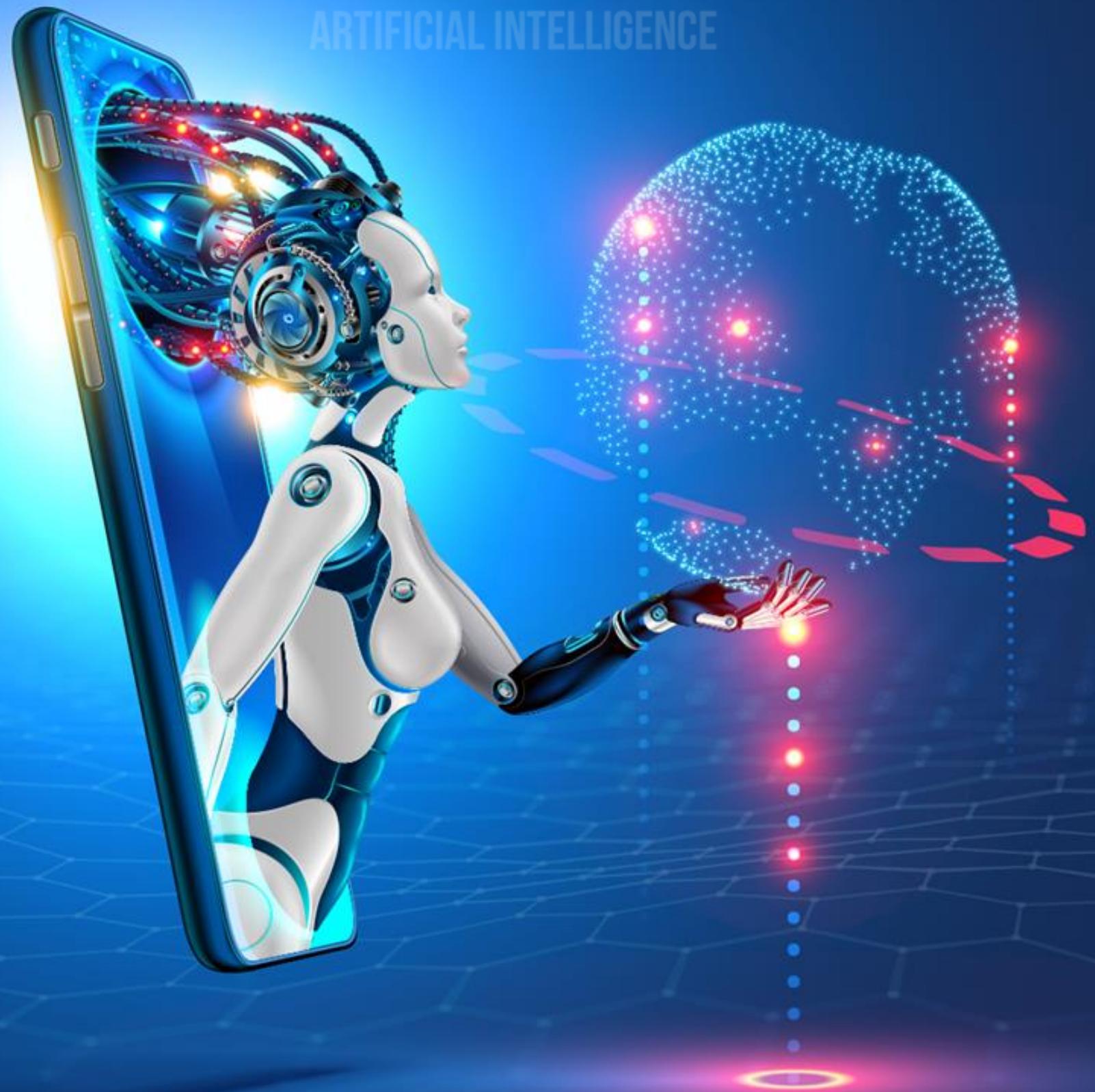
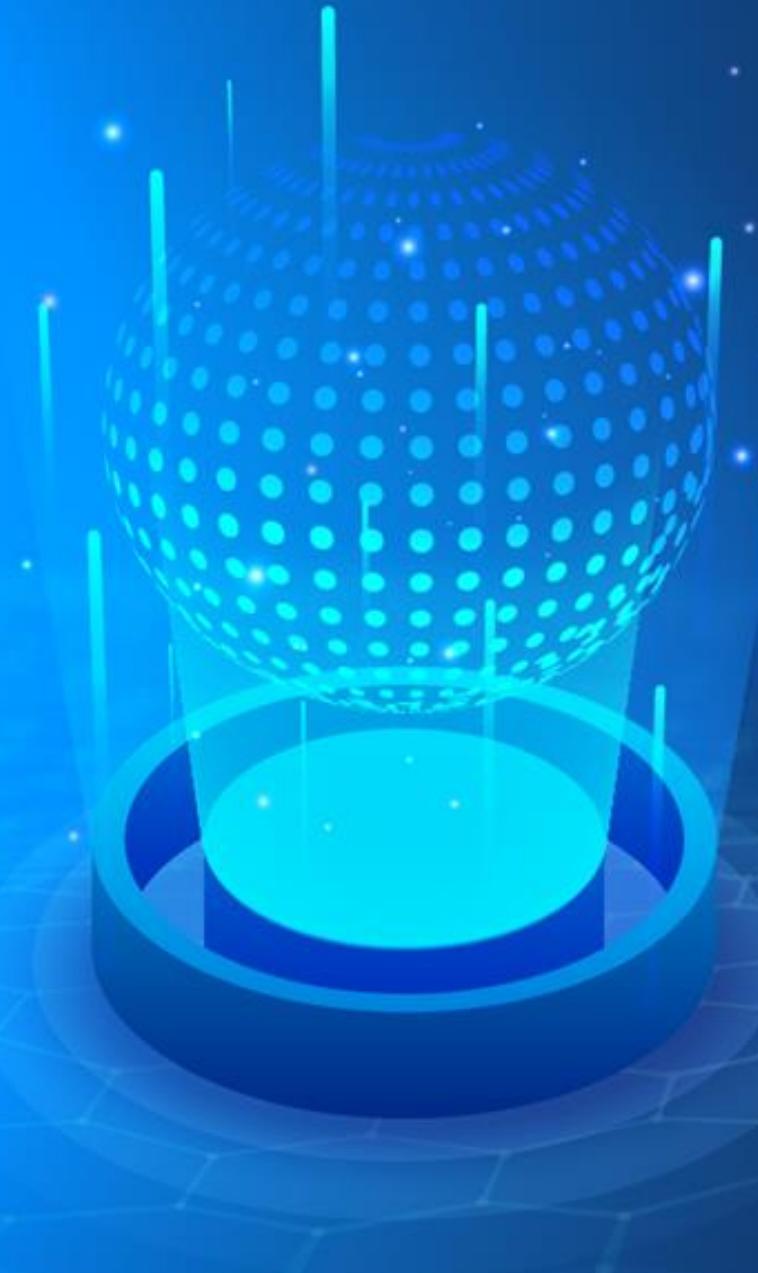


**DATA AND  
ARTIFICIAL INTELLIGENCE**



## Tableau Training

# DATA AND ARTIFICIAL INTELLIGENCE



## Filters in Tableau

# Learning Objectives

By the end of this lesson, you will be able to:

- Analyze the need for a data filter
- List the types of various data filters
- Determine the uses of each filter
- Identify the features of each filter



# A Day in the Life of a Data Analyst



As a Data Analyst of an organization, you are asked to organize a large amount of data.

Also, it is important to remove the data that are not required in a particular category.

To achieve these tasks, you will learn concepts required to categorize the data filter considering the best practices.

## Filters in Tableau

# Filtering Data

Data filters are required to limit the data to include specific fields and records that meet certain criteria.



# Filtering Data

Data can be filtered using the following filter types:

Dimension filter

Interactive filter

Measure filter

Data source filter

Date filter

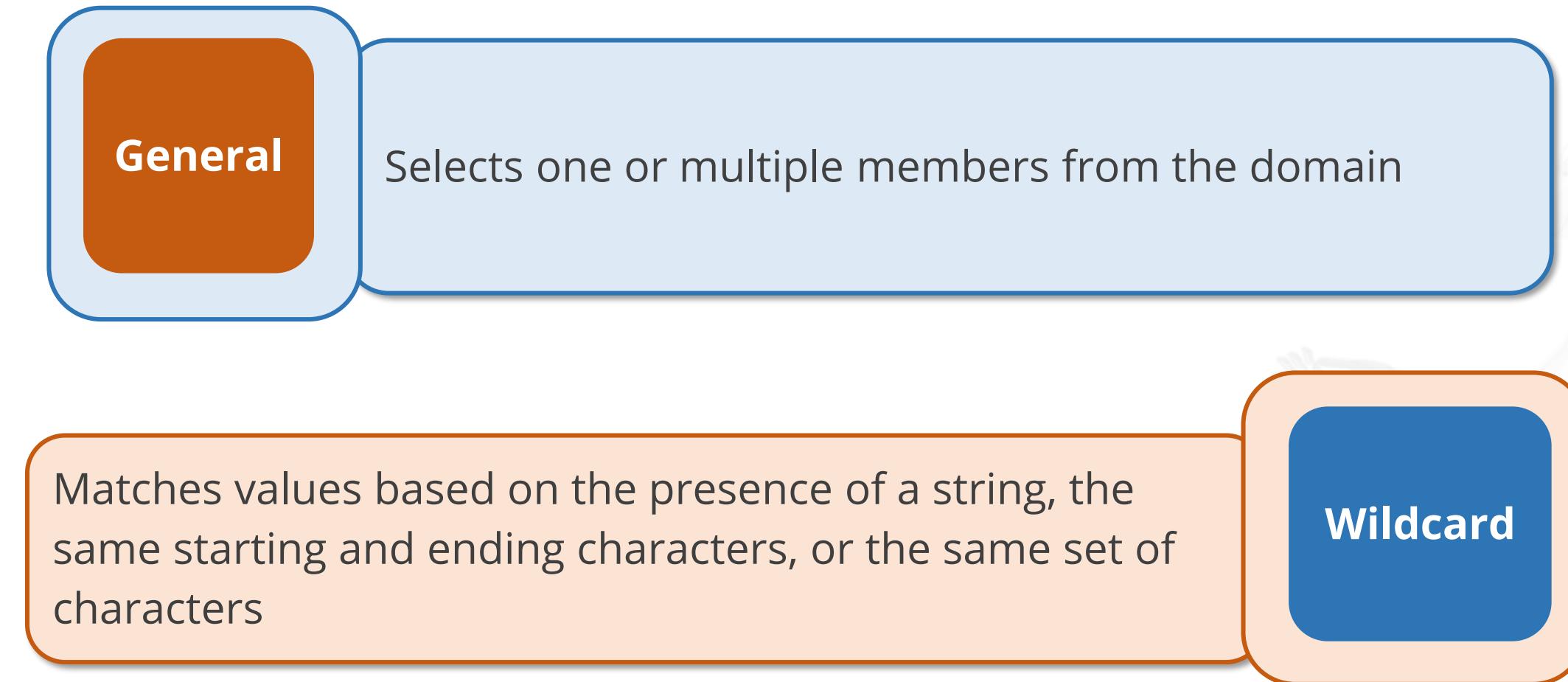
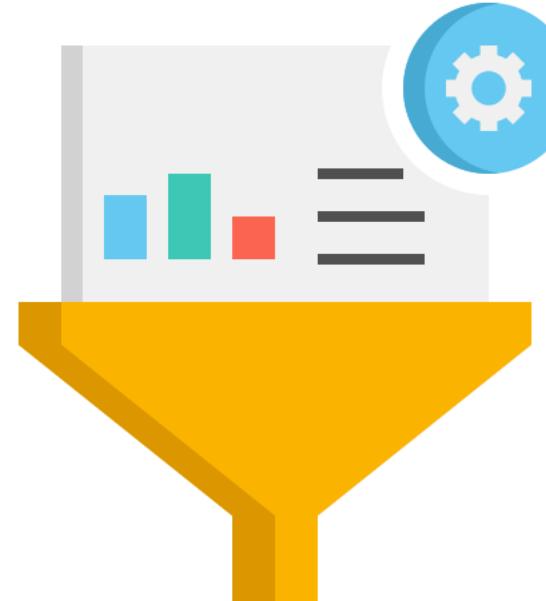
Context filter

Visual filter

## Dimension Filter

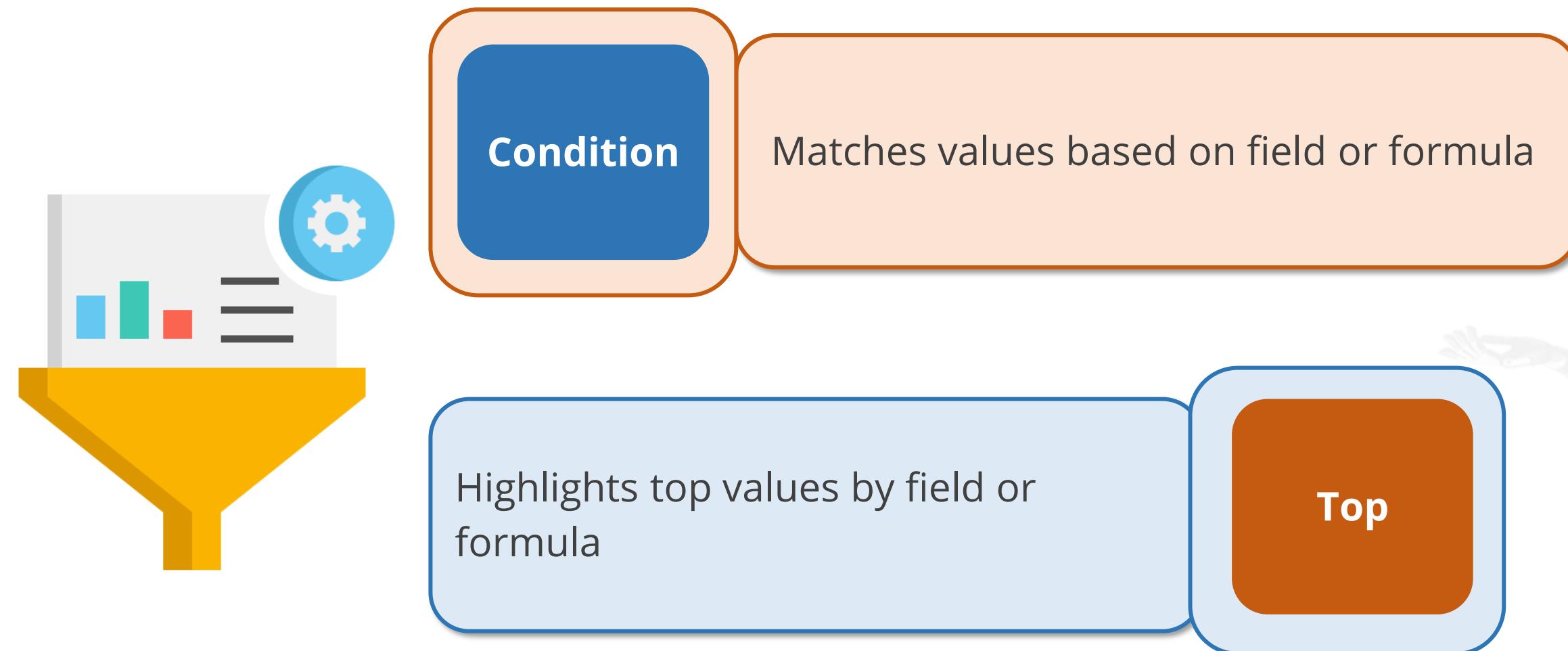
# Dimension Filter

The following approaches can be used for dimension filtering:



# Dimension Filter

The following approaches can be used for dimension filtering:



# Dimension Filter

Step 01: Use a **Sample Superstore** dataset

The screenshot shows the Power BI desktop application interface. At the top, there is a navigation bar with 'File', 'Data', 'Window', and 'Help' options. Below the navigation bar is a toolbar with icons for back, forward, refresh, and other functions. On the left side, there is a 'Connections' section with a 'Sample - Superstore' item listed under 'Microsoft Excel'. To the right of the connections section is a 'Sheets' section containing 'Orders', 'People', 'Returns', and 'New Union'. The main workspace on the right is titled 'Sample - Superstore'.

# Dimension Filter

Step 02: Drag Orders to the space

The screenshot shows the Power BI desktop application interface. The top navigation bar includes File, Data, Window, and Help. Below the navigation bar is a toolbar with various icons. The main area is divided into two sections: 'Connections' on the left and a data view on the right.

**Connections:** Shows a single connection named "Sample - Superstore" (Microsoft Excel). There is an "Add" button to the right of the connection list.

**Sheets:** A list of sheets from the "Sample - Superstore" connection. The "Orders" sheet is highlighted with a red box.

**Orders (Sample - Superstore) View:** This section displays the "Orders" table. It shows 21 fields and 9994 rows. The table has columns for Name and Fields.

**Name:** Orders

**Fields:**

Type	Field Name	Physical Table	Remote Fie...
#	Row ID	Orders	Row ID
Abc	Order ID	Orders	Order ID
Calender	Order Date	Orders	Order Date
Calender	Ship Date	Orders	Ship Date
Abc	Ship Mode	Orders	Ship Mode
Abc	Customer ID	Orders	Customer ID
Abc	Customer Name	Orders	Customer N...

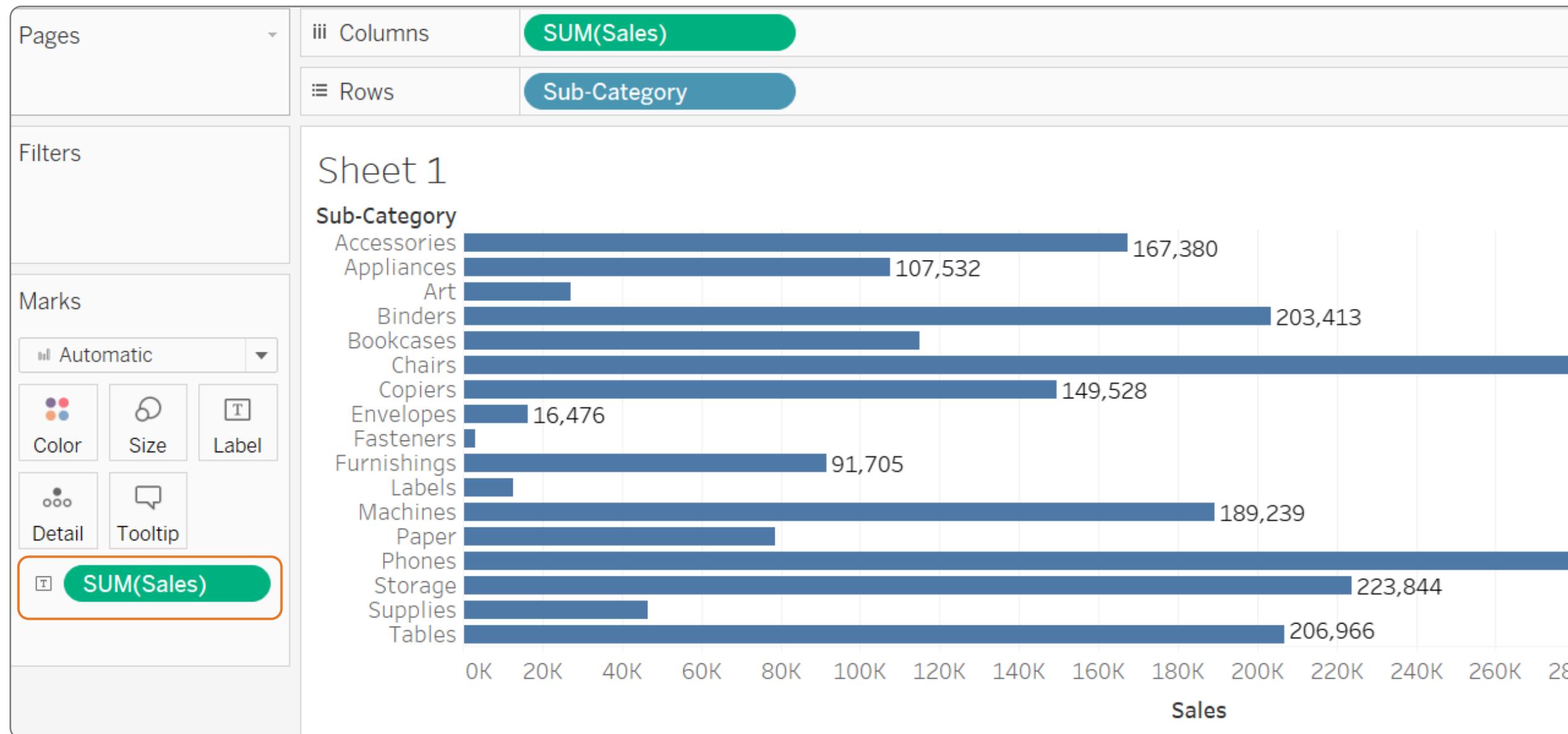
# Dimension Filter

Step 03: Drag Sub-Category to Rows and Sales to Columns



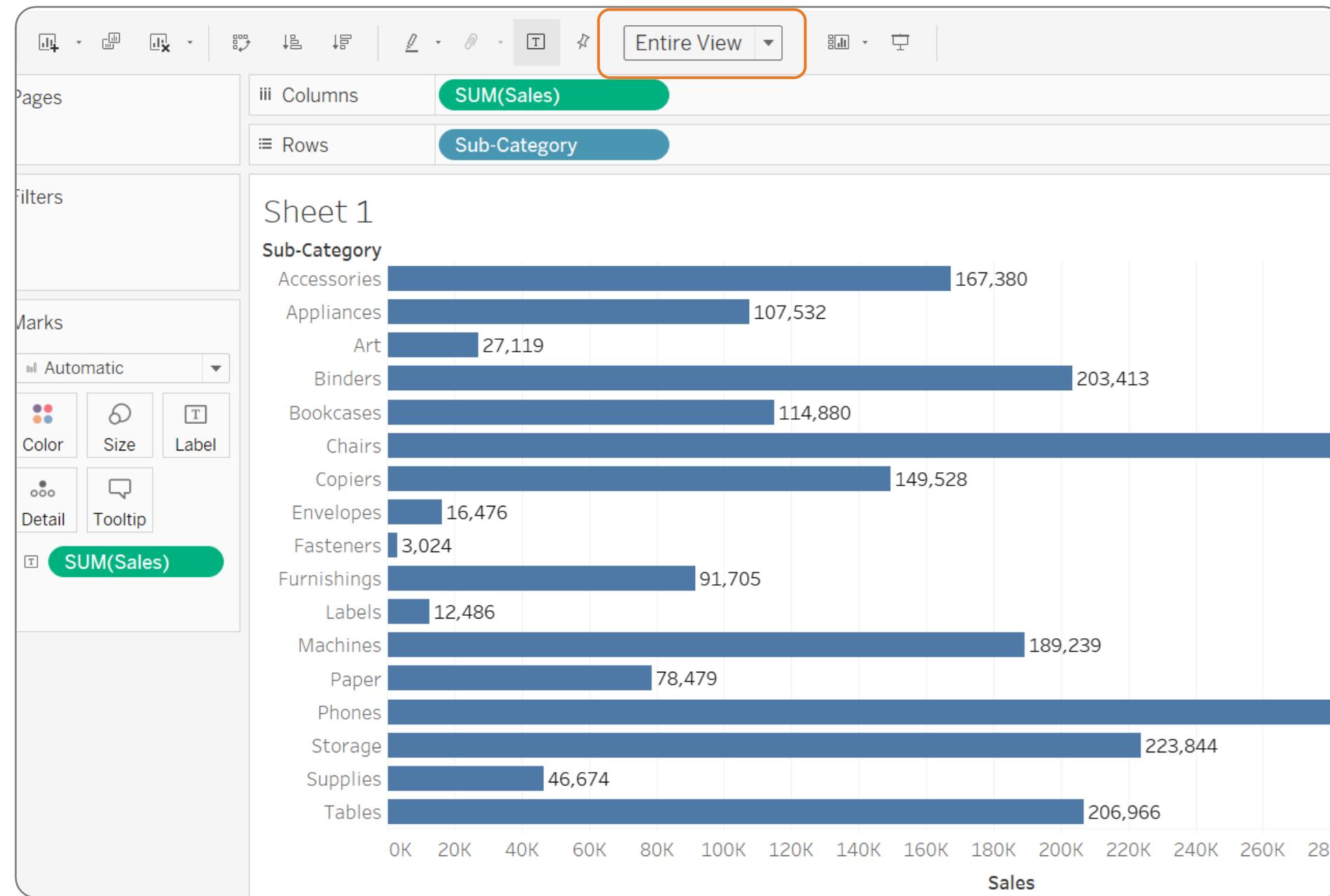
# Dimension Filter

## Step 04: Drag Sales to Label



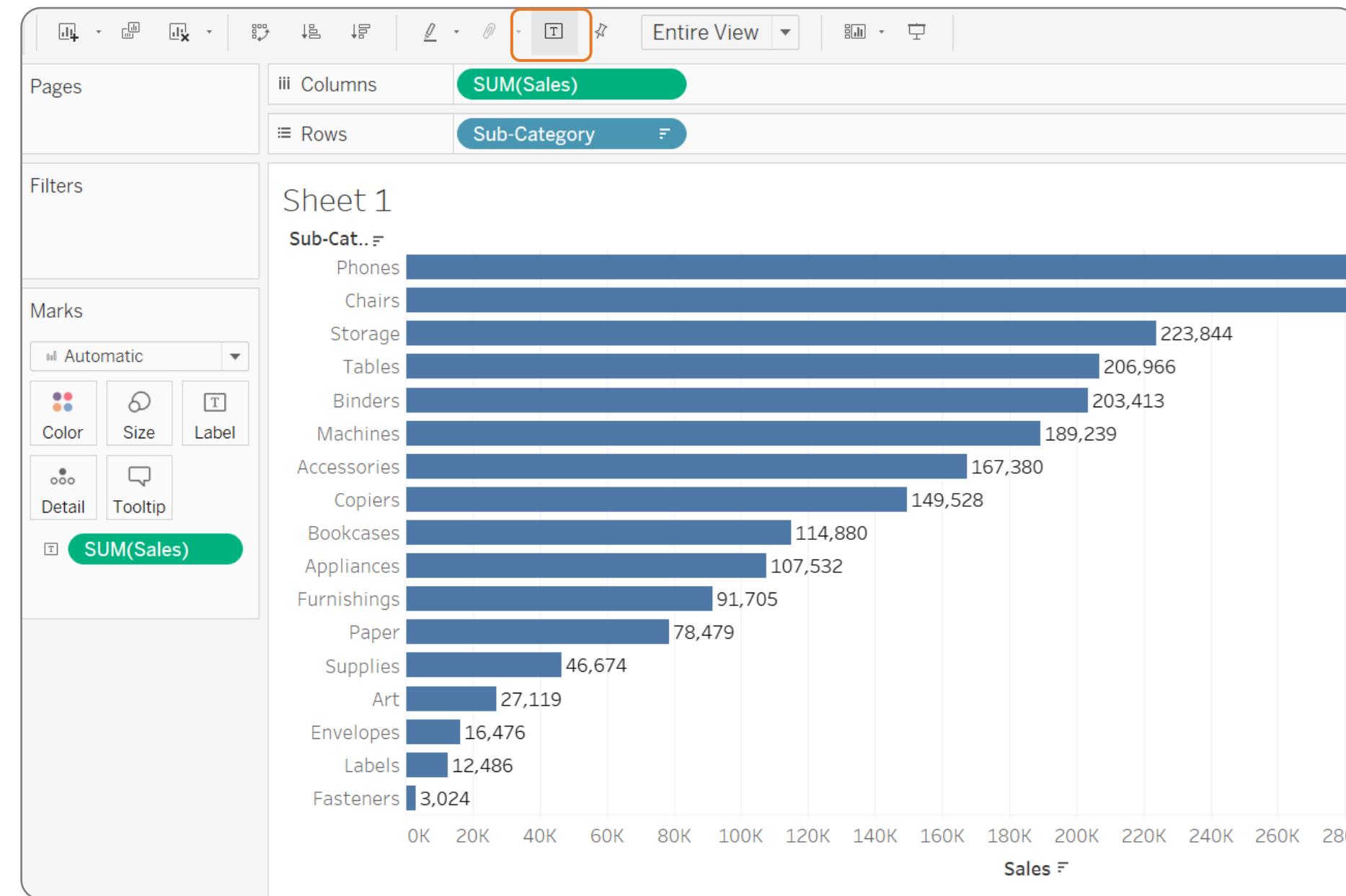
# Dimension Filter

Step 05: Click on Entire View



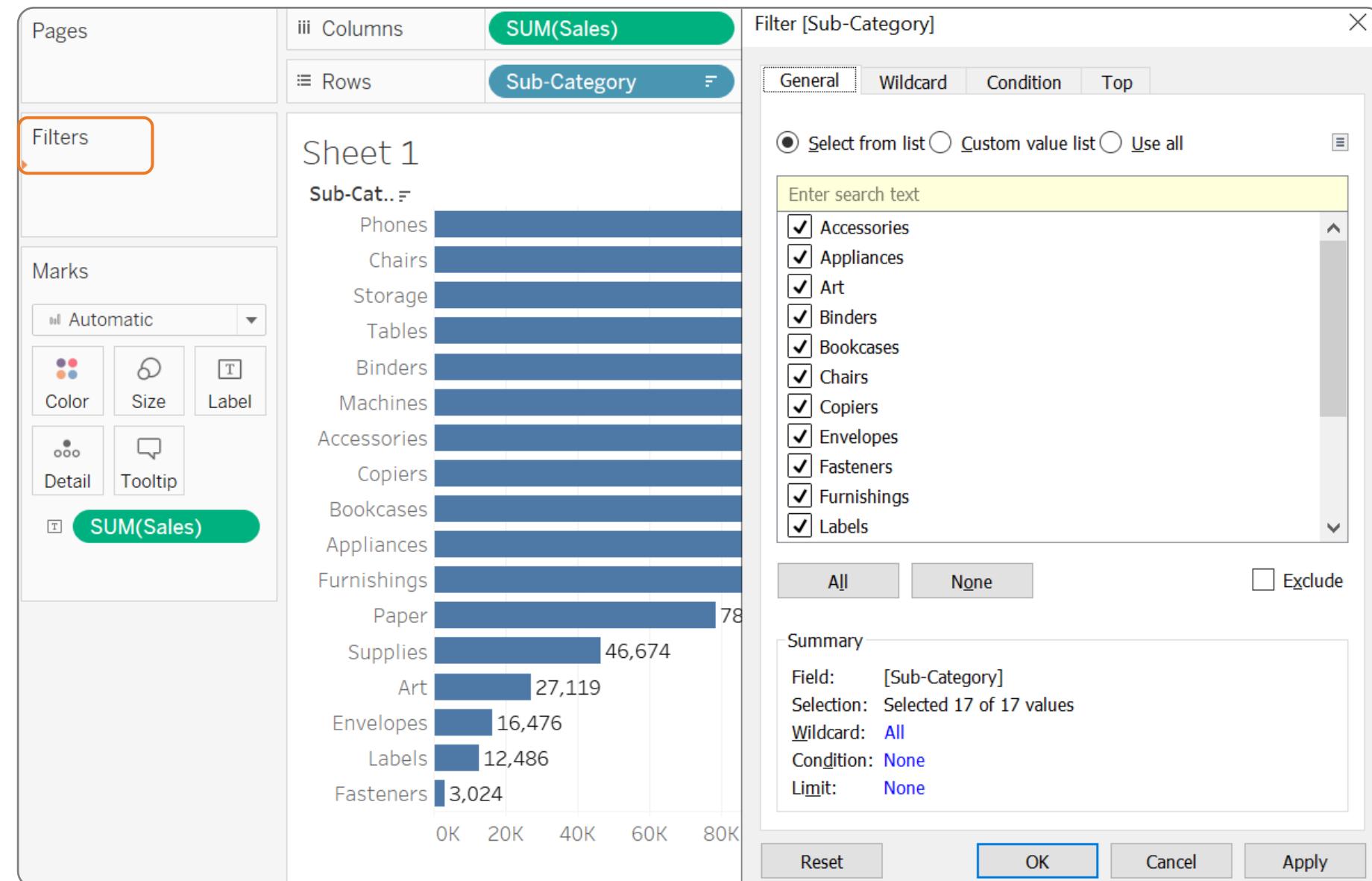
# Dimension Filter

Step 06: Click on the sort option



# Dimension Filter

Step 07: Drag **Sub-Category** to **Filters** to apply a dimension filter



# Dimension Filter

The **General** and **Wildcard** approaches are shown below:

Filter [Sub-Category]

General  Wildcard Condition Top

Select from list  Custom value list  Use all

Enter search text

- Accessories
- Appliances
- Art
- Binders
- Bookcases
- Chairs
- Copiers
- Envelopes
- Fasteners
- Furnishings
- Labels

All None  Exclude

Summary

Field: [Sub-Category]  
Selection: Selected 17 of 17 values  
Wildcard: All  
Condition: None  
Limit: None

Reset OK Cancel Apply

Filter [Sub-Category]

General  Wildcard Condition Top

Match value:   Exclude

Contains  Starts with  Ends with  Exactly matches

Include all values when empty

Clear

Reset OK Cancel Apply

# Dimension Filter

The **Condition** and **Top** approaches are shown below:

Filter [Sub-Category]

General Wildcard **Condition** Top

None

By field:

Sales Sum  
= 0

Range of Values

Min:   
Max:  Load

By formula:

Reset OK Cancel Apply

Filter [Sub-Category]

General Wildcard Condition **Top**

None

By field:

Top 10 by Sales Sum

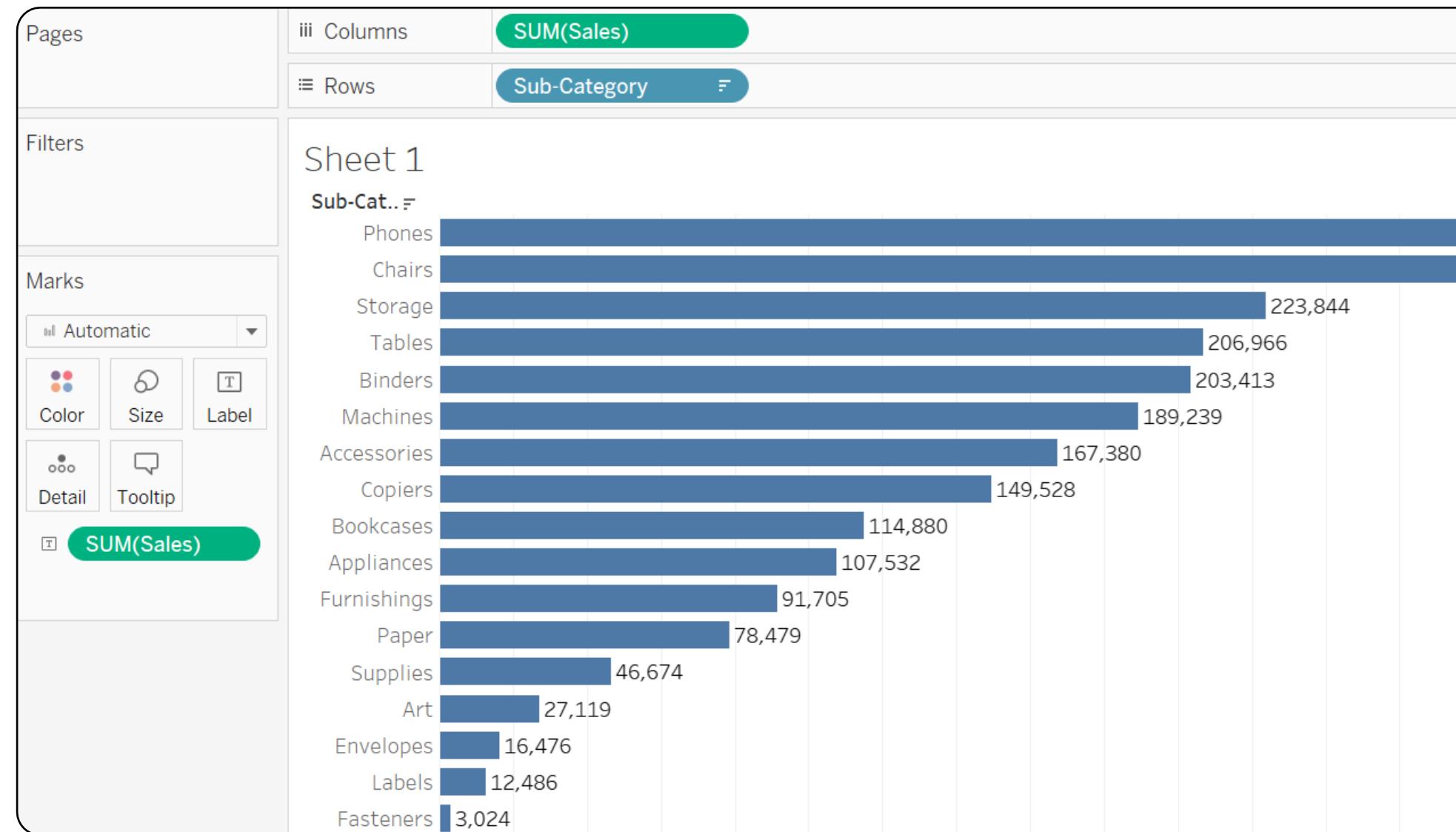
By formula:

Top 10 by

Reset OK Cancel Apply

# Dimension Filter

Step 08: Remove filter by dragging **Sub-Category** outside Filters



## Measure Filter

## Measure Filter

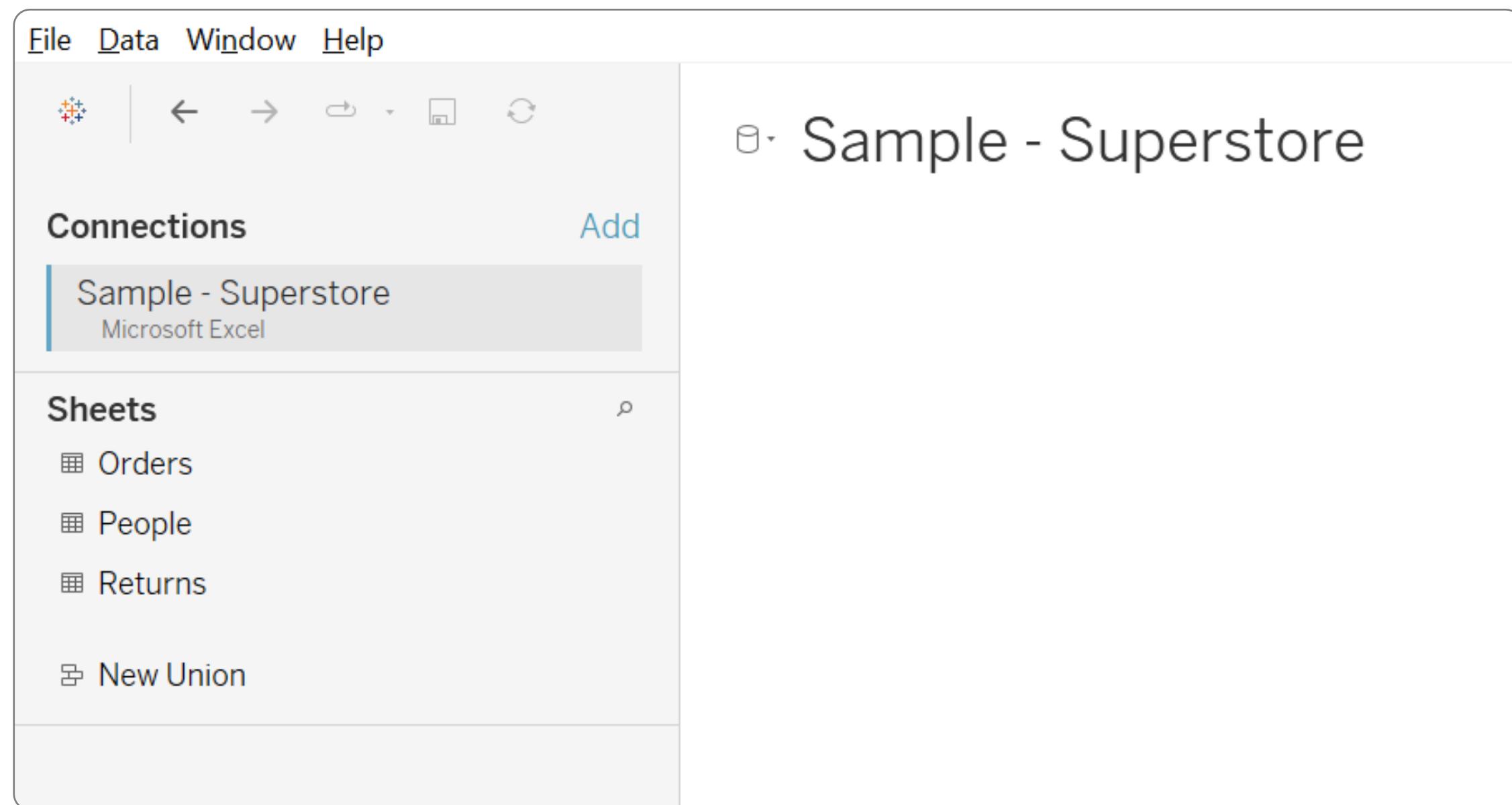
Measure filtering can be done using one of the following approaches:



- **Range of values** - Filter to identify sales representatives within a range of sales totals
- **At least** - Filter to identify sales representatives with sales above a certain level
- **At most** - Filter to identify sales representatives with sales below a certain level
- **Special** - Filter to identify all values, null values, and non-null values

# Measure Filter

Step 01: Use a **Sample Superstore** dataset



# Measure Filter

Step 02: Drag Orders to the space

The screenshot shows the Power BI desktop application interface. On the left, the 'Connections' pane displays a single connection named 'Sample - Superstore' (Microsoft Excel). Below it, the 'Sheets' pane lists three sheets: 'Orders' (which is highlighted with an orange border), 'People', and 'Returns'. A 'New Union' option is also present. The main workspace on the right shows a data model for the 'Orders' sheet. At the top, there's a dropdown menu labeled 'Orders' with '21 fields 9994 rows' indicated. Below this, the 'Name' field is set to 'Orders'. Under the 'Fields' section, a table lists the following data:

Type	Field Name	Physical Table	Remote Fie...
#	Row ID	Orders	Row ID
Abc	Order ID	Orders	Order ID
Abc	Order Date	Orders	Order Date
Abc	Ship Date	Orders	Ship Date
Abc	Ship Mode	Orders	Ship Mode
Abc	Customer ID	Orders	Customer ID
Abc	Customer Name	Orders	Customer N...

# Measure Filter

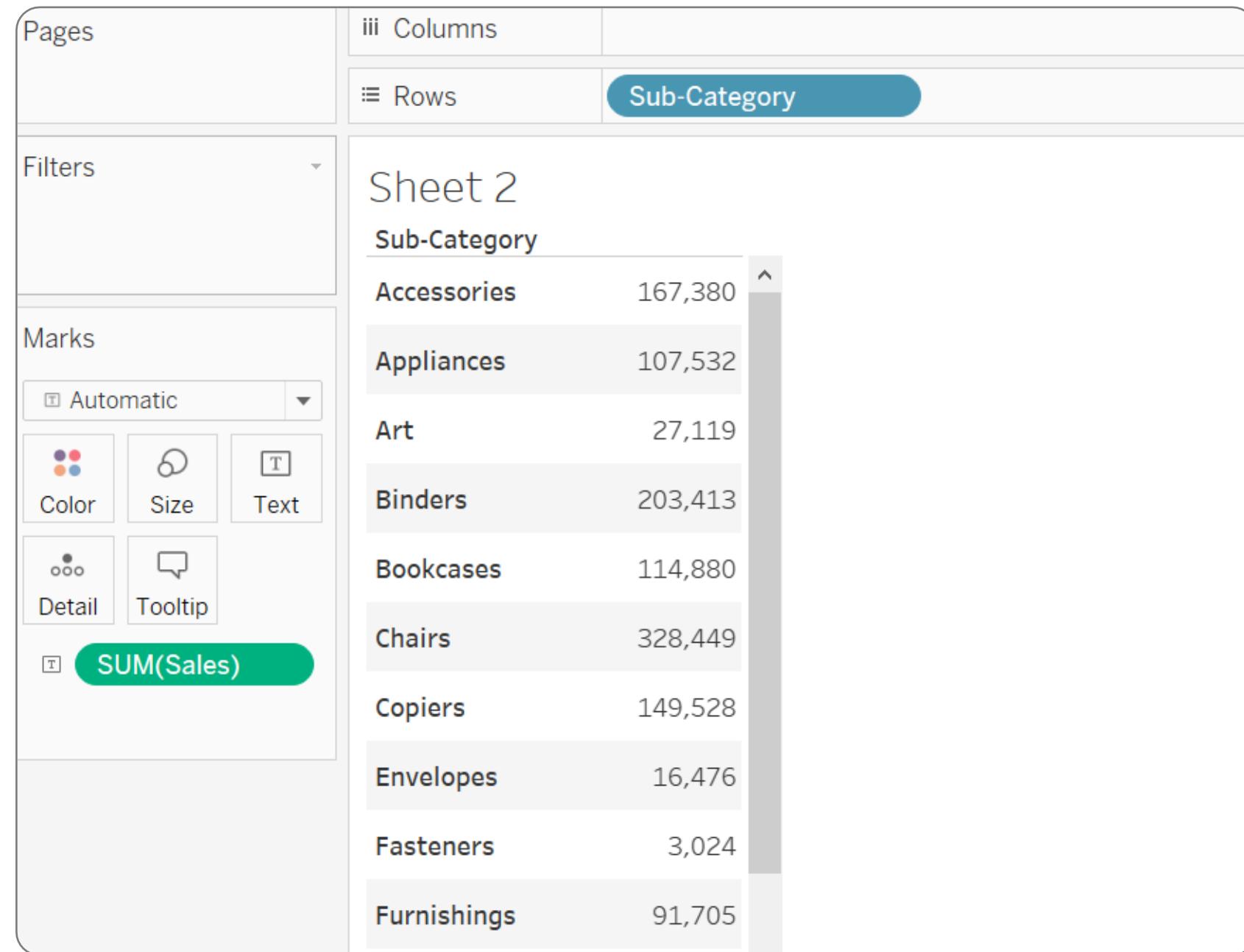
Step 03: Drag **Sub-Category** to **Rows** and **Sales** to **Text**

The screenshot shows the Tableau Data Filter interface. On the left, there are three sections: 'Pages' (empty), 'Filters' (empty), and 'Marks'. In the 'Marks' section, under 'Automatic' dropdown, there are six buttons: 'Color', 'Size', 'Text', 'Detail', 'Tooltip', and 'SUM(Sales)', with 'SUM(Sales)' highlighted by an orange border. On the right, the 'Sheet 1' view displays a table titled 'Sub-Category' with sales values. The 'Sub-Category' button in the 'Rows' section of the filter is also highlighted by an orange border.

Sub-Category	Sales
Accessories	167,380
Appliances	107,532
Art	27,119
Binders	203,413
Bookcases	114,880
Chairs	328,449
Copiers	149,528
Envelopes	16,476
Fasteners	3,024
Furnishings	91,705
Labels	12,486
Machines	189,239
Paper	78,479
Phones	330,007
Storage	223,844
Supplies	46,674
Tables	206,966

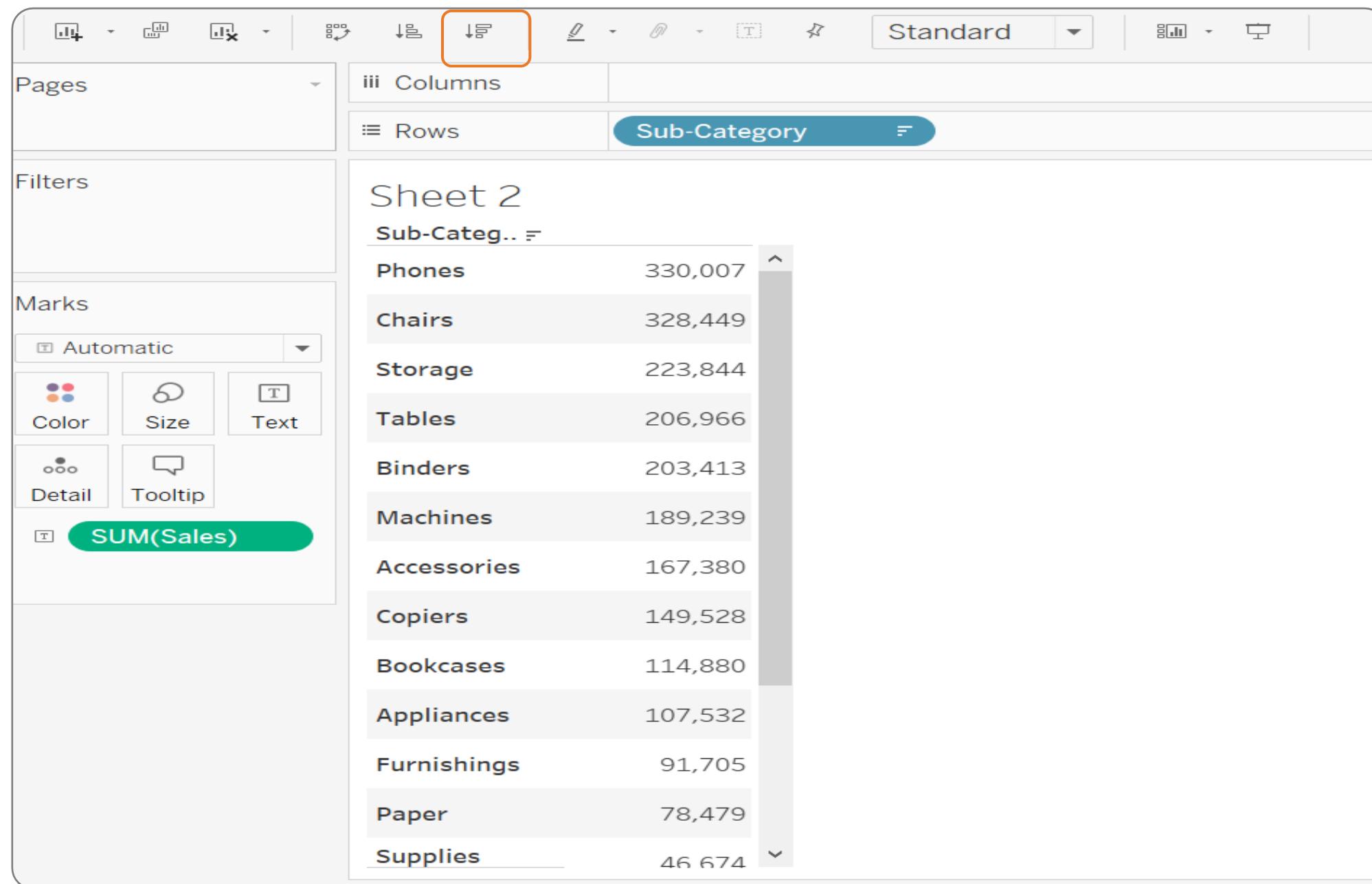
# Measure Filter

Step 04: Resize to improve its visibility



# Measure Filter

Step 05: Sort it in descending order



# Measure Filter

Step 06: Drag **Sales** to **Filters** to apply measure filter

The screenshot shows the Tableau interface with the 'Filters' shelf highlighted. In the 'Marks' shelf, 'SUM(Sales)' is selected. A 'Filter Field [Sales]' dialog box is open, asking 'How do you want to filter on [Sales]?'. The 'All values' section is expanded, listing various aggregation methods: Sum, Average, Median, Count, Count (Distinct), Minimum, Maximum, Standard deviation, Standard deviation (Population), Variance, Variance (Population), and Attribute. At the bottom of the dialog are 'Next >' and 'Cancel' buttons.

Filters

Marks

Automatic

Color

Size

Text

Detail

Tooltip

SUM(Sales)

Filter Field [Sales]

How do you want to filter on [Sales]?

