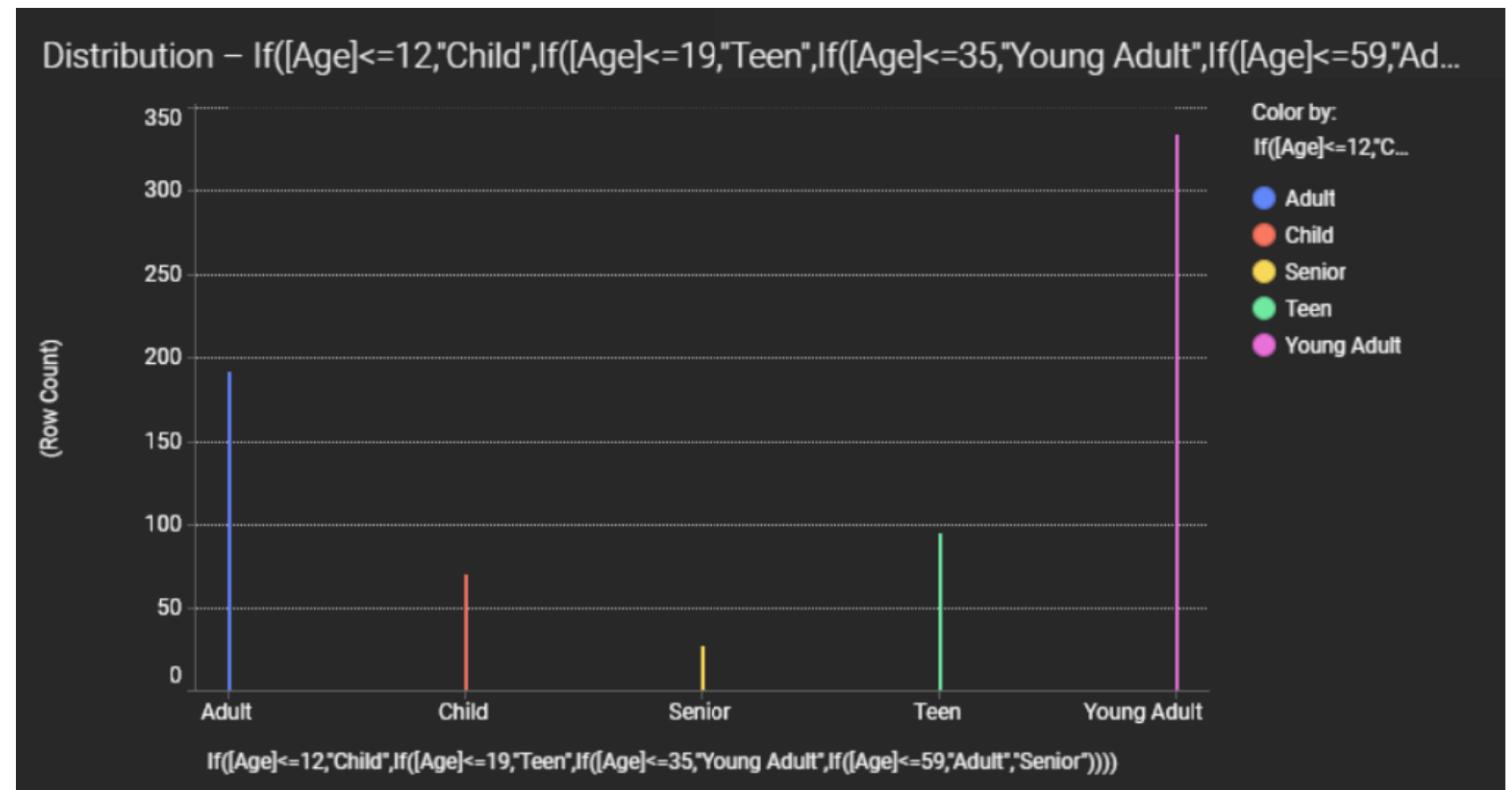
# Binning – Option1

```
If([Age] <= 12, "Child",
If([Age] <= 19, "Teen",
If([Age] <= 35, "Young Adult",
If([Age] <= 59, "Adult",
"Senior")))
```

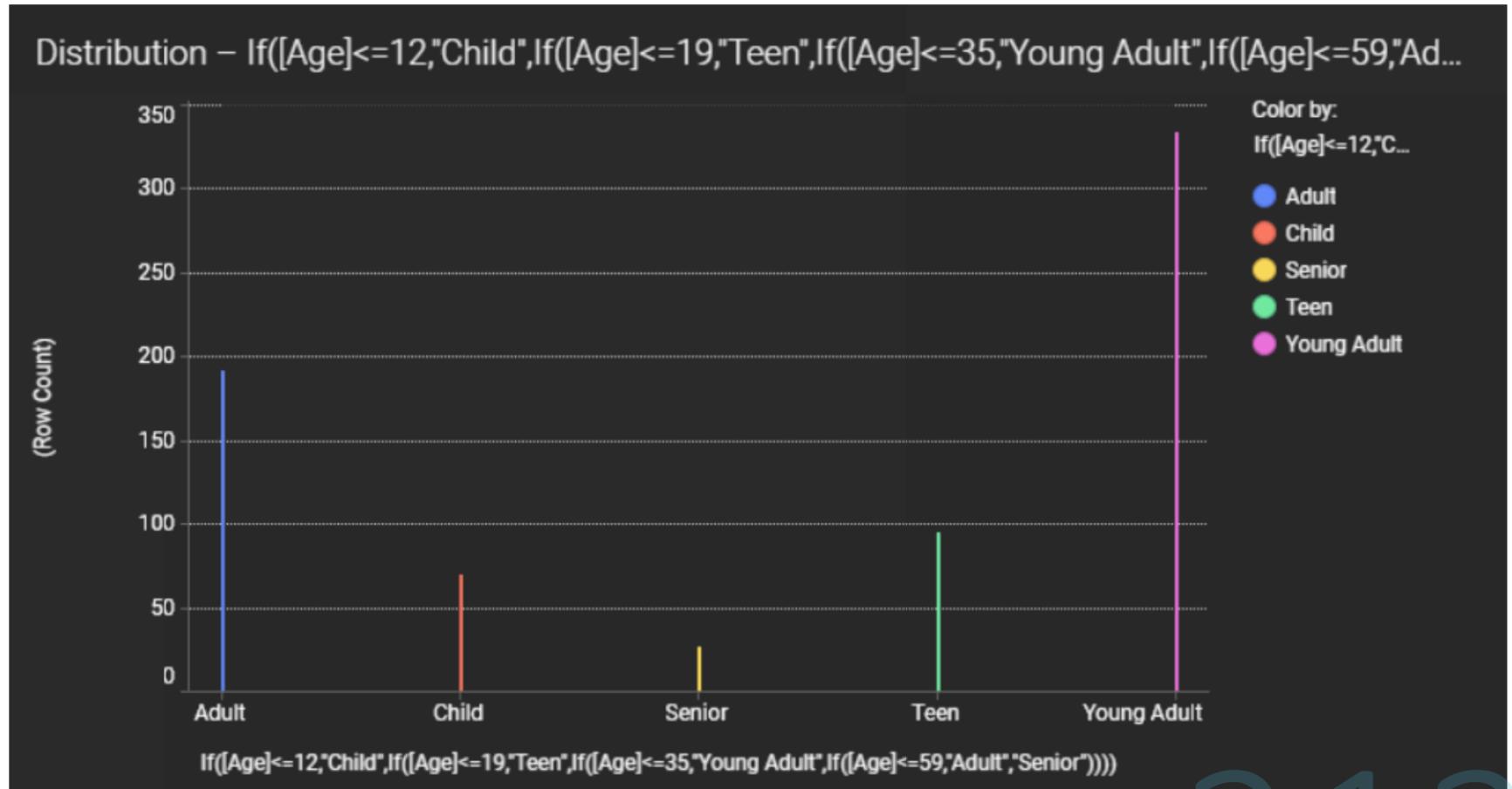


# Binning – Option1

## Problems



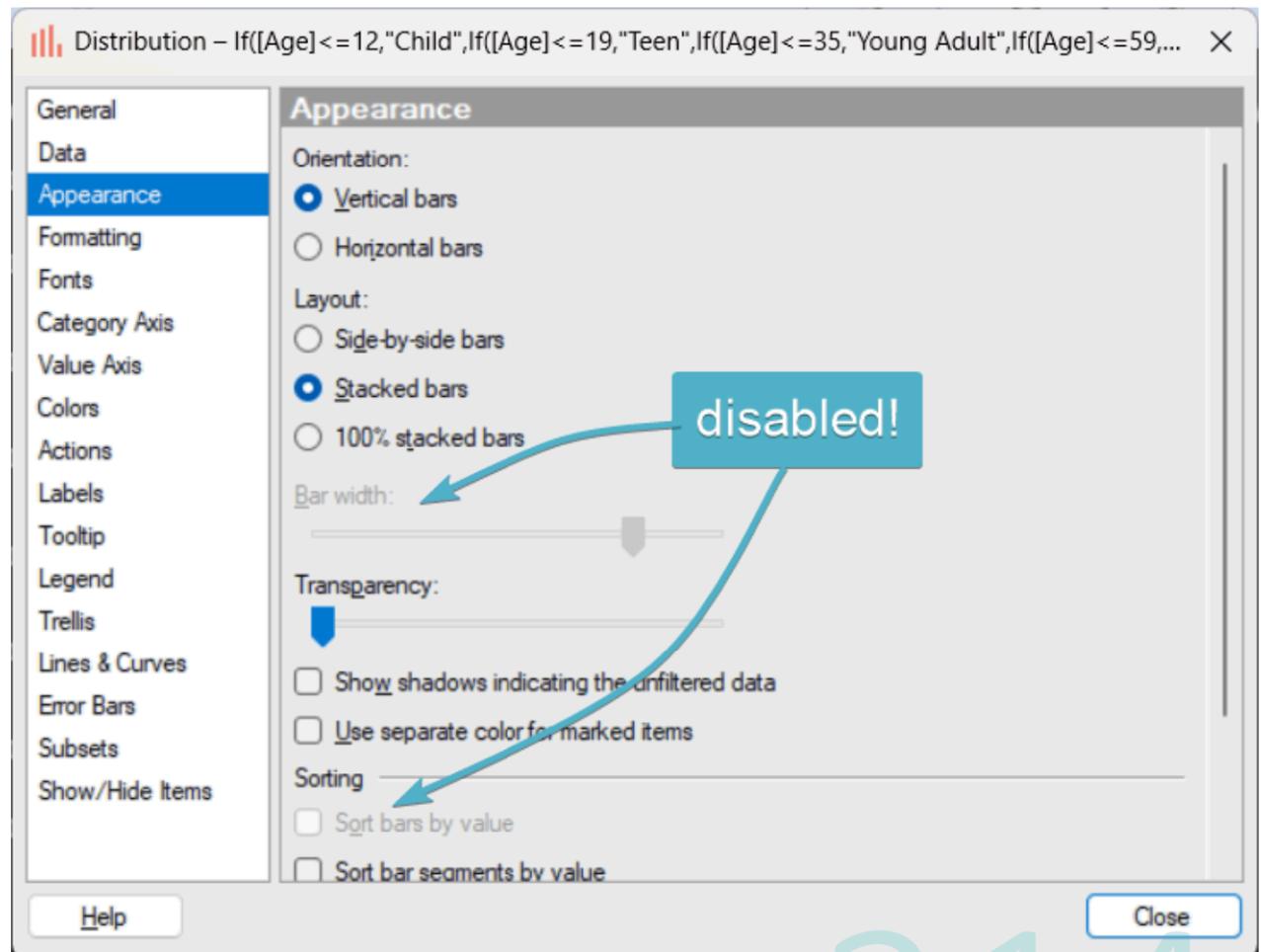
# Binning – Option1



# Binning – Option1

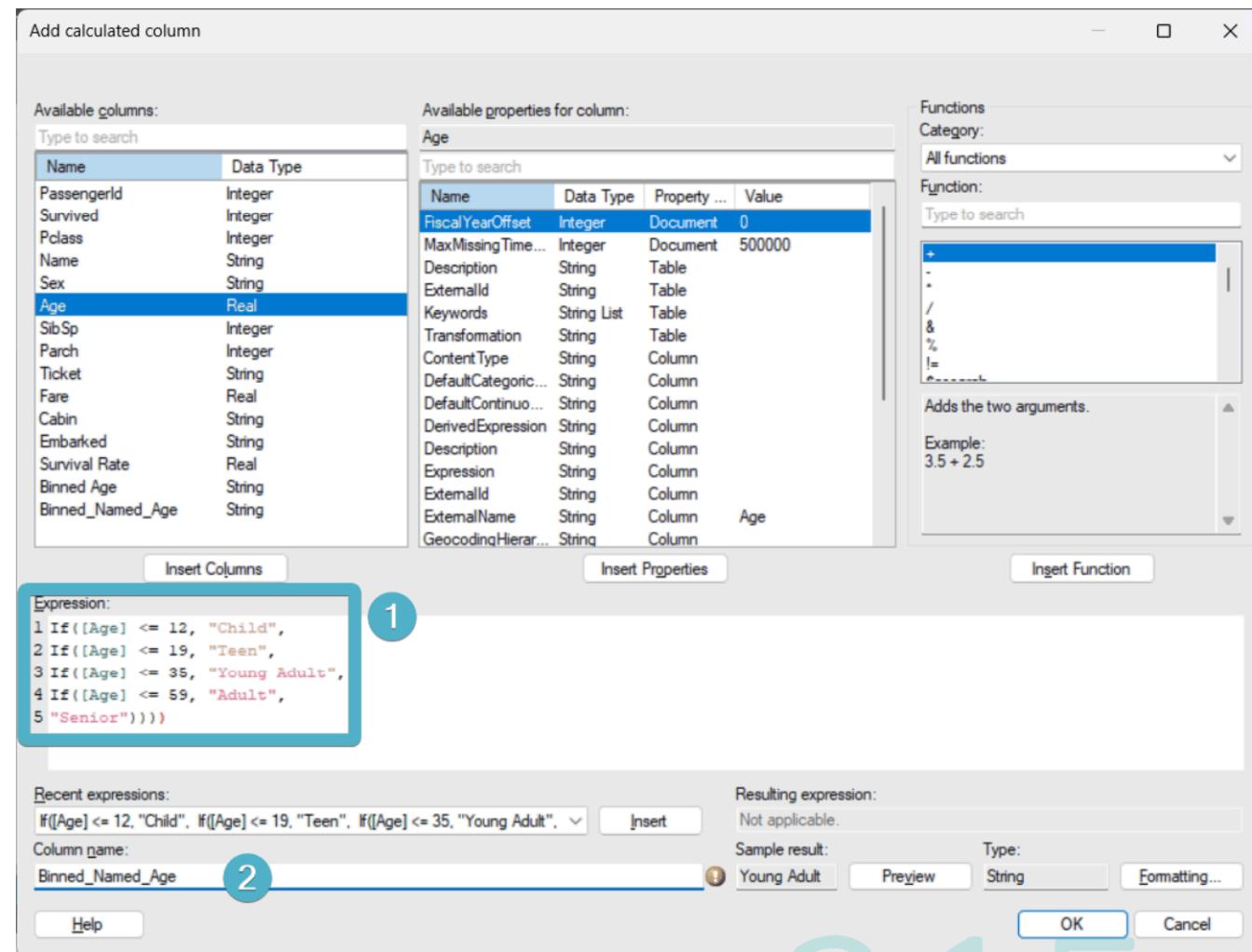
TWO Problems:

