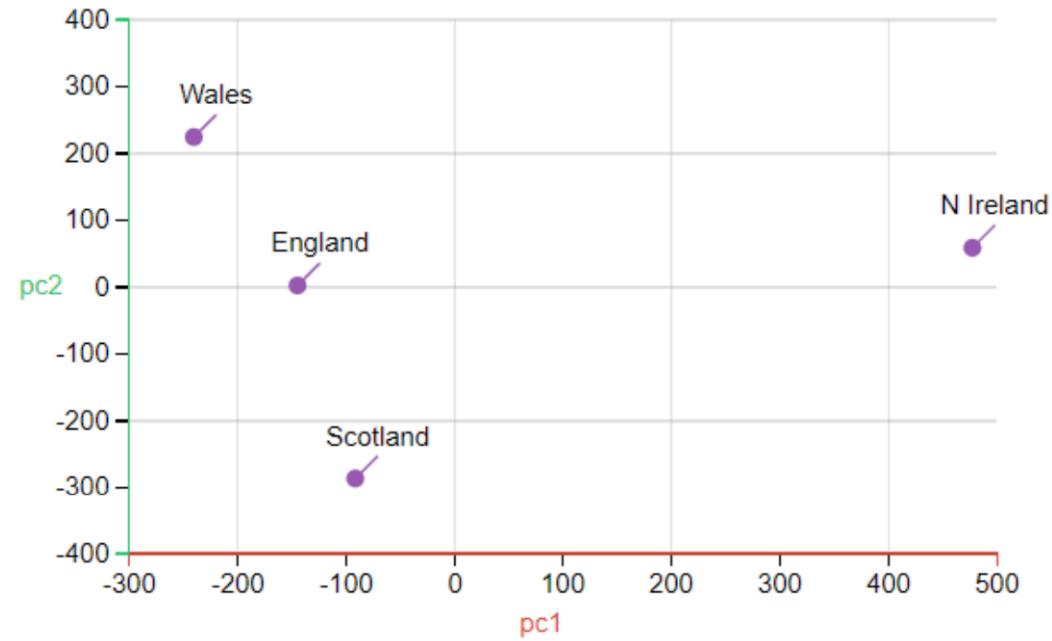
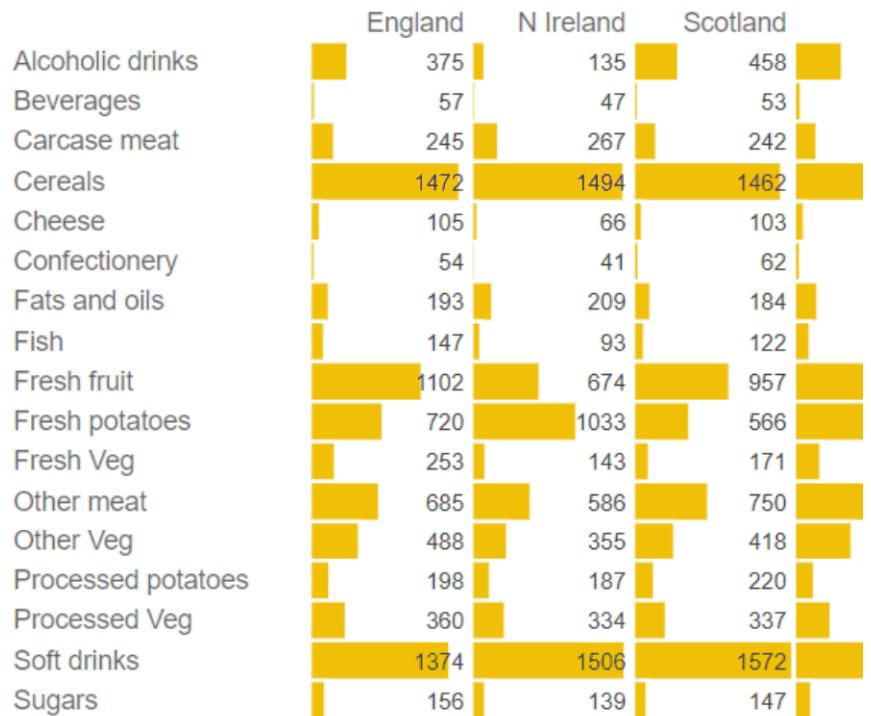


TIBCO Spotfire

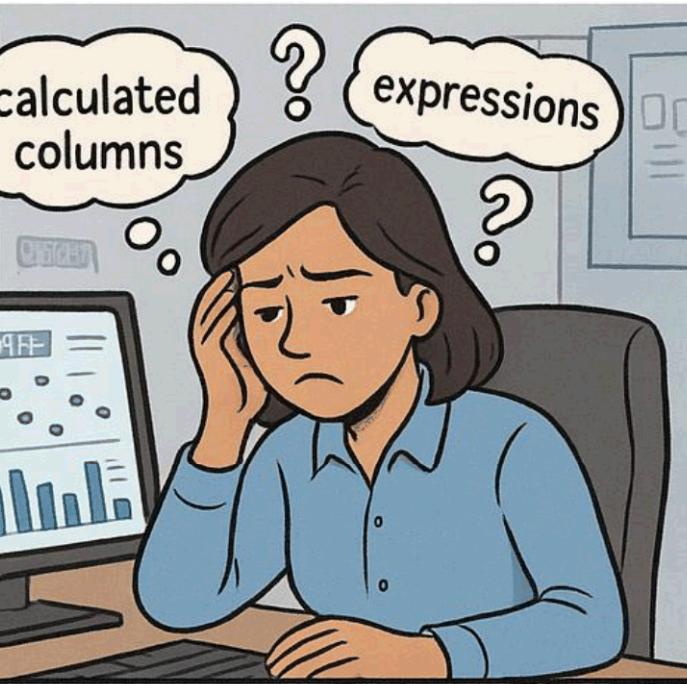
Dr. Abdulkarim M. Jamal Kanaan

What is the insight?



Principal Component Analysis explained visually. (2025). Explained Visually. <https://setosa.io/ev/principal-component-analysis/>

Nora



Training Outline

Training Outline (Day 1)

Visualization Concept

TIBCO Spotfire

Visualization Types

Hands On

Project

Training Outline (Day 2)

Build TIBCO Spotfire Dashboard

TIBCO Spotfire Concepts

Hands On

Project/Presentation

Schedule

09:00 – 10:45	Training
10:45 – 11:00	Tea Break
11:00 – 12:30	Training
12:30 – 13:30	Lunch Time
13:30 – 14:45	Training
14:45 – 15:00	Tea Break
15:00 – 17:00	Project

Trainer

Abdulkarim Kanaan

Assistant Professor

Universiti Tunku Abdul Rahman (UTAR)

IBM Data Science Professional Certificate

Microsoft Certified Technology Specialist

System Architect & Developer, Research, Consultant

📞 +60 (17) 229-0877 abdulkarim@utar.edu.my

✉ abdulkarim@utar.edu.my a.kanaan@msn.com

LinkedIn: a-kanaan

Registered Graduate Technologist (MBOT)



Certified As:

- DeepLearning.AI TensorFlow Developer
- IBM Data Science Professional Sertificate
- Microsoft Certified Technology Specialist



Academic Credentials

- PhD in Technopreneuuship
- MSc in Informption Technology



Industry Experience

- System Architect & Engineer (4+ years)

Trainer

Interested In:

Data Mining
Machine Learning
Deep Learning
Visualization
Management Information System

<http://linkedin.com/in/a-kanaan>



Currently in Process:

Professional Technologist (TS)

What is visualization?



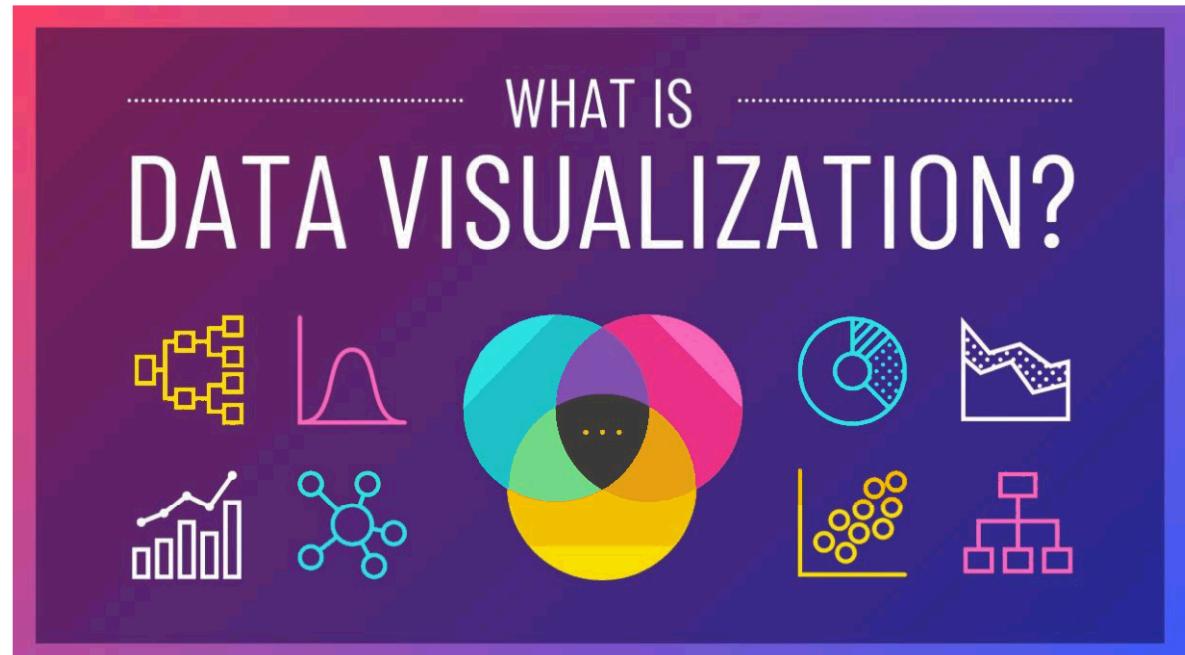
Definition

- ✓ Data visualization is the **graphical representation** of information and data using visual elements such as charts, graphs, and maps.



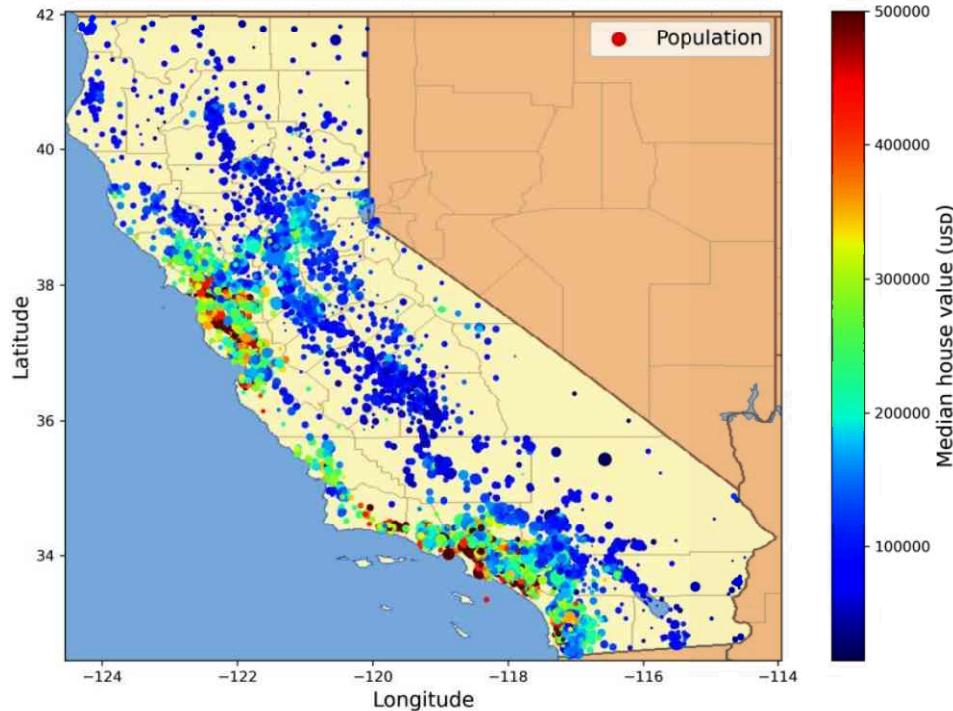
Why It Matters

- ✓ Transforms **complex datasets** into **clear insights**.
- ✓ Helps identify **trends**, **outliers**, and **patterns** quickly.
- ✓ Crucial in the era of **Big Data** for **data-driven decisions**.



What is Data Visualization? (Definition, Examples, Types). (2020, June 5). Venngage. <https://venngage.com/blog/data-visualization/>

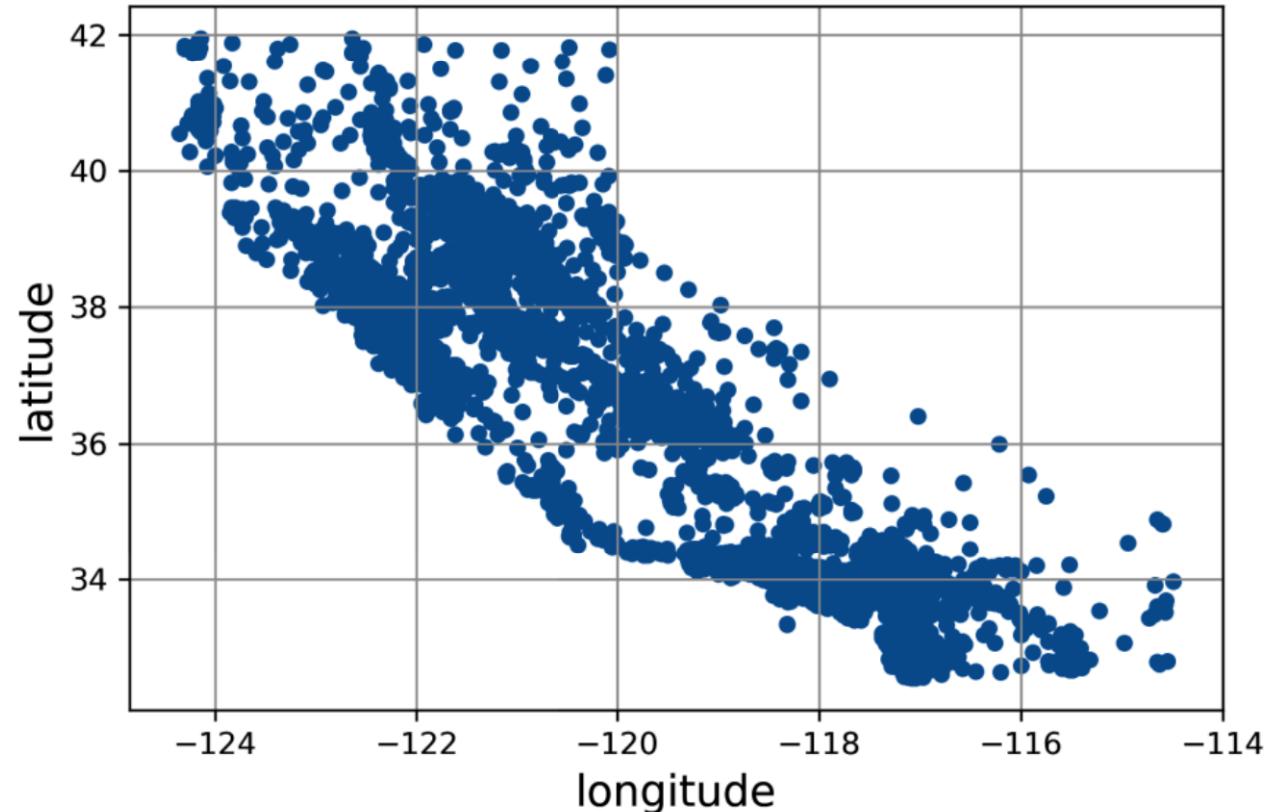
Visualization Powerfulness



- California Housing Prices
- The dataset is derived from the 1990 California census data, sourced from the StatLib repository.
- It includes metrics like population, median income, geographical coordinates (longitude and latitude), and median housing price for each district.
- The population for each district ranges from 600 to 3000 people.
- The objective is to forecast the median house price using the district's characteristics.

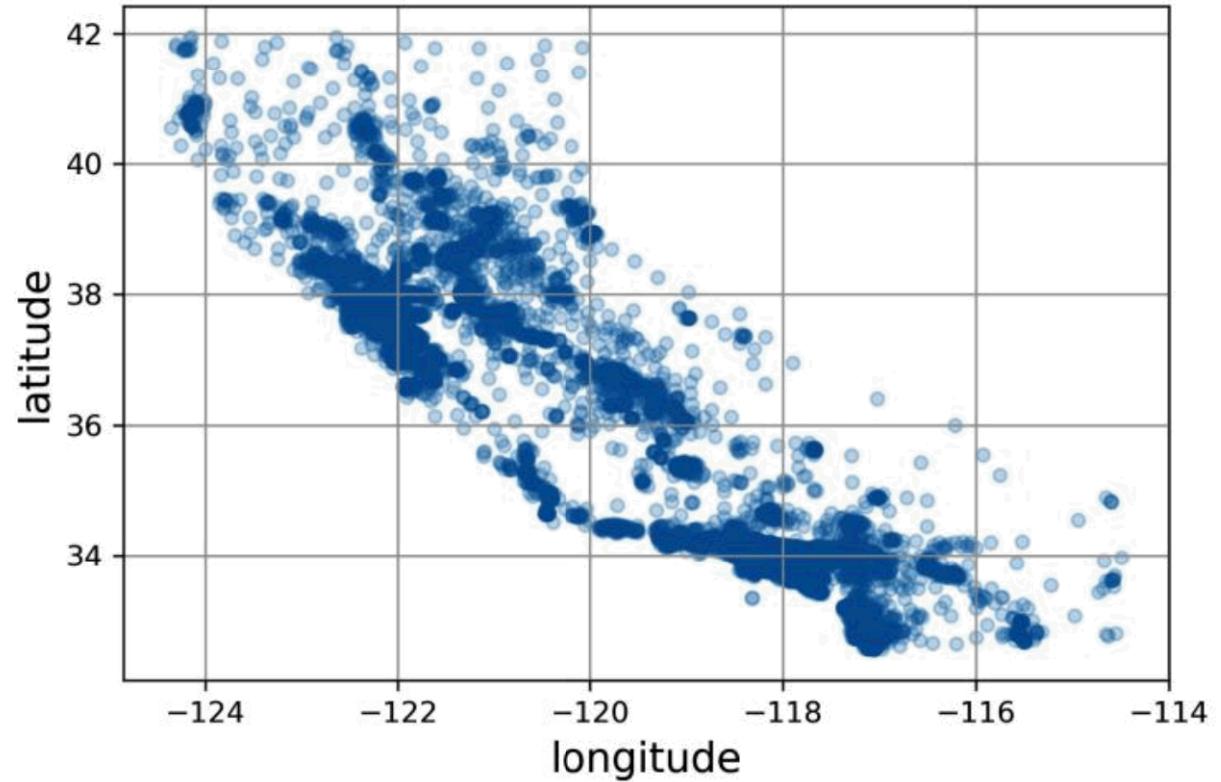
Visualization Powerfulness

- Utilize geographical data (latitude, longitude) in dataset.
- Create scatterplot to visualize district distribution.
- Scatterplot shows California's presence, but lacks to see patterns.