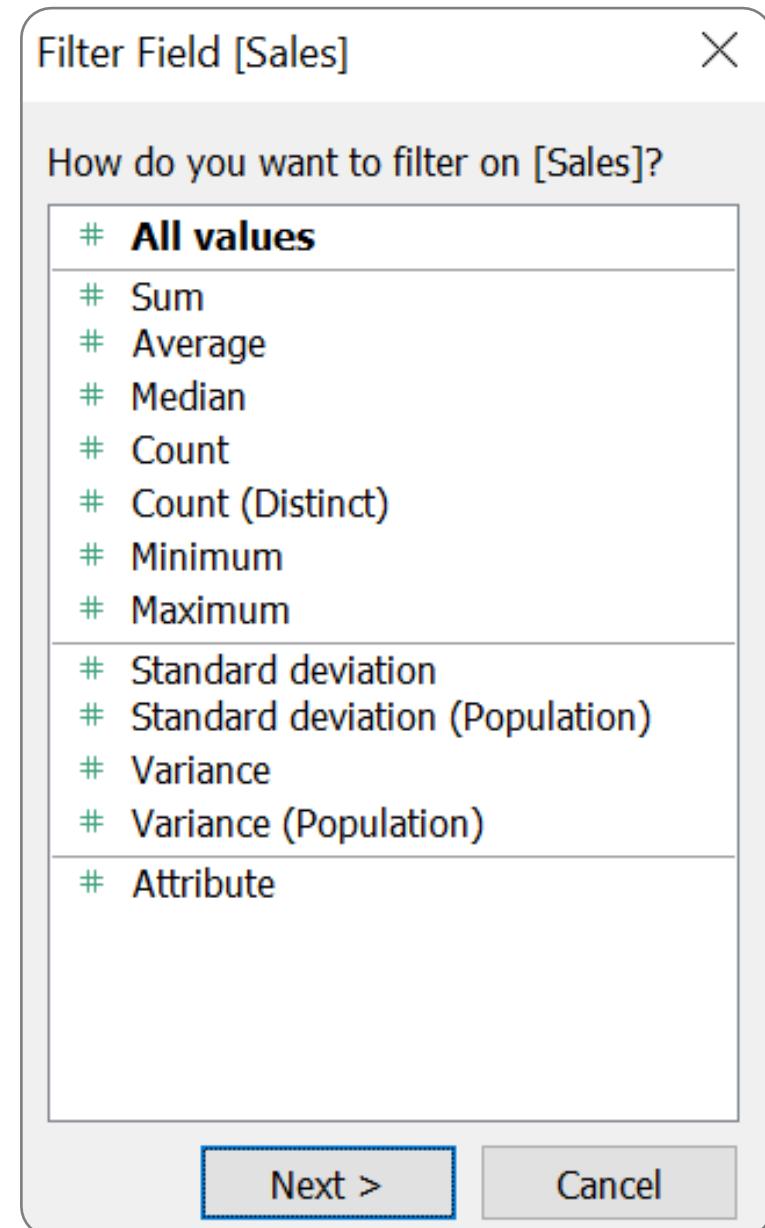
# All values

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

Next > Cancel

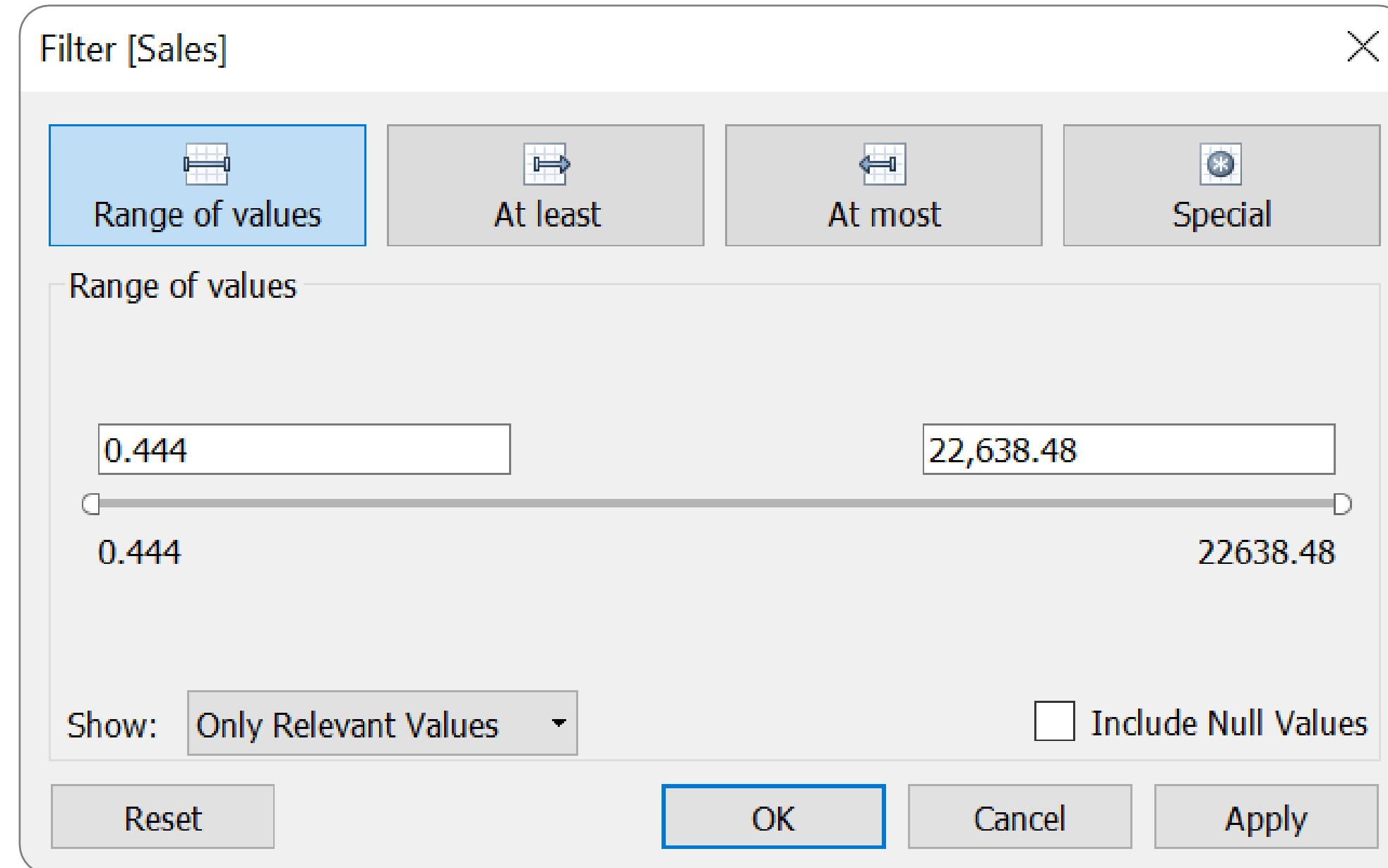
# Measure Filter

Step 07: Click on **Next** in the dialog box



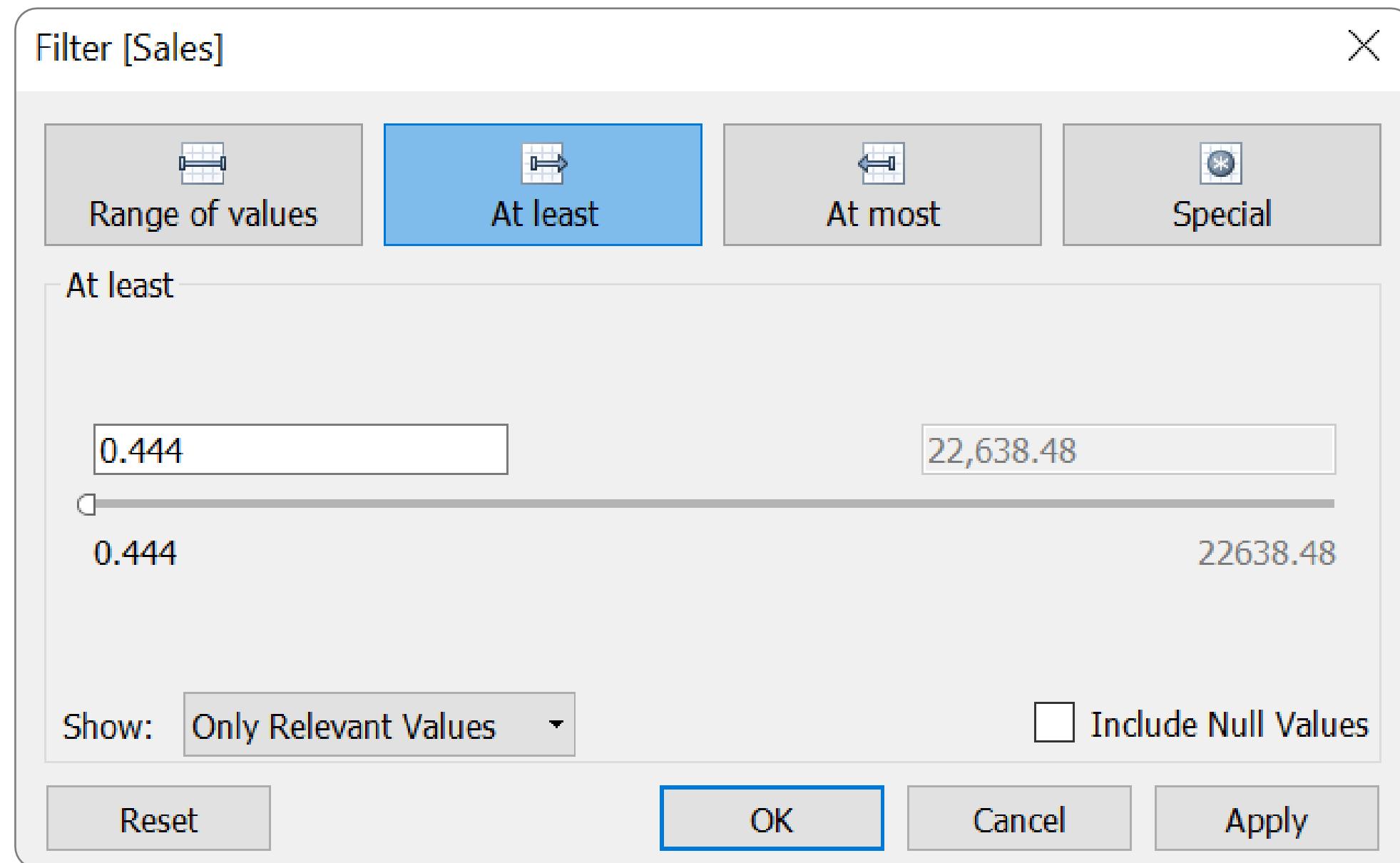
## Measure Filter

A dialog box appears with the measure filter options, and the first is the **Range of values**.



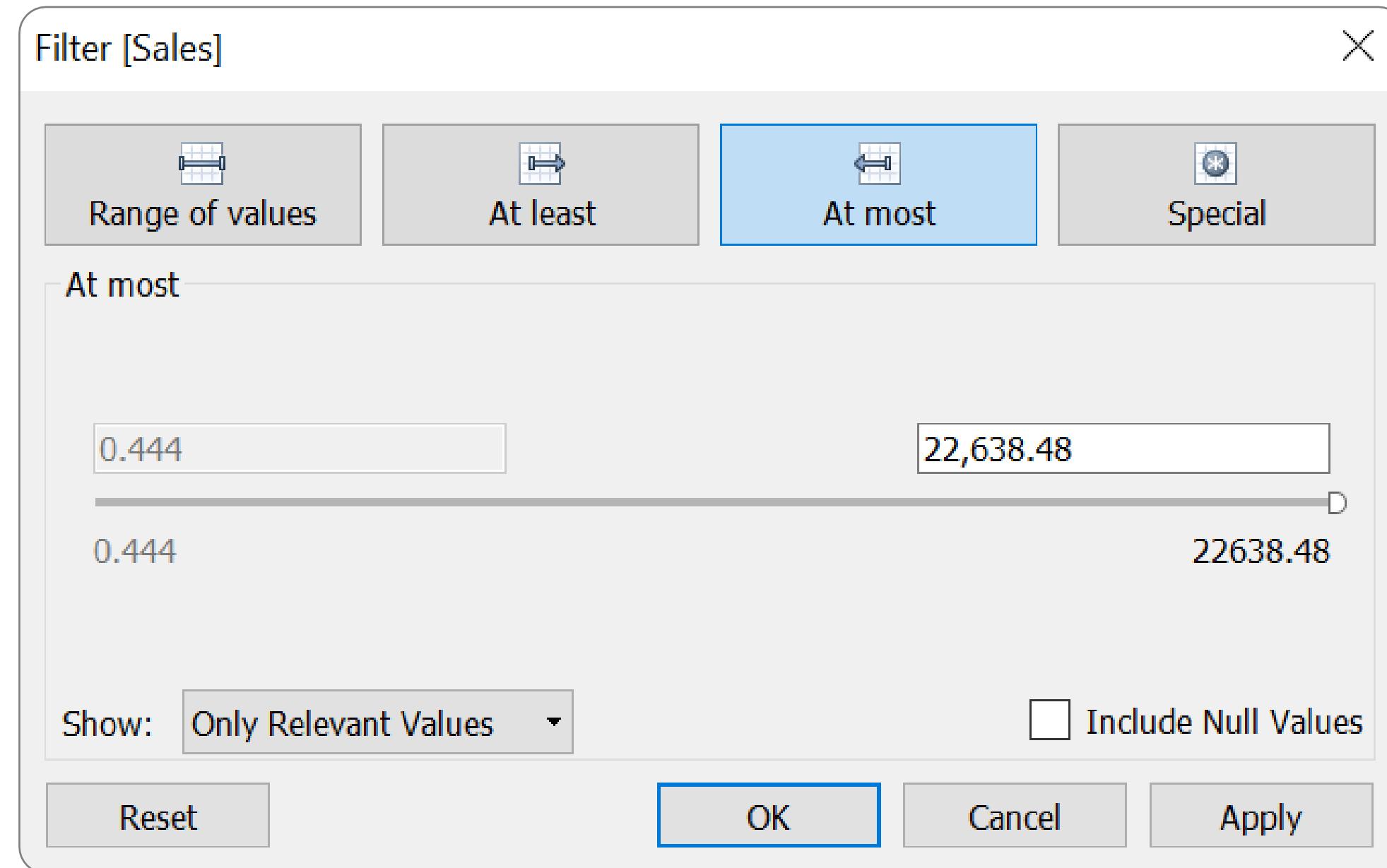
# Measure Filter

The second measure filter option is **At least**.



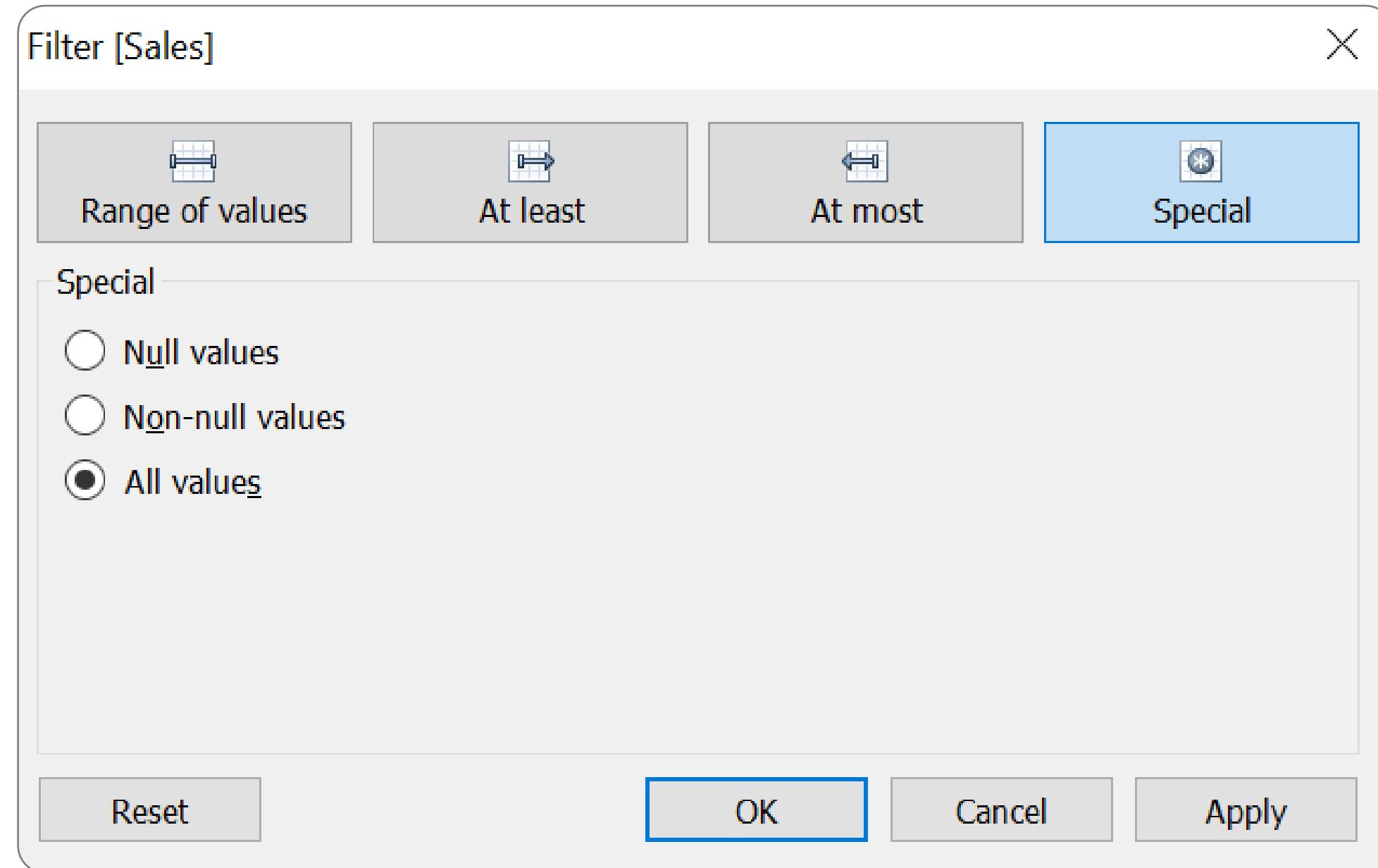
# Measure Filter

The third measure filter option is **At most**.



# Measure Filter

The fourth measure filter option is **Special**.



## Date Filter

# Date Filter

Date filtering can be done using one of the following approaches:



## Relative dates

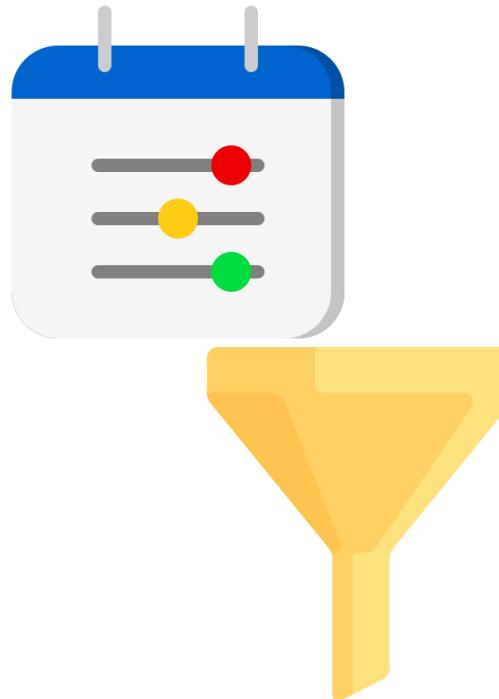
The user can specify a range of dates that is updated based on the date and time.

## Range of dates

The user can specify a range of dates to define a fixed range of dates to filter.

# Date Filter

Date filtering can be done using one of the following approaches:



## Discrete dates

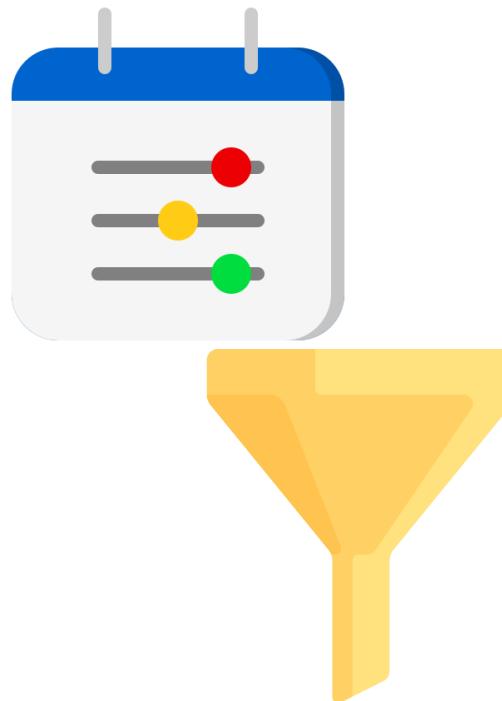
The user can specify a discrete date value in the dialog box.

## Individual dates

The user can select individual dates to filter specific dates from the view.

## Date Filter

Date filtering can be done using one of the following approaches:

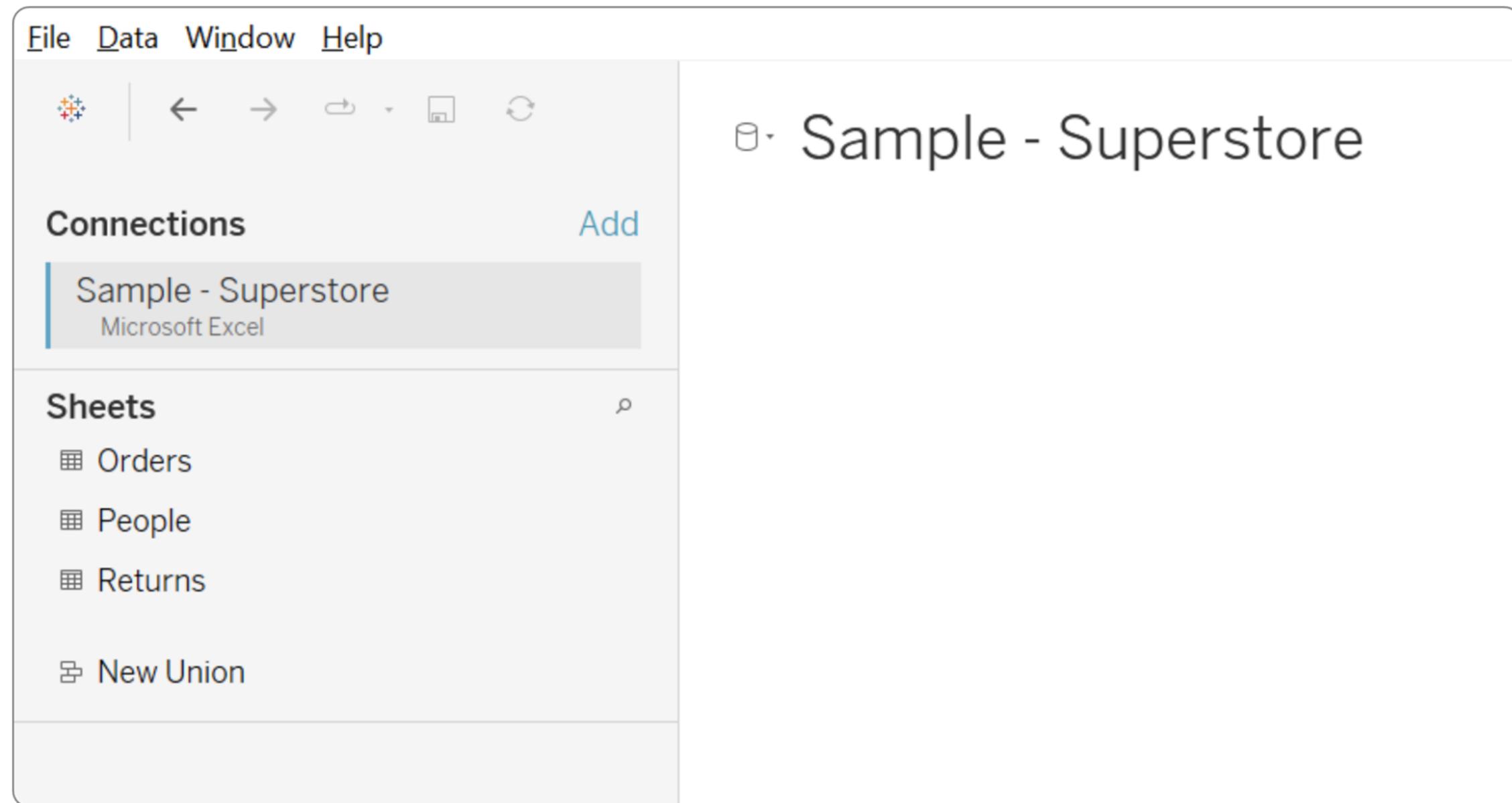


### Additional date filter options

The user can select to include null dates, non-null dates, or all dates by specifying a start and end date.

# Date Filter

Step 01: Use a **Sample Superstore** dataset



The screenshot shows the Power BI desktop application interface. At the top, there is a navigation bar with 'File', 'Data', 'Window', and 'Help' options. Below the navigation bar is a toolbar with icons for back, forward, refresh, and other functions. The main area is divided into two sections: 'Connections' on the left and a large workspace on the right.

**Connections:** This section lists existing connections. One connection, 'Sample - Superstore' (Microsoft Excel), is highlighted with a blue border. There is also an 'Add' button to create new connections.

**Sheets:** This section lists the available sheets in the selected dataset. The sheets shown are 'Orders', 'People', 'Returns', and 'New Union'. The 'Orders' sheet is currently selected, indicated by a blue border around its name.

The workspace on the right is currently empty, showing only the title 'Sample - Superstore'.

# Date Filter

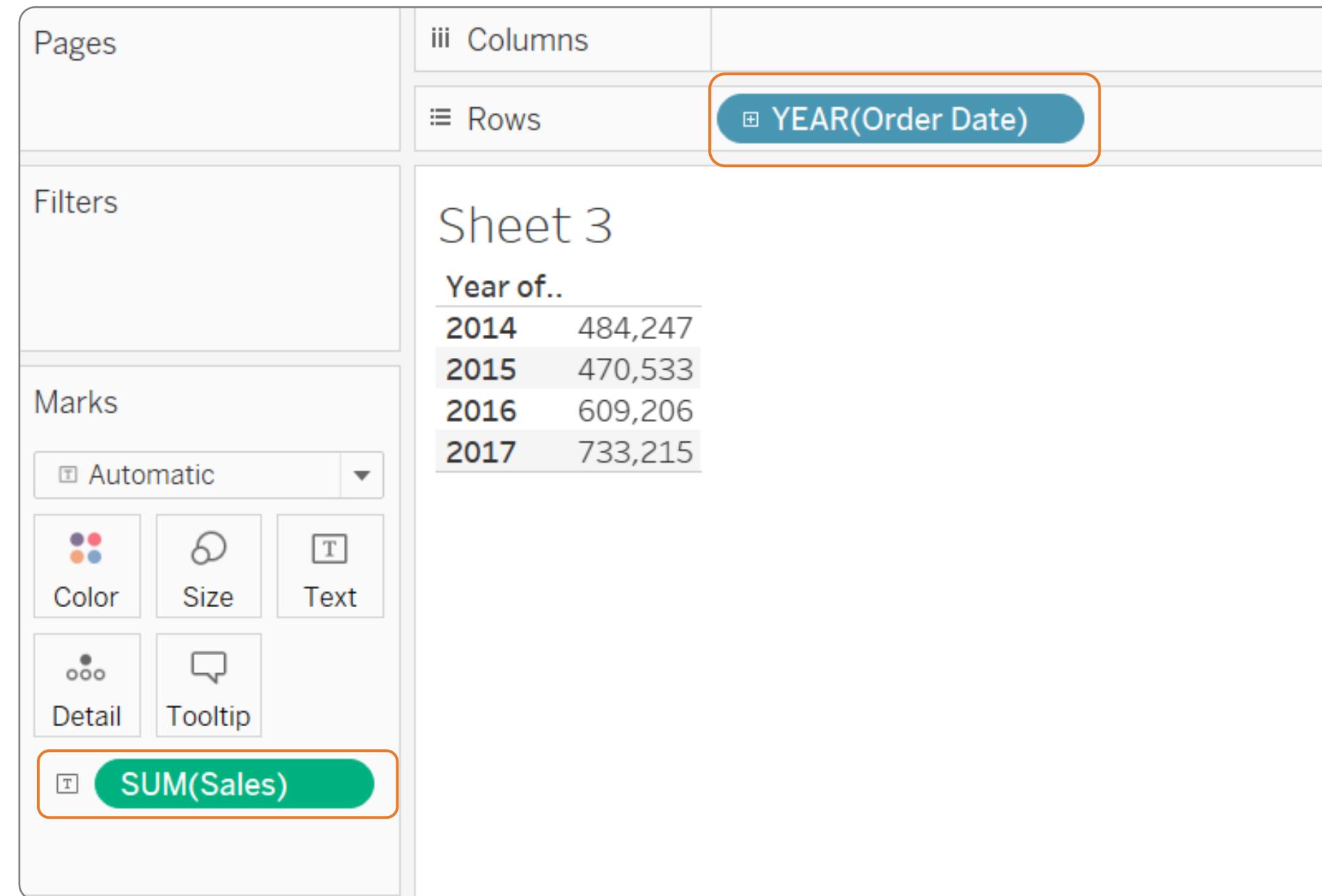
Step 02: Drag Orders to the space

The screenshot shows the Power BI desktop application interface. On the left, the 'Connections' pane displays a single connection named 'Sample - Superstore' (Microsoft Excel). Below it, the 'Sheets' pane lists three sheets: 'Orders' (which is highlighted with an orange border), 'People', and 'Returns'. A 'New Union' option is also present. The main workspace on the right shows a data model for the 'Orders' sheet. At the top, there's a dropdown menu labeled 'Orders' with '21 fields 9994 rows' indicated. Below this, the 'Name' field is set to 'Orders'. Under the 'Fields' section, a table lists the following data:

Type	Field Name	Physical Table	Remote Fie...
#	Row ID	Orders	Row ID
Abc	Order ID	Orders	Order ID
Calender	Order Date	Orders	Order Date
Calender	Ship Date	Orders	Ship Date
Abc	Ship Mode	Orders	Ship Mode
Abc	Customer ID	Orders	Customer ID
Abc	Customer Name	Orders	Customer N...

