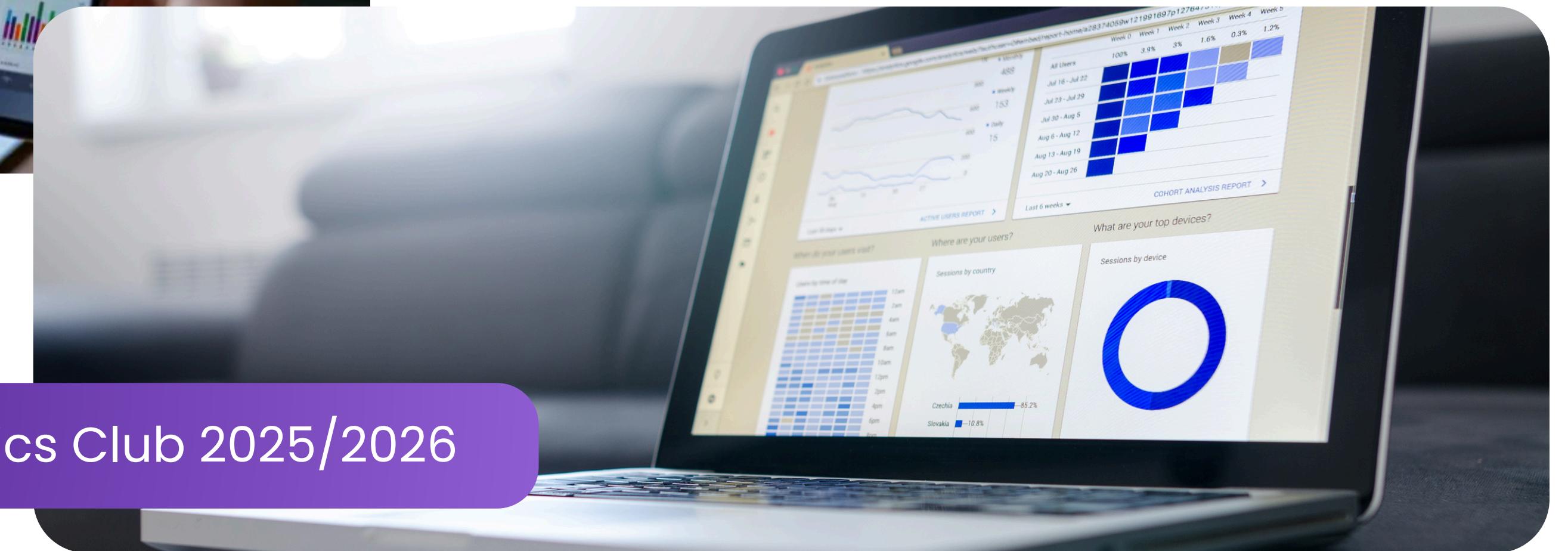




30 Oct 2025 Session —

TABLEAU



SIM Data Analytics Club 2025/2026





What is Tableau?

Tool for data visualisation and business intelligence. It helps users to analyse data, visually presents the data using charts and dashboards, to help the users gain insights.