- ❖ Unsortable
- ❖ Unchangeable Bar Width

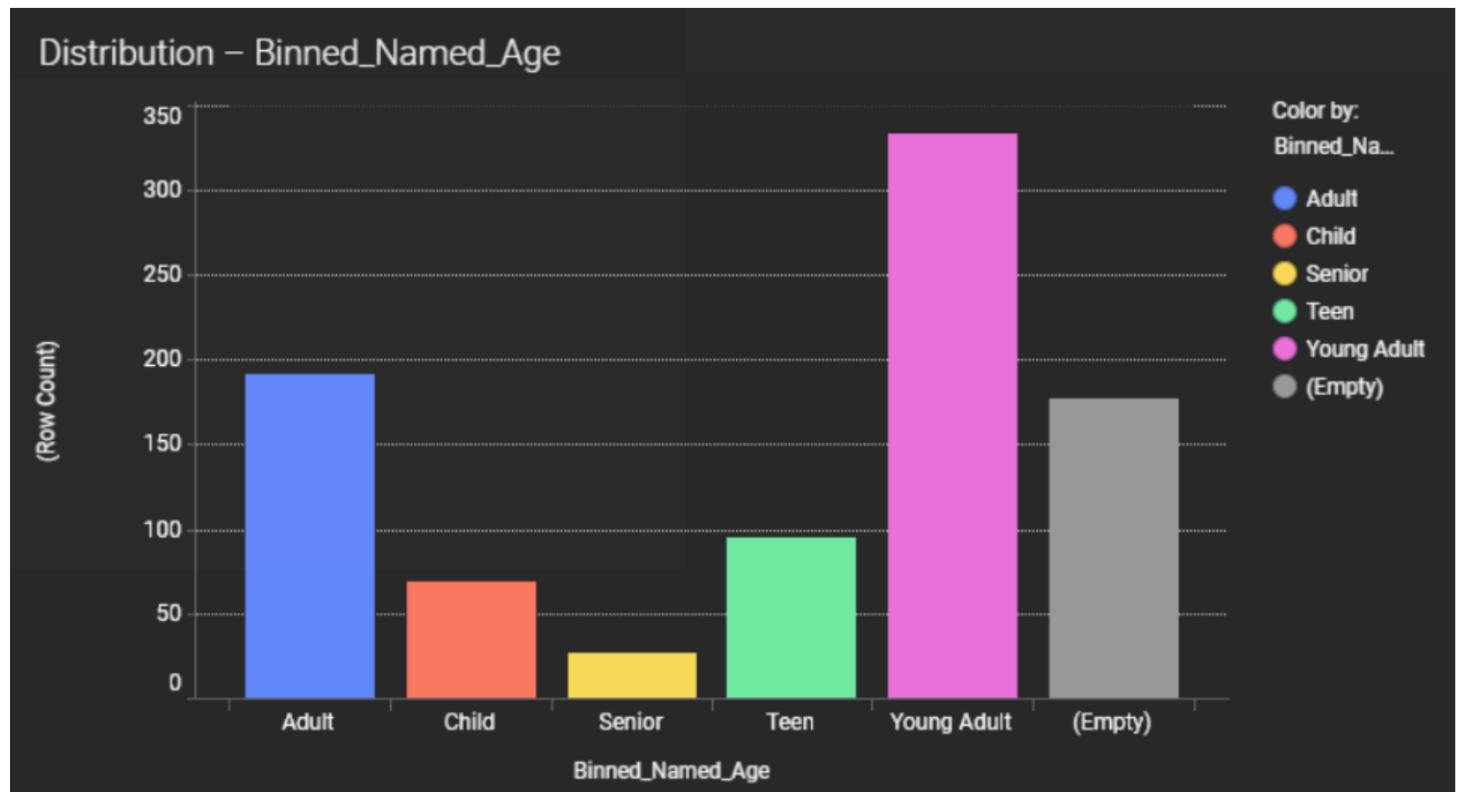


# Binning – Option2

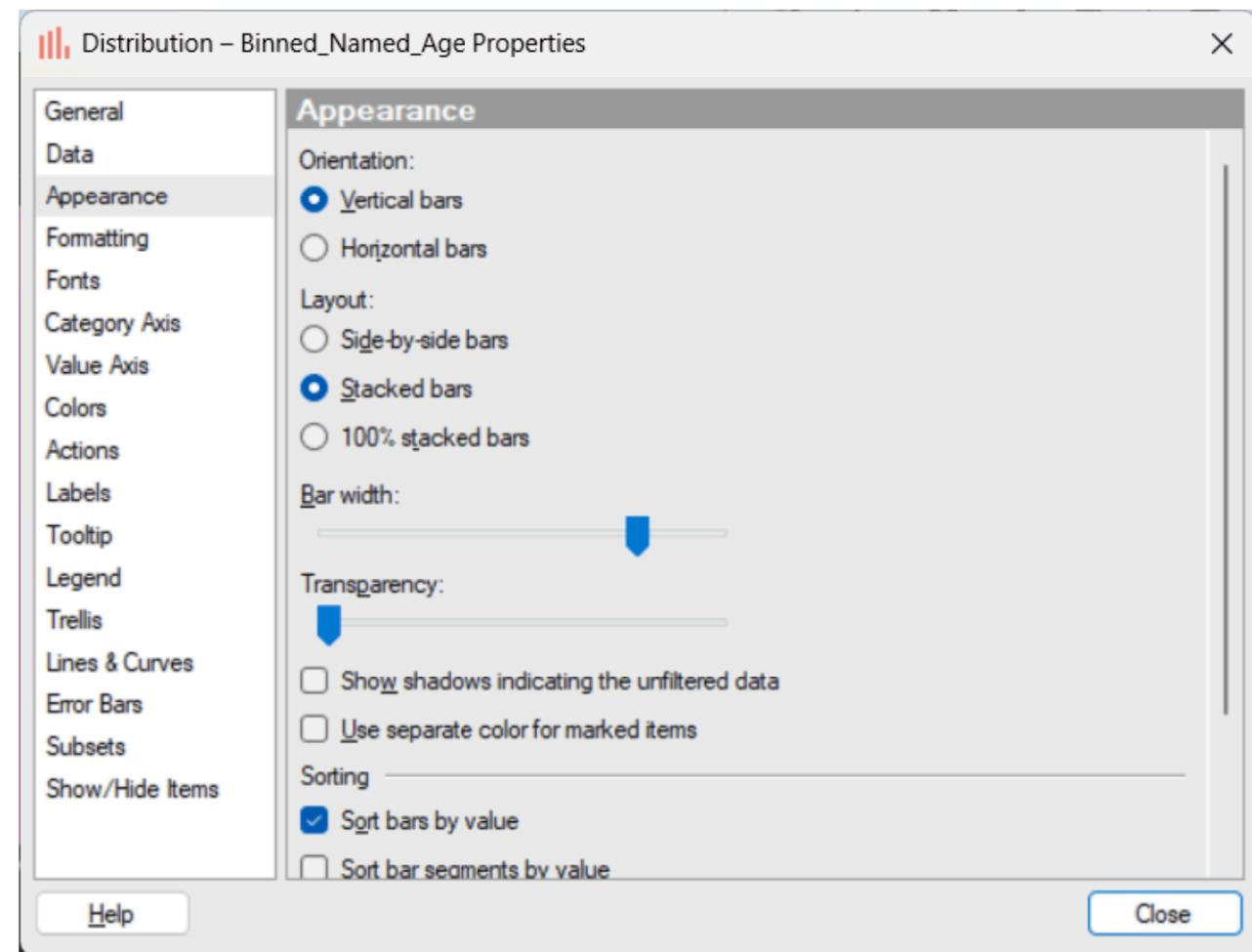
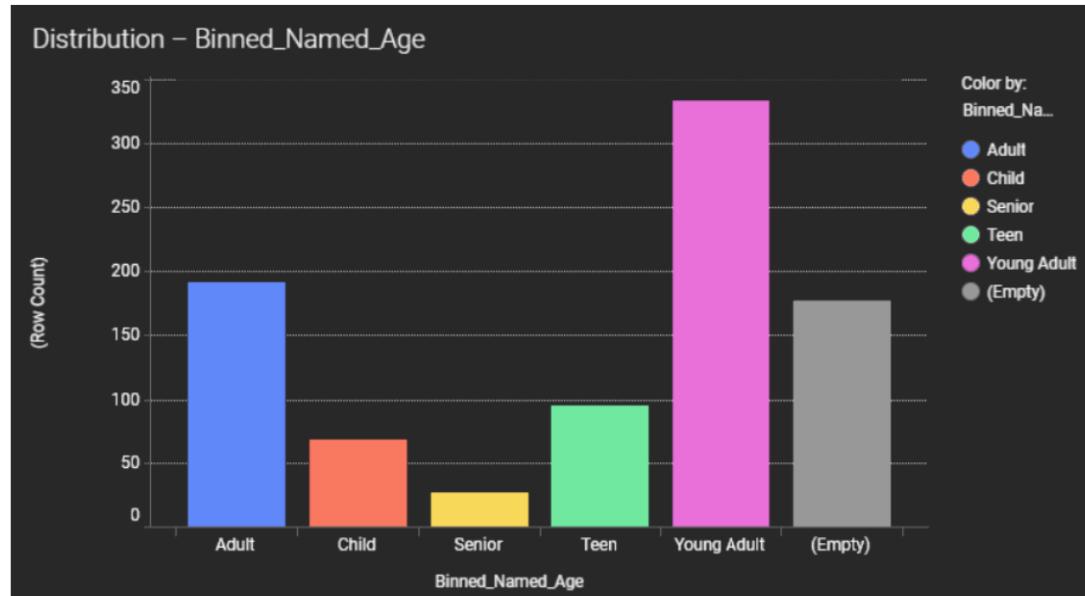
```
If([Age] <= 12, "Child",
If([Age] <= 19, "Teen",
If([Age] <= 35, "Young Adult",
If([Age] <= 59, "Adult",
"Senior")))
```



# Binning – Option2

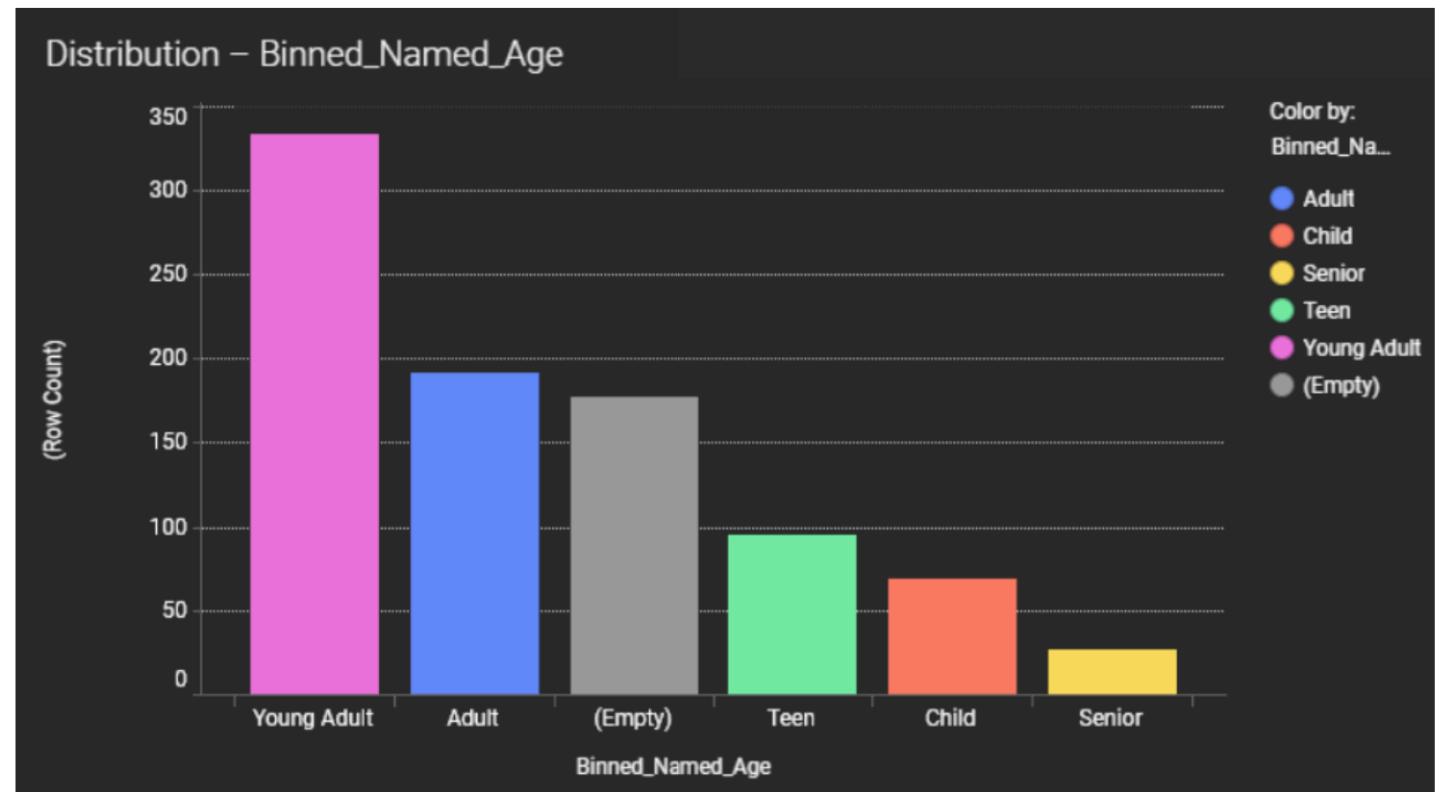


# Binning – Option2



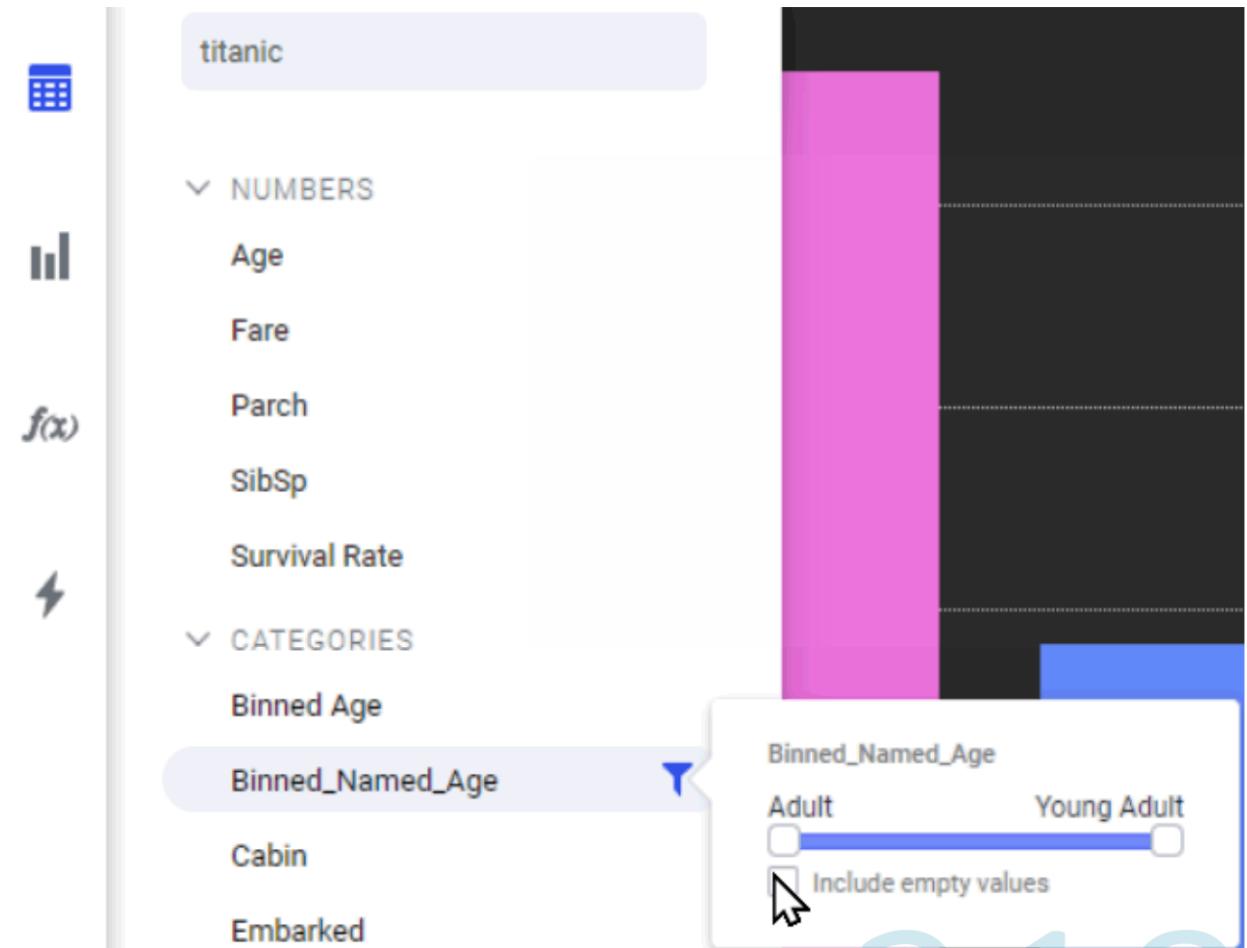
# Binning – Option2

Problem Solved!



# Binning – Option2

Exclude Empty Values



# Missing Values

# Replacing Missing Values

Option1

Data in analysis... titanic

NUMBERS

✓ Age 1

Fare  
Parch  
SibSp  
Survival Rate

CATEGORIES

Binned Age  
Binned\_Named\_Age  
Cabin  
Embarked  
Name  
Pclass  
Sex  
Survived  
Ticket

Formatting

Number

Preferred aggregation method

Use default (Avg)

Display values

(Default)

Geocoding

Not configured

Empty values

There are 177 empty values.

Replace empty values with

(None) 3

(None)

Specific value

Value immediately before

Immediately following value

Average value

Median value

# Replacing Missing Values

Option2

The screenshot shows a data processing interface with the following details:

- Selected Column:** Age (highlighted with a blue box and circled with number 1)
- Number of Missing Values:** 177
- Replace Empty Values With:** (None) (highlighted with a blue box and circled with number 2)
- Replace Value With:** 5 (highlighted with a blue box and circled with number 3)
- Preview (after formatting):** 5.00
- Replace Options:**
  - All occurrences in column (radio button selected)
  - This occurrence only
- Apply Button:** 4 (highlighted with a blue box and circled with number 4)

**Column Selections:**

- NUMBERS: Age (selected), Fare, Parch, SibSp, Survival Rate
- CATEGORIES: Binned Age, Binned\_Named\_Age, Cabin, Embarked, Name, Pclass, Sex, Survived, Ticket
- IDENTIFIERS: PassengerId

**Empty Values Section:**

There are 177 empty values.

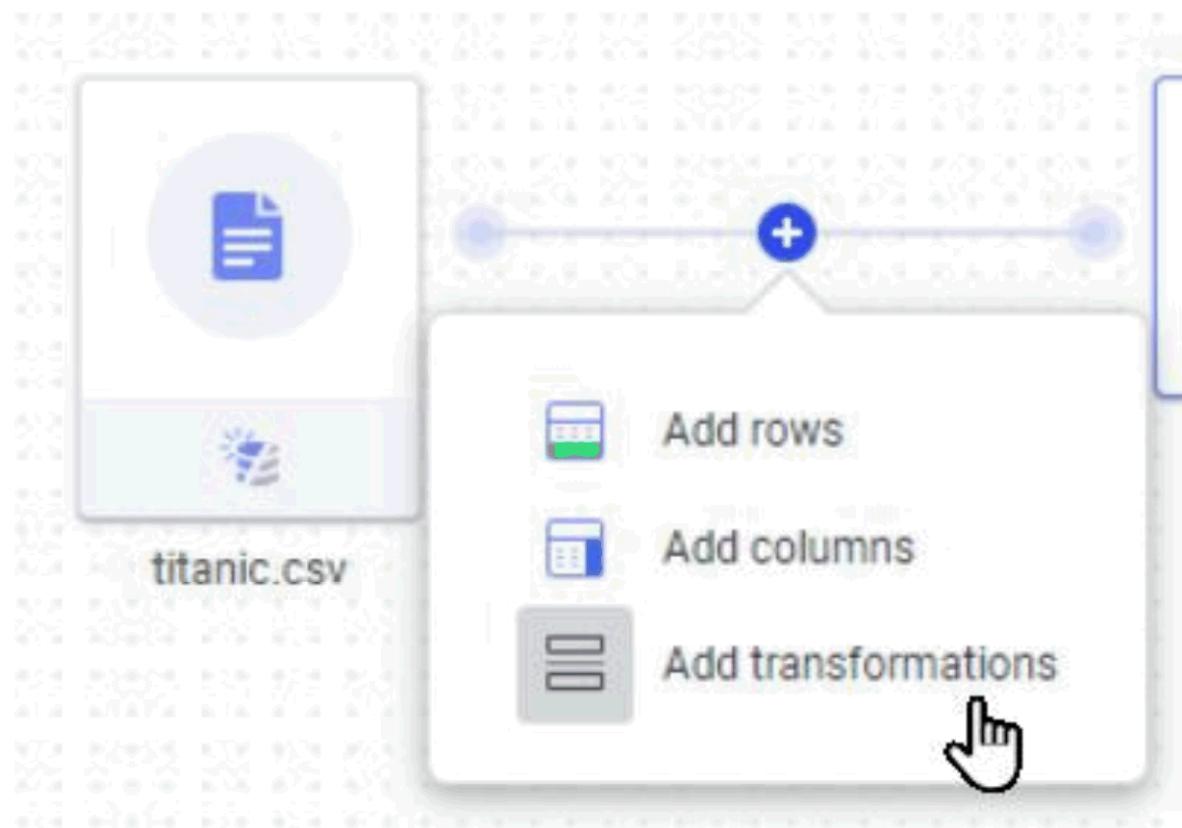
Replace empty values with (None)

**Click to sort:**

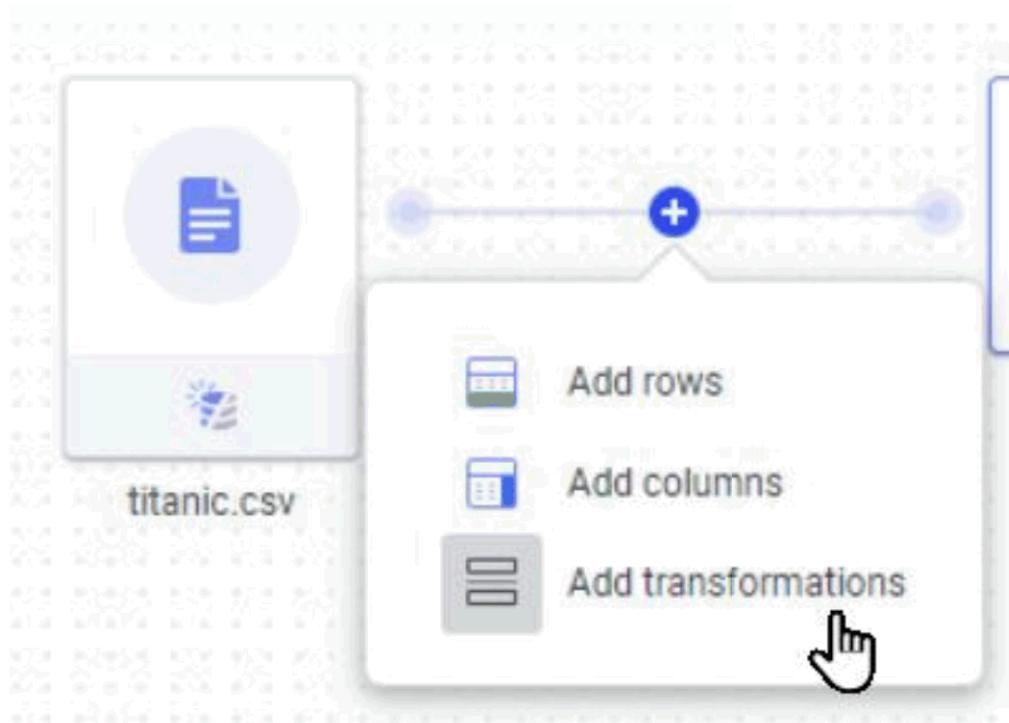
Value
22.00
38.00
26.00
35.00
35.00
54.00
2.00
27.00
14.00
4.00
58.00

