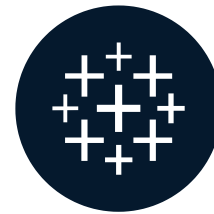


Introduction to Table Calculations

CALCULATIONS IN TABLEAU



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What are Table Calculations?

A **Table Calculation** is a transformation to the values in a visualization based only on what is currently on the canvas.

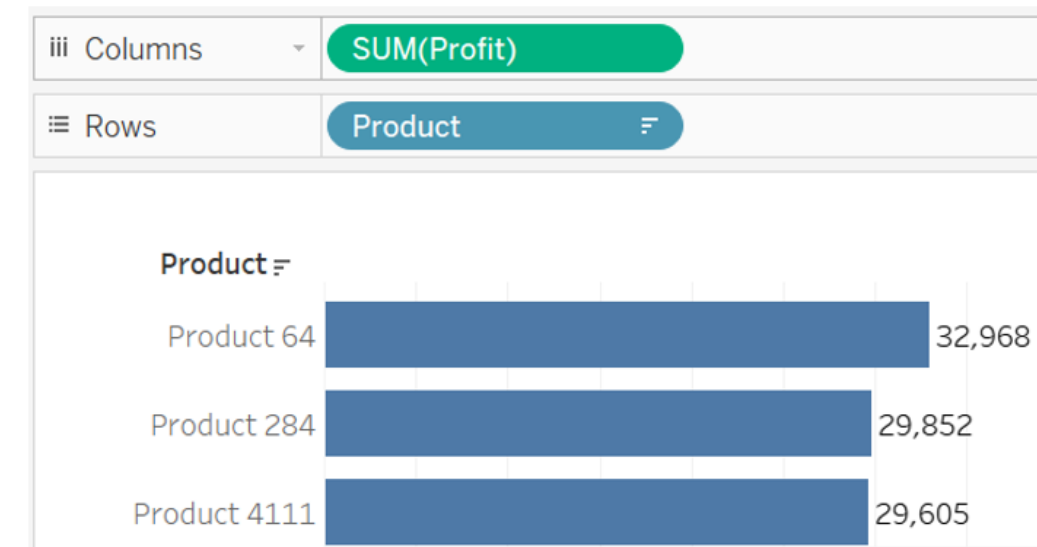
- Disregard measures or dimensions that are filtered out or not present on the canvas
- Computed on the local data in Tableau
- Virtual table of what's in the view versus the underlying data source

Table Calculations vs. data source

Underlying dataset:

Order Id	Product	Seller	Region	Profit
Order 5714	Product 937	Seller 188	Customer 1	76.02
Order 14182	Product 8496	Seller 205	Customer 1	57.68
Order 73072	Product 2547	Seller 31	Customer 1	166.11
Order 88202	Product 505	Seller 10	Customer 1	146.87
Order 57282	Product 7458	Seller 20	Customer 1	125.23
Order 66005	Product 12801	Seller 497	Customer 1	71.53

Visualization:

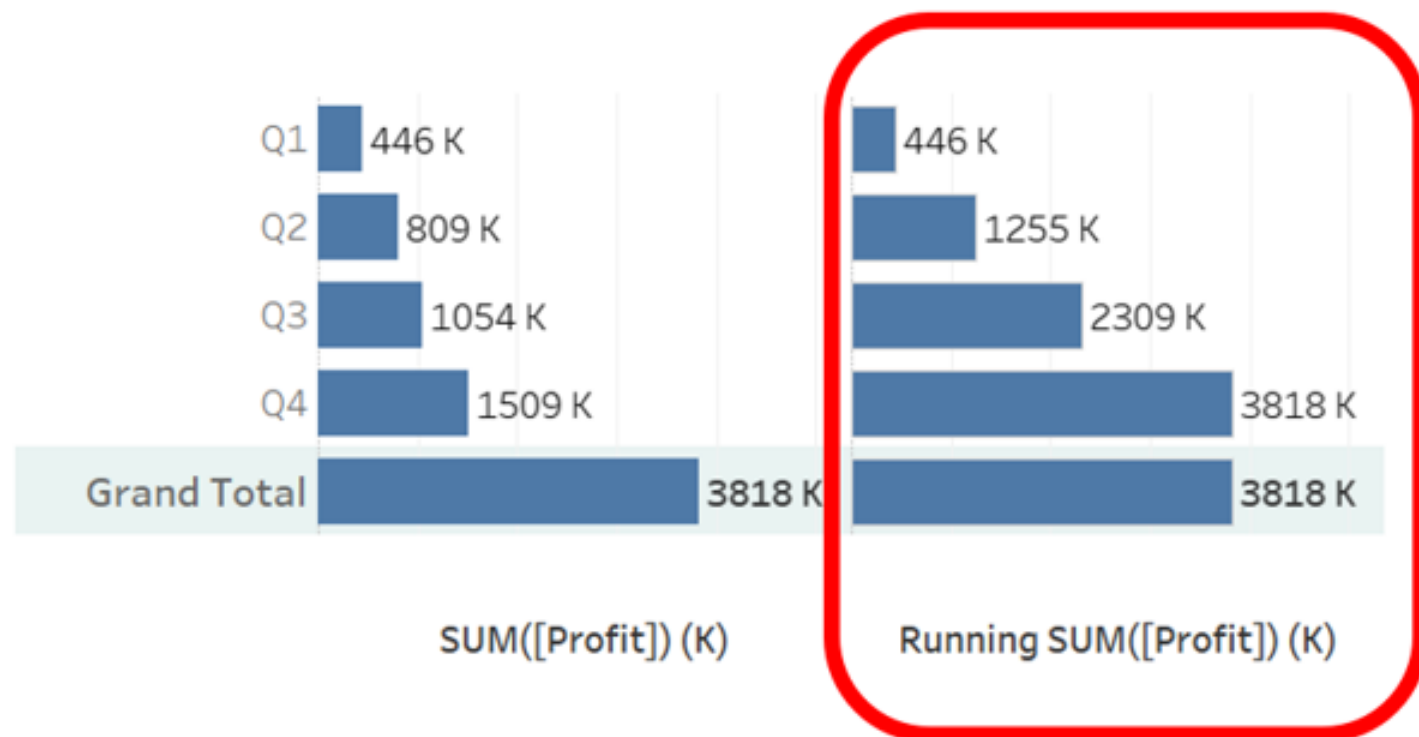


Virtual table:

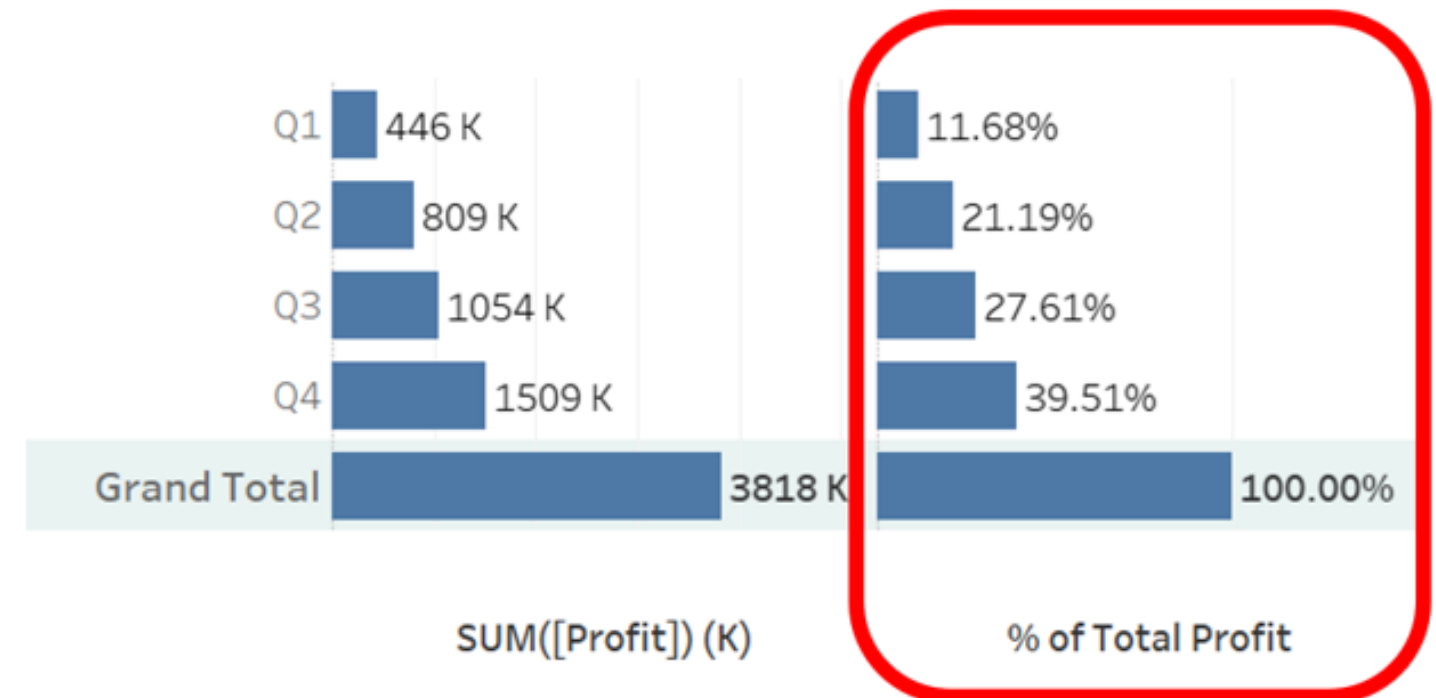
Product	SUM(Profit)
Product 64	32,968
Product 284	29,852
Product 4111	29,605

Examples of Table Calculations

Running (cumulative):