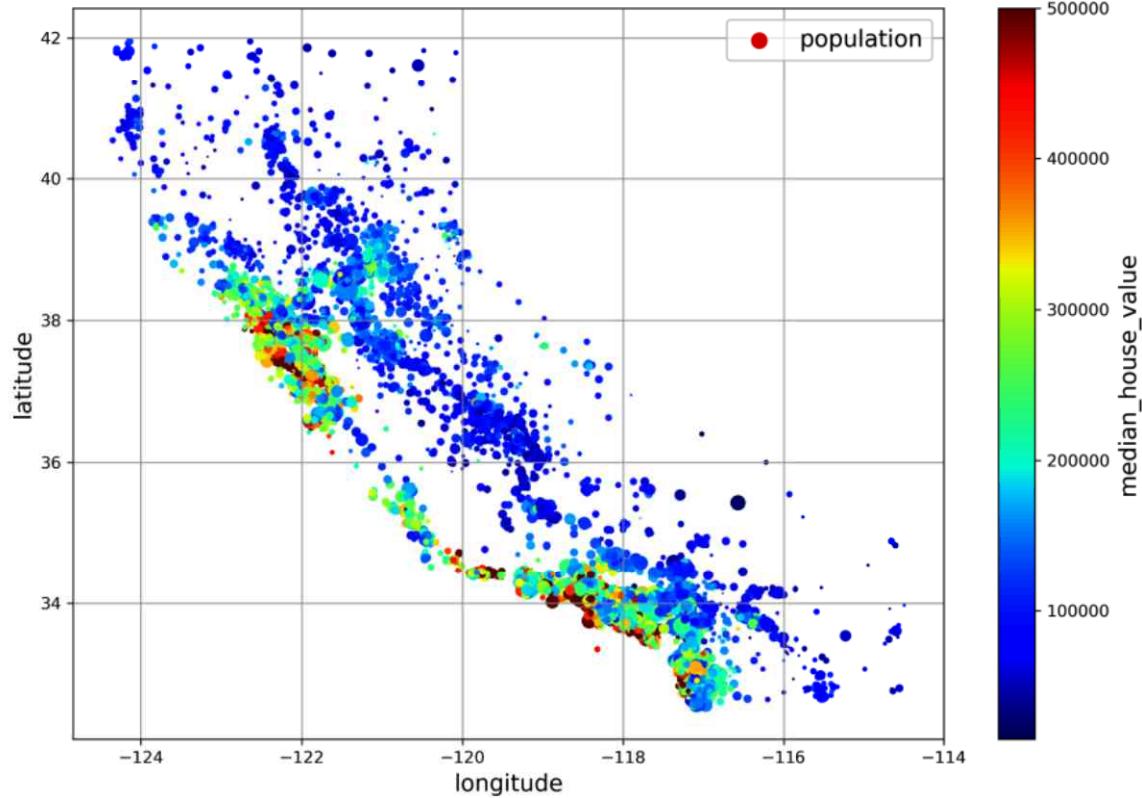


Visualization Powerfulness

- ❖ Adjusting alpha to 0.2 enhances visualization of high-density areas.
- ❖ Improved clarity in identifying regions with dense data points.
- ❖ "alpha" typically refers to the transparency level of a plotted data point or region. A higher alpha value means less transparency (more opaque)



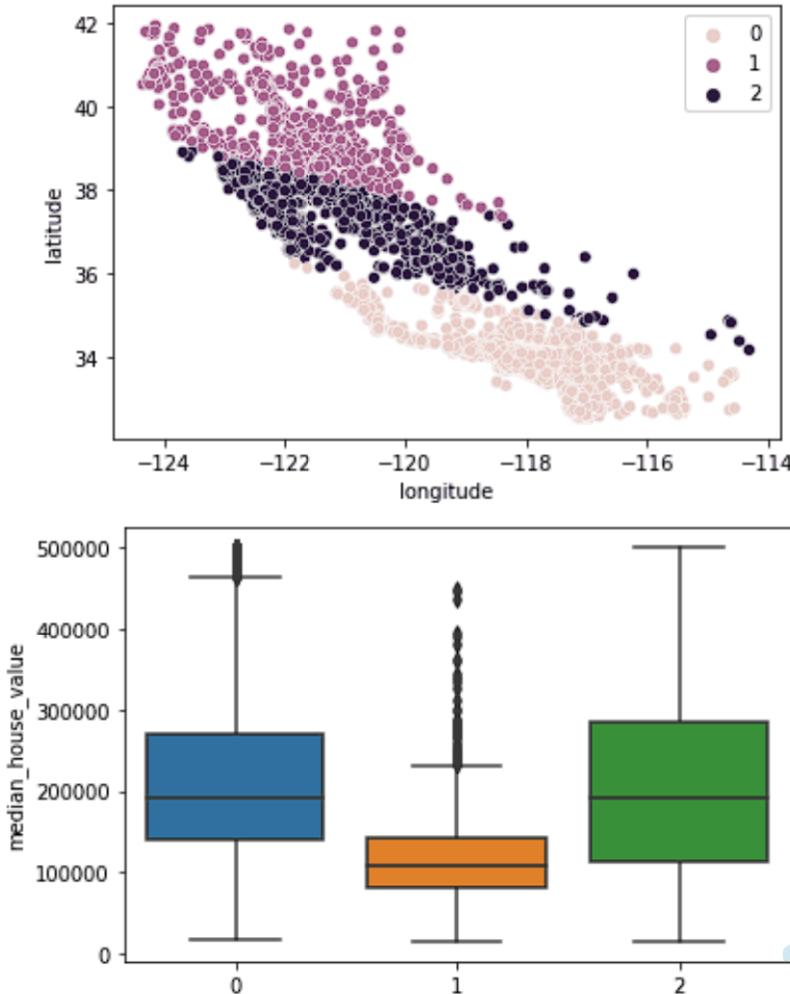
Visualization Powerfulness



- Circle size indicates district population (option s).
- Color signifies housing price (option c).
- Utilize predefined color map "jet," ranging from blue (low values) to red (high prices).
- Insight: Housing prices correlate strongly with location (e.g., proximity to the ocean) and population density, as expected.

Visualization Powerfulness

- Data is divided into three distinct groups: Northern California, Central California, and Southern California.
- Northern and Southern clusters (clusters 0 and 2) have similar distributions of median house values.



Babitz, K. (2018, July 5). *Introduction to k-Means Clustering with scikit-learn in Python*. DataCamp.com; DataCamp. <https://www.datacamp.com/tutorial/k-means-clustering-python>

Visualization Tools

10 Best Business Intelligence (BI) Tools for Data Visualization

The diagram illustrates the 10 best Business Intelligence (BI) tools for data visualization. Each tool is represented by a colored circle with a number and the tool's name. Arrows point from each numbered circle to its corresponding tool name.

Rank	Tool
1	Tableau
2	Power BI
3	Qlik Sense
4	Looker
5	Domo
6	Sisense
7	SAP BusinessObjects
8	TIBCO Spotfire
9	Zoho Analytics
10	MicroStrategy

TIBCO Spotfire

TIBCO Spotfire Analyst Versions

Desktop clients

Web clients (thin, accessible via a web browser)

Mobile clients



TIBCO Spotfire Installation Guide



TIBCO Spotfire Installation Guide

- ◆ Step 1: Sign Up for Free Trial

Visit TIBCO Cloud Spotfire to sign up.

<https://account.cloud.tibco.com/signup/spotfire>

CONTACT US

Sign up for a 30-Day Free Trial of TIBCO Cloud™ Spotfire®

Already have an account? [Sign in here](#)

Email address

First name

Last name

Full first name; no nicknames or initials

Full last name; no nicknames or initials

Phone

What will you be using this product for?

Business use Other

Company

Full company name.

Country

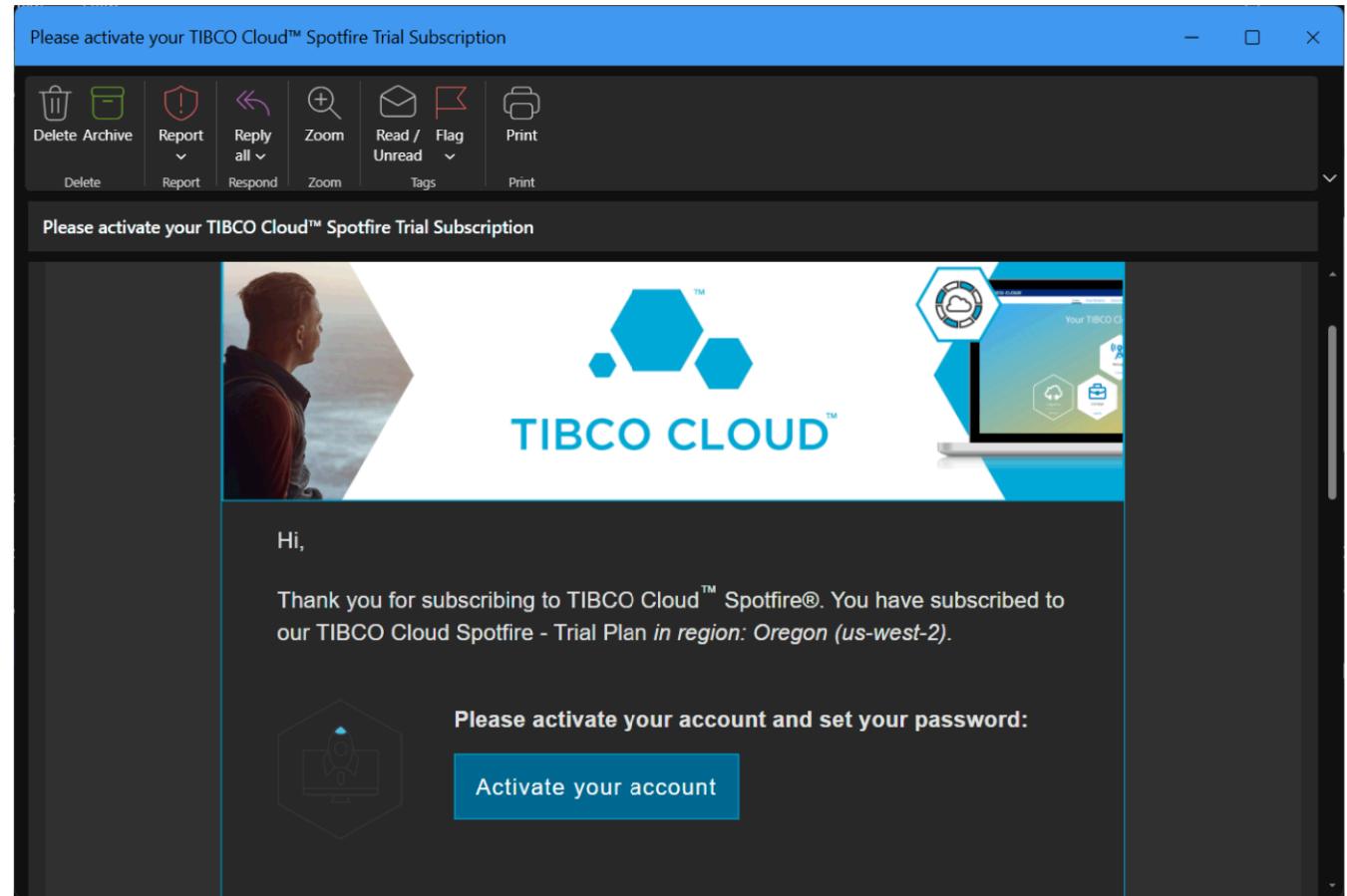
Region is displayed after you select a country

Privacy - Terms



TIBCO Spotfire Installation Guide

◆ Step 2: Email Verification





TIBCO Spotfire Installation Guide



◆ Step 3: Activate Your Account

Activate your TIBCO Account

Email address

First name

Full first name, no nicknames or initials

Last name

Full last name, no nicknames or initials

Company (*optional*)

Full company name, no abbreviations or omissions

Create your password

TIBCO Spotfire Installation Guide

◆ Step 4: Access TIBCO Cloud Spotfire

The screenshot shows the TIBCO Cloud Spotfire interface. On the left, there's a sidebar with navigation links: Launch Spotfire, Recent, Favorites, Quick access (Home, Universiti Tunku Abdul Rah...), Samples, Shared folders (Shared with me, Shared by me), Resources (Community, Learn), and a user profile section with a blurred email address and Log out link. The main area is titled "Spotfire" and shows a "Library" table with the following data:

	Name	Type	Modified on	Modified by	Path	Star
<input type="checkbox"/>	GeoAnalytics	Folder	4/2/2025, 3:09:18 PM	-	/GeoAnalytics	<input type="star"/>
<input type="checkbox"/>	Sample Data Functions	Folder	4/2/2025, 3:08:22 PM	-	/Sample Data Functions	<input type="star"/>
<input type="checkbox"/>	Samples	Folder	4/2/2025, 3:07:51 PM	-	/Samples	<input type="star"/>
<input type="checkbox"/>	Teams	Folder	5/8/2025, 6:01:34 AM	-	/Teams	<input type="star"/>
<input type="checkbox"/>	TIBCO Community Mods	Folder	1/9/2024, 4:22:08 PM	Arnaud Varin	/TIBCO Community Mods	<input type="star"/>
<input type="checkbox"/>	Users	Folder	5/8/2025, 6:01:34 AM	-	/Users	<input type="star"/>

The URL in the browser bar is <https://spotfire-next.cloud.tibco.com/spotfire/ui/myAccount>.



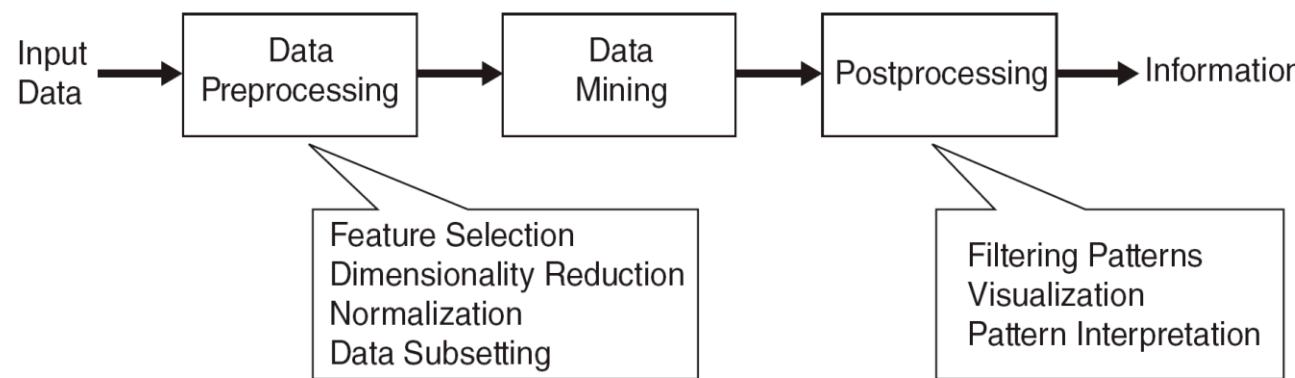
TIBCO Spotfire Installation Guide

◆ Step 5: Download Spotfire Windows Client

The screenshot shows the 'My account' section of the TIBCO CLOUD Spotfire interface. On the left, there's a sidebar with links like 'Recent', 'Favorites', 'Home', 'Samples', 'Shared folders', 'Community', and 'Learn'. The main content area is titled 'Download Spotfire Windows client' and features a large button labeled 'Download for Windows'. Below this, it says 'Already have Spotfire installed? Click to connect to the server' and provides steps for completing the installation. At the bottom, there's information about the 'Spotfire Package Builder' and a table showing its version (14.4.2). A large number '23' is overlaid on the bottom right corner of the screenshot.

