

## TABLEAU CHEATSHEET

### File Types:

- .twbx:** Data + Viz: Tableau Packaged Workbook: contains data + visualizations together (like a zip file)
- .tds:** No Data, No Viz: Tableau Data Source: stores only data connection details and field customizations, no data or viz
- .tdsx:** Data, No Viz: Tableau Packaged Data Source: data + field customizations, but no visualizations
- .twb:** No Data, Viz: Tableau Workbook: contains visualizations but references external data (does not include data inside)

### **Data sources vs Data connections**

Single data source with multiple connections

Multiple data sources - use blend to put together - doesn't combine the data sources, works for every sheet

### Data Handling

Extract = Snapshot of data (used offline)- copy of data, to save extract file - .hyper file

Live Connection = Real-time connection - data changes on server, refresh tableau to update

### Sorting & Filtering

Sort Types: Manual, Nested, By Measure (default)

Filter Types: Dimension Filters, Measure Filters, Top N Filters, Parameter-based Filters

**Connect Pane:** to connect; **View Data (sheet):** Preview of the sheet

**Canvas:** blank space, where you create your data model

**Blue(Dimension):** cannot compare, like discrete. Creates column headers / Table. Dimension will break view in granular levels.

**Green(Measures):** continuous variable, numerical values. creates Axis. (Sales)

Split Separator: -,;,...

**Pivot:** Combine columns. **Add Data to Pivot:** To add the missing column in the pivot

*Italic meaning automatically generated field.*

With 2 measures, you create a scatterplot. Add Dimension to Details to add details in the scatterplot.

- Group by Tables / Group by Folder.
- Right click -> create folder based on Customer

To save the data: Data -> Export Data to csv

### **Union:**

Canvas has 2 layers: Logical then physical layer. Select Columns->Right click -> Merge Mismatched Field

In physical Layer, you can edit union-> Using Wildcard(for subfolders, etc)->include >Matching Pattern: \*2022->Expand search to subfolders->Expand search to parent folder

**Joins:** On physical layer, you can pick which join

### RELATIONSHIPS & BLENDING

- **Relationship** is different from join. Nothing on the physical layer
- Blue is first connection; orange is the second one.
- Based on the context, Tableau will use the right join in Relationship.
- Single data source, with multiple connection

### **Blending:**

- Data->New Data source (For adding 2 data source)
- **Link icon:** 2 Data sources are linked through this field
- Left Join will be used.
- Same Column name will create linkage
- Doesn't combine data sources.

### **Group: (Paper Clip)**

New Field will be generated

- Field->Right Click->create->Group (Can find members as well)
- Another way on top menu
- Right click on view-> Select Paper clip (using marks in the view, will not change the visualization)

### **Set: (2 circles)**

- Field name->Right Click->create->set (by general / condition / Top)
- By default, it has 2 categories - in and out
- Can see set: Right click->show set
- Show members in set to see all the members inside set

### **SORTING & FILTERING**

Sorting can be done by changing the default property which will stick to all views.

Nested Sort: can be changed to field.

**Dimensional Filter:** Can be applied even when not in the view

- General / Wildcard / Condition / Top
- If Filters shelf will have set, means inclusion.
- Apply to worksheet: right click on filter
- More than one worksheet (copy icon on filter)

### **Measure Filter:**

Choose aggregation->Range of values / At Least / At most / Special ->Apply

Note: Date is automatically a hierarchy. Can be dimension, can be a measure.

First is Discrete then later is measure

Traditional time data, change it to continuous (drill down, no drill up option)

### **CHART TYPES**

**Combined axis chart:** More than 2 measures. 2 measures will have 2 axes by default

Combined axis bar chart, combined axis line chart,

**Dual axis chart:** created by right click or dropping to the right side.

**Combo Chart** - one line and one area chart

**Synchronize axis** - To hide click - show header. Then edit axis name.

Ways of comparing 2 measures:

- **Stacked Bar Chart**
- **Side by Side chart**
- **Bar in Bar chart:** Click on Analysis and uncheck automatic mark. Size can be edited by Size (will change size of both). But If individual is needed then measure names, edit size, for each.
- **Bullet Graph:** Add Sales Target to Details