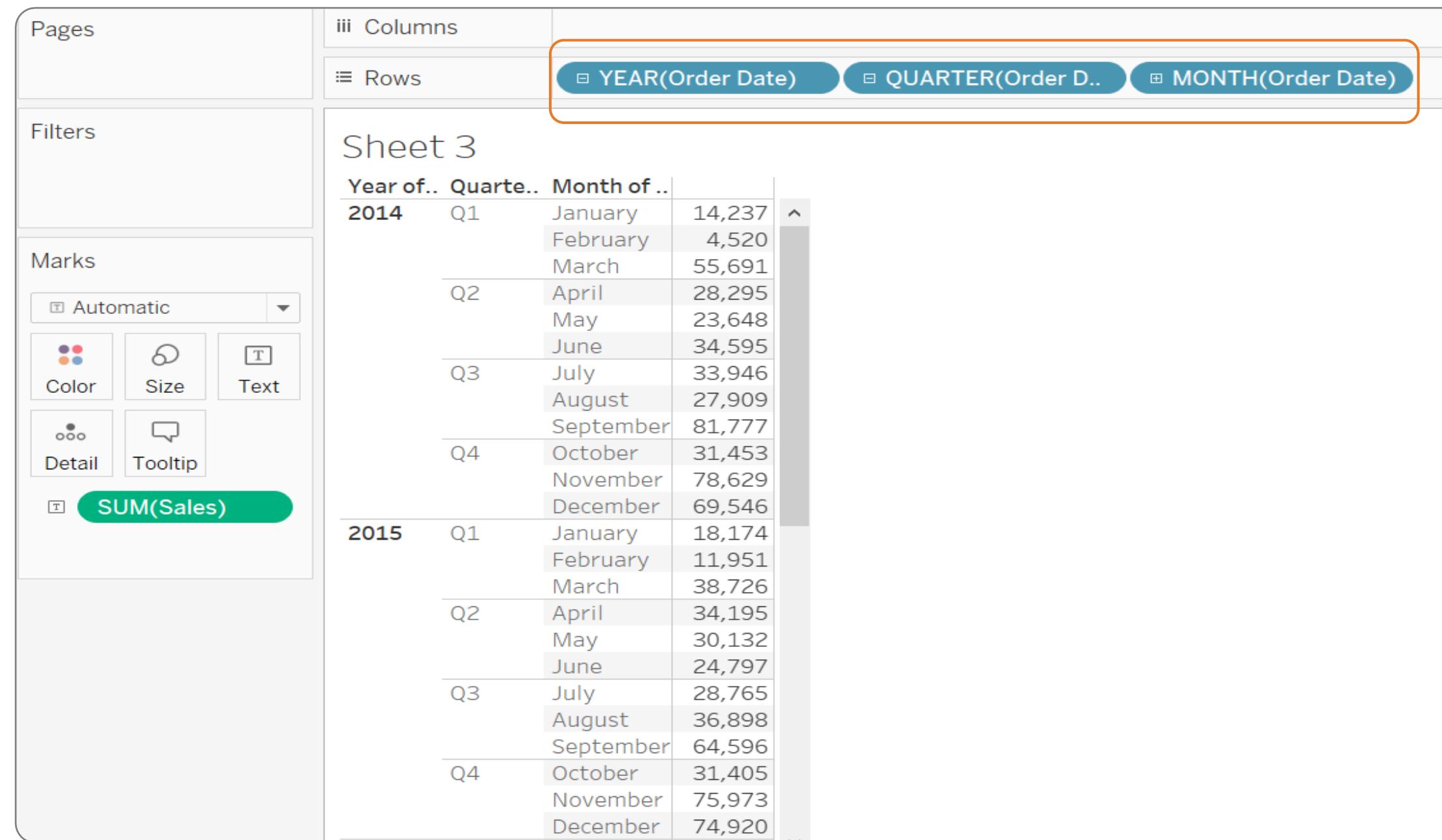
# Date Filter

Step 03: Add **Order Date** into **Rows** and **Sales** into **Text**



# Date Filter

Step 04: Expand Order Date to QUARTER and MONTH



# Date Filter

Step 05: Restructure it by adding **YEAR** to **Columns**



iii Columns     ☐ YEAR(Order Date)

iii Rows     ☐ QUARTER(Order D..)     ☐ MONTH(Order Date)

Sheet 3

Quarte..	Month of ..	Order Date			
		2014	2015	2016	2017
Q1	January	14,237	18,174	18,542	43,971
	February	4,520	11,951	22,979	20,301
	March	55,691	38,726	51,716	58,872
Q2	April	28,295	34,195	38,750	36,522
	May	23,648	30,132	56,988	44,261
	June	34,595	24,797	40,345	52,982
Q3	July	33,946	28,765	39,262	45,264
	August	27,909	36,898	31,115	63,121
	September	81,777	64,596	73,410	87,867
Q4	October	31,453	31,405	59,688	77,777
	November	78,629	75,973	79,412	118,448
	December	69,546	74,920	96,999	83,829

# Date Filter

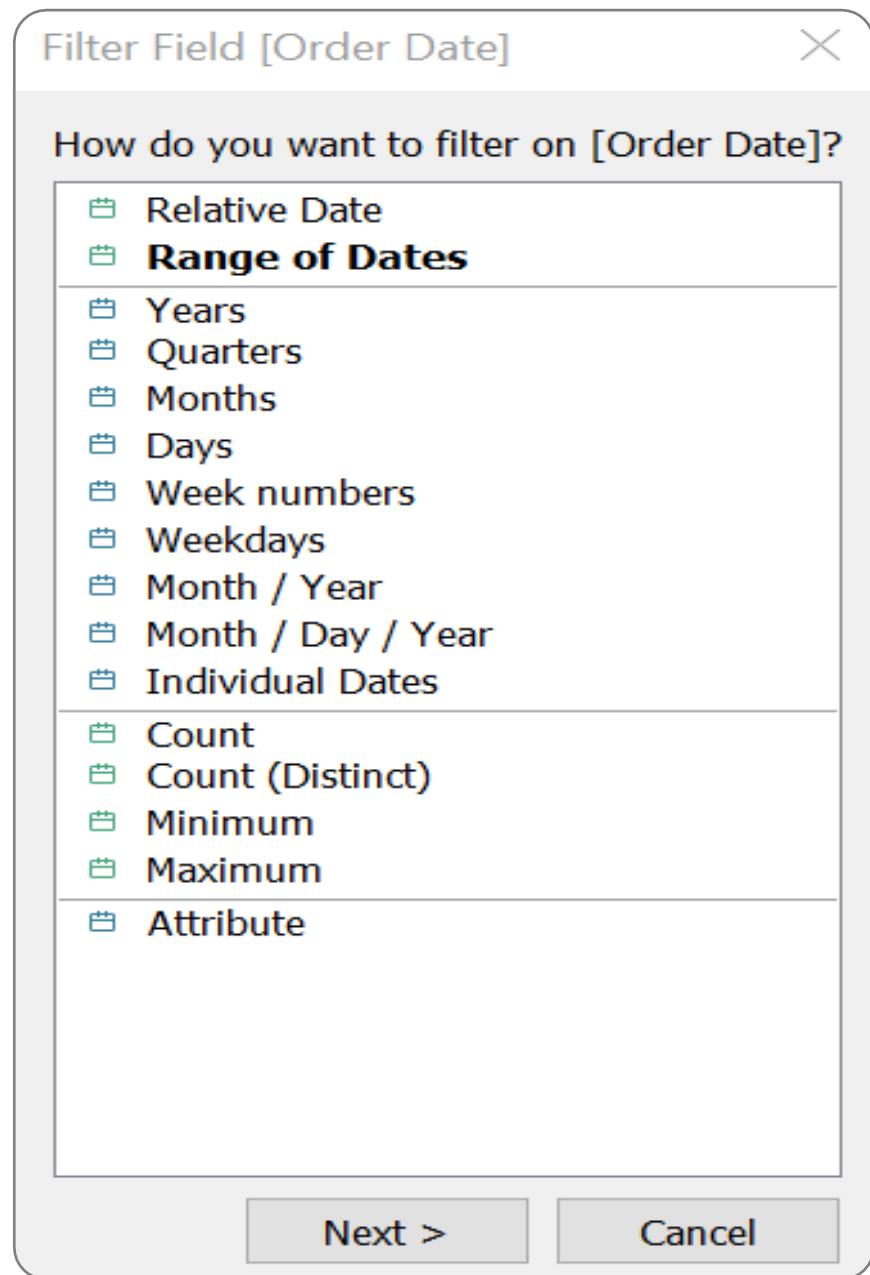
Step 06: Drag **Order Date** to Filters to open the filter dialog box

The screenshot shows the Tableau interface with the 'Filters' shelf highlighted by an orange box. In the top right, there are three buttons: 'Columns' (with 'YEAR(Order Date)' selected), 'Rows' (with 'QUARTER(Order D..') and 'MONTH(Order Date)' selected), and 'Data'. A 'Filter Field [Order Date]' dialog box is open over the interface. The title bar says 'Filter Field [Order Date]'. The main question is 'How do you want to filter on [Order Date]?'. Under this, the 'Range of Dates' option is selected. A list of date hierarchy options follows: Years, Quarters, Months, Days, Week numbers, Weekdays, Month / Year, Month / Day / Year, Individual Dates, Count, Count (Distinct), Minimum, Maximum, and Attribute. At the bottom of the dialog are 'Next >' and 'Cancel' buttons. To the right of the dialog, a small preview table shows data for Order Date, 2016, and 2017.

Order Date	2016	2017
1	18,542	43,971
1	22,979	20,301
5	51,716	58,872
5	38,750	36,522
2	56,988	44,261
7	40,345	52,982
5	39,262	45,264
3	31,115	63,121
5	73,410	87,867
5	59,688	77,777
3	79,412	118,448
0	96,999	83,829

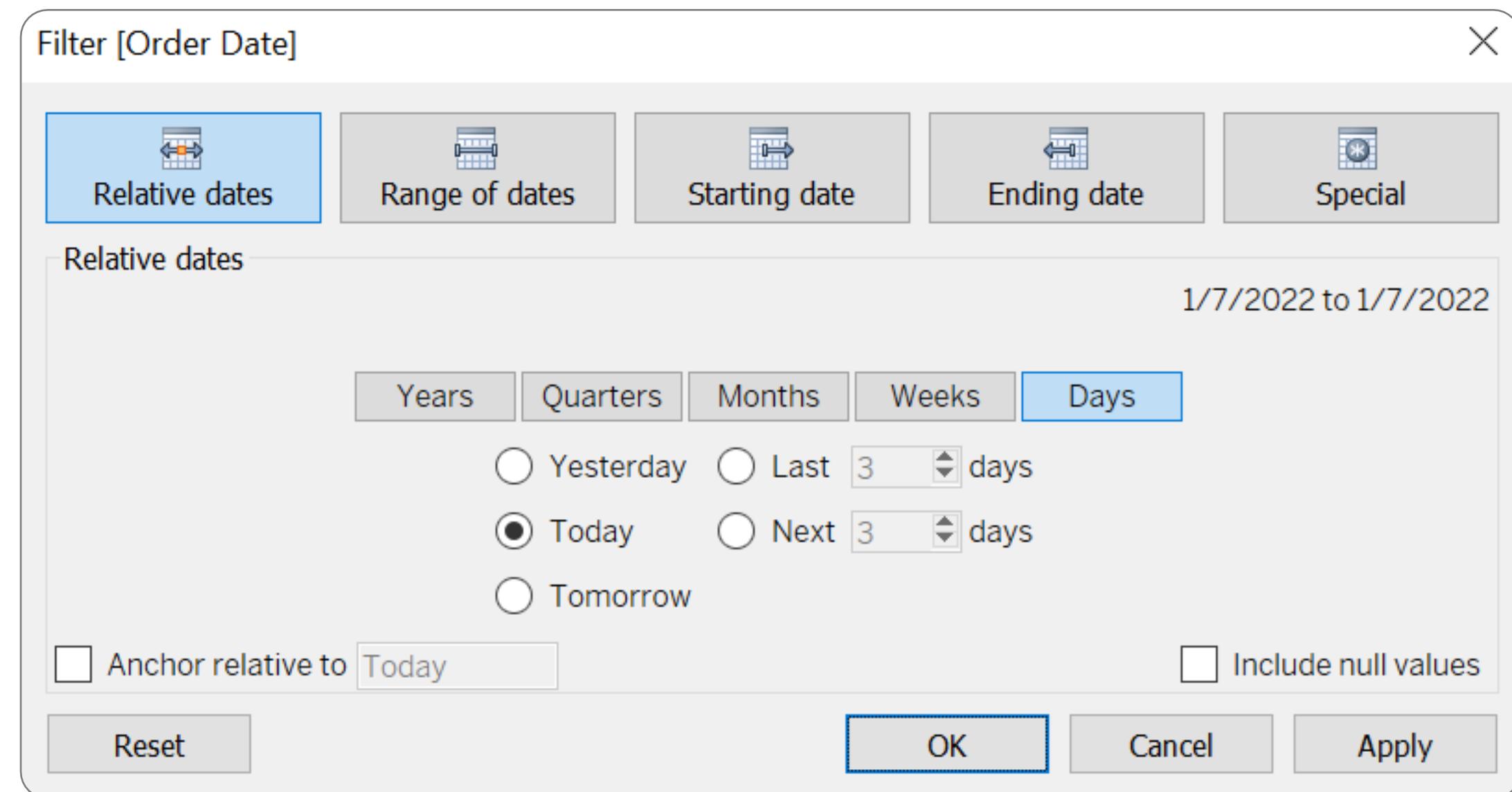
# Date Filter

Step 07: Click on the required filter option



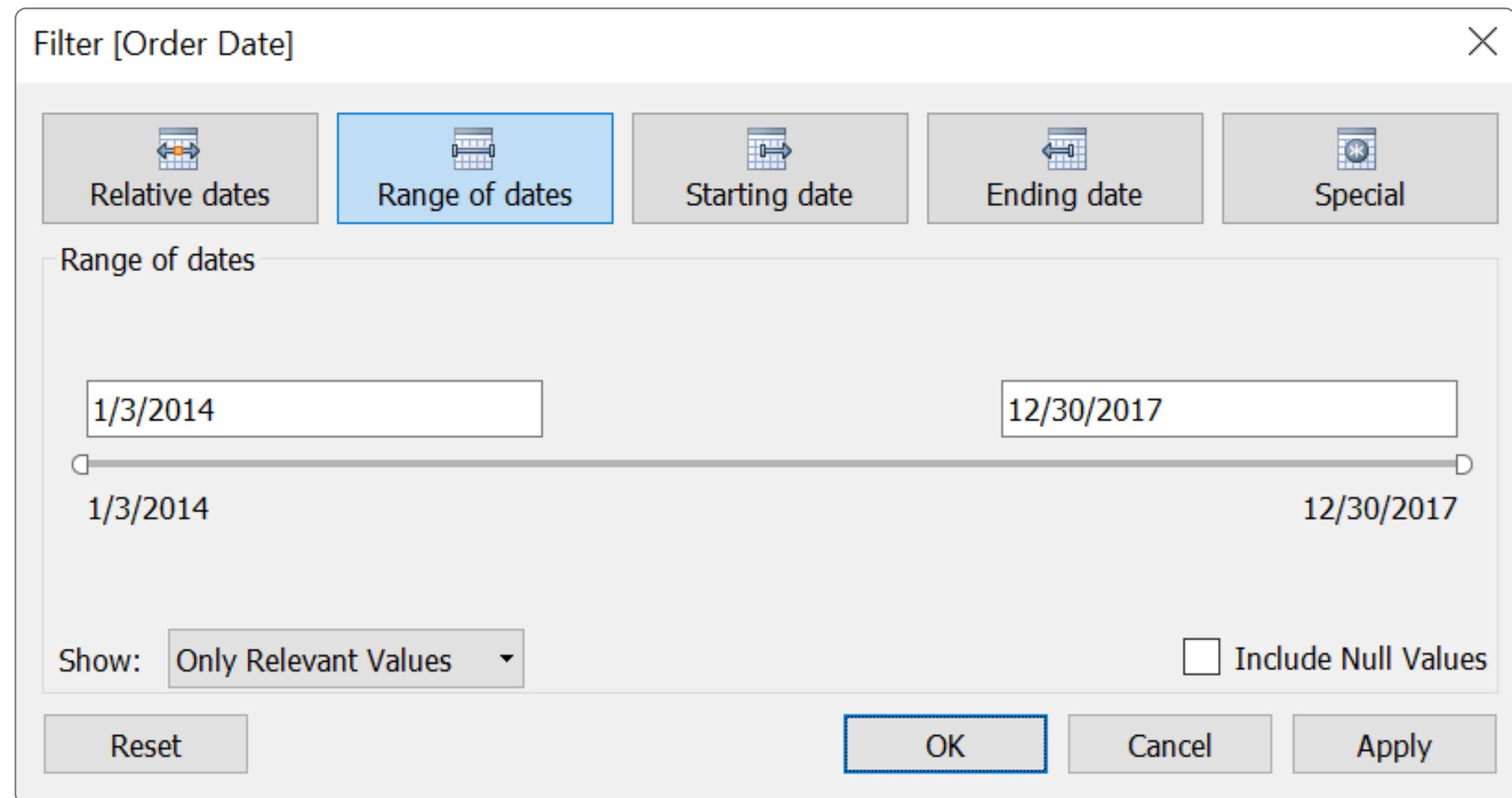
# Date Filter

Step 08: Click on **Relative dates**



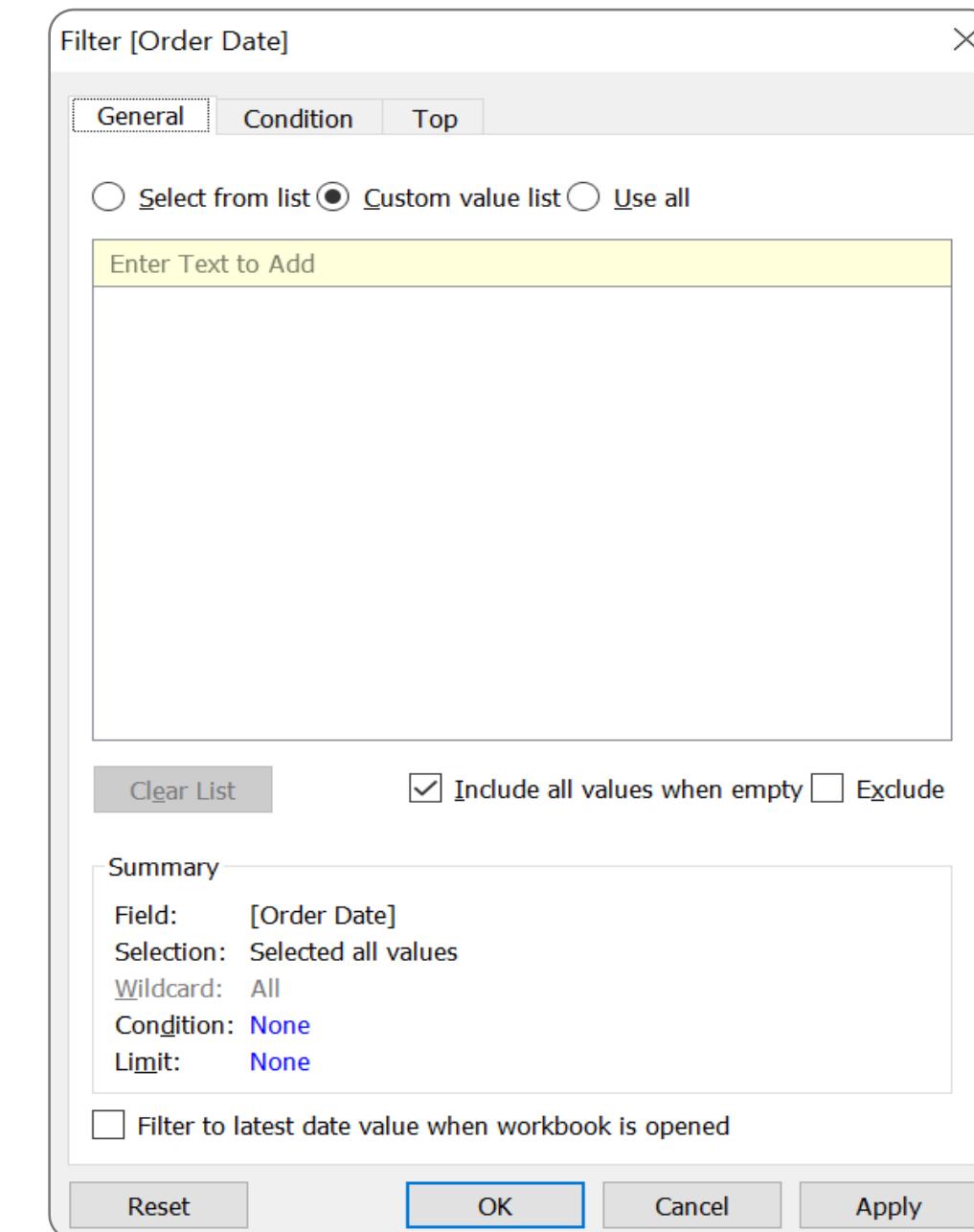
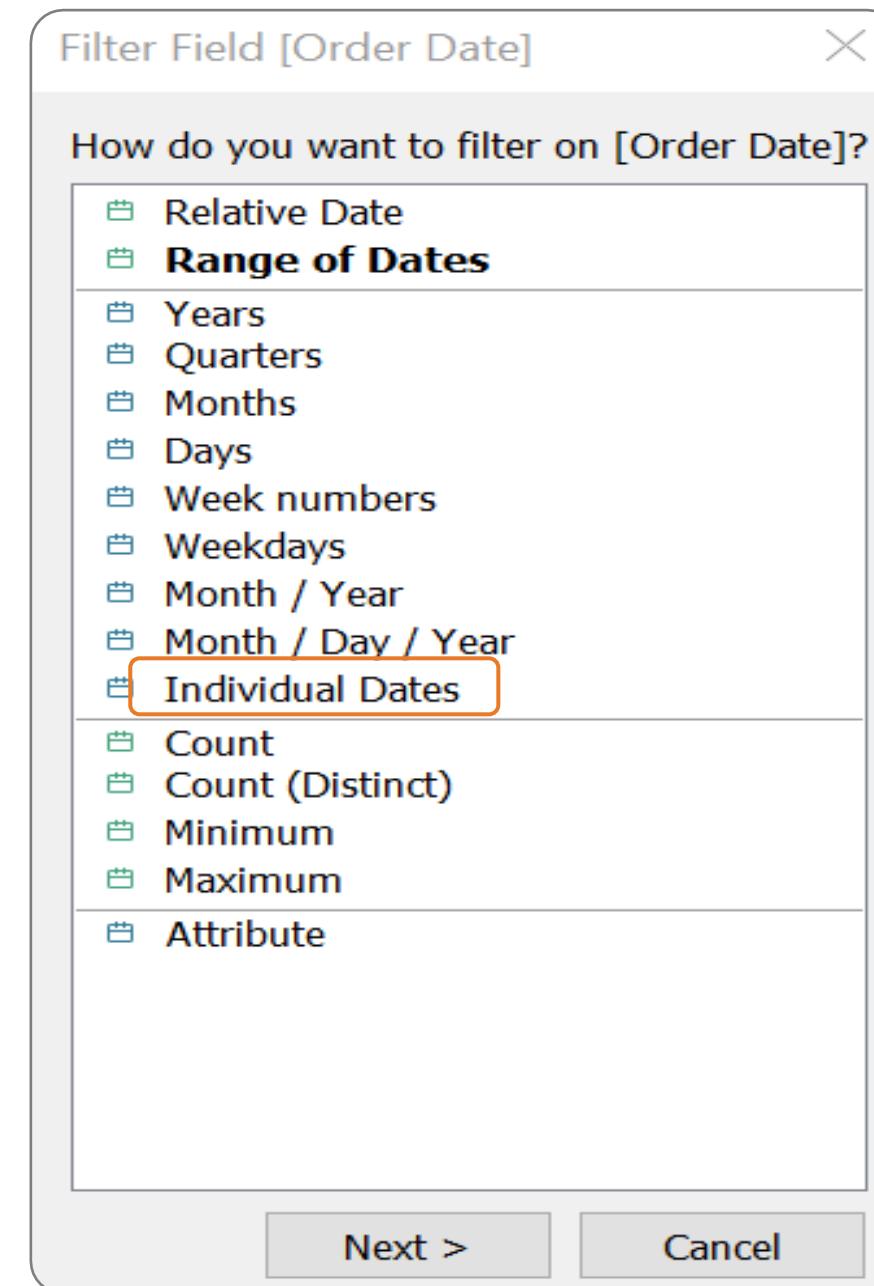
# Date Filter

Step 09: Click on **Range of dates**



# Date Filter

Step 10: Click on **Individual Dates** to open the dialog box



# Date Filter

The other date filter options are the following:

**Filter Field [Order Date]**

How do you want to filter on [Order Date]?

- Relative Date
- Range of Dates**
- Years
- Quarters
- Months
- Days
- Week numbers
- Weekdays
- Month / Year
- Month / Day / Year
- Individual Dates
- Count
- Count (Distinct)
- Minimum
- Maximum
- Attribute

**Filter [Order Date]**

Starting date

1/3/2014 12/30/2017

1/3/2014 12/30/2017

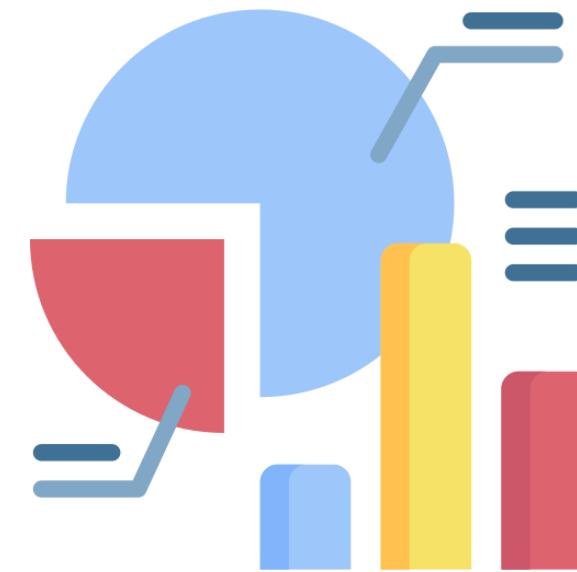
Show: Only Relevant Values  Include Null Values

Reset OK Cancel Apply

## Visual Filter

# Visual Filter

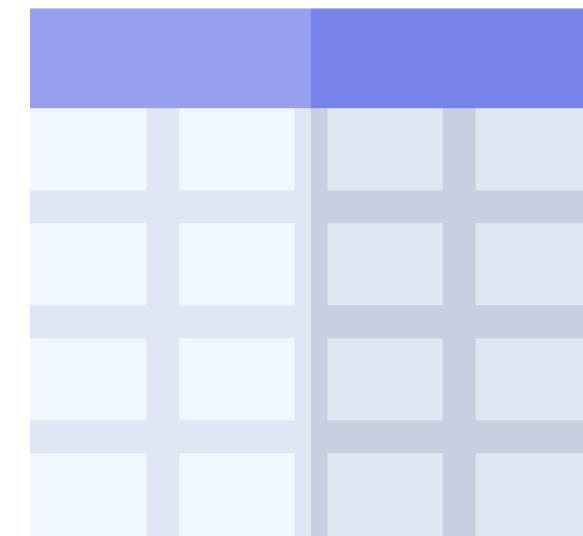
It refers to the filters that are applied directly from the following:



Charts



Maps



Tables



# Visual Filter

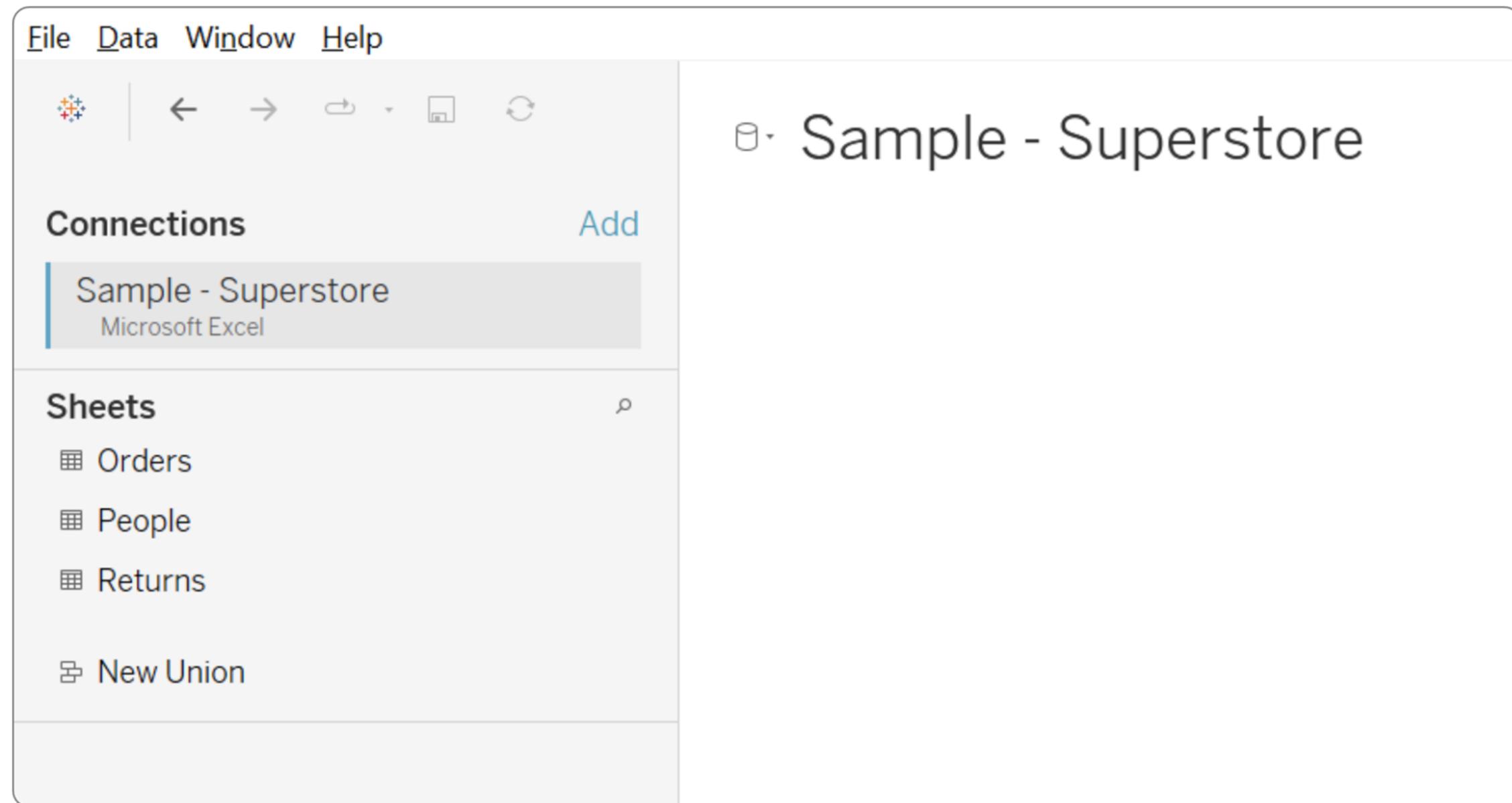
Visual filters can be applied directly using generated visualization.



- End users can directly include or exclude certain aspects of the visualization.
- It is easy, interactive, and can be performed without any technical guidance.

# Visual Filter

Step 01: Use a **Sample Superstore** dataset



The screenshot shows the Power BI desktop application interface. At the top, there is a navigation bar with 'File', 'Data', 'Window', and 'Help' options. Below the navigation bar is a toolbar with icons for back, forward, refresh, and other functions. On the left side, there is a 'Connections' section with a 'Sample - Superstore' item selected, which is identified as a 'Microsoft Excel' connection. To the right of the connections section is a 'Sheets' section containing four items: 'Orders', 'People', 'Returns', and 'New Union'. To the right of the sheets section, the main workspace displays the text 'Sample - Superstore'.

