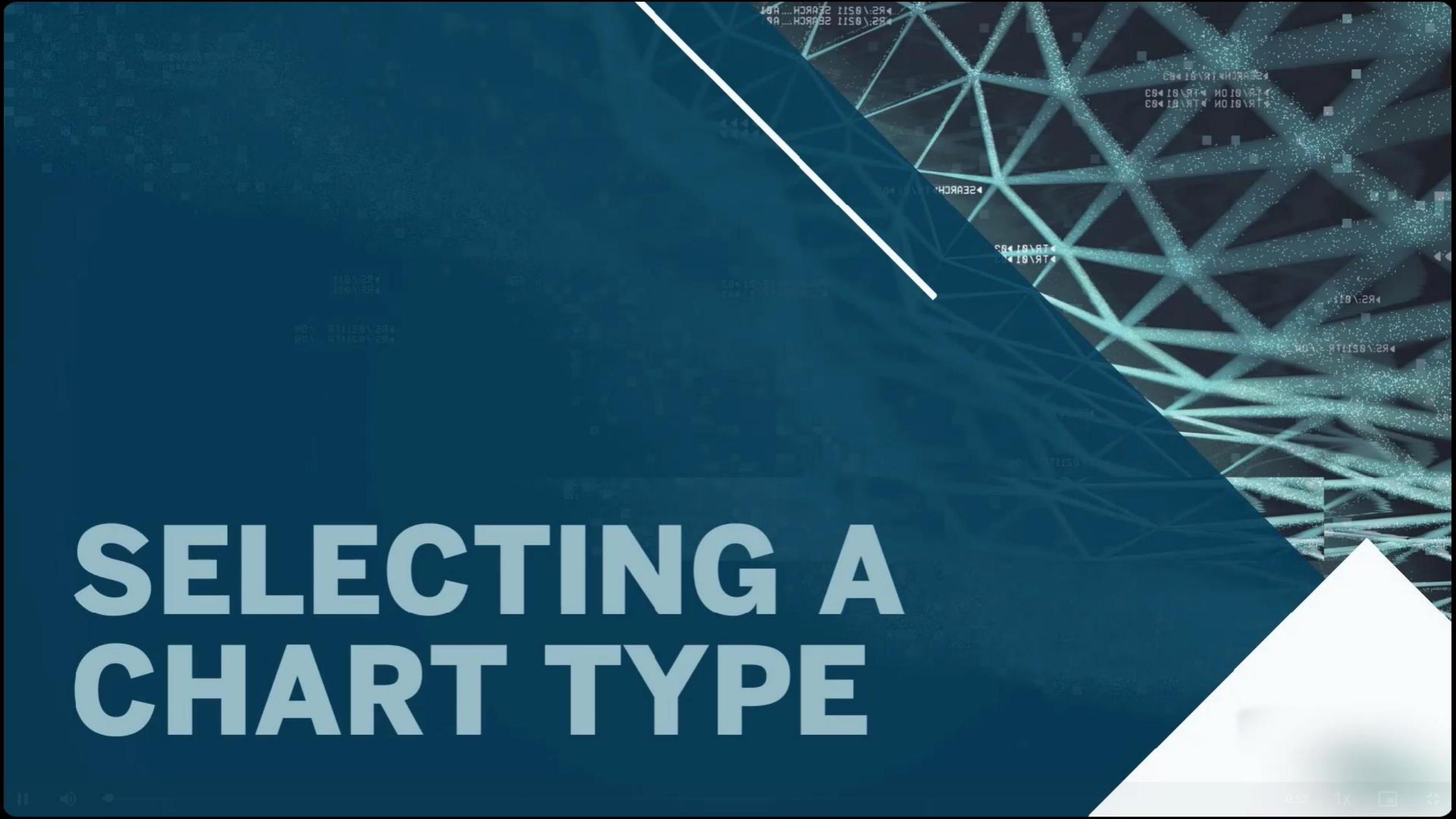


# SELECTING A CHART TYPE



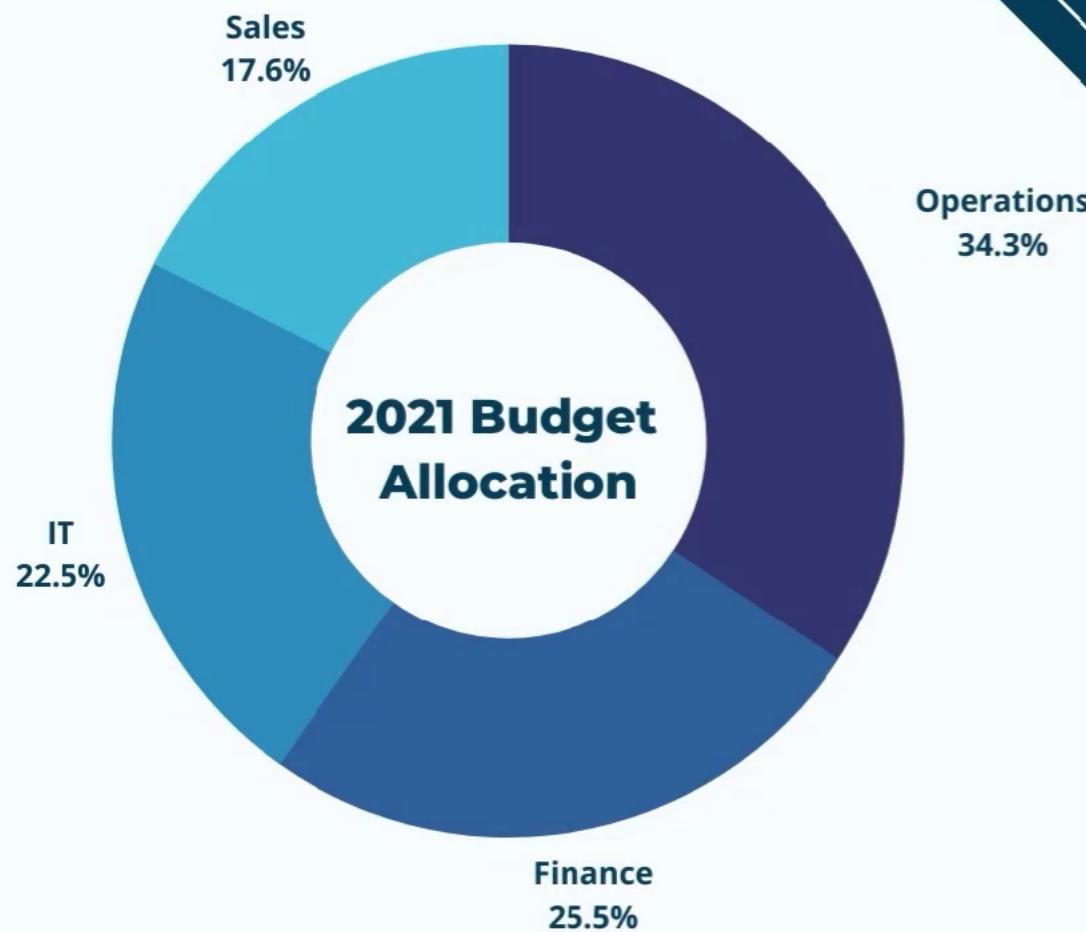
# INCORRECT CHART TYPE

- Can skew the data.
- Misdirect the analysis.
- Leads to confusion & poor judgement.

2021 Budget Allocation



# CORRECT CHART TYPE



- Communicates message easily.
- Highlights insights.
- Accurately portray data.



# SELECTING A TYPE OF VISUALIZATION

## Criteria for selecting a chart type

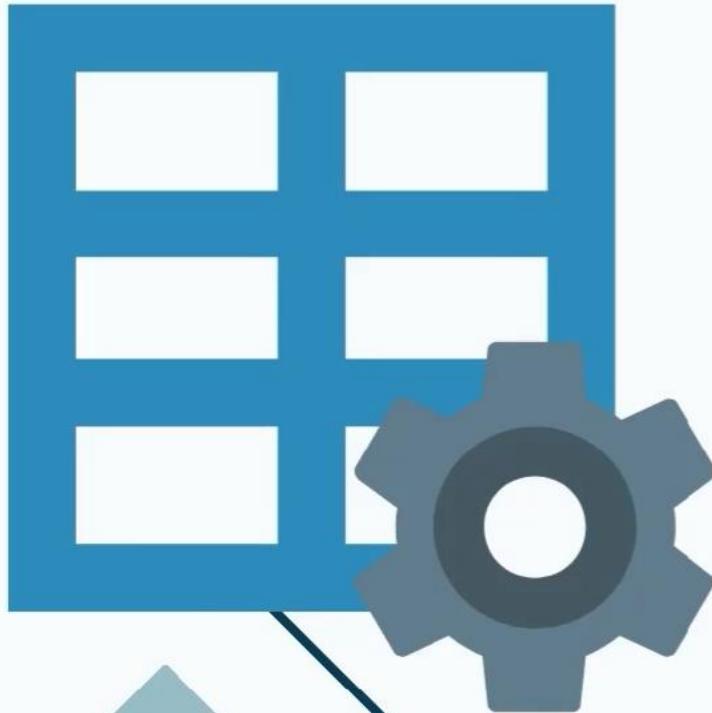


1

**The questions you  
are trying to ask.**

Knowing what you need to show will help  
determine how you want to show it.

## Criteria for selecting a chart type



2

### The properties of your data.

The type of data and its category will limit and affect what types of charts are compatible to it.

## **Criteria for selecting a chart type**



**3**

**How you want to present  
and communicate your  
insights to others.**



# TABLEAU CHART TYPES

# Charts that shows Change over time



- Types of chart that are used to show relationships within a continuous measurement.
- Shows how a data set performs during a specific time period.
- Helps you display trends and seasonal patterns.



# Charts that shows Change over time

Answers the questions:

- “How has this measure changed in the past year?”
- “When did this measure change?”
- “How quickly has this measure changed?”

