

## Data Visualization Using Tableau



## **Unlocking Data Potential with Tableau Filters**



# Quick Recap



- Each chart type serves a specific purpose. Understanding when to use a bar chart, pie chart, line chart, tree map, heatmap, bubble chart, or table is crucial for effectively communicating your data.
- Color and formatting can enhance the readability and visual appeal of your charts.
- Always label your axes and data points clearly to provide context and aid interpretation.

# Engage and Think



Imagine you are in charge of organizing a training session at your workplace. You have a list of employees from various departments, each with their schedules, skill levels, and training needs. Your task is to select employees who are available during a specific time slot, require the training, and belong to departments that are prioritizing this upgrade.

How might you efficiently sort out this employee list to find the perfect candidates for the session? What method would you use to simplify this selection process while ensuring that all criteria are met effectively?

# Learning Objectives

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

- 🔗 Demonstrate how filters in Tableau enhance data analysis, ensuring targeted and effective use of information
- 🔗 Classify types of Tableau filters to select optimal methods for diverse data needs
- 🔗 Utilize advanced filter options to refine analysis and clarify visualizations
- 🔗 Develop proficiency in data manipulation and filtering in Tableau to improve visualization outcomes





# **Introduction to Filters**

# Filters

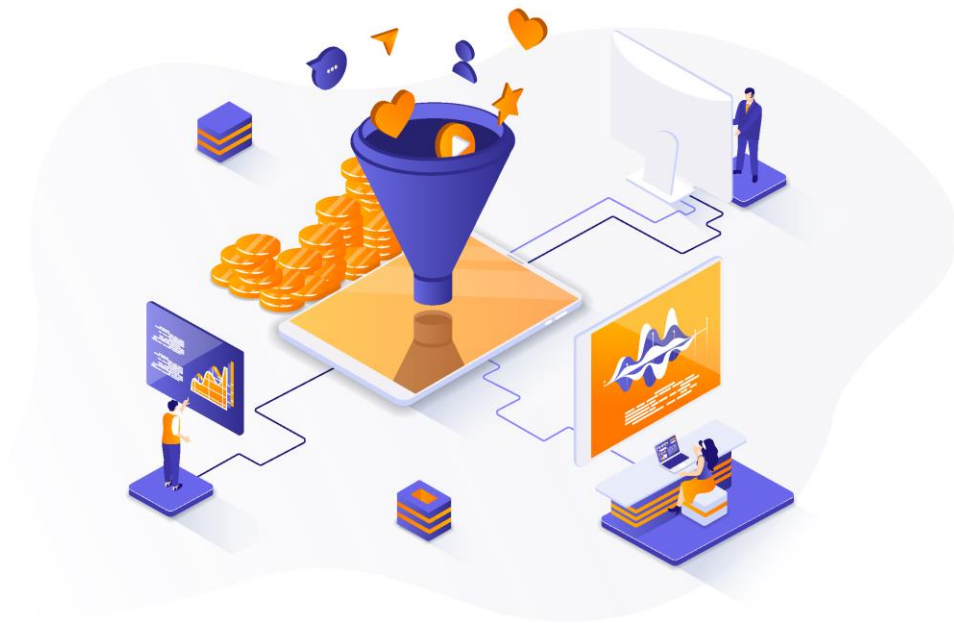
Filters in Tableau are powerful tools for refining and controlling the data displayed in your visualizations.



They play a crucial role in focusing on specific aspects of your dataset and enhancing the clarity of your analysis.

# Filters

The process of filtering is an essential part of data analysis.