# Replacing Missing Values

Option3



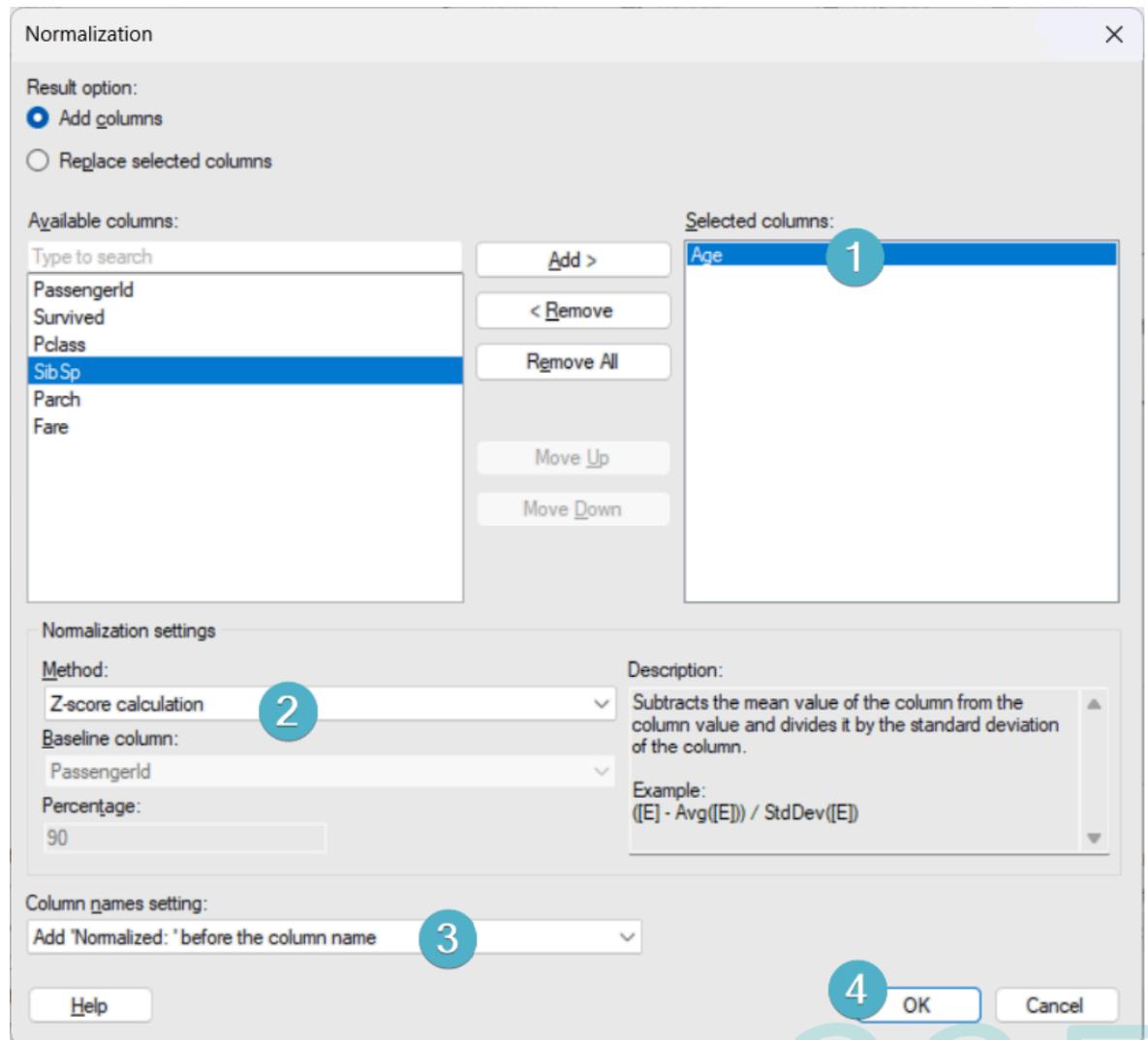
# Replacing Missing Values



# Outliers

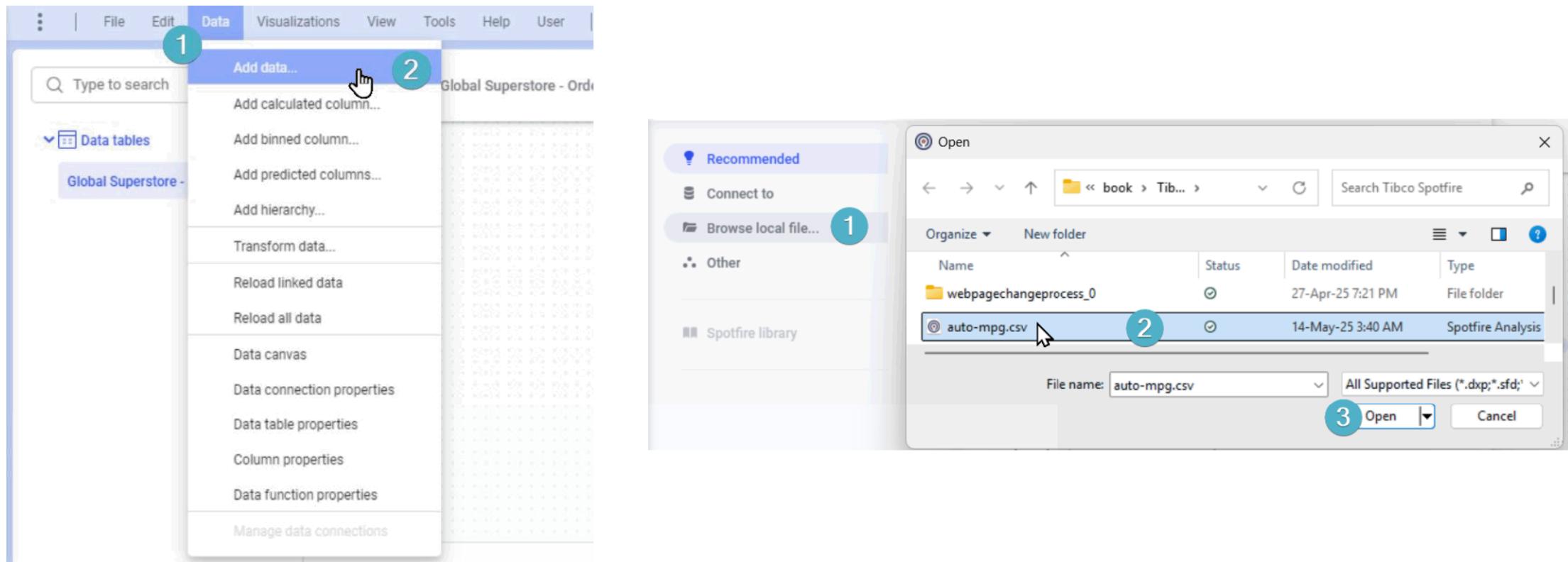
Calculate Z-Score

Use Limited Data Expression



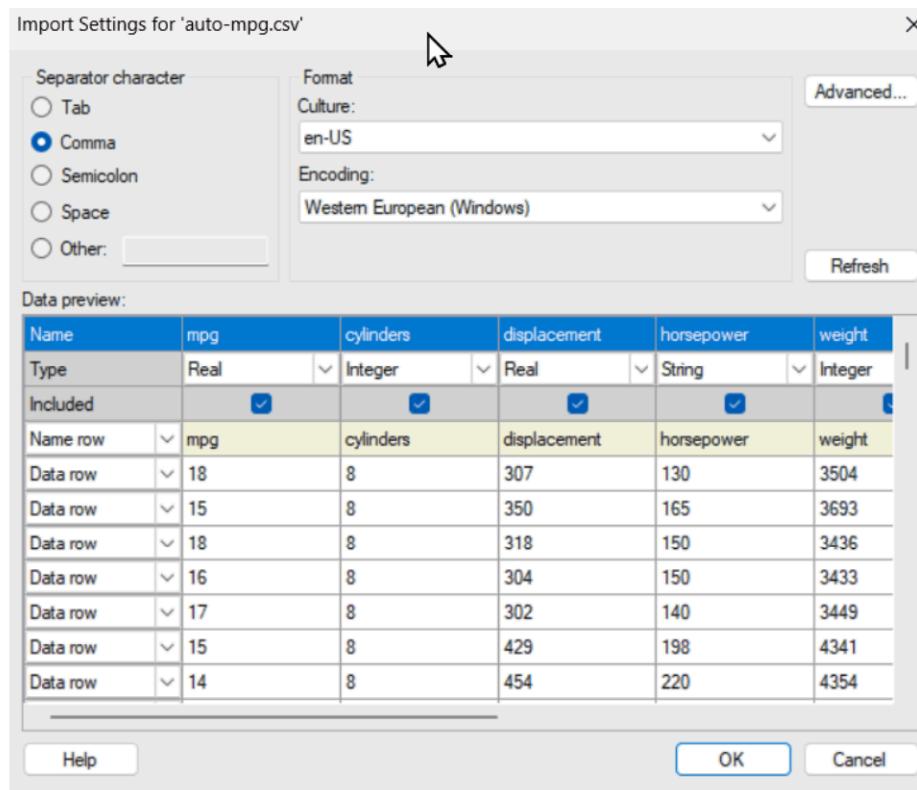
# Add New Datatable

# Add New Datatable



# Add New Datatable

Add data to analysis



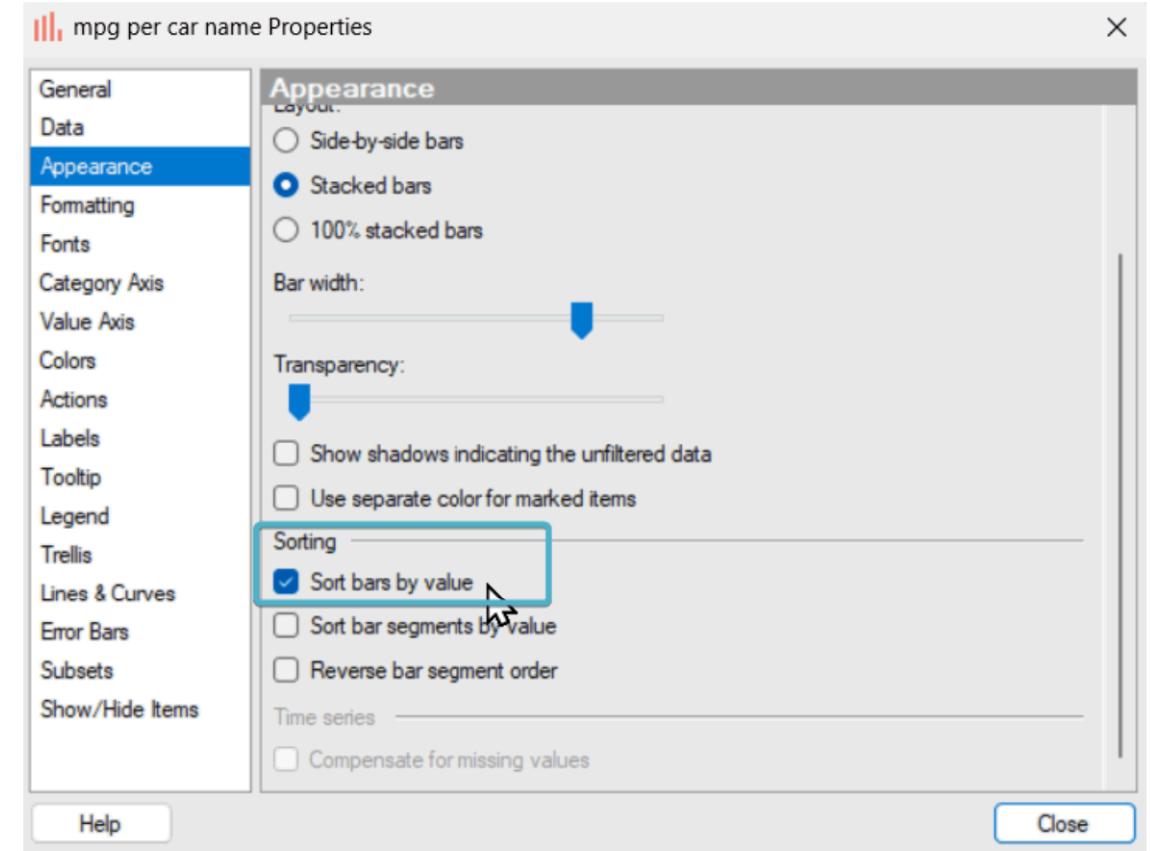
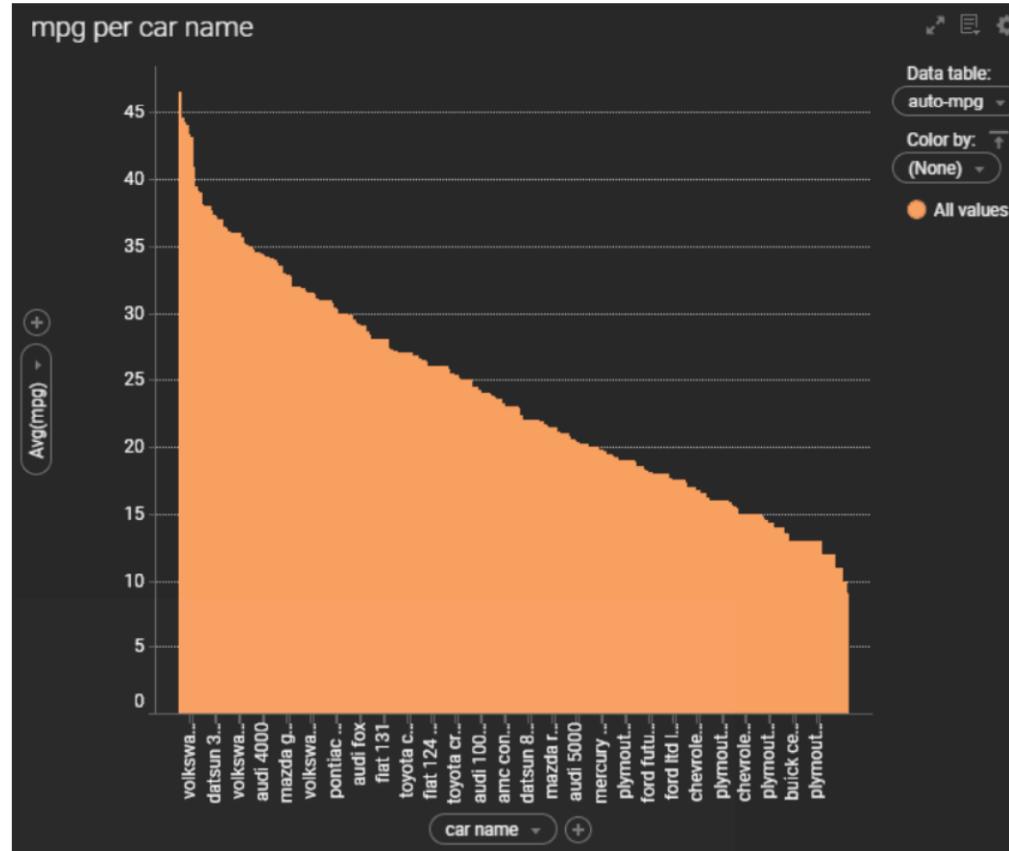
The dialog box is titled 'New data table: auto-mpg'. It contains three options: 'Add as new data table' (selected), 'Add as rows to', and 'Add as columns to'. The 'Add as new data table' option is described as creating a separate data table within the analysis. A mouse cursor is hovering over this option. The 'Add as rows to' option is described for adding data to another table as new rows. The 'Add as columns to' option is described for enhancing an existing data table with more information.

# Add New Datatable

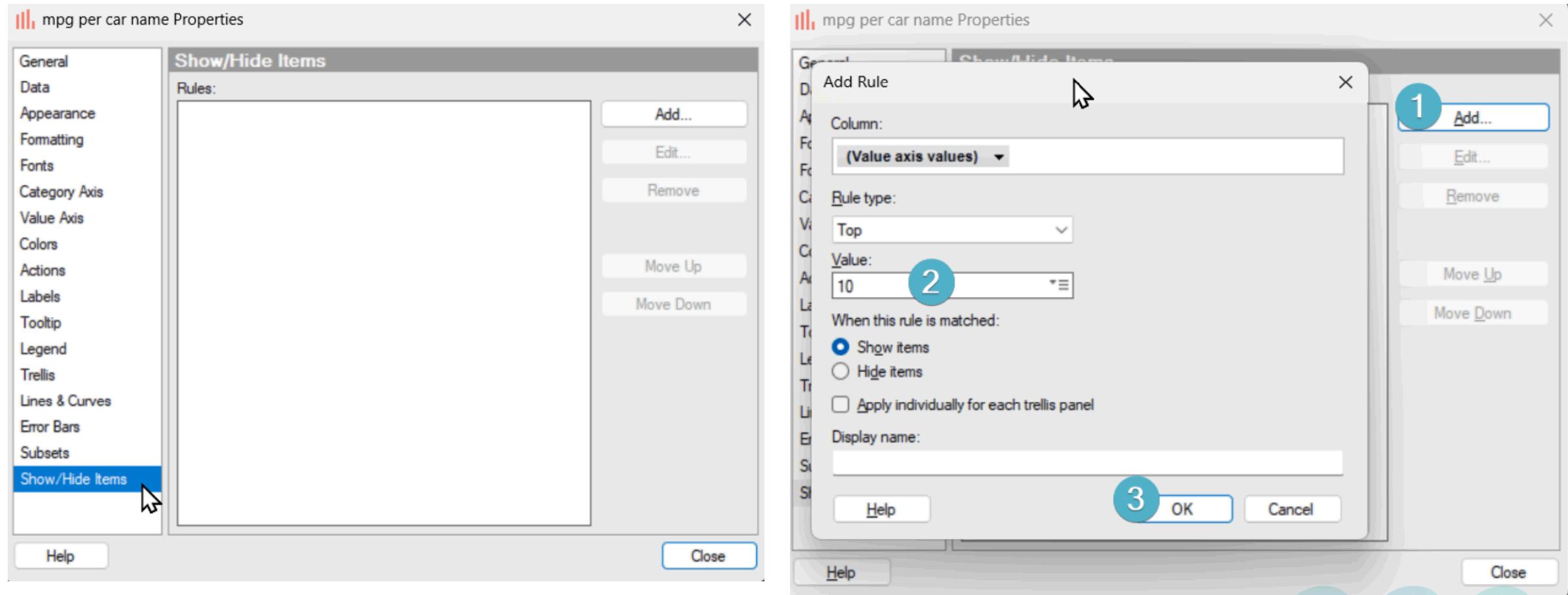
The screenshot shows a user interface for managing datasets. On the left, there is a sidebar with a search bar at the top containing the placeholder "Type to search". Below the search bar is a dropdown menu with the option "Data tables" selected, indicated by a blue icon and the text "Data tables" in blue. Underneath this, there are two items: "Global Superstore - Orders" and "auto-mpg", with "auto-mpg" also highlighted in blue. The main area of the interface shows a preview of the "auto-mpg" dataset. At the top of this preview area, there is a small blue icon followed by navigation arrows and the text "auto-mpg". The preview itself is a grid of dots, representing the data rows and columns.

# Showing/Hiding Items of Data

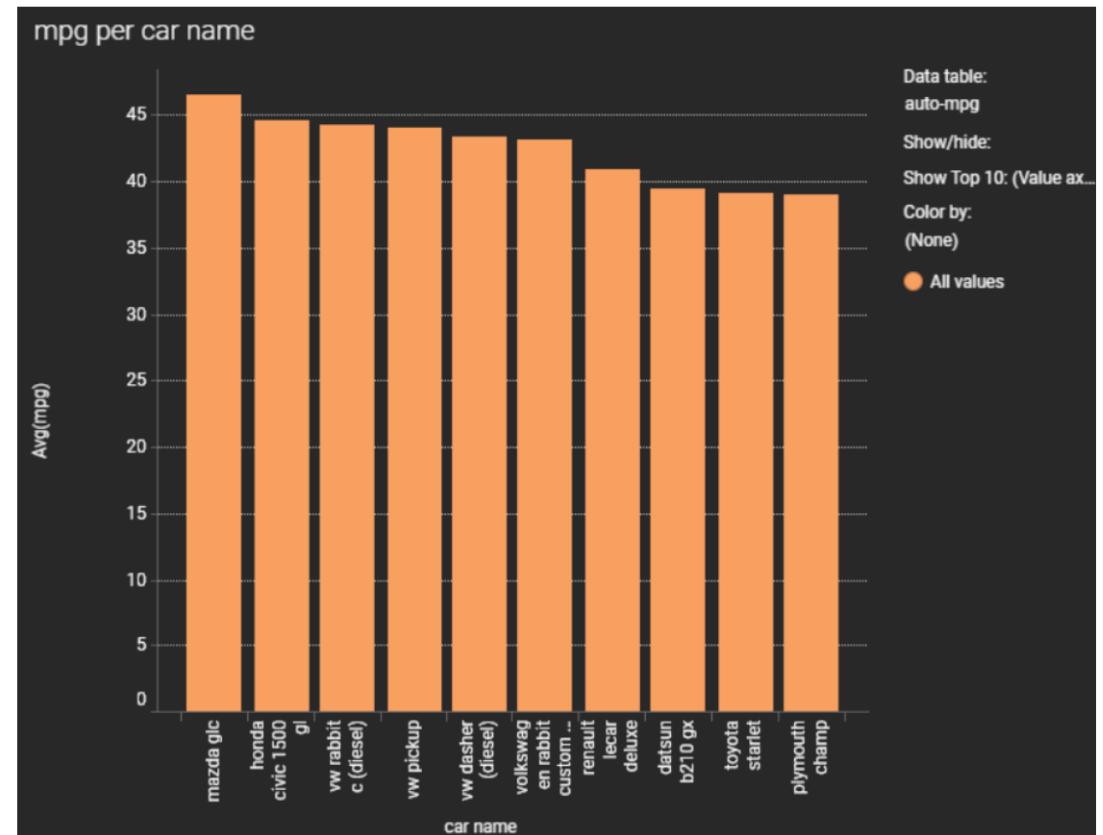
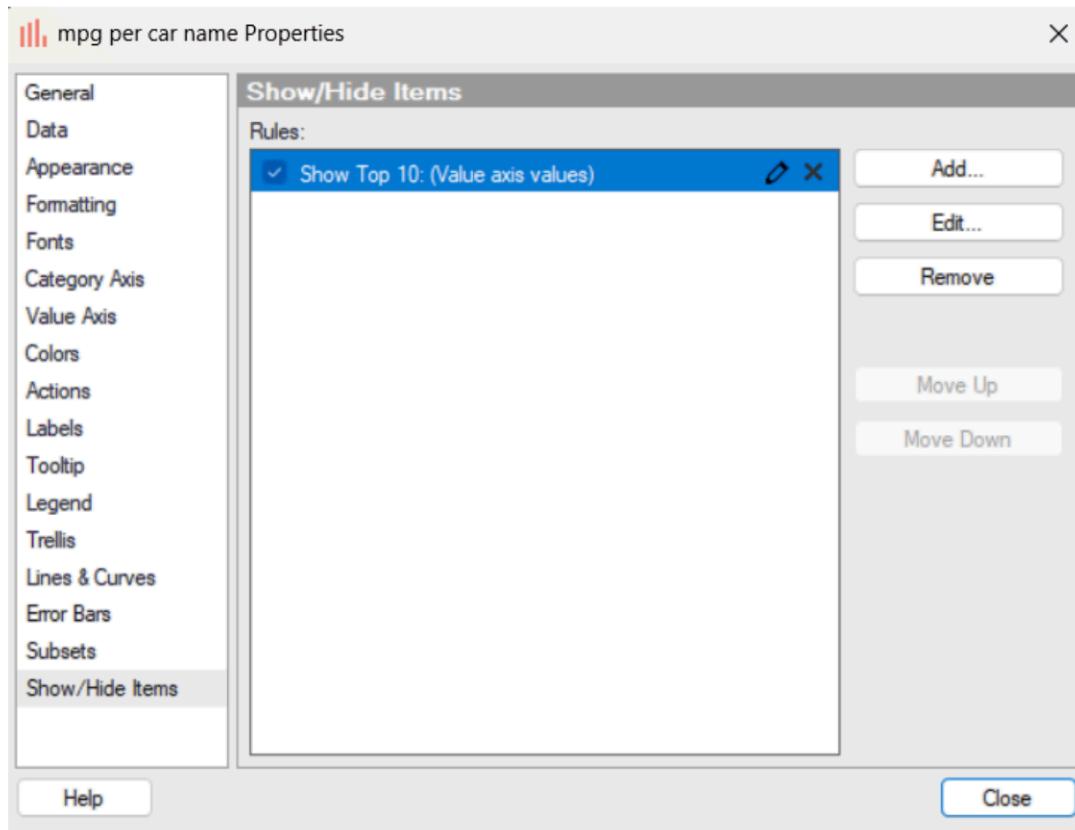
# Showing/Hiding Items of Data



