

# Data Viz. Tableau Week Sum up:

## Visual Analytics

1 VA

2 Drg

3 Charts &...

4 Cal type (Beach)

5 Data Cond. (Beach)

6 Joins & blends

7 Dashboard & Story

8 What-if

9 Special charts

10 Ord. of op.

15 → Viz. + Data Analytic ⇒ make informed decision (from insights)

16 → raw data to charts/graphs.

to explore dataset, <sup>2</sup> Analyze, & <sup>3</sup> derive insights.

## Data types

→ classified based on purpose

→ <sup>1</sup> Dimension, <sup>2</sup> measure, <sup>3</sup> Date & Time, <sup>4</sup> lat. & long., <sup>5</sup> String, <sup>6</sup> Attribute, <sup>7</sup> Hierarchical.  
↳ with Geo: role (awire. by tableau)

→ Dimension  
↳ Qualitative & Categorical  
↳ define the structure (for measure)  
↳ Independently exists.

→ Measure  
↳ Quantitative  
↳ Math. operations (e.g. Agg.) performed on it.  
↳ Dependent on Dimension (for exists)

→ Attribute → To provide Additional info. to the dimension.  
e.g. year → quarter → month

→ Hierarchical → Hierarchical related set of dimensions.  
e.g. State → district → city

## charts broadly classified based on purpose

→ <sup>1</sup> Change over time ⇒ A measure how it changes with time/date/datetime

→ <sup>2</sup> Correlation b/w variables

→ <sup>3</sup> Magnitude ⇒ Relative size w.r.t other measure/value.

→ <sup>4</sup> Dispersion ⇒ how far from baseline (e.g. mean)

→ <sup>5</sup> Distribution ⇒ freq. of values within each given range/bin.

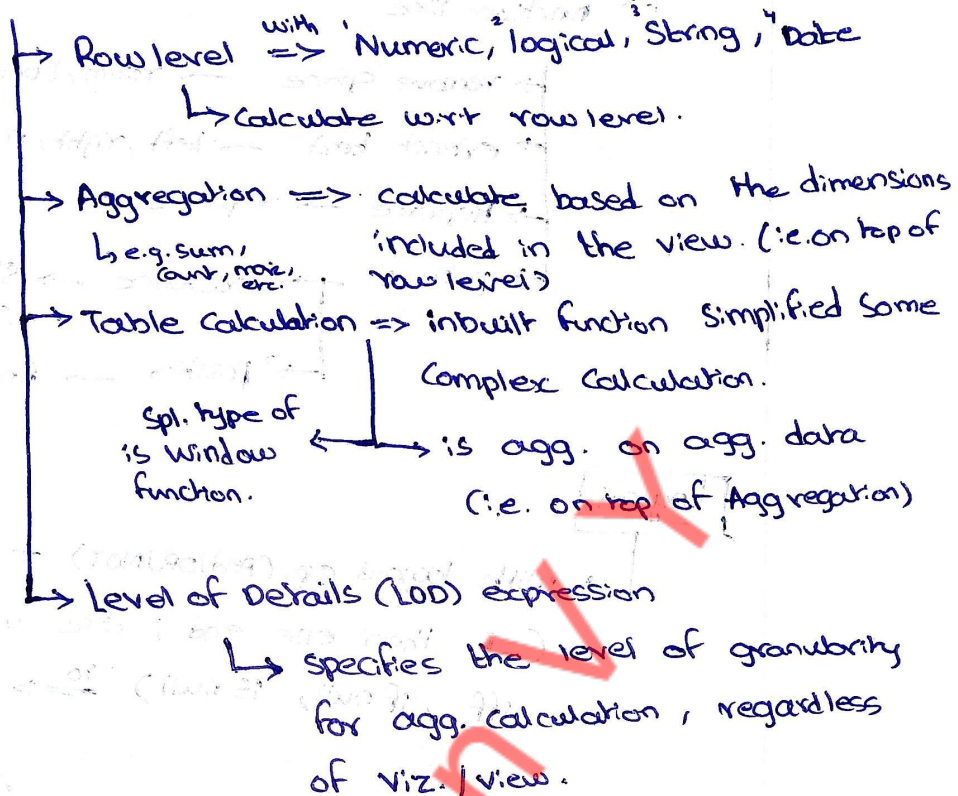
→ <sup>6</sup> Ranking ⇒ how values/measures are relatively ranked w.r.t each other.