Right click on axis-> add a reference line -> Line -> Per Cell

Right click on axis -> add a reference line -> Distribution -> Values

**ScatterPlot:** Requires 2 measures.

Tableau automatically aggregates all measures, Shows age value to highest level of view, with no dimension. To remove this default feature - Analysis -> uncheck "Aggregate Measures"

Correct way to add Dimension:

Create Hierarchy -> Add to Details -> Drill down as needed

Can add "**Trend Line**" : Right Click add

**Reference Line** can be added from Analytics Pane

**Pages Shelf:** Normally work with time series data

**Totals:** Select and drag, gives you sum of selected values / Analysis -> Totals -> Subtotals ; Analytics Tab -> Drag

### **CHARTS & CALCULATIONS**

- Duplicate as cross tab
- For any measure, color will be gradient
- For any dimension, will be color

**Highlight Table:** With color highlighting, gradients. (Vs heatmap - Only 1 measure can be captured in highlight table)

**HeatMap:** Change shape to square.

Color for Profit, Size of square to capture another measure.

**Pie Chart:** Region to color, Measure (to angle). Only capture 1 measure, using size of slice.

**TreeMap:** Can capture 2-dimensional data. To capture 2 measures, use TreeMap.

### Calculated Field

Create Calculated Field: Arrow / Inside Data Pane / Analysis; = meaning calculated field

#### **First Name:**

SPLIT([Customer Name], ' ', 1)

#### **Last Name:**

SPLIT([Customer Name], ' ', 2) // Comment

#### **Last Name Initial:**

LEFT([Last Name], 1)

#### **Filter by Formula** [Customer Name]:

CONTAINS([Customer Name], 'Tony') -> Click Apply

#### **Customer Name & ID:**

[First Name] + ' ' + [Last Name] + ' ' + [Customer ID]

**For Date:** right click on "Exact Date" and "Discrete", to have proper date and calculate difference.

#### **Days to Ship:**

DATEDIFF('day', [Order Date], [Ship Date])

Right click then discrete. Right Click -> Measure -> AVG (Change in Sort Windows as well)

#### **Due Date:** (Date and Time type)

DATEADD('day', 7, [Order Date]) //(date\_part, interval, date)

Change format by right click

#### **Most Recent Ship Date:**

MAX([Ship Date]) //For particular subcategory, will have AGG

#### **Profit or Loss?:**

IF [Profit] > 0 THEN "Profit"

ELSEIF [Profit] = 0 THEN "Even"

ELSE THEN "Loss"

END

#### **Profit Per Order:**

SUM([Profit]) / COUNTD([Order ID])

#### **Sales Per Customer:**

SUM([Sales]) / COUNTD([Customer Name])

#### **Order Profitable?:**

{FIXED [Order ID]: SUM([Profit])}>0 //calculate profit at order id level

## AGGREGATIONS & PARAMETERS

Default AGG functions: Sum / Average / Median / Count / count(Distinct) / Minimum / Maximum / Percentile / Std Dev / Std Dev(Pop) / Variance / Variance (pop)

Aggregate: Default is Analysis -> Aggregate Measures

**Table Calculation:** Not saved anywhere, totals (row / column / subtotal)

**Percent of Total:** All number changes to percent. Each row adds up to 100%. **Triangle** (table calculation)

Compute using -> Table across(row) / Table down (column) / Table (rows and columns) / Pane across (sub-row) / Pane down (sub column) / Pane (sub pane) / Cell / Specific Dimension (customization)

### Parameters

To give some control to the user. Visualization more interactive.

#### **1. Percentage Change:**

Float / 1% / Current Value: 0.01 / Range: 0.01 till 1

Always show parameter. Create new Calculated Field:

**Adjusted Sales:**

$[Sales] * (1 + [Percentage\ Change])$

Drag Adjusted Sales in the view, for combined axis chart

#### **2. Goal:**

Currency Custom / Min / Max / Step Size / 5000

Edit Reference Line

#### **3. Type Text To Search:**

Data Type - String / current Value: empty

Calculated field -

**Match:** CONTAINS(LOWER([Product Name], LOWER([Type Text To Search]))

*Drag Match to Filter (True)*

Show top 10 customers. (3 measures are there - Sales / Quantity / Profit)

Customer Name (Filter): Top -> Create a new Parameter -> Name: **Top N** ->Current Value:10 / Display Format: 10 / Allowable values: All