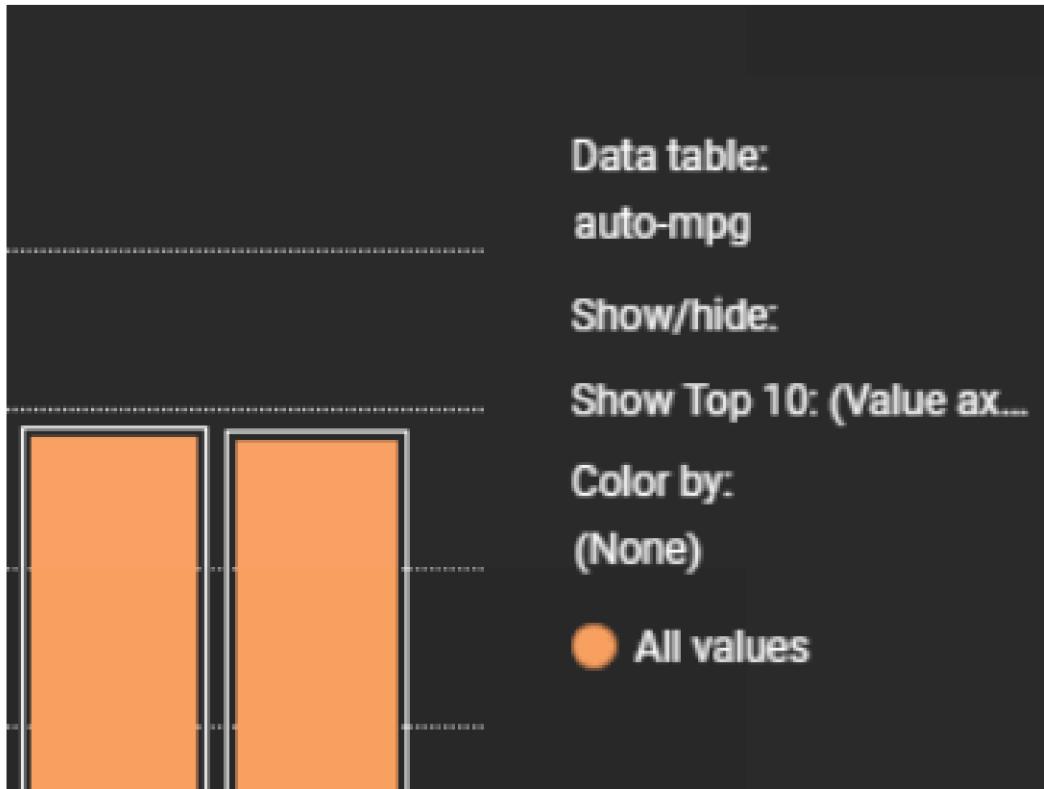
# Showing/Hiding Items of Data



# Showing/Hiding Items of Data

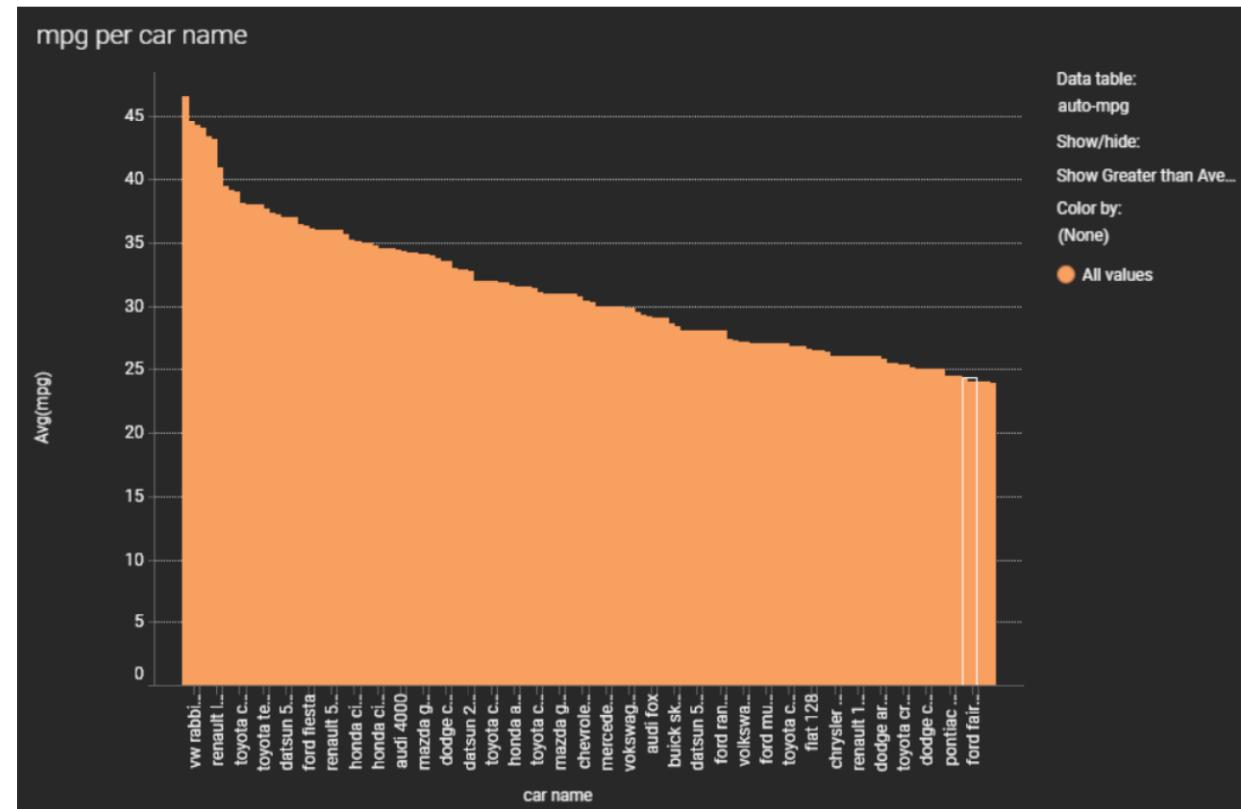
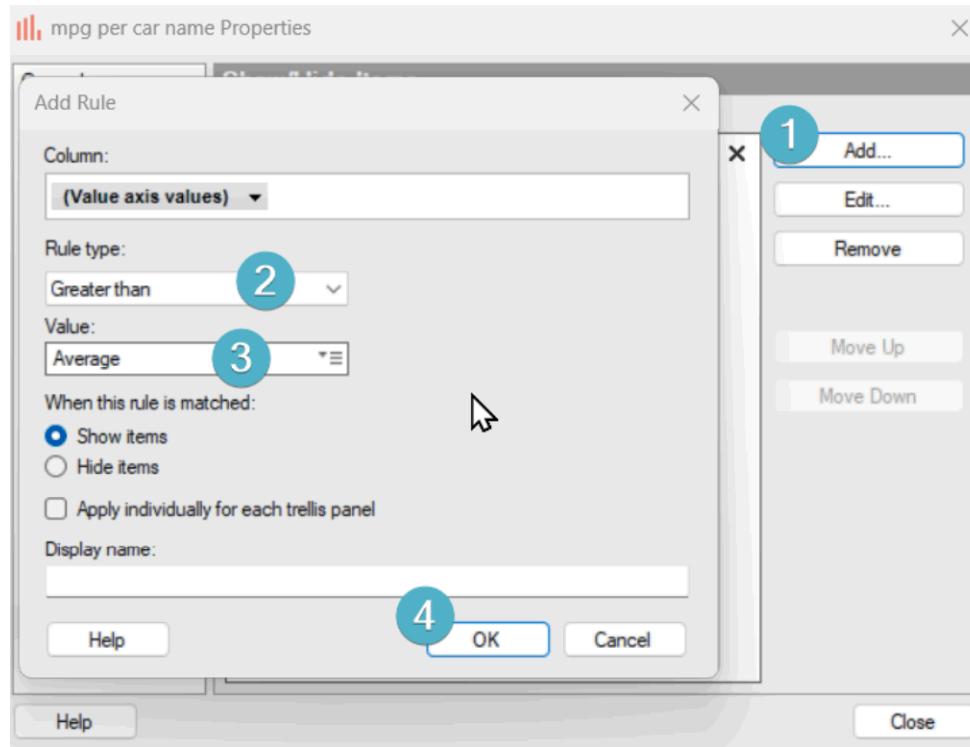


# Showing/Hiding Items of Data

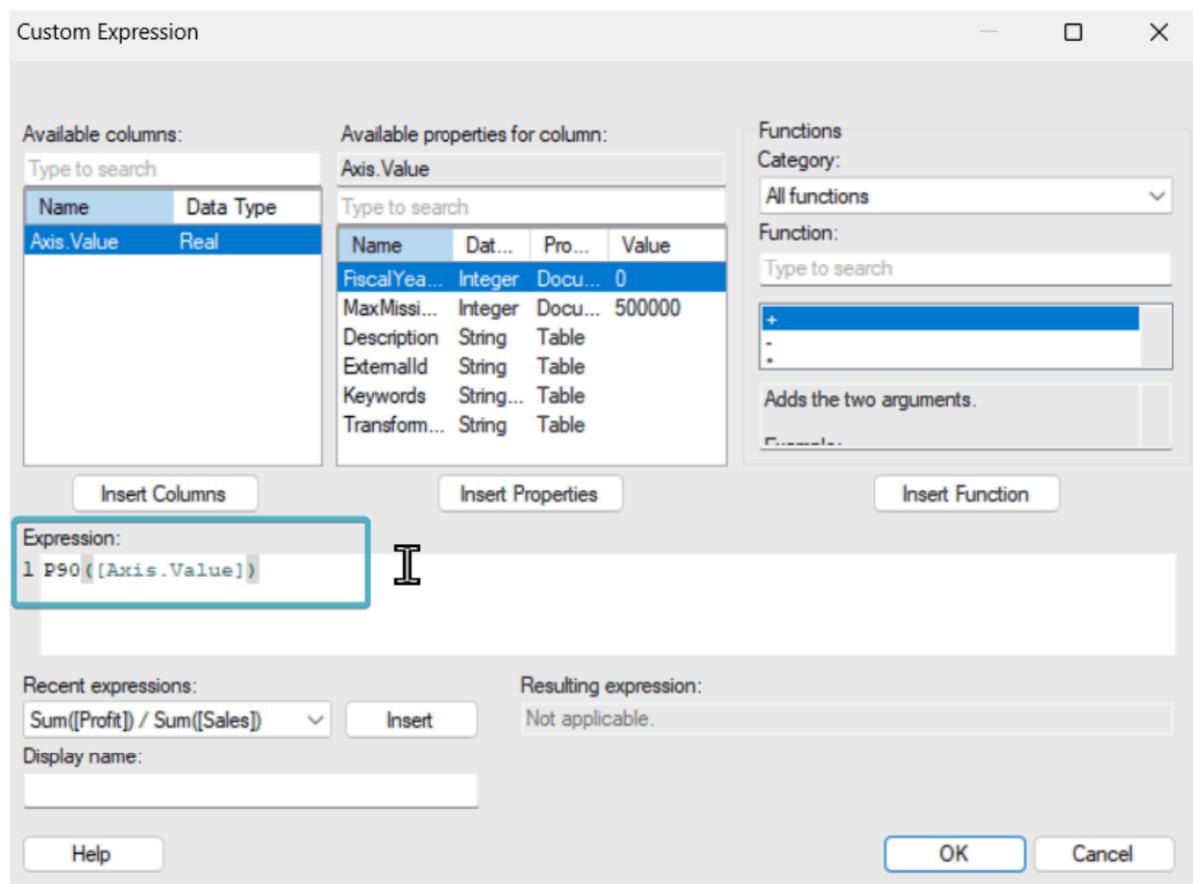
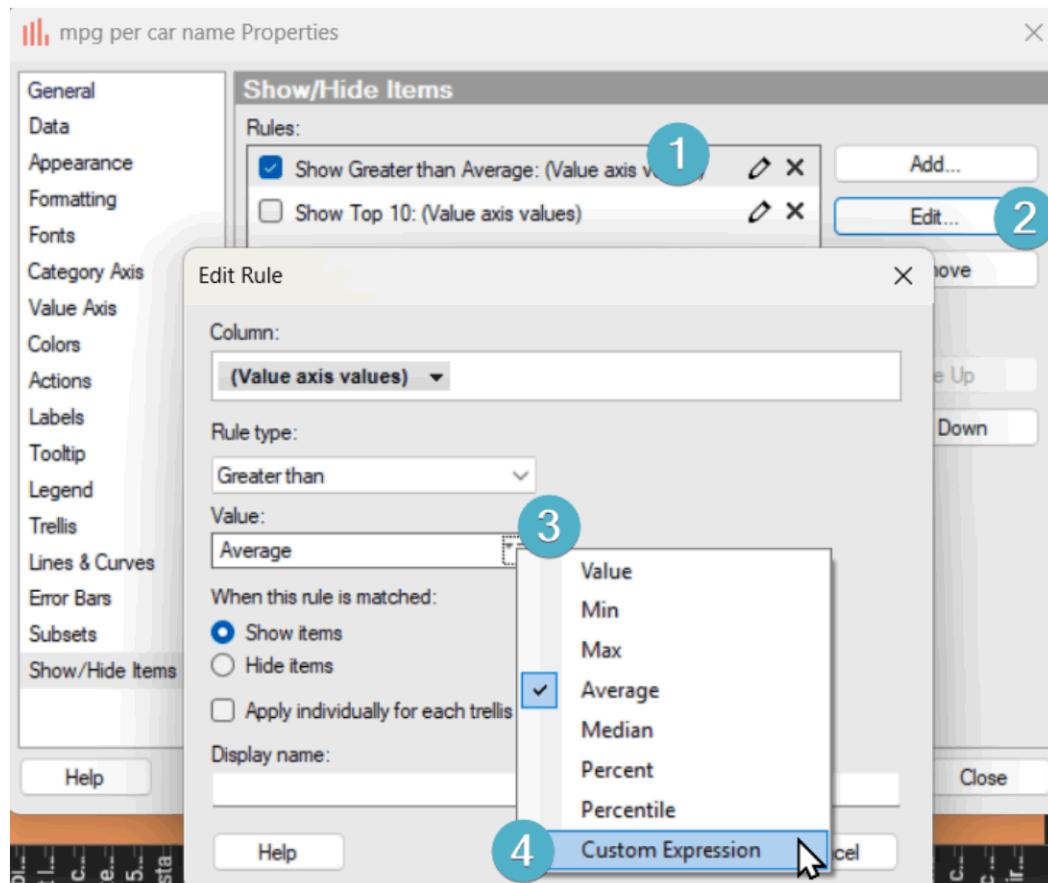


Notice Show/Hide

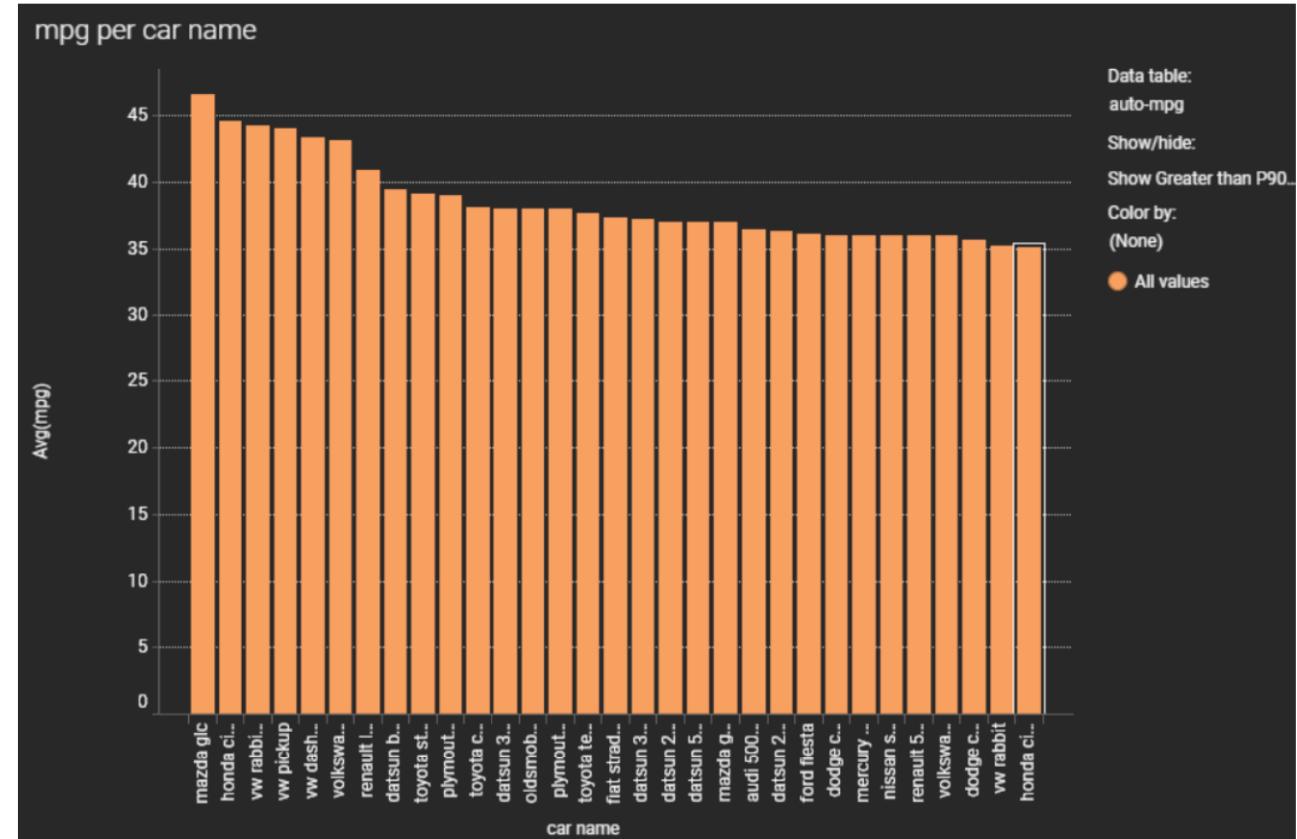
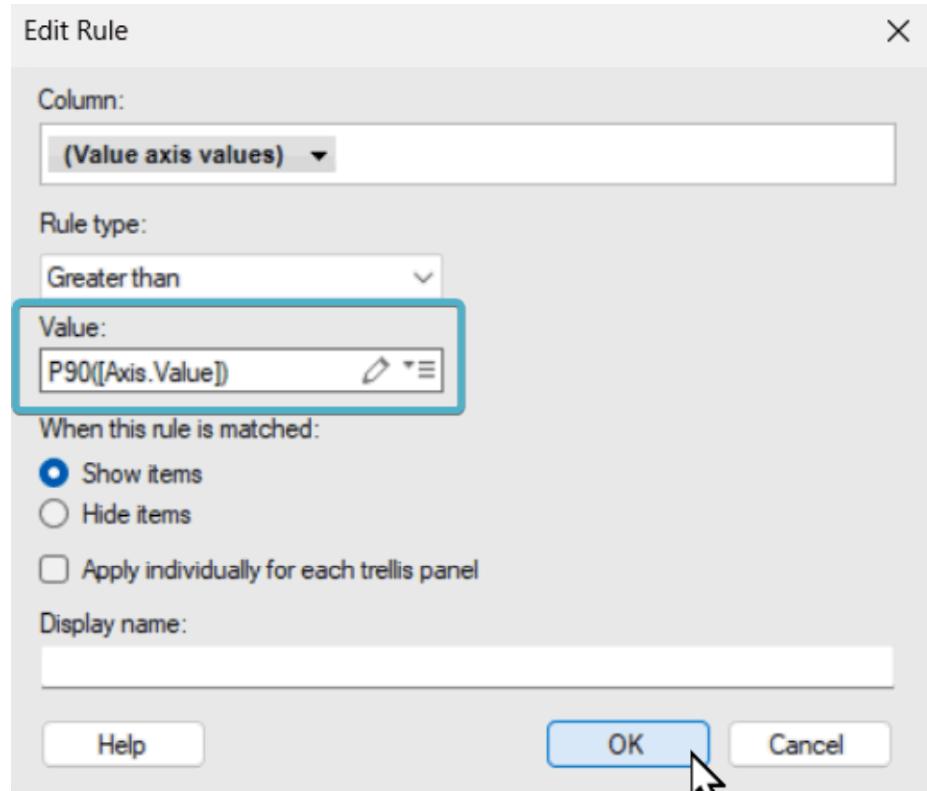
# Showing/Hiding Items of Data



# Custom Expression



# Custom Expression



see the values that are greater than 90% of the rest of the values. So, in effect, the visualization shows the cars with city fuel economy in the top 10%.

# Annotation

# Annotation

## ✓ **Horizontal/Vertical Lines:**

Add reference lines to indicate thresholds, limits, or target values.

## ✓ **Statistical Lines:**

Display statistical measures such as **mean, median, percentiles, or standard deviation** for better context.