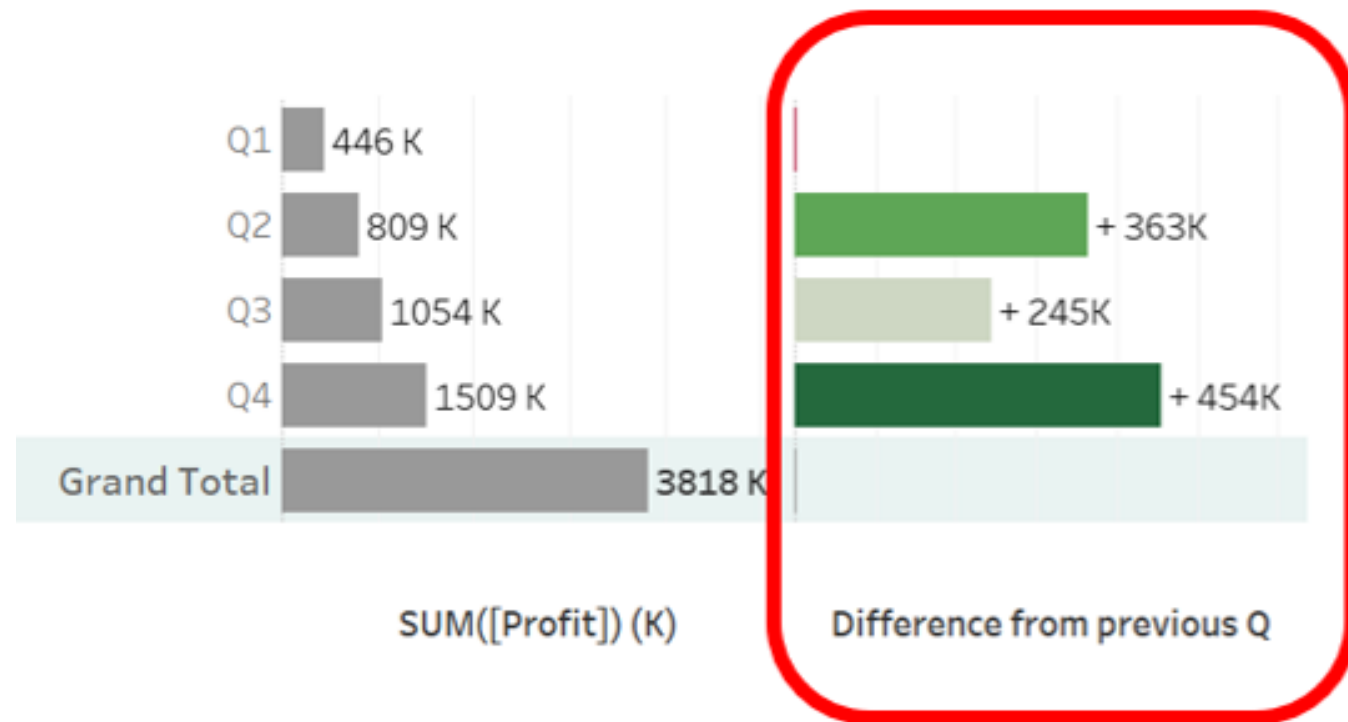


Percentage of total:

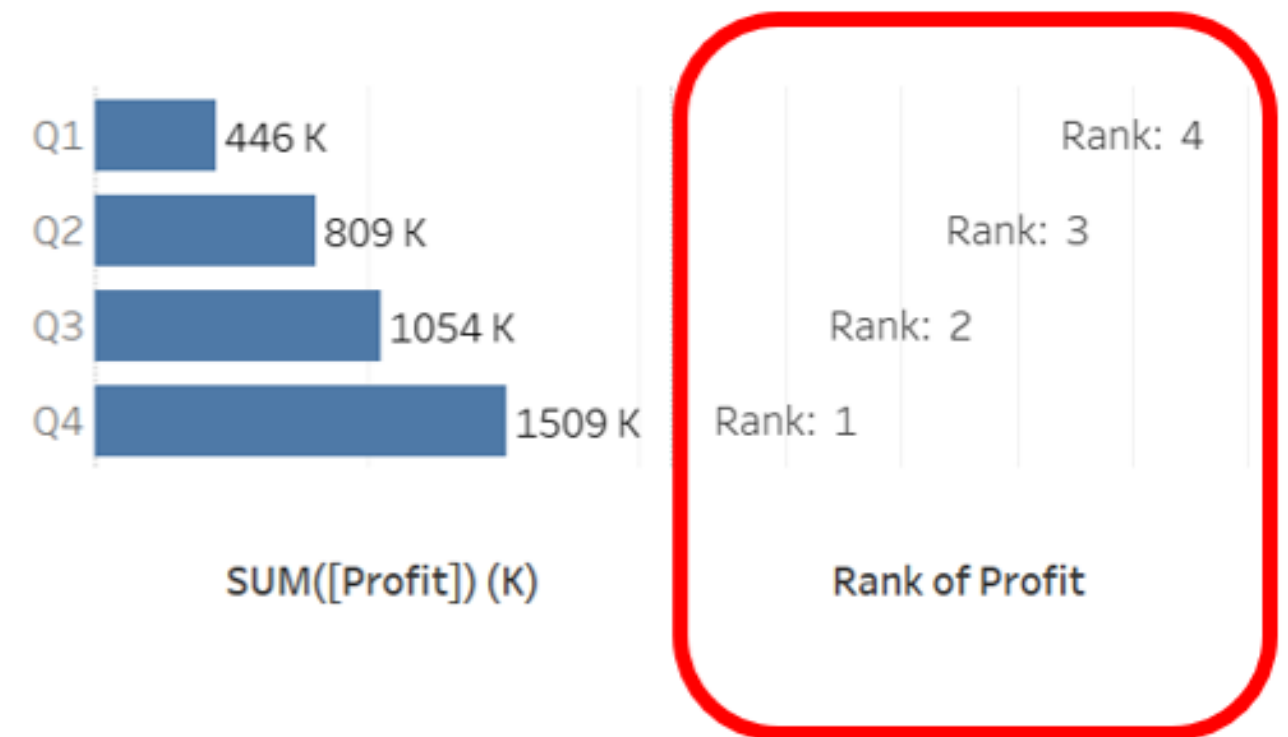


Examples of Table Calculations

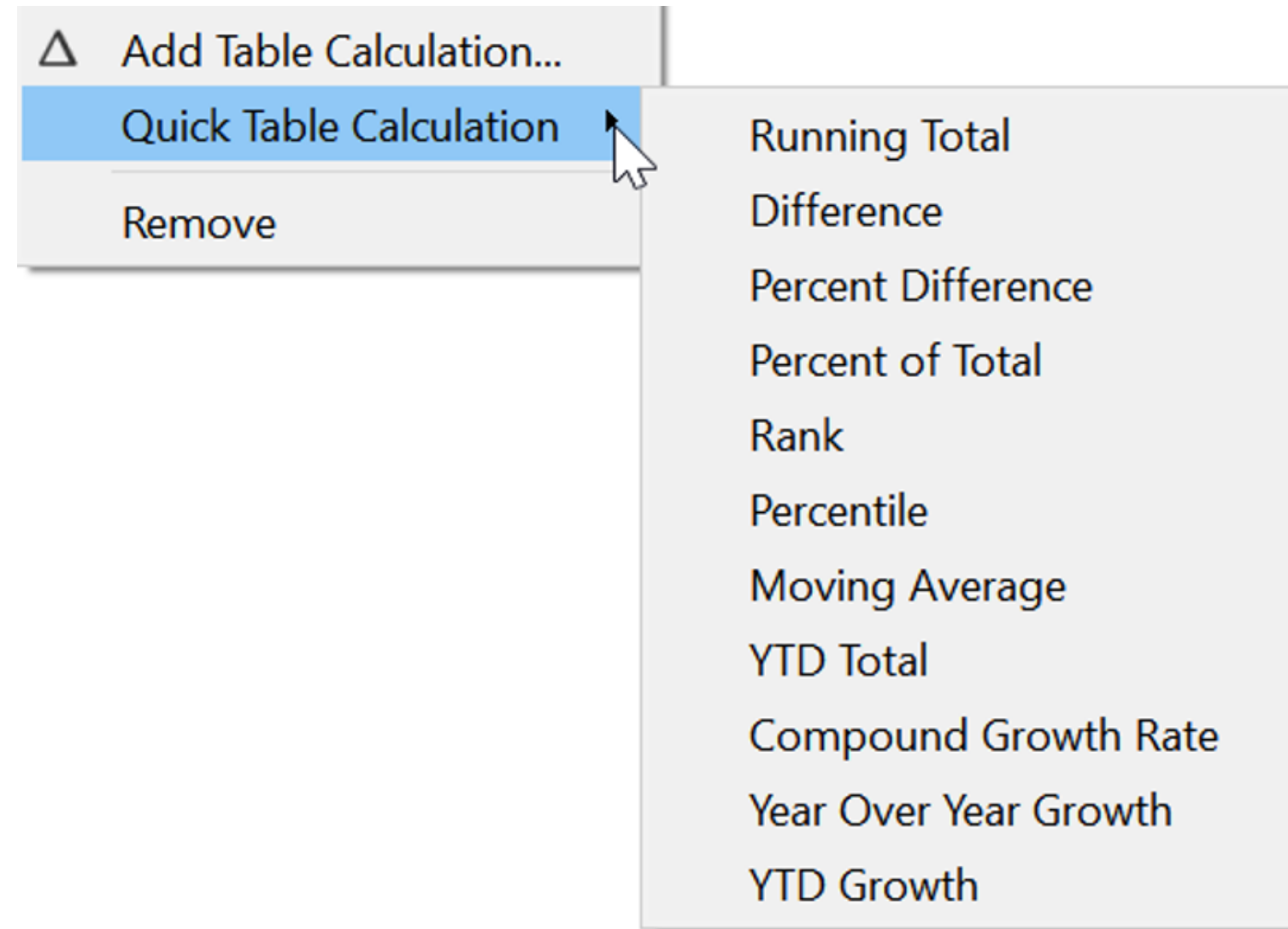
Difference from:



Ranking:



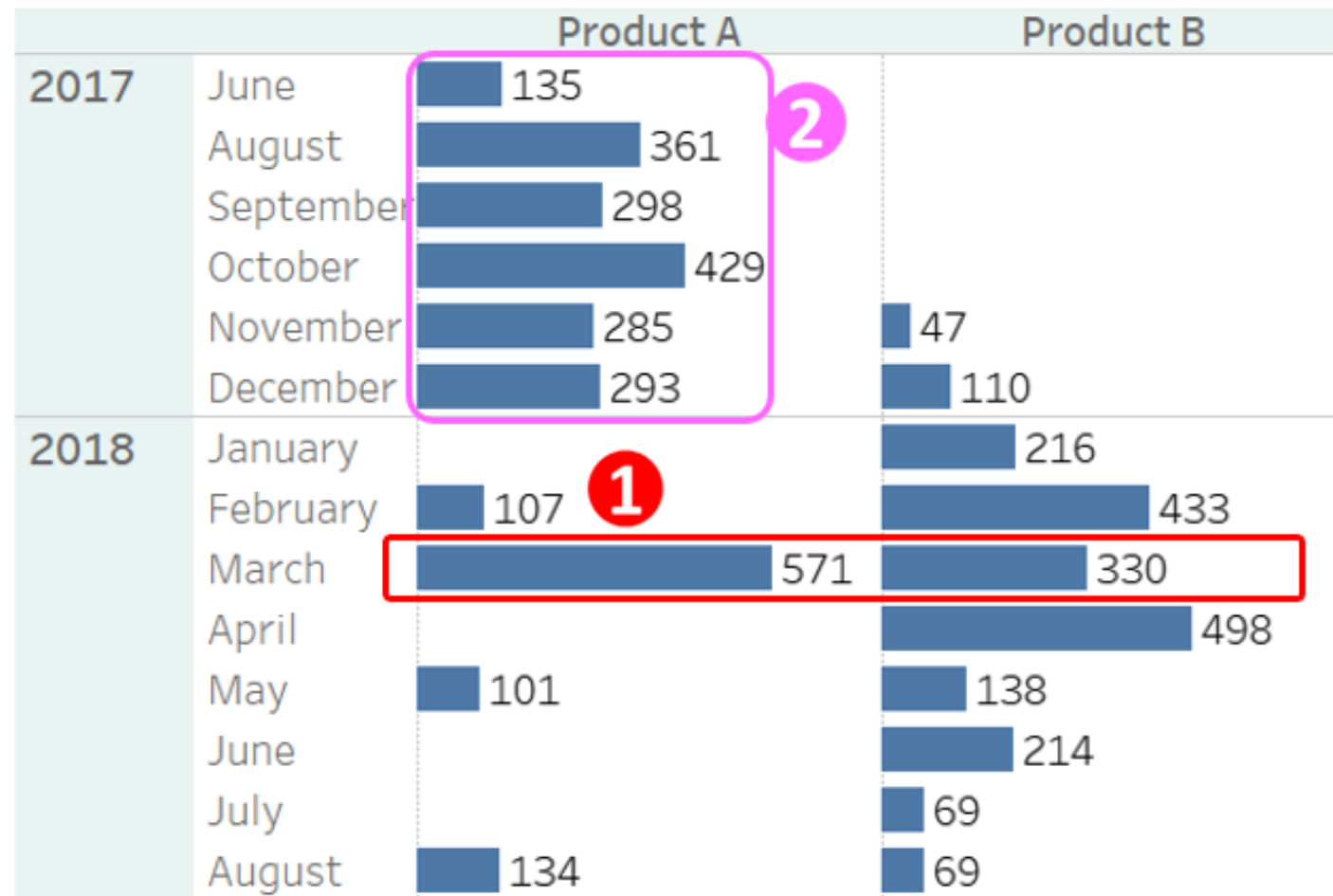
Quick Table Calculations in Tableau



¹ Tableau makes most common calculations easy with built-in Quick Table Calculations.

Multiple dimensions: addressing and partitioning

Profit per product per year



Partitions:

- Dimension(s) defining how to group = the scope
 - *E.g.* 1) by year and month
 - *E.g.* 2) by product and year

Remaining dimensions = addressing fields:

- Determine in which direction the calculation moves:
 - *E.g.* 2) month is an addressing field: ordering it from newest to oldest will change the calculation

Formulas behind Table Calculations

Running functions:

E.g. `RUNNING_SUM()` , `RUNNING_AVG()` ...

Results are computed along Table (down).

```
RUNNING_SUM(sum([Profit]))
```

Profit per product per year

		SUM(Profit)	Running SUM (Overall)
2017	June	135	135
	August	361	496
	September	298	794
	October	429	1,223
	November	285	1,508
	December	293	1,801
2018	February	107	1,908
	March	571	2,480
	May	101	2,580
	August	134	2,714

Window functions:

E.g. `WINDOW_SUM()` , `WINDOW_AVG()` ...

Results are computed along Pane (down)

```
WINDOW_SUM(SUM([Profit]))
```

Profit per product per year

		SUM(Profit)	Window SUM (Year)
2017	June	135	1,801
	August	361	1,801
	September	298	1,801
	October	429	1,801
	November	285	1,801
	December	293	1,801
2018	February	107	913
	March	571	913
	May	101	913
	August	134	913

Tableau's Table Calculations assistant

Profit per product per year

		Product A	Product B
2017	June		0
	July		0
	August	361	0
	September	298	
	October	429	
	November	285	47
	December	293	110
2018	January		216
	February		433
	March	571	330
	April		498
	May	101	138
	June	0	214
	July		69
	August	134	69

Table Calculation

Difference in Running Sum of Profit

Primary Calculation Type

Running Total

Sum

Secondary Calculation Type

Difference From

Compute Using

Table (across)

Table (down)

Table (across then down)

Table (down then across)

Pane (down)

Pane (across then down)

Pane (down then across)

Cell

Specific Dimensions

☒ Product

☒ Month of Order Purchase Ti...

☐ Year of Order Purcha...