# Visual Filter

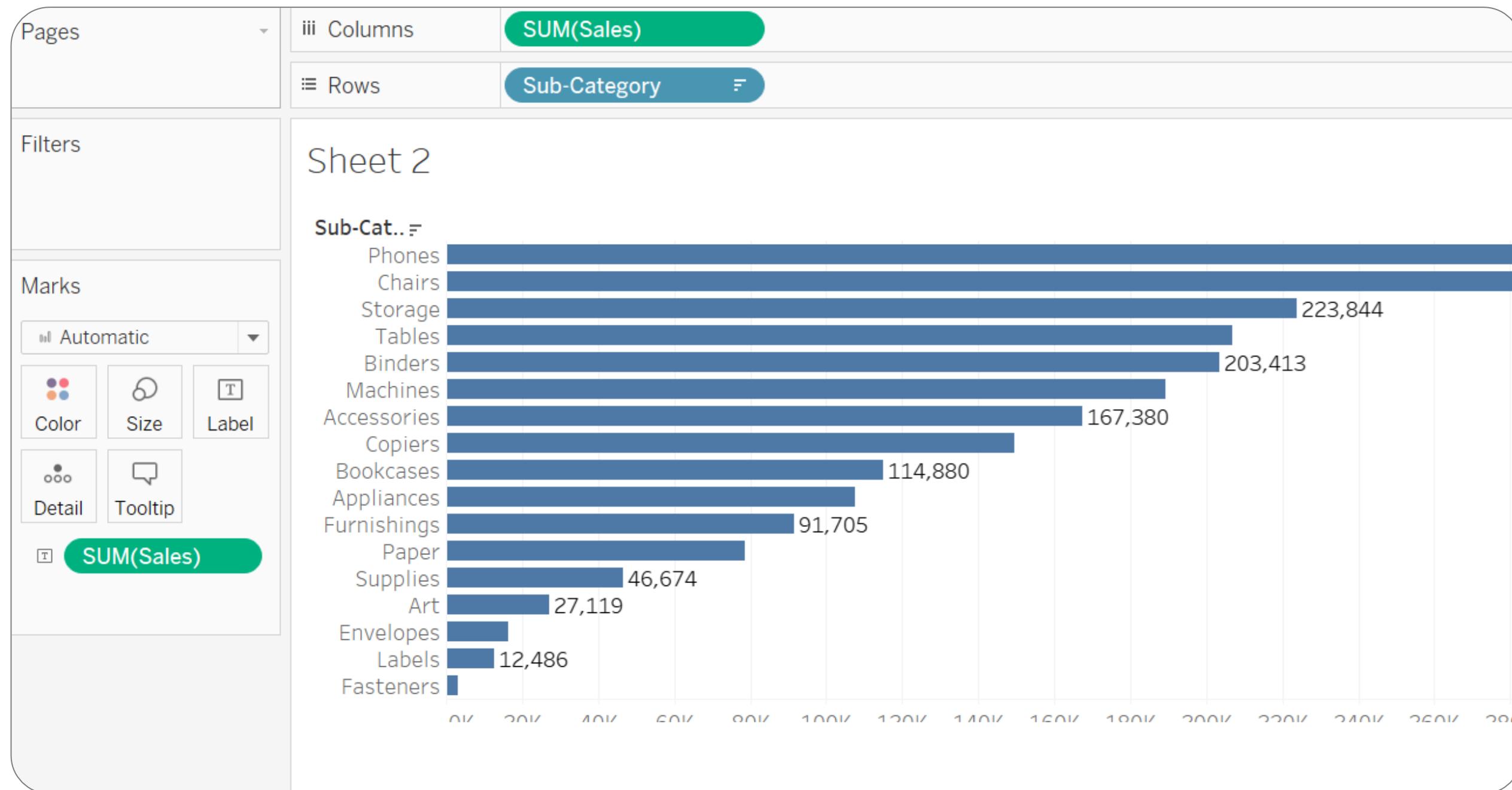
Step 02: Drag Orders to the space

The screenshot shows the Power BI desktop application interface. In the top navigation bar, the 'Data' tab is selected. On the left, the 'Connections' pane shows a single connection named 'Sample - Superstore' (Microsoft Excel). Below it, the 'Sheets' pane lists three sheets: 'Orders' (selected and highlighted with an orange border), 'People', and 'Returns'. A 'New Union' option is also present. The main workspace displays the 'Orders (Sample - Superstore)' table. At the top right of the table view, there is a dropdown menu set to 'Orders' and a note indicating '21 fields 9994 rows'. Below this, the 'Name' field is set to 'Orders'. The 'Fields' section contains a table with the following data:

Type	Field Name	Physical Table	Remote Fie...
#	Row ID	Orders	Row ID
Abc	Order ID	Orders	Order ID
Calender	Order Date	Orders	Order Date
Calender	Ship Date	Orders	Ship Date
Abc	Ship Mode	Orders	Ship Mode
Abc	Customer ID	Orders	Customer ID
Abc	Customer Name	Orders	Customer N...

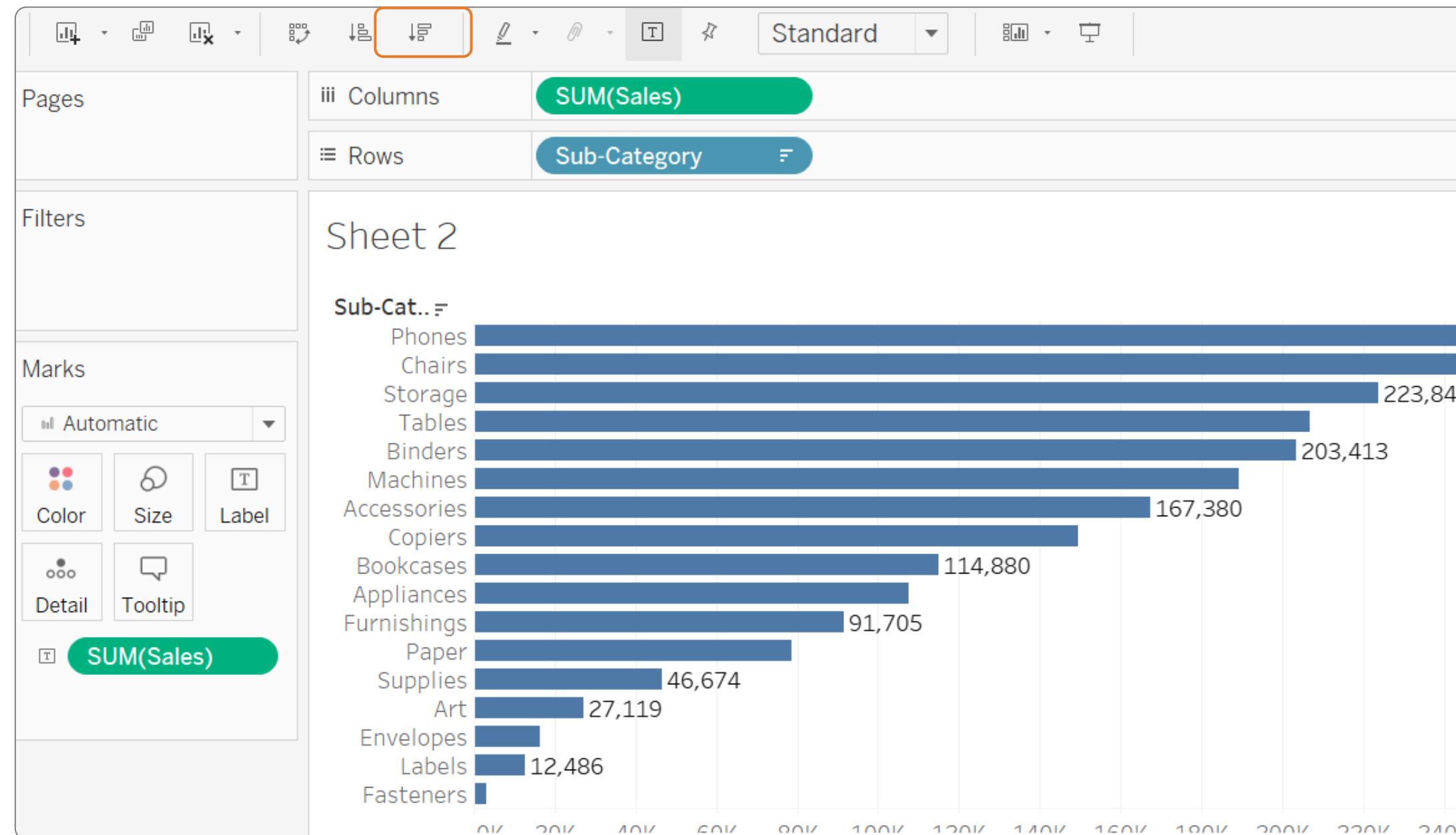
# Visual Filter

Step 03: Drag **Sub-Category** to **Rows** and **Sales** to **Columns** and **Text**



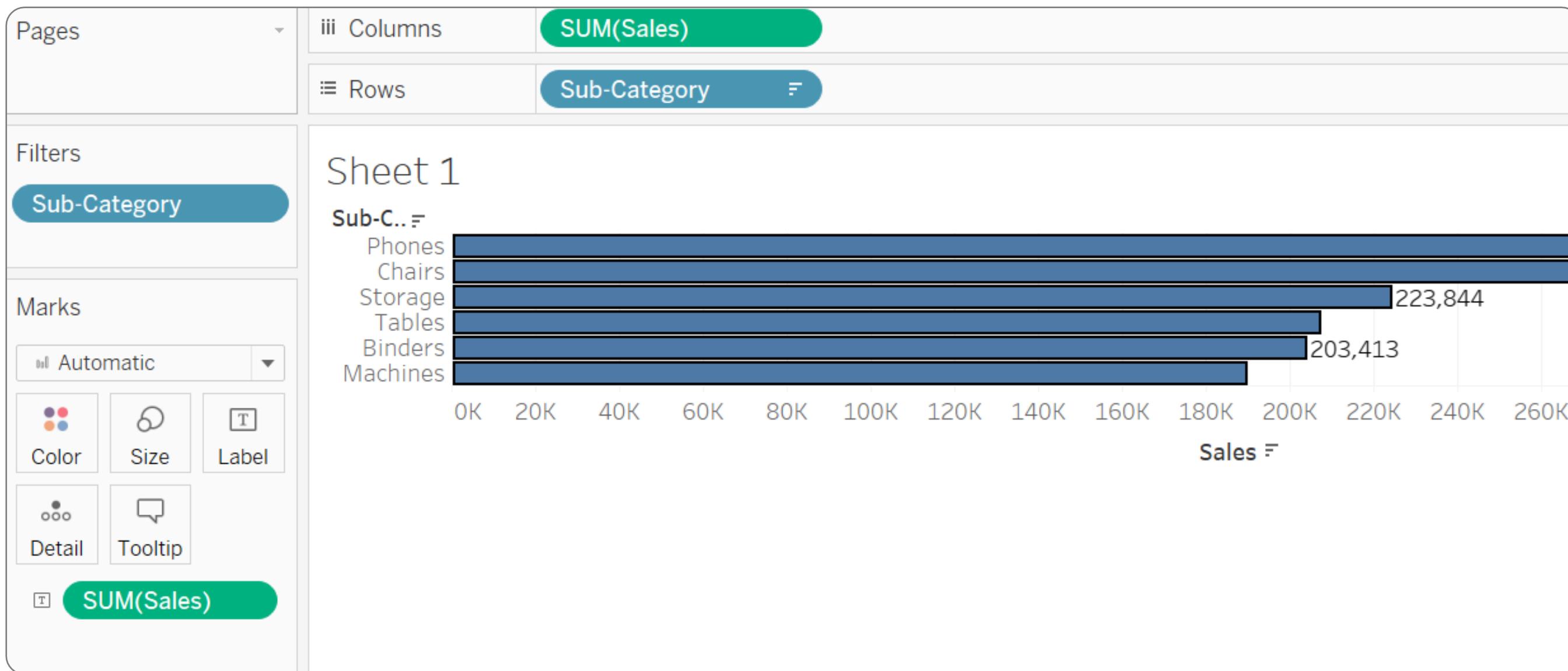
# Visual Filter

Step 04: Sort it in descending order



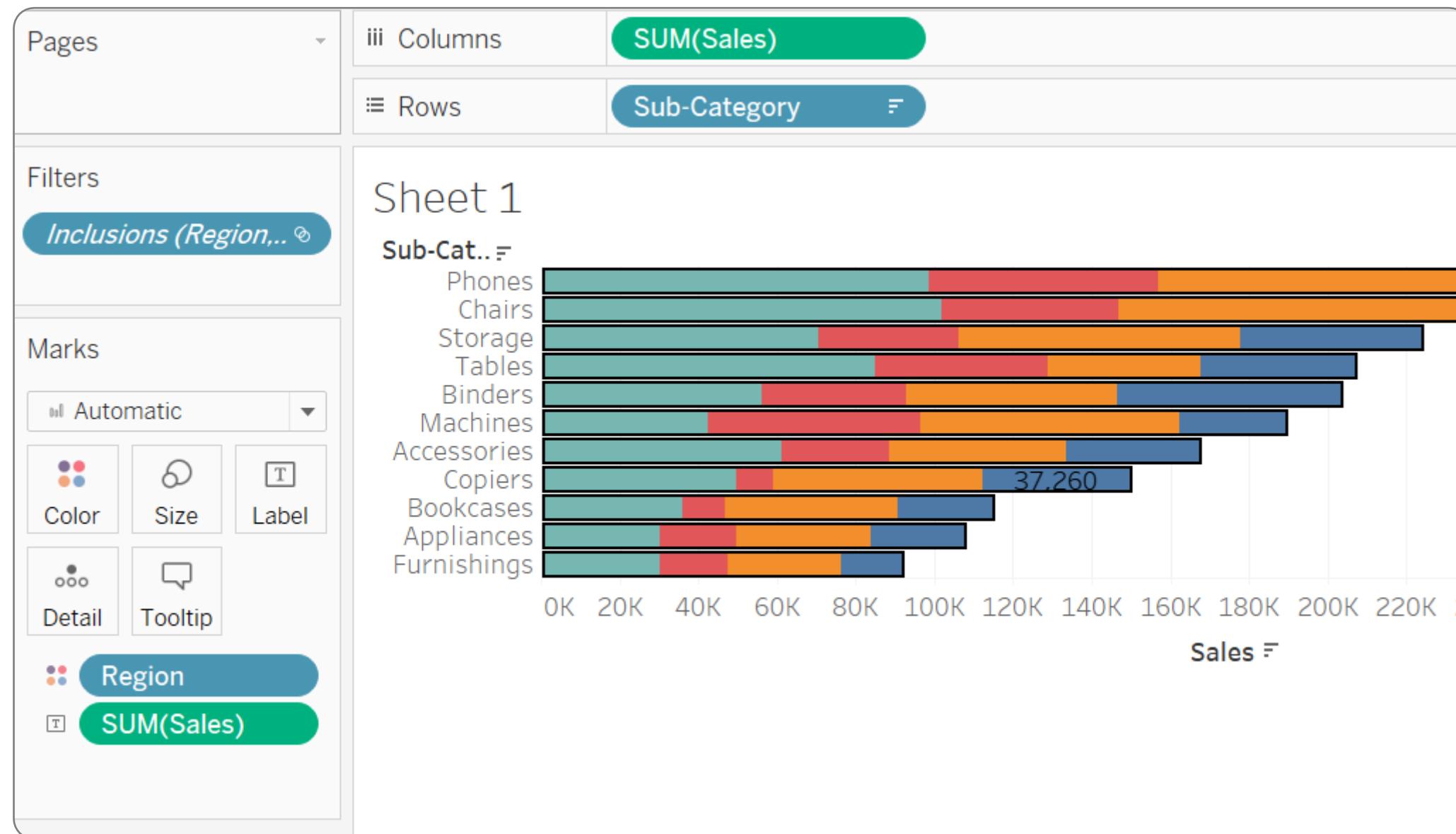
# Visual Filter

Step 05: Select **Sub-Category** from the displayed bar chart to apply filter



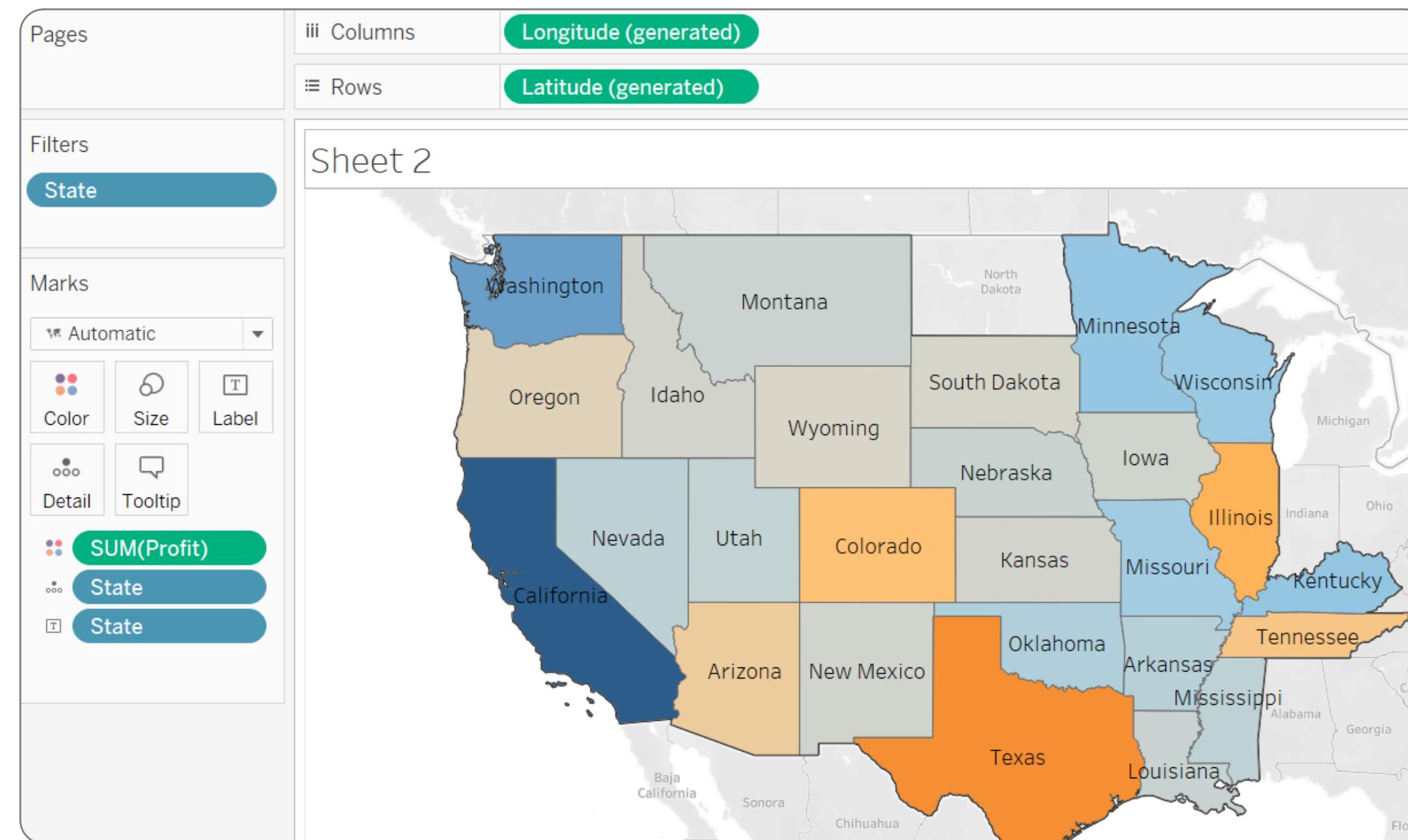
# Visual Filter

It is applicable to stacked bar chart.



# Visual Filter

It is also applied to map.

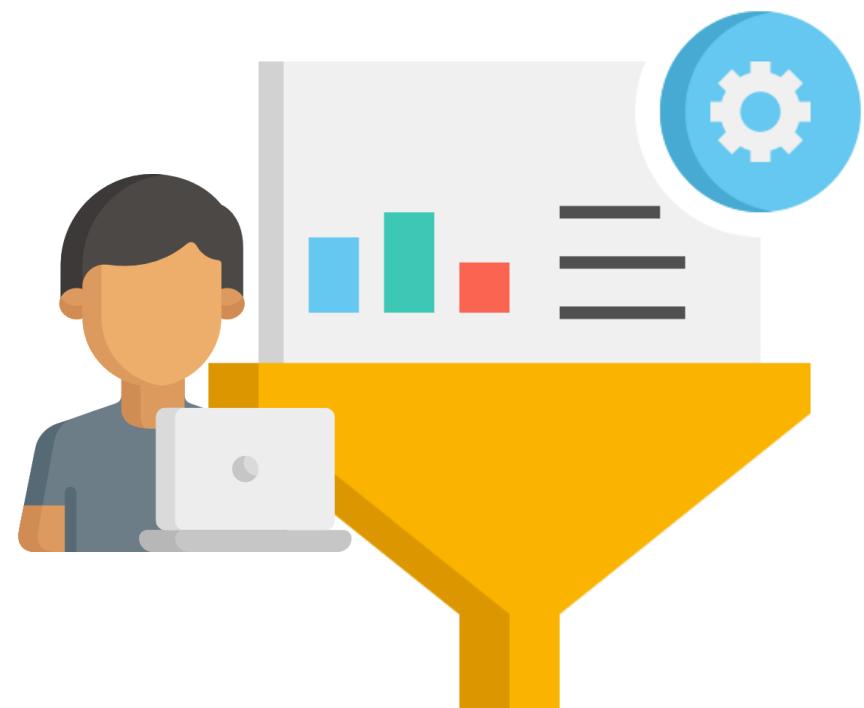


## Interactive Filter

# Interactive Filter

An interactive filter allows users to interact with data according to their needs.

It can be displayed in the following forms:



Drop-down

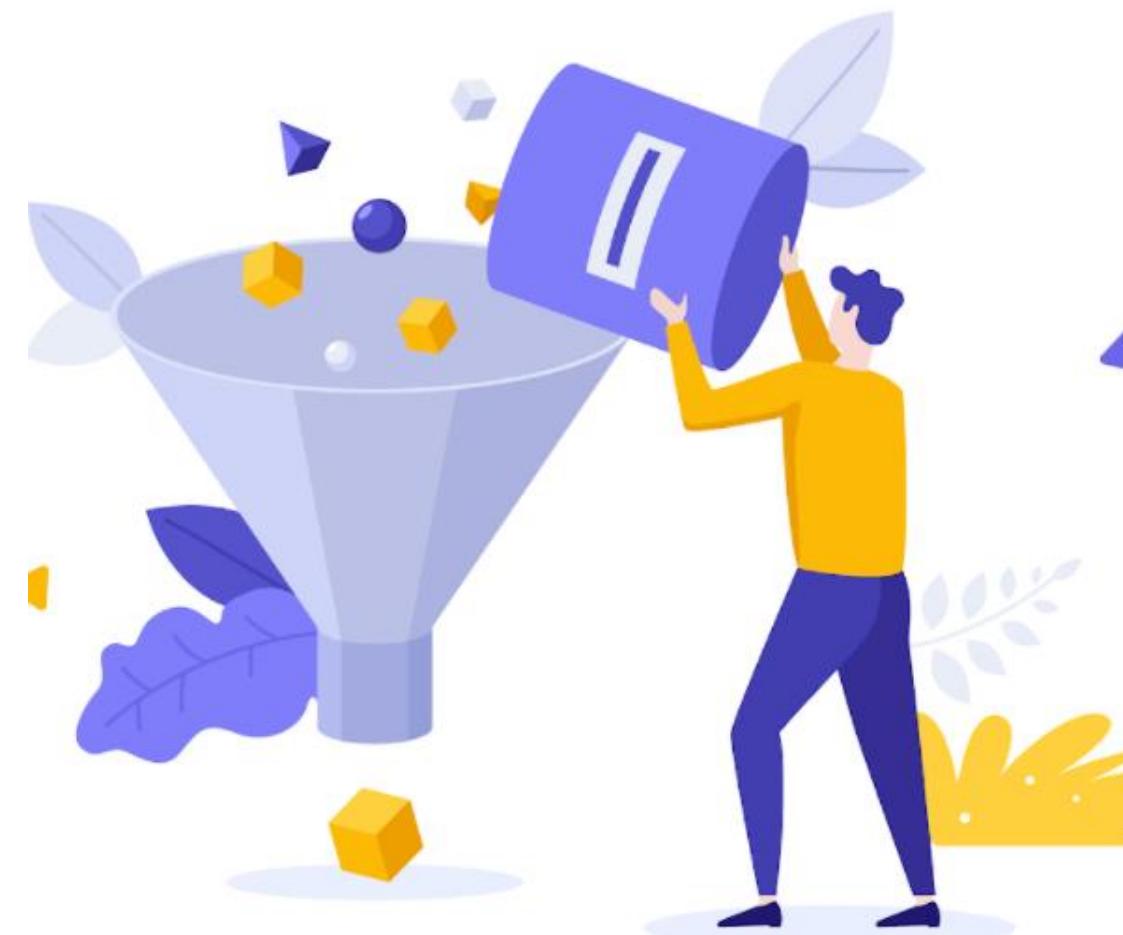
List

Radio button

Checkbox

# Interactive Filter

It is useful while designing dashboards and can be applied to:



Strings

Dates

Numbers

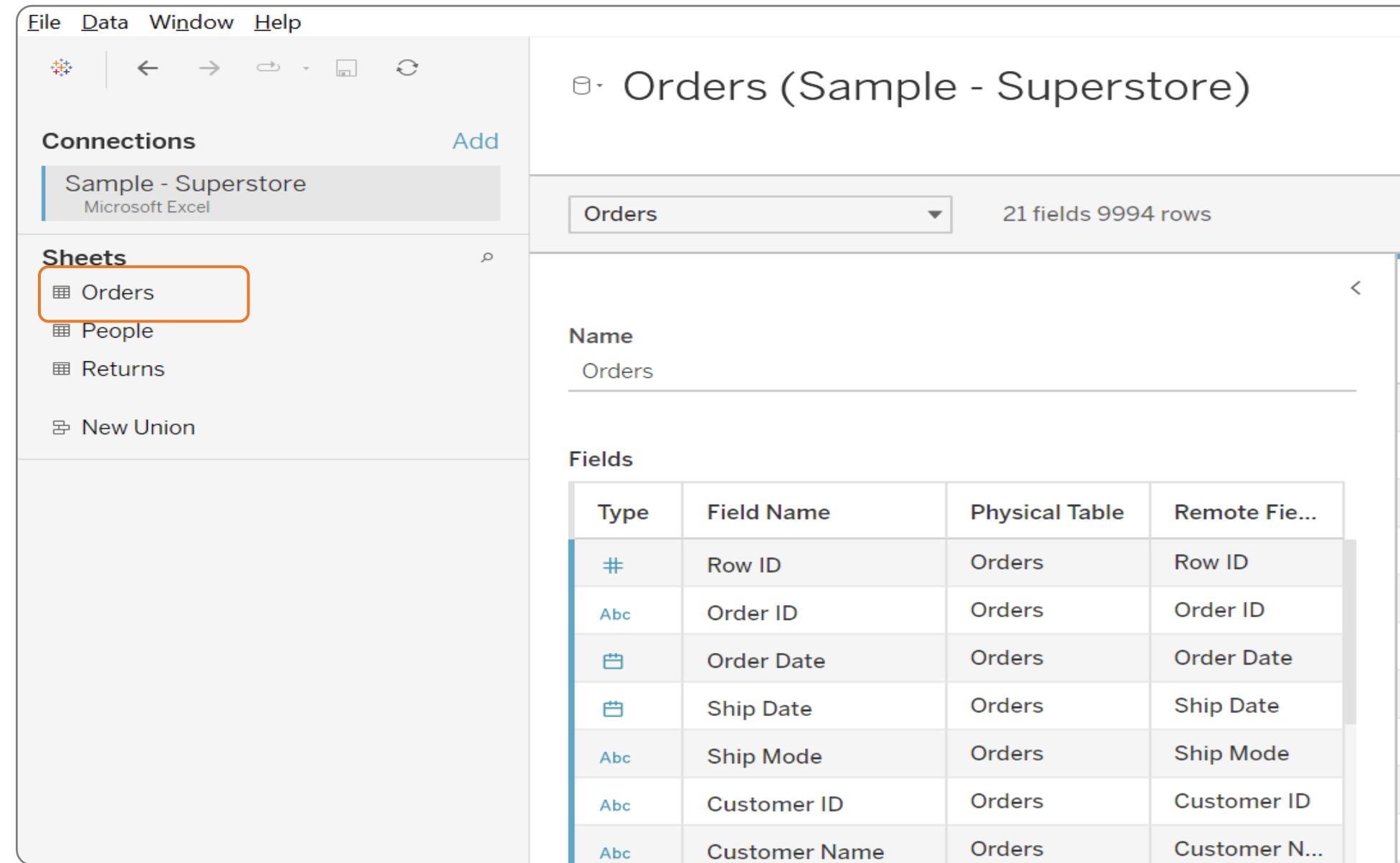
# Interactive Filter

Step 01: Use a **Sample Superstore** dataset

The screenshot shows the Microsoft Power BI desktop application interface. At the top, there is a navigation bar with 'File', 'Data', 'Window', and 'Help' options. Below the navigation bar is a toolbar with icons for file operations like back, forward, refresh, and search. On the left side, there is a 'Connections' pane with a 'Sample - Superstore' entry, which is highlighted and identified as a 'Microsoft Excel' connection. To the right of the connections pane is a 'Sheets' pane listing four sheets: 'Orders', 'People', 'Returns', and 'New Union'. To the far right of the main workspace, the text 'Sample - Superstore' is displayed.

