Data Visualization Using Tableau

Tableau Chronicles: Crafting Compelling Dashboards and Stories

Quick Recap

- Waterfall charts streamline the comprehension of intricate data shifts.
- A Gantt chart displays the start and end dates of project elements, including resources, planning, and dependencies.
- In a Pareto chart, the cumulative percentage is depicted by a line, while bars represent the significance of each component, with the threshold displayed horizontally.

Engage and Think

Imagine you are managing a small business, and you want to keep track of your sales data to make informed decisions. You have been using Excel sheets, but it is getting overwhelming to analyze all the numbers.

What will you do if you are drowning in data and struggling to see the bigger picture of your business performance?

Learning Objectives

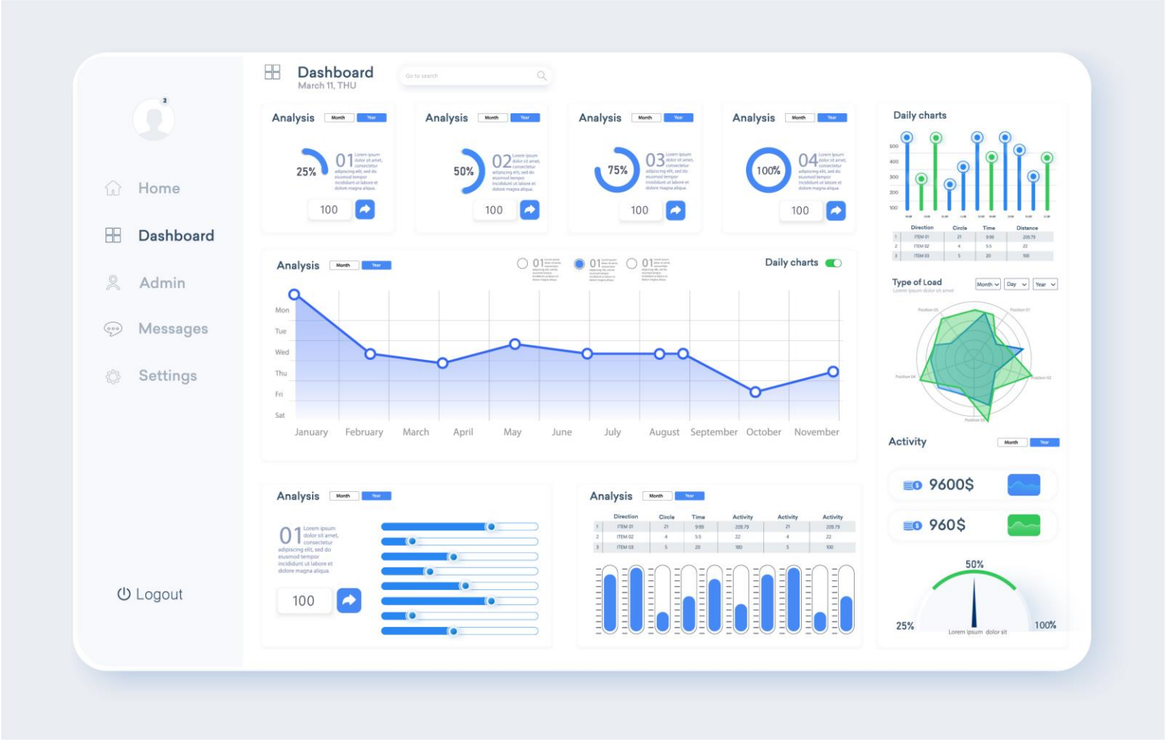
By the end of this lesson, you will be able to:

- Create dashboard reports and evaluate their significance for informed decision-making in Tableau
- Apply various visualization elements to construct informative and user-friendly dashboards
- Construct an effective dashboard using aggregation and granularity
- Utilize Tableau for storytelling, conveying data insights effectively to engage and inform the audience

Dashboard in Tableau

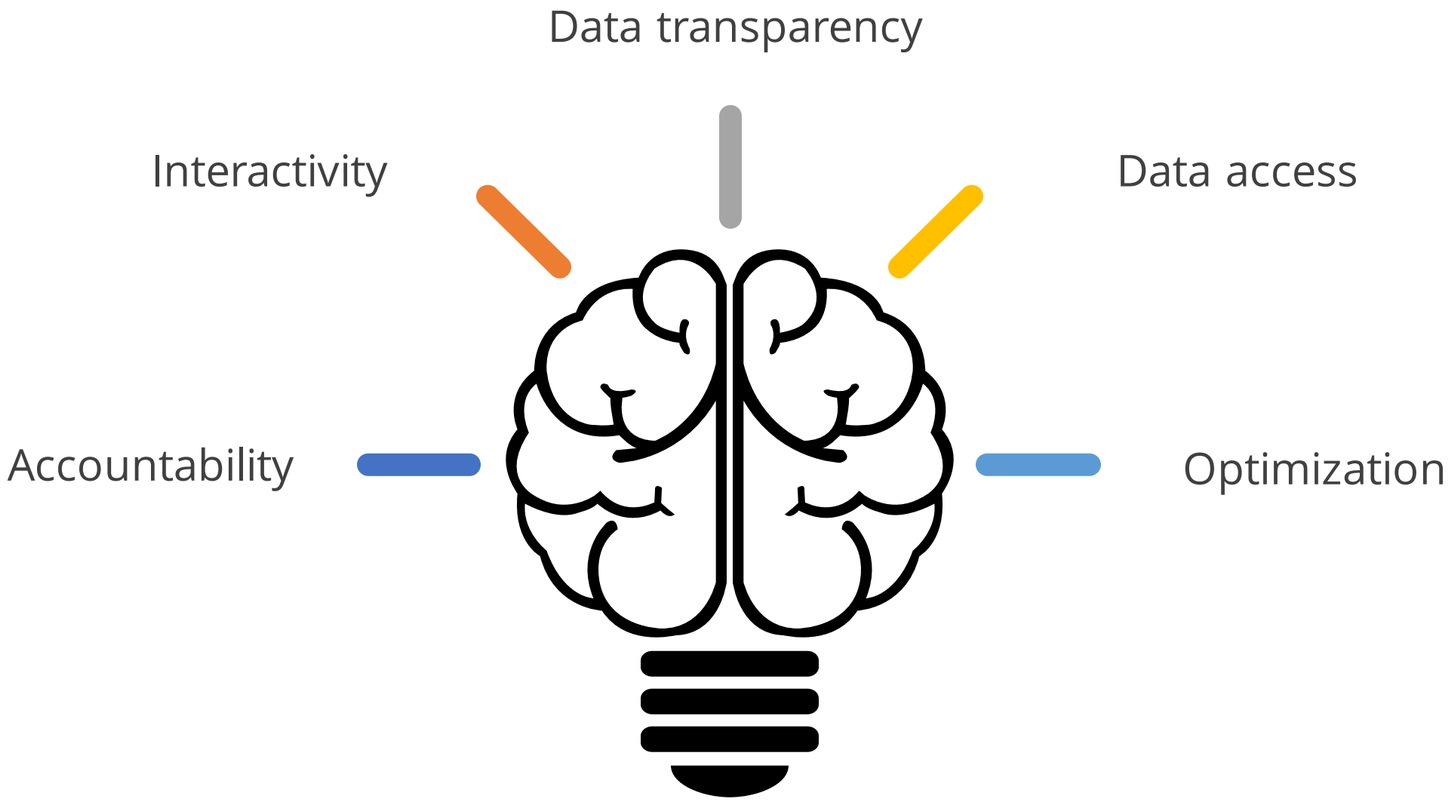
Dashboard

It is a visual representation of data at a location or on a board in the form of charts and graphs.



It is a graphical user interface that displays a complete view of key performance indicators (KPIs).

Features of the Dashboard



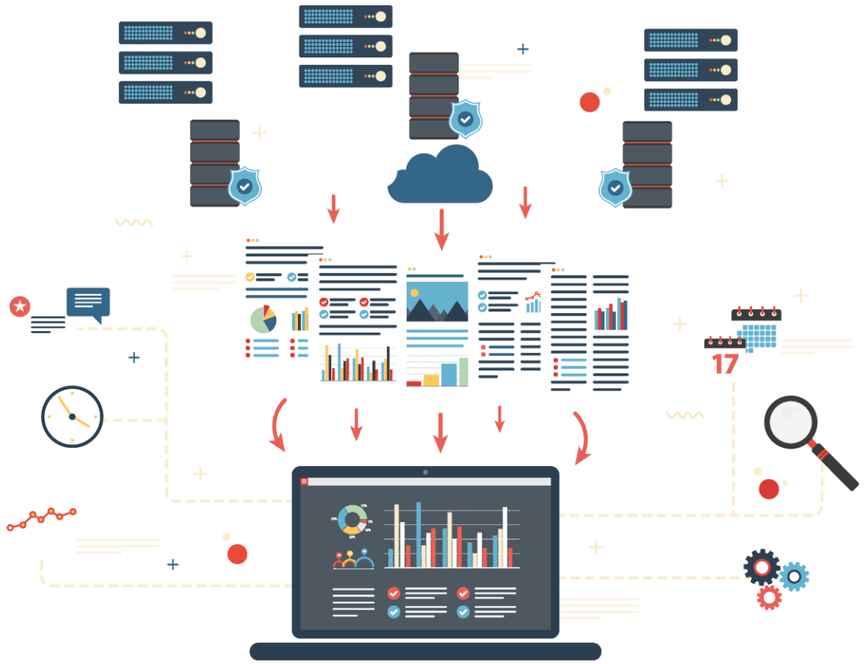
Data Transparency

It refers to the practice of making data accessible, understandable, and visible to users within the Tableau environment.

A well-designed dashboard provides on-demand access to all significant metrics of a dataset.

Data Access

On a dashboard, many data sources combine into a single interface, providing a complete overview of the business.



This cuts the time required to go through voluminous data.

Optimization

The dashboard captures department-wise performance and the company’s overall performance.

When every department has access to the data, meaningful discussions and good decision-making are facilitated.

Accountability

The dashboard highlights problem areas and provides the information needed to resolve them.