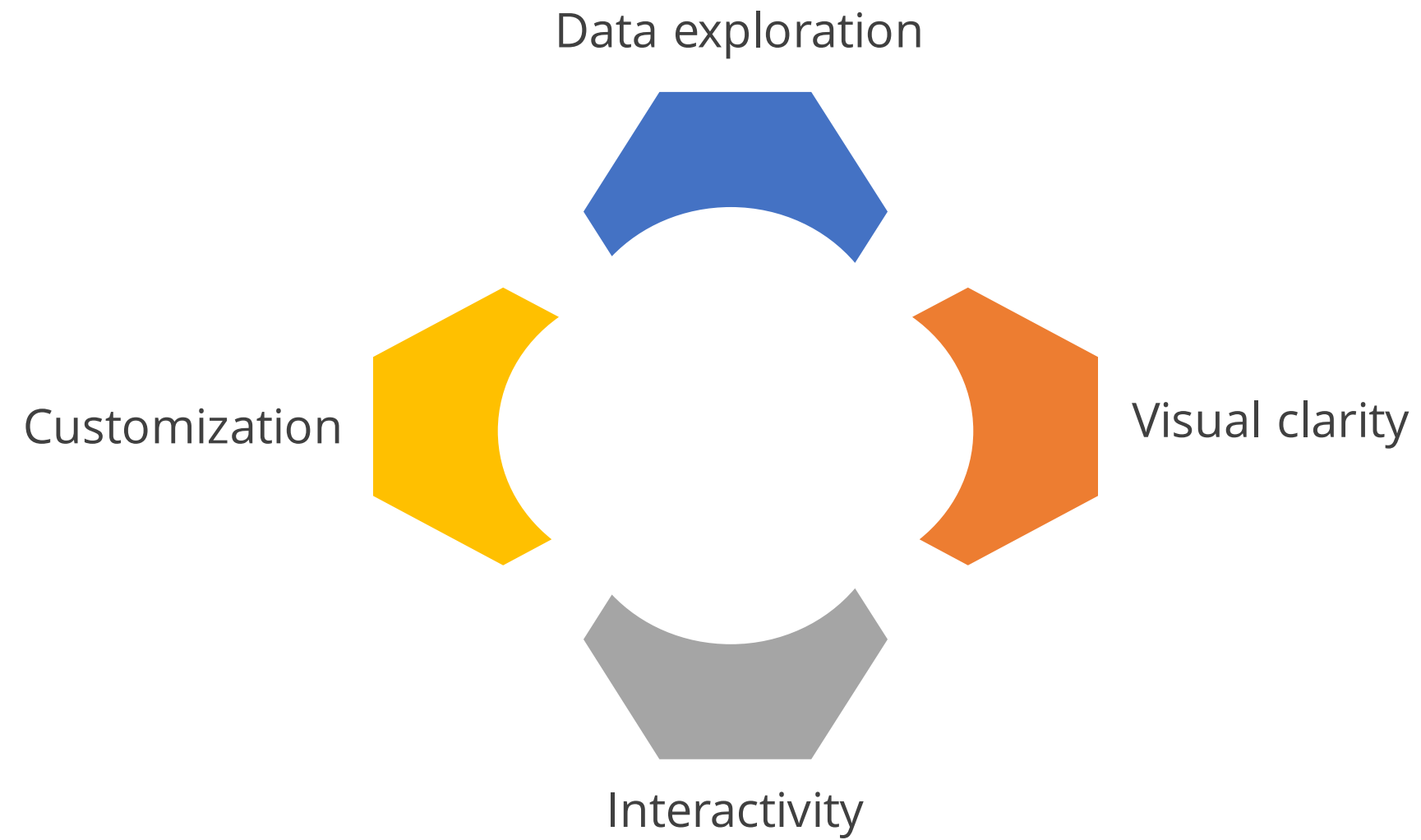


- Filters can be created quickly on a data source.
- The execution of a query with less amount of data is faster.
- Dimensions, measurements, and dates can be filtered.

They help to reduce the amount of data, which makes analysis easy and fast.