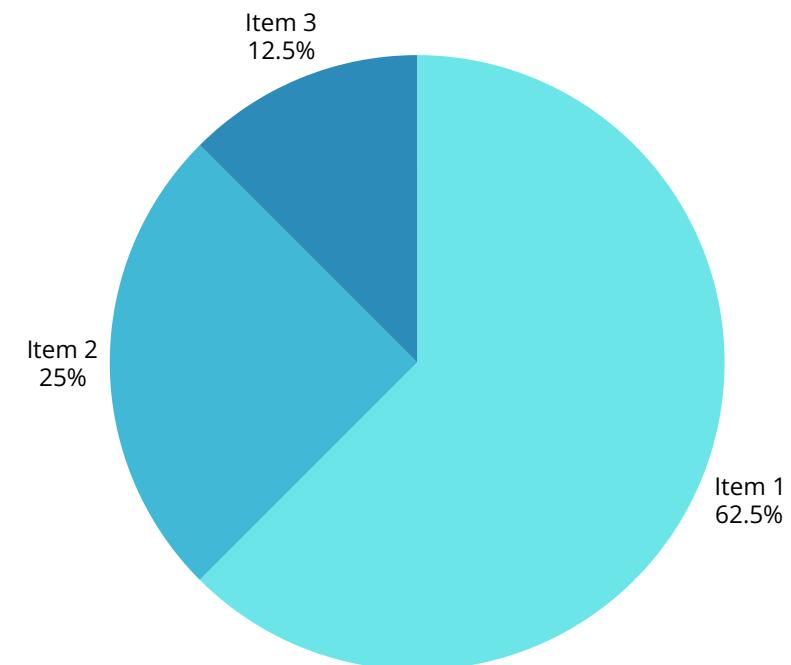
Handles large data efficiently

Connects to multiple data sources

Interactive dashboards

Wide range of charts

Charts



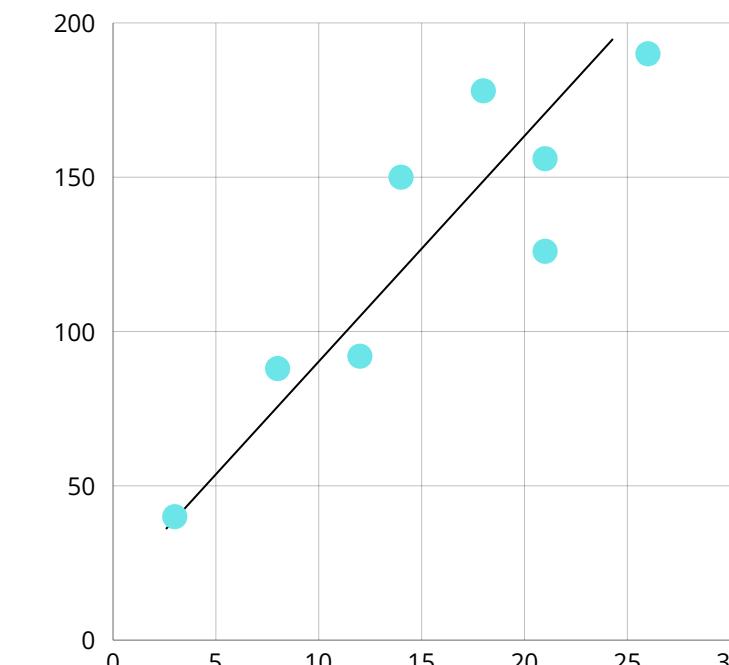
Pie Chart

- Show data as percentage of a whole



Tree Map

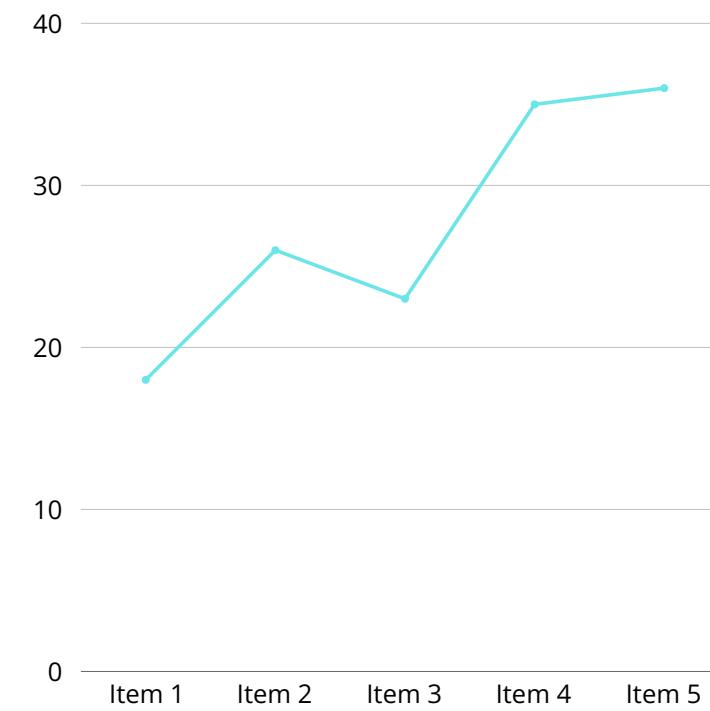
- Displays “tree-structured” data using nested rectangles
- Each rectangle represents a category or sub-category



Scatter Plots

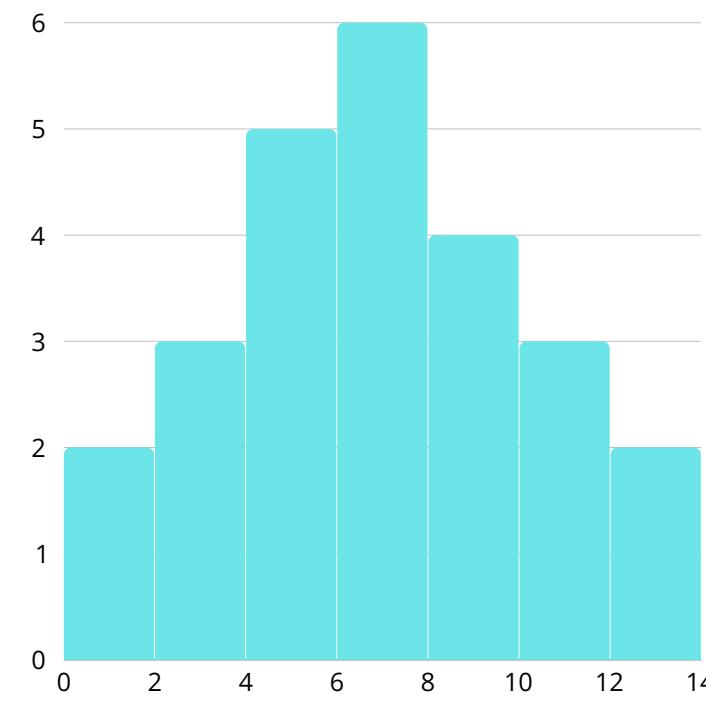
- Correlation between variables
- Usually combined with trendlines