It also refers to the responsibility of individuals or teams for their actions and decisions related to the data displayed.

Interactivity

Dashboards enable users to select data, interact with charts to observe changes over time, and perform additional functions.

One can access all the required information about specific parameters.

Quick Check

What does data transparency in Tableau refer to?

A. Making data visible to the public

B. Clarity and openness in data presentation

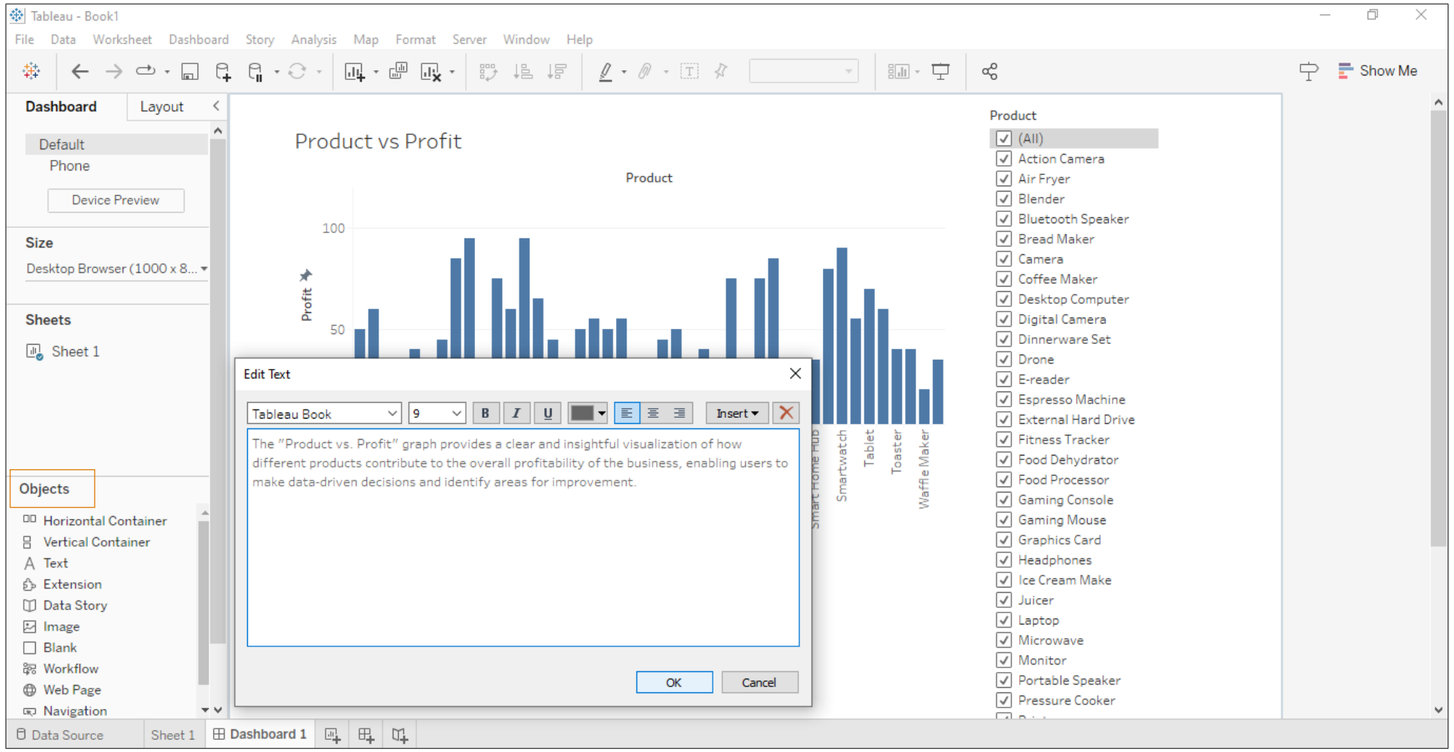
C. Encrypting sensitive information

D. Exporting data to external files

Objects and Layout

Add Objects to Dashboard

Tableau offers a variety of objects that can be incorporated to enrich your dashboard and present insights in a compelling way.



Types of Objects

These objects help you create a structured and visually appealing layout, fostering better organization and readability:

- Horizontal container
- Vertical container
- Text container
- Image
- Navigation
- Web page

Layout: Tiled and Floating

Tiled layouts offer structure, while floating layouts provide flexibility for dashboard design in Tableau.

Tiled

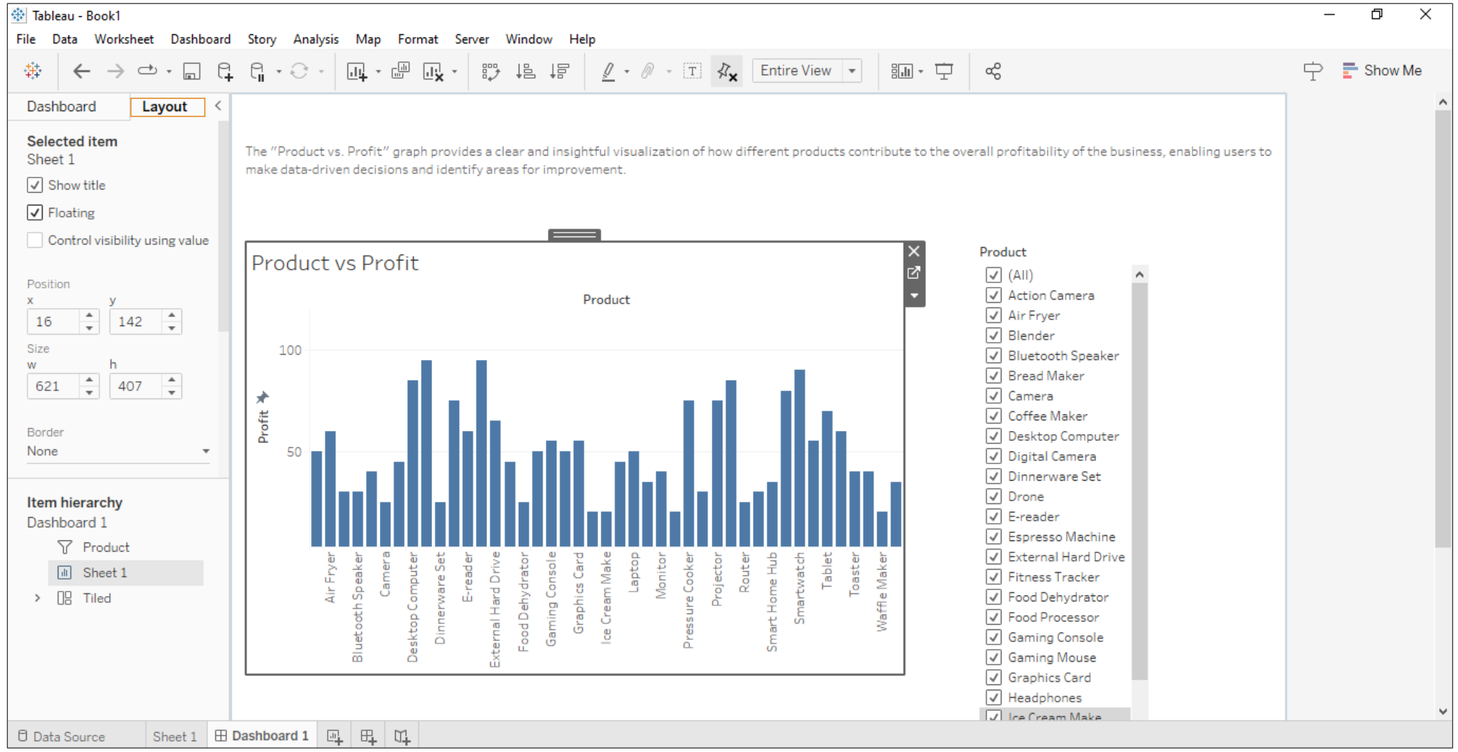
Charts and objects snap together like puzzle pieces, all neatly displayed without anything hidden.

Floating

Charts and objects act like stickers; you can place them anywhere, even on top of each other, for a more creative layout.

Layout Pane

It allows you to drag and drop elements like worksheets (charts and graphs), text boxes, images, and containers to arrange them in the desired layout.



Demo: Introduction to Dashboard

Duration: 10 minutes

Demonstrate dynamic analysis and create a comprehensive dashboard that can analyze sales and profit for various segments and ship modes.

DEMONSTRATION

Quick Check

In Tableau, which element allows users to dynamically explore the data by filtering specific categories?