# Interactive Filter

## Step 02: Drag Orders to the space

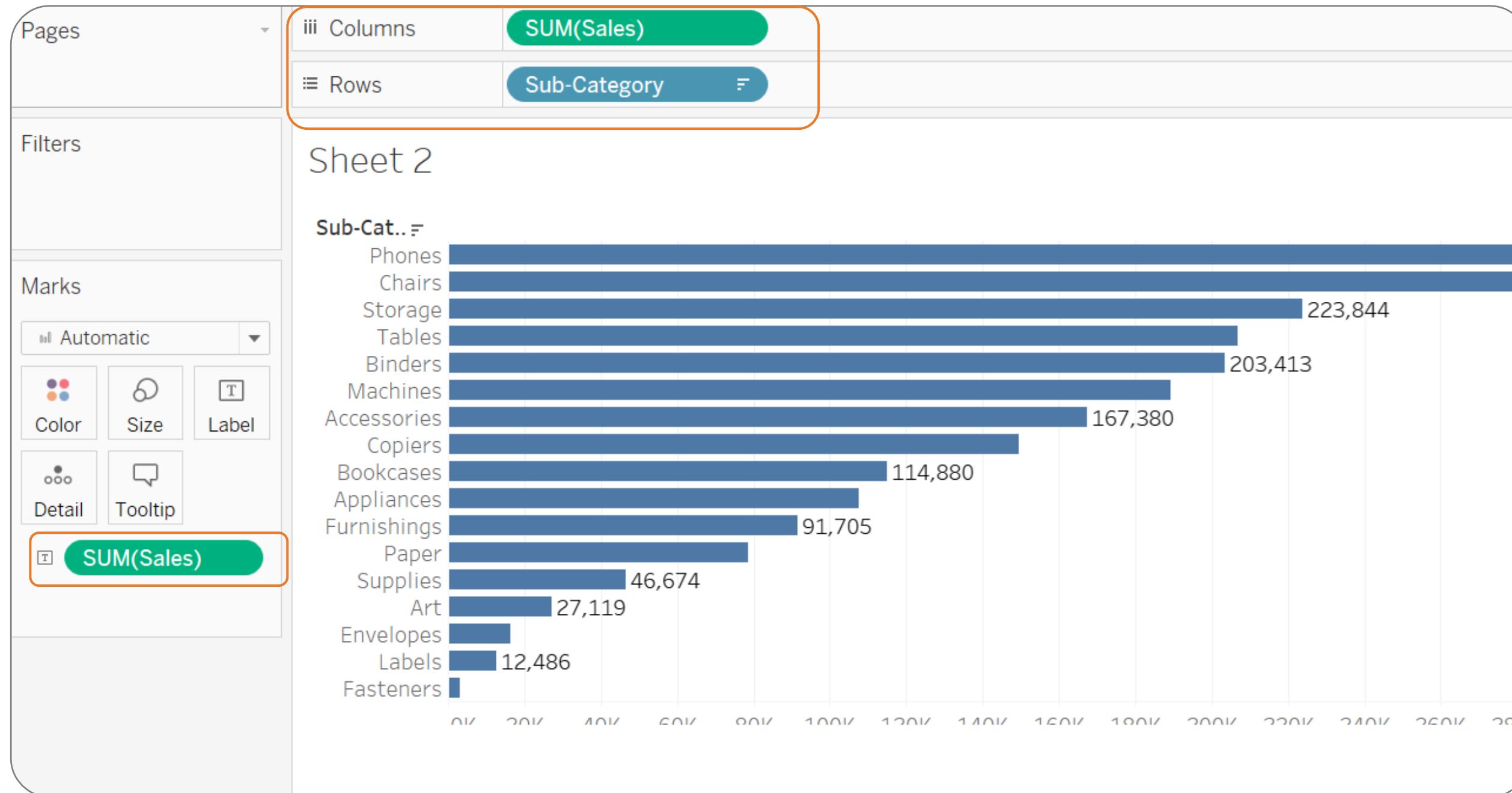


The screenshot shows the Power BI desktop application interface. In the top navigation bar, the 'Data' tab is selected. The 'Connections' section shows a single connection named 'Sample - Superstore' (Microsoft Excel). The 'Sheets' section on the left has three items: 'Orders' (highlighted with an orange border), 'People', and 'Returns'. A 'New Union' item is also listed. The main workspace displays a data model for the 'Orders' sheet. At the top right of the workspace, it says 'Orders (Sample - Superstore)' with a dropdown arrow and '21 fields 9994 rows'. Below this, under the heading 'Name', is the entry 'Orders'. Under the heading 'Fields', there is a table with the following data:

Type	Field Name	Physical Table	Remote Fie...
#	Row ID	Orders	Row ID
Abc	Order ID	Orders	Order ID
Calender	Order Date	Orders	Order Date
Calender	Ship Date	Orders	Ship Date
Abc	Ship Mode	Orders	Ship Mode
Abc	Customer ID	Orders	Customer ID
Abc	Customer Name	Orders	Customer N...

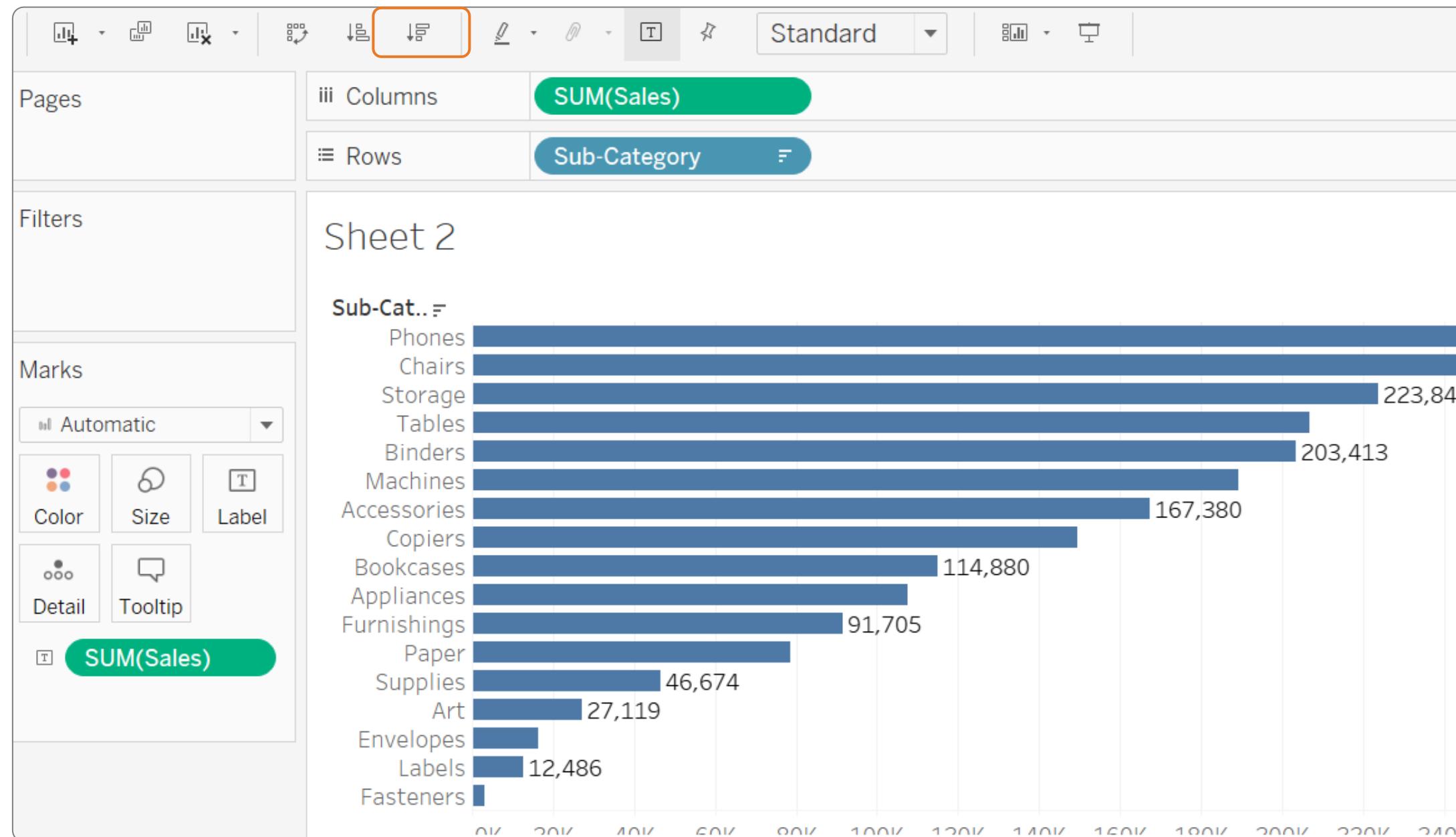
# Interactive Filter

Step 03: Drag **Sub-Category** to **Rows** and **Sales** to **Columns** and **Label**



# Interactive Filter

Step 04: Sort it in descending order



# Interactive Filter

Step 05: Select **Sub-Category** and click on show filter to open the dialog box

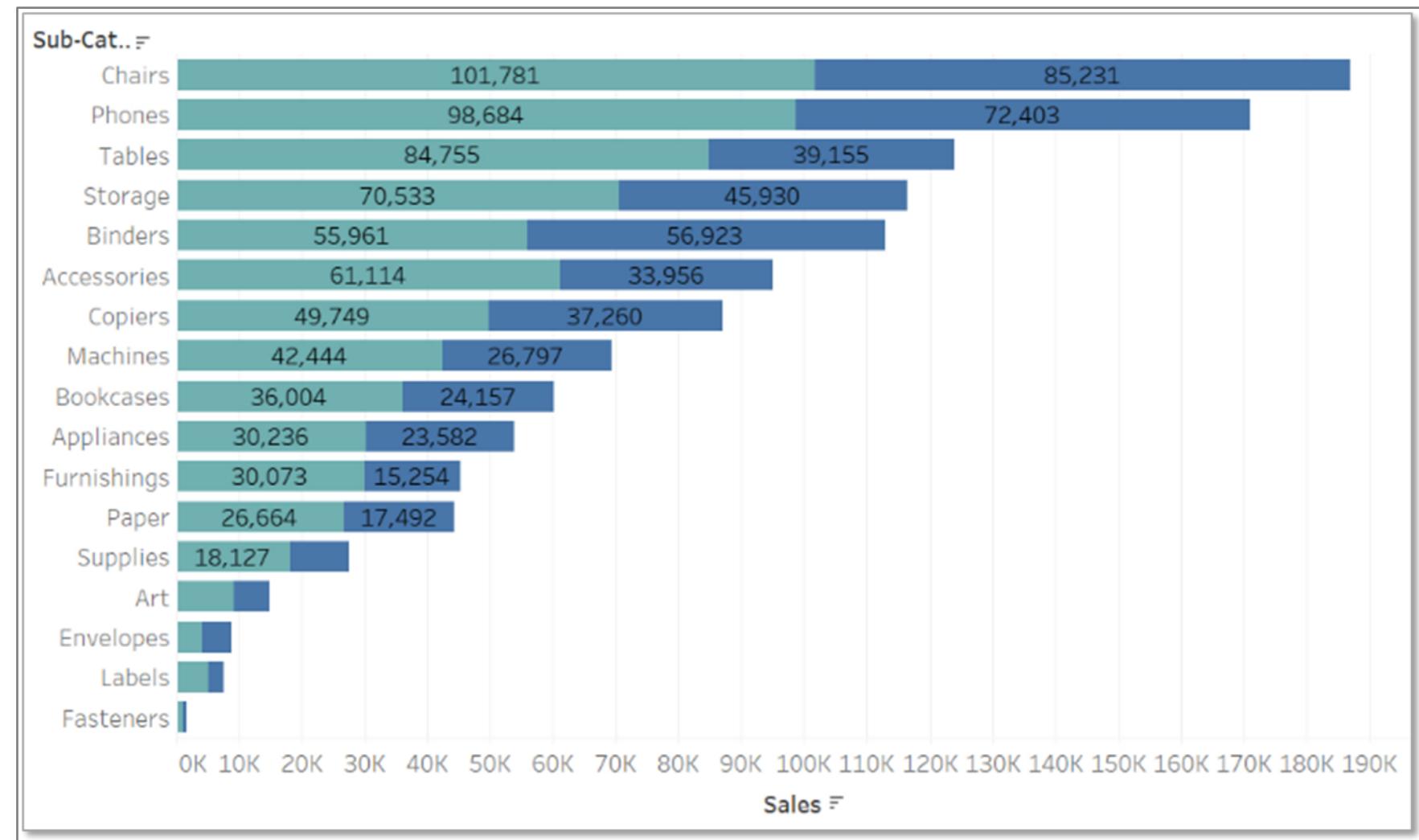
The screenshot shows the Tableau Data pane. In the top navigation bar, 'Data' is selected. Below it, under 'Analytics', there is a connection named 'Orders (Sample - Superst...)' with a search bar and a dropdown menu. The 'Tables' section lists various dimensions and measures, with 'Sub-Category' highlighted in a blue button. The 'Marks' section shows options for 'Automatic' and several specific marks: Color, Size, Label, Detail, and Tooltip. A green button labeled 'SUM(Sales)' is also present. To the right, a modal dialog box titled 'Sub-Category' is displayed, listing 21 categories, each with a checked checkbox. The categories are: (All), Accessories, Appliances, Art, Binders, Bookcases, Chairs, Copiers, Envelopes, Fasteners, Furnishings, Labels, Machines, Paper, Phones, Storage, Supplies, and Tables.

Sub-Category
(All)
Accessories
Appliances
Art
Binders
Bookcases
Chairs
Copiers
Envelopes
Fasteners
Furnishings
Labels
Machines
Paper
Phones
Storage
Supplies
Tables

## Data Source Filter

# Data Source Filter

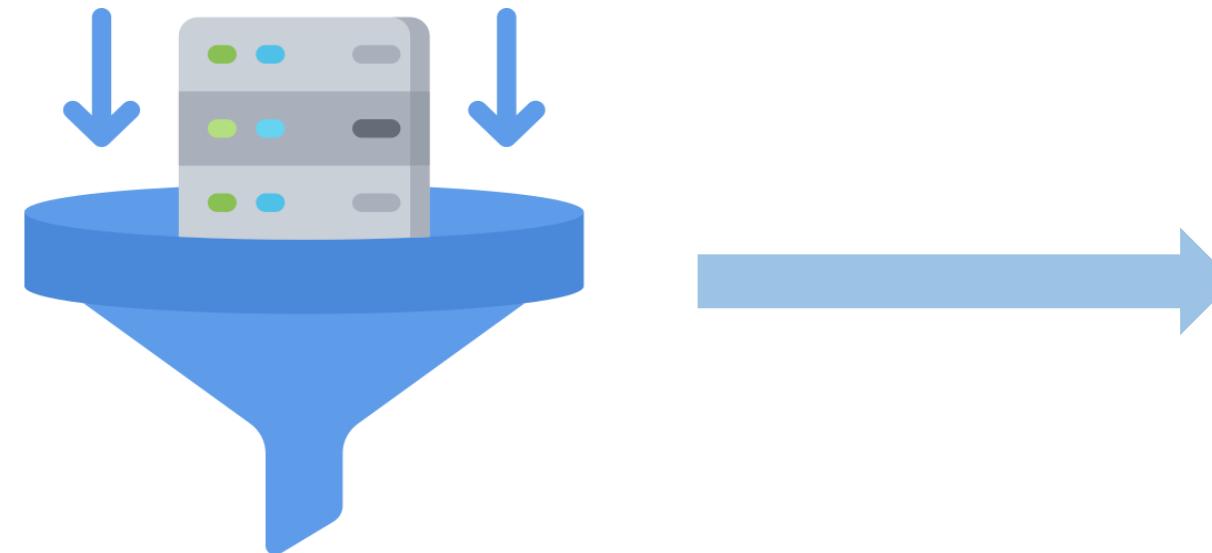
A data source filter is applied to data connected to the tableau.



It increases the performance of the workbook.

# Data Source Filter

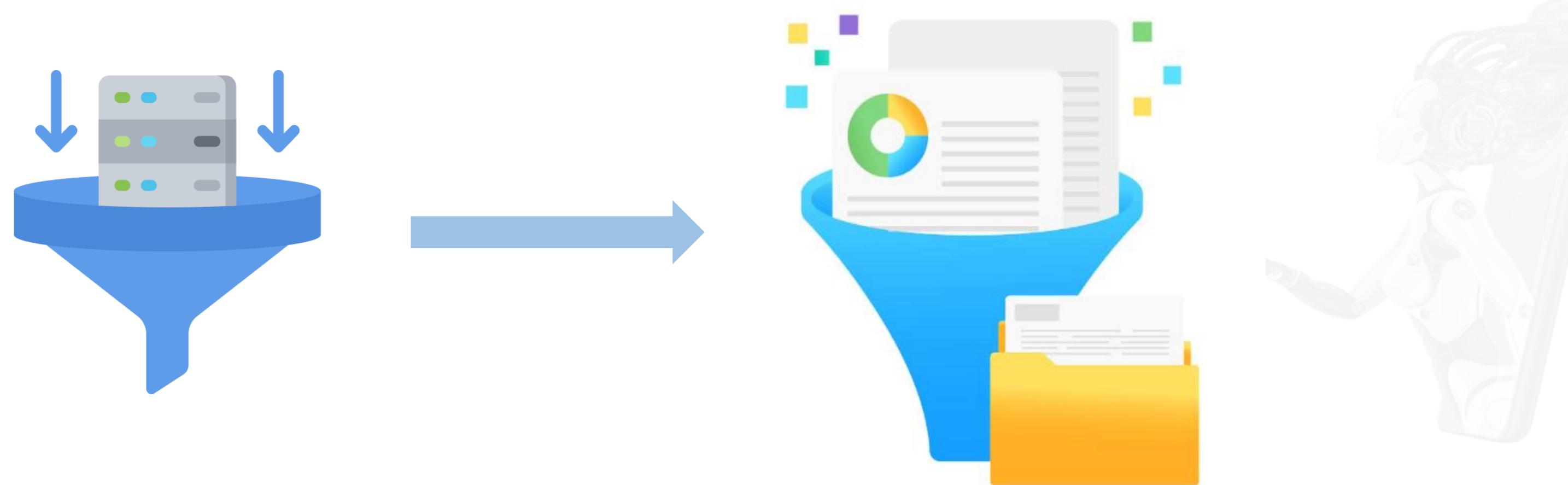
When a data source filter is applied, the changes are reflected across all worksheets connected to the data.



Filters at the data source level are an efficient way to limit the scope of data for performance or security purposes.

## Extract Filters

Extract filters are the same as data source filters, but they are applied to the extract connection.



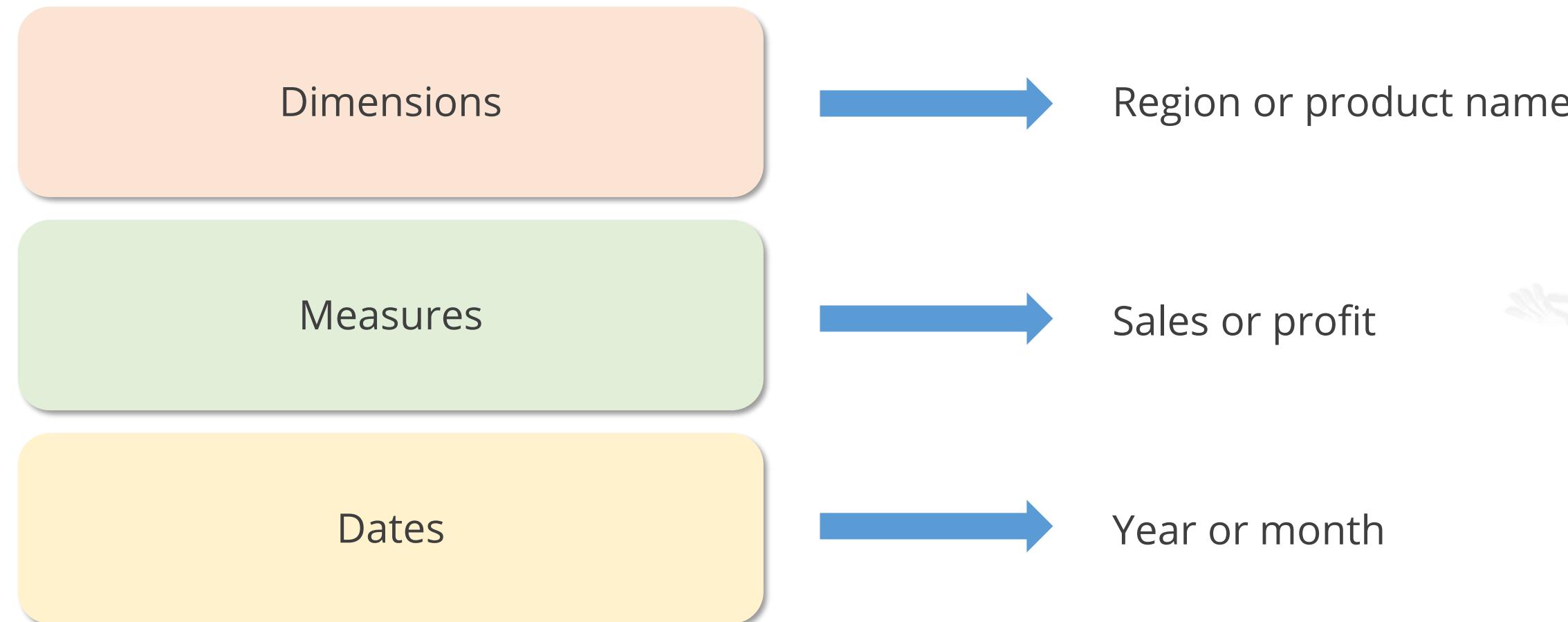
## Worksheet Filters

Worksheet filters are used within the tableau worksheet.



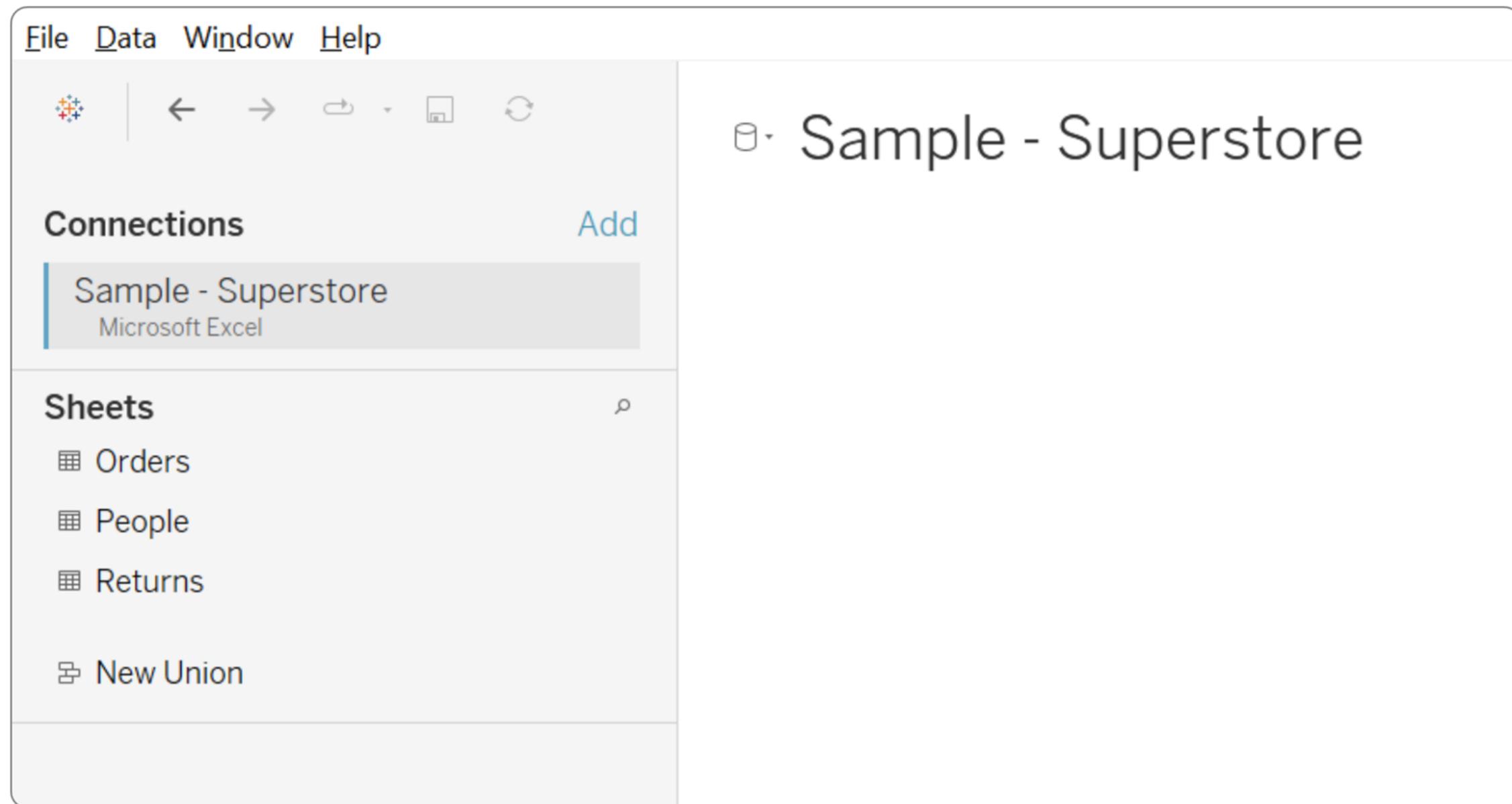
# Field Types

Field types on the data source, extract, and worksheet filters are:



# Data Source Filter

Step 01: Use a **Sample Superstore** dataset



The screenshot shows the Microsoft Power BI desktop application interface. At the top, there is a navigation bar with 'File', 'Data', 'Window', and 'Help' options. Below the navigation bar is a toolbar with icons for file operations like back, forward, refresh, and search. On the left side, there is a 'Connections' pane with a 'Connections' section containing a 'Sample - Superstore' entry, which is highlighted with a blue selection bar, and a 'Microsoft Excel' label. To the right of the connections pane is a large workspace area. In the workspace, there is a tree view under the heading 'Sample - Superstore'. The tree view includes a root node 'Sample - Superstore' and three child nodes: 'Orders', 'People', and 'Returns'. Below these, there is another node 'New Union'. The overall interface is clean and modern, typical of a data analysis tool.

# Data Source Filter

Step 02: Drag Orders to the space

The screenshot shows the Power BI Data Source Filter interface. On the left, the 'Connections' pane displays a single connection named 'Sample - Superstore' (Microsoft Excel). Below it, the 'Sheets' pane lists three sheets: 'Orders' (selected and highlighted with an orange border), 'People', and 'Returns'. A 'New Union' option is also present. The main workspace on the right shows a tree view with 'Orders (Sample - Superstore)' expanded, revealing the 'Orders' table. A dropdown menu indicates 'Orders' is selected, with '21 fields 9994 rows' shown. Below this, the 'Name' field is set to 'Orders'. A 'Fields' table is displayed, listing the following columns:

Type	Field Name	Physical Table	Remote Fie...
#	Row ID	Orders	Row ID
Abc	Order ID	Orders	Order ID
Calender	Order Date	Orders	Order Date
Calender	Ship Date	Orders	Ship Date
Abc	Ship Mode	Orders	Ship Mode
Abc	Customer ID	Orders	Customer ID
Abc	Customer Name	Orders	Customer N...