Charts



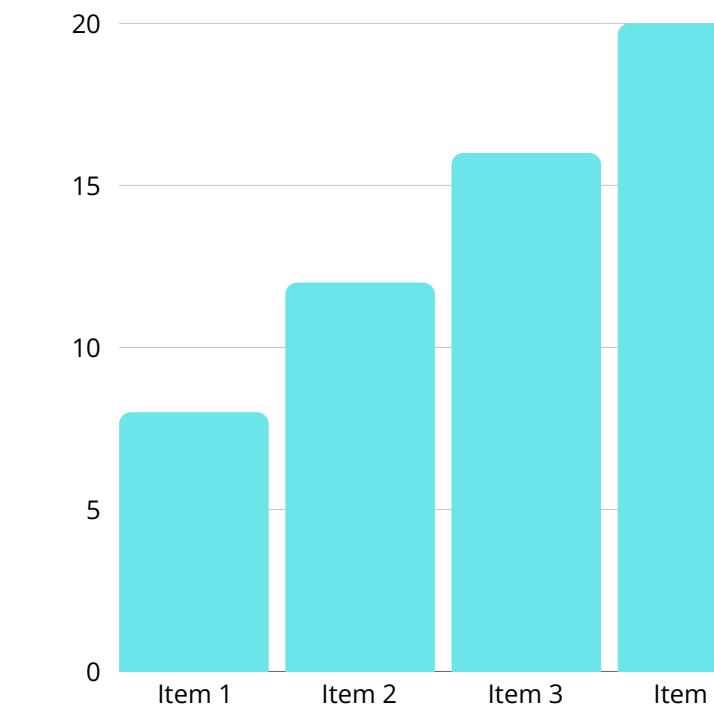
Line Chart

- Displays trend over time



Histogram

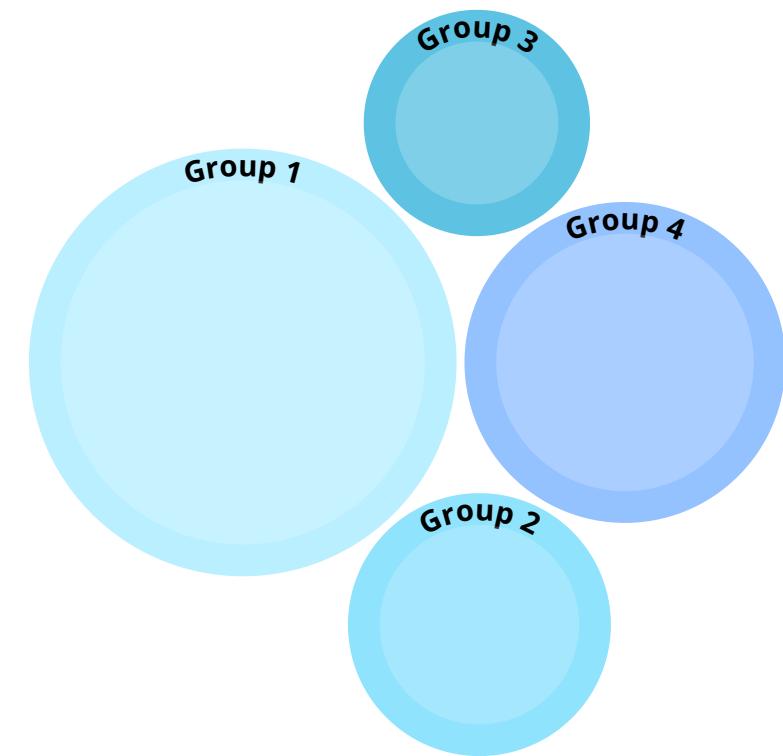
- Displays “tree-structured” data using nested rectangles
- Each rectangle represents a category or sub-category



Bar Chart

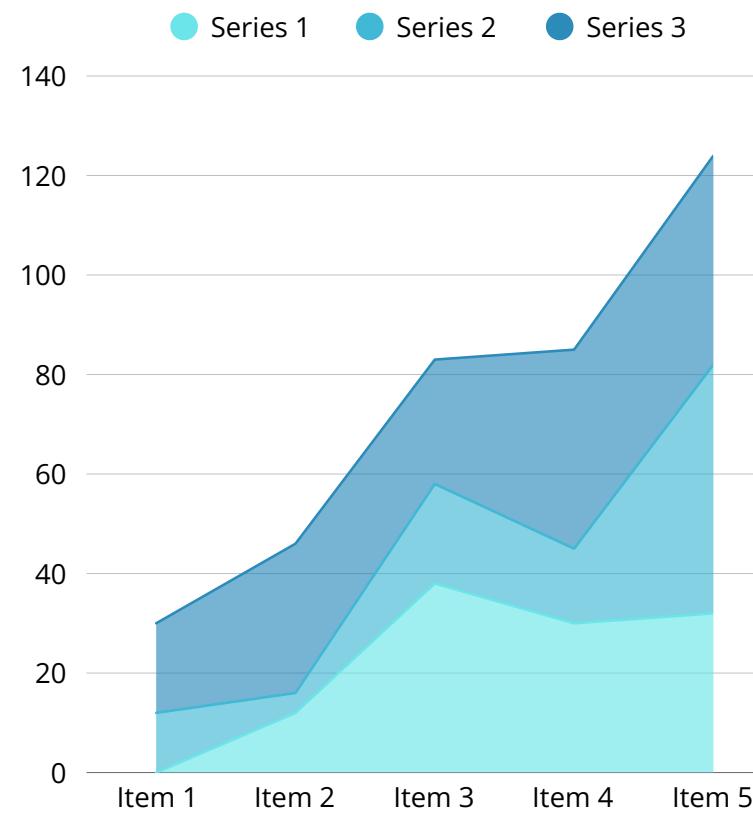
- Correlation between variables
- Usually combined with trendlines