A. Text box

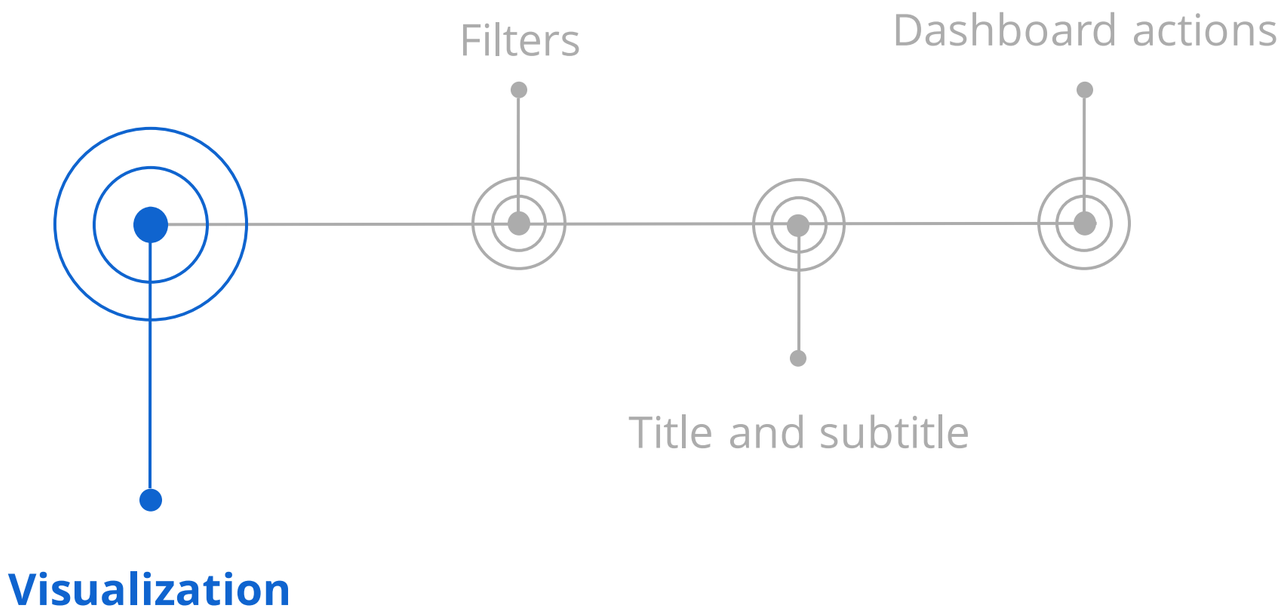
B. Image

C. Filter

D. Title

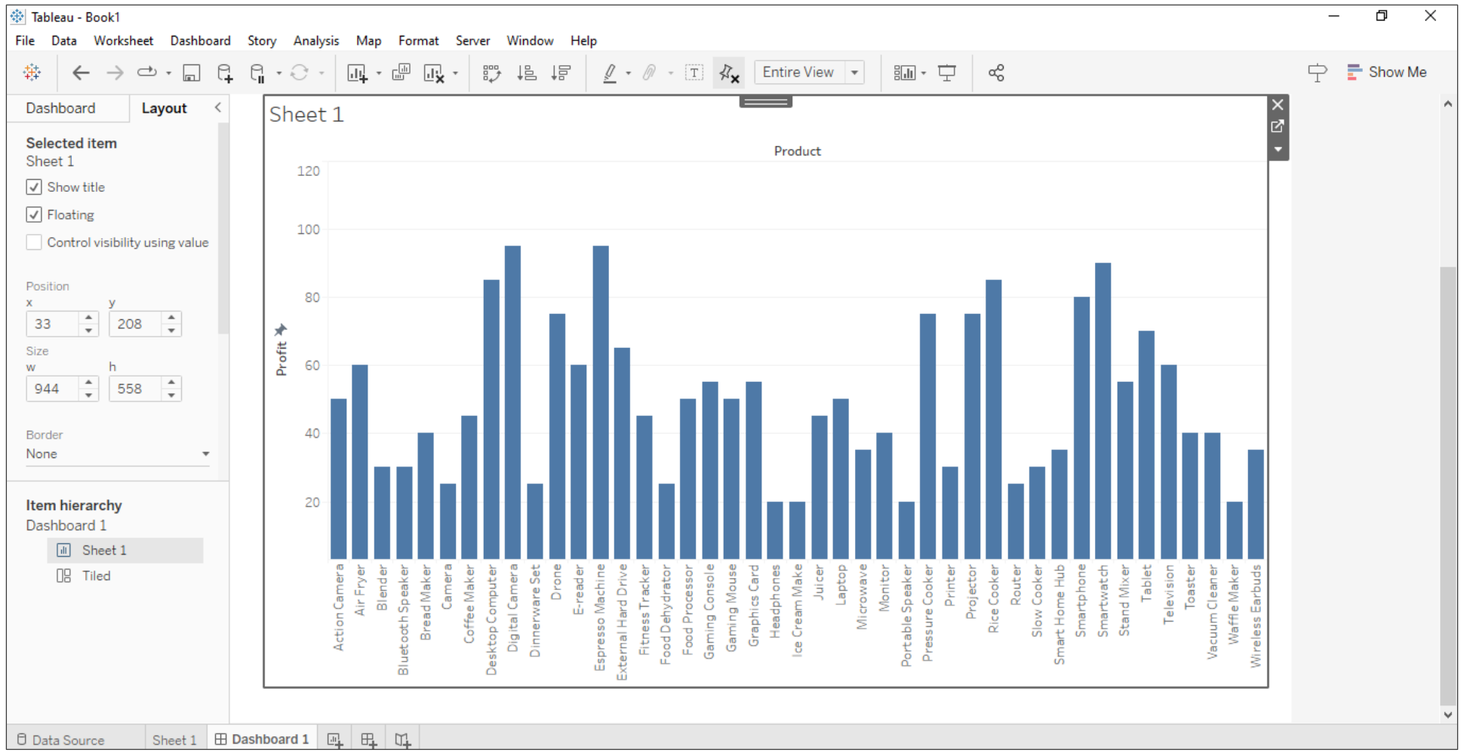
Elements in Dashboard Building

Elements in Dashboard Building



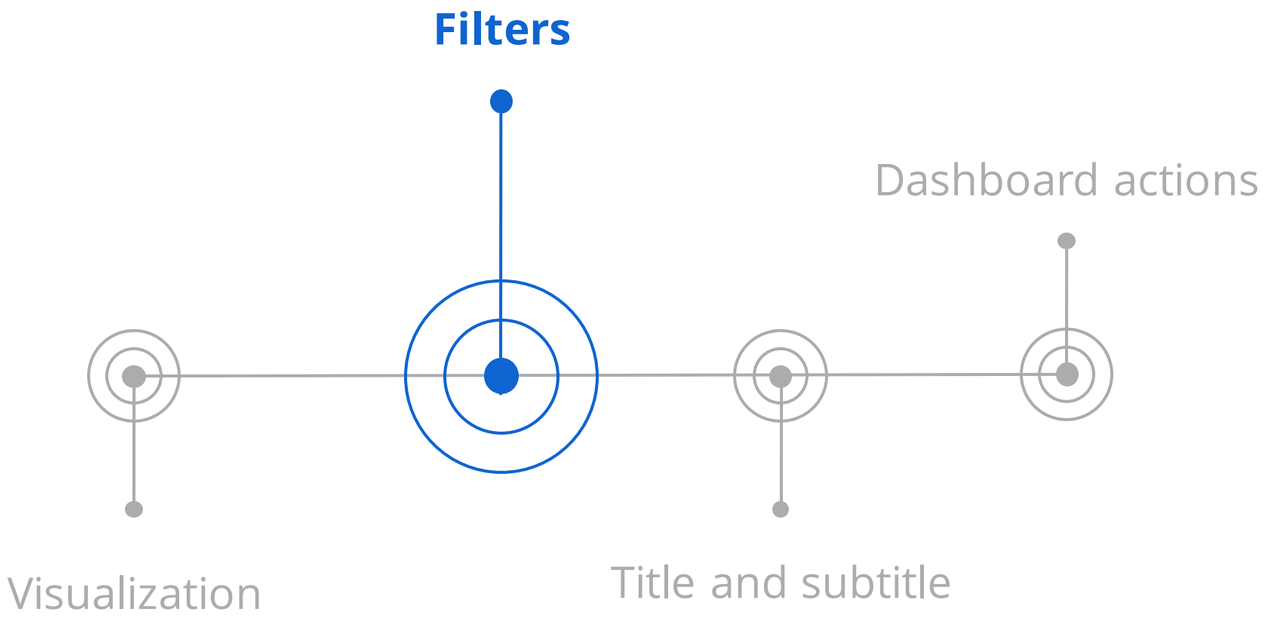
Visualization

They facilitate quick comprehension of trends, patterns, and outliers.



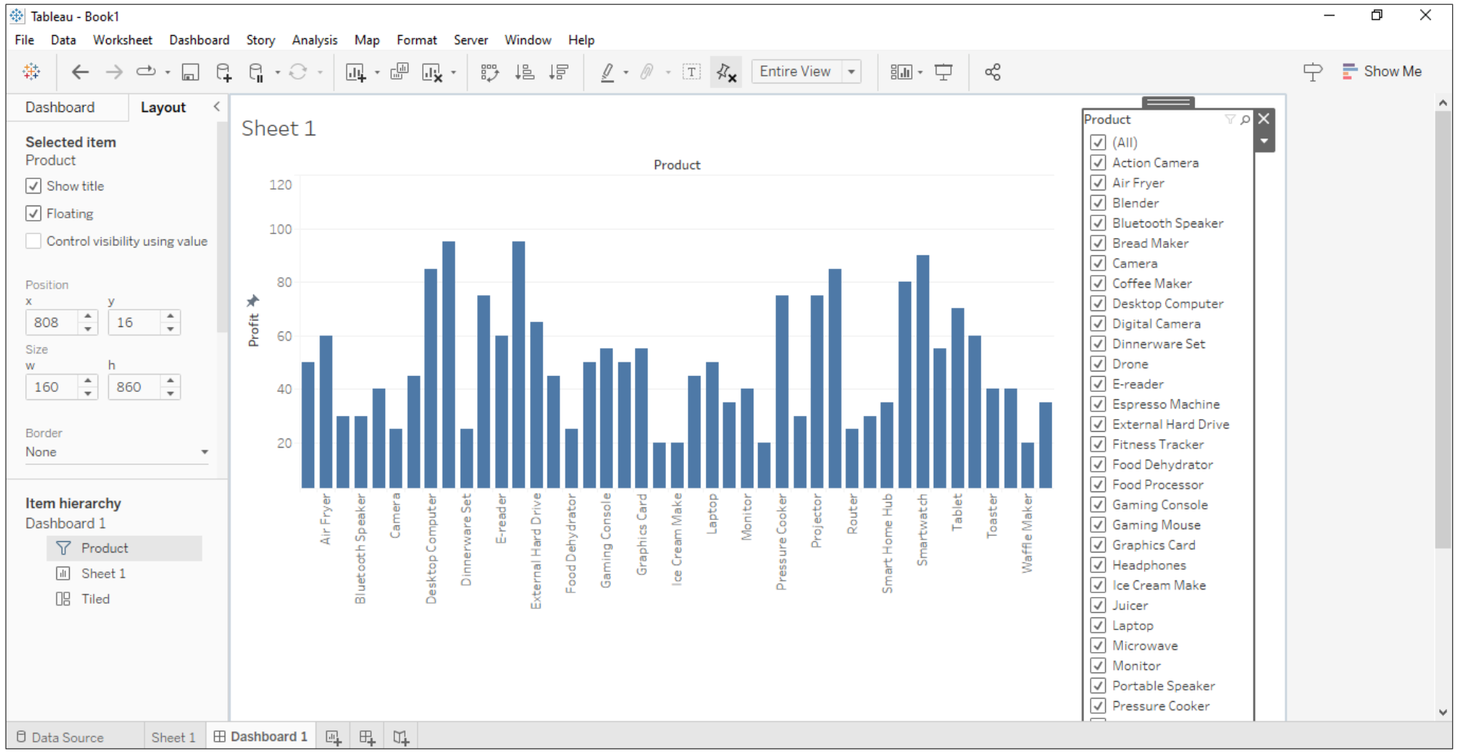
The appropriate visualization type is vital for effectively conveying the intended message and insights derived from the data.