Name	Version
Spotfire Package Builder Console	14.4.2

Knowledge discovery in databases (kdd)



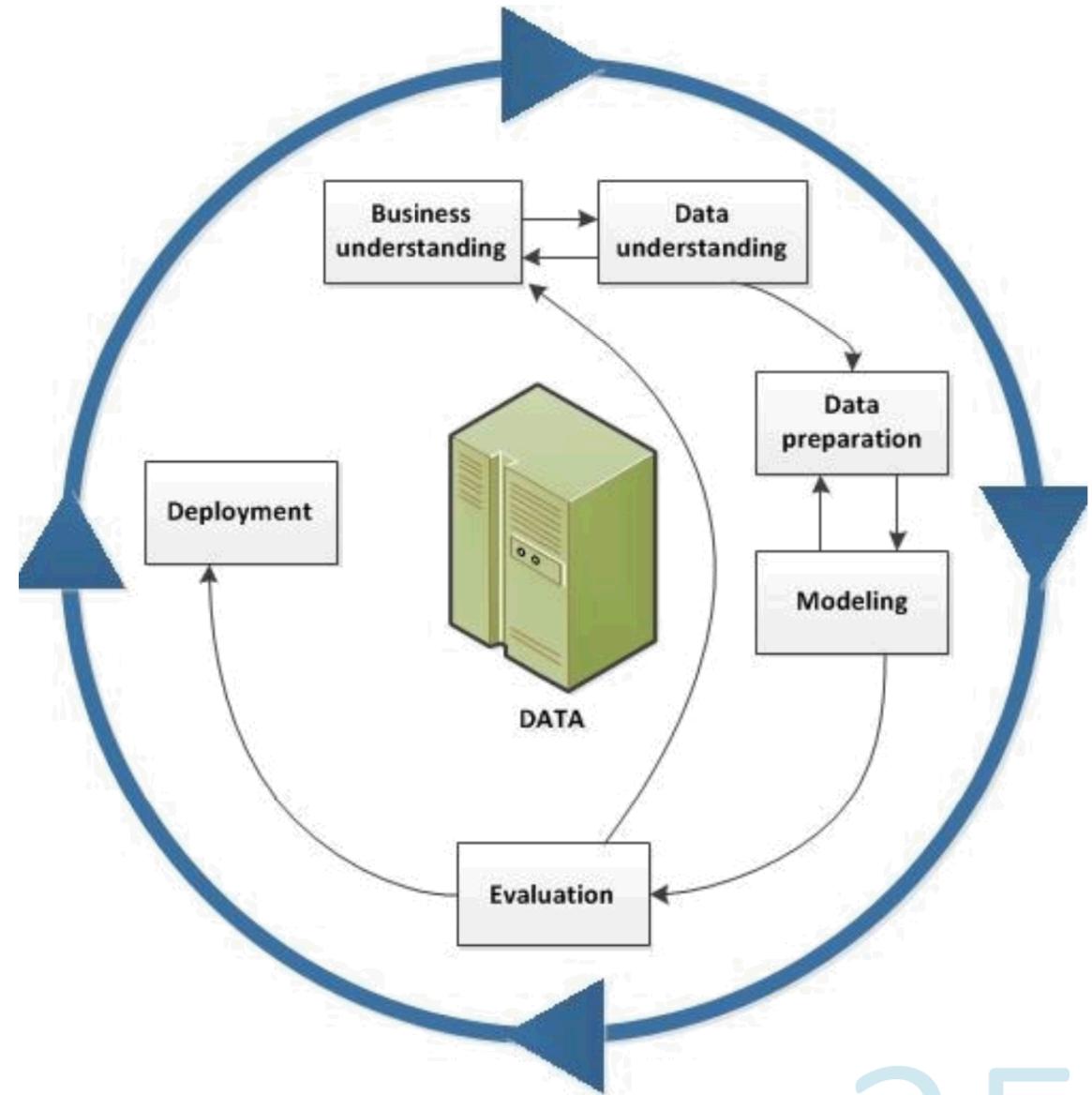
Preprocessing

Transform the raw input data
into an appropriate format

Data Mining

Postprocessing

Cross-Industry Standard Process for Data Mining (CRISP-DM)



Visualization Types

Bar Chart

Cross Tables

Scatter Plots

Line Charts

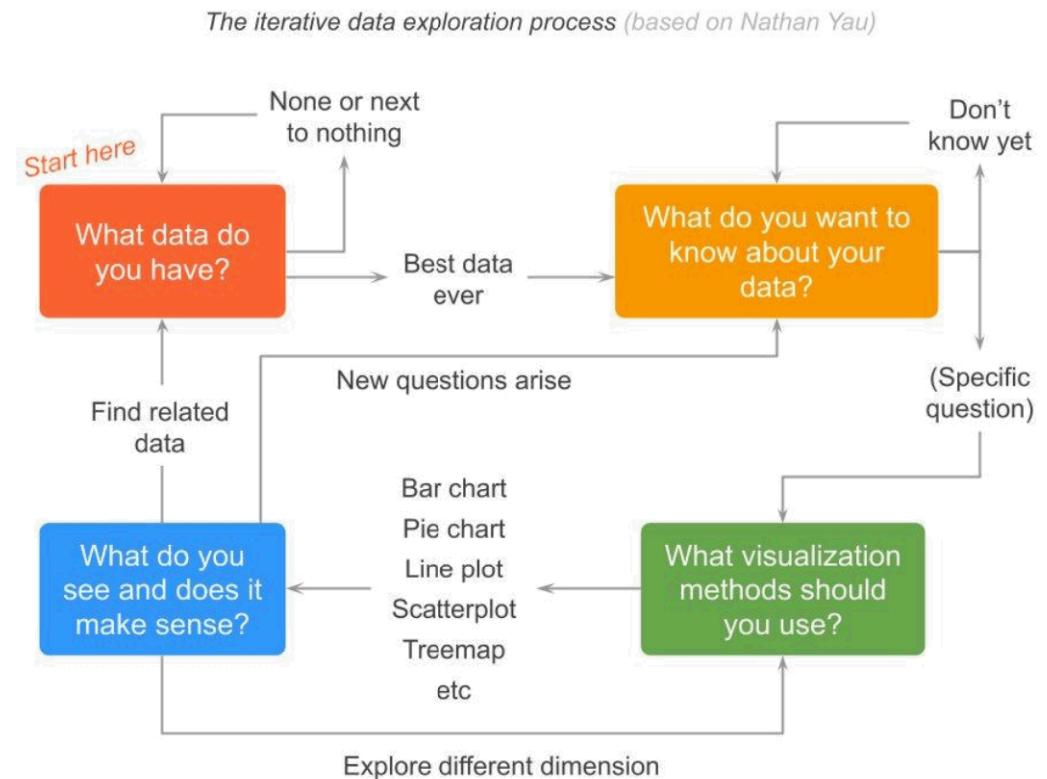
Treemaps

Waterfall Charts

Graphical Tables

Data Exploration Process

- What data do you have?
- What do you want to know about your data?
- What visualization methods should you use?
- What do you see, and does it make sense?



Yau, N. (2013). *Data points: Visualization that means something*. John Wiley & Sons.

What Data Do You Have?

Getting the Data Is Often the Hardest Step

- In school, data is **pre-cleaned and formatted** — but in real-world scenarios, it's not.
- You may need to:
 - **Scrape data** from websites
 - **Access APIs** to retrieve structured info
 - **Derive new values** from raw data



Real-World Examples

- Have addresses, but need latitude/longitude to map them



Tools & Solutions

- Programming skills (e.g., Python, R) help automate data wrangling
- Low-code/no-code tools (like Spotfire, Power BI, Tableau) make data handling more accessible

Data Understanding

- Examine each attribute and its properties:
 - Name of the attribute
 - Attribute type (such as categorical, integer/float, bounded/unbounded, text, structured, etc.)
 - Level and type of noise (like outliers, rounding errors, etc.)
 - Potential usefulness for the task
- Visualize the data to better understand it.
- Investigate the relationships between attributes.
- Test attribute combination
- Recognize any additional data that could be beneficial (you may need to acquire more data).
- Record your findings for future reference.

Acquire the Data

In most settings, your data would be stored in a relational database or another standard data storage system, and distributed among various tables, documents, or files.

Think Before You Visualize

Pause Before Plotting

Before jumping into charts, ask yourself:

- What do the **values truly represent?**
- **Where** did the data come from?
- **How** were the variables measured?

Apply Data Literacy

Recall the principles from “**Data Understanding**”:

- Understand **context** and **collection methods**
- Identify **biases** or **limitations**
- Confirm if the data is suitable for your question

What Do You Want to Know About Your Data?

 Don't Drown in Data — Learn to Swim

- Treat data exploration like learning to swim:

- Start at the shallow end
- Dive deeper gradually
- Explore bit by bit

What is your objective?

What Visualization Methods Should You Use?

Don't Obsess Over the "Perfect" Chart

- In early data exploration, the goal is **not perfection**, but **perspective**.
- View your data from **multiple angles** to uncover patterns and outliers.

Use Traditional Charts to Your Advantage

- **Bar charts and line charts** are:
 - Easy to create
 - Quick to interpret
 - Ideal for scanning trends and comparisons

What Do You See and Does It Make Sense?

After Visualizing the Data, Look for:

-  **Trends**: Increasing or decreasing patterns
-  **Outliers**: Points that deviate from the rest
-  **Noise vs. Signal**: Don't confuse randomness with meaningful patterns

Ask Critical Questions

"Does this make sense?"

"Why does it make sense?"

- Avoid assuming **data = truth** — every data point is just a **snapshot in time**.
- **Context and interpretation** are key to finding real insight.

Hands-On

Superstore

A comprehensive dataset containing detailed information about sales, orders, and customers across a global superstore

Global Superstore - Orders

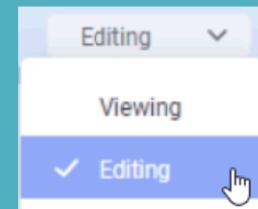
Category	City	Country	Customer Na...	Market
Office Supplies	Budapest	Hungary	Annie Thurman	EMEA
Office Supplies	Constantine	Algeria	Toby Braunhar...	EMEA
Furniture	Wagga Wagga	Australia	Joseph Holt	APAC
Office Supplies	Wagga Wagga	Australia	Joseph Holt	APAC
Office Supplies	Wagga Wagga	Australia	Joseph Holt	APAC
Office Supplies	Stockholm	Sweden	Eugene Moren	EMEA

Key Highlights:

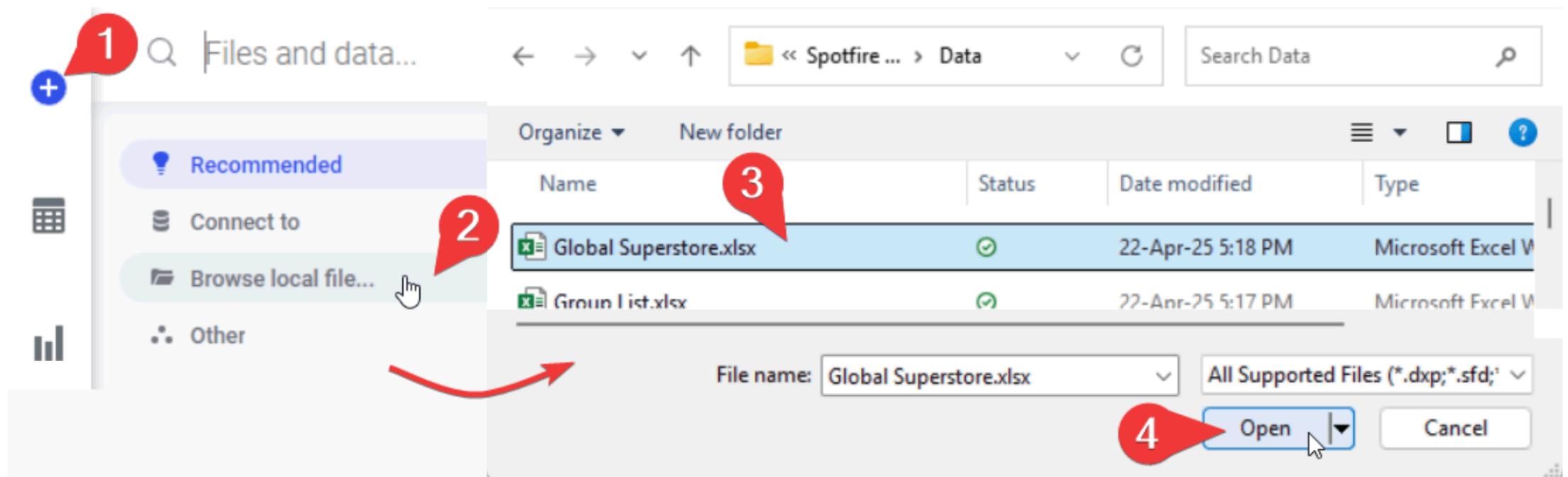
- Covers multiple countries, regions, and markets
- Includes fields such as:
 - Category, Sub-Category
 - City, Country, Region
 - Sales, Profit, Quantity
 - Customer information
 - Shipping details

Attention

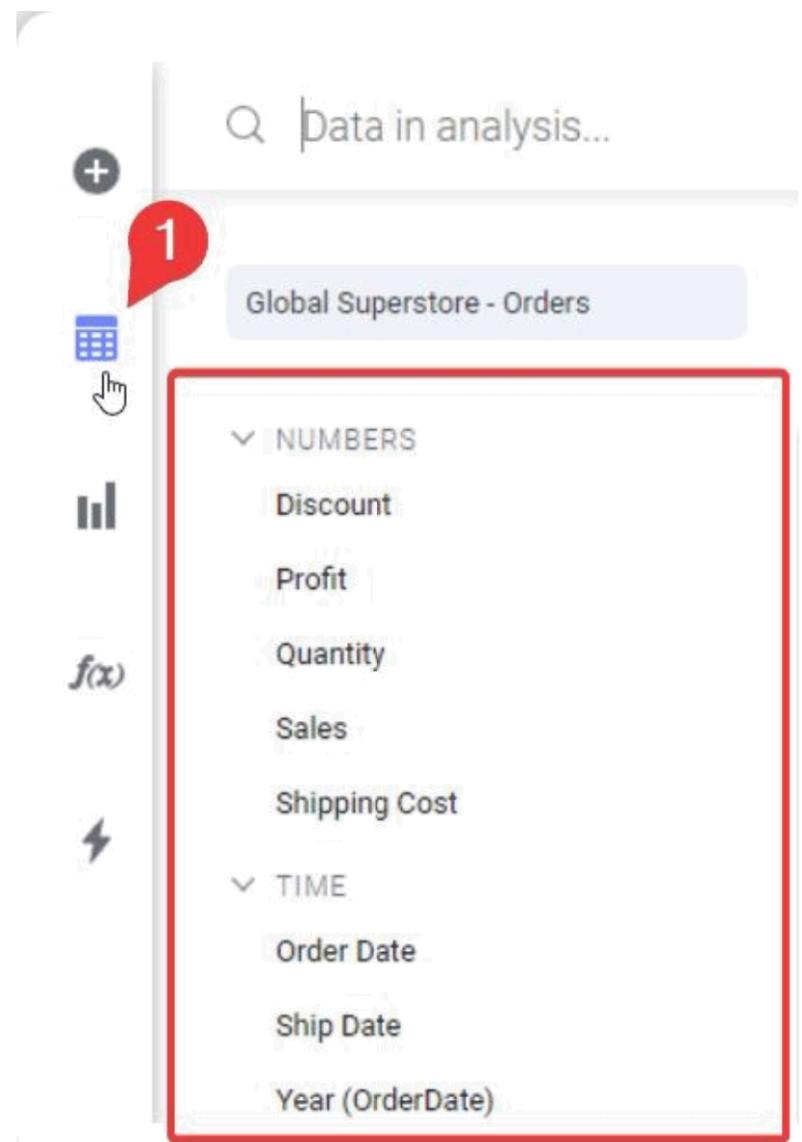
Make sure you are at Editing mode



Browse Local File



Data Fields



Create Table

The screenshot shows a user interface for creating visualizations. On the left, there's a sidebar with icons for search, plus, calendar, and a red-highlighted bar chart icon (labeled '1'). Below these are buttons for 'Table' (labeled '2'), 'Cross table', 'Graphical table', 'Text area', and 'Bar chart'. A red arrow points from the 'Graphical table' button towards the main content area. The main area is titled 'Global Superstore - Orders' and displays a table with the following data:

Category	City	Country	Customer Name	Market	Customer ID	Order Date
Office Supplies	Budapest	Hungary	Annie Thurman	EMEA	AT-7352	01-Jan-12
Office Supplies	Constantine	Algeria	Toby Braunhar...	EMEA	TB-112801	01-Jan-12
Furniture	Wagga Wagga	Australia	Joseph Holt	APAC	JH-159851	01-Jan-12
Office Supplies	Wagga Wagga	Australia	Joseph Holt	APAC	JH-159851	01-Jan-12
Office Supplies	Wagga Wagga	Australia	Joseph Holt	APAC	JH-159851	01-Jan-12
Office Supplies	Stockholm	Sweden	Eugene Moren	EMEA	EM-141402	01-Jan-12
Technology	St. Catharines	Canada	Magdelene M...	USCA	MM-72602	02-Jan-12
Furniture	Papakura	New Zealand	Ken Lonsdale	APAC	KL-166451	03-Jan-12
Furniture	Papakura	New Zealand	Ken Lonsdale	APAC	KL-166451	03-Jan-12
Technology	Papakura	New Zealand	Ken Lonsdale	APAC	KL-166451	03-Jan-12

Data Types in TIBCO Spotfire

DATA TYPES CATEGORIES

- **Number** (e.g., 25, 99.5)
- **Text** (e.g., "Apple", "Yes")
- **Date/Time** (e.g., 2024-05-01)
- **Boolean** (True/False)
- **Binary** (Images, files, encoded data)

DATA TYPES

- Integer
- LongInteger
- Real
- SingleReal
- Currency
- Date
- DateTime
- Time
- TimeSpan
- Boolean
- String
- Binary

Spotfire Data Types

12
34

Numeric Types

Integer: Whole numbers (e.g., 0, +55, -32768)

LongInteger: Large whole numbers beyond Integer limits

Real: High-precision floating point (e.g., 1.23e+22)

SingleReal: Lower-precision floating point, uses less memory

Currency: Decimal values with m suffix, accurate for financial data

5

Text

String: Text in quotes, supports Unicode and escaping (e.g., "Hello world")

6

Logical

True/false (e.g., 1 < 5, true, false)



Date and Time Types

Date: Date-only values (locale-dependent formats)

DateTime: Full date and time (e.g., 6/12/2006 1:05 PM)

Time: Time-only values (e.g., 10:14:35)

TimeSpan: Duration between two time points (e.g., 1.12:34:56.789)



Binary

Encoded data such as images
molecular structures

Data Types

Data Types of Attributes

Numeric (Quantitative)

- Discrete:
 - Examples: 1, 2, 3, -1
- Continuous
 - Examples: 1.23, -14.2, 0.33

Categorical (Qualitative)

- Nominal
 - Examples: ID numbers, eye color, zip codes
- Ordinal
 - Examples: rankings (e.g., grades, height {tall, medium, short})

Nominal

Variables that represent categories with no specific order or ranking

Gender { Male, Female }

Color (Red/Green/Blue)

Country (USA/UK/Canada)

Ordinal

Variables that represent categories with a specific order or ranking

Evaluate a respondent's attitude towards a subject by using a set of ordered responses

- E.g., "very satisfied," "satisfied," "dissatisfied," and "very dissatisfied."