Charts



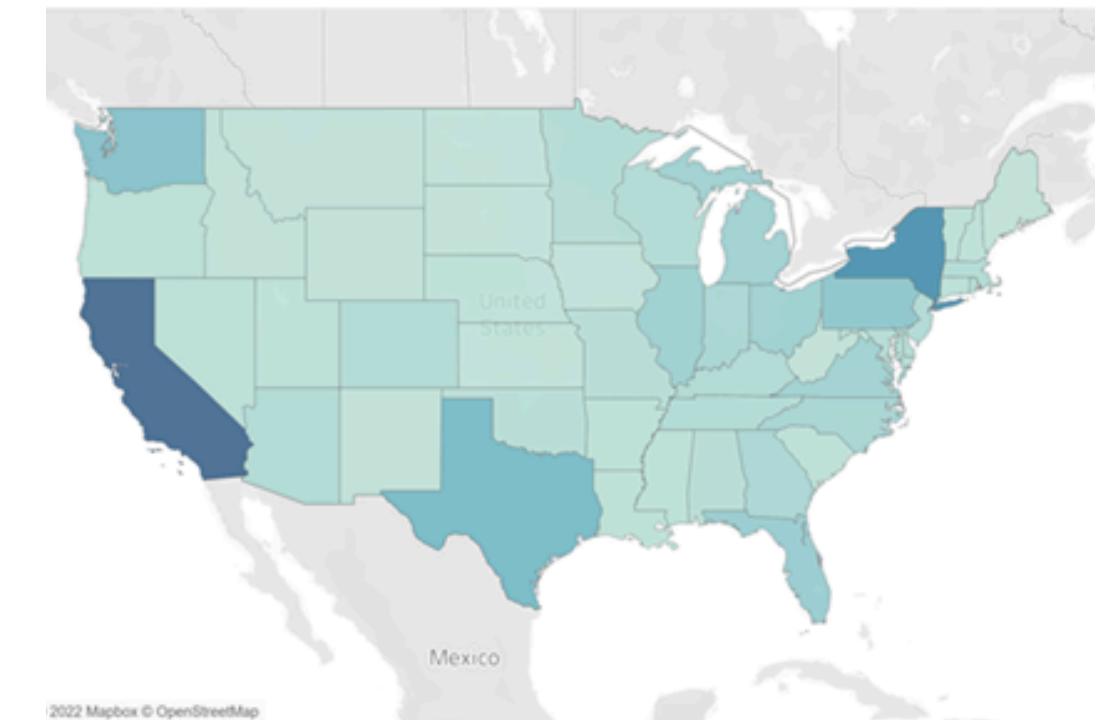
Packed Bubble Chart

- Uses bubble size to compare between categories



Area Chart

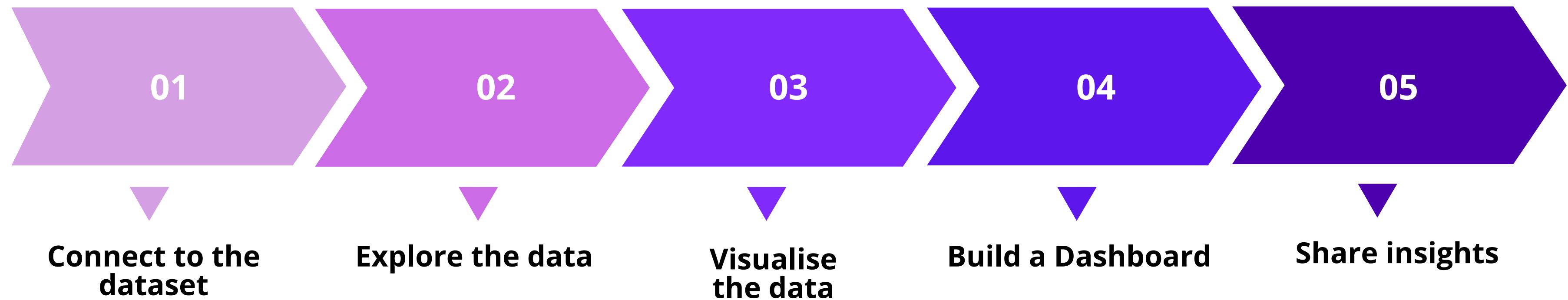
- To show trends over time while emphasising the changes in volume