Charts:



Line Chart

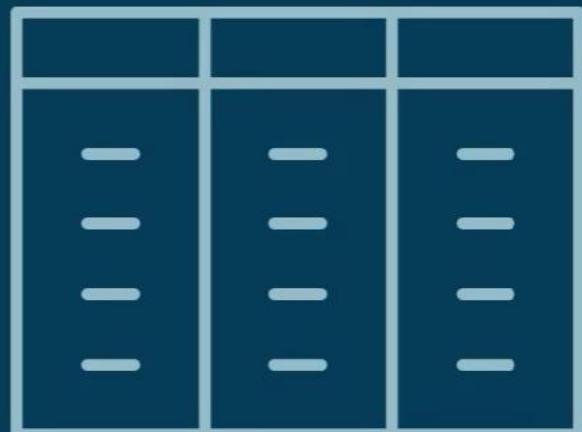
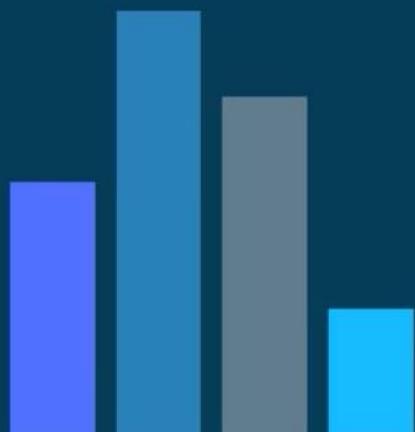


Area Chart

# Charts that shows Ranking

2 1 3

- Type of chart that shows the relative rank standing of members in a dimension.
- Can be used to compare the values of each member and recognize the top or least performer.

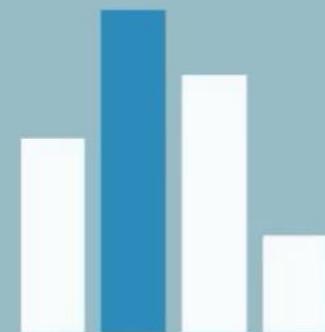


# Charts that shows Ranking

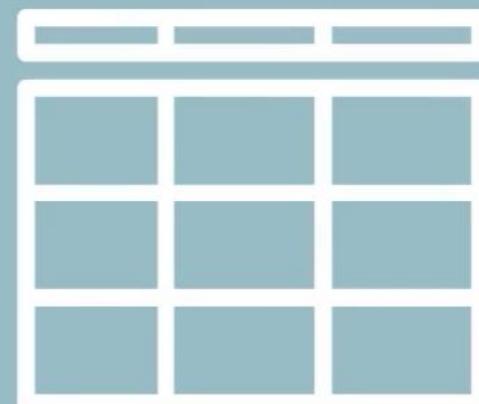
Answers the questions:

- “How many people are under-performing in the company?”
- “How much revenue is generated by our top ten customers?”
- “What is the value of our ten lowest revenue properties?”

Charts:

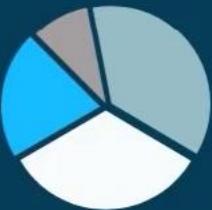


Bar Chart

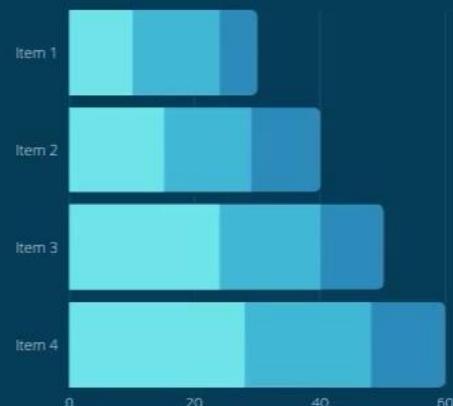


Tables

# Charts that shows Part-to-Whole



- Shows the composition of a dimension or how much of a whole an individual part takes up.
- Let's you highlight the importance of each part with regards to the whole or the total value.

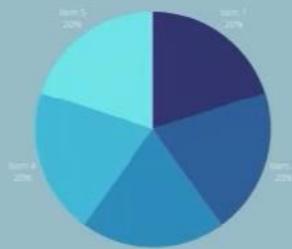


# Charts that shows Part-to-Whole

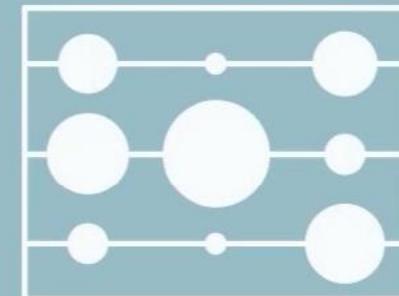
Answers the questions:

- “How much does *this* value contribute to the total?”
- “How does the distribution of costs change each year?”
- “Do different items contribute different amounts to sales by region?”

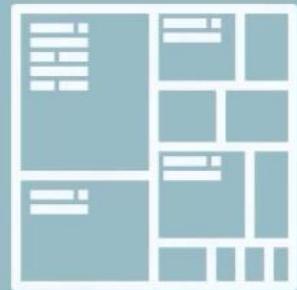
Charts:



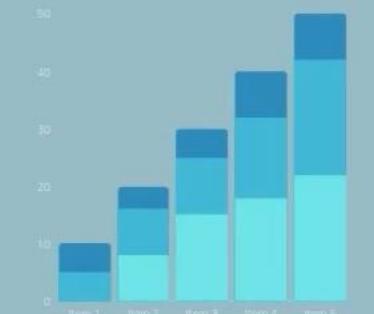
Pie Chart



Packed Bubble  
Chart



Treemap

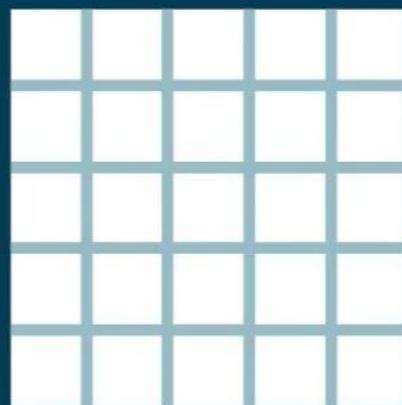
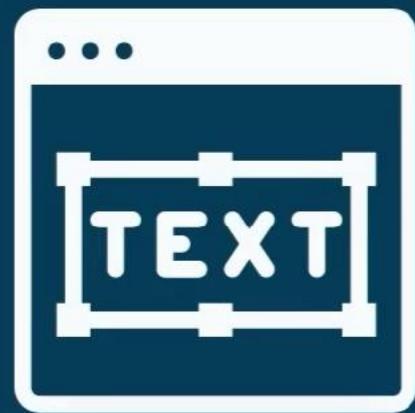


Stacked Bar

# Charts that shows Text



- States the exact numbers for each measure.
- Let's you clearly communicate the most important points to consider in the dashboard.



# Charts that shows Text

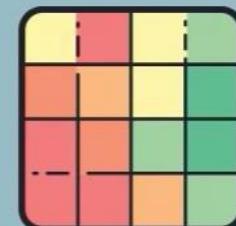
Answers the questions:

- “How much total sales do we have this year?”
- “How many branches are included in this dashboard?”

Charts:

**\$500K**

▲ 25% increase



Callout Numbers

Highlight  
Tables


Text Tables

# Charts that shows Correlation & Distribution

## CORRELATION

- For showing the relationship between two variables.
- It can show you whether something has a positive effect, negative effect or none to another variable.

Answers the questions:

- “How strongly related are these measures?”
- “Are some measures more related than others?”



# Charts that shows Correlation & Distribution

## DISTRIBUTION

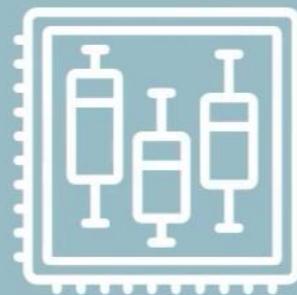
- Shows the frequency of values in the dataset.
- It can also show outliers in the data and normal tendency.

## Answers the questions:

- “Are events clustered around a certain probability?”
- “Which population group buys the most items?”
- “When are the busiest times in our work day?”.



Histograms



Box & Whisker  
Plot

# Charts that shows Spatial

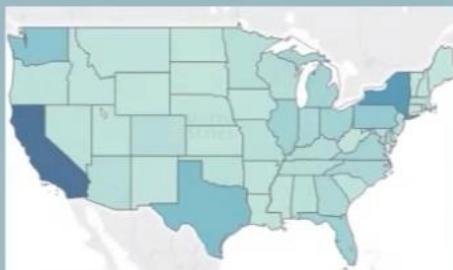
- Show precise locations and geographical patterns in your data.

**Answers the questions:**

- “Which city has the highest sales?”
- “How far from distribution centers are our customers?”
- “How many people arrive at which gate?”



**Symbol  
Map**



**Filled Map**

Tableau Public - 2-1

File Data Window Help

Connections Add

List of Orders Text file

Files

Use Data Interpreter  
Data Interpreter might be able to clean your Text file workbook.

List of Orders.csv  
Order Details.csv

New Union

Filters 1 | Edit

List of Orders+

List of Orders.csv Order Details.csv

Sort fields Data source order ▾ Show aliases Show hidden fields 1.000 rows

Abc Order Details.csv Order ID (Order D...)	# Order Details.csv Amount	# Order Details.... Profit	# Order Details.csv Quantity	Abc Order Details.csv Category	Abc Order Details.csv Sub-Category
B-25601	1,275.00	-1,148.00	7	Furniture	Bookcases
B-25601	66.00	-12.00	5	Clothing	Stole
B-25601					
B-25602					

1. How much is the total sales for the whole data set?

2. Which product category gives us the most profit?

3. From which state do most of our customers come from?

Data Source 1

Leah Mae Bu...

# CHANGE OVER TIME



The purpose of this chart type is to show how a measure or variable's value is moving throughout a specific range of time.