# Data Source Filter

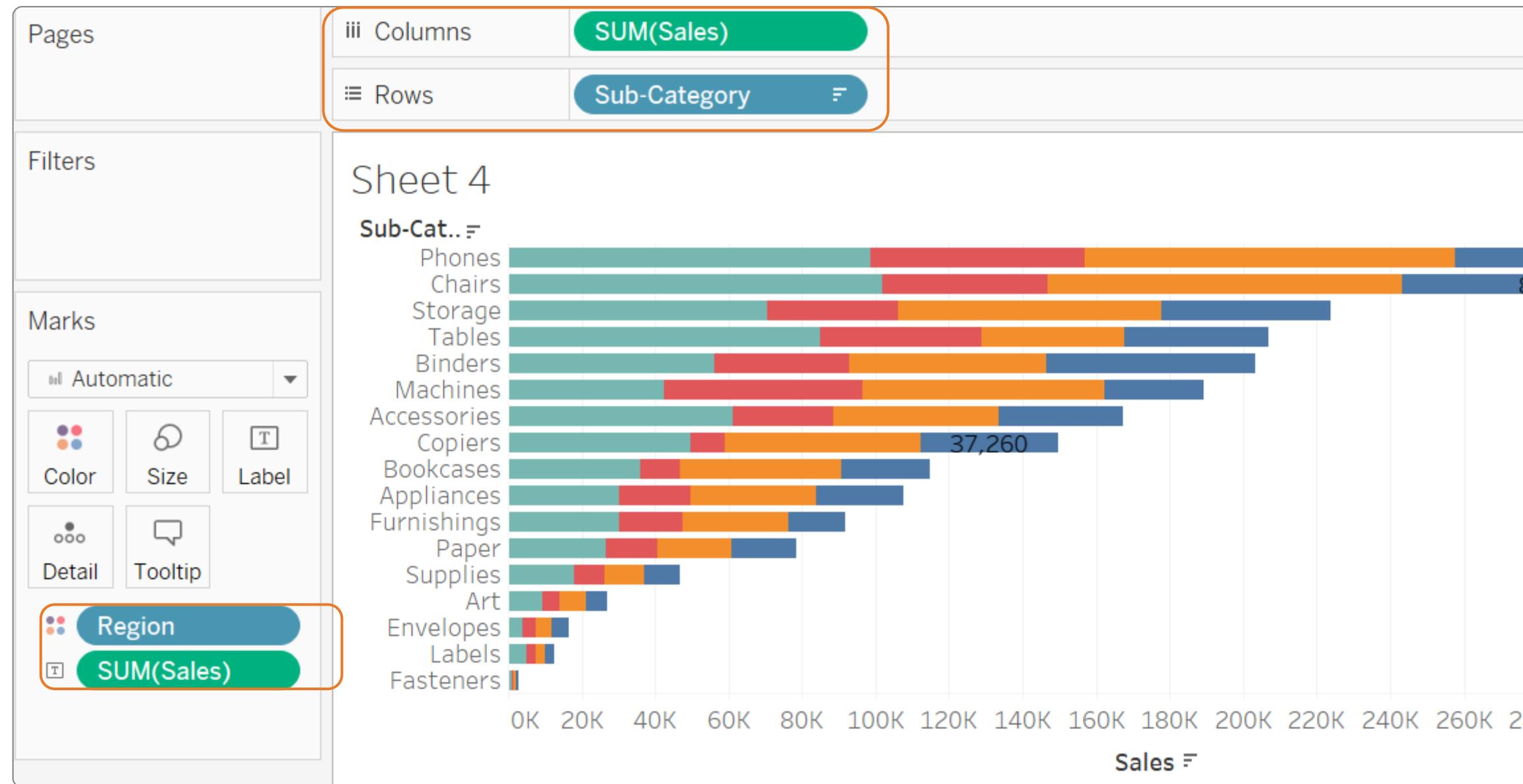
Step 03: Drag **Region** to **Rows** and **Sales** to **Text**

The screenshot shows the Tableau Data Source Filter interface. On the left, there are three sections: Pages, Filters, and Marks. The Marks section has a dropdown menu set to "Automatic". Below it are four buttons: Color (with a color palette icon), Size (with a circular icon), Text (with a T icon), Detail (with a dot icon), and Tooltip (with a speech bubble icon). At the bottom of the Marks section is a green button labeled "SUM(Sales)". To the right of the Marks section is a "Sheet 4" area. At the top of this area is a header with "iii Columns" and two tabs: "Rows" and "Region", with "Region" highlighted in a blue bar. A red box highlights the "Region" tab. Below the header is a table titled "Region" with four rows: Central (501,240), East (678,781), South (391,722), and West (725,458). A red box highlights the entire table.

Region	Sales
Central	501,240
East	678,781
South	391,722
West	725,458

# Data Source Filter

Step 04: Drag Region to Color, Sub-Category to Rows and Sales to Text and Columns



# Data Source Filter

Step 05: Click on **Data Source** and Add

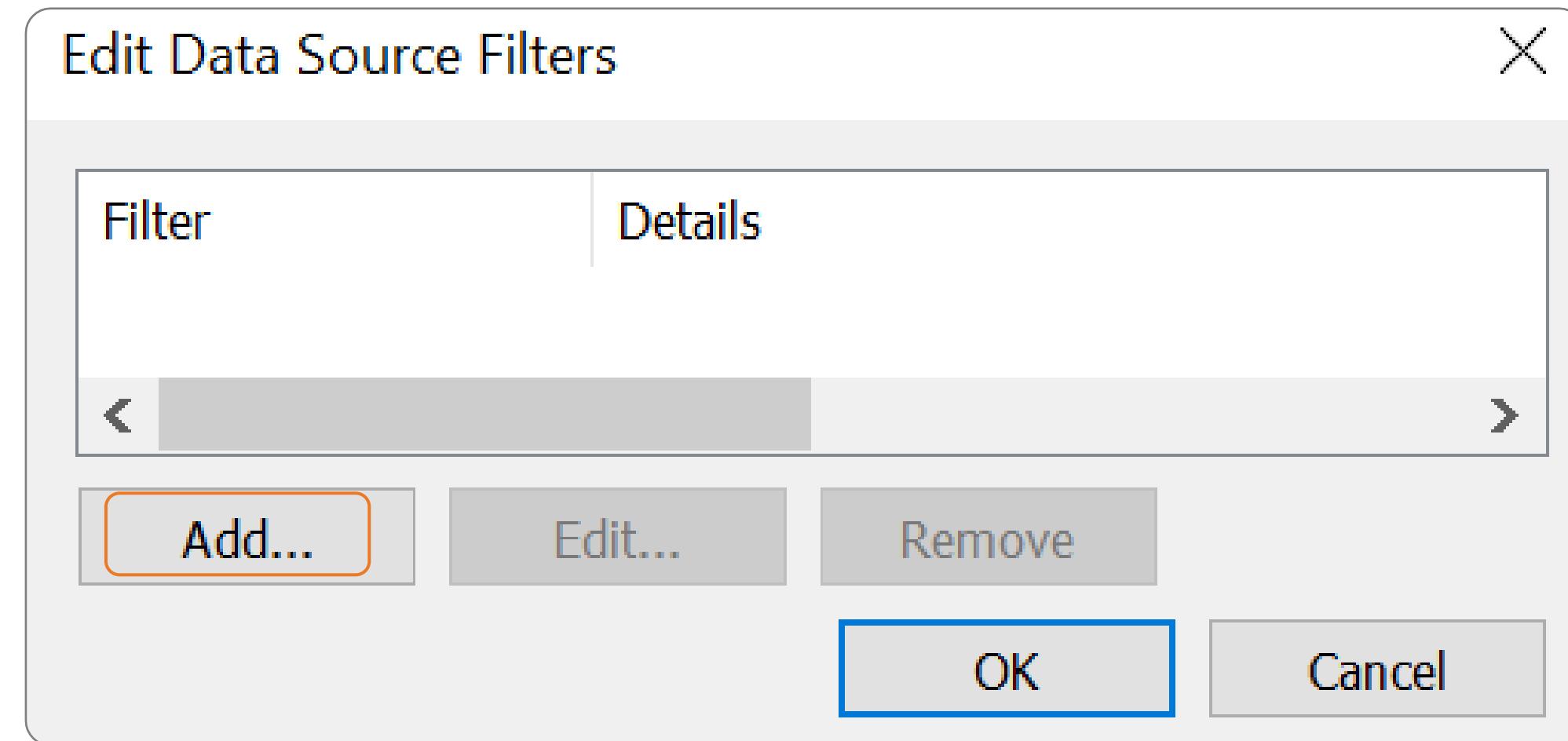
The screenshot shows the Power BI Data Source Filter interface. On the left, the 'Connections' pane lists 'Sample - Superstore Microsoft Excel'. The 'Sheets' pane shows 'Orders', 'People', 'Returns', and 'New Union'. The main area displays the 'Orders' table from the 'Sample - Superstore' connection. The table has 21 fields and 9994 rows. The first 10 rows of the table are shown below:

#	Abc Orders	Orders	Orders	Ship Date	Ship Mode
Row ID	Order ID	Order Date	Order Date	Ship Date	Ship Mode
1	CA-2016-152156	11/8/2016	11/11/2016	Second Class	
2	CA-2016-152156	11/8/2016	11/11/2016	Second Class	
3	CA-2016-138688	6/12/2016	6/16/2016	Second Class	
4	US-2015-108966	10/11/2015	10/18/2015	Standard Class	
5	US-2015-108966	10/11/2015	10/18/2015	Standard Class	
6	CA-2014-115812	6/9/2014	6/14/2014	Standard Class	
7	CA-2014-115812	6/9/2014	6/14/2014	Standard Class	
8	CA-2014-115812	6/9/2014	6/14/2014	Standard Class	
9	CA-2014-115812	6/9/2014	6/14/2014	Standard Class	
10	CA-2014-115812	6/9/2014	6/14/2014	Standard Class	

Two orange arrows point to the 'Data Source' button at the bottom-left and the 'Filters' section at the top-right.

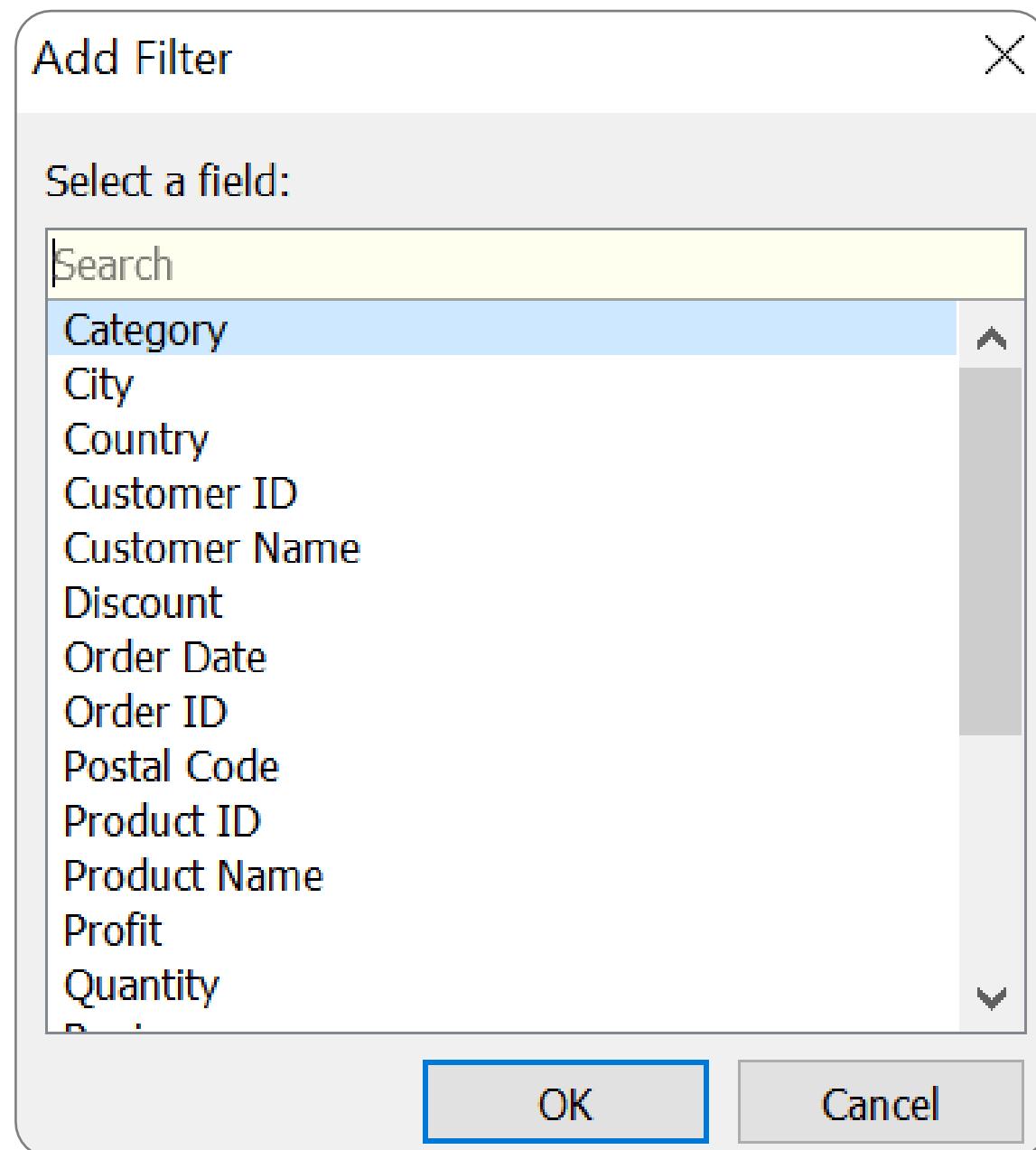
# Data Source Filter

Step 06: Click on **Add** in the dialog box



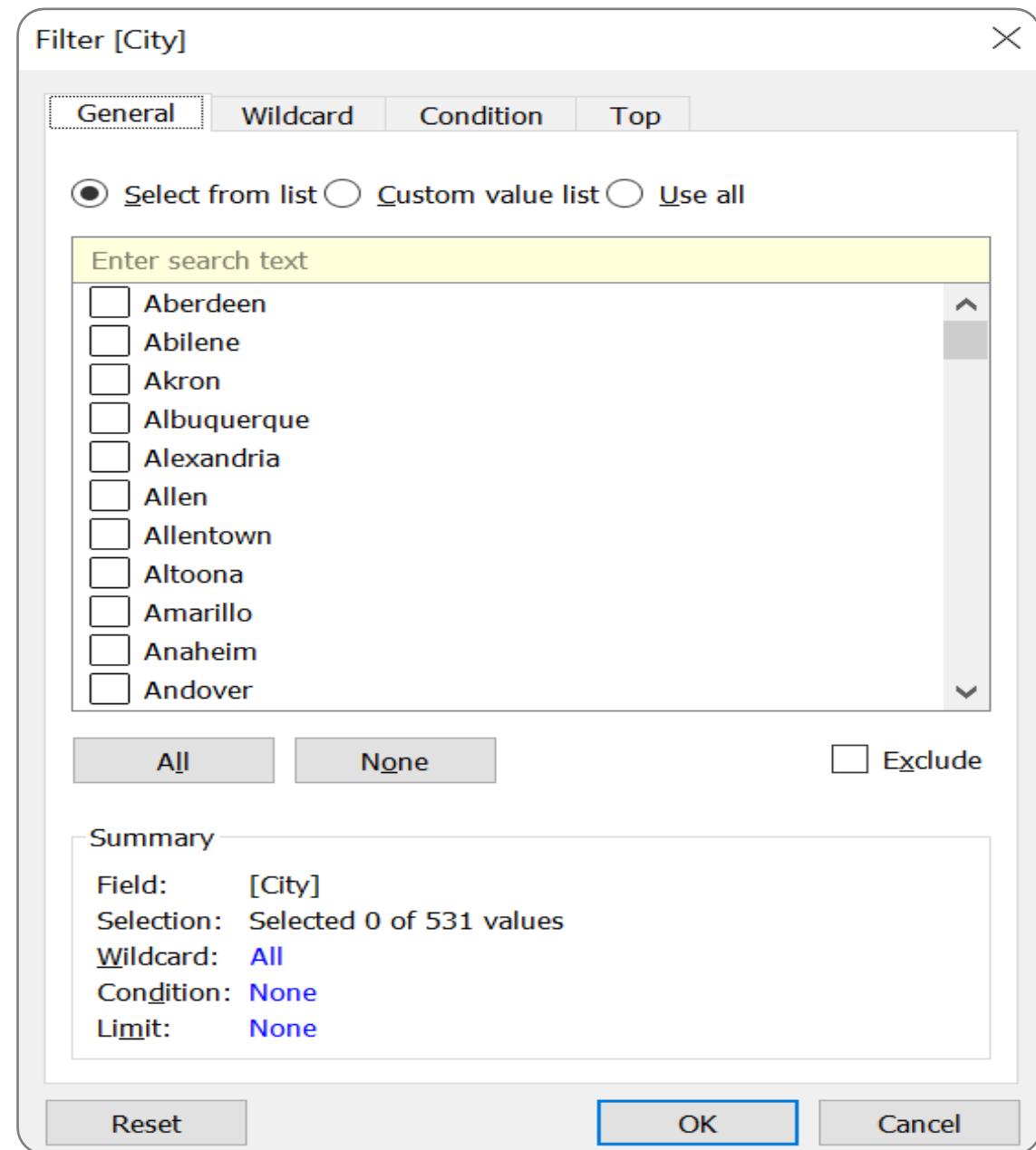
## Data Source Filter

Step 07: Click on the required filter and click **OK**



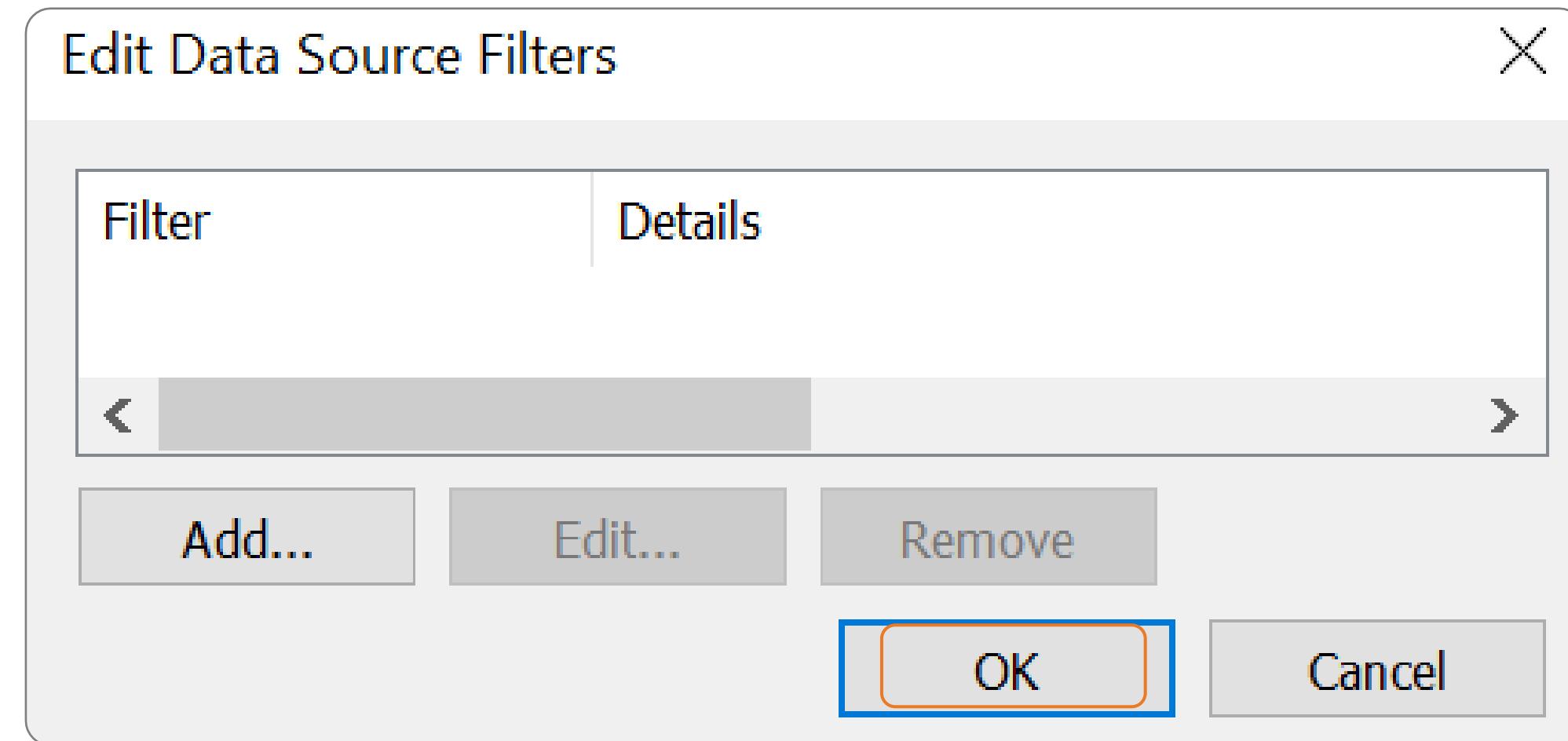
# Data Source Filter

Step 08: A dialog box will appear with the filter options



# Data Source Filter

Step 09: Click **OK** after adding the filter



# Data Source Filter

The added filter will be displayed in the **Data Source** sheet.

The screenshot shows the Power BI Data Source interface. On the left, the 'Connections' pane lists 'Sample - Superstore' (Microsoft Excel). The 'Sheets' pane shows 'Orders', 'People', 'Returns', and 'New Union'. The main area displays the 'Orders (Sample - Superstore)' table with 21 fields and 9994 rows. A filter has been applied to the 'Orders' table, as indicated by the orange arrow pointing to the 'Filters' button in the top right corner. The table view shows columns for Row ID, Order ID, Order Date, Ship Date, and Ship Mode. The first 10 rows of data are listed below:

#	Abc Orders	Order ID	Order Date	Ship Date	Ship Mode
1	CA-2016-152156	11/8/2016	11/11/2016	Second Class	
2	CA-2016-152156	11/8/2016	11/11/2016	Second Class	
3	CA-2016-138688	6/12/2016	6/16/2016	Second Class	
4	US-2015-108966	10/11/2015	10/18/2015	Standard Class	
5	US-2015-108966	10/11/2015	10/18/2015	Standard Class	
6	CA-2014-115812	6/9/2014	6/14/2014	Standard Class	
7	CA-2014-115812	6/9/2014	6/14/2014	Standard Class	
8	CA-2014-115812	6/9/2014	6/14/2014	Standard Class	
9	CA-2014-115812	6/9/2014	6/14/2014	Standard Class	
10	CA-2014-115812	6/9/2014	6/14/2014	Standard Class	

## Context Filter

# Context Filter

The context filter is the only filter that is independent.

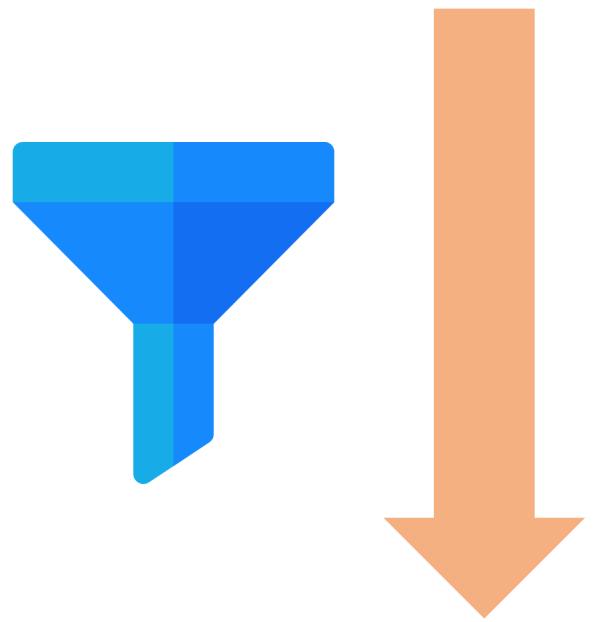
Context filters are majorly used for the following reasons:



- To improve the performance of tableau reports
- To create a dependent numerical filter

## Context Filter

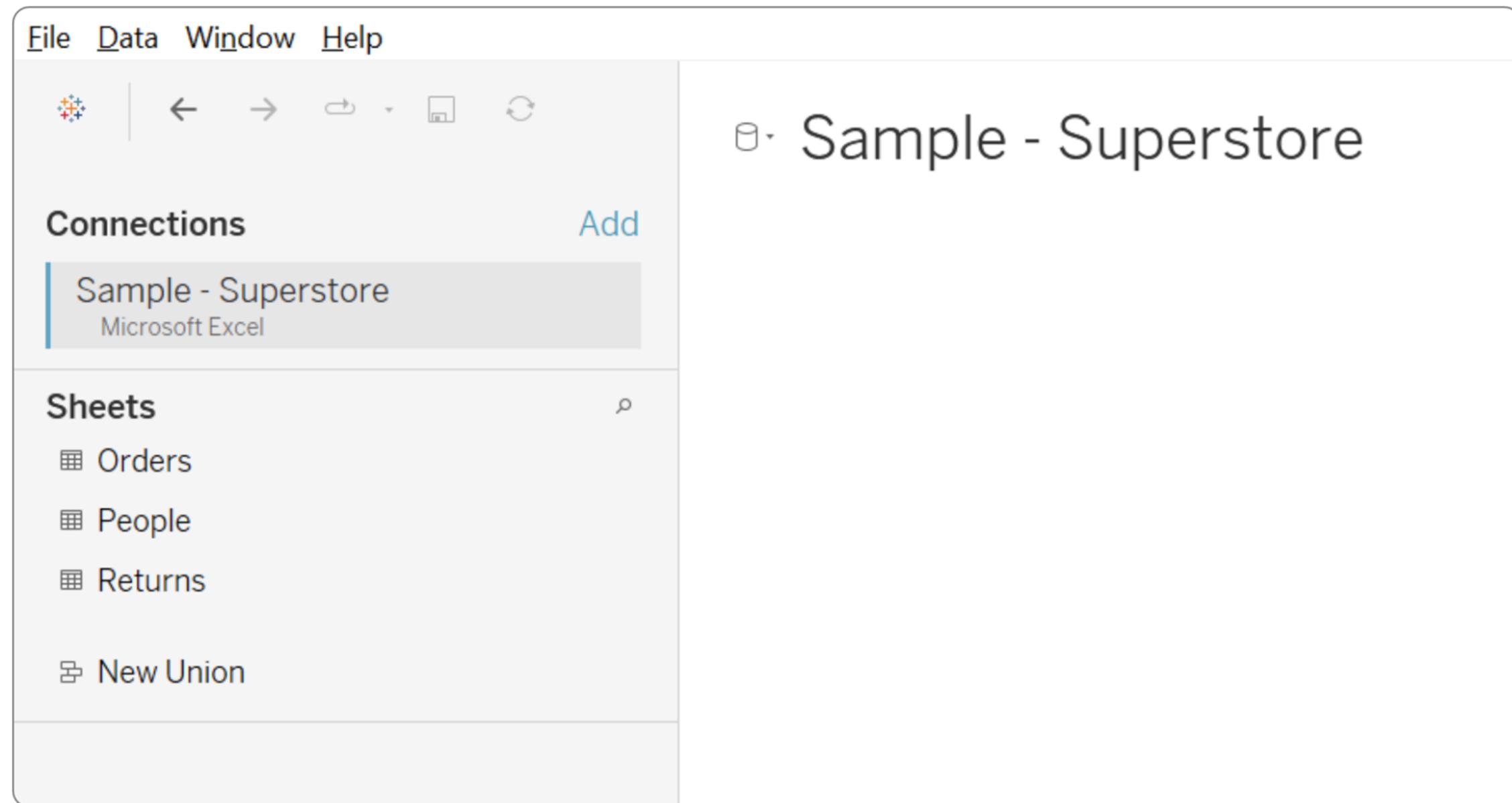
Any other filter defined along with the context filter is a dependent filter.



It becomes dependent on the output received from the context filter.

# Context Filter

Step 01: Use a **Sample Superstore** dataset



The screenshot shows the Power BI desktop application interface. At the top, there is a navigation bar with 'File', 'Data', 'Window', and 'Help' options. Below the navigation bar is a toolbar with icons for back, forward, refresh, and other functions. The main area is divided into two sections: 'Connections' on the left and a large workspace on the right.

**Connections:** This section lists existing connections. One connection, 'Sample - Superstore' (Microsoft Excel), is highlighted with a blue border. There is also an 'Add' button to create new connections.

**Sheets:** This section lists the available sheets from the selected connection. The sheets are: 'Orders', 'People', 'Returns', and 'New Union'. The 'Orders' sheet is currently selected, indicated by a blue border around its name.

The right side of the interface is a blank workspace where visualizations can be created.