Filled Map

- Show the geographical distributions of the data

Overall Workflow in Tableau



Connect & Explore the data

The screenshot shows the Tableau interface with the following components:

- Left Sidebar:** Contains "Connect" and "Search for Data" sections, followed by "Tableau Server" and "To a File" sections (Microsoft Excel, Text file, JSON file, Microsoft Access, PDF file, Spatial file, Statistical file). It also includes "More..." and "To a Server" sections (Microsoft SQL Server, MySQL, Oracle, Amazon Redshift, More...).
- Connections View:** Shows a connection named "Adidas US Sales Dataset" (Microsoft Excel). The "Sheets" section lists "Adidas US Sales", "New Union", and "New Table Extension".
- Data Source View:** Displays the "Adidas US Sales" sheet with 13 fields and 9637 rows. The "Name" field is set to "Adidas US Sales". The "Fields" section shows columns for Type, Field Name, Physical Table, and Remote Field... The data preview shows four rows of data.
- Right Panel:** Shows connection settings: "Connection" (radio buttons for "Live" and "Extract" - the latter is selected), "Edit", "Filters", "Refresh", and "0 | Add". A note says "Extract will contain all data."
- Bottom Navigation:** Buttons for "Data Source", "Sheet 1", "Dashboard", "Story", and "More...".

Annotations:

- A red arrow points from "Dashboard" to the "Dashboard" button in the bottom navigation.
- A blue arrow points from "Sheet" to the "Sheet" button in the bottom navigation.
- A green arrow points from "Story" to the "Story" button in the bottom navigation.

List of Connection Types:

- Live: Data updated automatically, requires access to the database
- Extract: Snapshot of locally stored data

*Tableau Public only supports extract

Navigate through Tableau

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Show Me

Data Analytics

Adidas US Sales (Adidas ...)

Search

Tables

- Invoice Date
- Product
- Region
- Retailer
- Retailer Id
- Sales Id
- Sales Method
- state, city
 - State
 - City
- Measure Names
 - Operating Profit
 - Price Per Unit
 - Total Sales
 - Units Sold
 - Adidas US Sales (Count)
 - Latitude (generated)
 - Longitude (generated)
 - Measure Values

Pages

Columns

Rows

Sheet 1

Drop field here

Marks

Automatic

Color Size Text

Detail Tooltip

Drop field here

Drop field here

Dimension

- Defines the category of the data

Measures

- Quantitative Data

Data Source Sheet 1

Navigate through Tableau

The screenshot shows the Tableau desktop application interface. On the left, the Data pane displays a list of data sources and tables. The Marks card, located in the center-left, provides options for visual encoding. The main workspace, labeled "Sheet 1", is currently empty with placeholder text "Drop field here". A large library of visualizations is visible on the right side.

Annotations:

- An arrow points from the "Pages" section of the Data pane to the workspace area, with the text: "To break the visualisation into a series of views or pages (e.g. based on time period)".
- An arrow points from the "Filters" section of the Data pane to the workspace area, with the text: "Select which data to appear".
- An arrow points from the "Marks" card to the workspace area, with the text: "Visual encoding".

The screenshot shows the Tableau desktop interface. The top menu bar includes File, Data, Worksheet, Dashboard, Story, Analysis, Map, Format, Server, Window, and Help. Below the menu is a toolbar with various icons. On the left, there's a sidebar with sections for Data (selected), Analytics, Tables, and Measures. The Tables section lists Invoice Date, Product, Region, Retailer, Retailer Id, Sales Id, Sales Method, state, city, State, City, and Measure Names. The Measure Names section lists Operating Profit, Price Per Unit, Total Sales, Units Sold, Adidas US Sales (Count), Latitude (generated), Longitude (generated), and Measure Values. A search bar is also present. A context menu is open over a data item, listing options like Show Mark Labels, Aggregate Measures, Stack Marks, Explain Data Settings..., Reveal Hidden Data, Percentage Of, Totals, Forecast, Trend Lines, Special Values, Table Layout, Legends, Filters, Highlighters, Parameters, Create Calculated Field..., Edit Calculated Field, Infer Properties from Missing Values, Cycle Fields, Swap Rows and Columns (with a keyboard shortcut Ctrl+W), and Analytics Extension Custom Functions Explorer. An arrow points from the 'Create Calculated Field...' option in the menu to the corresponding section in the slide content.