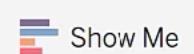
This is used to observe its increase and decrease, and track any patterns on its movement.

# Change Over Time

# Line Chart



- Connects individual data points in a view.
- They provide a simple way to visualize a sequence of values and are useful when you want to see trends over time, or to forecast future values.



Data

Analytics



Search



## Tables

Abc Ship Mode

State

Zip Code

Abc Measure Names

Discount

Order Quantity

Product Base Margin

Profit

Sales

Shipping Cost

Unit Price

Latitude (generated)

Longitude (generated)

Orders (Count)

Measure Values

Pages

Columns

QUARTER(Order Date)

Rows

Measure Values

Filters

Measure Names

Marks

Line

Color

Size

Label

Detail

Tooltip

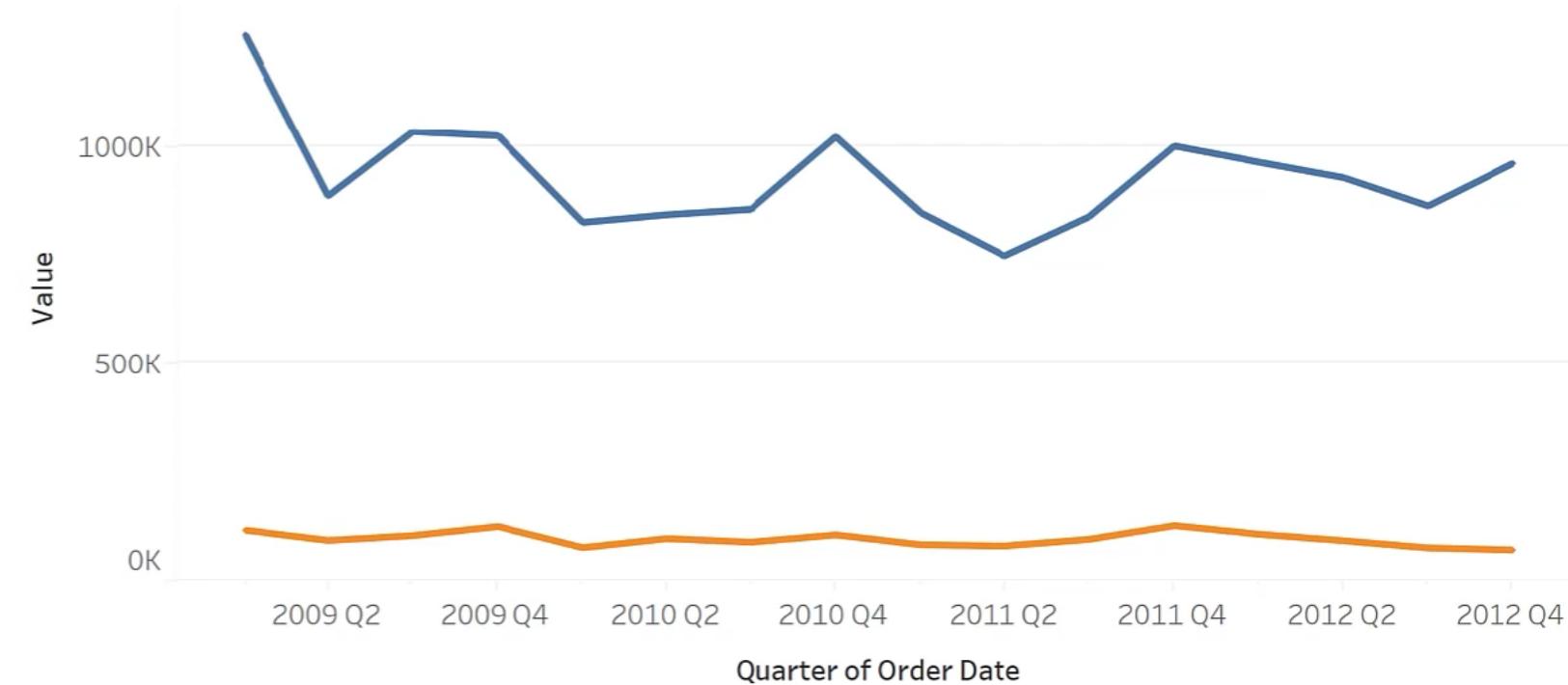
Path

Measure Values

SUM(Profit)

SUM(Sales)

## Sheet 1

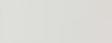
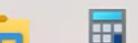
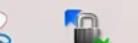


Data Source

Sheet 1



32 marks 1 row by 1 column SUM of Measure Values: 16,437,369



# Best practices ✓

- When using a blended axis with multiple measures, make sure that the range of the measure values are almost similar with one another, this is to show the distinction of the increase and decrease trend on the line even when using multiple measures.
- Do not show more than 4 measures in a blended axis.
- The axis should always start at zero. If you wish to modify it, included a caption to point it out and explain why the change was done.

# Area Chart



- They are similar to line charts except that the area below the line is filled with a solid color or gradient.
- More versatile than line charts in these scenarios because you can easily compare multiple measures by comparing the filled color gaps instead of comparing each point on the line.



Data

Analytics

Sample - Superstore Sales

Search

## Tables

- Abc Ship Mode
- 🌐 State
- 🌐 Zip Code
- Abc Measure Names
- # Discount
- # Order Quantity
- # Product Base Margin
- # Profit
- # Sales
- # Shipping Cost
- # Unit Price
- 🌐 Latitude (generated)
- 🌐 Longitude (generated)
- # Orders (Count)
- # Measure Values

Pages

Columns  
YEAR(Order Date)Rows  
Measure Values

Filters

Measure Names

Marks

Area

Color

Size

Label

Detail

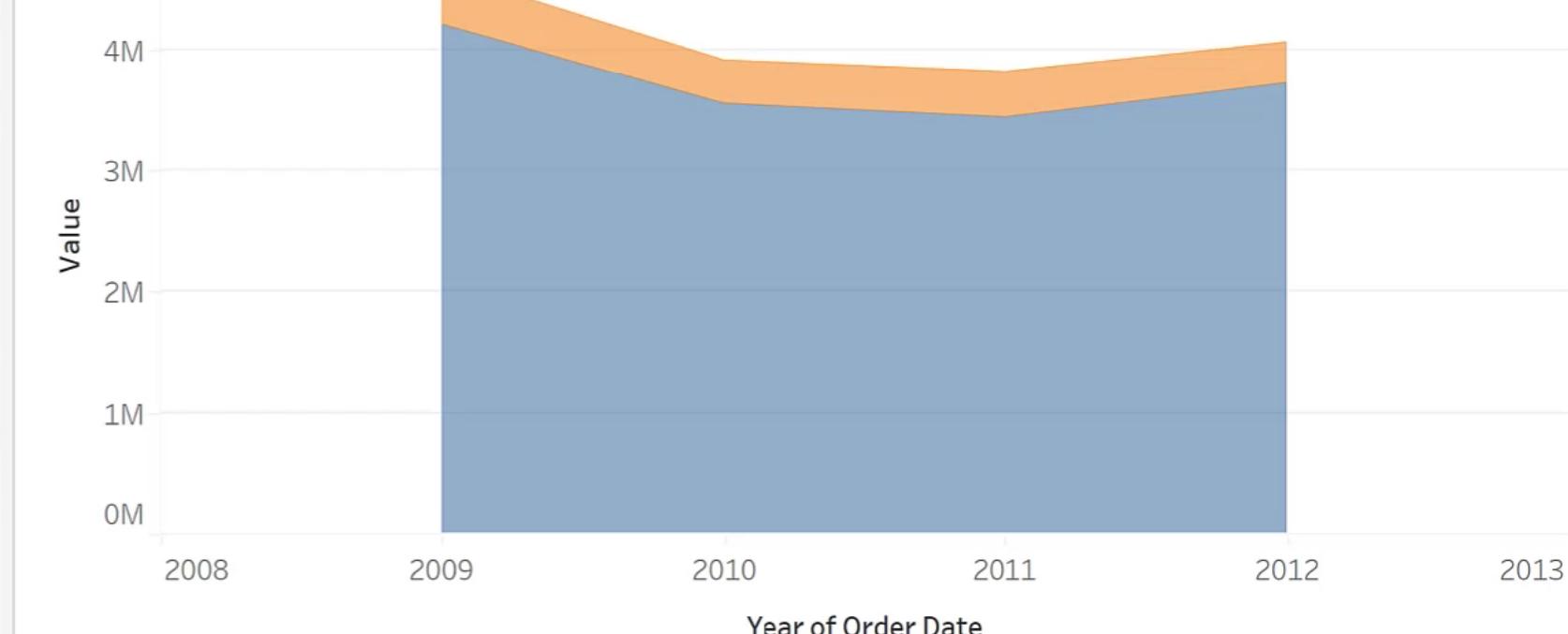
Tooltip

Measure Values

SUM(Profit)

SUM(Sales)

## Sheet 1



Data Source

Sheet 1



# Best practices ✓

- Make it easier to read. Arrange the stacks where highly variable data is on top and low variability on the bottom.
- When using “unstacked” area charts, make full use of the opacity option in the colors card properties to ensure that other areas are visible.
- Consider grouping many tiny members together to make one bigger member such as “others” to clean up the overall look of the chart.