## Filters: Advantages



## Filters: Use Cases

Segmentation  
analysis

Temporal  
analysis

Top N  
analysis

Comparative  
analysis



## Quick Check



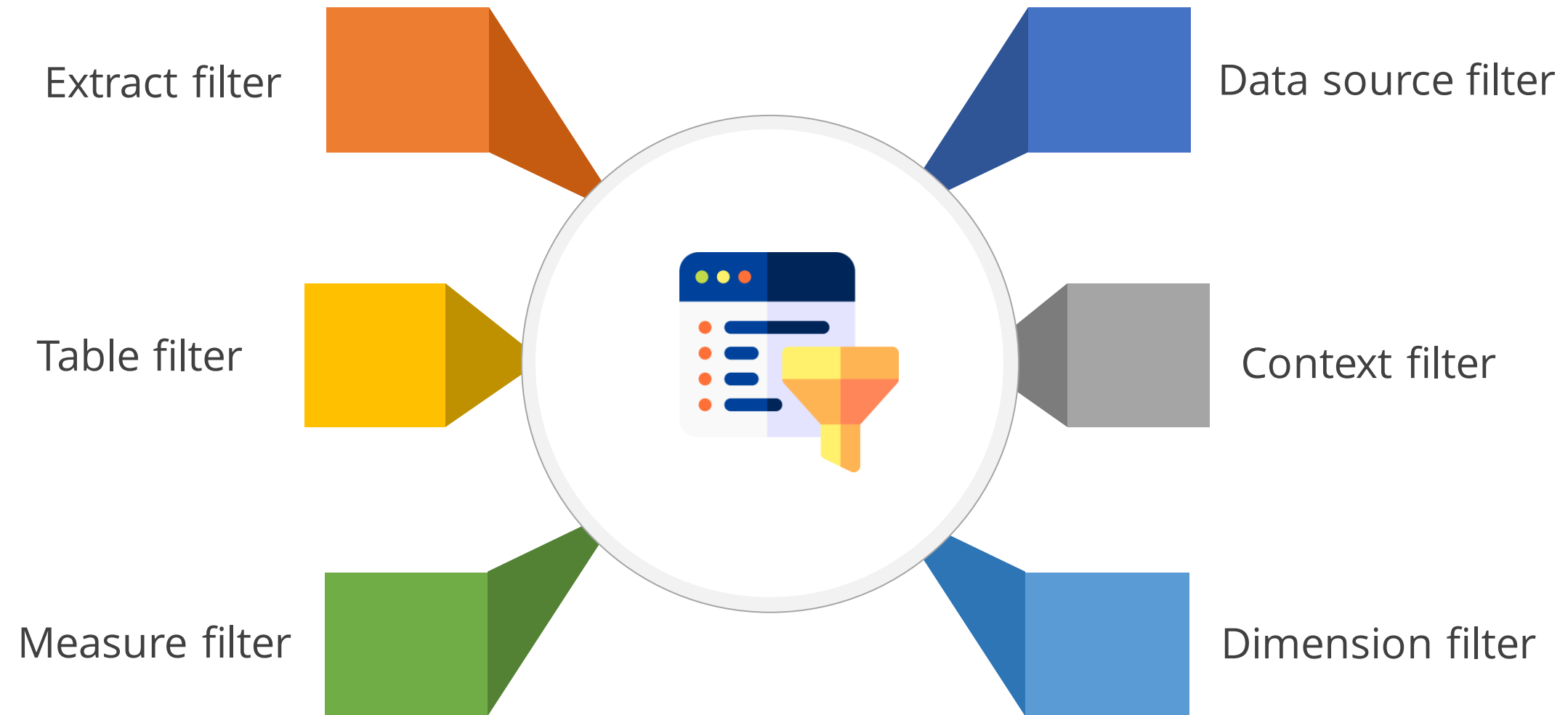
What is the primary purpose of using filters in Tableau?

- A. To change the color scheme of visualizations
- B. To refine and subset data for analysis
- C. To add additional data sources to a workbook
- D. To create animations in dashboards



## Types of Filters

# Types of Filters



# Extract Filter

It allows you to reduce the size of your data and improve performance by only including the data you need for analysis.



Extracting data involves generating a local copy of a subset of your data from the source, stored in a Tableau Data Extract (.hyper) file.

## Demo: Extract Filter



**Duration: 05 minutes**

Demonstrate how to use the Extract filter to extract Central region data from the given superstore dataset.

DEMONSTRATION

# Data Source Filter

It is applied at the data source level, which limits the data retrieved from the source before it is imported into Tableau.



These filters are typically used to restrict the amount of data Tableau pulls from the source, optimizing performance and ensuring that only relevant data is included in the analysis.



## Demo: Data Source Filter



**Duration: 05 minutes**

Demonstrate how to use Data Source filter.