Calculation Field

- A formula to perform calculations based on the existing data

Example

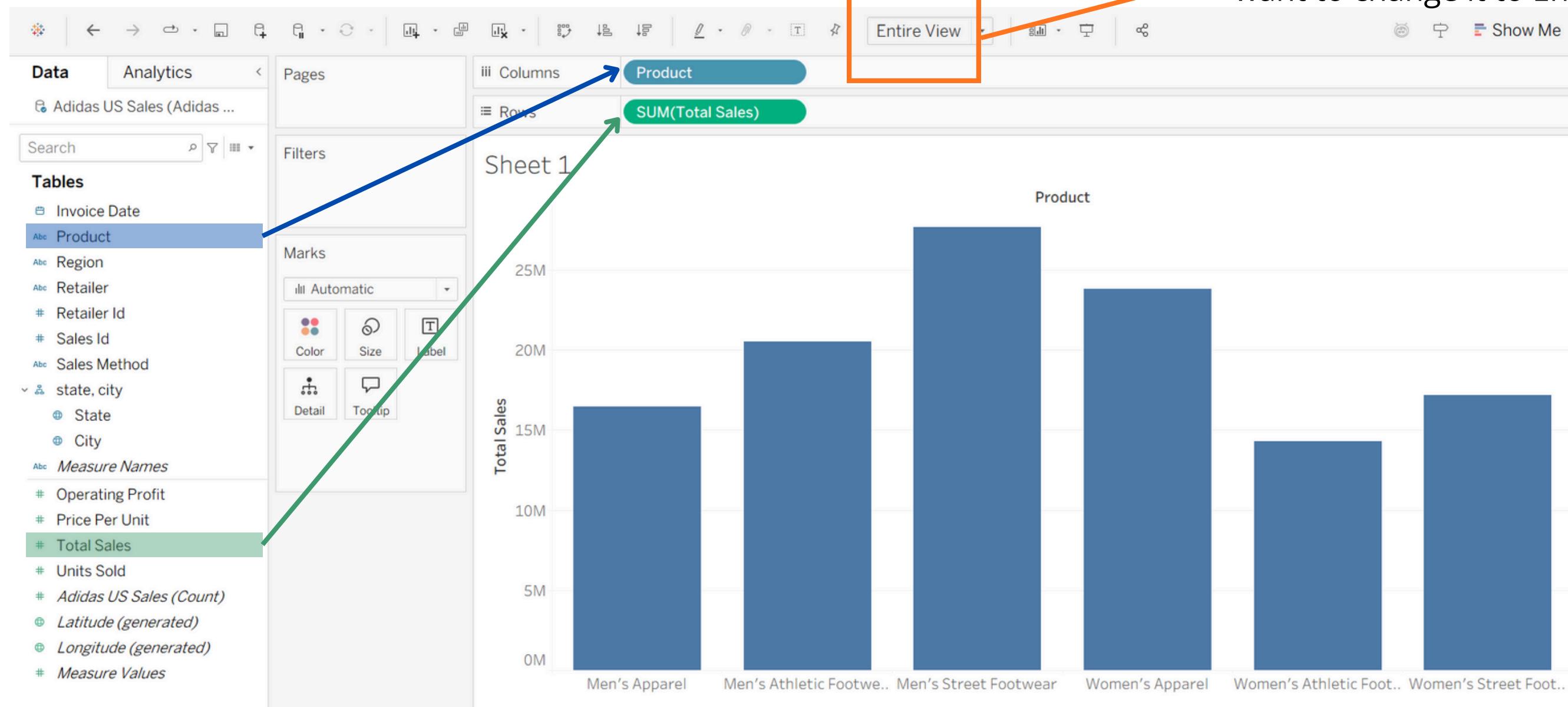
A screenshot of the 'Create Calculated Field...' dialog box. It has a text input field containing 'Profit Ratio' and a code editor below it showing the formula: `SUM([Operating Profit]) / SUM([Total Sales])`. At the bottom right are 'Apply' and 'OK' buttons. A message 'The calculation is valid.' is displayed above the buttons.

How to build the charts?

Bar Chart

Drag the “Product” dimension to the Columns shelf
Drag the “Total Sales” measure to the Rows shelf

Use this feature to adjust the chart's size.
By default, it is set to Standard view; you may want to change it to Entire view



How to build the charts?