Elements in Dashboard Building



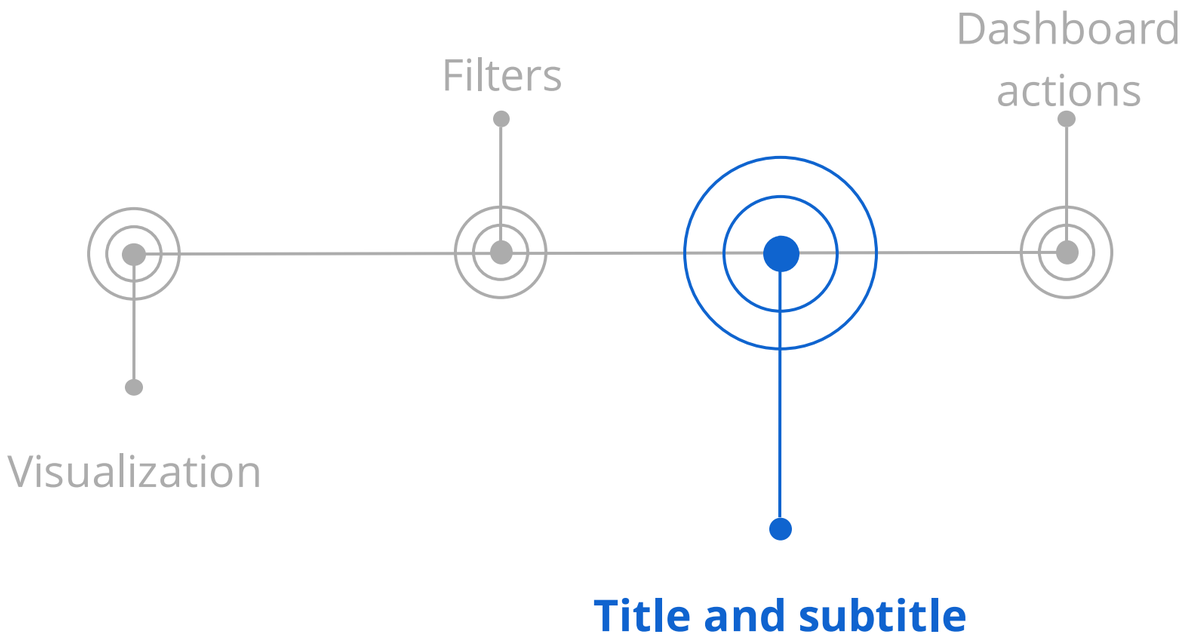
Filters

They empower users to dynamically interact with the data by selecting specific criteria or ranges.



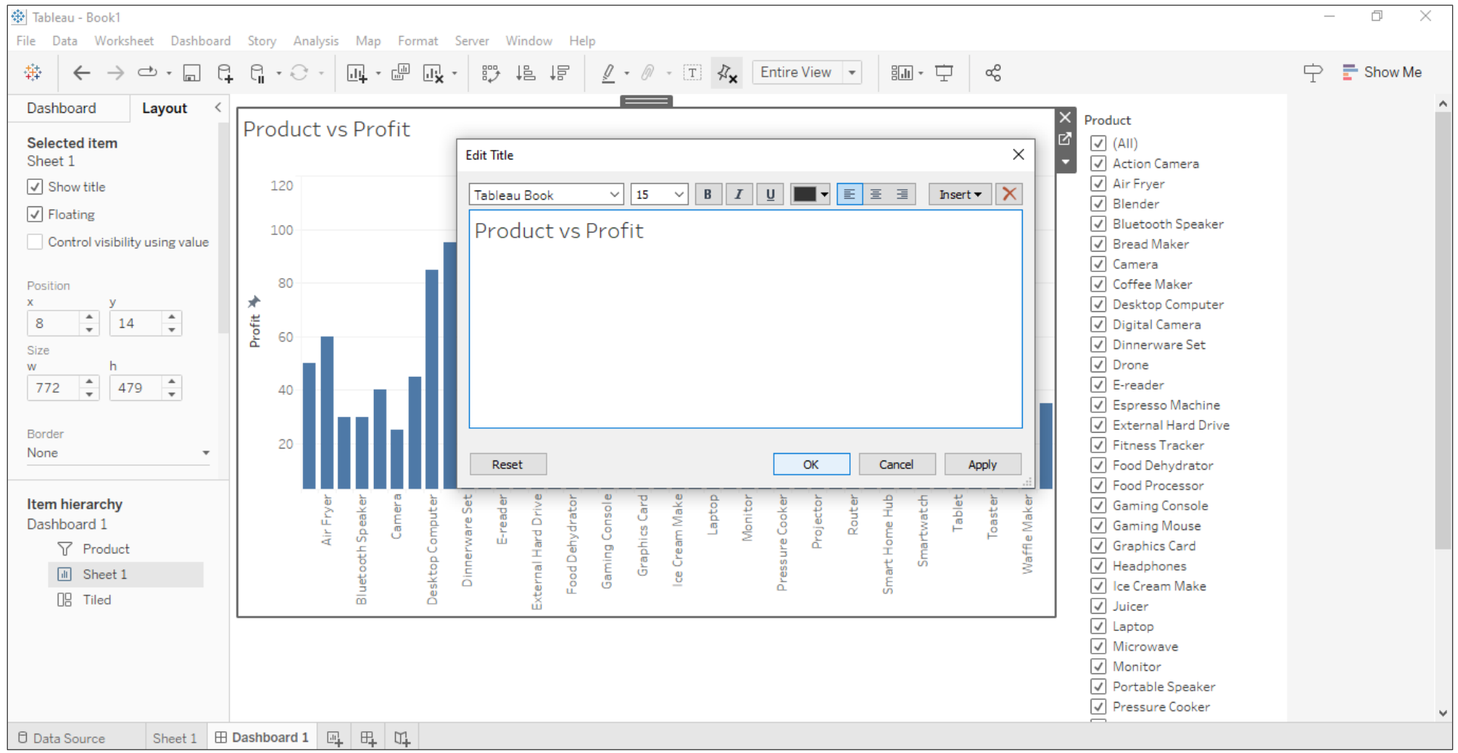
Filters enhance user engagement and allow for a more focused and personalized analysis by offering a tailored view of the information.

Elements in Dashboard Building



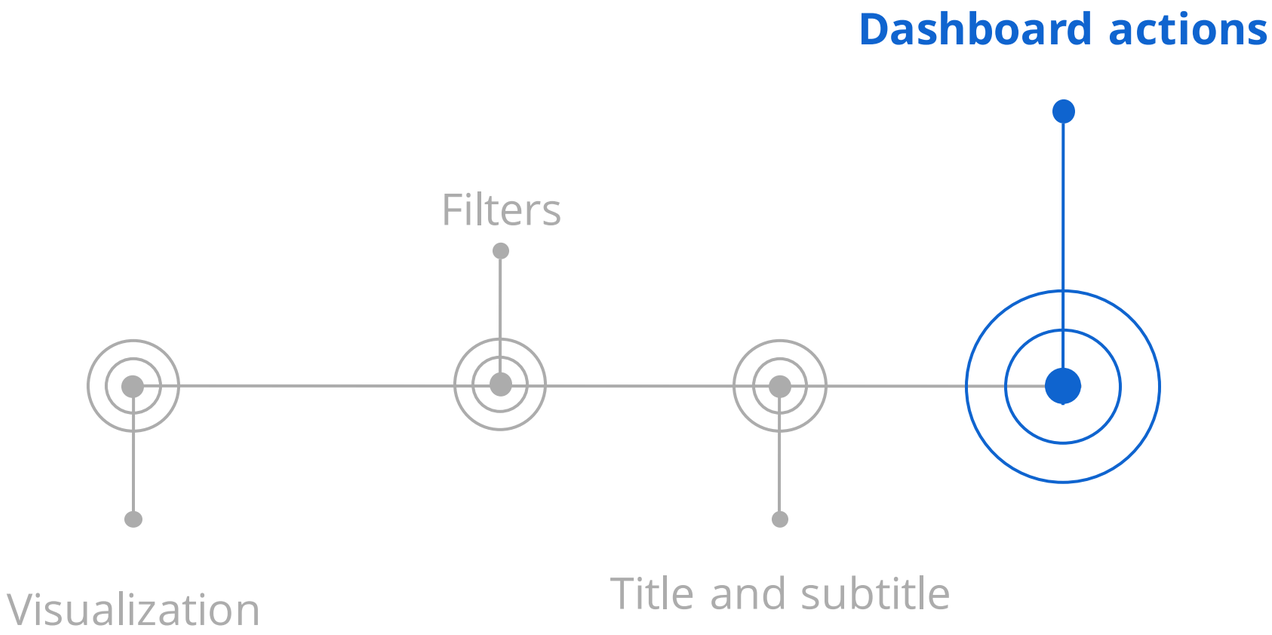
Title and Subtitle

The title summarizes the dashboard's purpose, providing context, while subtitles offer extra details, aiding comprehension.