# USING BARS





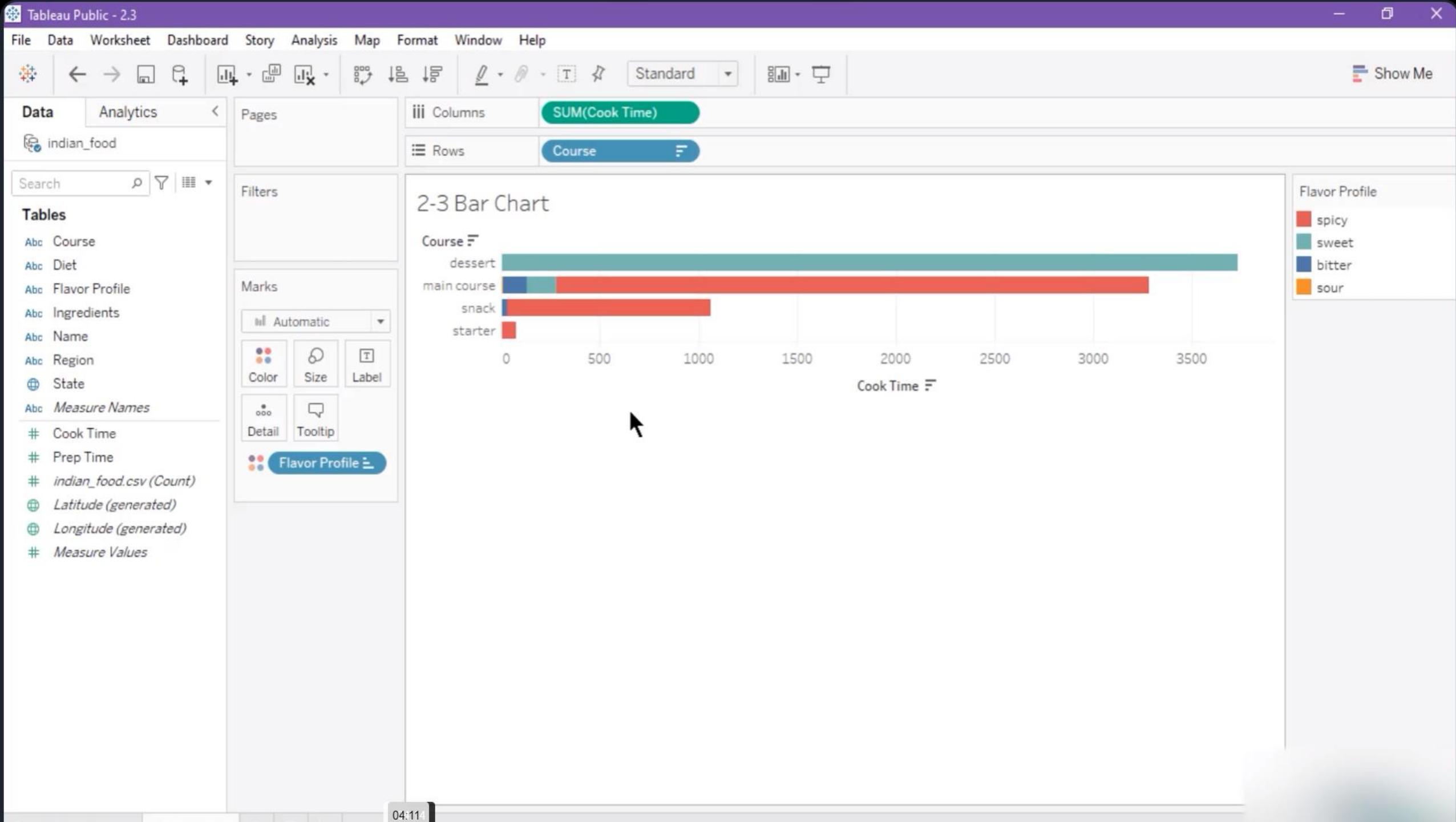
## BAR MARK

- Lets you create horizontal or vertical bars whose height or length is proportionate to the measure value.
- Can be used for comparison (show ranking), display changes in time, and show distribution.

# Bar Chart

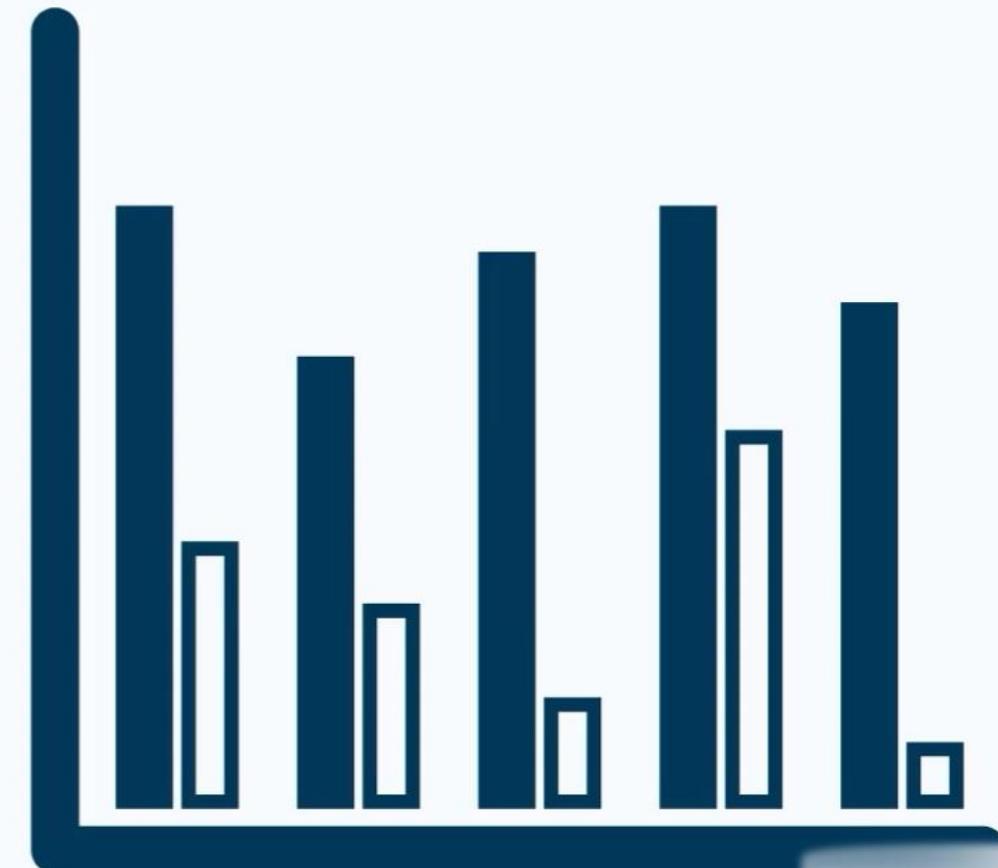


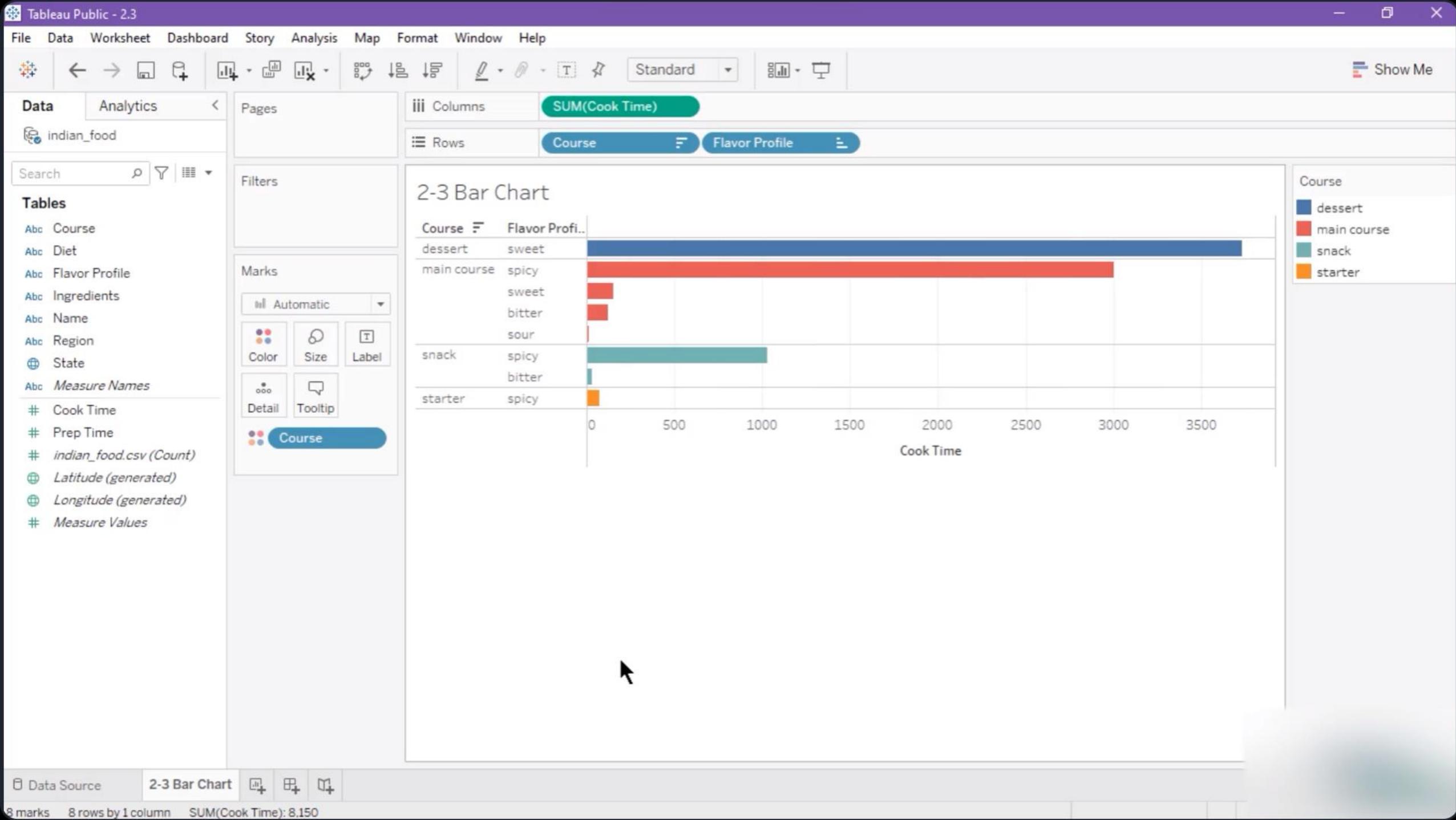
Graphed with rectangular bars which can be plotted horizontally or vertically. Bar charts are often used to represent the ranking between members of a dimension / categorical field.