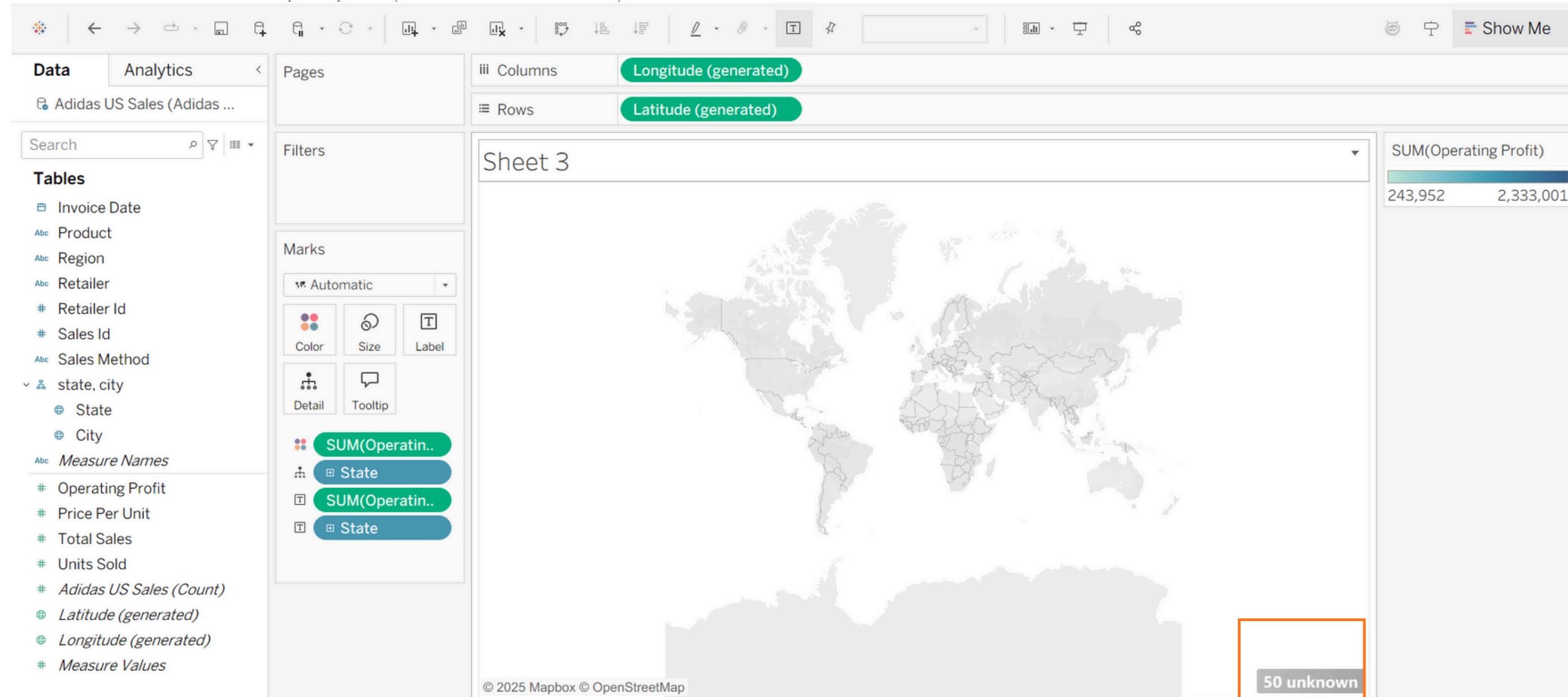
Filled Map

Drag the “Longitude” to the Columns shelf

Drag the “Latitude” to the Rows shelf

Drag the “State” to the Detail button in Marks and Color button in Marks

Drag the “Operating Profit” to the Color button in Marks and Label button in Marks,



How to build the charts?

1. Click the “50 unknown”
2. Choose Edit Locations
3. Under geographic roles, change the country/region to the United States
4. Then, select OK

The screenshot shows the Tableau interface with a world map visualization. A tooltip window is open, displaying options for handling '50 unknown' geographic values: 'Edit Locations...', 'Filter data', and 'Show data at default position'. The 'Edit Locations...' option is highlighted with a blue circle labeled '2'. In the top right corner, a floating 'Edit Locations' dialog box is shown, with the 'Country/Region' dropdown set to 'Singapore'. A blue circle labeled '3' points to this dropdown. The 'OK' button at the bottom right of the dialog is also circled with a blue circle labeled '1'.

Special Values for [State]

There are 50 values that have unknown geographic locations. What do you want to do?

Edit Locations...
Correct the unknown locations.

Filter data
Exclude the special values from the view and calculations.

Show data at default position
Show the special values at a default position on the axis. For example, Null values are shown at 0.