At the level

Deepest

Relative to

Previous

Sort order

Specific Dimensions

Restarting every

None

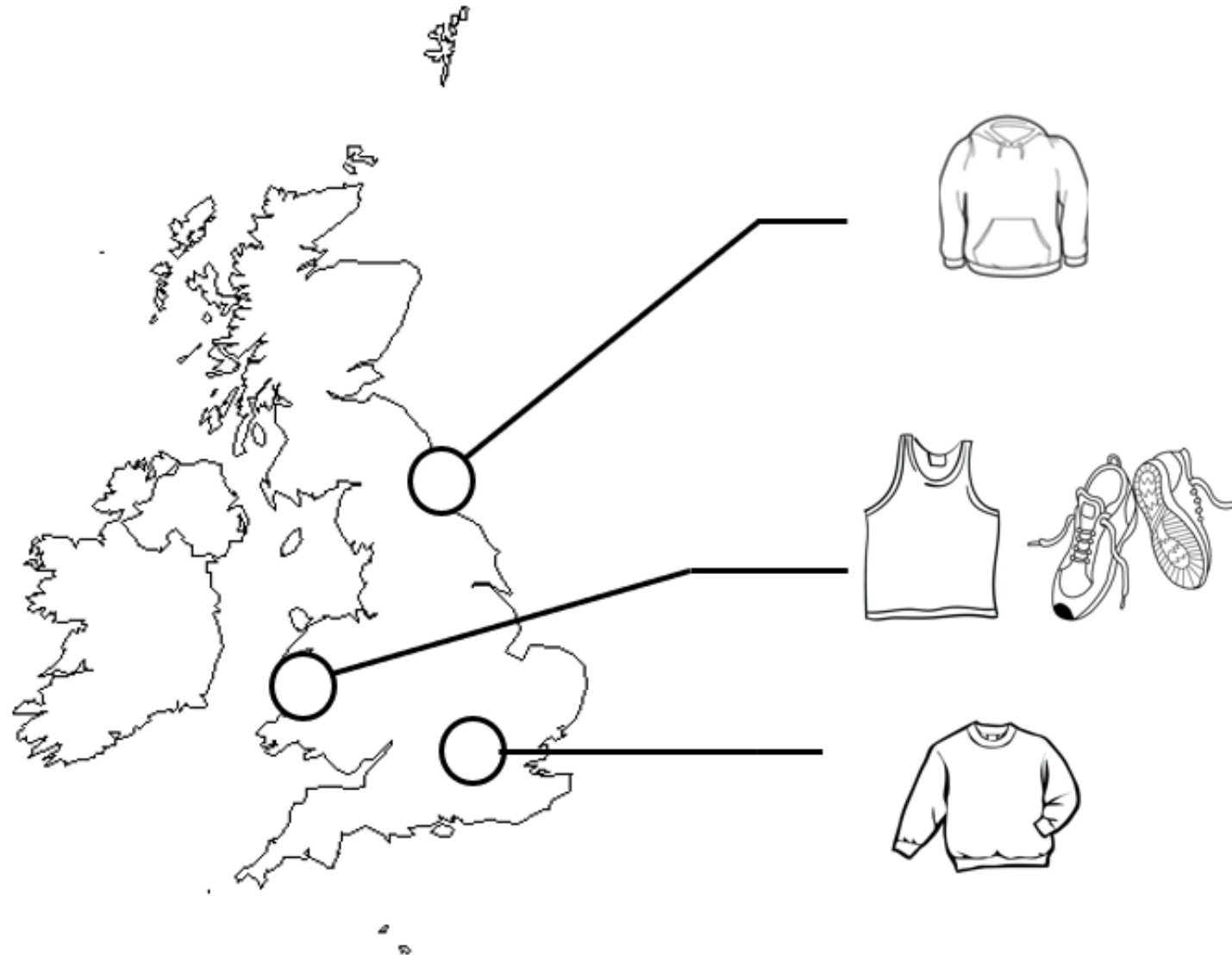
Sort order

Specific D...

☒ Add secondary calculation

☒ Show calculation assistance

The dataset: UK clothing business

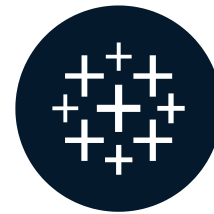


Let's practice!

CALCULATIONS IN TABLEAU

Table Calculations in action

CALCULATIONS IN TABLEAU



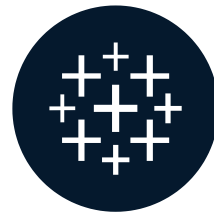
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Let's practice!

CALCULATIONS IN TABLEAU

Introduction to parameters

CALCULATIONS IN TABLEAU



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What are parameters?

Parameter - a variable which can replace a constant value in a calculation, filter or reference line.

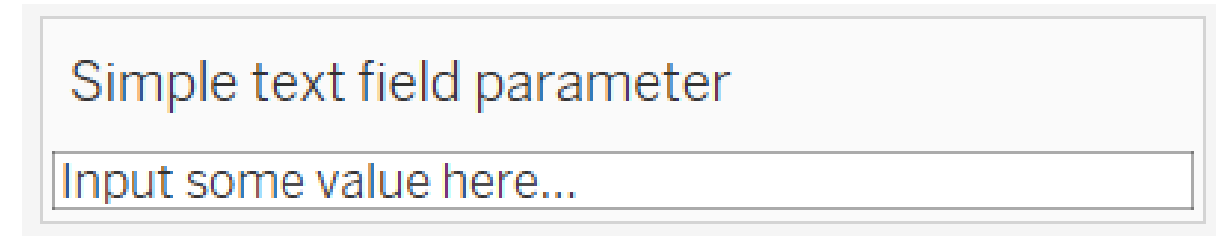
$$2x + 1 = y$$

- Tableau parameters: *number, date, string* ...
- Can be used in calculations
- Inputs can be controlled by the user of your calculation or visualization
- Help keep visualizations neat and organized

Types of parameters in Tableau

Simple text field:

- Frequently used names of products

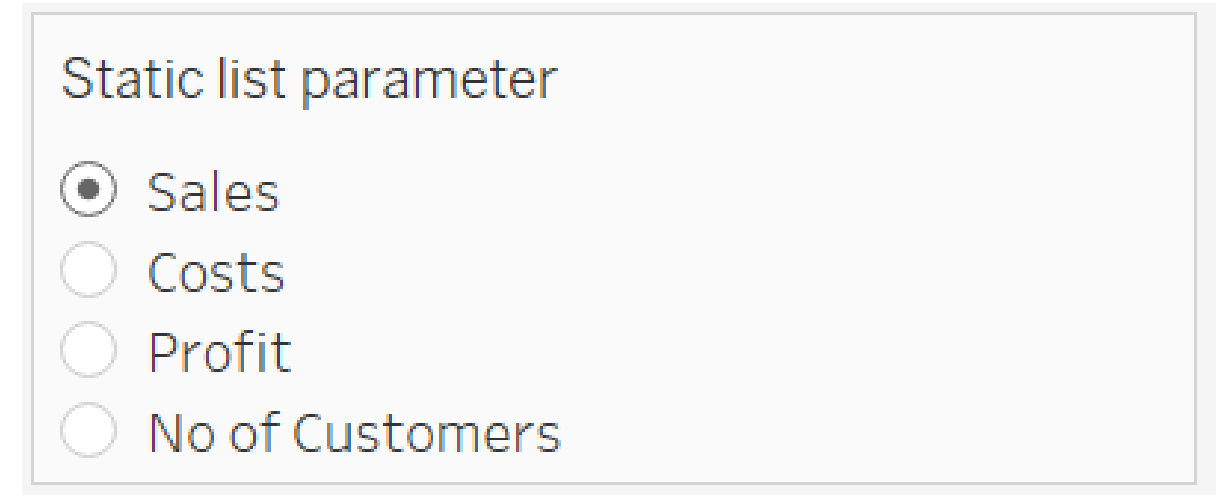


Simple text field parameter

Input some value here...

Static list of values:

- Using pre-defined measures as inputs
- Limit filtering options to a few values



Static list parameter

☒ Sales

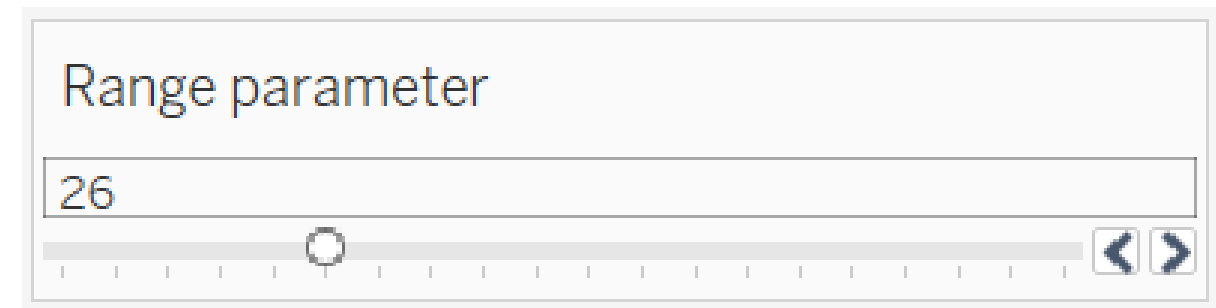
☐ Costs

☐ Profit

☐ No of Customers

Range of values:

- Allowing to determine Top N value
- Applying slider look-and-feel filtering



Range parameter

26

Slider control with left and right arrows

Using parameters in calculations

- Can be used in any calculation
- Marked in purple font:
- Remove the need to add new or manually edit the calculations:

Above the target?

×

IF [Sales] >= [Threshold value] THEN "OK" END

The calculation is valid.

Apply

OK

Dynamic measure

☒ Sales
☐ Costs
☐ Profit

Dynamic calculation

×

SUM
(
CASE [Dynamic measure]
WHEN "Sales" THEN [Sales]
WHEN "Costs" THEN [Cost of sales]
WHEN "Profit" THEN [Profit]
END
)

The calculation is valid.