# Grouped Bar Chart

- Focused in extending the bar chart.
- Add additional level of information.
- Multiple sets of data items can be used.





# Best Practices for BAR CHARTS

✓ If possible, do not use 3d bars and bars with heavy rounded edges. This makes the bars hard to compare and read.

✓ Use color's wisely. If you wish to only highlight the top-ranking value, use a contrasting color on the top bar and keep the others neutral.

✓ If the dimension axis is not a date field, it is best to use sort in the bars to lead the user's eyes to the top or lowest values.

# Bullet Graph

A variation of a bar graph developed to replace dashboard gauges and meters. It is useful for comparing the performance of a primary measure to one or more other measures.

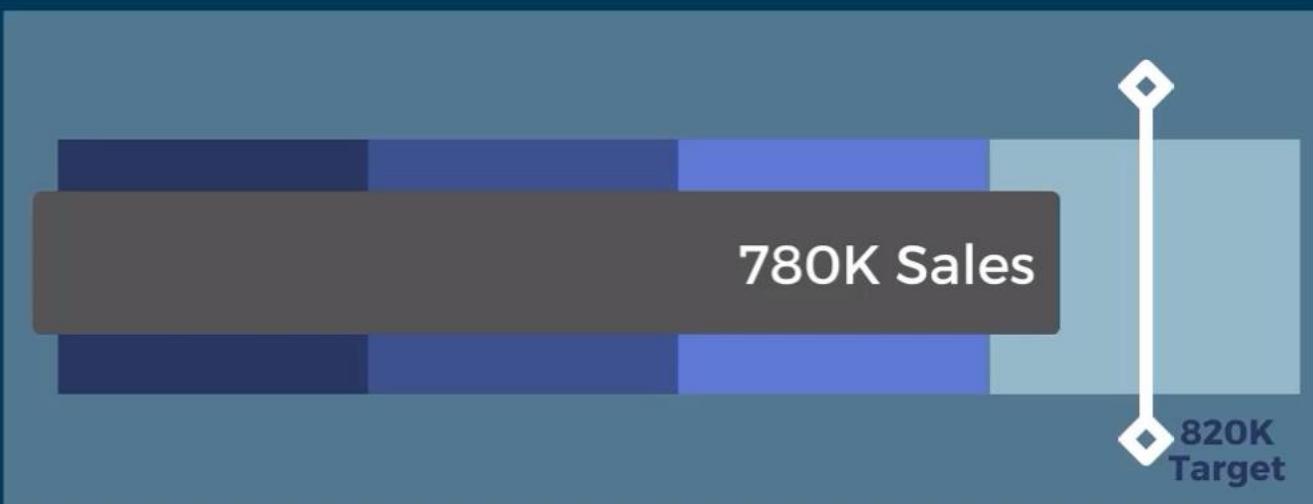


Tableau Public - 2.3B

File Data Worksheet Dashboard Story Analysis Map Format Window Help

Show Me

Data Analytics < Pages Columns SUM(Sales)

data (Sales quota) Rows Section F

Search P Y

Tables

- # Id
- Abc Section
- Abc Measure Names
- # Quota
- # Sales
- # data (Count)
- # Measure Values

Marks Automatic

Color Size Label

Color Edit Colors... Opacity 100% Effects Border: Automatic Halo:

2-3 Bullet Graph

Section F

Sports  
Outdoors  
Music  
Kids  
lectronics  
Games  
Grocery  
Jewelry  
utomotive  
Health  
Garden  
Books  
Shoes

0K 50K 55K 60K 65K 70K 75K

38,137 73,883

Edit Colors [Sales]

Palette: Automatic

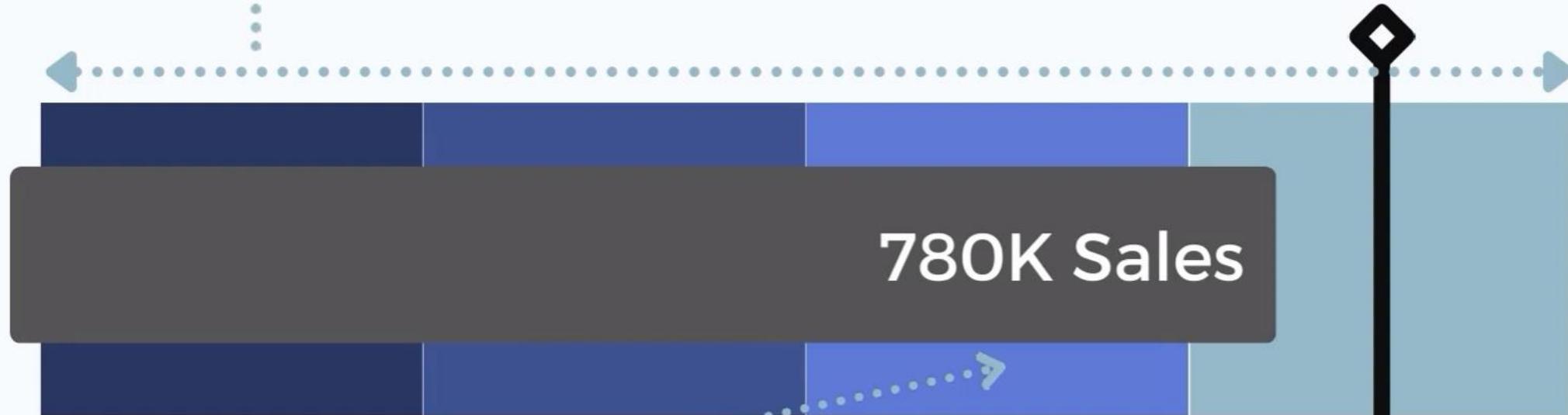
- Blue
- Orange
- Green
- Red
- Purple
- Brown
- Gray
- Gray Warm
- Blue-Teal
- Orange-Gold
- Green-Gold
- Red-Gold
- Orange-Blue Diverging
- Red-Green Diverging
- Green-Blue Diverging
- Red-Blue Diverging
- Red-Black Diverging
- Gold-Purple Diverging
- Red-Green-Gold Diverging
- Sunrise-Sunset Diverging
- Orange-Blue-White Diverging
- Red-Green-White Diverging
- Green-Blue-White Diverging
- Red-Blue-White Diverging
- Red-Black-White Diverging
- Blue Light
- Orange Light
- Orange-Blue Light Diverging
- Blue-Green Sequential

Data Source 2-3 Bullet Graph

22 marks 22 rows by 1 column SUM(Sales): 1,245,817

Leah Mae Bu...

## Reference Bar



Measure

820K  
Target

Reference Line

# Guidelines for BULLET GRAPHS



Make sure that the reference line is clear and in contrasting color compared to the bar.



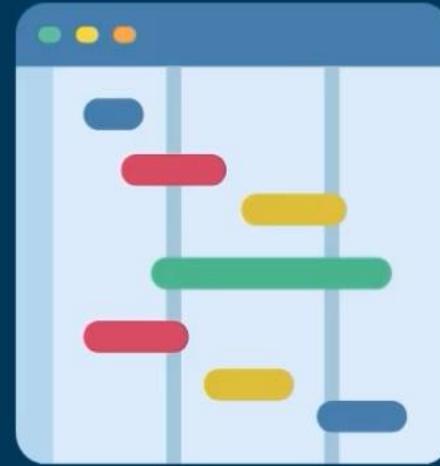
Add labels if the exact value of either the measure or reference value is needed by the users.



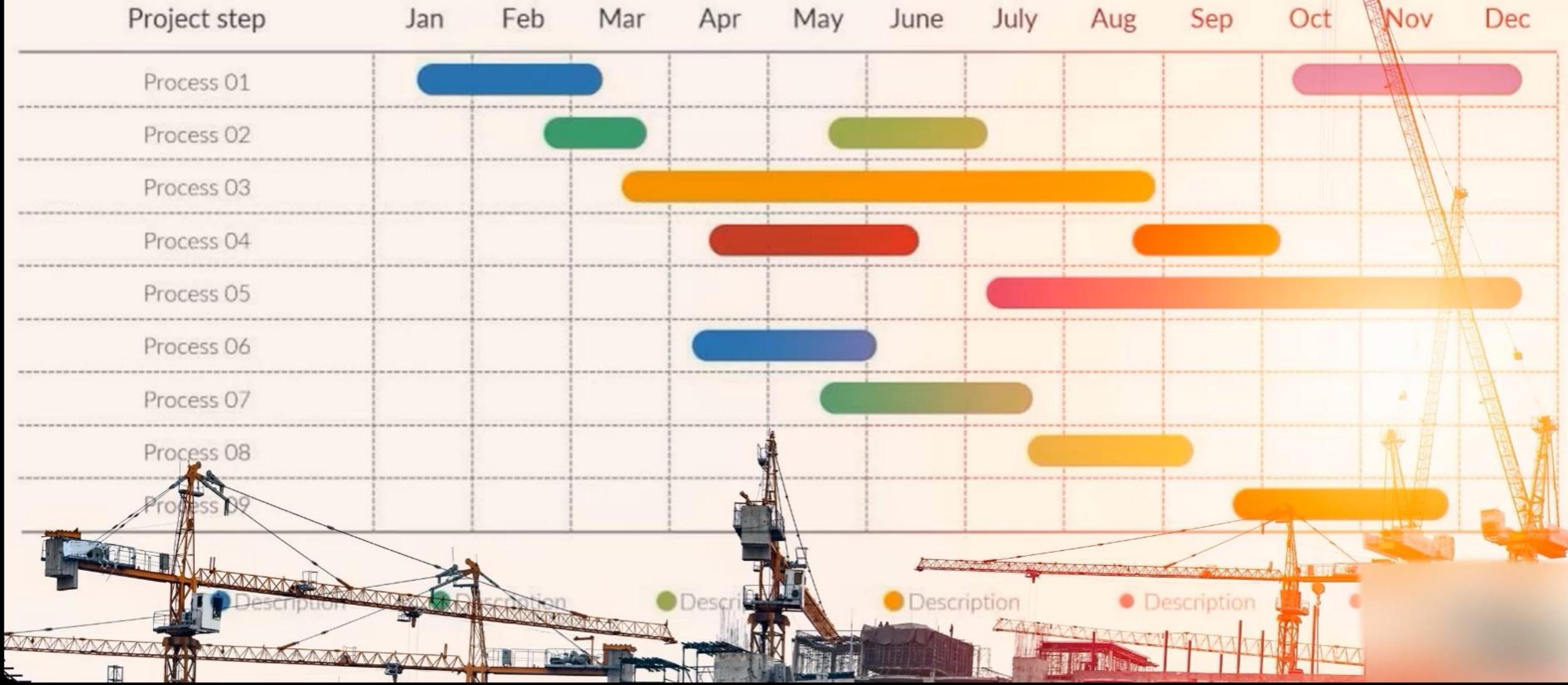
Add indicators on the label or caption. Some metrics can be considered good if its low ( such as errors or complaints).