You can't quantify the exact difference between each answer option

- E.g. "very satisfied" and "satisfied," for example, is relative, not exact.

Interval

Variables that have a numerical scale with equal intervals, but no true zero point

Temperature in Celsius, IQ score

Ratio

Variables that have a numerical scale with equal intervals and a true zero point

Temperature in Kelvin, Weight, Age, Height

Types of Datasets

Types of Datasets



Record

Data Matrix
Document Data
Transaction Data



Graph

World Wide Web
Molecular Structures



Ordered

Spatial Data
Temporal Data
Sequential Data
Genetic Sequence Data

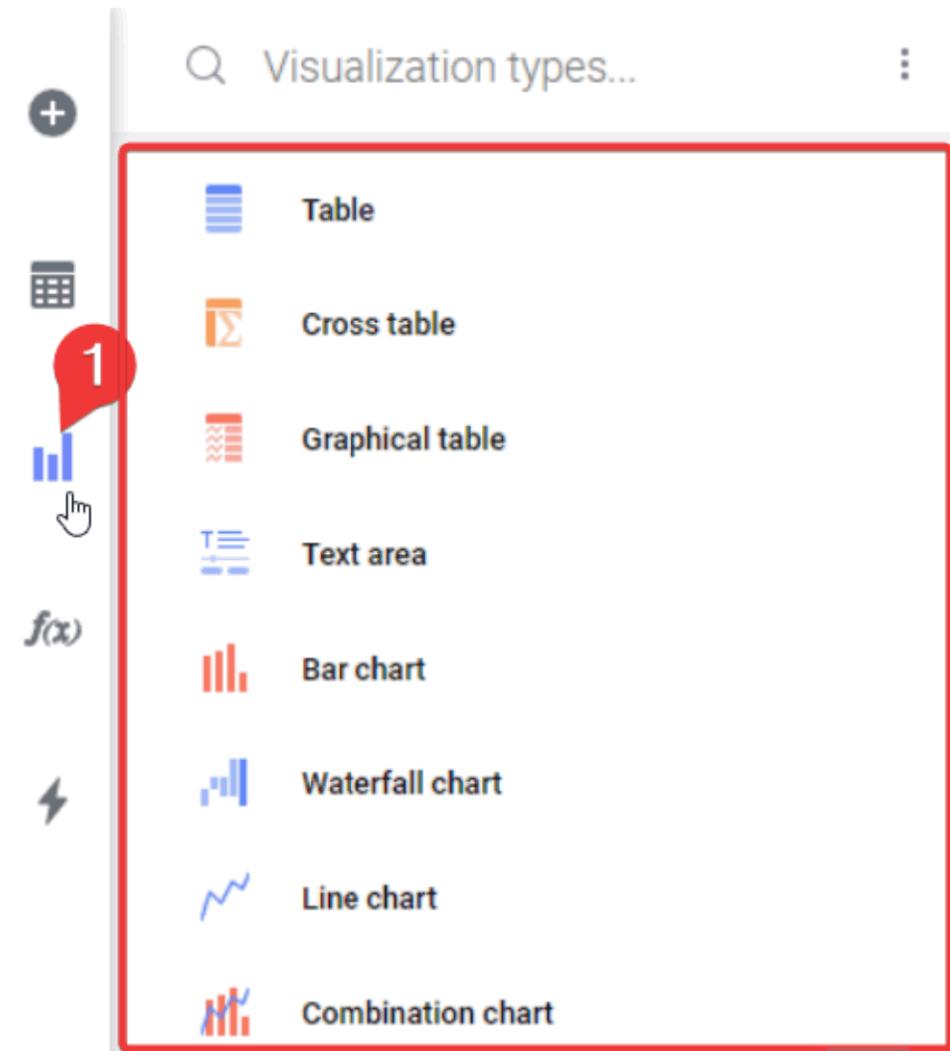
Record Data

Data that consists of a collection of records, each of which consists of a fixed set of attributes

Tid	Refund	Marital Status	Taxable Income	Cheat
1	Yes	Single	125K	No
2	No	Married	100K	No
3	No	Single	70K	No
4	Yes	Married	120K	No
5	No	Divorced	95K	Yes
6	No	Married	60K	No
7	Yes	Divorced	220K	No
8	No	Single	85K	Yes
9	No	Married	75K	No
10	No	Single	90K	Yes

Visualization Types

- Spotfire offers multiple **visualization types** to present data effectively
- All visualizations can be **customized and configured**



Data Canvas

The screenshot shows the Data Canvas interface with the following details:

- Top Bar:** Includes a search bar ("Type to search"), a file icon, and tabs for "Global Superstore - Orders". Action buttons include "Rename", "Reload", "Replace", "Delete", "Relations (0)", "Key columns (0)", and a close button.
- Left Sidebar:** Contains icons for "+" (New), "fx" (Search), and a lightning bolt (Refresh). A red speech bubble with the number "1" is positioned near the bottom-left of the sidebar.
- Central Area:** Displays the "Global Superstore - Orders" data table. A tooltip for the table icon indicates: "Global Superstore - Orders This is the data table used in the analysis." Below the table, a message states: "The final data table has no further changes."
- Bottom Panel:** Shows the table structure with columns: Category, City, Country, Customer ID, Market, Order Date, and Year (O). It lists 8 rows of sample data. Summary statistics: 51290 rows, 24 columns, and a globe icon indicating international data.

Data Canvas

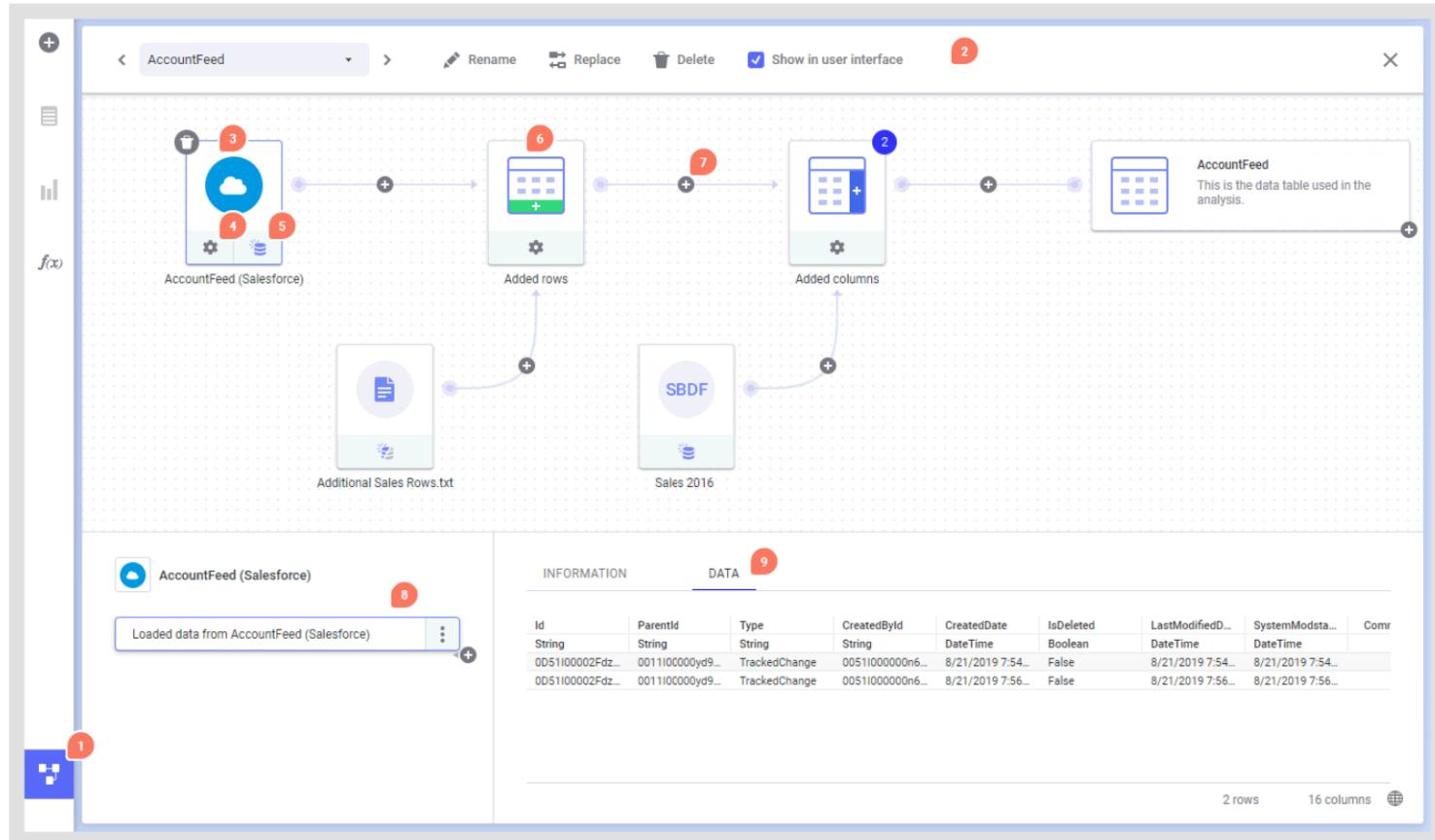
The **Data Canvas** shows how data was added and modified

The screenshot shows the Data Canvas interface with the following elements:

- Left Sidebar:** Includes a search bar ("Type to search"), a "Data tables" section with a list item "Global Superstore - Orders", and various icons for file operations.
- Main Area:** A canvas with nodes and connections. One node is labeled "Global Superstore.xltx - Orders". A callout box points to this node with the text: "This is the data table used in the analysis."
- Bottom Panel:** A table titled "Global Superstore - Orders" with the following columns:

Category	City	Country	Customer ID	Market	Customer ID	Order Date	Year (O)
String	String	String	String	String	String	01-Jan-12	
Office Supp...	Budapest	Hungary	Annie Thur...	EMEA	AT-7352	01-Jan-12	
Office Supp...	Constantin...	Algeria	Toby Braun...	EMEA	TB-112801	01-Jan-12	
Furniture	Wagga Wa...	Australia	Joseph Holt	APAC	JH-159851	01-Jan-12	
Office Supp...	Wagga Wa...	Australia	Joseph Holt	APAC	JH-159851	01-Jan-12	
Office Supp...	Wagga Wa...	Australia	Joseph Holt	APAC	JH-159851	01-Jan-12	
Office Supp...	Stockholm	Sweden	Eugene Mo...	EMEA	EM-141102	01-Jan-12	
TartanShirt...	St. Cathar...	Canada	Marielana...	EMEA	MA-179072	01-Jan-12	

Data Canvas



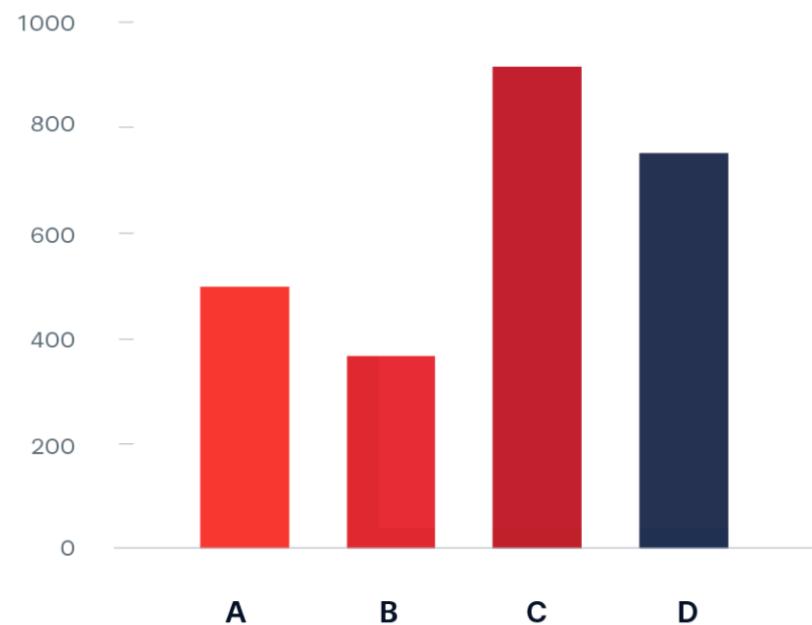
multiple data tables

Bar Charts

Bar Charts

What Are Bar Charts?

- One of the **most useful & versatile** visualizations in Spotfire
- Ideal for **categorical data** (e.g., product categories, sales regions, car models)



Bar Chart (Vertical) | Data Viz Project. (2023, August 16). Data Viz Project.
<https://datavizproject.com/data-type/bar-chart/>

Bar Charts

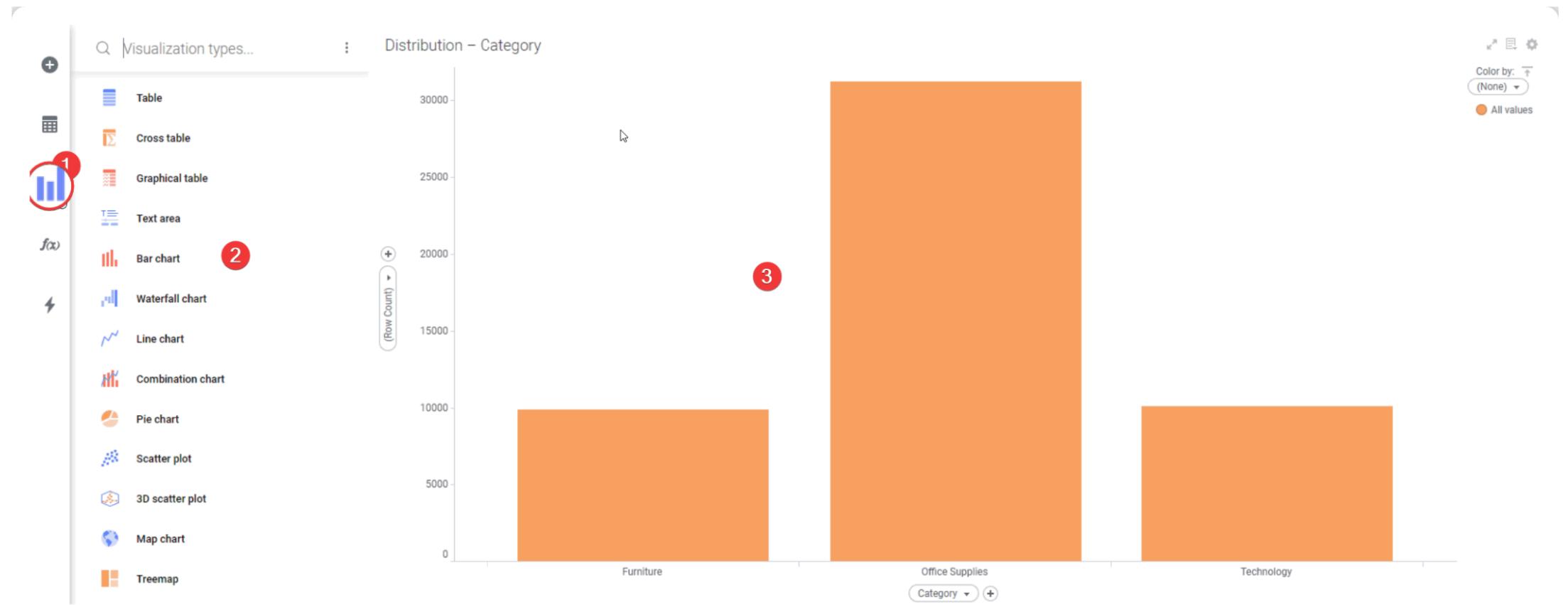
WHEN TO USE BAR CHARTS

- ✓ Compare values across **distinct categories**
- ✓ Show **numerical data** in an easy-to-understand way
- ✓ Display **multiple dimensions** (color by values, trellis by columns)

WHEN TO AVOID BAR CHARTS

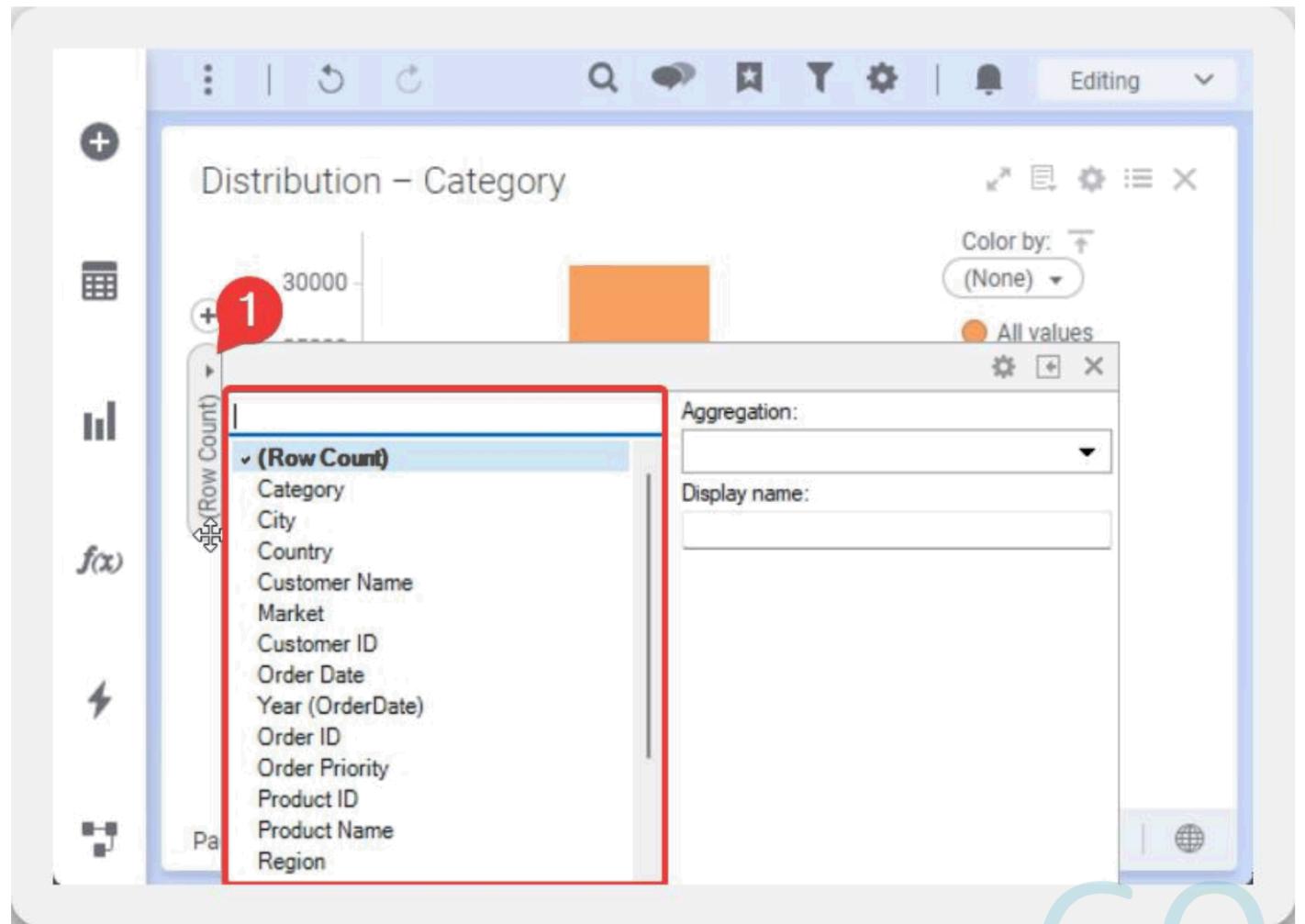
- ✗ Continuous data on the x-axis (unless analyzing trends)
- ✗ Too many categories (can clutter the view)