DEMONSTRATION

## Quick Check

Which type of Tableau filter is applied when creating data extracts?

- A. Quick filters
- B. Data source filters
- C. Context filters
- D. Extract filters



# Context Filter

It is a filter that sets a specific subset of data as the primary filter for other filters in the workbook.

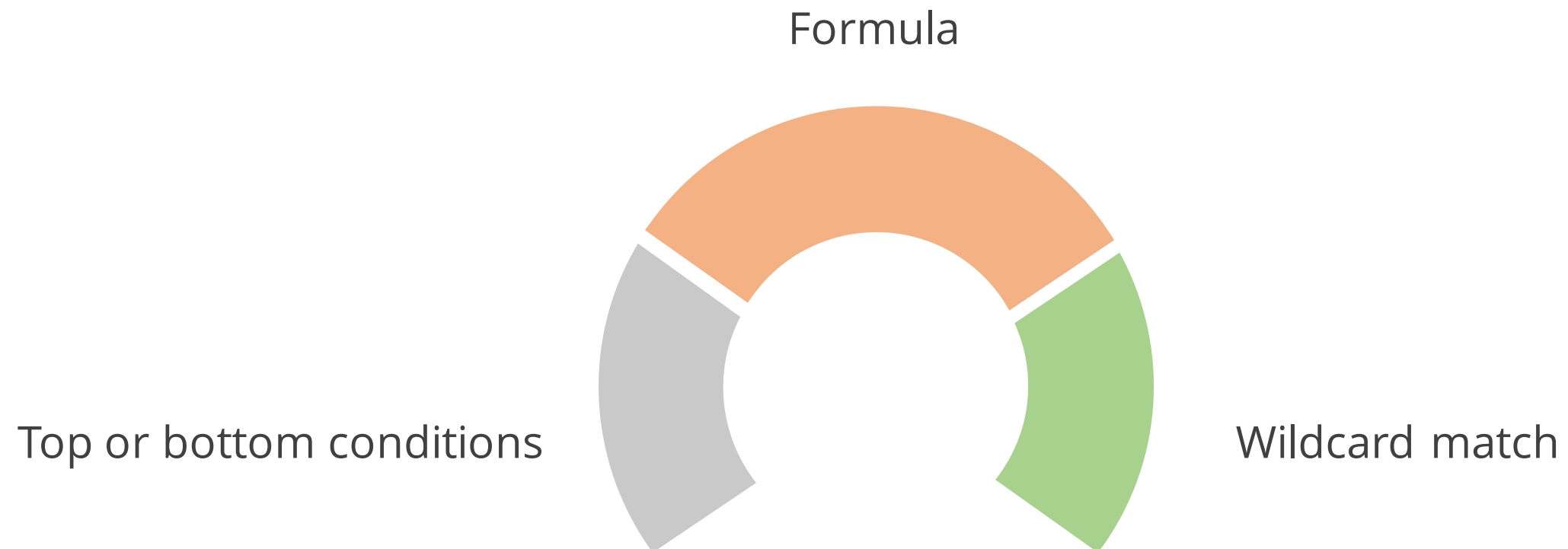


When you apply a filter to your data and set it as a Context filter, Tableau first applies it to the entire dataset, creating a temporary subset of data known as the **Context**.

# Dimension Filter

They filter the data in a worksheet using a dimension.

Dimension filters are applied via:



## Demo: Dimension Filter



**Duration: 15 minutes**

Demonstrate how to use Dimension filter.

DEMONSTRATION

# Measure Filter

It allows you to filter data based on quantitative values, such as numerical data or aggregated measures.



By using it effectively in Tableau, you can focus on specific subsets of your data, analyze trends, and gain insights into your business metrics or key performance indicators.