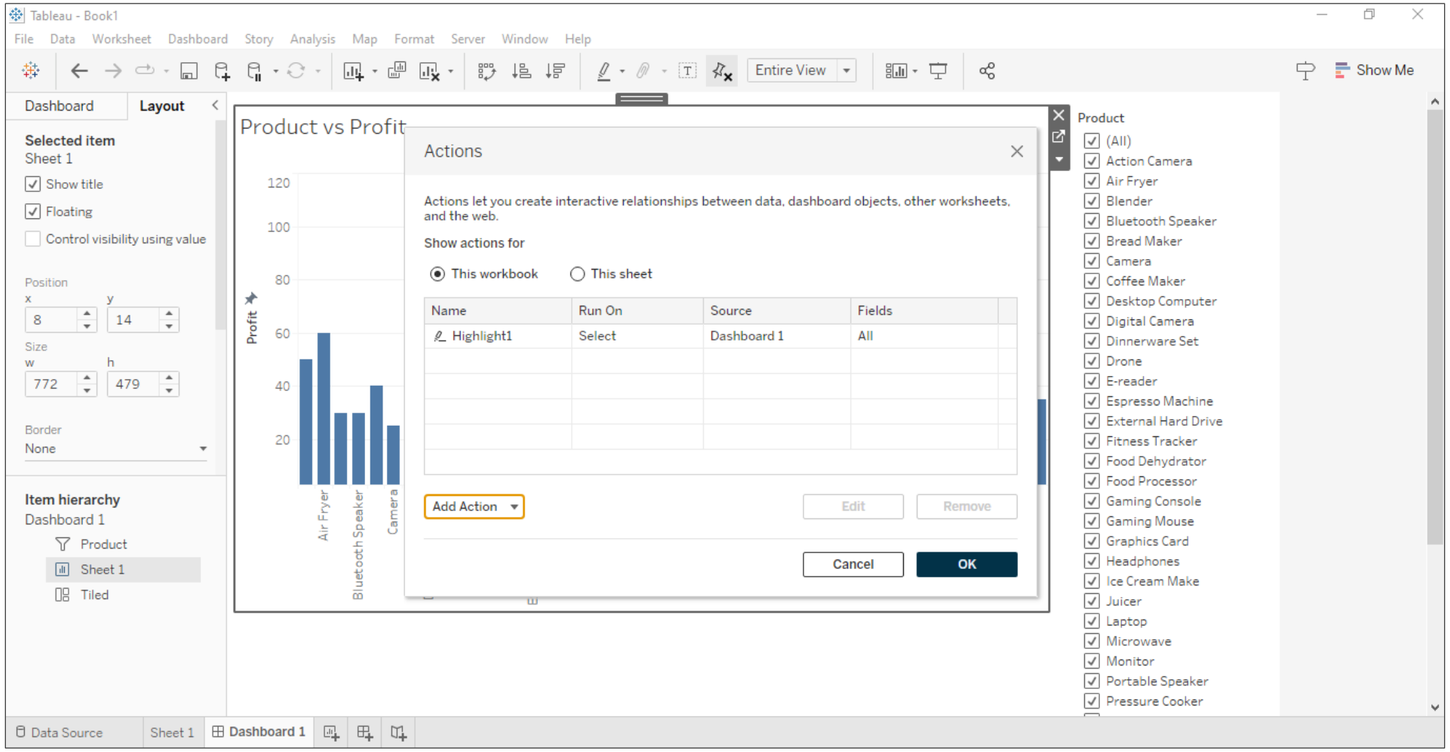
A well-crafted title ensures that users understand the overarching theme or objective of the dashboard.

Elements in Dashboard Building



Dashboard Actions

They establish interactivity within the dashboard, enabling a seamless connection between different visualizations.



This dynamic functionality allows users to explore relationships, correlations, and dependencies across various data points.

Demo: Using Action Features in the Dashboard

Duration: 10 minutes

Demonstrate how to create a filter action that will filter the profit chart based on your selection of any part of the sales chart.

DEMONSTRATION

Quick Check

Which element in the Tableau dashboard is crucial for users to dynamically interact with specific dimensions or data ranges?

A. Legends

B. Titles

C. Filters

D. Parameters

Aggregation and Granularity

Aggregation and Granularity

In the dashboard, they determine the level of detail displayed, shaping the insights users can gain. They are complementary concepts and act as opposite forces.

Aggregation

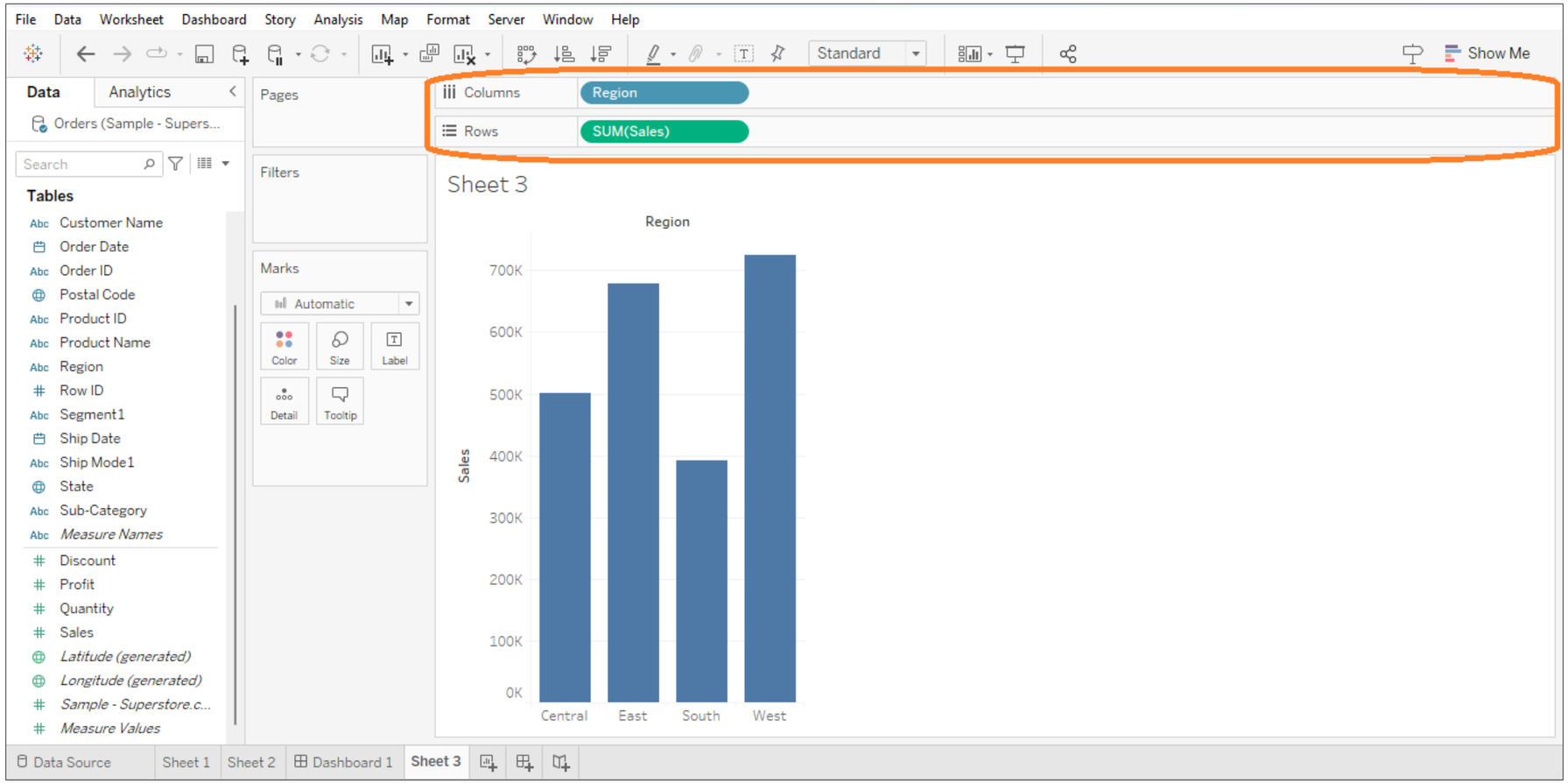
It refers to the process of combining individual data values into a summary statistic.

Granularity

It refers to the level of detail present in the data.

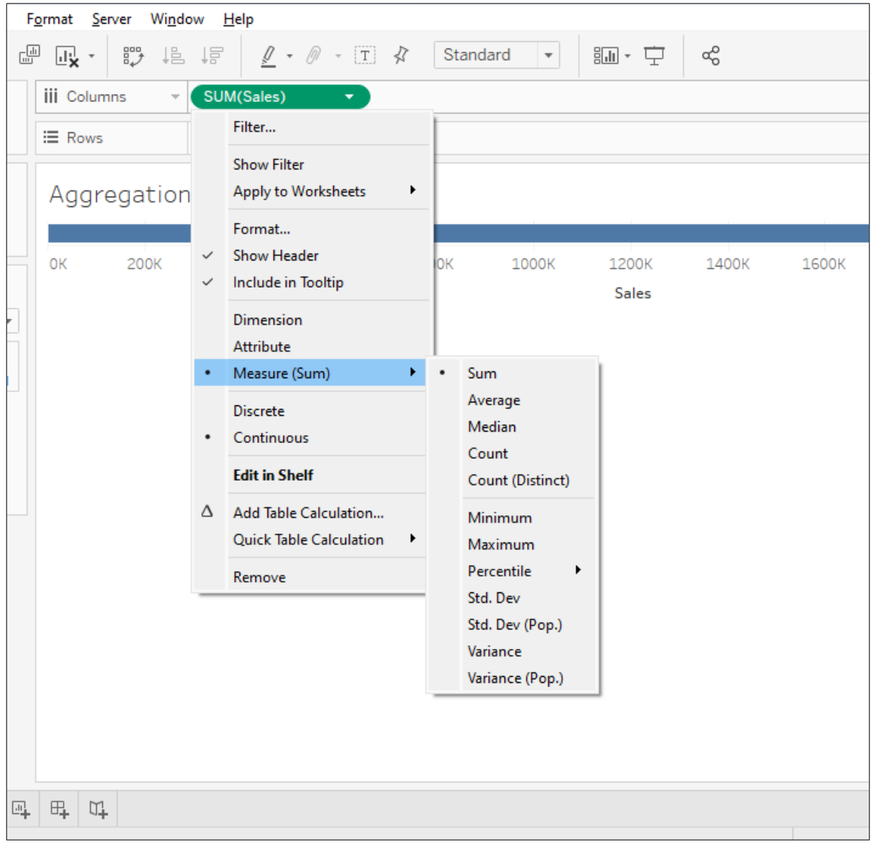
Aggregation

It is a mathematical operation that combines multiple values and returns a single value.