Create Bar Chart

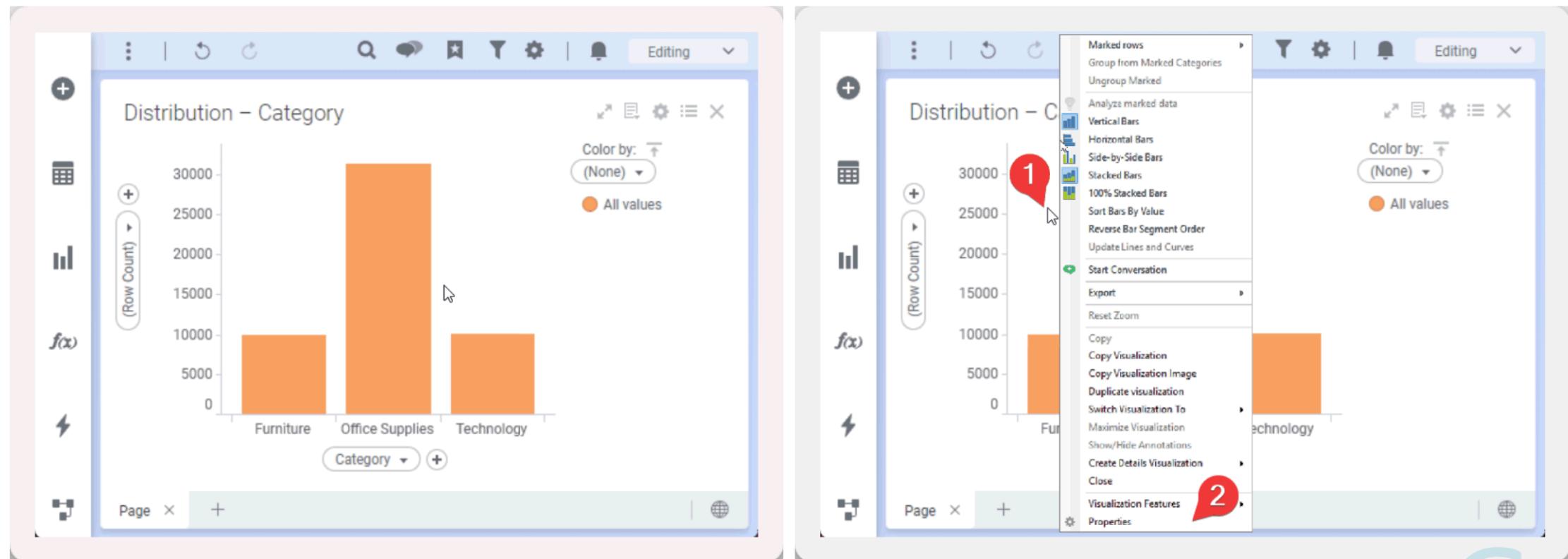


Bar Chart Axes

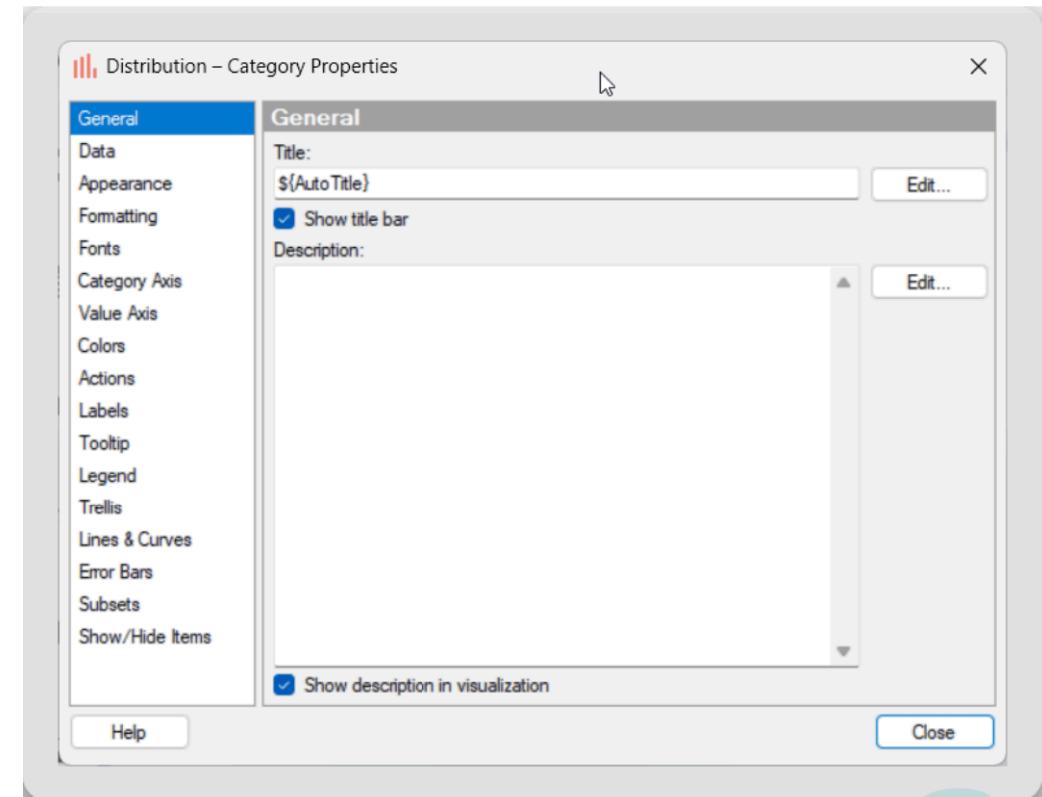
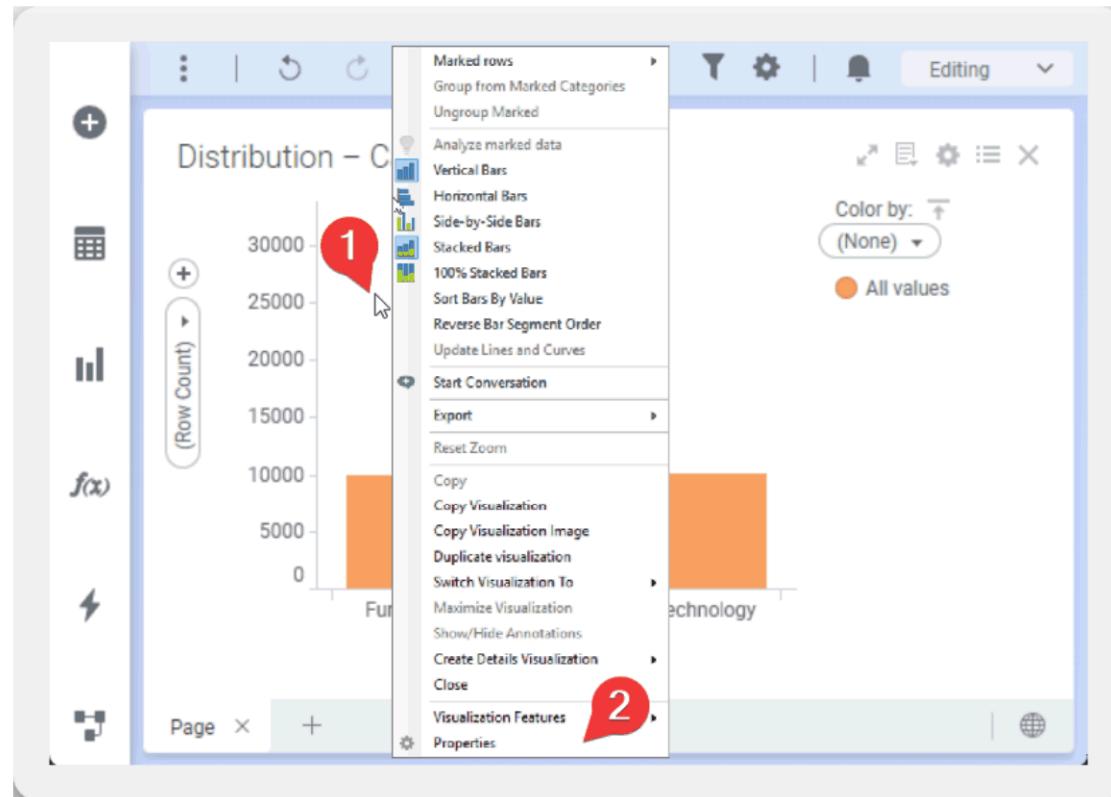
You can change axes



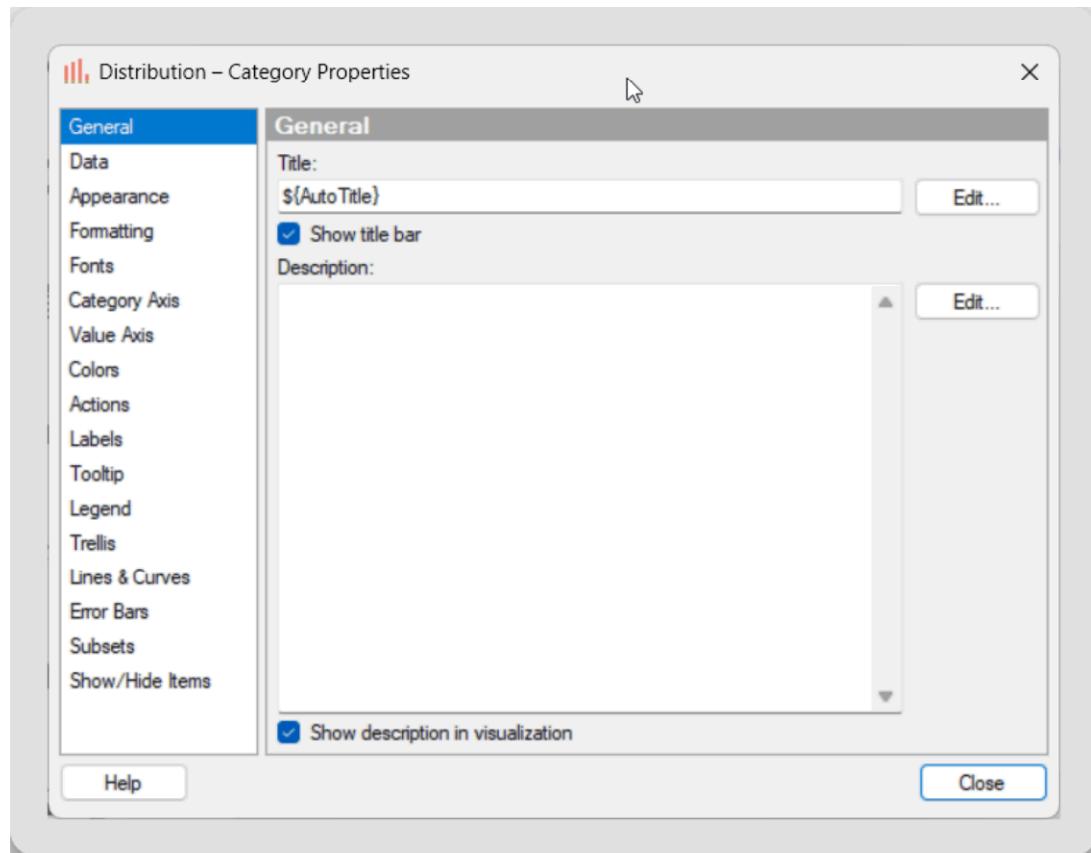
Properties Window



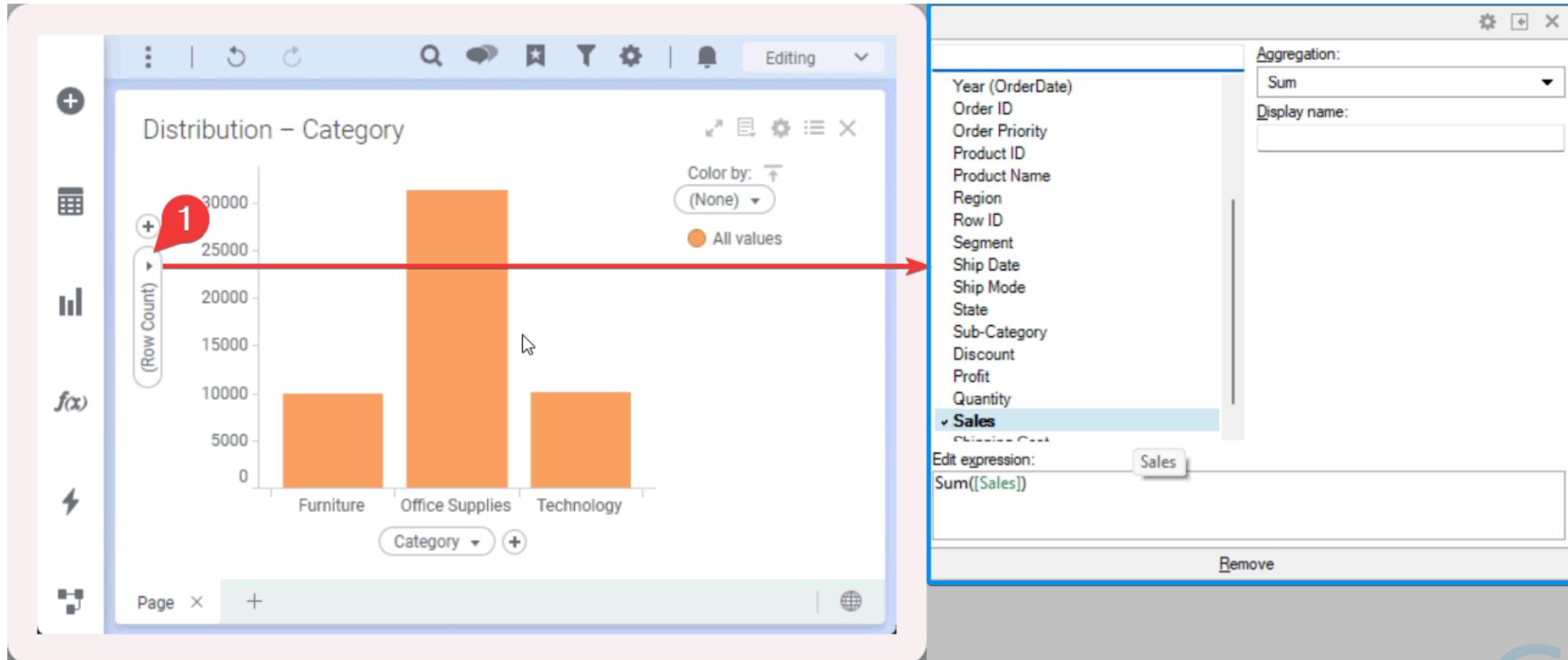
Properties Window



Properties Window



Creating Stacked Bar Chart



Creating Stacked Bar Chart

The screenshot shows the Power BI desktop application interface. On the left, the visualizations pane displays a bar chart titled "Distribution - Category". The chart has three bars representing "Furniture", "Office Supplies", and "Technology". The Y-axis ranges from 0 to 30,000. A tooltip indicates "All values". The Fields pane on the right lists various columns: (Column Names), (Subsets), (Row Number), (Row Count), (Value axis values), Category, City, Country, Customer Name, Market, Customer ID, Order Date, Year (OrderDate), Order ID, Order Priority, Product ID, and Product Name. The "Market" column is currently selected, highlighted in blue. The "Edit expression:" field contains "[Market]". A large number "65" is visible in the bottom right corner.