## Demo: Measure Filter



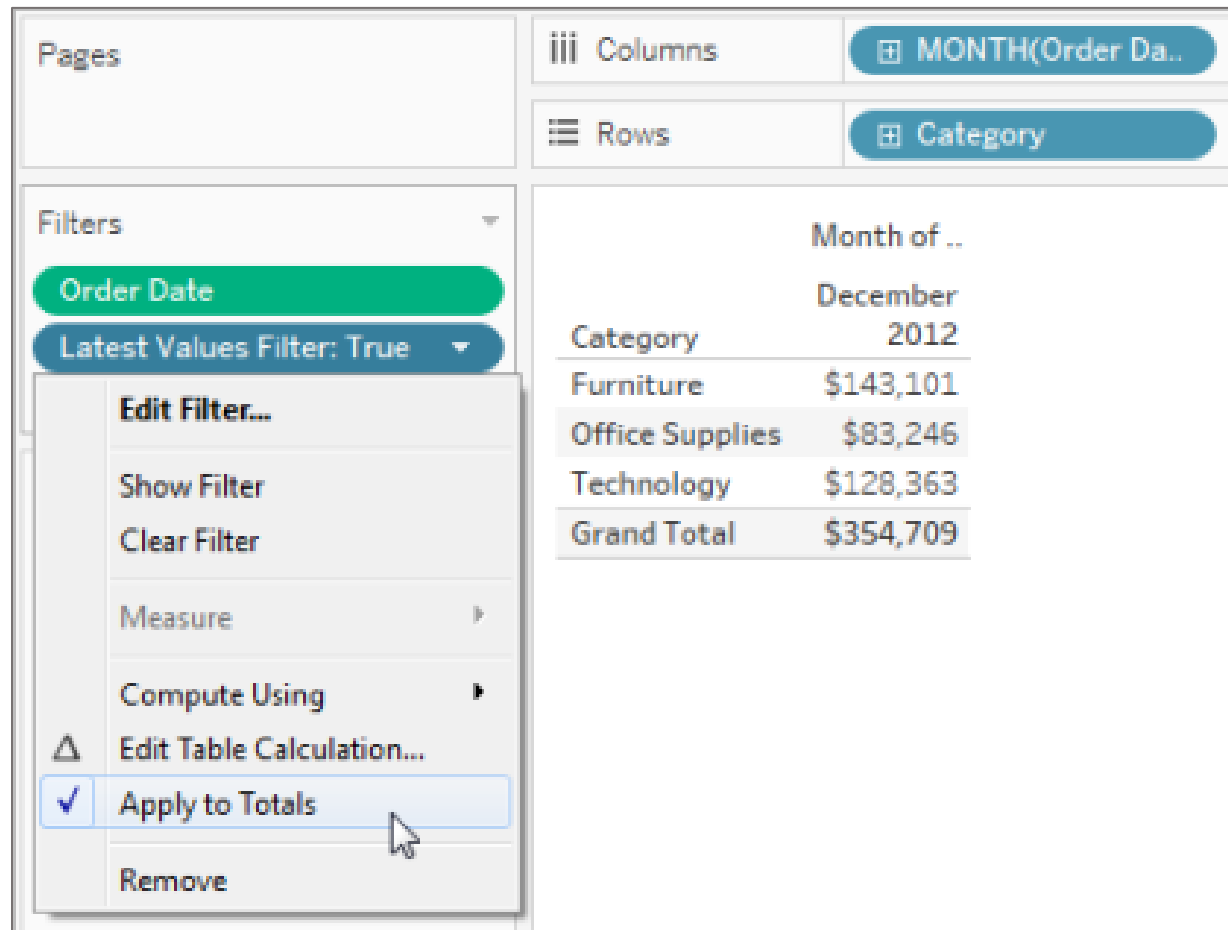
**Duration: 15 minutes**

Demonstrate how to use the measure filter.

DEMONSTRATION

# Table Filter

It allows users to selectively display data based on specified criteria without altering the underlying dataset.



- The Table filter works when a filter is added to the view and not the underlying data.
- The table calculation in view is first evaluated, and the Table filter is applied to the results.



## Quick Check



What is the primary purpose of applying a dimension filter in Tableau?