→ <sup>7</sup> Part-to-whole ⇒ how much of whole is <sup>taken</sup> by part.

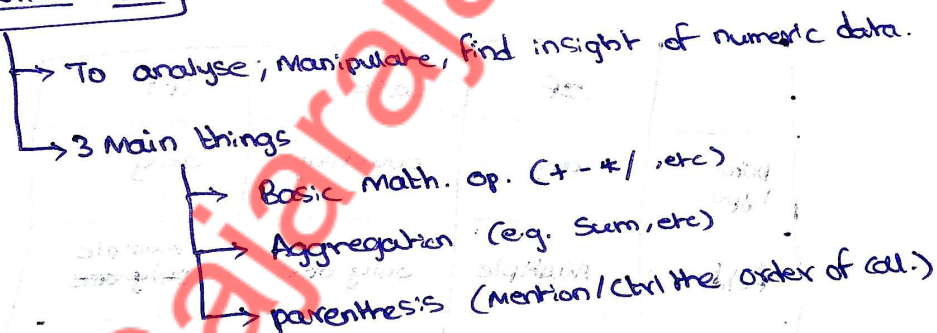
→ <sup>8</sup> Spatial ⇒ Geo. pattern.

## Calculation types

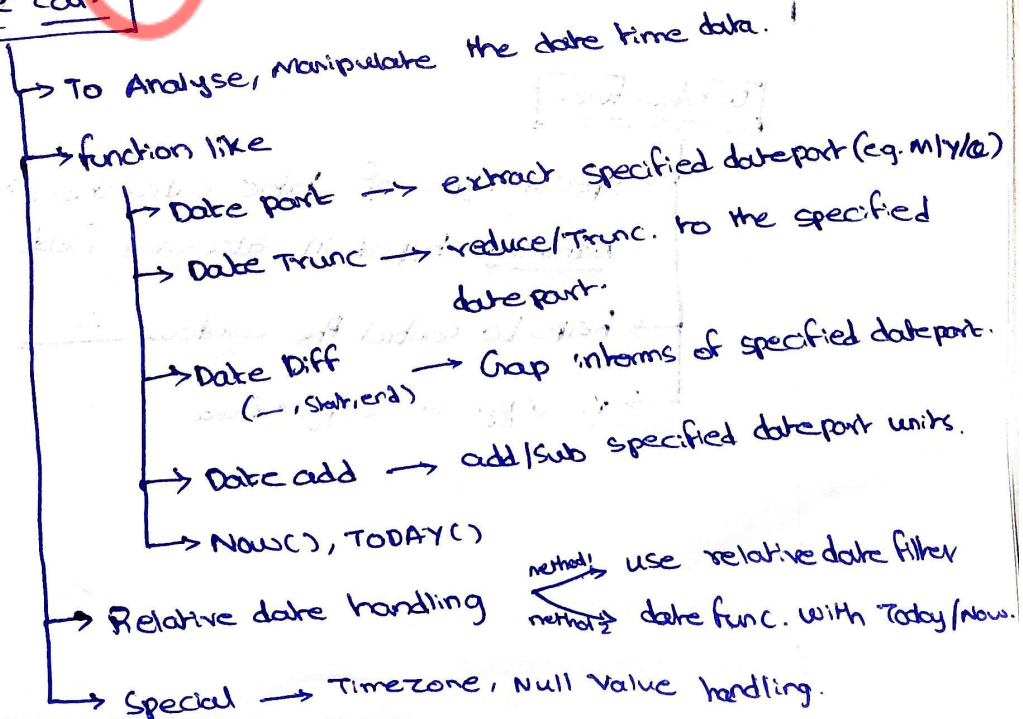
→ Mainly 4 types



## Numeric Cal.



## Date Cal.





## String

- To analyze, Manipulate, find insights from text data.
- function like
  - remove space → rtrim, ltrim, trim
  - extract text → left, right, mid
  - Replace → replace
  - pattern
    - existence → Startswith, endswith, contains
    - position → find, findnth

## Logical

- with logical op. (And/OR/NOT) + logical func.  
(if then else end; case when then else end,  
iff, if null, is null)  $\Rightarrow$  evaluate condition  
 $\Downarrow$   
make decision based on Boolean (true/false)

	if	case	iff
Data type	any	only string	any
field	Multiple	only one	multiple <del>only one</del>
condition	Multiple	Multiple	only one

## Window func.

- Special type of table calculation, but need to be manually typed in calculated field.
- helps to control the window → data.
- is agg. on agg. data.