50 unknown

1

2

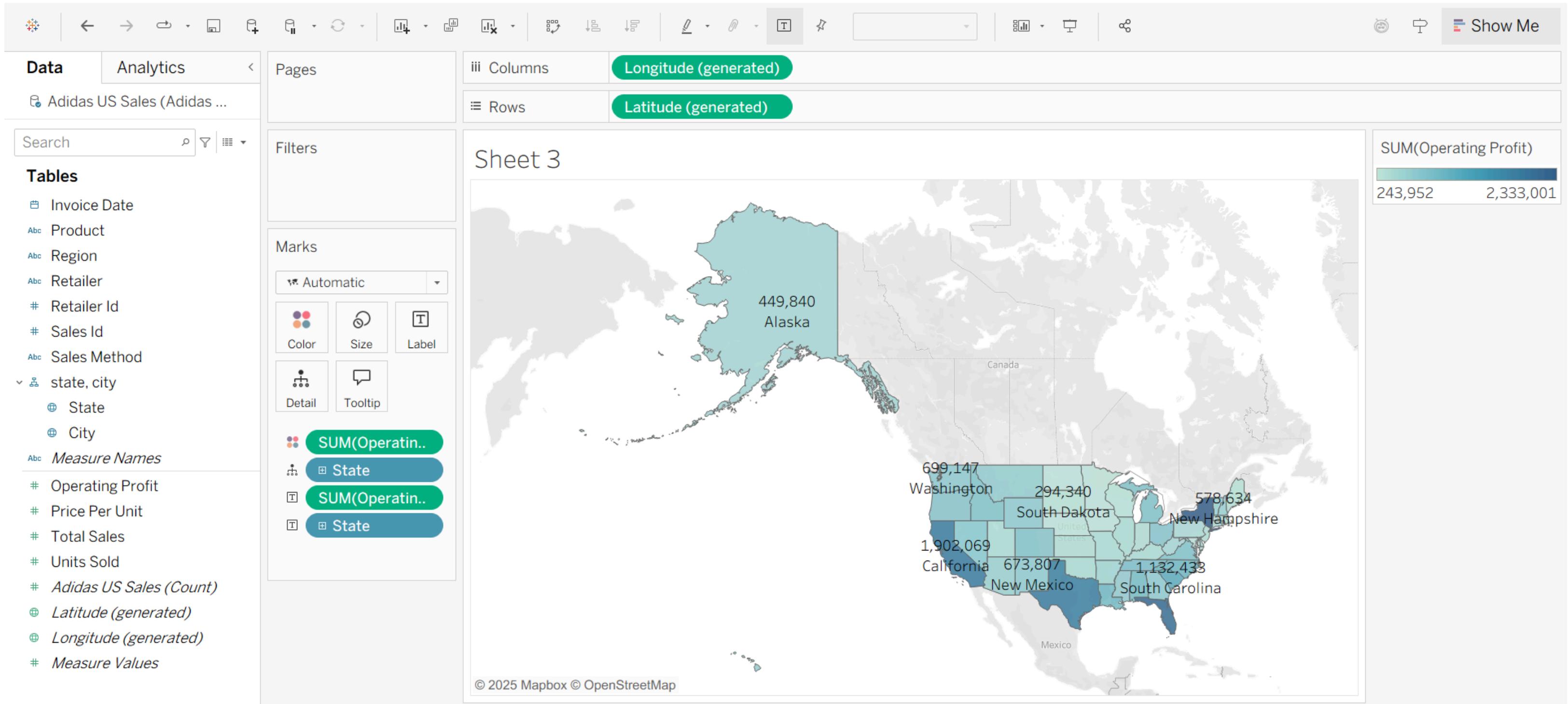
3

50 issues

State/Province	Your Data	Matching Location
Alabama		Unrecognized
Alaska		Unrecognized
Arizona		Unrecognized
Arkansas		Unrecognized
California		Unrecognized

OK Cancel

How to build the charts?



Build a Dashboard

Dashboard

- Combine multiple sheets into a single view

Use this feature to adjust the size.

By default, it is set to Desktop size (i.e. Fixed size), you may want to change it to Automatic size

The screenshot shows a dashboard builder interface with the following components:

- Left Sidebar:** Includes a "Layout" dropdown (set to "Default"), a "Device Preview" button, a "Size" dropdown (set to "Automatic"), a "Sheets" section listing "Sheet 1", "Sheet 2", and "Sheet 3", and an "Objects" section with icons for "Horizontal Container", "Vertical Container", "Text", "Extension", and buttons for "Tiled" (selected) and "Floating".
- Sheet 1 (Product):** A bar chart titled "Product" showing "Total Sales" for various categories. The Y-axis ranges from 0M to 25M. The X-axis categories are Men's App.., Men's Ath.., Men's Str.., Women's .., Women's .., and Women's .. (partially visible). The bars show sales volumes of approximately 17M, 21M, 27M, 14M, 18M, and 17M respectively.
- Sheet 2 (Invoice Date):** A line chart titled "Invoice Date" showing "Total Sales" over time from January to December. The Y-axis ranges from 0M to 10M. The line shows a general upward trend with some fluctuations, starting around 9M in January and ending near 11M in December.
- Sheet 3 (World Map):** A world map showing data overlays for US states. States like Alaska, Washington, New Hampshire, New Mexico, and Colorado are highlighted in shades of blue, with numerical values labeled: 449,840 (Alaska), 699,147 (Washington), 578,634 (New Hampshire), 673,807 (New Mexico), and others. The map also includes labels for Russia, China, India, Canada, Mexico, France, Spain, and Turkey.

Story

Story | Layout <

New story point

Blank Duplicate

Sheet 1

Sheet 2

Sheet 3

Dashboard 1

A Drag to add text

Show title

Size

Automatic

Story 1

Total Sales

25M

20M

15M

10M

5M

0M

Men's Apparel

Men's Athletic Footwear

Men's Street Footwear

Product

Women's Apparel

Women's Athletic Footwear

Women's Street Footwear

To highlight

Add a caption

Here is where you tell the "story" (i.e. insights) from your chart
You can adjust the size of the caption

Use this feature to adjust the size.
By default, it is set to Story size (i.e. Fixed size), you may want to change it to Automatic size

Category	Total Sales (M)
Men's Apparel	~16M
Men's Athletic Footwear	~20.5M
Men's Street Footwear	~26M
Women's Apparel	~14M
Women's Athletic Footwear	~17M
Women's Street Footwear	~17M