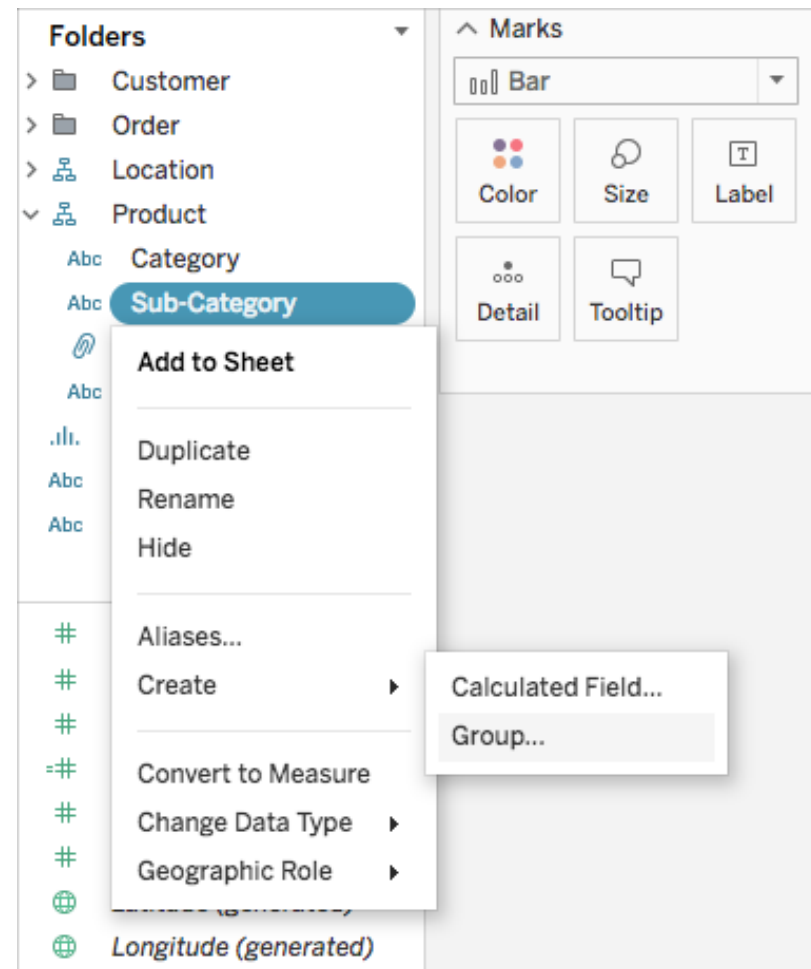
- A. To filter numerical values within a specified range
- B. To filter data based on discrete categories or labels
- C. To filter data based on aggregate calculations
- D. To filter data based on relative date ranges