## ✓ **Curve Fits:**

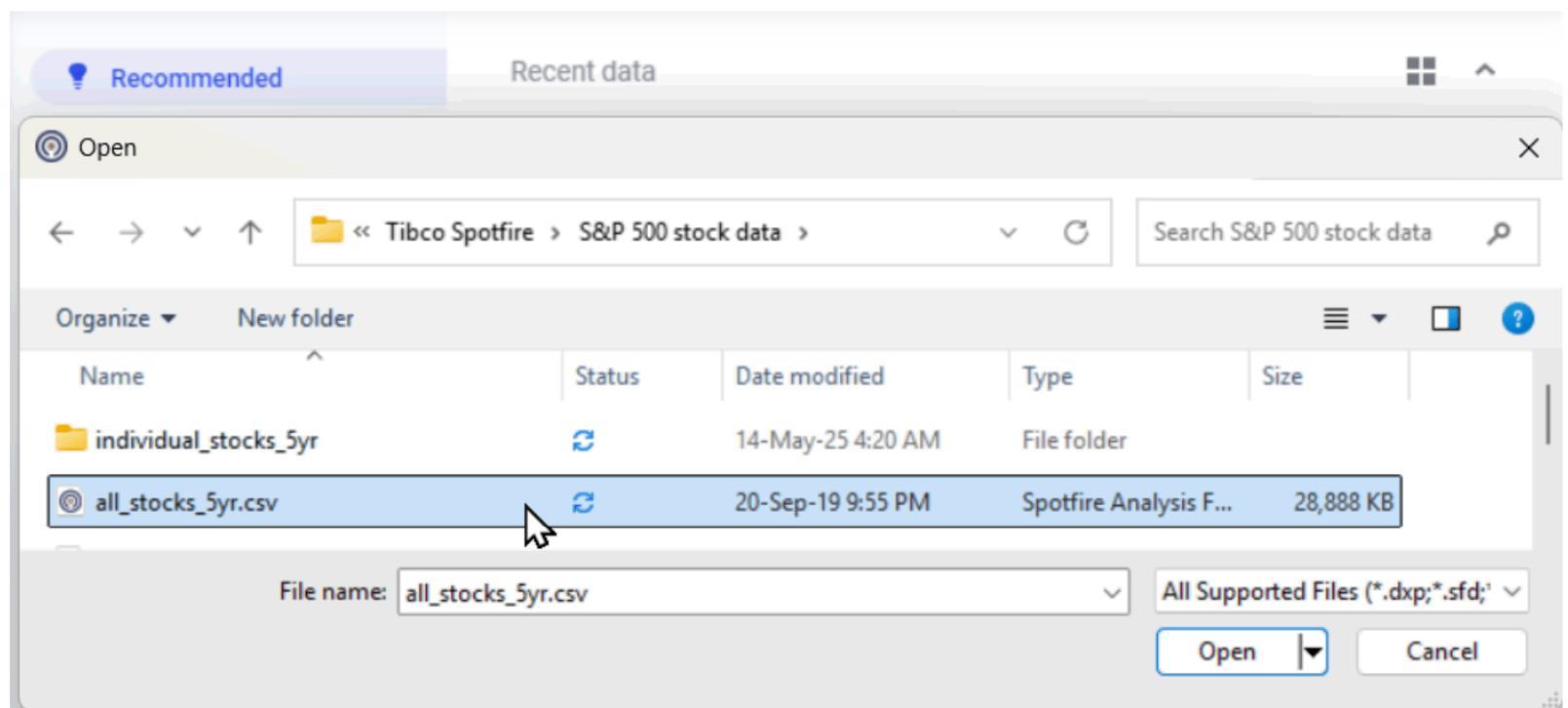
Apply **trend lines** (e.g., linear, polynomial, exponential) to highlight overall data patterns and correlations.

## ✓ **Why Use Lines?**

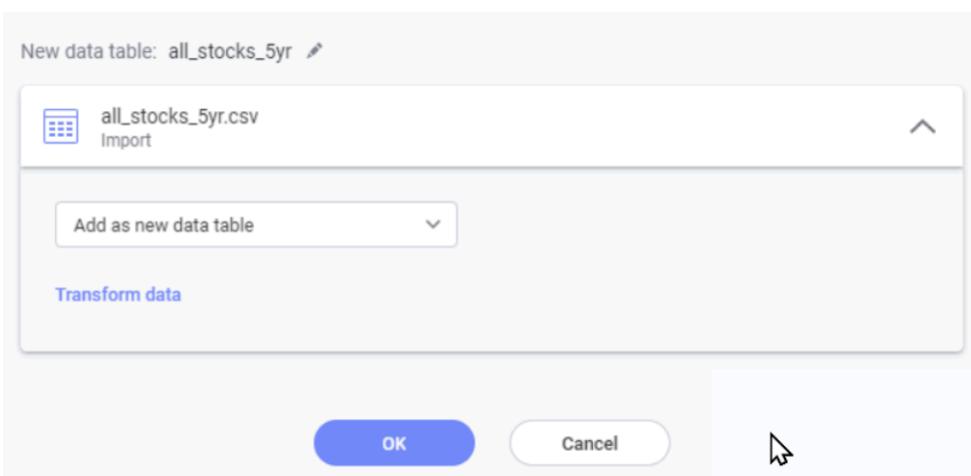
Helps users **interpret key insights faster, spot anomalies**, and understand **data distribution or trends** visually.

# Annotation

Add all\_stocks\_5yr.csv



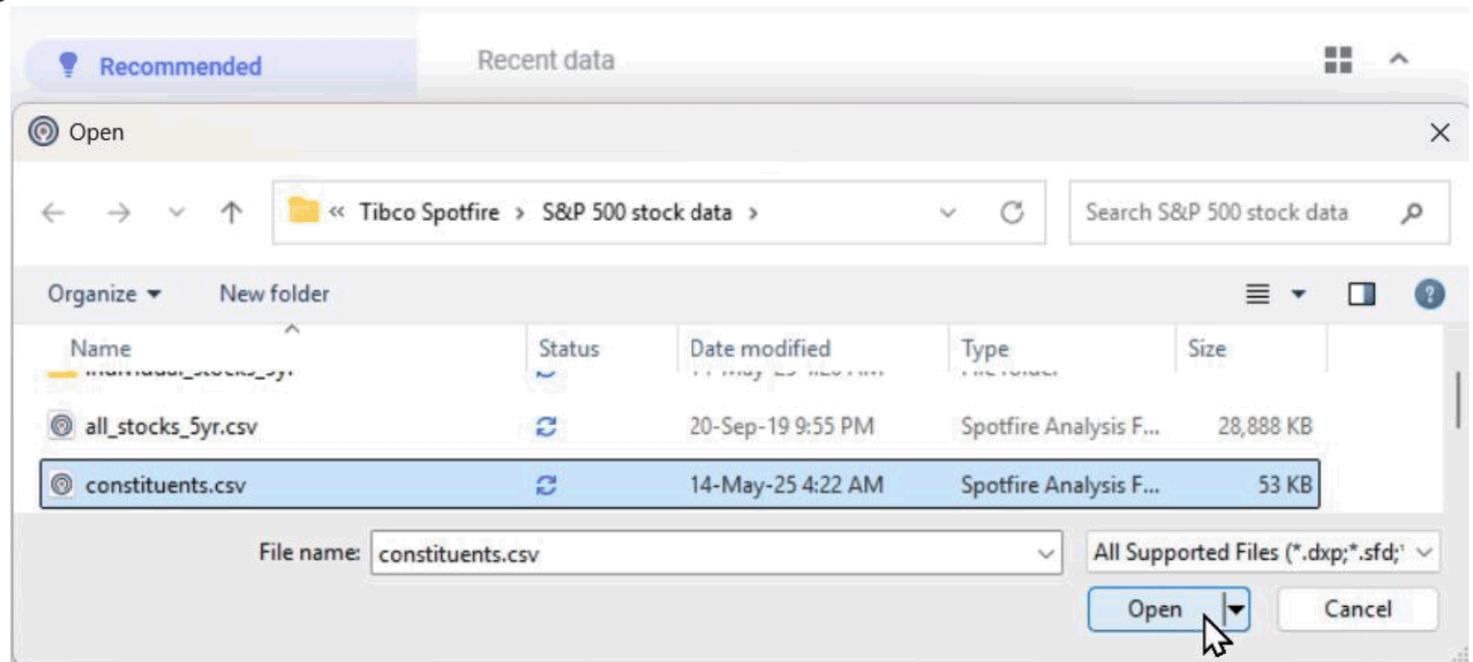
# Annotation



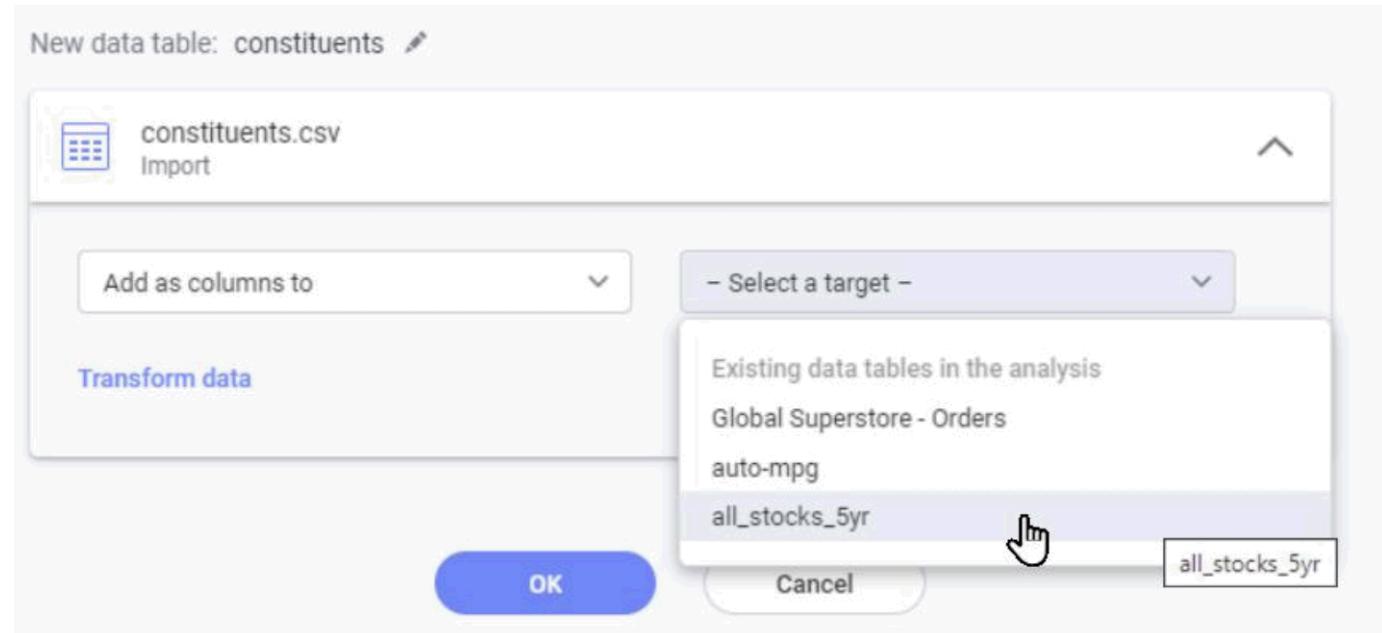
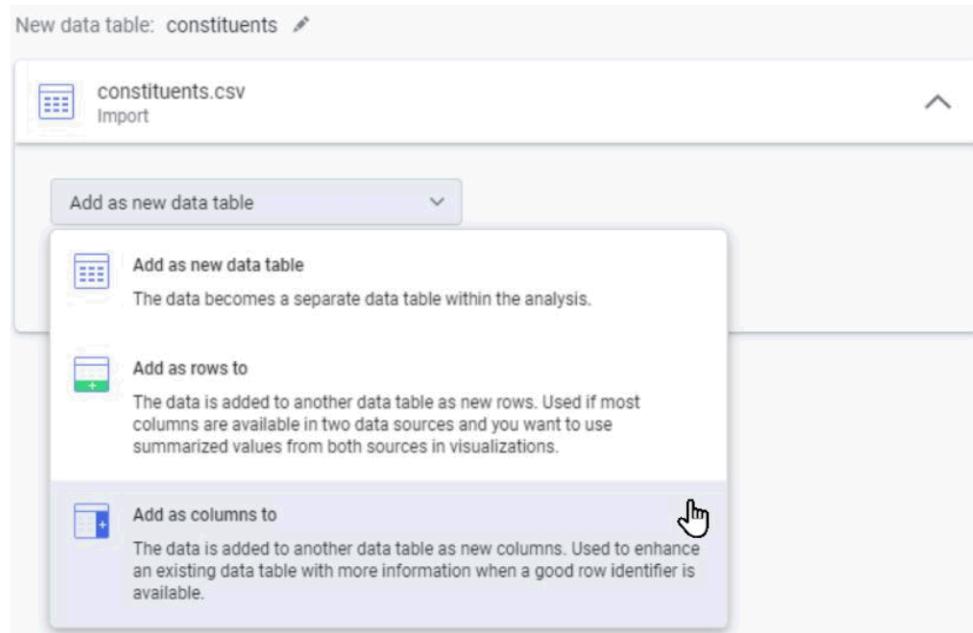
A screenshot of a data visualization interface. On the left, there is a search bar with "Type to search" and a "Data tables" section with a dropdown menu open, showing "Global Superstore - Orders", "auto-mpg", and "all\_stocks\_5yr" (which is highlighted). On the right, there is a chart editor area with a grid, a central point, and a blue bracket-like annotation. At the top right of the interface, there are navigation icons and the text "all\_stocks\_5yr".

# Annotation

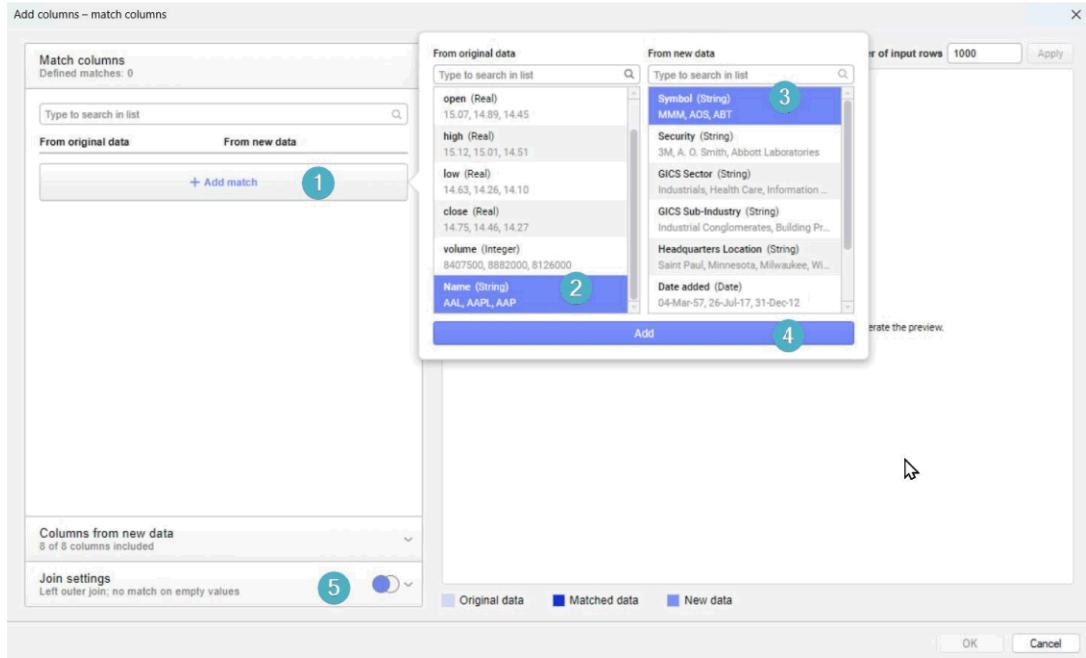
Add constituents.csv as Columns



# Annotation



# Annotation



Add columns – match columns

Match columns  
Defined matches: 1

Type to search in list

From original data      From new data

Name (String)      Symbol (String)

AAL, AAPL, AAP      MMM, AOS, ABT

+ Add match

Preview of result (sample rows)

low	close	volume	Name	Security	GICS Sector	GICS Sub-In...
Real	Real	Integer	String	String	String	String
14.63	14.75	8407500	AAL			
14.26	14.46	8882000	AAL			
14.10	14.27	8126000	AAL			
14.25	14.66	10259500	AAL			
13.16	13.99	31879900	AAL			
13.93	14.50	15628000	AAL			
14.08	14.26	11354400	AAL			
13.15	13.33	14725200	AAL			
12.90	13.37	11922100	AAL			
13.21	13.57	6071400	AAL			
13.00	13.02	7186400	AAL			
12.70	13.26	9419000	AAL			
13.18	13.41	7390500	AAL			
13.39	13.43	6143600	AAL			
13.32	13.61	7376800	AAL			
13.47	13.90	8174800	AAL			
13.71	14.05	7676100	AAL			
14.25	14.57	13243200	AAL			
14.50	14.82	9125300	AAL			
14.84	14.92	10593700	AAL			
14.71	15.13	6961800	AAL			
14.95	15.50	8999100	AAL			
15.48	15.91	11380000	AAL			