Then Show Parameter (just for Sales)

#### **4. Choose a Measure:**

Data Type: String / List : Sales / Quantity / Profit

Calculated field-

**Measure to Use:**

CASE [Choose a Measure]

WHEN 'Sales' THEN [Sales]

WHEN 'Quantity' THEN [Quantity]

WHEN 'Profit' THEN [Profit]

END

Then: Edit Filter -> Field : **Measure to Use**

#### **5. Pick a Dimension:**

Data Type: String / List: Category / Region / Segment

Create calculated field

**Picked Dimension:**

CASE [Pick a Dimension]

WHEN 'Category' THEN [Category]

WHEN 'Region' THEN [Region]

WHEN 'Segment' THEN [Segment]

END

Picked Dimension to color -> Change sheet name

**MAPS**

- Create hierarchy for proper mapping of cities/countries.
- Symbol Map: Can change the size of the measure.
- Field Map: Works at state level and above. Color to Profit, Label to Sales
- Right Click -> Background Layer (to change the style of map)

**DASHBOARDS**

Size: Fixed Size / Automatic / Range

Tiled vs Floating Container: In tiled, there are never any overlapping.

Floating: Position x and y: distance to left / distance to top, more customization but more work / w and h: of the container

Pane: For the values

**To add Filter to Dashboard:** Go to current filter -> Edit Filter -> "All Using this data source" [Cylinder icon will be added]

**Adding new filter:**

Analysis -> Filter -> New Filter

**Actions:**

Hover Action: Move mouse over, view will change

Select Action: Click once

Menu Action: Click twice

Dashboard -> Actions -> Add Action -> Filter Action

Selected Field: State / Province (to update the sheet name as per state)

**Add a webpage:**

Objects -> Web Page -> Copy URL -> Add URL Action / Dashboards: Add Action-Go to URL

Web Page Object:

URL (select California, remove-> insert State / Province)

Go To Sheet -> Menu -> Choose target sheet

*Highlight usually used with Hover. No Video Object can be added*

**Navigation Object:**

Dashboards-> Action -> Filtered Action->Navigate Title -> Menu -> Show all values

Edit Navigation button: right click edit button ->Choose Image

**Annotation:**

Right click->Annotate (Point)

**Visualization in Tooltip:**

Tooltip on the source sheet->edit->insert->Sheet->OK

## Animation:

Format->Animation(Speed of change) Can be done as per view

## Dashboards View:

Default / Desktop / Tablet / Phone (Fit Width is better)

## STORY TELLING

Always start with Filter. Make it to the point. Simple. Start with Big Picture dig deep.

Size: (Fixed / automatic / Range)

**Story Point** - one view. Can only use one sheet / one dashboard

Add Caption / Drag to add text can be done to add extra description

Story Point - you can only use worksheet or one dashboard.

## LOD EXPRESSIONS

Fixed vs include:

**Include** - going to check, the lowest level of details in the view and included level of details (whichever is lower will be picked)

**Exclude**: Lowest level of details in the view, then exclude is sub-cat(given in the formula) is the lowest level of details.

### Sub-Cat Avg Profit:

```
{ FIXED [Sub-Category]: AVG([Profit]) }
```

### Sub-Cat Avg Profit Exclude:

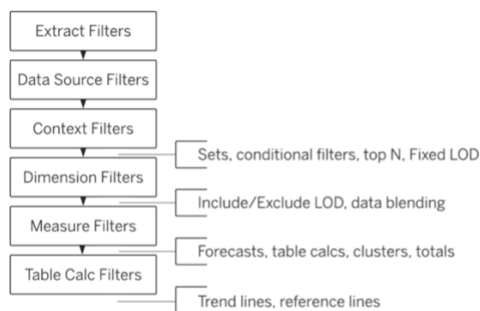
```
{ EXCLUDE [Sub-Category]: AVG([Profit]) }
```

### Sub-Cat Avg Profit Include:

```
{ INCLUDE [Sub-Category]: AVG([Profit]) }
```

*By default: Filter happens first then table calculation. Fixed LOD, happens before dimension filter*

The Tableau order of operations includes the following, from top to bottom.



**Note:** In the order of operations, the [latest date filter](#) is global to the workbook, while context filters apply per worksheet. The latest date is determined just after the workbook opens for first use, after data source filters, but before context filters. At that point the date is set, and the latest date preset is used as a dimension filter.