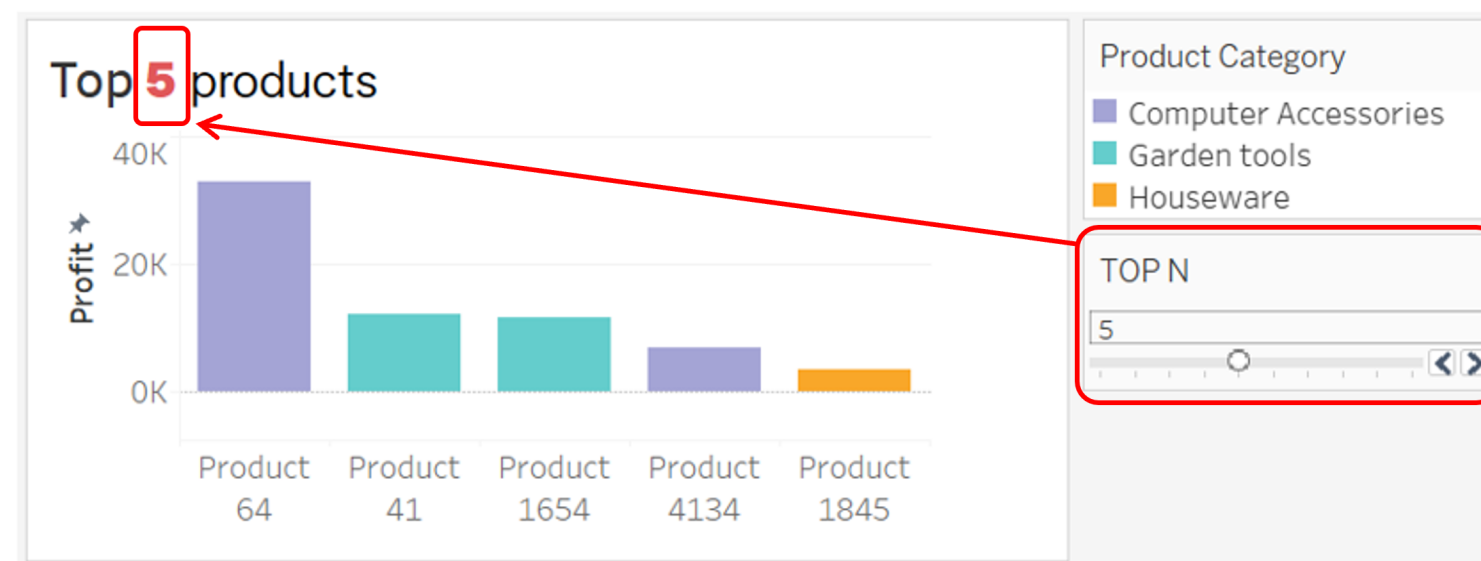
Apply

OK

Other uses of parameters

Parameters in filters and titles

- Top N calculations



Parameters in reference lines

- Dynamic reference lines

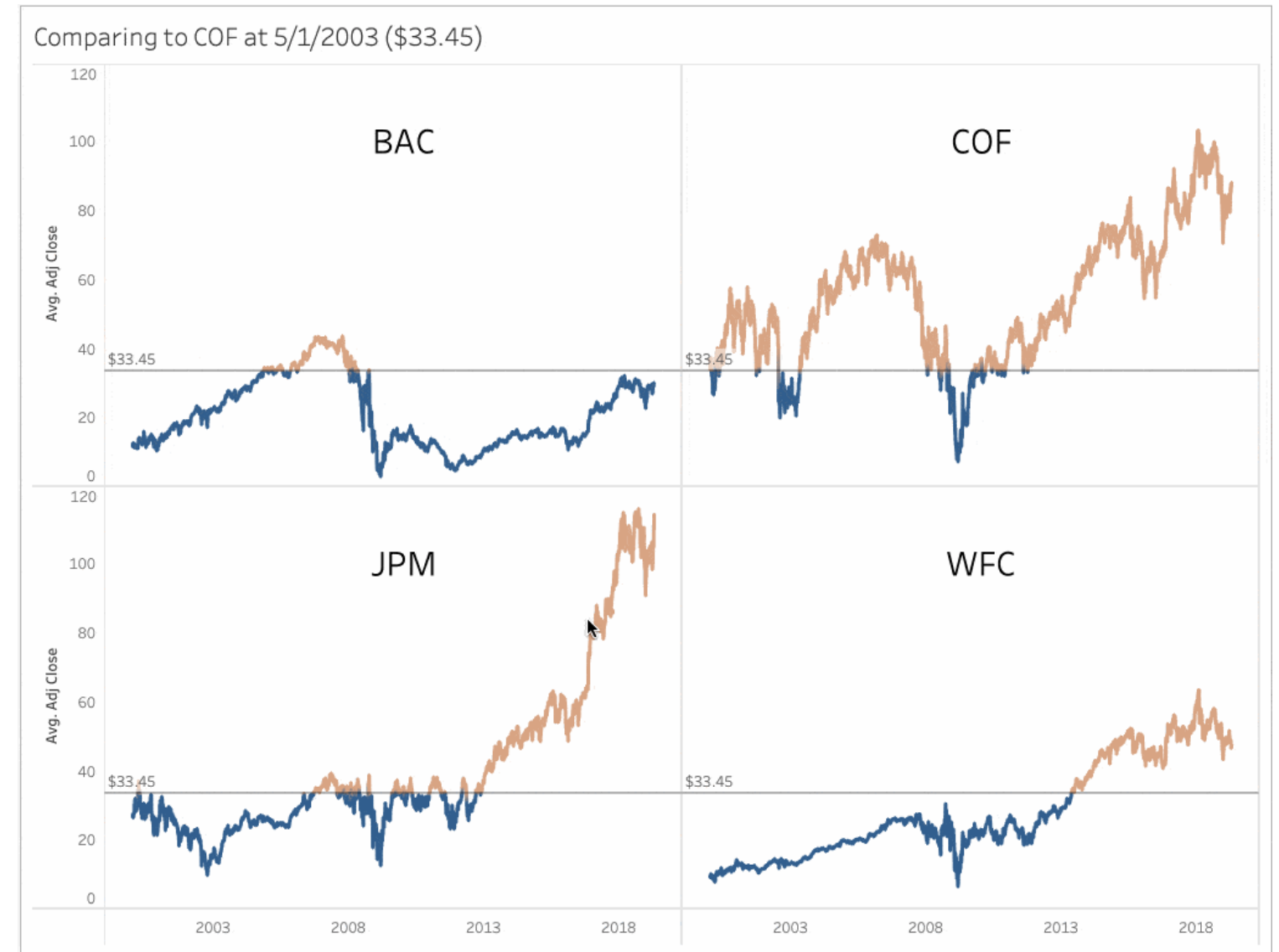


Making it even more interactive - parameter actions

Interactivity : the core of any dashboard or modern report

Parameter actions:

- Allow to **visually** change a parameter's value
 - Based on click-selection
 - Based on hovering-over
- Design customizable input controls
- And much more!



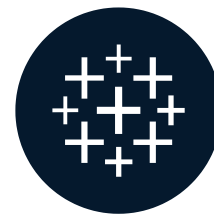
¹ <https://www.tableau.com/about/blog/2019/5/parameter-actions-extend-interactivity>

Let's practice!

CALCULATIONS IN TABLEAU

Table Calculations in action

CALCULATIONS IN TABLEAU



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Let's practice!

CALCULATIONS IN TABLEAU