## Table Cal.

→ 2 main things

→ Scope : Table, pane, cell



→ Direction : Down, Across, Down then Across, Across then down.

→ e.g. Running total, percent of total, Diff., percent Diff., Rank, etc.

## Order of operation

→ operation/action  $\xrightarrow{\text{one}}$  Calculation/filters, etc.

→ order of op.  $\Rightarrow$  'is the order in which tableau executes the operations/actions.

Extract filter (Static; redo for update each time)

↓ then

DataSource filter (Dynamic; no redo needed)

↓ then

Context filter (apply to the sheet)

↓ then

Dimension filter

↓ then

Measure filter

↓ then

Table cal. filter

Fixed LOD, Top N, Conditional filter

Excluded/include LOD, Data blend



Reference & trend lines

## Granularity v/s aggregation

→ #.of dimension (in view/viz. level)  $\propto$  Granularity  $\propto$  Agg.

→ 'Include achieves Granularity

→ 'Exclude achieves agg.

fixed dim.

specifies fixed level of agg. regardless of view  
includes dimension for agg. regardless of view  
exclude [dimension]: Agg. } (present/absent of that dimension in view)

## LOD

→ Syntax : { fixed/include/exclude [dimension]: Agg. }

exclude dimension for agg. regardless of view



## Data condition

\* To Get specific / relevant data for analysis, viz, reporting based on specified condition.

With use of

1 Filter => 1 included/exclude; 2 Sorting; 3 Top N

2 parameter => dynamic input decides relevant data to be presented.

3 Set => <sup>custom</sup> Subset of data based on specified Condition.

→ Static / dynamic / Combined.

uses → include/exclude; emphasis by color; interactive

4 Calculated field => using function & logical op.

↓  
↳ new data  
(dim./measure)  
from existing  
data

to specify the condition

↓  
for Calculated field to include/  
exclude data points.

5 Tableau prep. => @ Data cleaning & reshaping phase. (Before data to tableau)

## Joins & Blend

### Joins

1 Combined / unified dataset from various data sources (often same database)

2 \* Row level

\* Data Source Filter line

\* physically merge

### Blend

1 Combined / unified dataset from various data sources (often different databases)

2 \* @ aggregation level / viz. level / <sup>view</sup>

\* Measure Filter line

\* physically not merged.

## Dashboard & Story

- Dashboard: Collection of Sheets to present insights.
- Story: Collection of Sheet(s) and Dashboard(s) in a logical Manner to narrative the specific insight
  - ↳ contains
    - ↳ 1 story point (Dashboard / Sheet)
    - 2 logical order
    - 3 Caption (explain / insight) ; Annotation (highlight specific insight)
    - 4 Custom layout
    - 5 Title & Des. (Intro & Summary of the <sup>entire</sup> Story)
    - 6 Filter and action (Interactive)

## What-if analysis

Hierarchical Set.

- evaluate different possible Scenarios / cases by changing variables to see what it impacts in the data viz. outcome.
- All done by help of parameters.

## Special charts

- To present specific insight in a unique and specialized manner.
  - are advanced / non-std. charts.
- |        |   |
|--------|---|
| Distr. | → 1 Box and whisker plot: Distribution & key Stats.   |
|        | → 2 Bullet Graph: primary measure v/s target / benchmark measure.   |
| C      | → 3 Gantt chart: events & each event start & end time.  |
| C      | → 4 Waterfall chart: Initial value $\xrightarrow{\Delta \text{ by value}}$ intermediate value $\xrightarrow{\text{add to}}$ final value                 |
| M      | → 5 Tree Map: [Hierarchical data] nested rectangle<br>each $\square$ $\xrightarrow{\text{is}}$ category<br>size $\xrightarrow{\text{is}}$ Measure       |
| M      | → 6 Sunburst chart: [Hierarchical data] circular layout with multiple layers<br>[akin radial tree map]  |
| M      | → 7 Packed bubble chart: [Hierarchical data] circular layout<br>each $\circ$ $\xrightarrow{\text{is}}$ category; size $\xrightarrow{\text{is}}$ Measure |
| M      | → 8 Heat map: Color intensity of occurrence   |
| M      | → 9 Word cloud: size $\propto$ occurrence   |
|        | → 10 N/w Graph: entities relationship   |

"Radarchart"