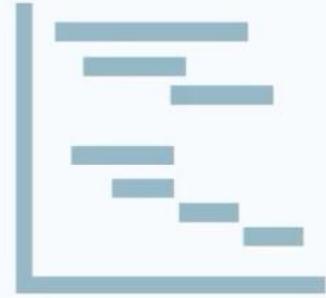
# Gantt Chart

- Well-known visualization for Project Management.
- Great for illustrating the duration of a task or operation.



# Project Schedule



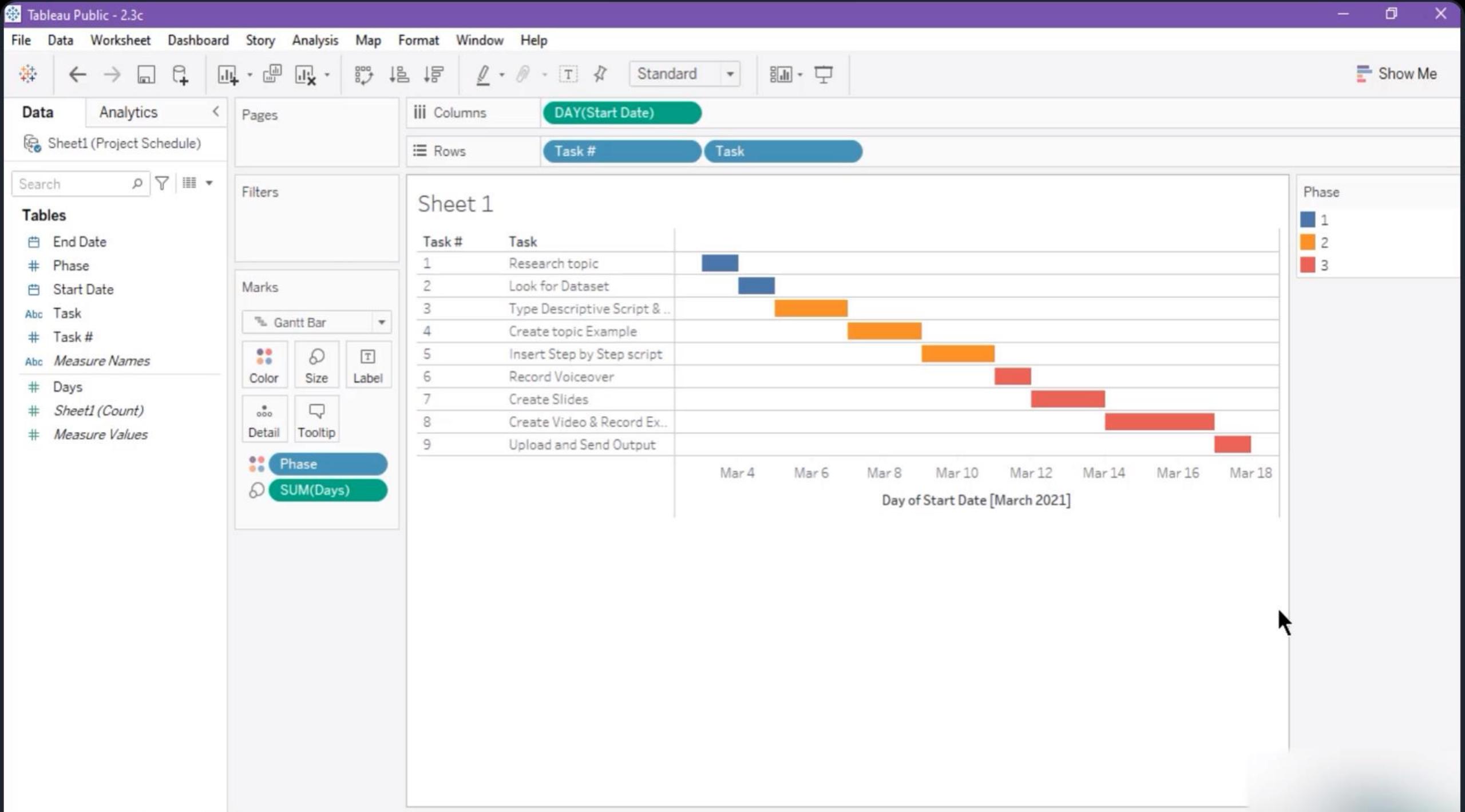


## Gantt Bar

**Gantt Bar is the Tableau  
Mark Type for Gantt Charts.**

Gantt Chart needs the following fields:

- Task / Project Name
- Start Date
- End Date (Duration if not available)



# Best Practices for GANTT CHARTS

- ✓ Make the start and end date clear for each task. You can adjust the opacity of the axis lines in the properties of the view to make each date distinct.
- ✓ Do not be afraid to be granular.
- ✓ Use specific shades for different phases or sprints in the timeline.

# CREATING A DASHBOARD



Users  
242  
▼ -4.5% last week  
New users: 55  
▲ +1.8% last week  
Page views  
908  
▼ -2.3% last week

Visitors countries



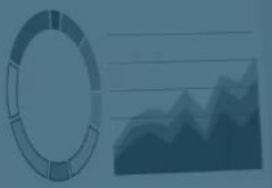
Traffic origin



Sales



\$23K

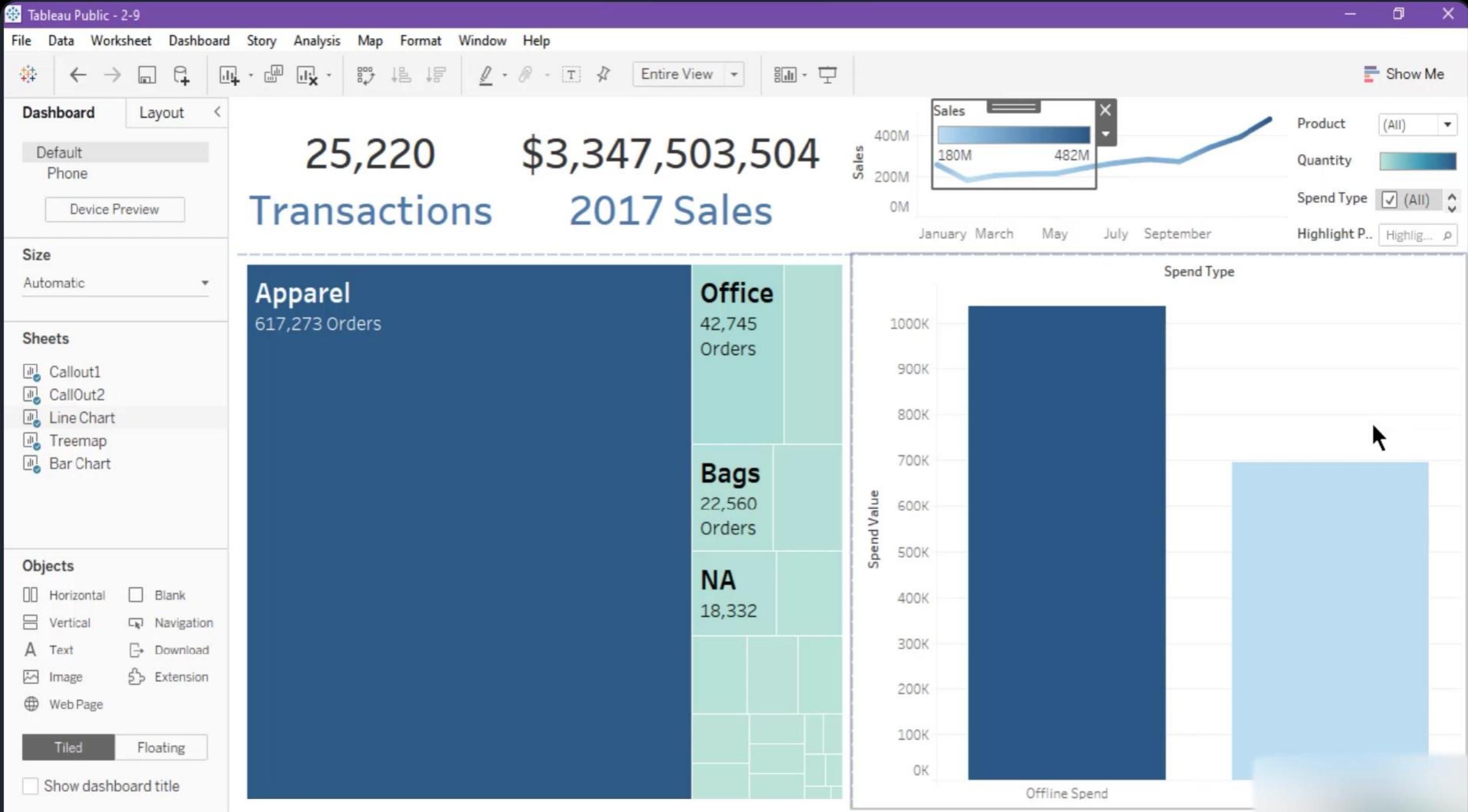


Visitors devices



- Using dashboards, users can compare a variety of data simultaneously without having to change tabs or views.
- It is interactive & can provide more insight by comparing different charts, and are updated with the latest data from the data source.
- Provides more of an “executive summary” view.