//Fixed the LOD, even when the filter is on, coz Fixed LOD happens before dimension filter

### Region Sales Percentage:

```
SUM([Sales])/SUM({ FIXED [Category]: SUM([Sales]) })
```

Region(turn black) in Filter, right click-> add to context, will behave same. (Context filter is above Dimension filter)

## Quiz 1

1. **Q:** To connect to data with Tableau Desktop, where in the interface do you first click from?  
**A:** Connect pane
2. **Q:** How can the data interpreter be used to clean Excel data?  
**A:** By making a best guess at where your useful data starts in your Excel sheet
3. **Q:** Which area of the Tableau workspace displays the data source name and its available fields as dimensions and measures?  
**A:** Data pane
4. **Q:** Why would you change a field's data role once you've brought data into Tableau?  
**A:** To make sure the field behaves in the way we expect or to make the field clearer in the context of the analysis
5. **Q:** Where on the Data Source page would you drag a table that you want to add to your visualization?  
**A:** Canvas
6. **Q:** To connect Tableau to a CSV data source what type of connection should you use?  
**A:** Text file
7. **Q:** Which data type do blue fields represent?  
**A:** Discrete
8. **Q:** When you have a large number of fields in the Data pane, it can be helpful to organize dimensions and measures into:  
**A:** Folders
9. **Q:** You work with the same dataset on a regular basis and you make the same customizations each time. What can you do to streamline this process?  
**A:** Save your customizations to a Tableau data source (.tds) file and work from the .tds file in the future.
10. **Q:** In a data set, a field named Color that includes members such as red, green, blue, and orange is most likely:  
**A:** Qualitative
11. **Q:** When Tableau connects to data, fields are assigned into two roles:  
**A:** Dimensions and Measures
12. **Q:** If you use a right join to combine tables, what is the result?  
**A:** A table that contains values from the right table and corresponding matches from the left table
13. **Q:** Which type of join is created when two files are combined by a field that they have in common?  
**A:** An inner join
14. **Q:** Which of the following Tableau file types stores a visualization without source data?  
**A:** Tableau workbook (.twb)
15. **Q:** If you open the Worksheet menu, point to Clear, and then click Sheet, what does Tableau remove from your worksheet's visualization?  
**A:** Everything except the connection to the data source
16. **Q:** What information about your data source does Tableau display when you view the underlying data?  
**A:** The source file, the table structure, and a data sample

17. **Q:** A data extract does not need to be saved (physically created).  
**A:** False
18. **Q:** What is the best description of how Tableau makes a live connection to your data?  
**A:** Tableau maintains a connection to the data source, so data refreshes in the workbook.
19. **Q:** Which of these situations would require you to manually establish the linking field for the blend?  
**A:** When the data sources you want to blend do not have a common dimension with the same name.
20. **Q:** Which method enables you to append rows from similarly-structured tables for your analysis?  
**A:** Union
- 

## Quiz 2

21. **Q:** You are analyzing sales of children's toys. The toy list is very long and has three spellings of Plush: Plushie, Plush, plush. Which of the following can you do to correct this?  
**A:** Create a group from the Data pane.
22. **Q:** What is a set in Tableau?  
**A:** A custom field that defines a subset of data based on specific conditions.
23. **Q:** How can you display the top 5 and bottom 5 sales in the same view?  
**A:** Create the view using a combined set to include all members from the top 5 and bottom 5 sets.
24. **Q:** How do you expand and contract the display of related fields in a hierarchy?  
**A:** Use the [+] and [-] to drill down and up.
25. **Q:** You have created a hierarchy in the Data pane, but some of the fields are in the wrong order. What can you do to reorder the fields?  
**A:** Drag the fields into the proper order in the Data pane.
26. **Q:** Which sorting option is not directly available to choose in the Sort dialog box?  
**A:** Sort by the dimension text length.
27. **Q:** Why would you create a selection filter?  
**A:** To limit the data that appears in your worksheet to chosen values.
28. **Q:** Which value will not match a wildcard filter set to match on anything containing "ap"?  
**A:** Banana
29. **Q:** The QA team in your company has shared a view that shows all the bugs logged against the new features for your next product launch. The bug review by your team only triages bugs logged in the last 30 days. Which date filter is most ideal to quickly see this data?  
**A:** Relative Date
30. **Q:** You wish to investigate the relationships between two quantitative measures in your data. Which chart type would be best suited for this?  
**A:** Scatterplot chart
31. **Q:** In which of the following scenarios would a bar-in-bar chart be the best choice?  
**A:** You want to show two measures against one another simultaneously.