Distribution - Category

Color by: (None) All values

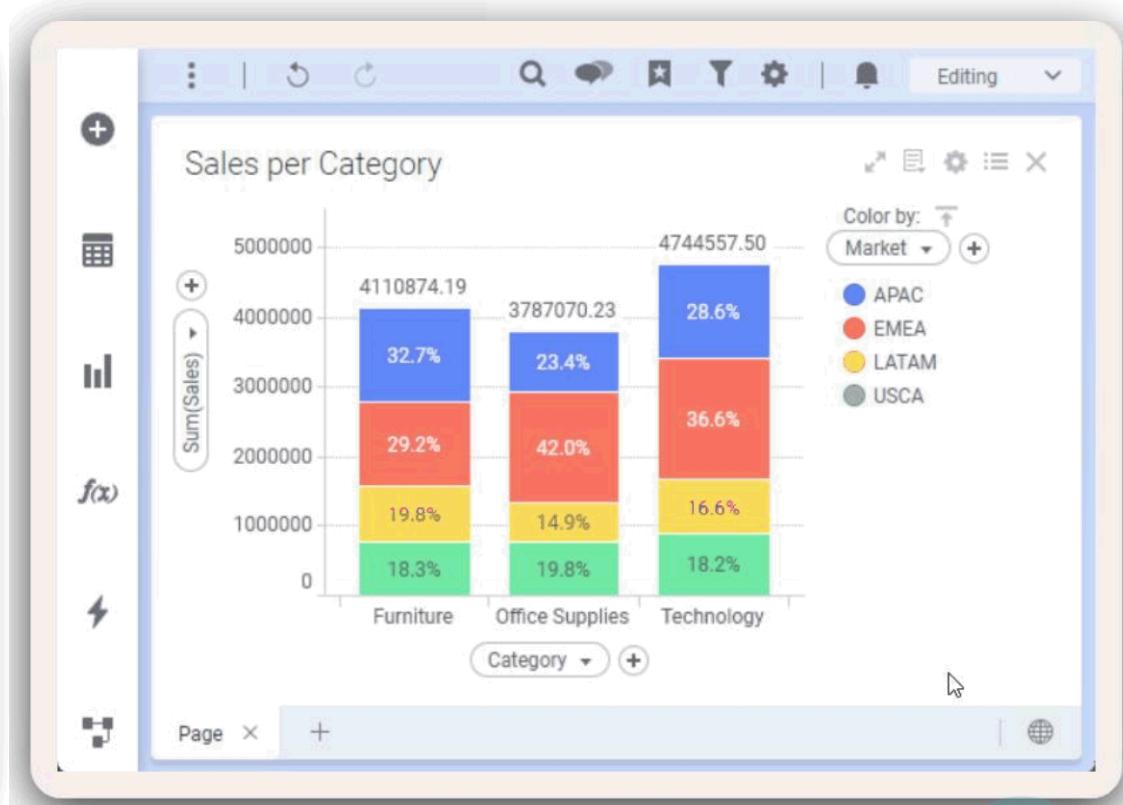
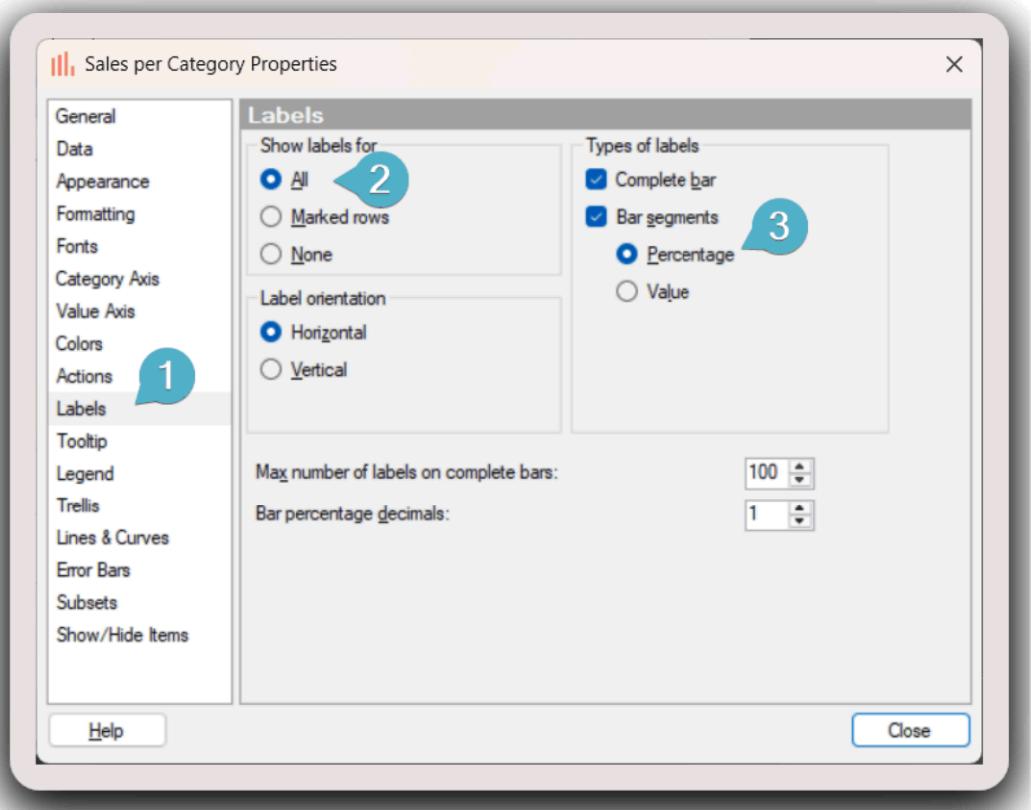
Category

Market

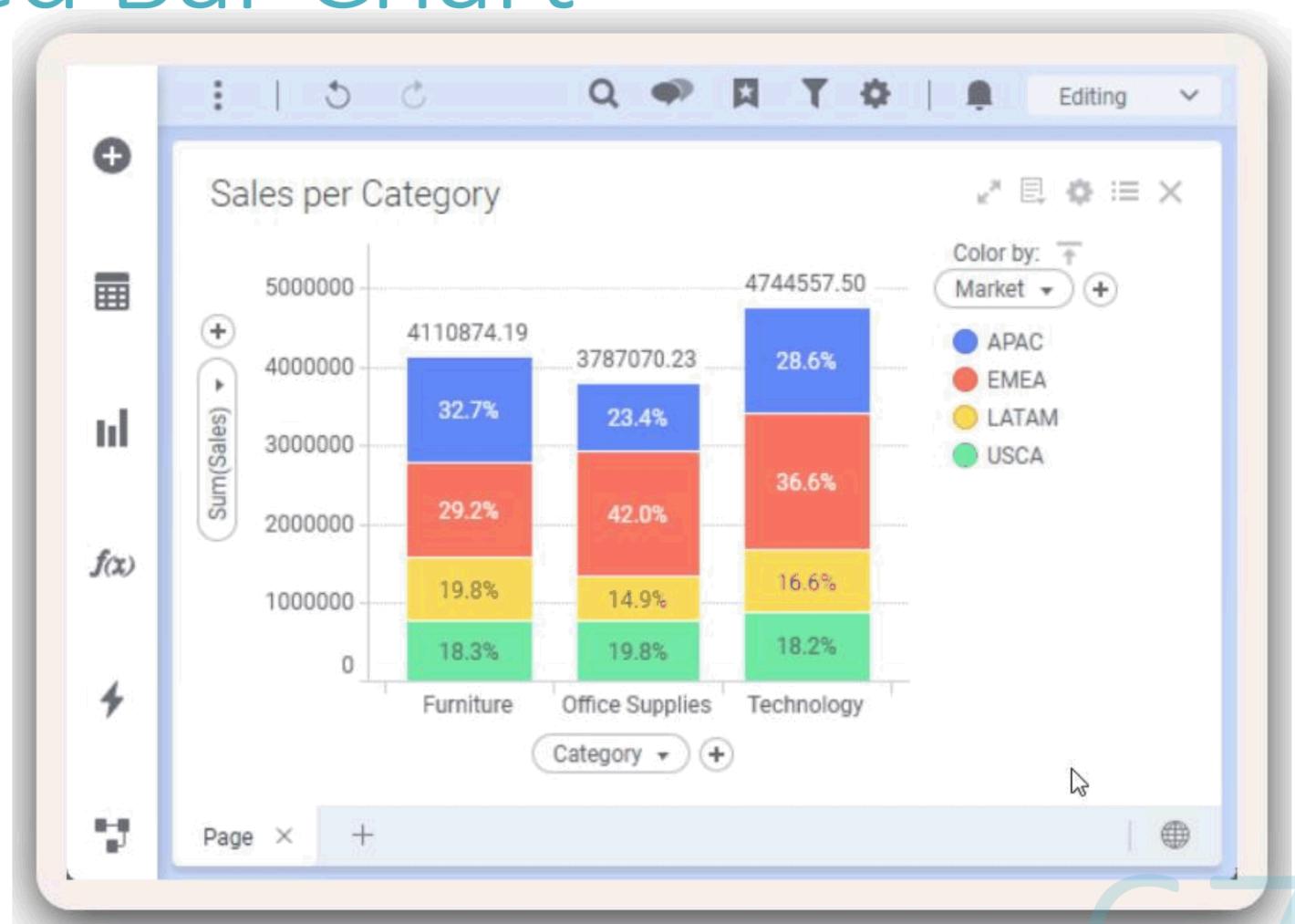
65

14-May-25
DR. ABDULKARIM M. JAMAL KANAAN (LINKED-IN: A-KANAAN)

Creating Stacked Bar Chart



Creating Stacked Bar Chart



Creating 100% Stacked Bar Chart



Waterfall Charts

Creating Waterfall Chart



What Is a Waterfall Chart?

A **waterfall chart** is used to show profit and loss (or change) across:

- **Categories** (e.g., departments, products)
- **Time periods** (e.g., months, quarters)

It visualizes:

- Individual contributions
- Increases and decreases
- Final total at the end



Why Use It?

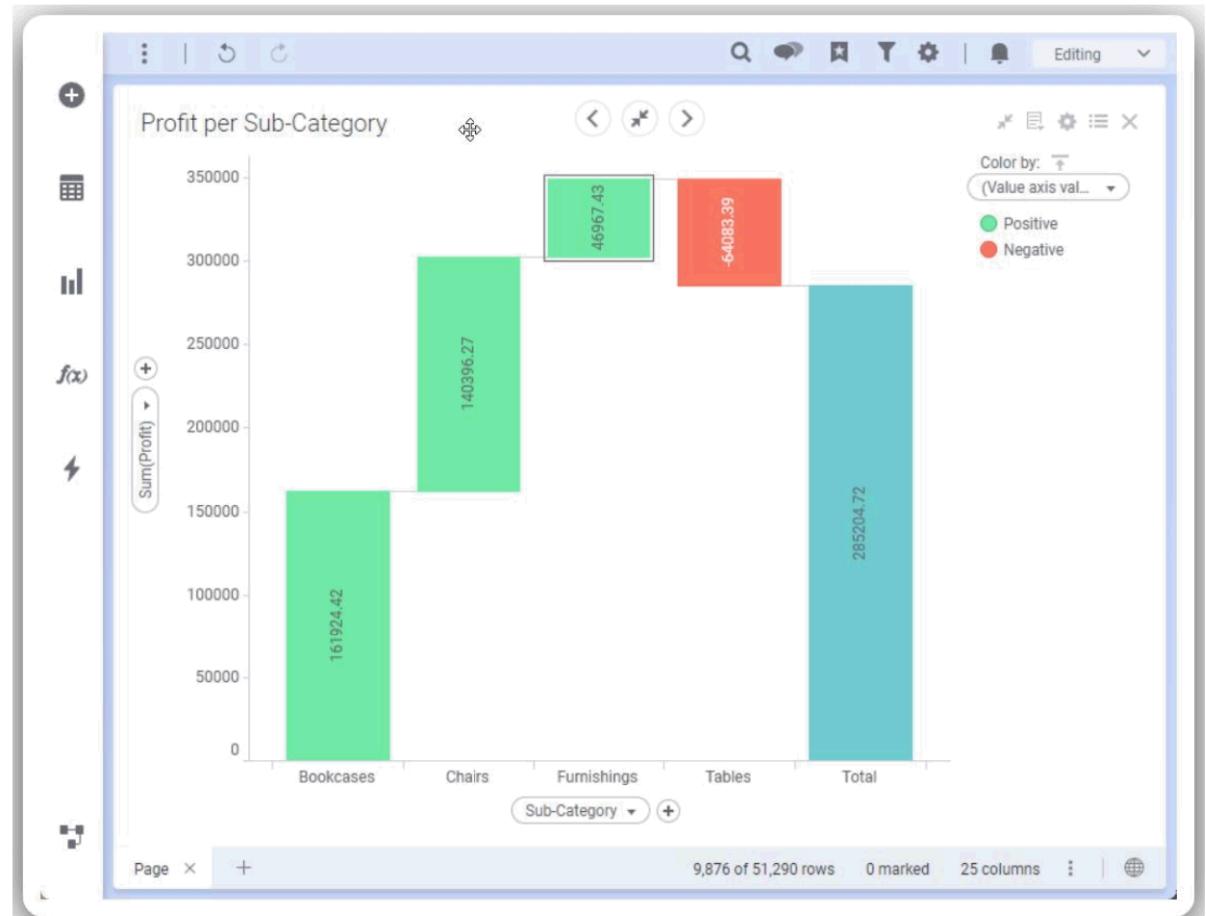
- Highlights how much change occurred overall
- Shows how much each event or category contributed
- Identifies the largest drivers of change

Profit per Furniture Sub-Categories

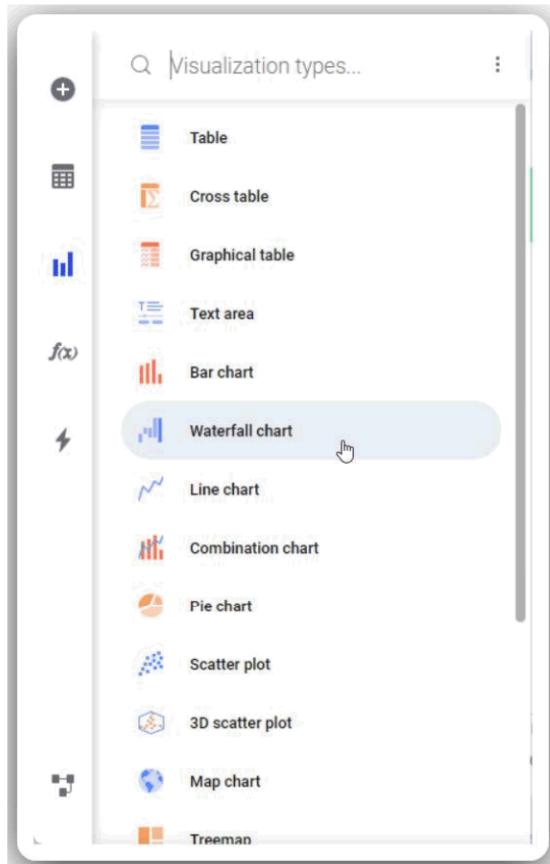
Waterfall chart showing **profit contribution** by each sub-category under Furniture.

🔍 Insights

- Bookcases
- Chairs
- Tables
- Furnishings
- Total profit for Furniture: +285,204.72



Step 1 – Create Waterfall Chart



Step 2 – Set Axes

X-AXIS

The screenshot shows the configuration dialog for the X-axis. On the left is a list of dimensions: Customer Name, Market, Customer ID, Order Date, Year (OrderDate), Order ID, Order Priority, Product ID, Product Name, Region, Row ID, Segment, Ship Date, Ship Mode, State, Sub-Category, and Discount. The 'Sub-Category' item is highlighted with a blue speech bubble containing the number '1'. At the bottom, there is an 'Edit expression:' field with '[Category]' and a 'Remove' button.

Display name: 2

Customer Name
Market
Customer ID
Order Date
Year (OrderDate)
Order ID
Order Priority
Product ID
Product Name
Region
Row ID
Segment
Ship Date
Ship Mode
State
Sub-Category 1
Discount
Profit
Quantity
Sales
Edit expression: [Category] Remove

Y-AXIS

The screenshot shows the configuration dialog for the Y-axis. On the left is a list of measures: Year (OrderDate), Order ID, Order Priority, Product ID, Product Name, Region, Row ID, Segment, Ship Date, Ship Mode, State, Sub-Category, Profit, Quantity, Sales, and Editing Cost. The 'Profit' item is highlighted with a blue speech bubble containing the number '1'. At the top, there is an 'Aggregation:' dropdown set to 'Sum' and a 'Display name:' field. At the bottom, there is an 'Edit expression:' field with 'Sum([Discount])' and a 'Remove' button.

Aggregation: Sum 2
Display name:
Year (OrderDate)
Order ID
Order Priority
Product ID
Product Name
Region
Row ID
Segment
Ship Date
Ship Mode
State
Sub-Category
1 Profit
Quantity
Sales
Editing Cost
Edit expression: Sum([Discount]) Remove

Step 3 – Customize Labels

The image shows two screenshots illustrating the customization of labels in Power BI.