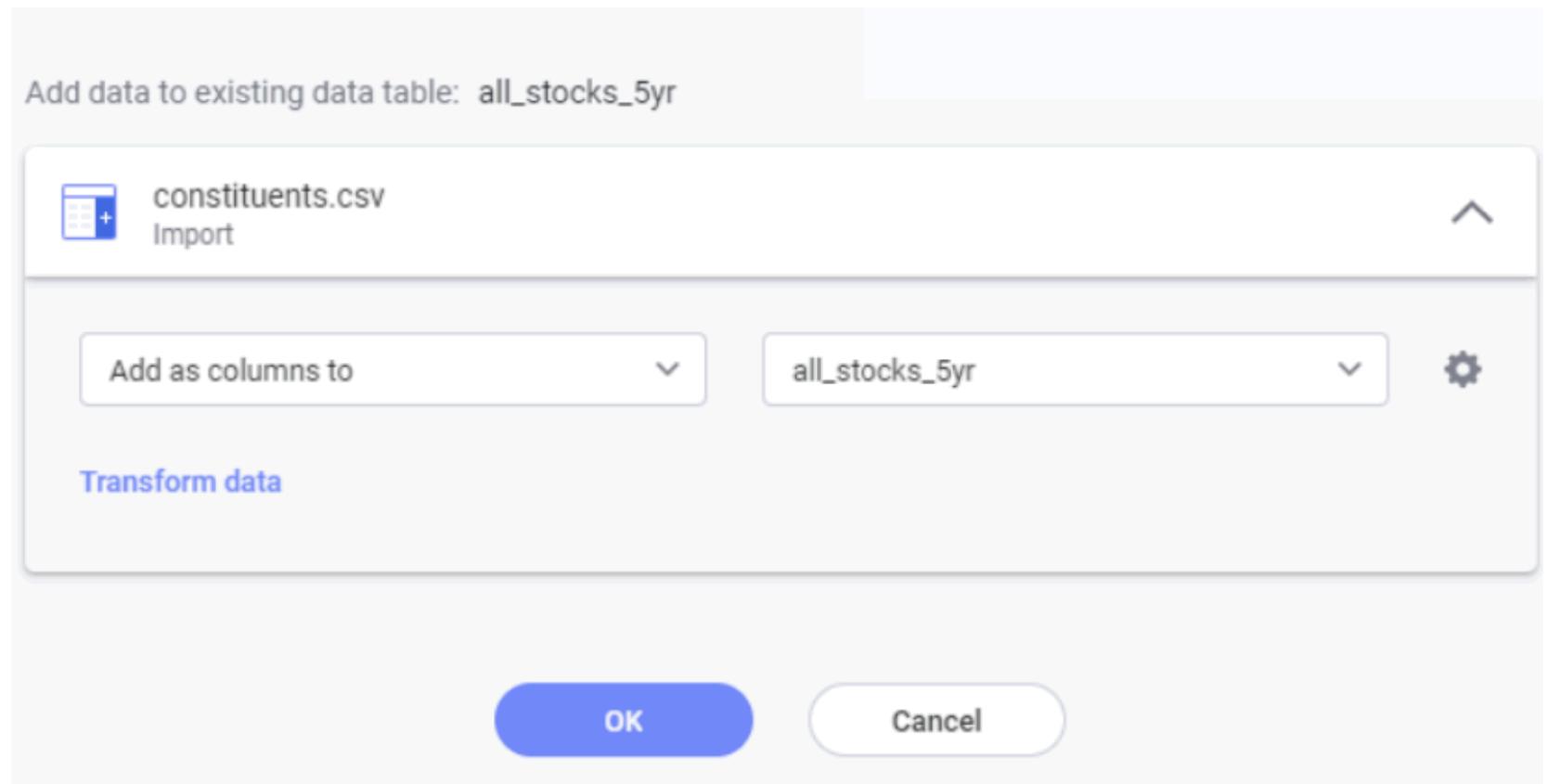
Number of input rows: 1000      Apply

Original data      Matched data      New data

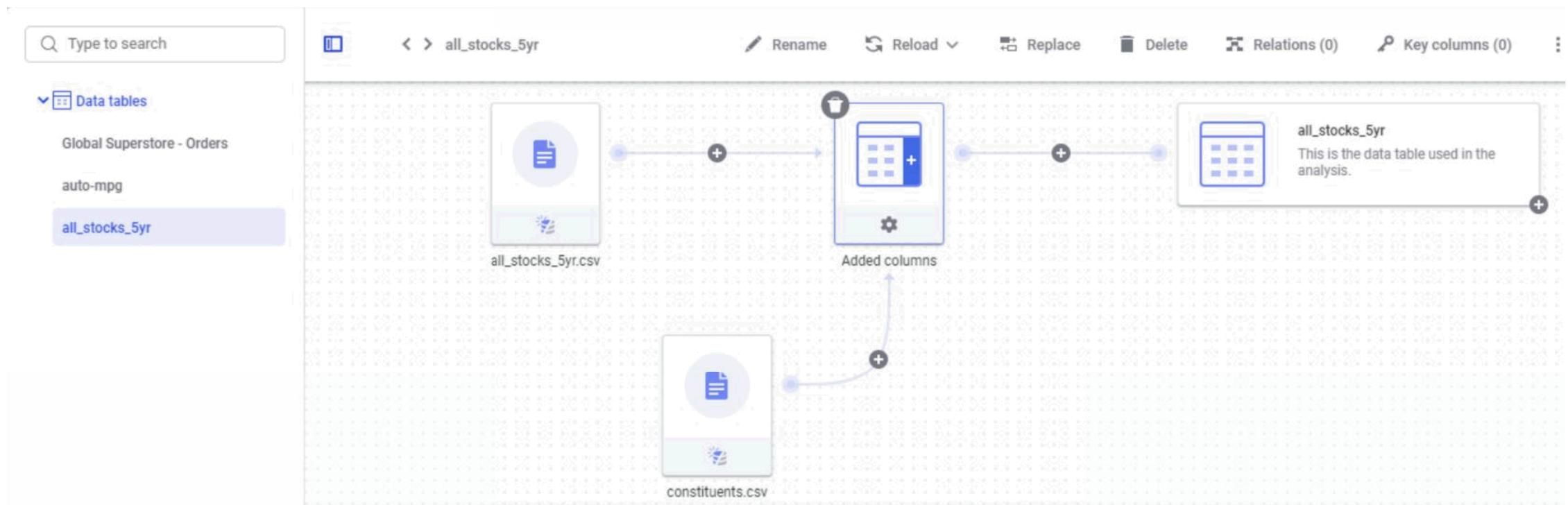
OK      Cancel

# Annotation

Click OK

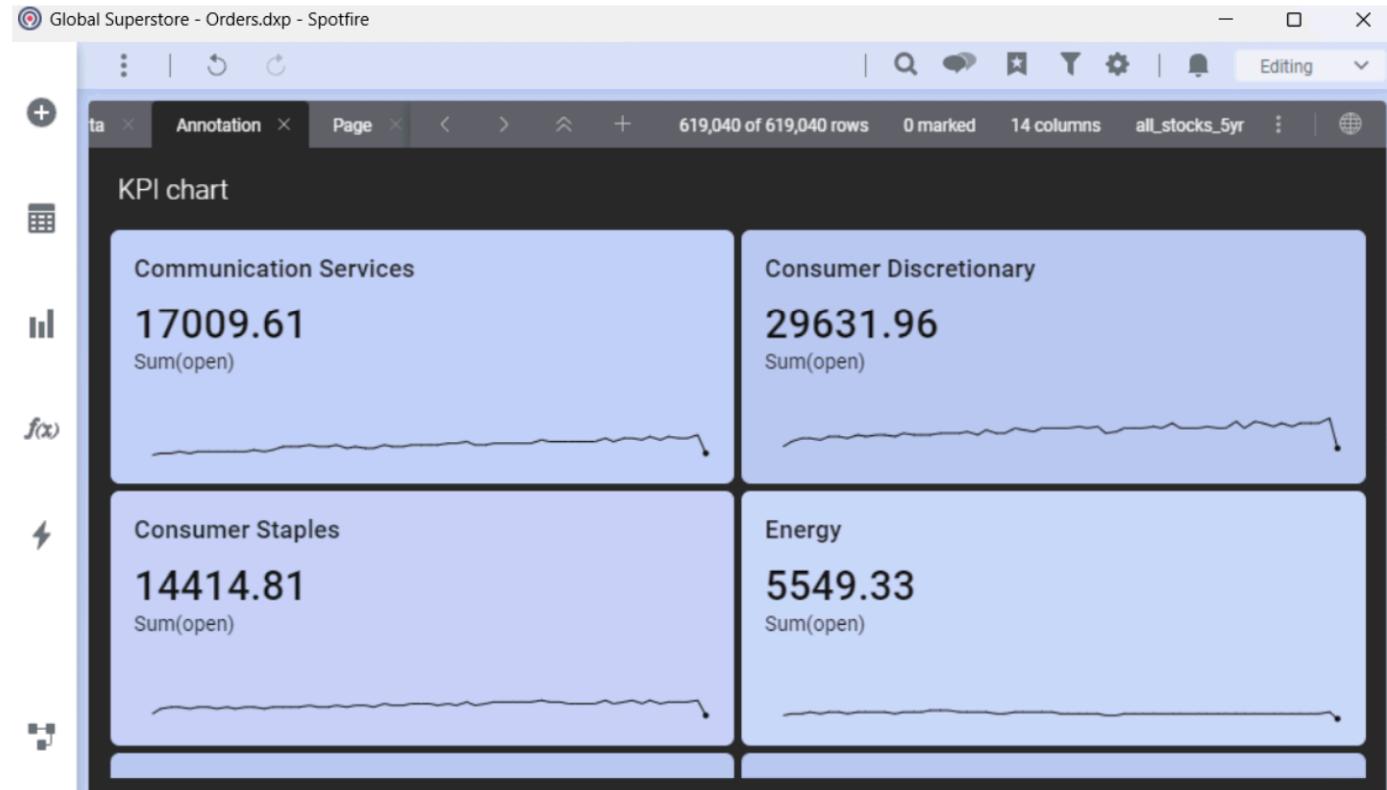
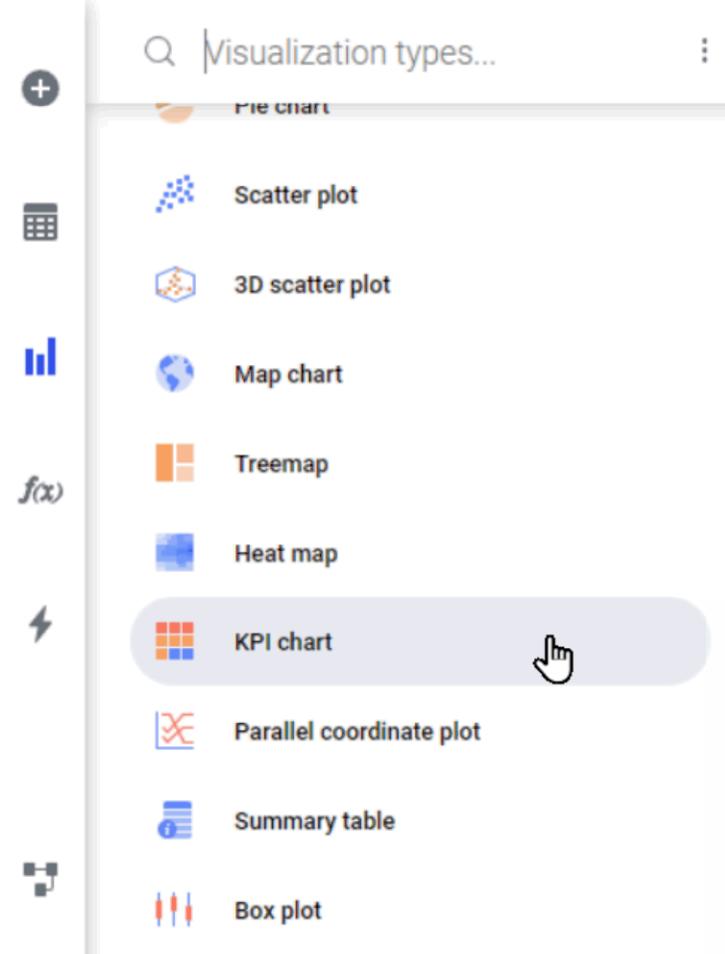


# Annotation

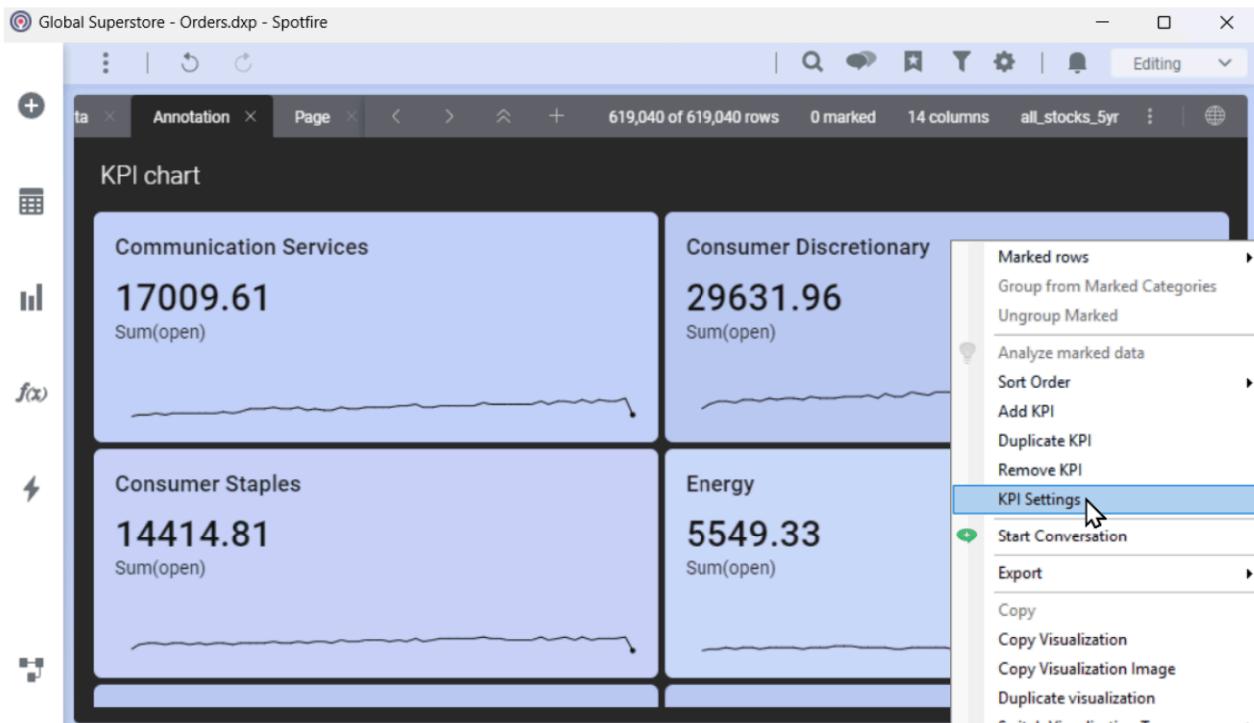


# Annotation

Global Superstore - Orders.dxp - Spotfire

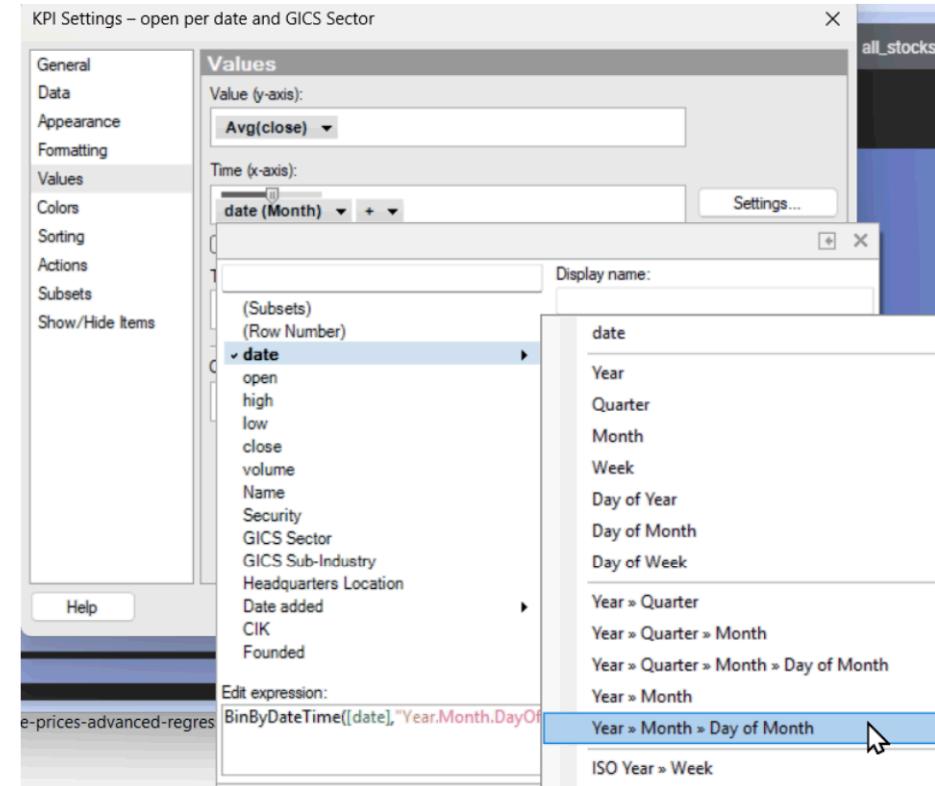
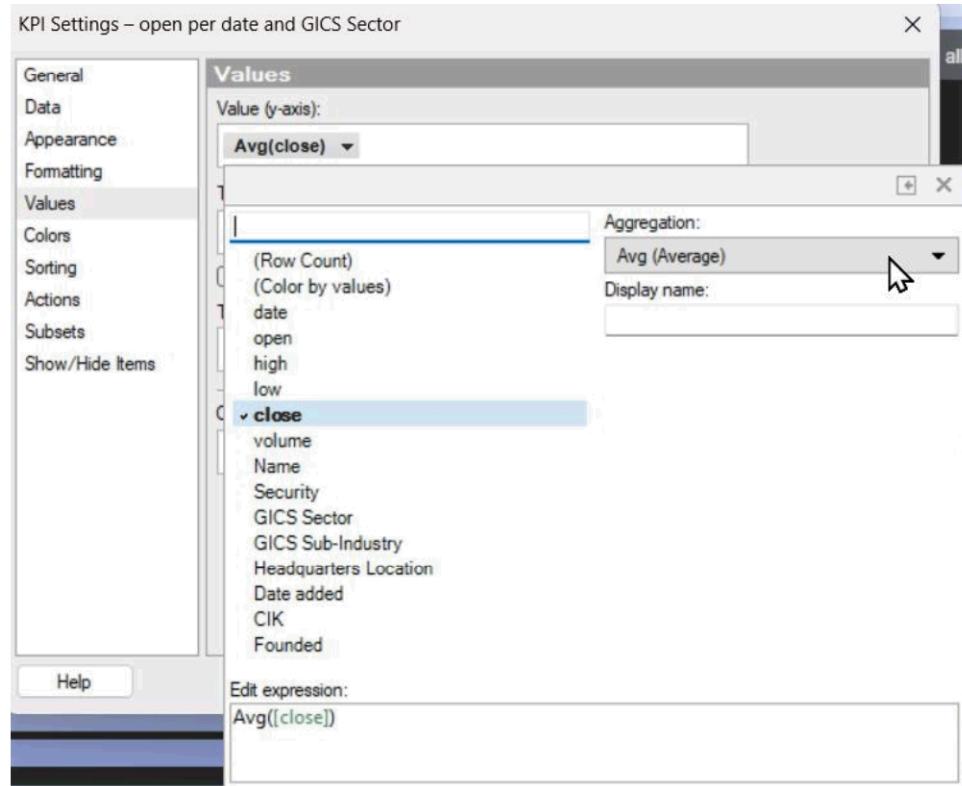


# Annotation

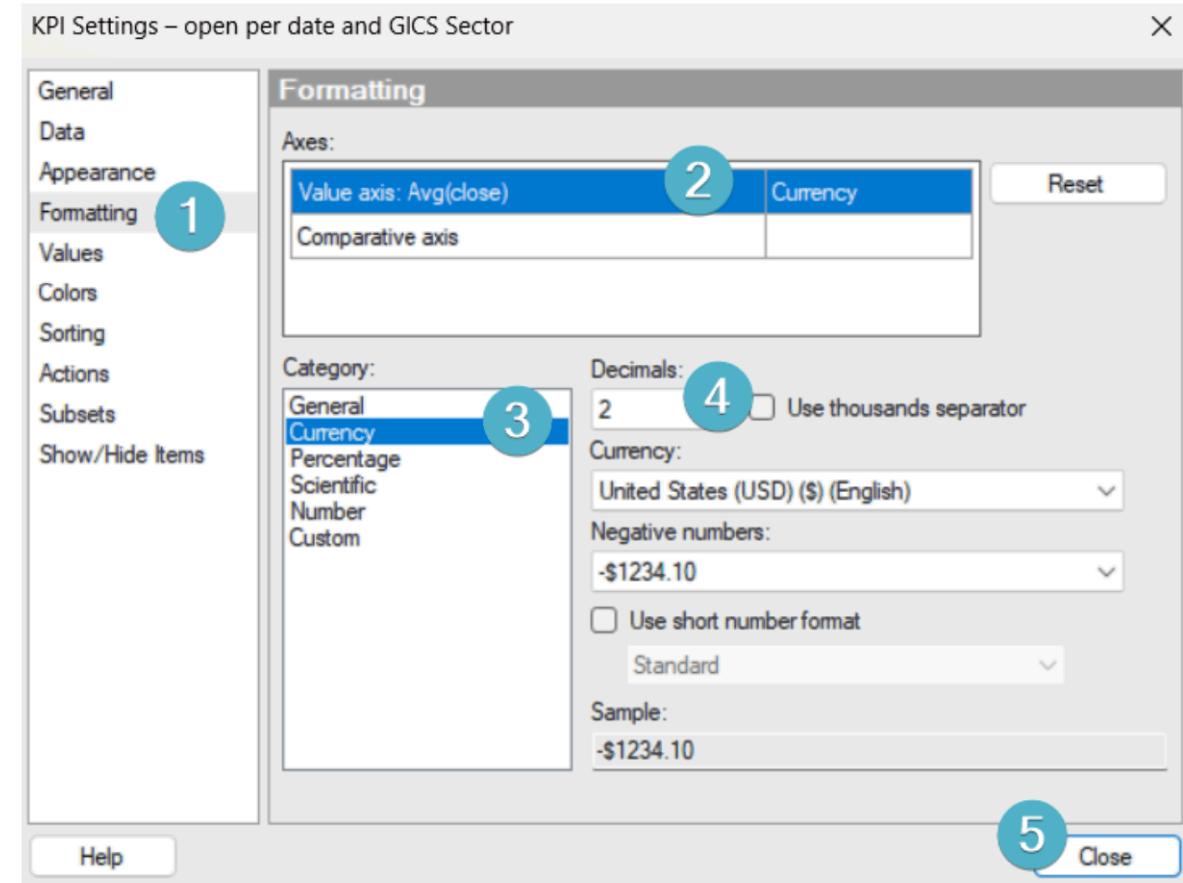
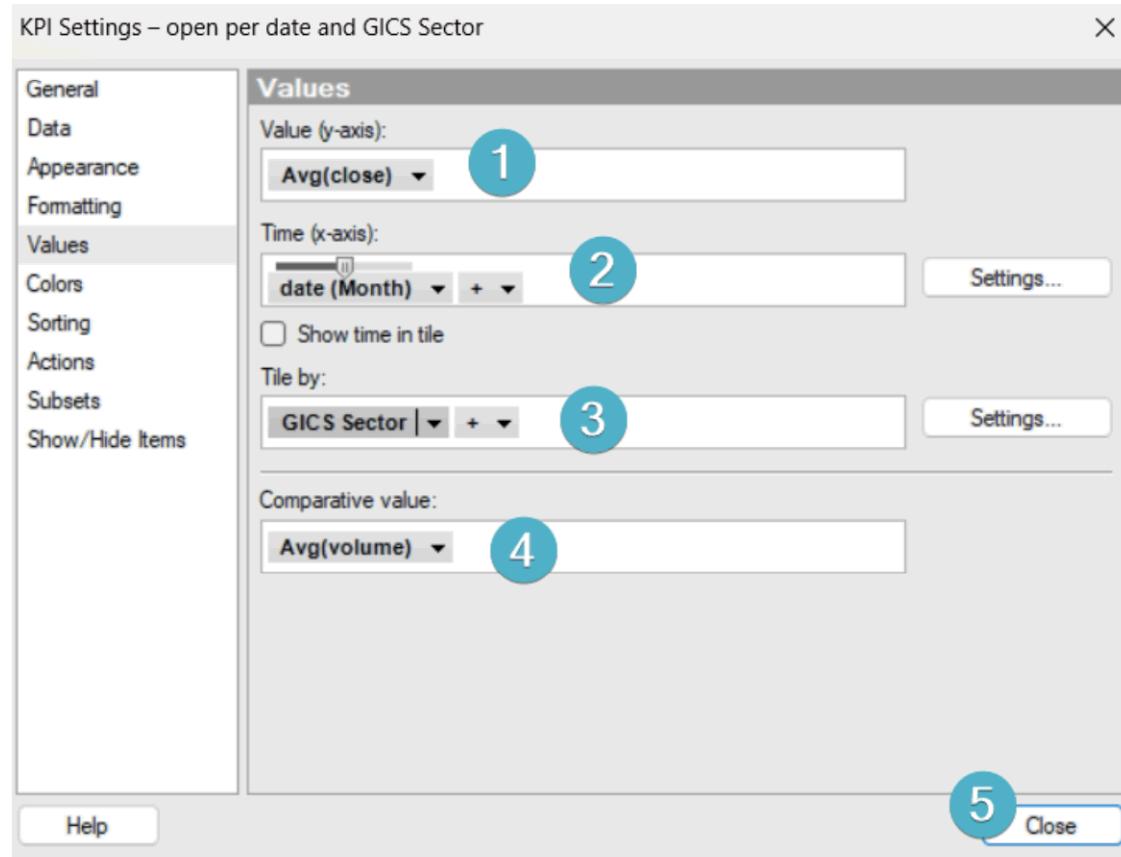