# Context Filter

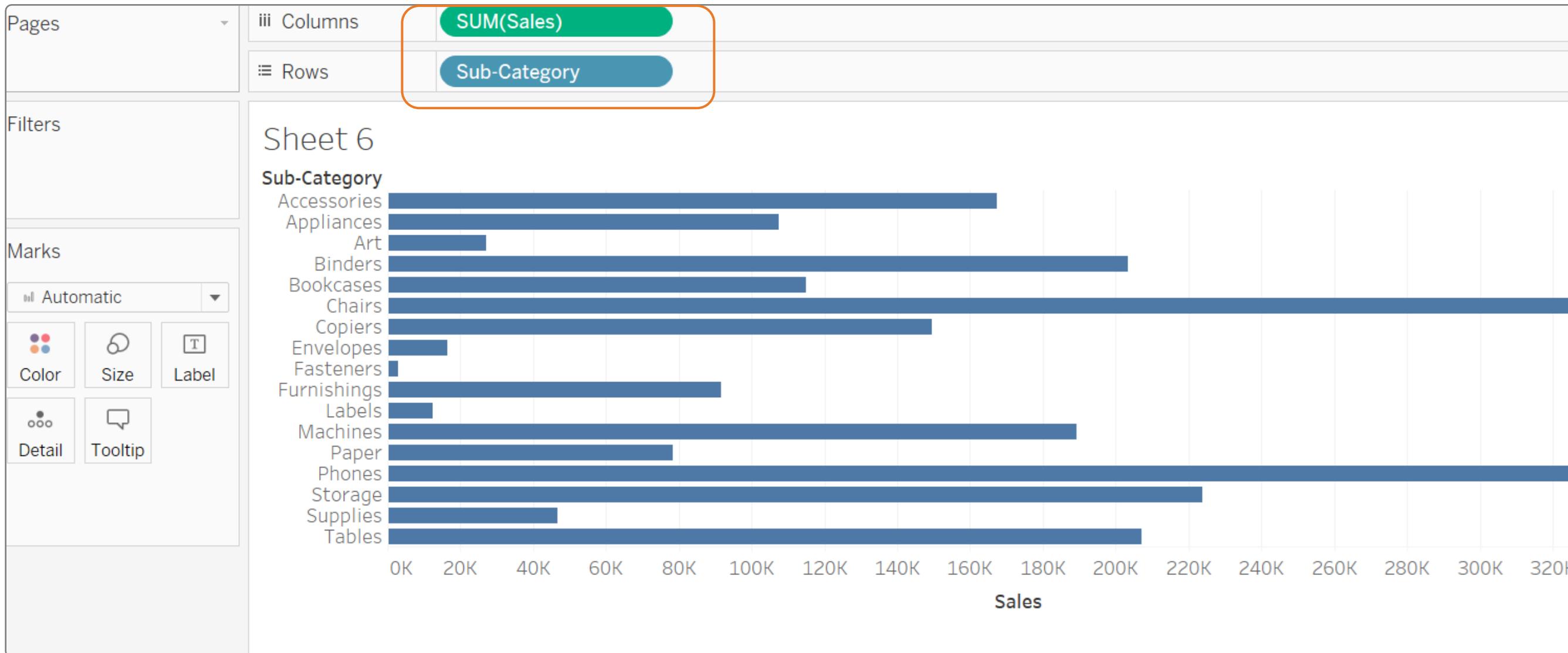
Step 02: Drag Orders to the space

The screenshot shows the Power BI desktop application interface. In the top navigation bar, the 'Data' tab is selected. The 'Connections' section shows a single connection named 'Sample - Superstore' (Microsoft Excel). The 'Sheets' section on the left lists four sheets: 'Orders' (highlighted with an orange border), 'People', 'Returns', and 'New Union'. The main workspace displays the 'Orders' table from the 'Sample - Superstore' connection. The table has 21 fields and 9994 rows. The table view includes columns for Type, Field Name, Physical Table, and Remote File. The first few rows of data are visible:

Type	Field Name	Physical Table	Remote File...
#	Row ID	Orders	Row ID
Abc	Order ID	Orders	Order ID
Abc	Order Date	Orders	Order Date
Abc	Ship Date	Orders	Ship Date
Abc	Ship Mode	Orders	Ship Mode
Abc	Customer ID	Orders	Customer ID
Abc	Customer Name	Orders	Customer N...

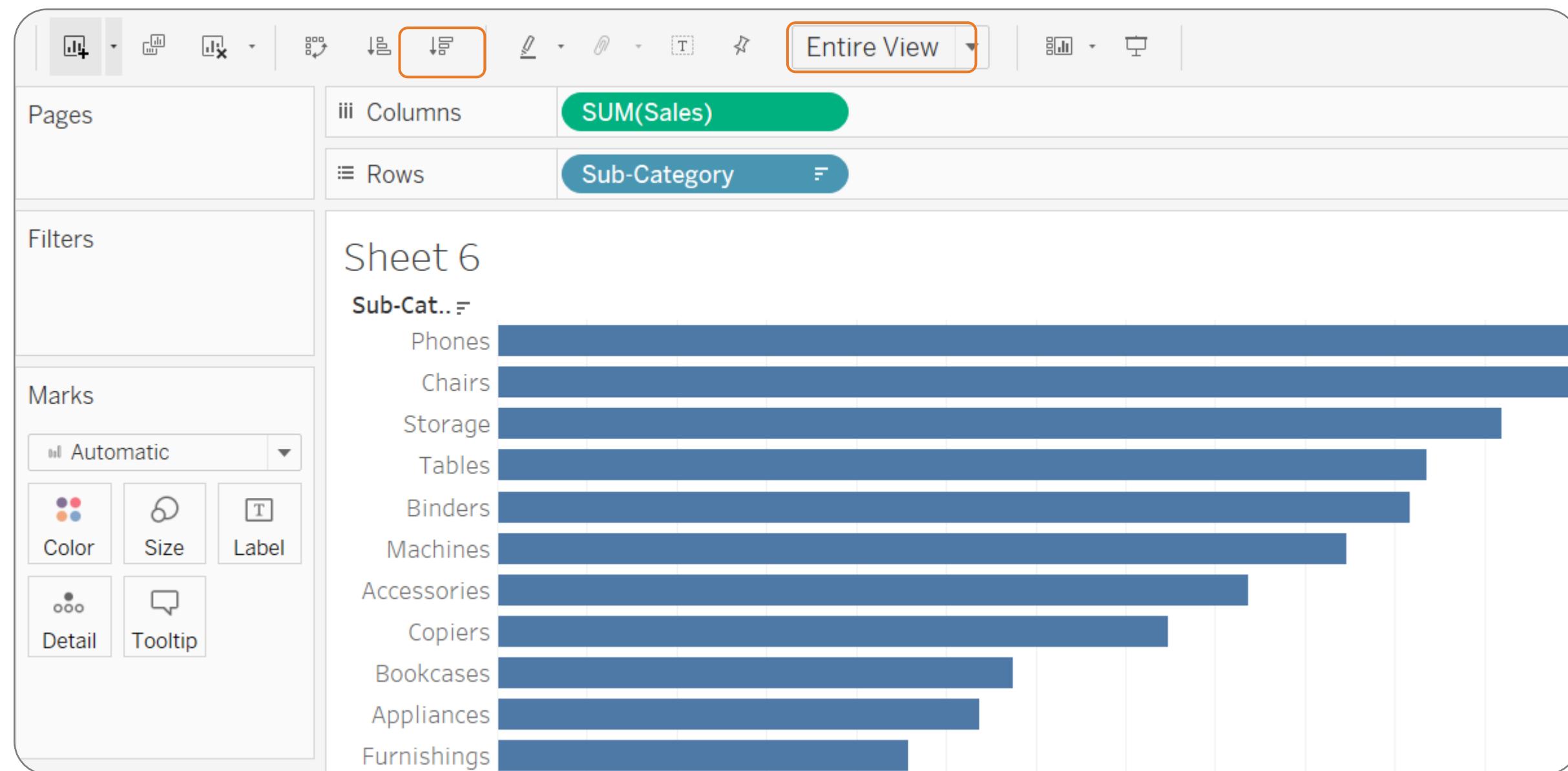
# Context Filter

## Step 03: Drag Sub-Category to Rows and Sales to Columns



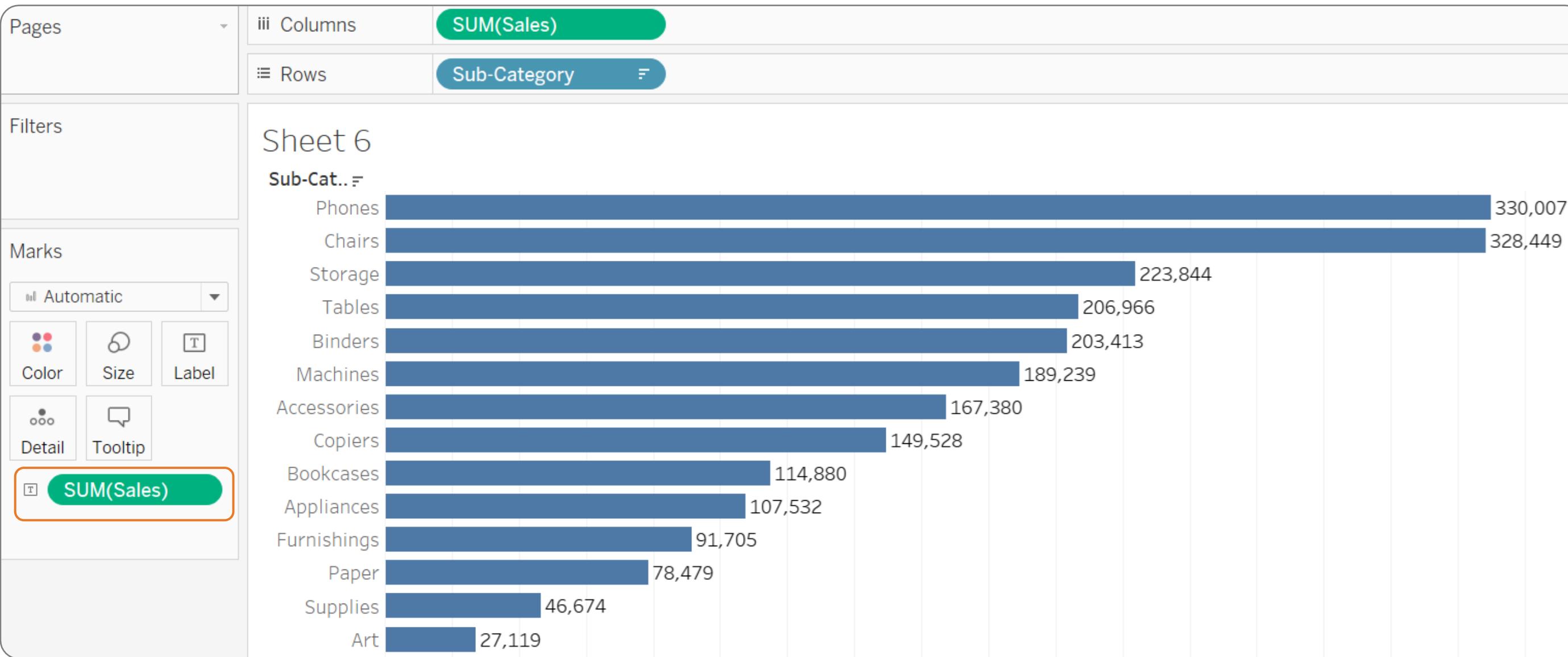
# Context Filter

Step 04: Click on **Entire View** and sort it in descending order



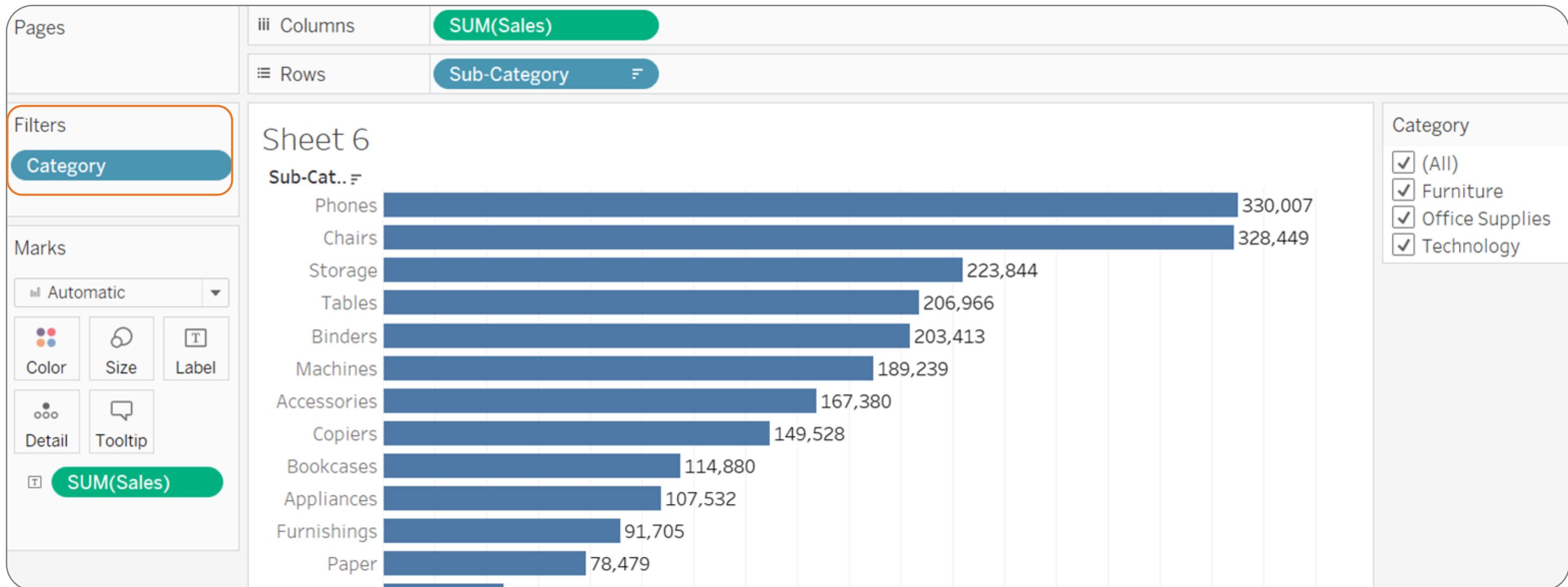
# Context Filter

## Step 05: Add Sales to Label



# Context Filter

Step 07: Apply filter by adding **Category**



# Context Filter

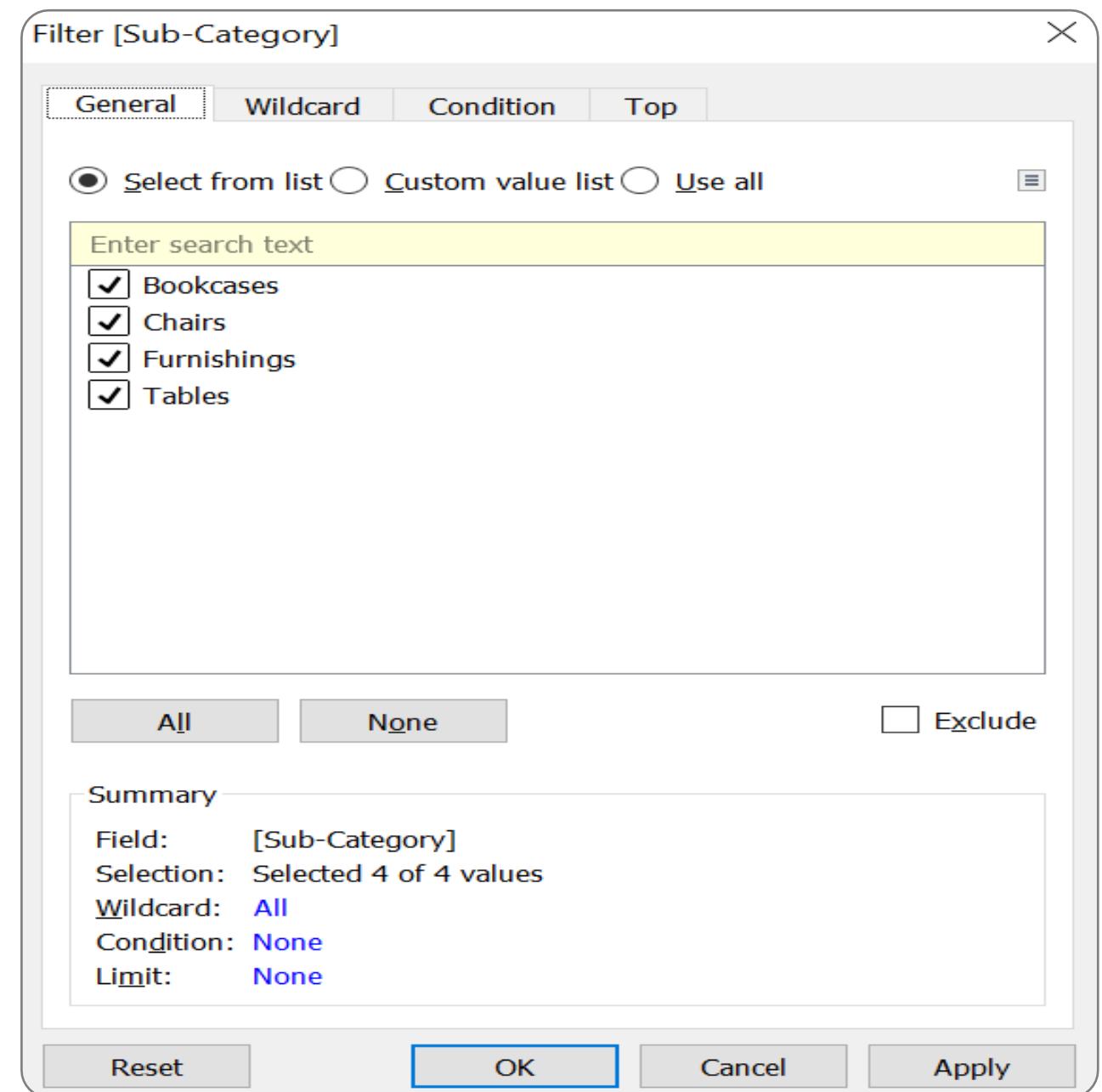
Step 07: Click on a **Category** and drag **Sub-Category** to **Filters**

The screenshot shows the Tableau Data pane with the following interface elements:

- Data** tab is selected.
- Tables** section lists various dimensions and measures:
  - Category
  - City
  - Country
  - Customer ID
  - Customer Name
  - Order Date
  - Order ID
  - Postal Code
  - Product ID
  - Product Name
  - Region
  - Row ID
  - Segment
  - Ship Date
  - Ship Mode
  - State
  - Sub-Category
  - Measure Names
  - Discount
  - Profit
- Marks** section includes settings for Automatic, Color, Size, Label, Detail, and Tooltip, with **SUM(Sales)** selected.
- Filters** section is open, showing the **Category** filter applied.
- A large orange arrow points from the **Category** label in the Filters section towards the **Sub-Category** item in the Tables list.
- To the right of the pane, there is a faint watermark of a robot arm.

# Context Filter

## Step 08: Apply filter to the Sub-Category



# Assisted Practice: Filtering Data



Duration: 20 minutes

## Problem statement:

The general manager of an e-commerce company is planning to create a list of customers who have returned most of the orders they had placed. To take substantial measures for upcoming orders, he needs to create a list visualization for customers who have returned more than half of their distinct orders in each region.

# Assisted Practice Guidelines



## Steps to follow:

Step 1: Use a left join between orders and returns tables

Step 2: Create a list of customer name

Step 3: Apply a filter on Customer Name with the formula:

$$\text{COUNTD}(\text{[Order ID (Returns)]}) \geq \text{COUNTD}(\text{[Order ID]})/2$$

Step 4: Use order ID in the text shelf with distinct count aggregation

Step 5: Sort the view in descending order of count of orders

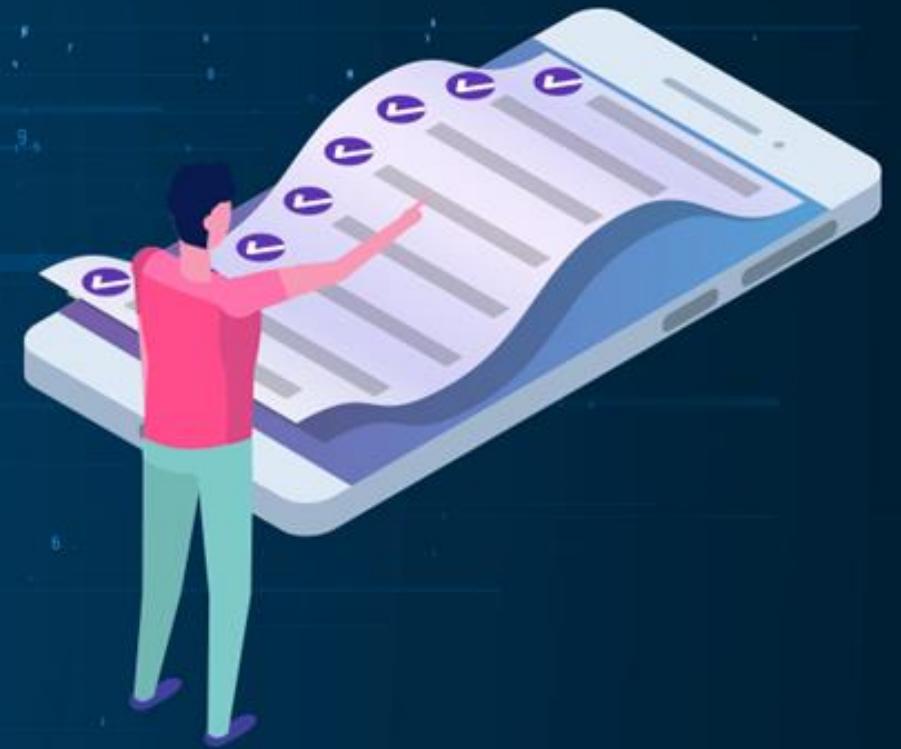
## Key Takeaways

- Data filters are required to limit data to include specific fields and records.
- Interactive filter is useful while designing dashboards.
- Dimension filter is applied on dimension fields, whereas measure filter is applied on measure fields.
- Data source filter increases the performance of the workbook.



## Key Takeaways

- Visual filters can be applied directly from the visualization.
- Context filter is an independent filter in Tableau.
- Date filter filters dates according to different aggregations.





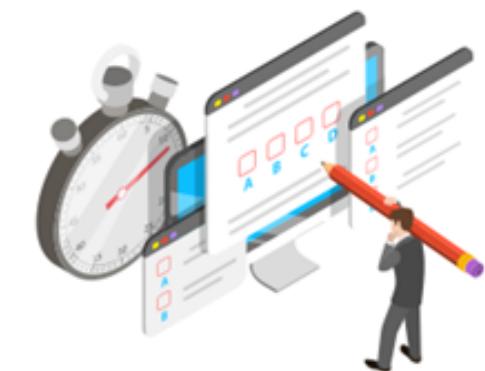
## Knowledge Check

## Knowledge Check

1

Which of the following approaches is used for matching strings in a dimension filter?

- A. General
- B. Wildcard
- C. Condition
- D. Top

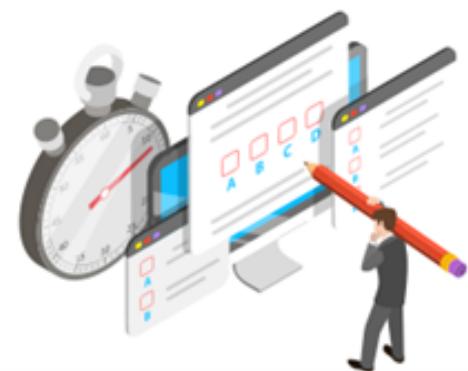


**Knowledge  
Check**

**1**

**Which of the following approaches is used for matching strings in a dimension filter?**

- A. General
- B. Wildcard
- C. Condition
- D. Top



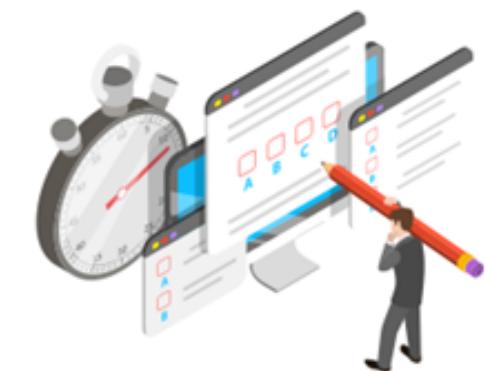
The correct answer is **B**

**The dimension filter uses the wildcard to match strings.**

**Knowledge  
Check**  
**2**

**Which of the following filters allows users to interact with data?**

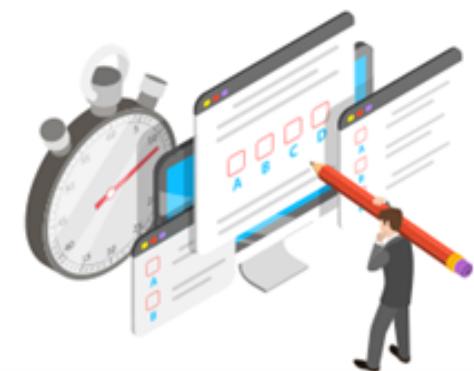
- A. Interactive filter
- B. Visual filter
- C. Date filter
- D. Measure filter



**Knowledge  
Check**  
**2**

**Which of the following filters allows users to interact with data?**

- A. Interactive filter
- B. Visual filter
- C. Date filter
- D. Measure filter



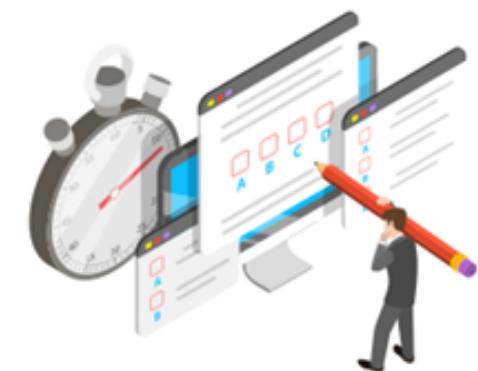
The correct answer is **A**

**An interactive filter allows users to interact with data according to their needs.**

**Knowledge  
Check**  
**3**

**Which of the following filters gets executed first?**

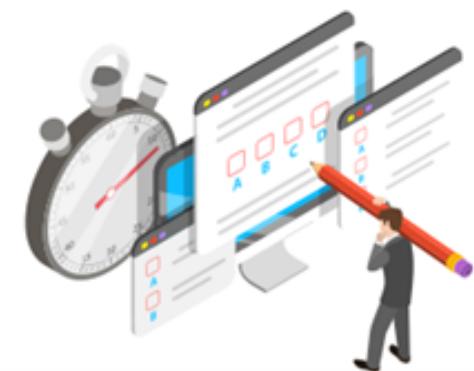
- A. Dimension filter
- B. Measure filter
- C. Set filter
- D. Include LOD filter



**Knowledge  
Check**  
**3**

**Which of the following filters gets executed first?**

- A. Dimension filter
- B. Measure filter
- C. Set filter
- D. Include LOD filter



The correct answer is **C**

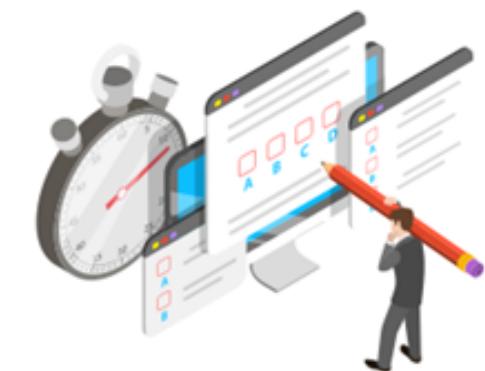
**The set filter gets executed before the dimensions, measures, and include LOD filters.**

**Knowledge  
Check**

**4**

**Which of the following is an independent filter?**

- A. Data source filter
- B. Context filter
- C. Measure filter
- D. Control filter

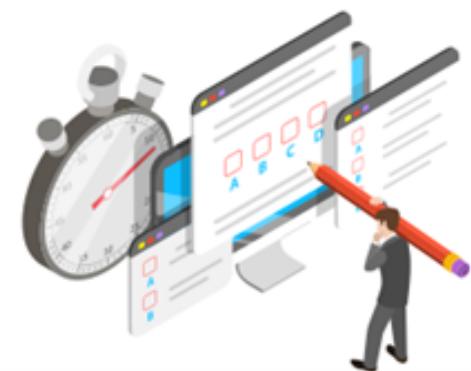


**Knowledge  
Check**

**4**

**Which of the following is an independent filter?**

- A. Data source filter
- B. Context filter
- C. Measure filter
- D. Control filter



The correct answer is **B**

**The context filter is the only filter that is independent.**

**Knowledge  
Check  
5**

**Which of the following options can be chosen when a user wants one filter to restrict the values of another filter?**

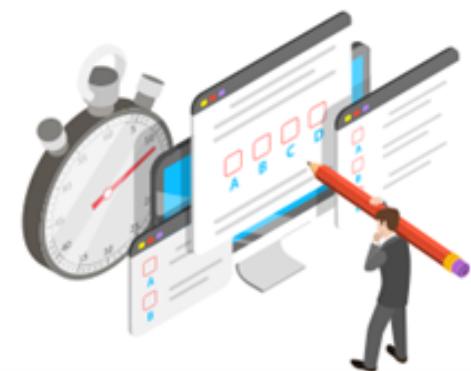
- A. Only relevant values
- B. Context filters
- C. Allow restricted entry
- D. Control filters



**Knowledge  
Check  
5**

**Which of the following options can be chosen when a user wants one filter to restrict the values of another filter?**

- A. Only relevant values
- B. Context filters
- C. Allow restricted entry
- D. Control filters



The correct answer is **A**

**The Only Relevant Values option enables the entries to be restricted based on another filter.**

## Lesson-End Project

Mike Goodman, the head of Product Management for a retail product company, is also responsible for product pricing. Mike needs to determine if his products are appropriately priced to maximize both sales and profit ratios. To achieve that, he should build a scatter plot that will present sales by product category over time, with the ability to drill down to the product at the regional level.



LESSON-END PROJECT