Aggregation for Measures

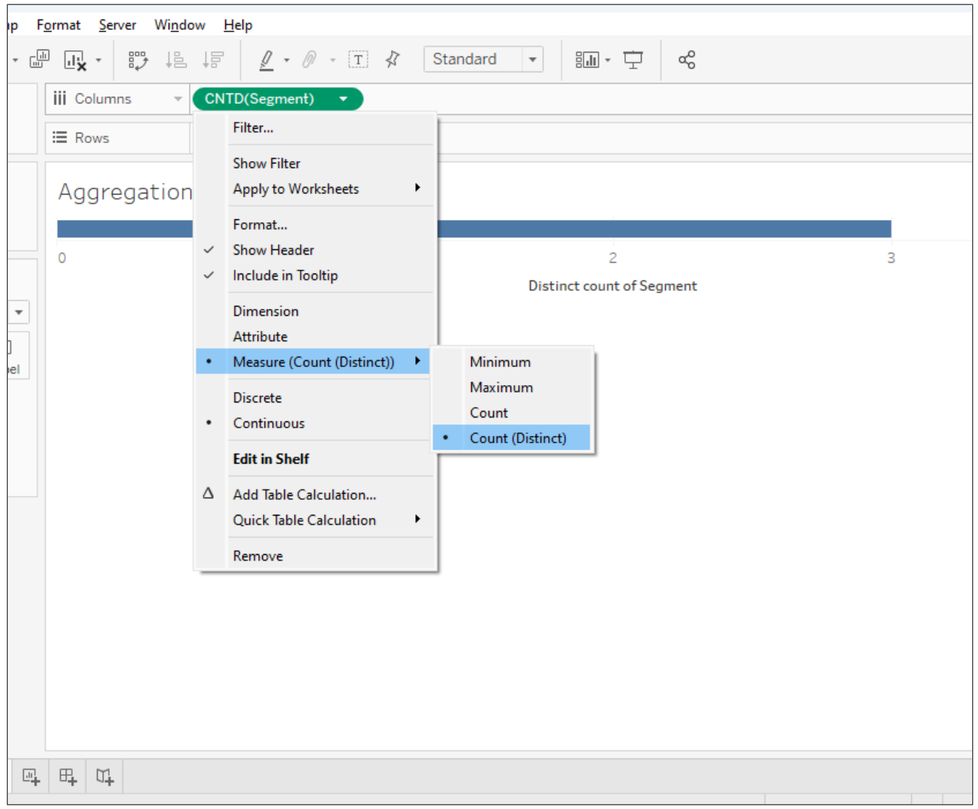
It refers to the process of combining multiple data points into a single value-based on a specified calculation method.



The type of aggregation applied varies depending on the context of the view.

Aggregation for Dimensions

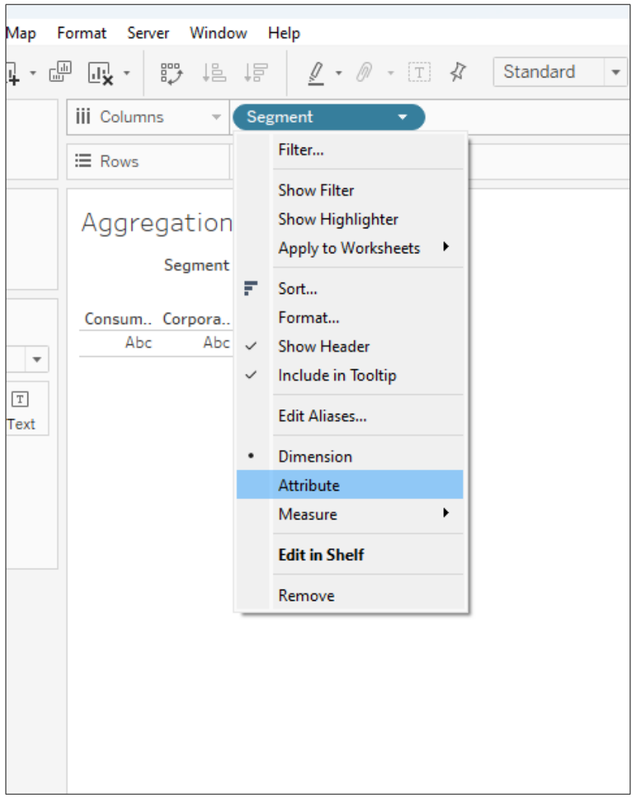
A dimension can be aggregated in the view as Minimum, Maximum, Count, or Count (Distinct).



Aggregation for dimensions does not happen by default. However, you can apply an aggregation to dimension whenever required.

Attribute (ATTR) Aggregation

The attribute aggregation, also known as the ATTR() function in Tableau, returns the value of an expression if it has a single value. Otherwise, it returns an asterisk (*).



An attribute is a test for heterogeneity across the rows in the result set or homogeneity, depending on your perspective.

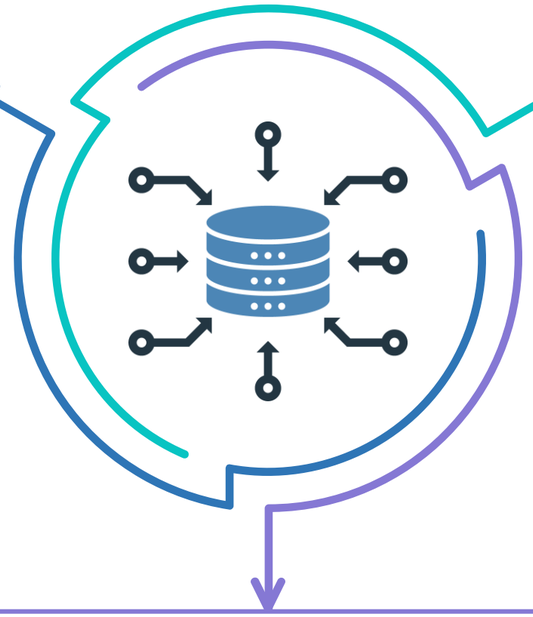
Granularity

It is the level of detail in a dataset or data source.

Why Is Granularity Important?

It is crucial for customizing data analysis by adjusting detail levels dynamically, enhancing insights, and optimizing performance.

The more granularity, the more data points are available for analysis.



This comes with added storage and computing demands.

Some analyses may need data aggregated at a higher granularity level.

Demo: Aggregation and Granularity

Duration: 10 minutes

Demonstrate how to use aggregation and granularity to analyze the sales and profit of different categories

DEMONSTRATION

Quick Check

In Tableau, what do aggregation and granularity respectively refer to?

A. Aggregation: Combining data at a higher-level
   Granularity: Level of detail in the data

B. Aggregation: Level of detail in the data
   Granularity: Combining data at a higher level

C. Aggregation: Size of the dataset being analyzed
   Granularity: Level of detail in the data

D. Aggregation: Number of dimensions in a dashboard
   Granularity: Color palette used in visualizations

Stories in Tableau

Stories

They refer to a feature in Tableau that allows users to sequence dashboards or visualizations, craft cohesive narratives, or communicate specific insights.

Different dashboards can create a story, or the entire story can be based on the same visualization.

Stories: Features

When shared on Tableau Public, Tableau Online, or Tableau Server, users interact with the story to find new things or ask new questions about the data.

Through stories, users comprehend visuals by following explanations of charts.

Charts and visuals can also be easily described to clients using stories.

Stories: Uses

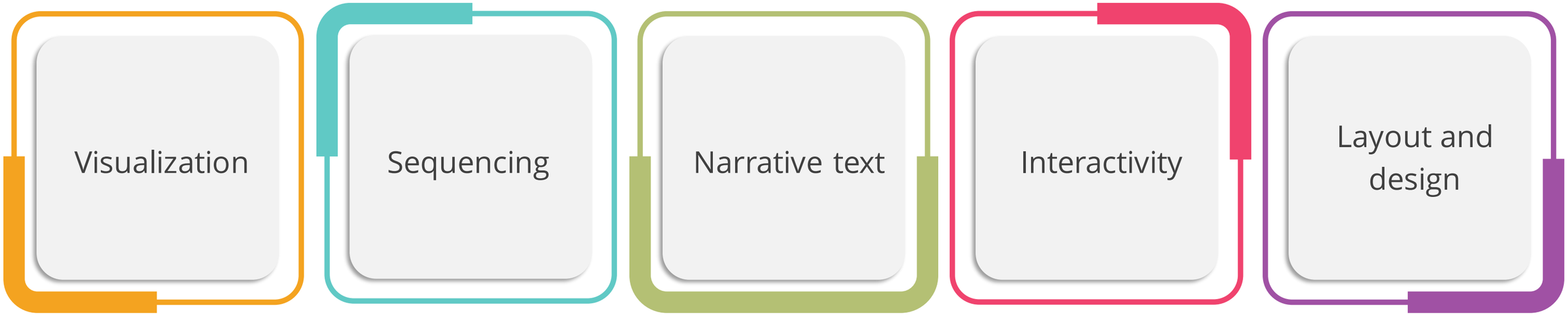
Organizations use data storytelling to collect, analyze, and convey insights in the form of compelling and simple-to-understand narratives and images.