Right click

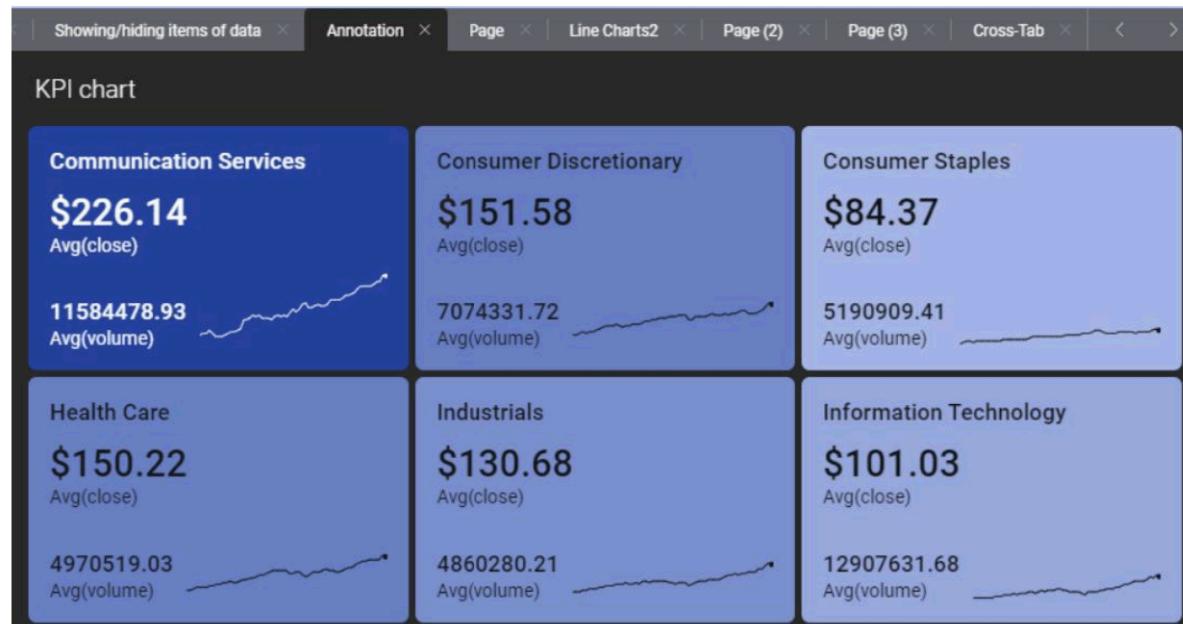
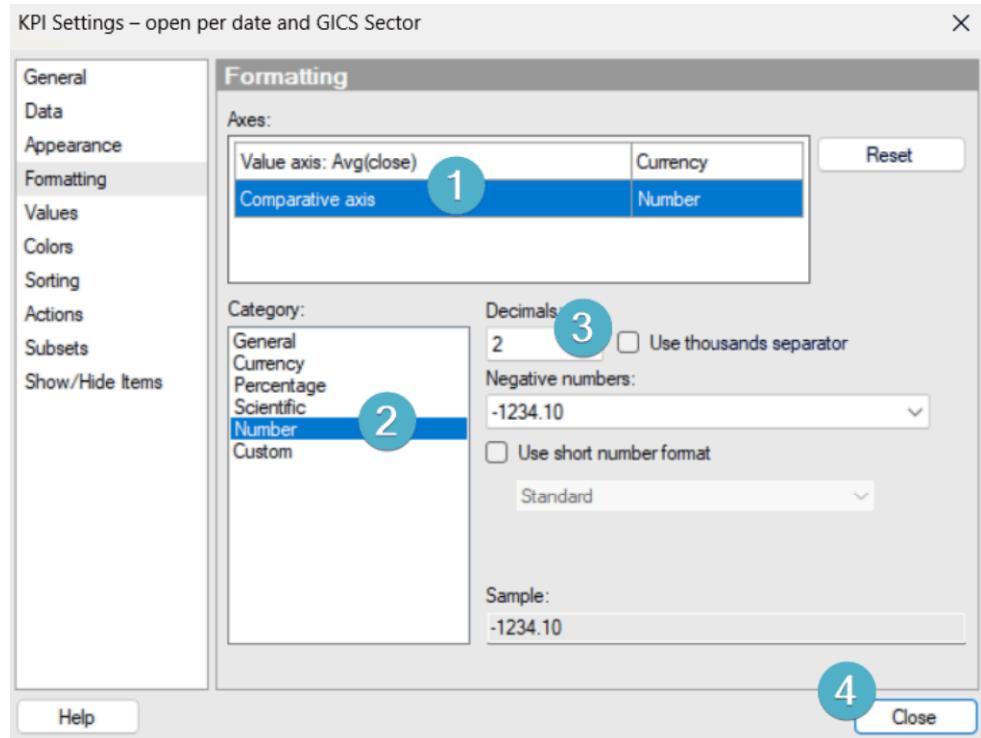
# Annotation



# Annotation

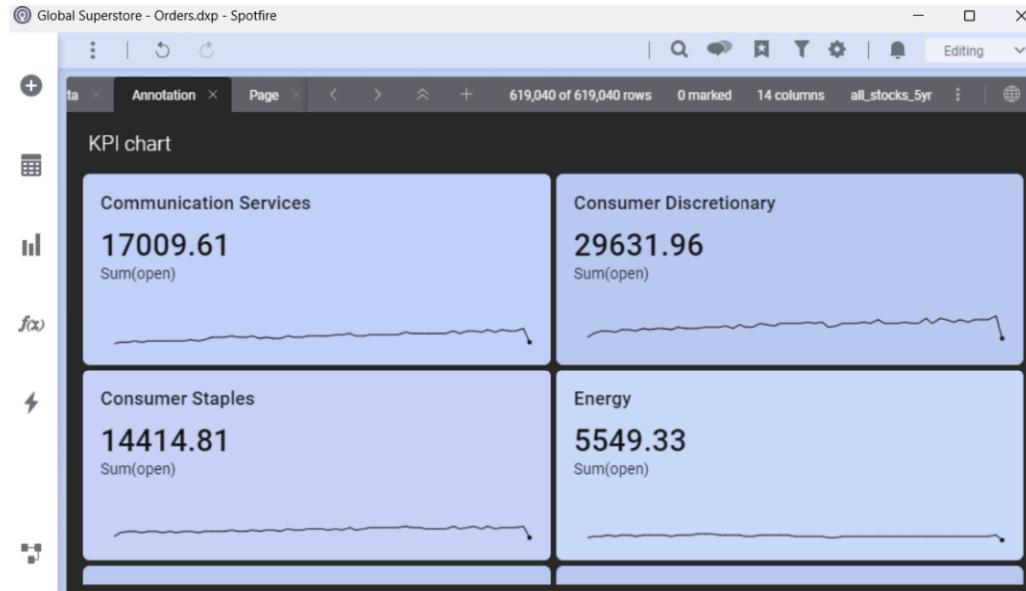


# Annotation

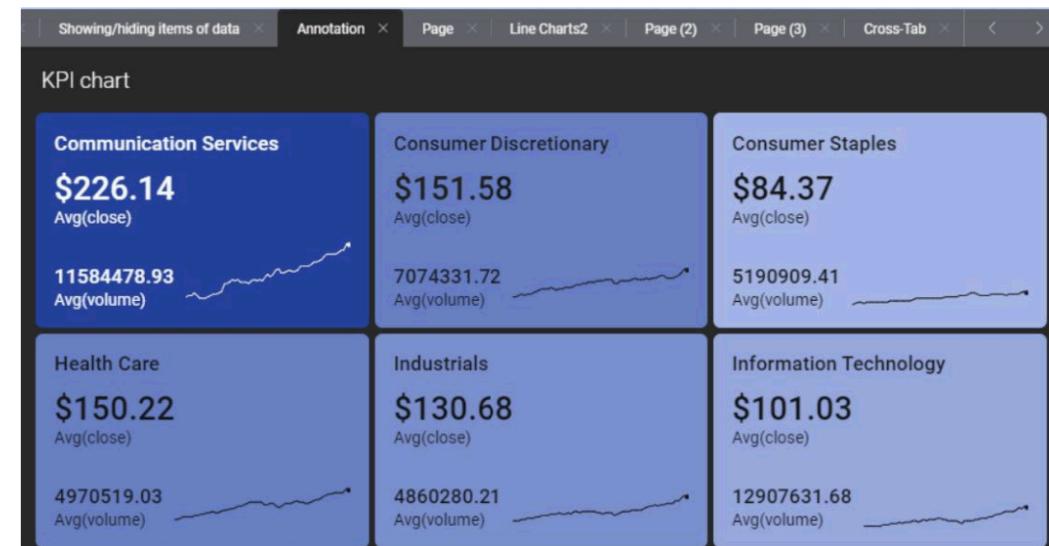


# Annotation

BEFORE

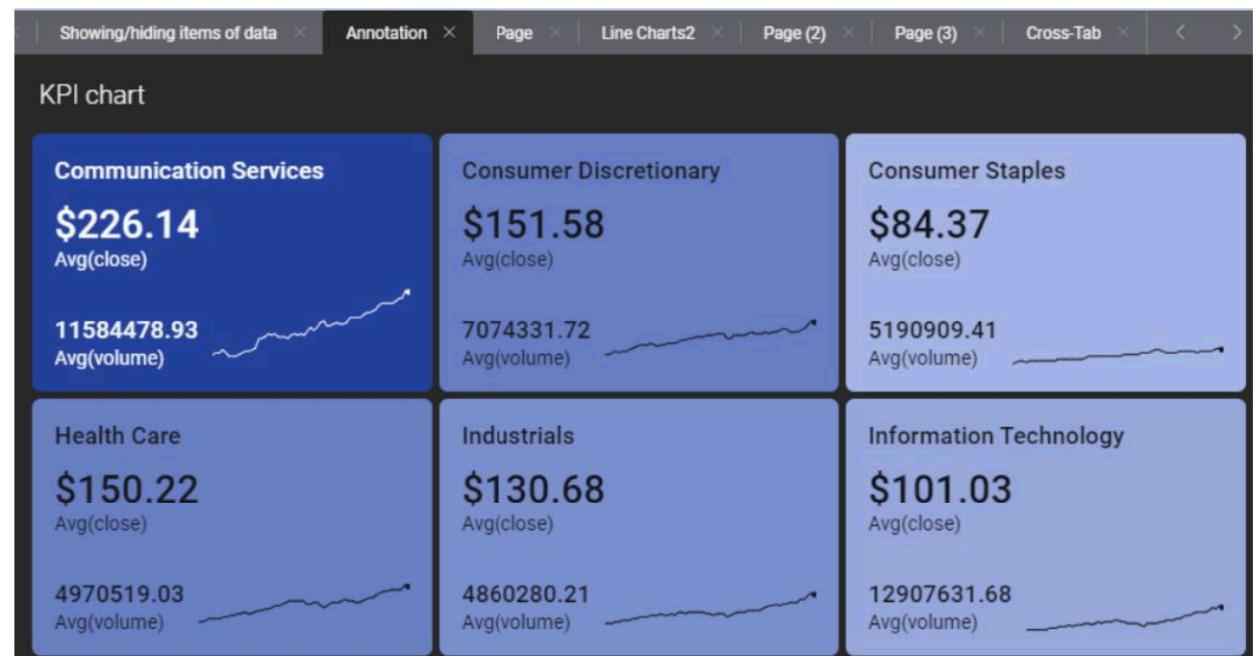


AFTER



# Annotation

- ✓ Tiles = Categories (e.g., industry sectors)
- ✓ Sparklines show time trends in a compact space
  - Same Y-axis scale = direct comparison
  - Individual scales = clearer trends, no comparison
- ✓ Each tile displays:
  - Value (top-left): Latest data point (e.g., avg. closing price)
  - Comparative Value (bottom-left): Reference metric (e.g., avg. volume)
- ✓ Note: Empty tiles = missing or unmatched data
- ✓ Use KPI charts to summarize trends clearly across many groups



# Coloring & Sorting

# Coloring & Sorting

The screenshot shows a KPI chart interface with three main data points:

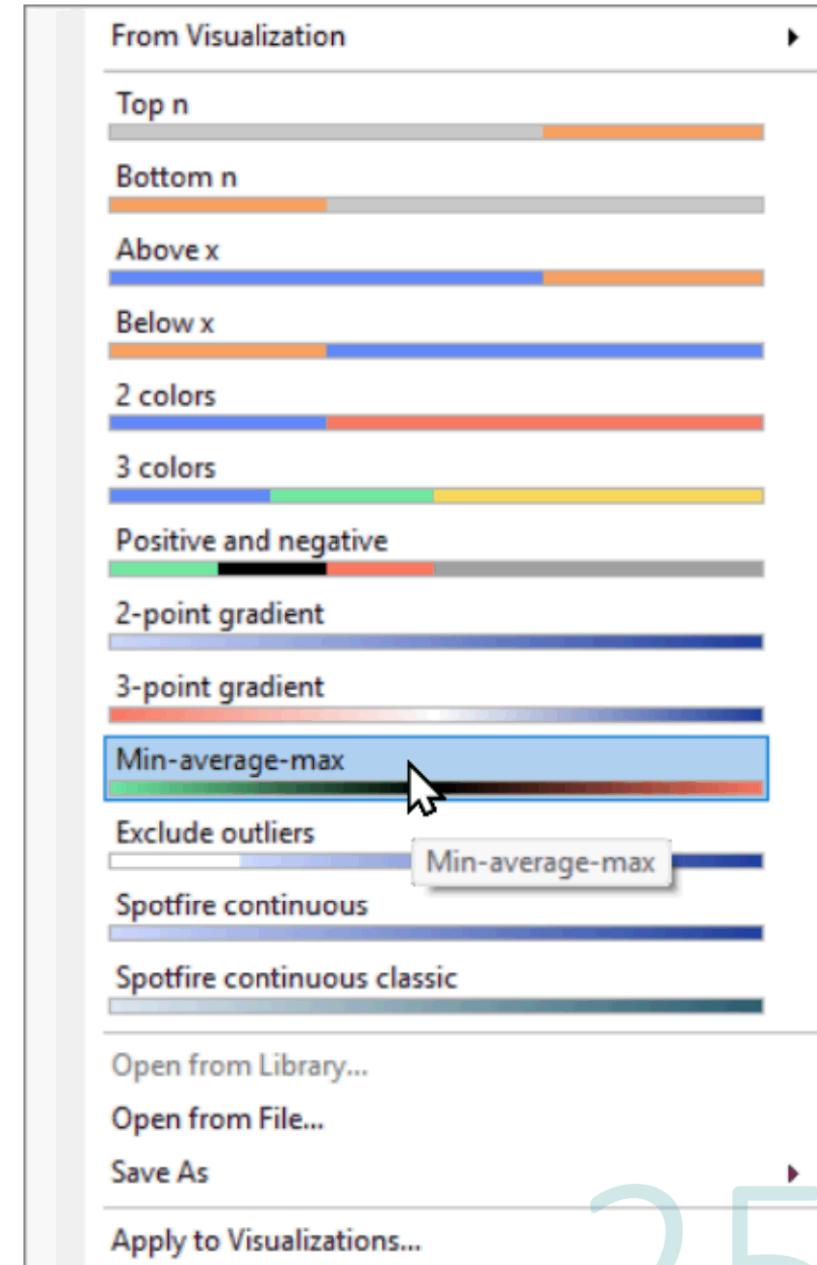
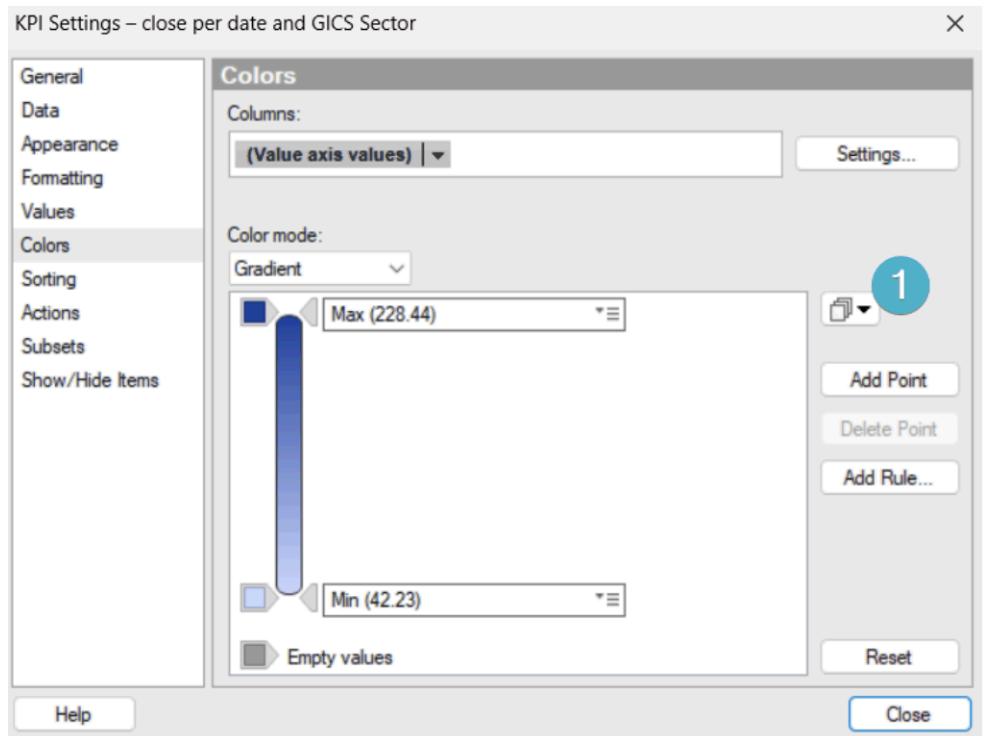
- Communication Services**:
  - \$226.14 (Avg(close))
  - 11584478.93 (Avg(volume))
- Health Care**:
  - \$150.22 (Avg(close))

A context menu is open over the first data point, listing the following options:

- Marked rows
- Group from Marked Categories
- Ungroup Marked
- Analyze marked data
- Sort Order
- Add KPI
- Duplicate KPI
- Remove KPI
- KPI Settings** (highlighted with a blue selection bar)
- Start Conversation

Choose KPI Settings

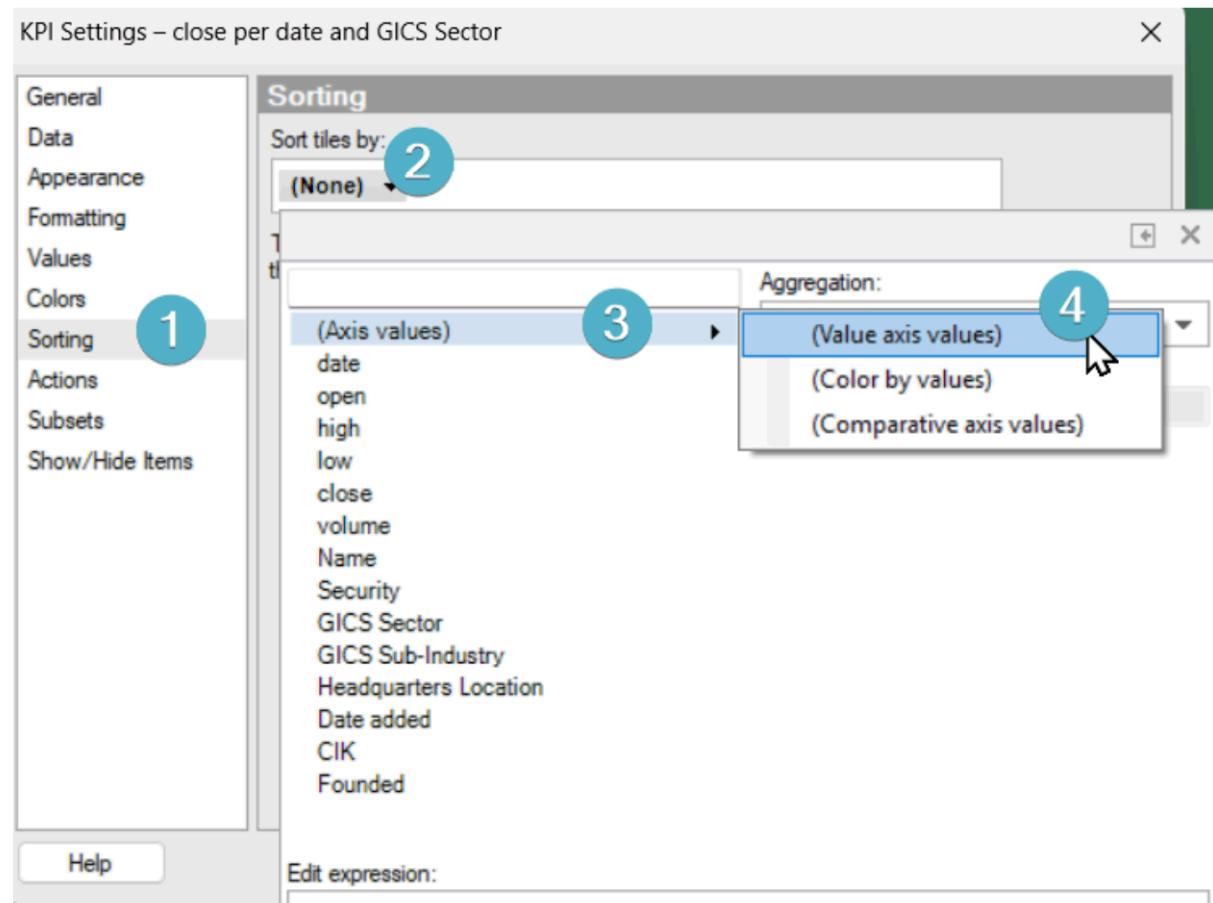
# Coloring & Sorting



# Coloring & Sorting

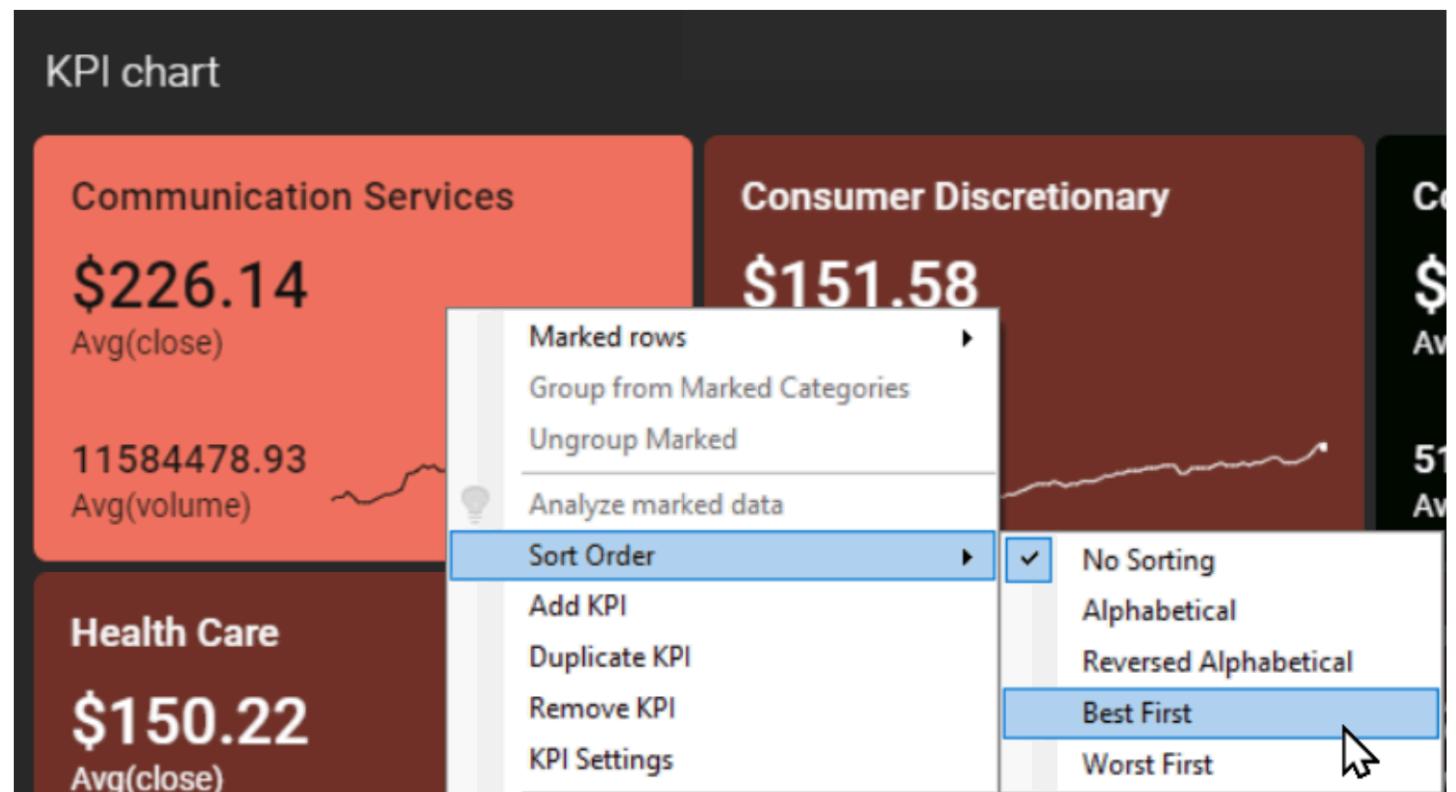
- ✓ **Goal:** Show highest closing stock (or sector) first
- ✓ **Steps:**
  1. Open **KPI Settings**
  2. Go to **Sorting** tab
  3. Set: Sort tiles by → (Value axis values)
  4. In the KPI chart, choose **Descending** order