## **Advanced Filter Options**

# Group

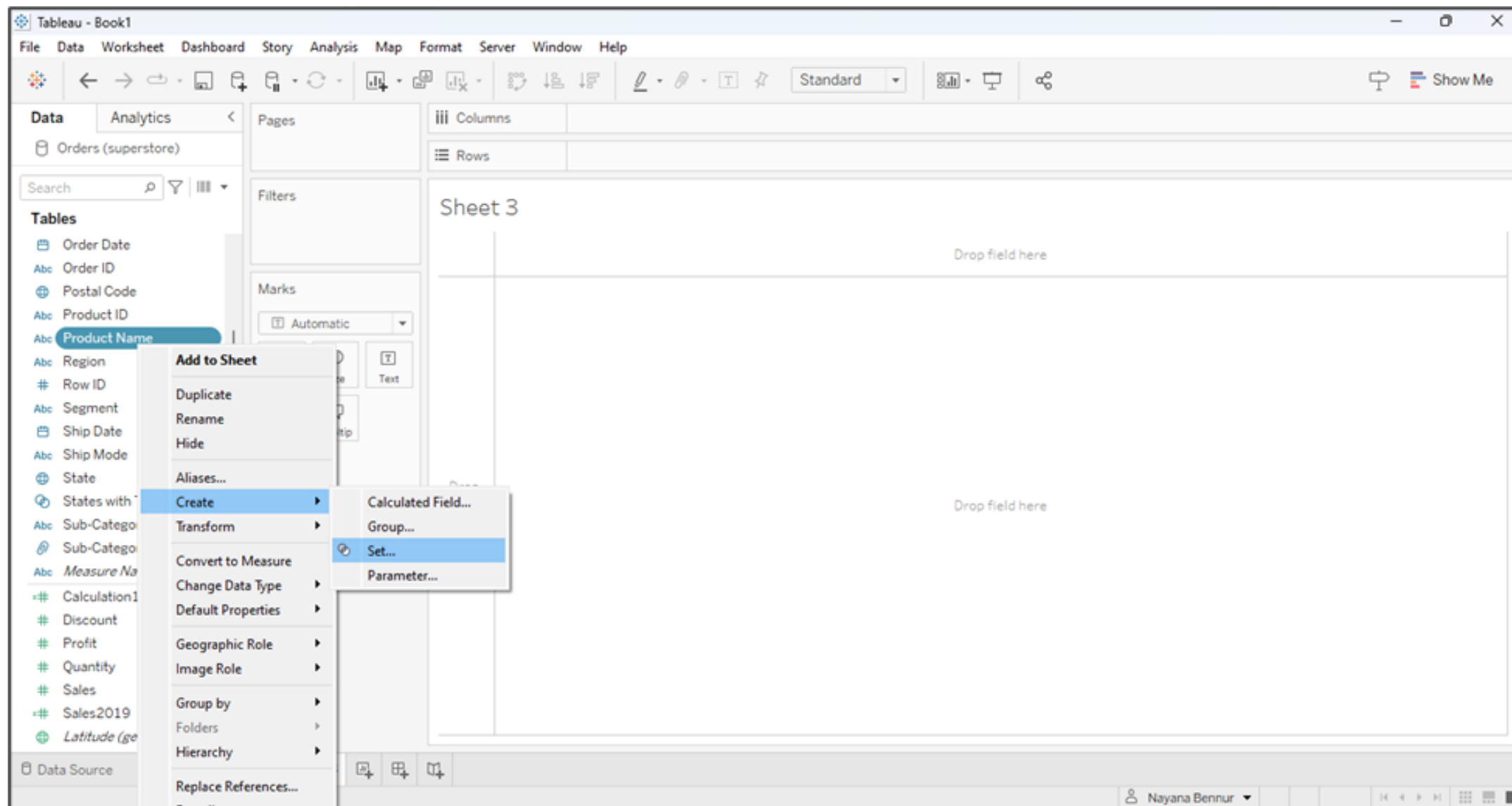
In Tableau, the Group combines related dimension members into higher-level categories for analysis and visualization.



Groups in Tableau can be formed based on various criteria, such as similarities in attributes, shared characteristics, or specific business requirements.

# Set

It is defined by a logical expression that evaluates to either true or false for each data point in the dataset.



## Demo: Group and Set



**Duration: 15 minutes**

Demonstrate how to use Group and Set in Tableau.

DEMONSTRATION

# Measure Names

It is a field that contains the names of all the measures in a dataset.