Convey insights and aiding business users in comprehending data more effectively

Improve service value communication and build lasting relationships

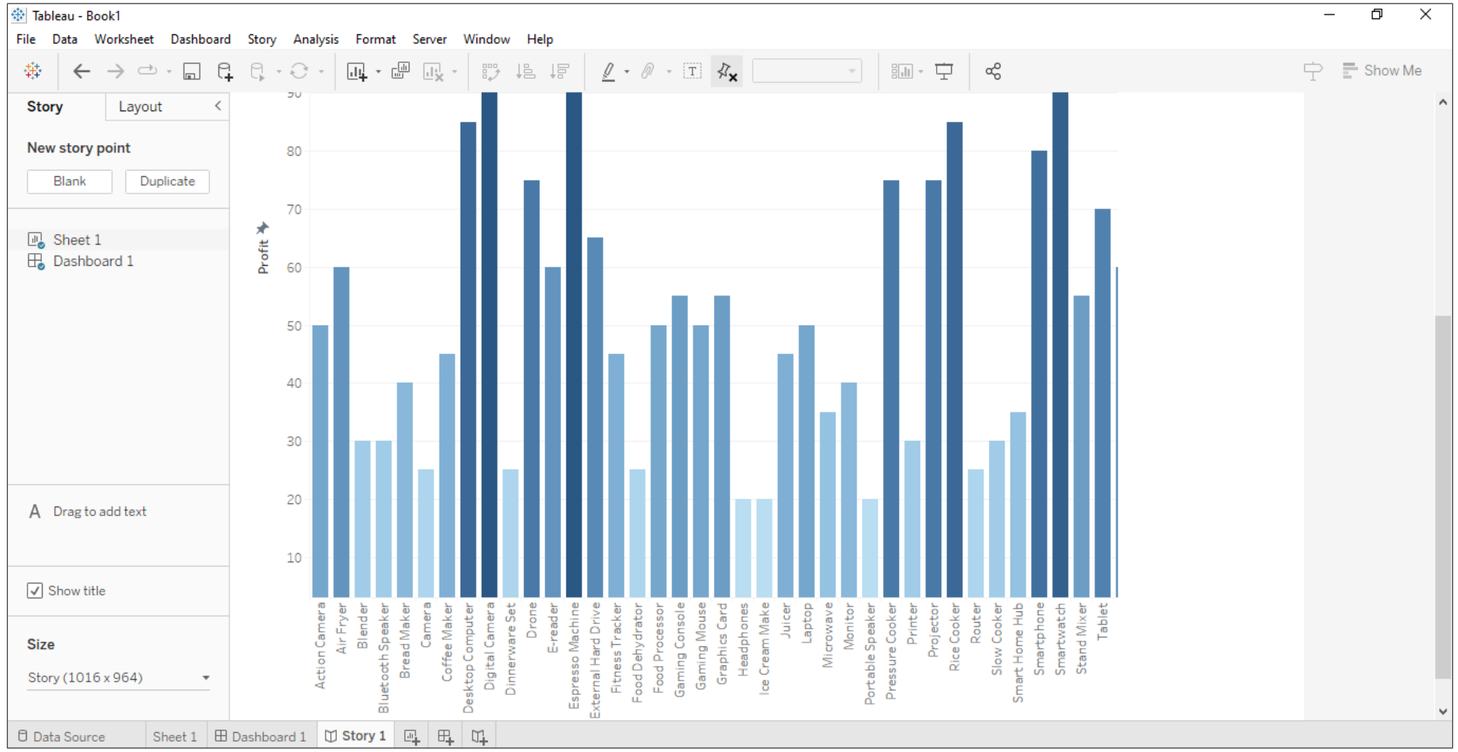
Stories: Components

Key components that drive compelling narratives within Tableau's stories:



Visualization

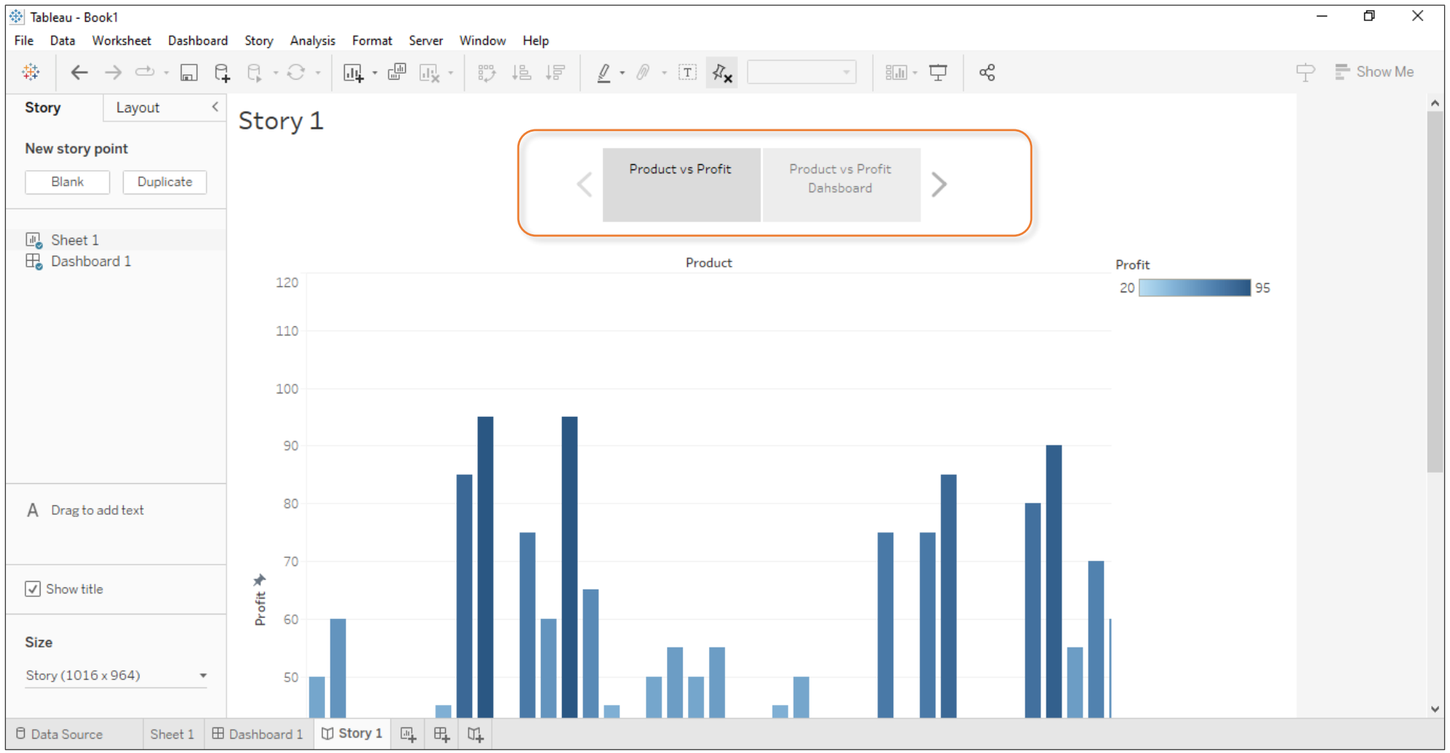
It involves strategically selecting and arranging charts, graphs, and maps to vividly present key data insights.



Appropriate chart types and data visualizations effectively convey insights and support the overarching narrative of the story.

Sequencing

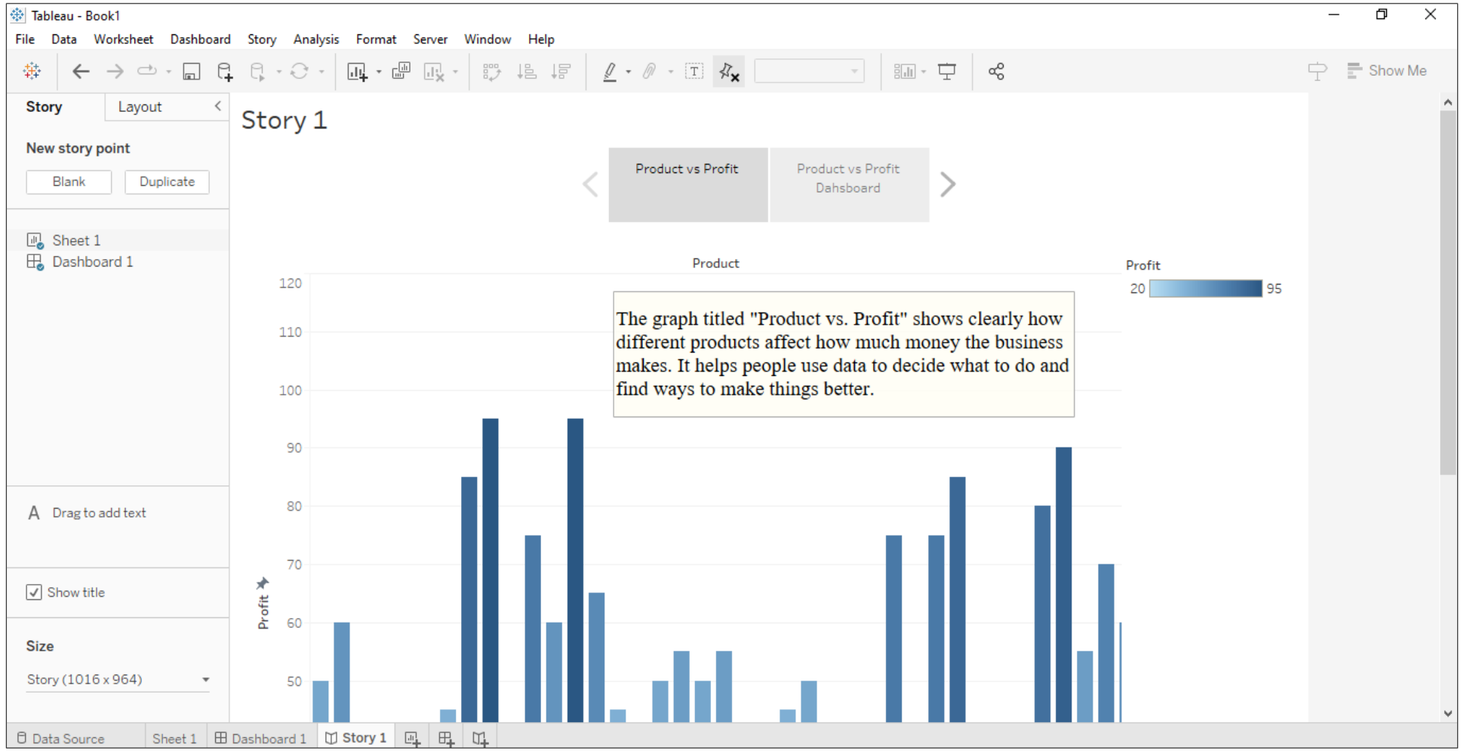
It involves organizing visualizations and annotations within Tableau in a deliberate order.