32. **Q:** On Columns or Rows, when expanding a date field that is a continuous date value, how many levels of detail for the field can you include in the view?  
**A:** One: a date value
33. **Q:** What is the Measure Names field?  
**A:** It is a dimension that contains the names of the measures.
34. **Q:** How do you add grand totals to a text table?  
**A:** Click the Analysis menu, point to Totals, and click Show Row Grand Totals or Show Column Grand Totals.
35. **Q:** How do tree maps indicate value?  
**A:** By shades of color
36. **Q:** When might it not be a good idea to create a treemap visualization?  
**A:** Avoid treemaps when your data has many subcategories and the regions are too small to be read easily.
37. **Q:** Column and stacked column charts are best used for what kind of data?  
**A:** Categorical
38. **Q:** How do pie charts display your data?  
**A:** As several parts contributing to a total
39. **Q:** What are line charts best used for in Tableau?  
**A:** To analyze trends of time that data sets reveal
40. **Q:** Which view will Tableau always produce?  
**A:** The view at the lowest level of detail
- 

### Quiz 3

41. **Q:** Which of the following scenarios requires a calculated field?  
**A:** You want to combine two existing fields in your data to create a new field.
42. **Q:** In addition to using autocomplete, how can you bring fields into the calculation editor or into an ad-hoc calculation?  
**A:** Drag them from the view or the Data pane to the calculation.
43. **Q:** After editing a calculation, what action do you take to preview how the edited calculation will affect the data shown in a view before saving the edited calculation?  
**A:** Click the Apply button in the Calculation Editor.
44. **Q:** After you create a calculated field that concatenates the City and State fields, what happens to the original City and State fields?  
**A:** They remain in the Data pane and in the original data source.
45. **Q:** Which of the following calculations adds a colon (:) and a space between the substrings Product Type and Product Name when concatenating the string fields Product Type and Product Name?  
**A:** [Product Type] + ": " + [Product Name]
46. **Q:** If you create a calculated field with the formula  $SUM([Profit]) / SUM([Sales])$ , how will Tableau perform the aggregation for the calculation?

**A:** Tableau will sum the Profit and Sales values separately for the level of detail in the view and then divide the total of Profit by the total of Sales.

47. **Q:** Which built-in table calculation should you use if you want to see sales for three years displayed with each month's sales added to all previous months' sales?

**A:** Running Total

48. **Q:** To create calculations in dialog boxes, which tab do you select in the Filter dialog box?

**A:** The Condition tab

49. **Q:** What must you create in order to allow users to adjust the top n value in the view?

**A:** A parameter

50. **Q:** Use a parameter in a view to:

**A:** Add interactivity and flexibility to a report.

51. **Q:** Which of the following is the best scenario for using parameters to swap dimensions or measures?

**A:** You need to present interactive data exploration options in the view.

52. **Q:** Which of the following represents a valid CASE statement?

**A:**

sql

CopyEdit

CASE [Select Measure]

WHEN 1 THEN SUM([Sales])

WHEN 2 THEN AVG([Sales])

END

53. **Q:** You have a table consisting of two columns, and you convert it to show the percentage of the table. What will add up to 100 percent?

**A:** All the items in the table

54. **Q:** You have a top filter that limits the number of items shown, and this limit is set by a parameter. What happens when you decrease this parameter?

**A:** Fewer top items will show.

55. **Q:** Which of the following is NOT a Quick Table Calculation in Tableau?

**A:** Stochastic Oscillation

56. **Q:** Which of these is a type of allowable values for any parameter?

**A:** All of the above

57. **Q:** Which icon symbolizes the data type is geographic data that can be mapped?

**A:** The globe icon

58. **Q:** What fields are generated when Tableau identifies geographic data in a workbook?