# Dashboard



# **Best Practices**

## In designing DASHBOARDS

- ✓ Place the most important views, callouts, and filters on the top or top left of the Dashboard.
- ✓ Try to limit the charts/views to 5 to 6 per dashboard.
- ✓ Avoid using multiple color schemas in 1 dashboard.
- ✓ Add interactivity by using filters and highlighters

# USING AN EXPRESSION IN TABLEAU

Pages

iii Columns

SUM(Revenue)

Rows

Filters

Marks

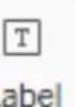
Automatic



Color



Size



Label



Detail



Tooltip

SUM(Avg. Pric..)

SUM(Avg. Pric..)

3-1 Aggregates

Accessories

And

Apparel

Backpacks

E

Bottoms

Drinkware

Gift Cards

17,707

Google

1,727

Filter...

Show Filter

Format...

Show Header

Include in Tooltip

Dimension

Attribute

Measure (Sum)

Discrete

Continuous

Edit in Shelf

Add Table Calculation...

Quick Table Calculation

Remove

Sum

Average

Median

Count

Count (Distinct)

Minimum

Maximum

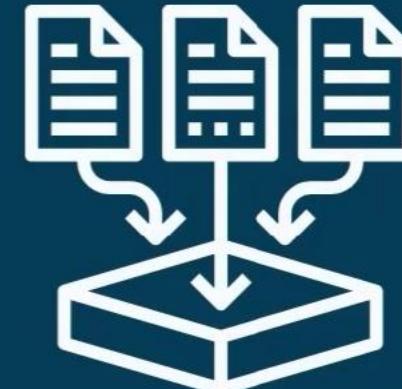
Percentile

Std. Dev

Std. Dev (Pop.)

Variance

# Aggregation



The process of forming individual data into a cluster or group based on a specific measurement.

CARLA  
LORY  
KAMIL  
REY  
ANNA  
SUIKA  
KINIMOTO  
JUN  
ANDRE  
PHILIP



Aggregate  
(COUNT)

10  
CUSTOMERS

Pages

iii Columns

SUM(Revenue)

Rows

Filters

Marks

Automatic



Color



Size



Label



Detail



Tooltip

SUM(Avg. Pric..)

SUM(Avg. Pric..)

## 3-1 Aggrega

Accesso

And

App

Backpa

E

Bot

Drinkw

Gift Cards

17,707

Google

1,727

Filter...

Show Filter

Format...

Show Header

Include in Tooltip

Dimension

Attribute

Measure (Sum)

Discrete

Continuous

Edit in Shelf

Add Table Calculation...

Quick Table Calculation

Remove

Sum

Average

Median

Count

Count (Distinct)

Minimum

Maximum

Percentile

Std. Dev

Std. Dev (Pop.)

Variance

Pages

iii Columns

SUM(Revenue)

Rows

Product Category ..

Filters

Marks

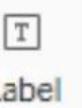
Automatic



Color



Size



Label



Detail



Tooltip

SUM(Avg. Price)

SUM(Avg. Price)

## 3-1 Aggre

Accesso

And

App

Backpa

E

Bot

Drinkw

Gift Cards

17,707

Google

1,727

Filter...

Show Filter

Show Highlighter

Sort...

Format...

Show Header

Include in Tooltip

Edit Aliases...

Dimension

Attribute

Measure

Edit in Shelf

Remove

Minimum

Maximum

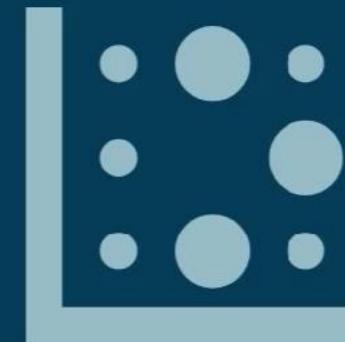
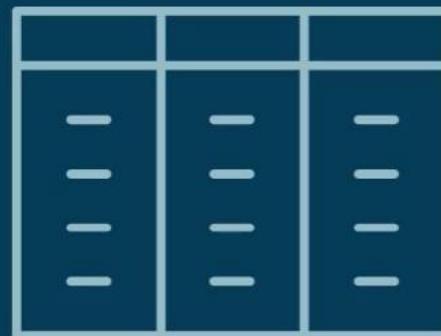
Count

Count (Distinct)

# Important Things to Consider

1

Structure of the outcome.



# Important Things to Consider

②

## The Method of Aggregation.

- Count
- Minimum
- Maximum
- Average
- Count Distinct
- Median
- Variance
- Standard Deviation



# Text

Text or String data types has the default aggregation of:

- Minimum
- Maximum
- Count
- Count Distinct



# Minimum

With strings, **MIN** finds the value that is lowest in the sort sequence. It returns Null if either argument is Null.



## Data

## Analytics

## Pages

## Columns

## SUM(Revenue)

## Rows

## Product Category ..

## Filters

## Tables

- Date
- Product
- Product Category (E...)
- Product SKU (Onlin...

- Avg. Price
- Delivery
- Quantity (Online.csv)
- Revenue
- Tax
- Transaction ID (Cou...
- Online.csv (Count)

- Retail.csv
- Invoice Date
- StockCode (Retail.c...
- Invoice No
- Quantity
- Retail.csv (Count)

- Measure Names
- Count Product
- Row ID
- Sales
- Measure Values

03:14

## 3-1 Aggre

## Accesso

## And

## App

## Backpac

## Bot

## Drinkw

## Gift Cards

## Google

## Headgear

## Housewares

17,707

1,727

12,243

251

## Revenue

- Filter...
- Show Filter
- Show Highlighter
- Sort...
- Format...
- Show Header
- Include in Tooltip
- Edit Aliases...
- Dimension
- Attribute
- Measure
  - Minimum
  - Maximum
  - Count
  - Count (Distinct)
- Edit in Shelf
- Remove



Data

Analytics

Pages

Columns

SUM(Revenue)

Marketing\_Spend

Retail+

Search

## Tables

Date

Product

Product Category (E...)

Product SKU (Onlin...)

# Avg. Price

# Delivery

# Quantity (Online.csv)

# Revenue

# Tax

Transaction ID (Cou...)

# Online.csv (Count)

Filters

## 3-1 Aggregations

Accessories

2,787,544

## Revenue

Marks

Automatic

Color

Size

Label

Detail

Tooltip

SUM(Avg. Pric..)

SUM(Avg. Pric..)

## Retail.csv

Invoice Date

# StockCode (Retail.c...)

# Invoice No

# Quantity

# Retail.csv (Count)

## Abc Measure Names

=# Count Product

=# Row ID

=# Sales

# Measure Values

Data Source

Retail Dash

Example1

Callout

Table

Dashboard example

Sheet 9





# Maximum

With strings, **MAX** finds the value that is highest in the sort sequence defined by the database for that column. It returns Null if either argument is Null.

Tableau Public - Retail2017Dashboard

File Data Worksheet Dashboard Story Analysis Map Format Window Help

Show Me

Data Analytics < Pages Columns SUM(Revenue)

Marketing\_Spend Retail+ Rows MIN(Product Cate.. ▾

Search P Y Tables

Date Product Product Category (E... Product SKU (Onlin... Avg. Price Delivery Quantity (Online.csv) Revenue Tax Transaction ID (Cou... Online.csv (Count)

Retail.csv

Invoice Date StockCode (Retail.c... Invoice No Quantity Retail.csv (Count)

Measure Names Count Product Row ID Sales Measure Values

3-1 Aggregates Accessories Revenue

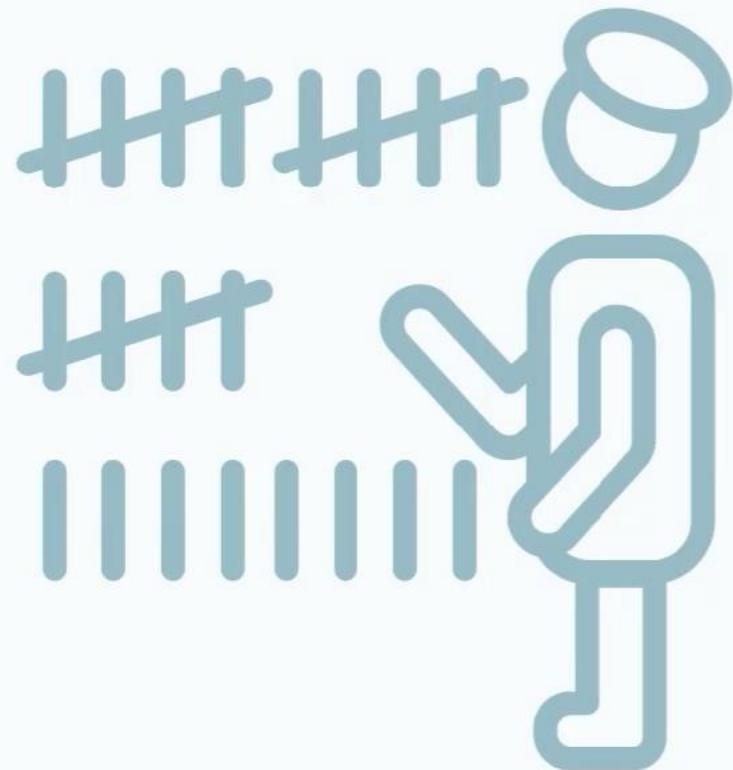
Marks Automatic Color Size Label Detail Tooltip SUM(Avg. Price) SUM(Avg. Price)

Filter... Show Filter Show Highlighter Sort... Format... Show Header Include in Tooltip Dimension Attribute Measure (Minimum) Minimum Maximum Edit in Shelf Count Ignore in Table Calculations Remove

2,787,544

Data Source Retail Dash Example1 Callout Table Dashboard example Sheet 9 + + +

1 mark 1 row by 1 column SUM(Revenue): 14,998.592 Leah Mae Bu...