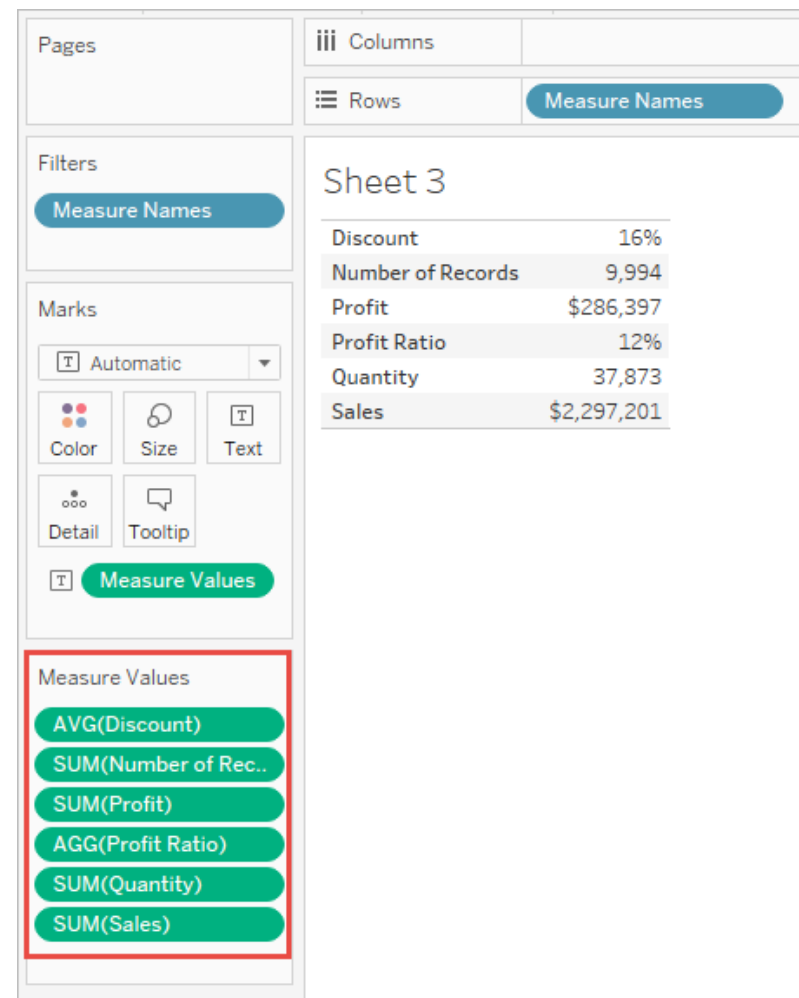
The screenshot shows the Tableau interface. In the Columns shelf, 'Category' is placed. In the Rows shelf, 'Region' and 'Measure Names' are placed. The 'Measure Names' field in the Rows shelf is highlighted with a red rectangle. The Marks card shows 'Automatic' as the mark type, with 'Measure Values' selected. The 'Measure Values' shelf contains 'SUM(Profit)' and 'SUM(Sales)'. The resulting view is a pivot table titled 'Sheet 2'.

Region		Category		
		Furniture	Office Supplies	Technology
Central	Profit	-\$2,871	\$8,880	\$33,697
	Sales	\$163,797	\$167,026	\$170,416
East	Profit	\$3,046	\$41,015	\$47,462
	Sales	\$208,291	\$205,516	\$264,974
South	Profit	\$6,771	\$19,986	\$19,992
	Sales	\$117,299	\$125,651	\$148,772
West	Profit	\$11,505	\$52,610	\$44,304
	Sales	\$252,613	\$220,853	\$251,992

When you add Measure Names to a view, all the Measure Names appear as row or column headers in the view.

# Measure Values

It is a field that contains the numerical values of all the measures in a dataset.



When Measure Values are in the view, Tableau creates a Measure Values that lists the measures in the data source with their default aggregations.

# Demo: Measure Names and Measure Values



**Duration: 15 minutes**

Demonstrate how to use Measure Names and Measure Values.

DEMONSTRATION



## Quick Check



Which of the following statements accurately describes the Measure Values field in Tableau?

- A. It stores categorical data from the dataset.
- B. It contains the textual descriptions of measures.
- C. It represents the numerical values of all measures in the dataset.
- D. It is used for filtering data based on measure values.

# Guided Practice



## Overview

**Duration: 25 minutes**

In this exercise, you will explore Tableau's filter capabilities and examine various types and functionalities of filters. By engaging in practical exercises with the provided superstore.xls dataset, you will deepen your understanding of the importance of filters in data visualization. You will also learn how to apply different filter types effectively to refine your visualizations.

GUIDED PRACTICE

# Key Takeaways

- In Tableau, filters control which data is displayed in your visualizations.
- Tableau provides a variety of filters including Extract, Data Source, Table, Context, Measure, and Dimension filters.
- Groups categorize data, Sets define subsets, and Measure Names and Measure Values represent numerical data in Tableau.



# Practice Project

## Data Preparation and Analysis with Tableau

In this exercise, you will learn to prepare and analyze sales data using Tableau. This exercise focuses on connecting data, cleaning it, applying filters, and utilizing advanced analysis techniques. By completing these steps, you will demonstrate your proficiency in preparing, filtering, and analyzing data in Tableau. This will enable you to extract actionable insights from the dataset provided.



# Additional Resources

- [Context filter](#)
- [Date filter](#)



# Q&A