Left Screenshot: A context menu is open over a visualization. The menu items include:

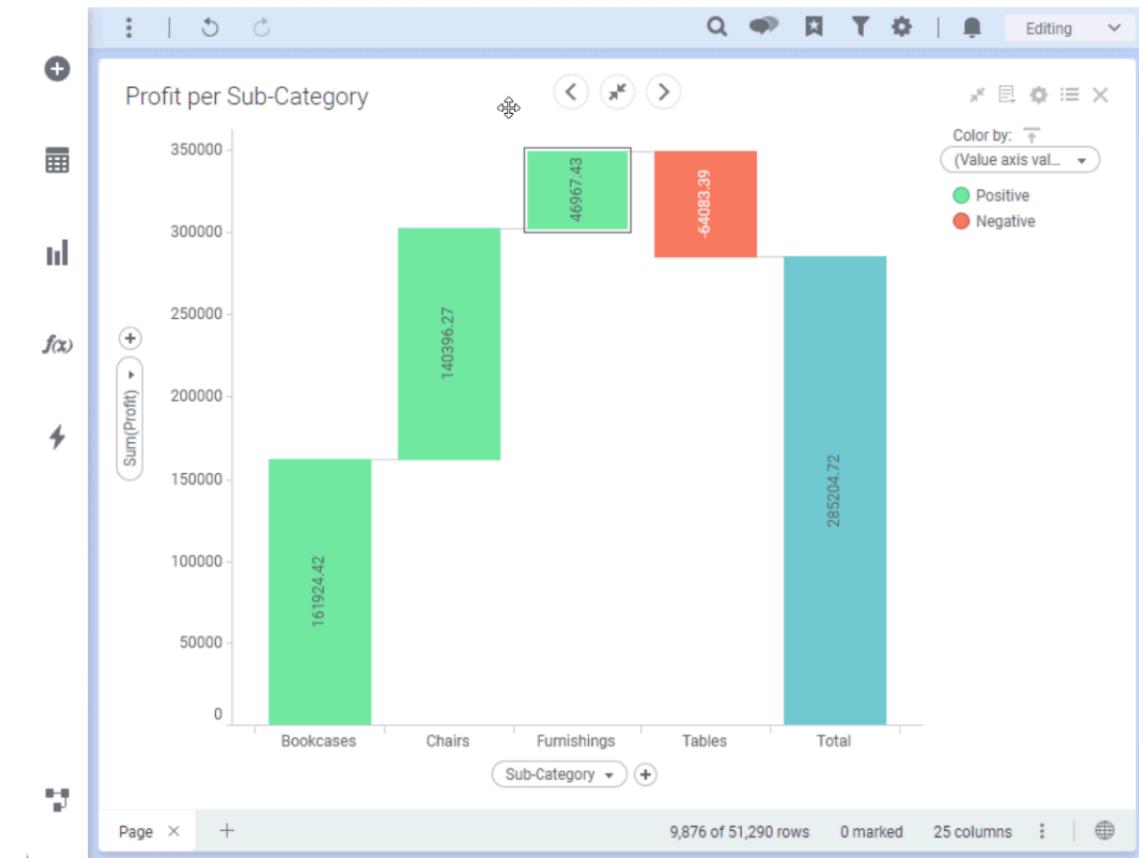
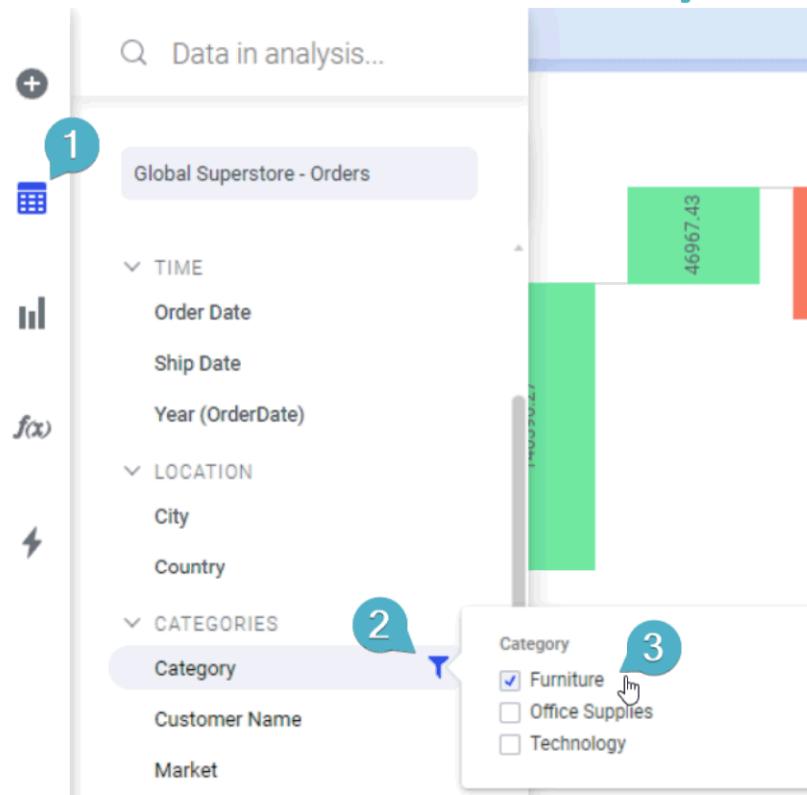
- Marked rows
 - Group from Marked Categories
 - Ungroup Marked
- Analyze marked data
- Vertical Bars
- Horizontal Bars
- Side-by-Side Bars
- Stacked Bars
- 100% Stacked Bars
- Sort Bars By Value
- Reverse Bar Segment Order
- Update Lines and Curves
- Start Conversation
- Export
 - Reset Zoom
 - Copy
 - Copy Visualization
 - Copy Visualization Image
 - Duplicate visualization
 - Switch Visualization To
 - Maximize Visualization
 - Show/Hide Annotations
 - Create Details Visualization
 - Close
- Visualization Features **1**
- Properties

Right Screenshot: The "Profit per Sub-Category Properties" dialog box is open. The "Labels" section is selected, showing the following configuration:

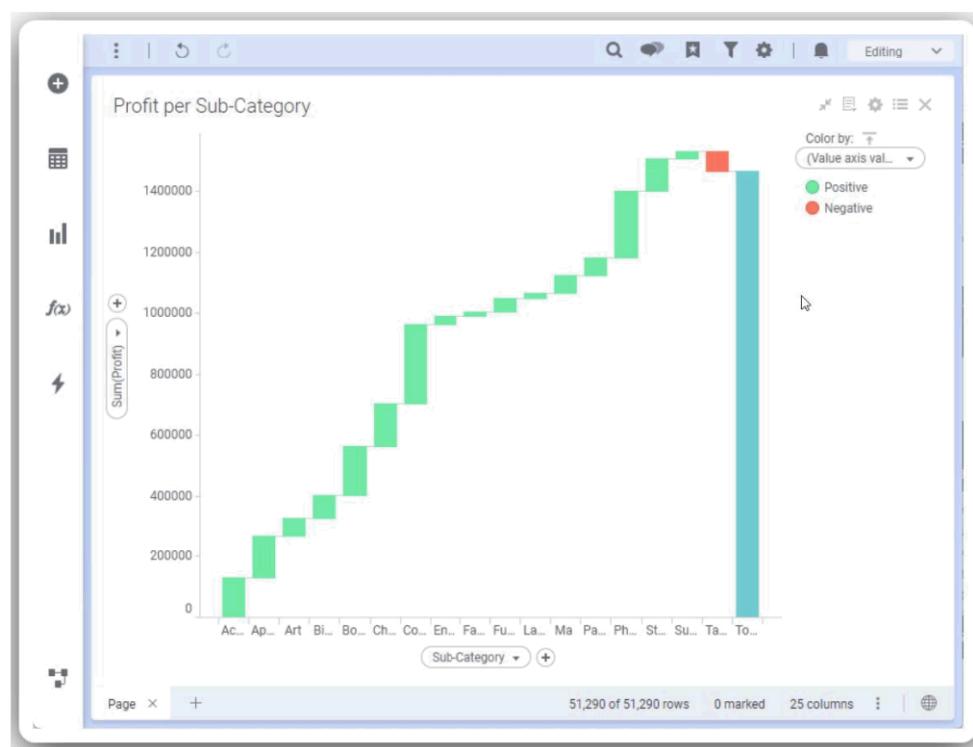
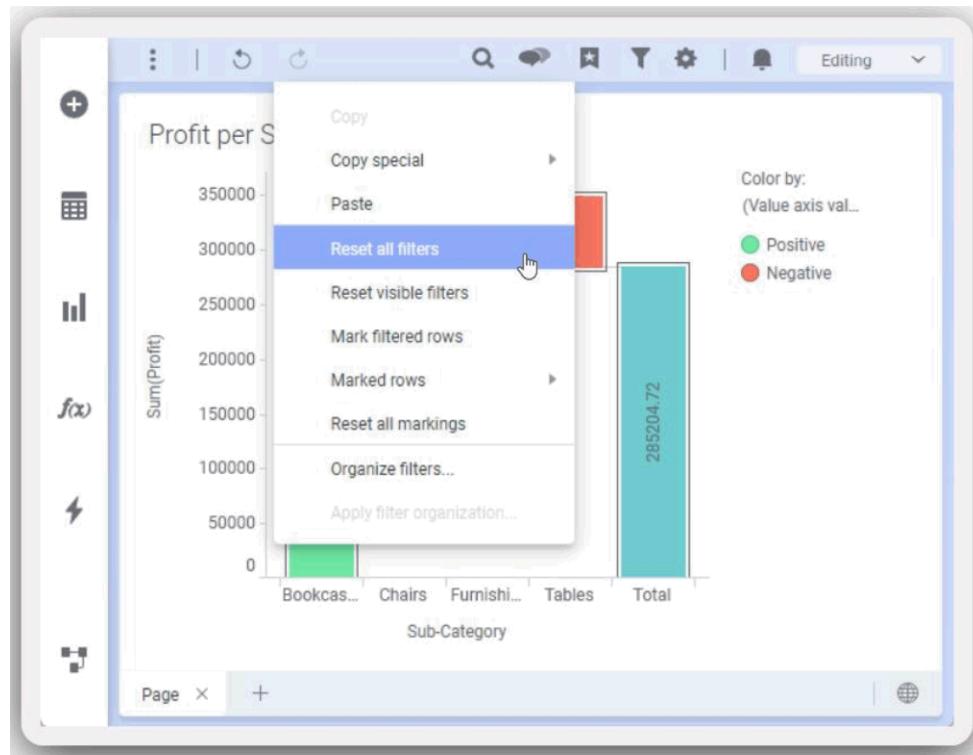
- Show labels for:
 - All **1**
 - Marked rows
 - None
- Types of labels:
 - Running totals
 - Blocks **3**
- Label orientation:
 - Horizontal
 - Vertical **2**
- Max number of labels on running totals: 100

Other tabs visible in the dialog box include General, Data, Appearance, Total Bars, Formatting, Fonts, Category Axis, Value Axis, Colors, Actions, Tooltip, Legend, Trellis, Lines & Curves, Subsets, and Show/Hide Items.

Step 4 – Apply Category Filter for Focused Analysis



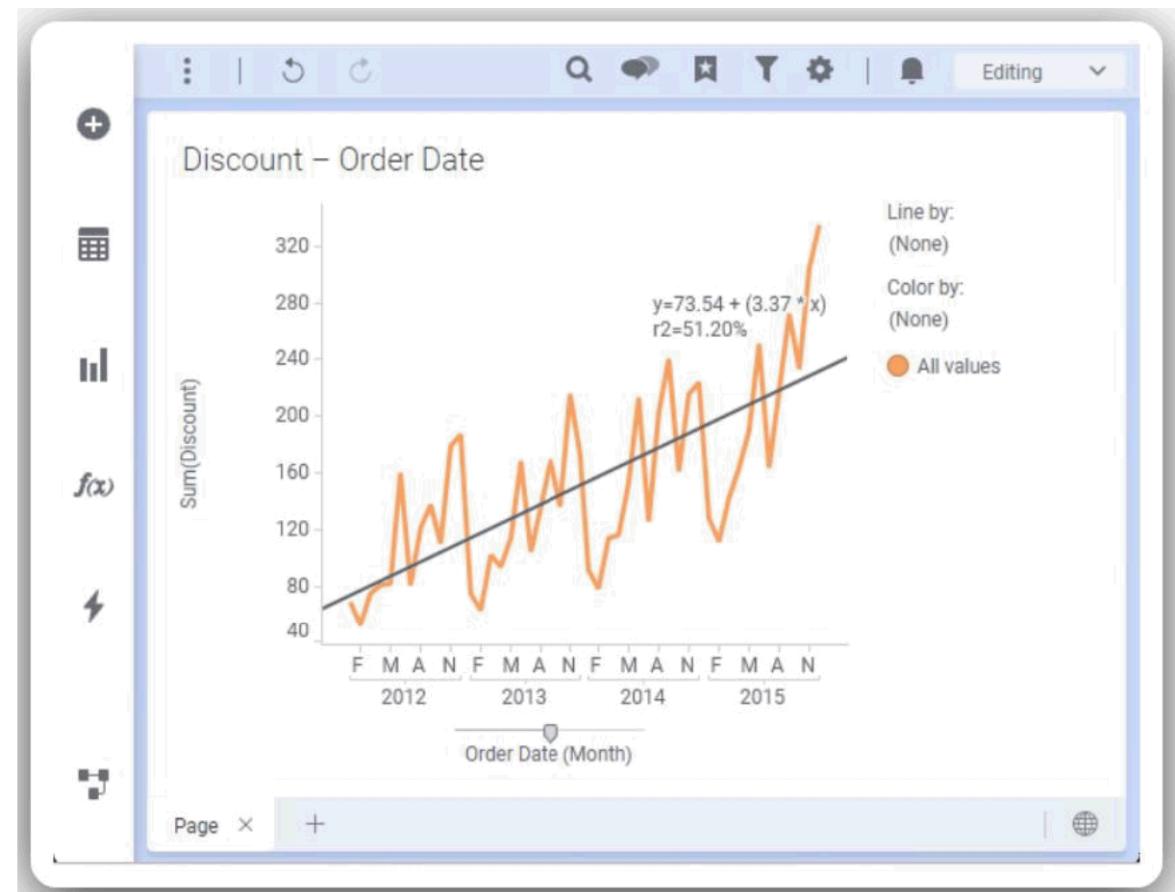
Reset Filter



Line Chart

Line Chart

- Overall Trend
- Seasonality
- R² Value Interpretation (51.2%)



Visualizing Trends in Time-Series Data

Line charts are ideal for displaying **continuous data over time**, revealing trends and patterns

📌 Common Use Cases:

- ✓ Tracking population changes
- ✓ Monitoring sensor data from machines
- ✓ Analyzing sales or production trends

📌 Best Practice:

- Use **trellising** or **filters** to avoid overcrowding.
- Keep the chart clean and focus on **clear trend lines**.

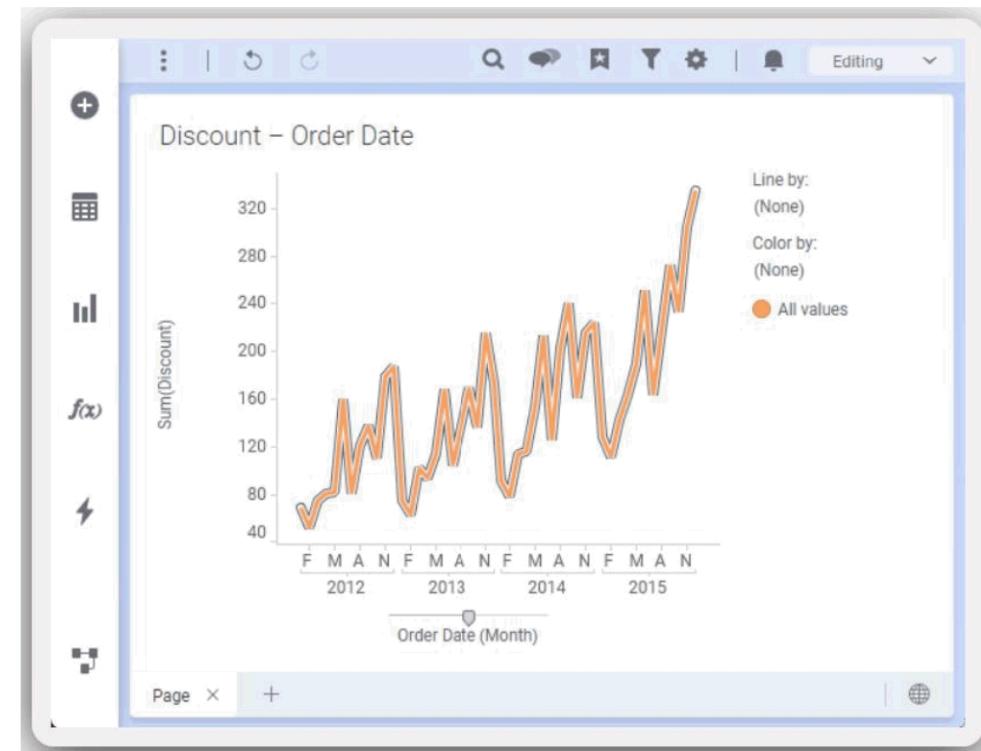
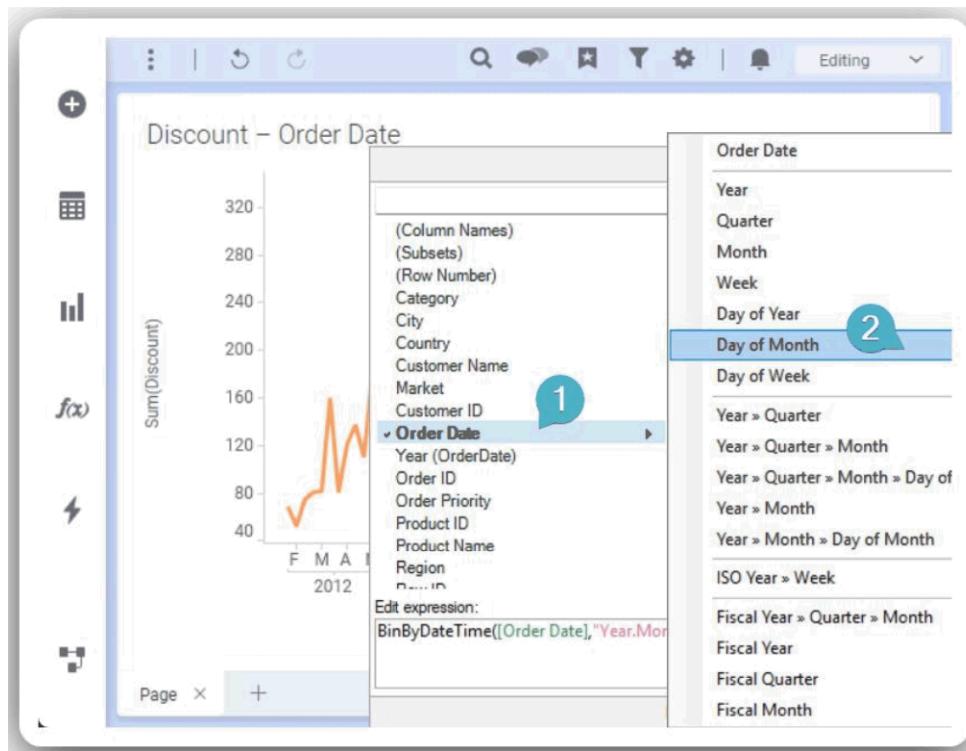
✓ Good For:

- Time-series data
- Showing how one variable changes in response to another

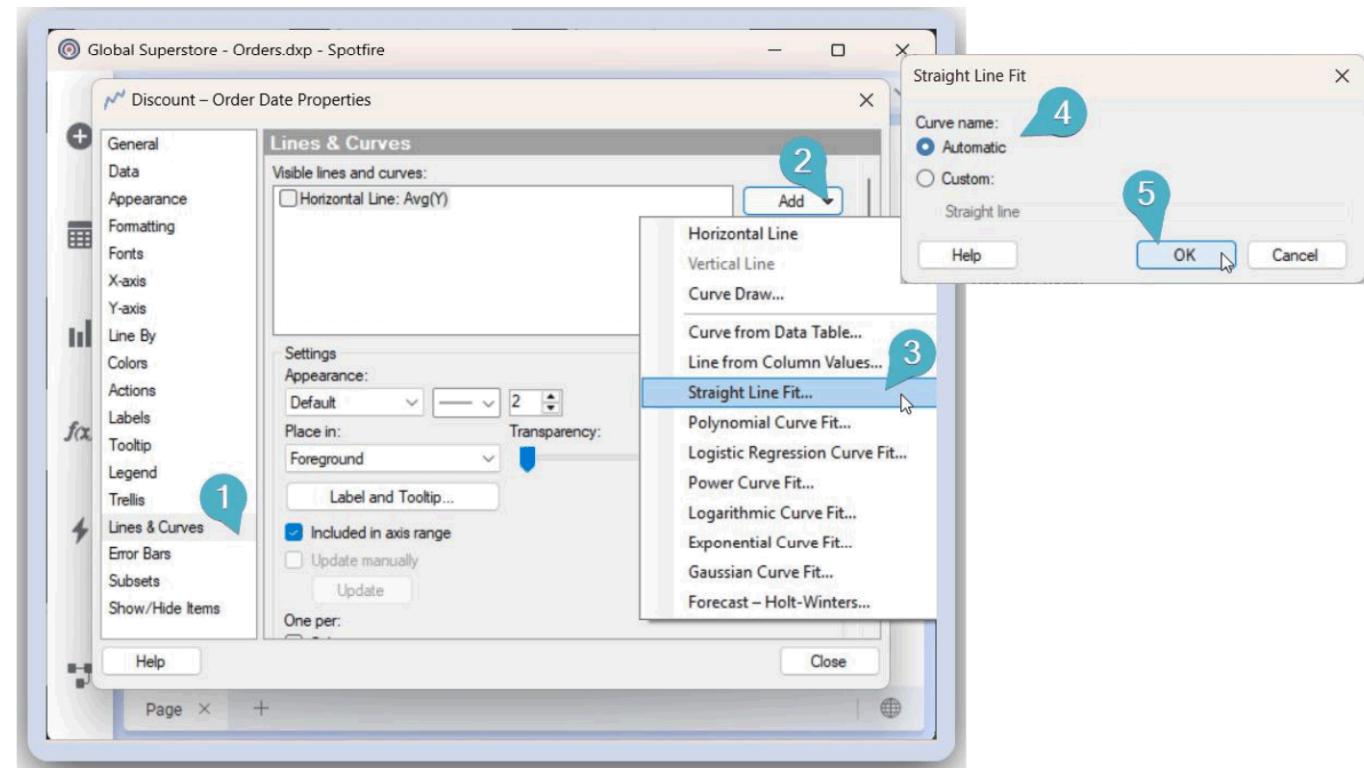
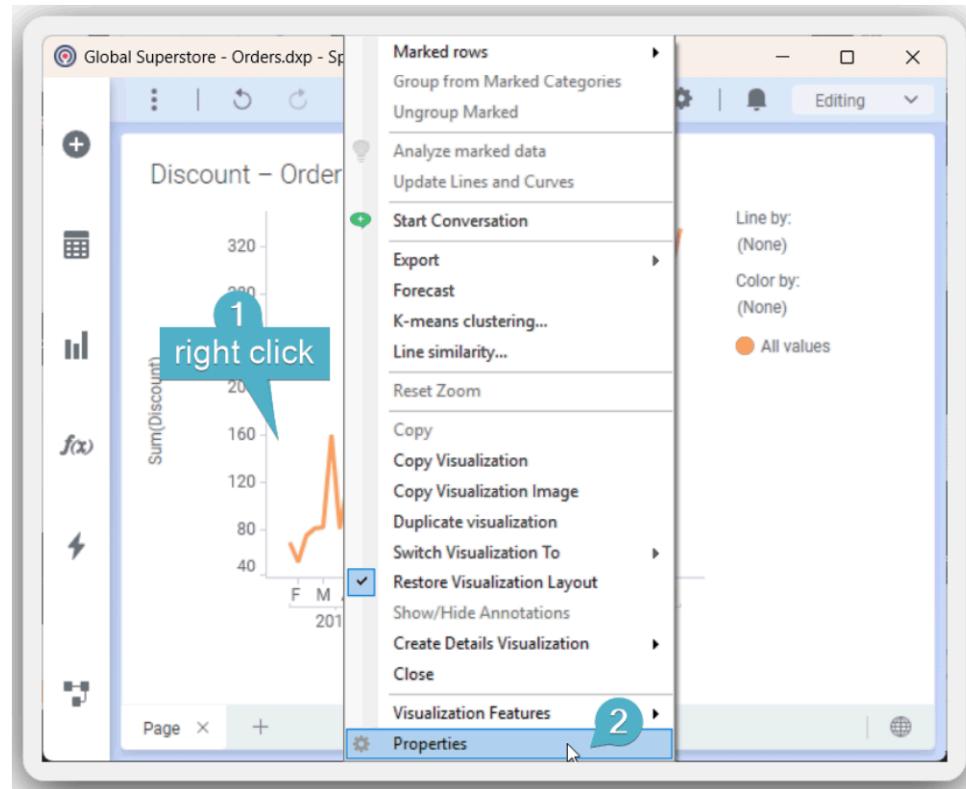
✗ Not Recommended For:

- Large numbers of time series (too cluttered)
- Categorical x-axes without a natural order

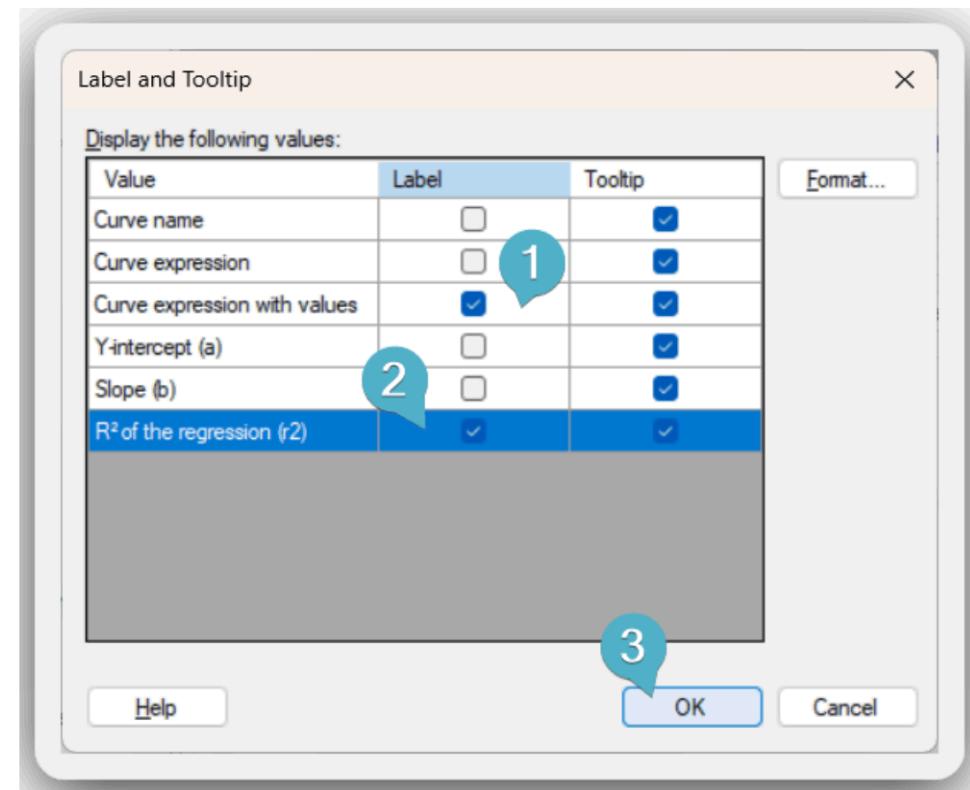
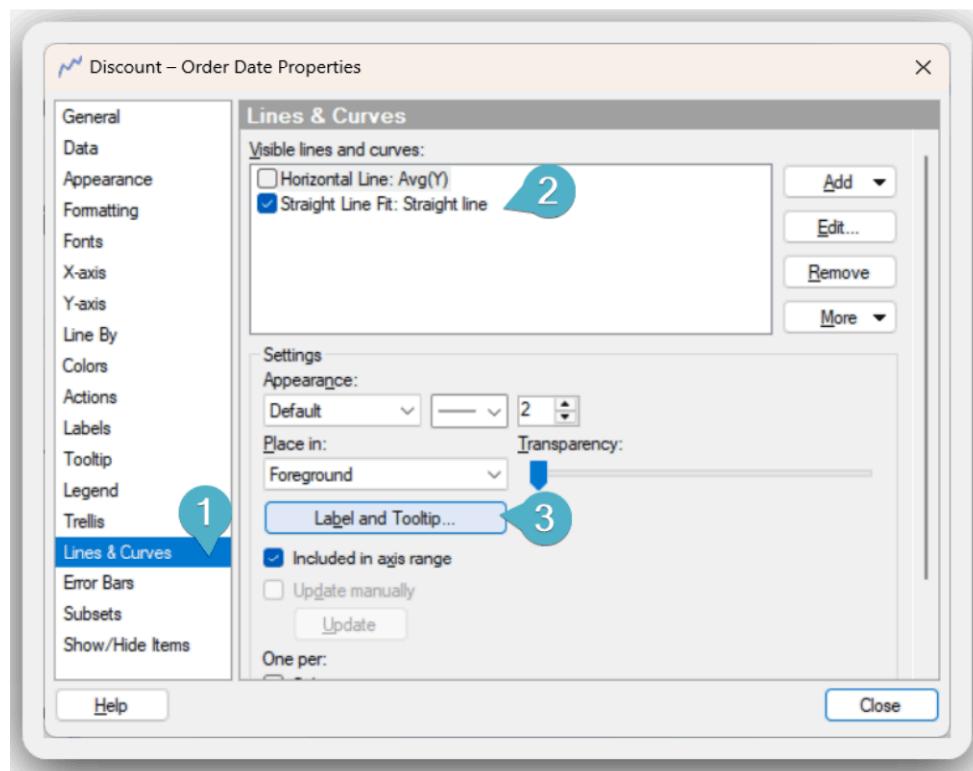
Setting Time Dimensions in Line Charts



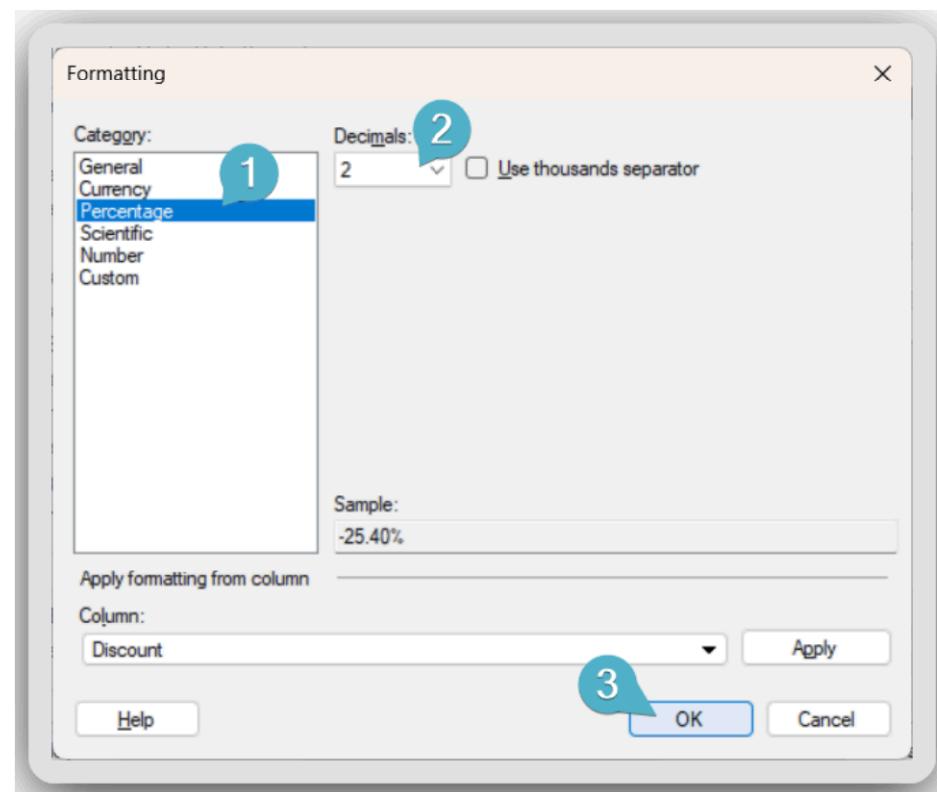
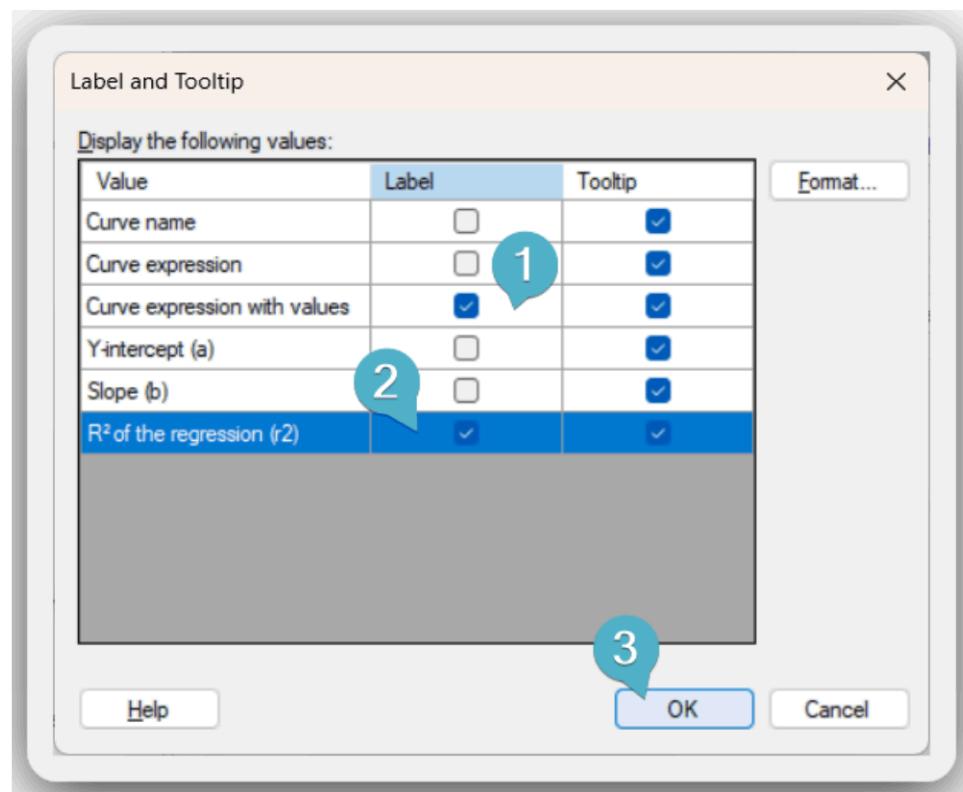
Adding a Trend Line in Spotfire



Configuring Line Properties and Displaying R² Value



Formatting R² Value



Final Visualization with Trend Line and Regression Details



Treemaps

Hierarchies in Data

levels of data organization that exist in a logical or chronological structure.

enable **data aggregation or grouping** based on granularity.

Example 1: Date/Time Hierarchy

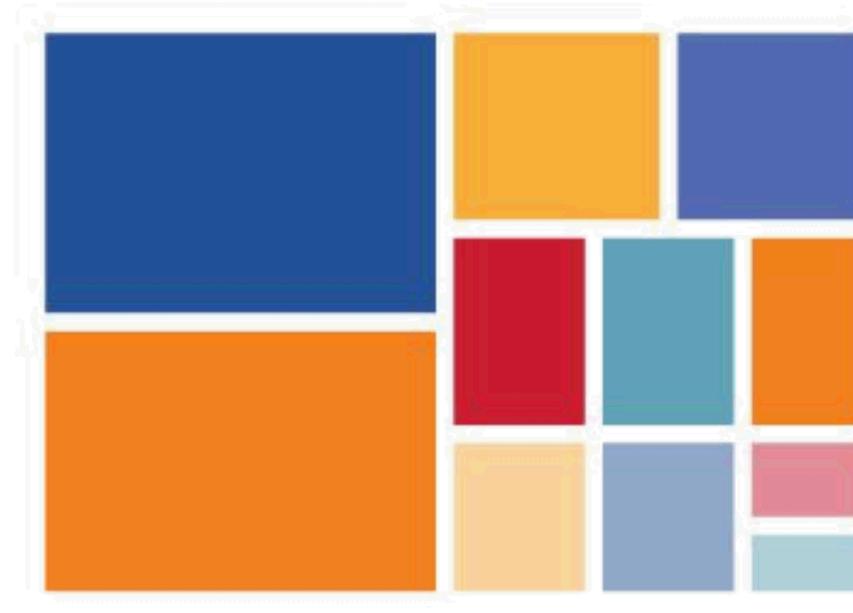
- Year → Month → Day → Hour → Minute → Second
- Enables time-based aggregation like monthly sales trends or daily web traffic.

Example 2: Geographic Hierarchy

- Region → Sub-Region → Country
- Helps visualize data from global to local perspectives.

Treemaps

- ✓ Visualize **hierarchical data** using nested rectangles
- ✓ Rectangle **size** = value; **color** = category or second value
- ✓ Shows **part-to-whole** relationships clearly
- ✓ Ideal for summarizing **large datasets** in limited space
- ✓ Best for **balanced hierarchies** with clear patterns



Source: What Is a Tree Map? | Tableau, 2025

Treemaps

Treemaps: Navigating Hierarchical Data Efficiently

✓ Best For:

- ✓ Visualizing **hierarchical data** (e.g., Region → Country)
- ✓ **Interactive drilldown/up**
- ✓ Collapsing large data into a **compact, navigable view**

✓ Advantages:

- Intuitive **at-a-glance view** of hierarchy
- Size/color boxes by meaningful metrics
- Only Spotfire chart with **in-place drilldown**

✗ Limitations:

- Poor for **deep hierarchies** or **highly unbalanced categories**
- Labels limited to **category name** only (no custom labels)

How do I read a Tree Map?

1. Sales Contribution by Category
2. Subcategory Performance
3. Visual Cues
4. Hierarchical Structure
5. Underperforming Areas