# Count

Count is a unique method compared to maximum and minimum because it converts “text” into “numbers”. **CNT** returns the number of items in a group. Null values are not counted.



# Count (Distinct)

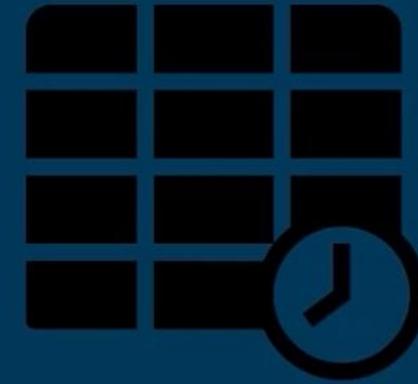
**CNTD** returns the number of distinct items in a group. Null values are not counted. This means that *unique* values are counted, and not just their instances.



CALCULATED  
FIELDS



LEVEL  
OF DETAIL



QUICK TABLE  
CALCULATION

OTHER FUNCTIONS IN TABLEAU

# Calculated Field

- ✓ Allows you to create new data from the ones that are already available.
- Saved to your data source in Tableau, and can be used to create more robust visualizations.
- Can be used for segmenting data, converting data types, aggregation, filtering, and calculating percentage or ratios.



# Types of Tableau Calculation



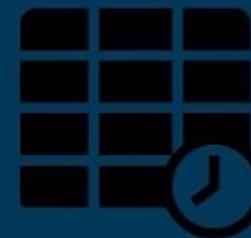
## BASIC CALCULATIONS

Allow you to transform values or members at the data source level or aggregated.



## LEVEL OF DETAIL (LOD) EXPRESSIONS

Give you even more control on the level of granularity you want to compute.



## TABLE CALCULATIONS

Allow you to transform values at the level of detail of the visualization only.

Tableau Public - Retail2017Dashboard

File Data Worksheet Dashboard Story Analysis Map Format Window Help

Show Me

Data Analytics < Pages Columns Standard

Marketing\_Spend Retail+ Search

Tables

KEY\_SKU.csv

- Product SKU
- Stock Code
- KEY\_SKU.csv (Count)

Online.csv

- Date
- Product
- Product
- Product
- Avg. Price
- Delivery
- Quantity
- Revenue
- Tax
- Transaction
- Online.

([Avg. Price]\*[Quantity]) + [Tax] + [Delivery]

Retail.csv

- Invoice
- StockC
- Invoice No
- Quantity
- Retail.csv (Count)

Calculated field example

Transaction.. Product

16679	Nest® Learning Thermostat 3rd Gen-USA - Stainless S..	Abc
16680	Nest® Learning Thermostat 3rd Gen-USA - Stainless S..	Abc
16681	Google Laptop and Cell Phone Stickers	Abc
16682	Badge Holder	Abc
	Enclosed Google Home Mini	Abc

PEMDAS (Parentheses, Exponents, Multiplication, Division, Addition, and subtraction)

The calculation is valid.

Apply On Desribe...

Transaction ID Product

All

coun X

COUNT

COUNTD

RUNNING\_COUNT

WINDOW\_COUNT

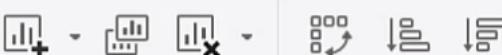
Avg. Price

Data type: Float

16687	Ballpoint LED Light Pen	Abc
	Color Changing Grip Pen	Abc
	Colored Pencil Set	Abc

# NUMERIC FUNCTIONS





Data

Analytics

Sheet 1 (Sales quota)

Search



## Tables

Abc Section

Abc Measure Names

# Gap

# Quota

# Reached

# Sales

# Sheet 1 (Count)

# Measure Values

Filters

Measure

Marks

Aut

Color

Detail

Detail

Measure

Value

Reached

Quota

Sales

Gap

Absolute

ABS ([Gap])

The calculation is valid.

Standard



X

Apply

OK

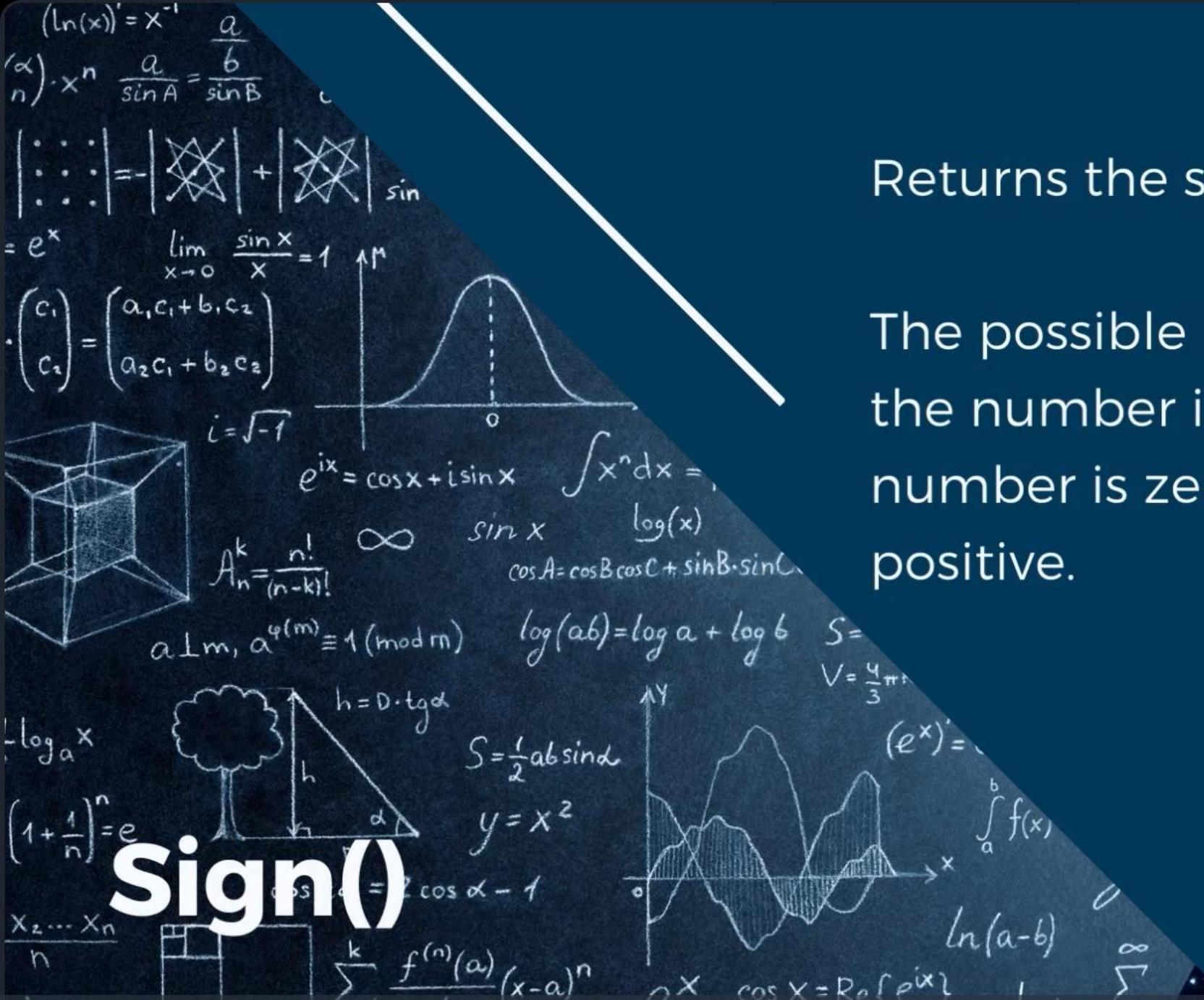
Home	1	30,663.15	58,208.07	27,544.92
Industrial		26,628.71	19,954.21	-6,674.50
Jewelry		31,318.54	20,796.14	-10,522.41
Kids		32,335.58	28,994.69	-3,340.89

ap  
53  
96  
05  
05  
58  
62  
77  
49  
00  
73  
75

Data Source

Sheet 1





Returns the sign of a number.

The possible return values are -1 if the number is negative, 0 if the number is zero, or 1 if the number is positive.

# STRING FUNCTIONS



# String Functions

- Manipulates string data or any field made of text.
- Can be used to format your fields such as cleaning symbols and whitespace.
- Adds new levels of detail to your visualization by enhancing the dimensions used.



## Data Analytics &lt;

Mock Text

mockup book titles

Search

## Tables

Abc Author

Abc Title

Abc Measure Names

# Copies Sold

# RowID

# Sheet1(Count)

# Measure Values

SUM(Copies S..)

Data Source

Example1

Example2



5 marks 5 rows by 1 column SUM(Copies Sold): 17,300

Pages

Columns

SUM(Copies Sold)

Rows

Author

Title

Filters

String Functions Example 1

Upper returns the string with all characters in uppercase.

UPPER([String Field])



SUM(Copies Sold)

1,000



## Data Analytics &lt;

Mock Text  
mockup book titles

Search

## Tables

Abc Description

Abc Domain

Abc Id

=Abc Left

Abc Measure Names

# ID

# MOCK\_DATA (10) (...)

# Measure Values

Marks

Color Size Text

Detail Tooltip

ID

## Pages

## Columns

## Rows

Description

Domain

Left

## String Functions (Getting substrings)

Right returns the right-most number of characters in a string.

**RIGHT([String Field] , number)**