**A:** Latitude and Longitude

59. **Q:** Symbol maps can show up to two quantitative values per location. Which of the following is a good way to represent those two values?  
**A:** Encode the first value with size and the second value with color.
60. **Q:** To create a filled map, which mark type should you select on the Marks card?  
**A:** Map
- 

#### Quiz 4

61. **Q:** When you drag *State* into the view, Tableau adds latitude and longitude because it \_\_\_\_\_ the State field.  
**A:** Geocoded
62. **Q:** Which of the following is a reason to build a dashboard?  
**A:** Explore relationships in data
63. **Q:** What should you consider when planning a dashboard?  
**A:** If the dashboard will be viewed on a mobile device
64. **Q:** To apply a filter to all worksheets in a dashboard, choose:  
**A:** All Using This Data Source
65. **Q:** What does a filter action do in Tableau?  
**A:** Uses data from one view to narrow down data in another
66. **Q:** When planning dashboard instructions, which design principle should be followed?  
**A:** Ensure that the dashboard is self-explanatory
67. **Q:** Best way to provide context in a dashboard without using extra marks or text?  
**A:** Tooltips
68. **Q:** Tableau stories consist of one or more \_\_\_\_\_ that can be rearranged.  
**A:** Story points
69. **Q:** A successful story in Tableau:  
**A:** Has a clear purpose
70. **Q:** You can drag worksheets directly into a dashboard.  
**A:** True
71. **Q:** You can automatically generate Filter Actions from the worksheet dropdown in dashboards.  
**A:** True
72. **Q:** How do you set geographic roles in Tableau?  
**A:** Right-click the field and select the geographic role
73. **Q:** True or False: Dashboards can include multiple sheets.  
**A:** True
74. **Q:** A \_\_\_\_\_ action links to external web-based resources.  
**A:** Go to URL
75. **Q:** Device Preview options in dashboards include:  
**A:** Default, phone, tablet, desktop
76. **Q:** Which dashboard element can also be used to highlight values?  
**A:** Legend
77. **Q:** To find the number of unique customers in a region, use:  
**A:** COUNTD
78. **Q:** What do you use in an LOD expression to indicate a different level of detail?  
**A:** Curly brackets {}
79. **Q:** True or False: FIXED LOD can only reference dimensions in the view.  
**A:** False
80. **Q:** What does {FIXED [Customer Name] : MAX([Order Date])} do?  
**A:** Creates a field that shows the most recent order date per customer
81. **Q:** To create a nested sort, which feature should you change in the Sort dialog box?

**A: The Sort by Feature**

82. Can you add all subtotals to data with sets? - Yes, the subtotals will show the total of every set
83. How many ways can you add reference lines in Tableau? - Analytics tab and adding through measure when right clicking on the axis
84. When creating a calculation in Tableau, what will you first select? – The Function
85. When dragging charts into the Dashboard View, what does Tableau do automatically? – Creates Container
86. To access the floating order of an element on your dashboard, you must - Select "Floating Order" in the drop-down menu of the element
87. How many ways can you create a filter action on a dashboard? – 2
88. When adding a highlight action, what do you always have? - An action, a source, and a target
89. Density or heat maps work best when the specific locations - Change continuously and smoothly across a limited space
90. Geographic coordinates (latitude and longitude) no longer make sense when using a background image, instead, you should use what? – X,Y values
91. When finding an X, Y value, which feature in Tableau helps you find the coordinates? – Drop Lines
92. For which of the following charts, does the Size option on the Marks card not work? – Tree Map
93. What are the two methods Tableau uses to determine seasonality in forecasting? - Temporal and non-temporal
94. Dates in Tableau are typically treated as - Dimensions
95. For any aggregate calculation, is it true or false that you cannot combine an aggregated value and a disaggregated value? – True
96. Which of the following allows a conditional formatting which lets you compare a column or row with rest of the table? – Highlight Table
97. What types of metadata are stored in a Tableau data source .tds file? (select all that apply) - Default field properties, Calculated fields, Data source type
98. When using a bar chart with a dimension on the columns shelf and a measure on the rows shelf, how can you make a stacked bar chart? - Drag another dimension to color on the marks card
99. Our scenario states that we need to create a set showing the Bottom 10 products by Profit in each Region. Which of the following filter types should you apply on Region? – Context Filter
100. We can join a maximum of \_\_\_\_\_ tables in Tableau. – 32
101. Which of the following is a local copy of a subset or entire dataset that you can share with others? (select all that apply) - .tds / .hyper