A logical progression of visualizations and annotations maintains viewer engagement and comprehension throughout the narrative journey.

Narrative Text

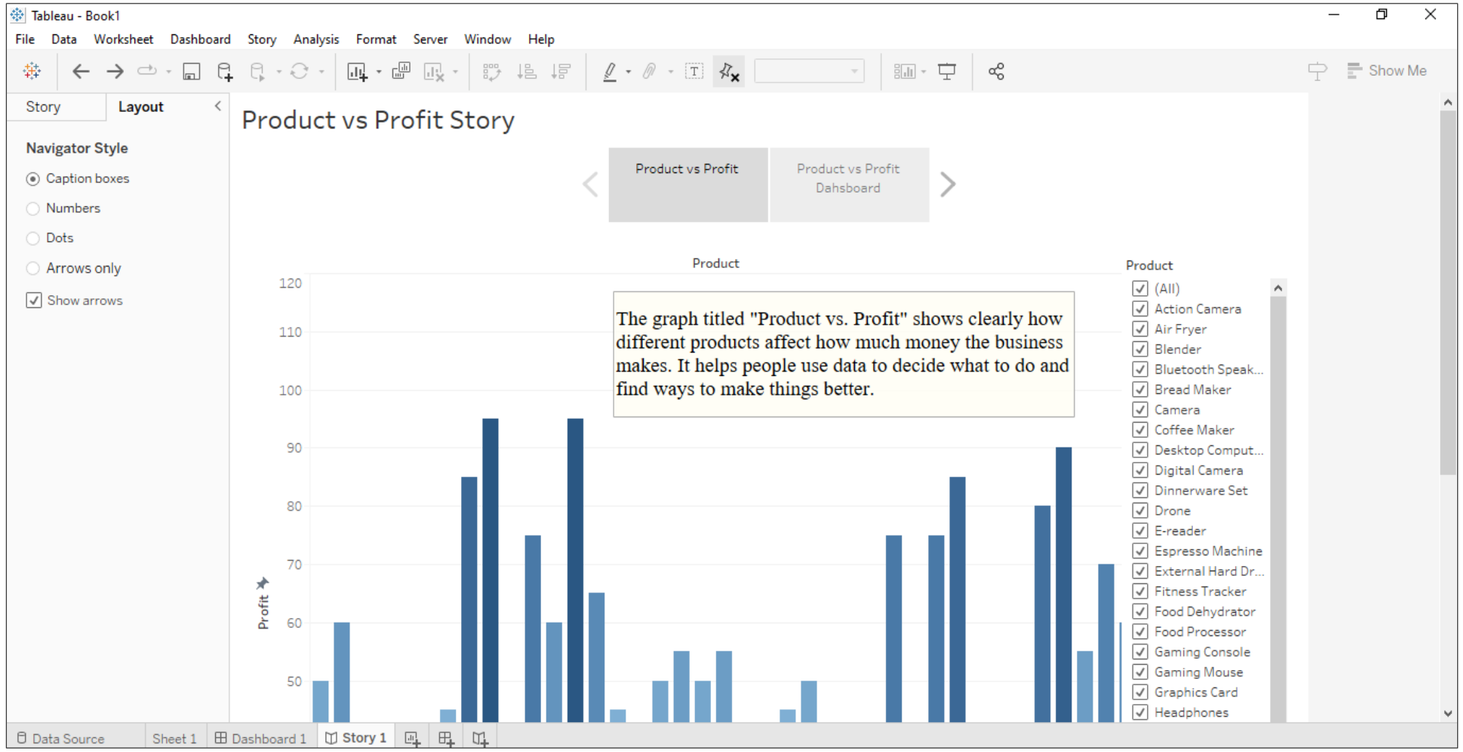
It allows you to add descriptive titles, annotations, and captions to provide context and interpretation.



Storytelling elements like stories, explanations, and insights make viewers more interested and help them understand the data better.

Interactivity

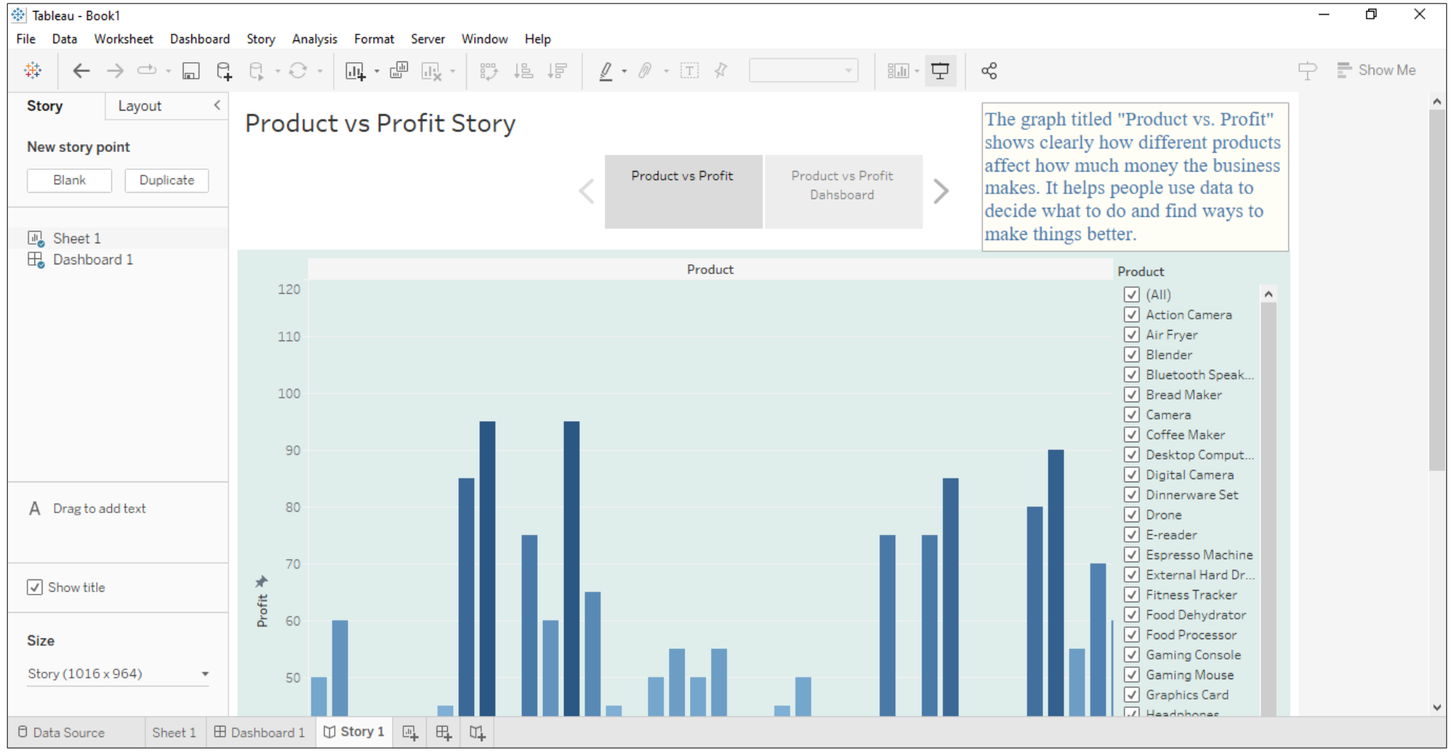
It retains interactive features that allow viewers to explore data points and filter information.



It allows users to adjust visualizations, explore data perspectives, and personalize their experience for deeper engagement.

Layout and Design

They refer to the arrangement and visual presentation of elements within a Tableau workbook or dashboard.



They enhance the layout with white space, colors, and typography for a visually appealing storytelling experience.

Demo: Create a Story

Duration: 10 minutes

Demonstrate how to create a dynamic story to analyze sales and profit across segments and ship modes, effectively communicating insights.

DEMONSTRATION

Quick Check

How do Stories enhance the presentation of data in Tableau?

A. By automating data refresh schedules

B. By integrating with external data sources

C. By providing context and narrative around visualizations

D. By generating complex calculations

Guided Practice

Overview **Duration: 20 minutes**

In this exercise, you will work with a dataset that contains information about customer orders from an online retail store. Throughout the exercise, you will learn how to aggregate data, create interactive dashboards, and craft compelling data stories to communicate insights effectively.

GUIDED PRACTICE

Key Takeaways

- A dashboard is classified into analytical, operational, informational, or strategic dashboards according to their function.
- Tableau provides diverse elements to enhance the dashboard and present insights compellingly.
- Aggregation and granularity are interrelated concepts, acting as opposing forces within Tableau.
- Stories are a tool for creating a sequence of visualizations that guide viewers through data insights in a structured manner.

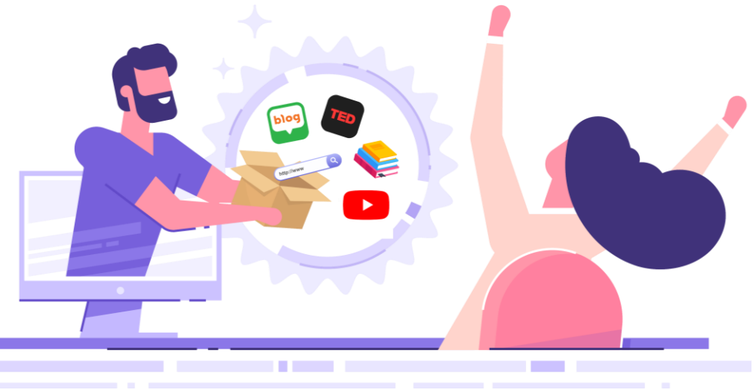
Practice Project

Real Estate Sales Analysis Dashboard

In this exercise, you will dive into the world of data visualization and storytelling using Tableau. You will be working with the real estate sales data analyzed previously, but this time, your focus will be on creating an interactive dashboard and telling a compelling story with the data to derive actionable insights for the real estate agency.

PRACTICE PROJECT

Additional Resources



- Device Designer in Dashboard
- Tableau Training and Tutorials

Q&A