Helps highlight top-performing categories first



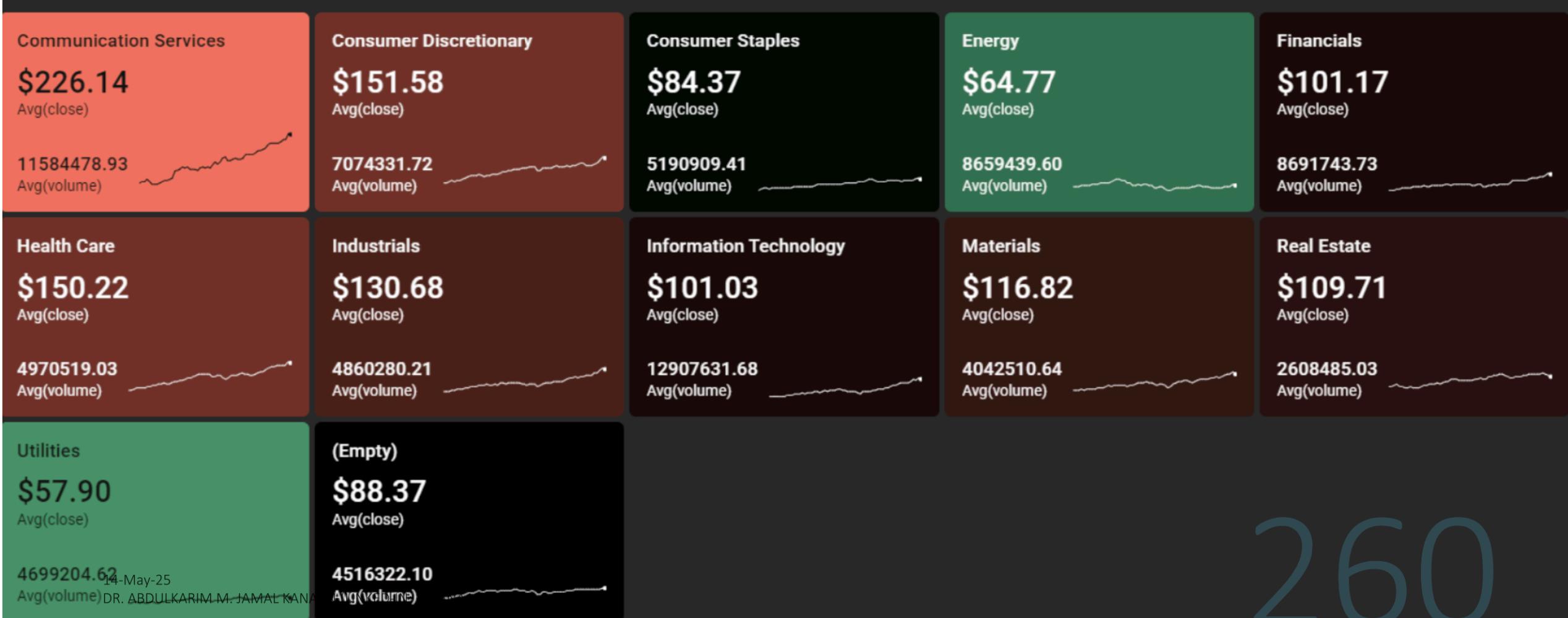
# Coloring & Sorting

Sort Order > Best First



# Coloring & Sorting

KPI chart



# Decluttering

# Decluttering

1. Leverage tooltip
2. Organize your filters
3. Managing bookmarks
4. Limit number of visuals in a dashboard

# Bookmarks

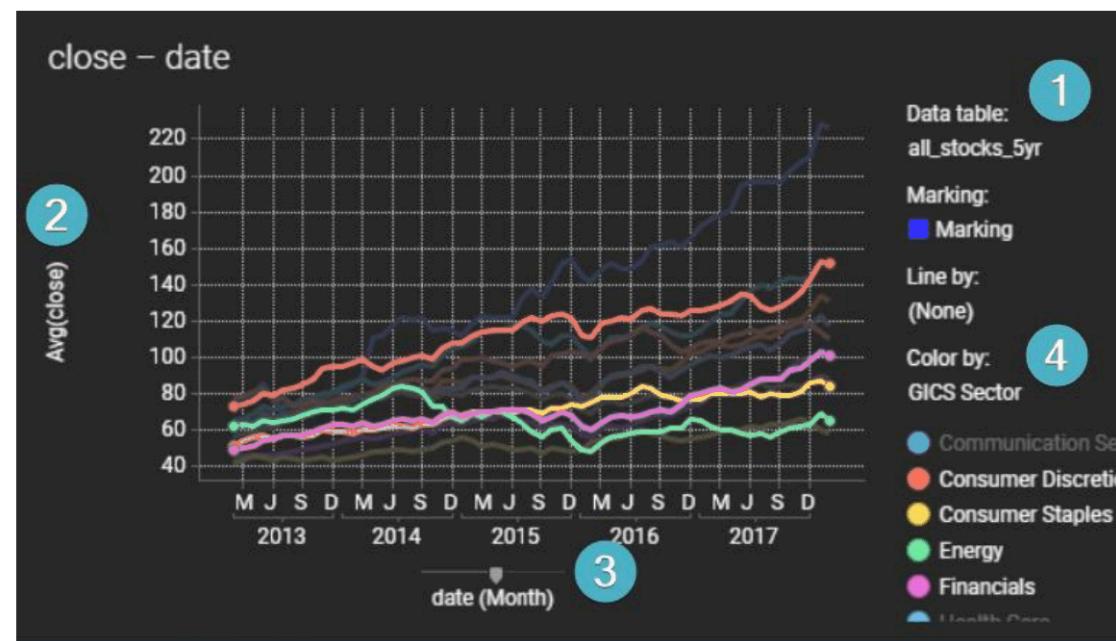
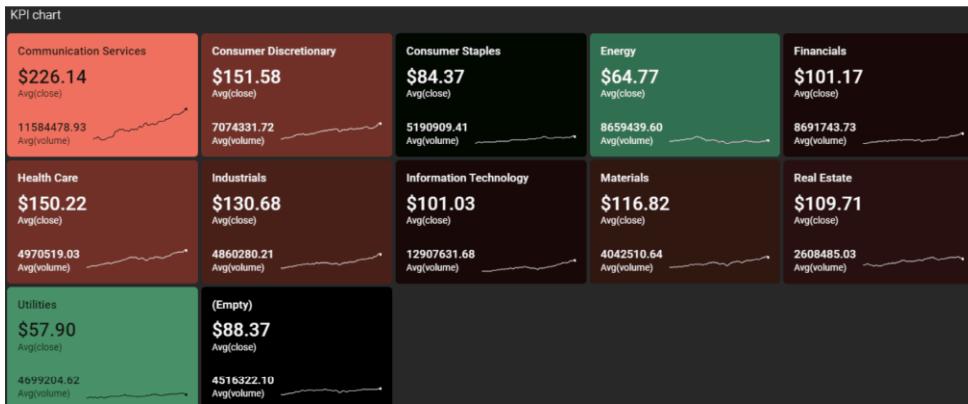
# Bookmarks – Focus Attention

- ✓ Bookmarks save the current state of your analysis:  
filters, markings, zoom level, visible pages, etc.
- ✓ Useful for quickly returning to a specific view or sharing insights.
- ✓ Work similarly in both Analyst and Web Clients  
(with minor differences in interaction and sharing)

 Think of it like a digital bookmark in a paper book — it remembers exactly where you left off.

# Bookmarks – Focus Attention

## Add Line Chart 1



# Bookmarks – Focus Attention

## Add Line Chart 2

Add Line Chart 2

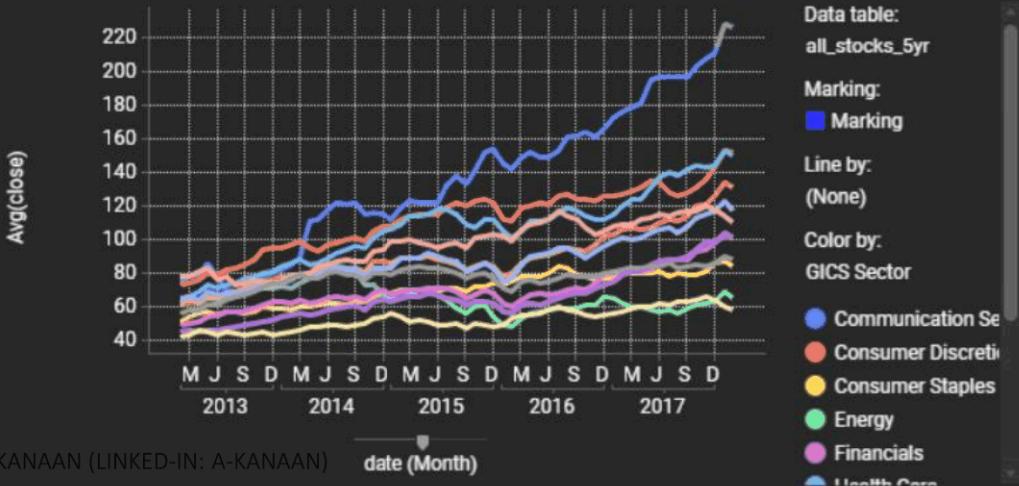


# KPI Dashboard

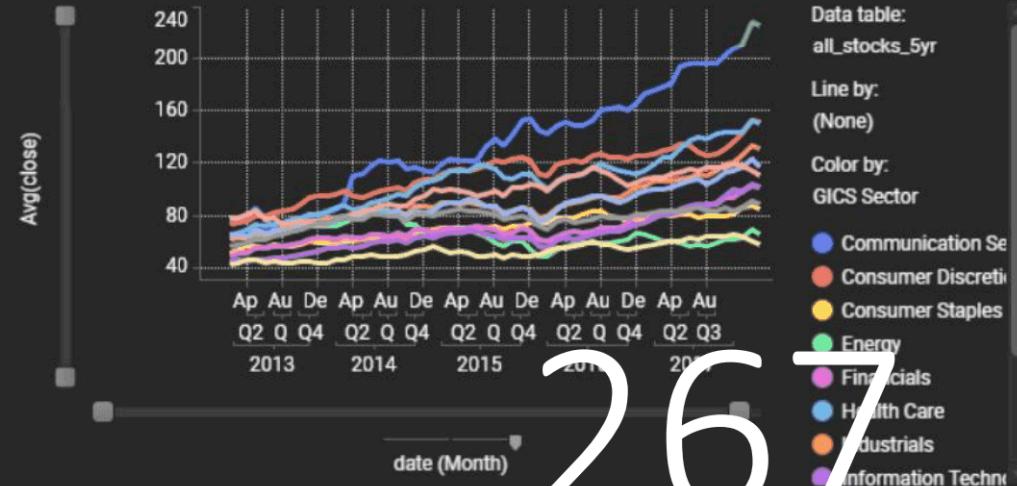
KPI chart



close – date



close – date



# KPI chart

## Communication Services

*select by holding ctrl*

Avg(close)

11584478.93

Avg(volume)

## Consumer Discretionary

\$151.58

Avg(close)

7074331.72

Avg(volume)

## Consumer Staples

\$84.37

Avg(close)

5190909.41

Avg(volume)

## Energy

\$64.77

Avg(close)

8659439.60

Avg(volume)

## Financials

\$101.17

Avg(close)

## Health Care

\$150.22

Avg(close)

## Industrials

\$130.68

Avg(close)

## Information Technology

\$101.03

Avg(close)

close - date



Data table:  
all\_stocks\_5yr

Marking:  
Marking

Line by:  
(None)

Color by:  
GICS Sector

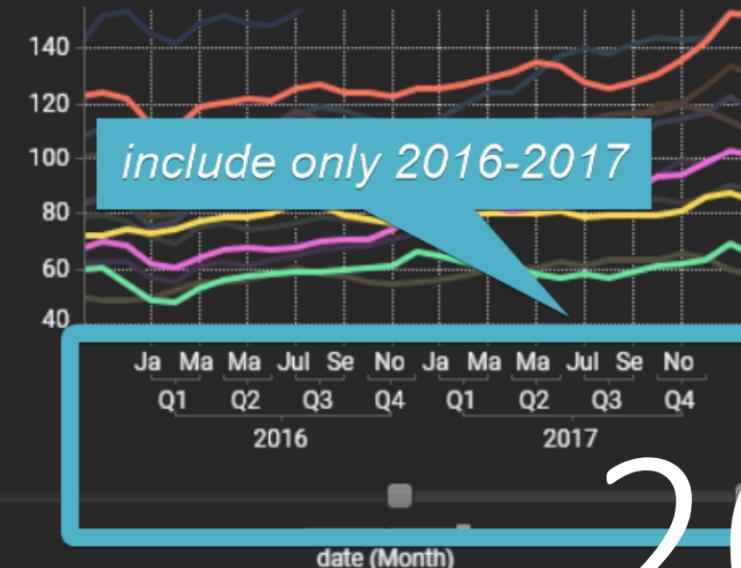
- Communication Se
- Consumer Discreti
- Consumer Staples
- Energy
- Financials
- Health Care

close - date

*zoom-in*

Avg(close)

*include only 2016-2017*



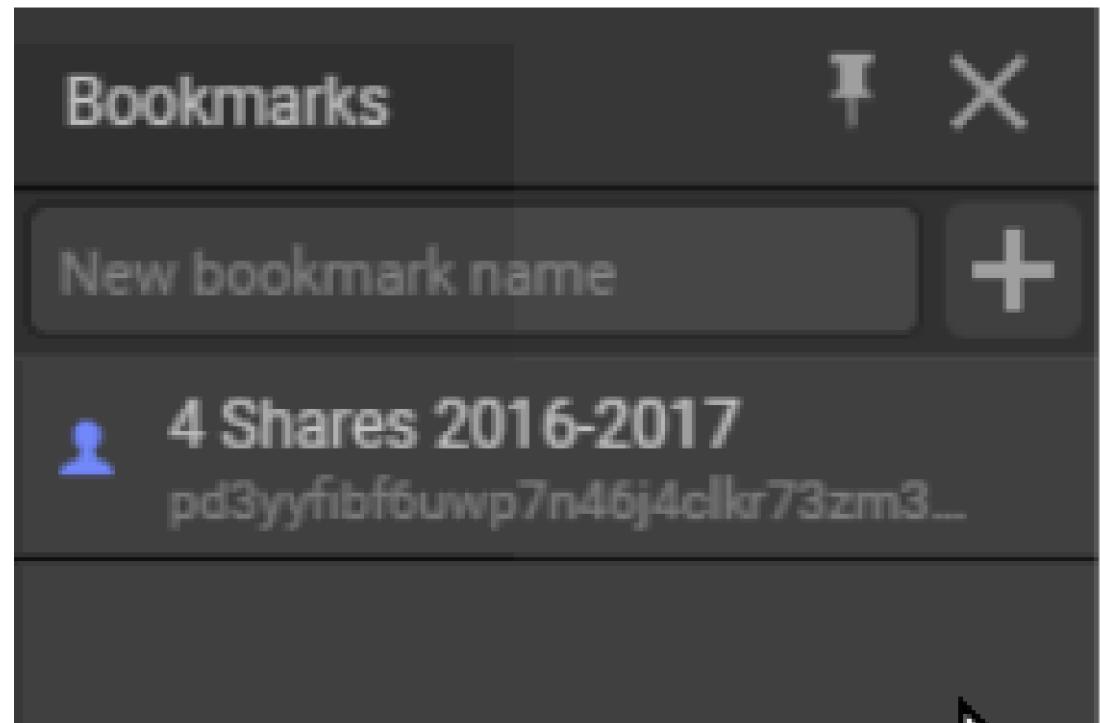
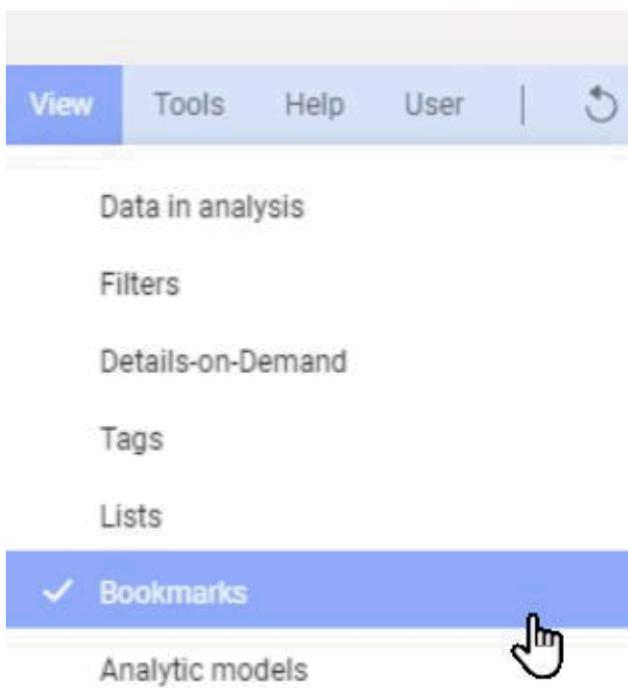
Data table:  
all\_stocks\_5yr

Line by:  
(None)

Color by:  
GICS Sector

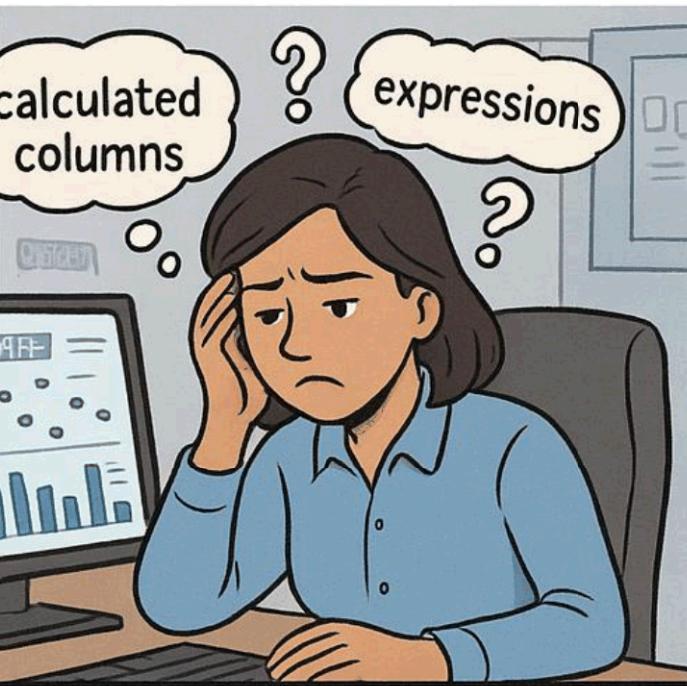
- Communication Se
- Consumer Discreti
- Consumer Staples
- Energy
- Financials
- Health Care
- Industrials
- Information Techno

# Bookmarks – Focus Attention



# Storytelling

# Storytelling



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Deep Learning, Technopreneurship,  
Management Information System

Training: Visualization, Artificial  
Intelligence

System Architect: .NET Framework  
– Windows Application, Web  
Application

Programming Skills: C# & Python

