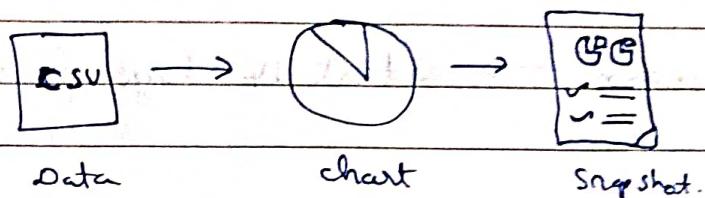


# TABLEAU

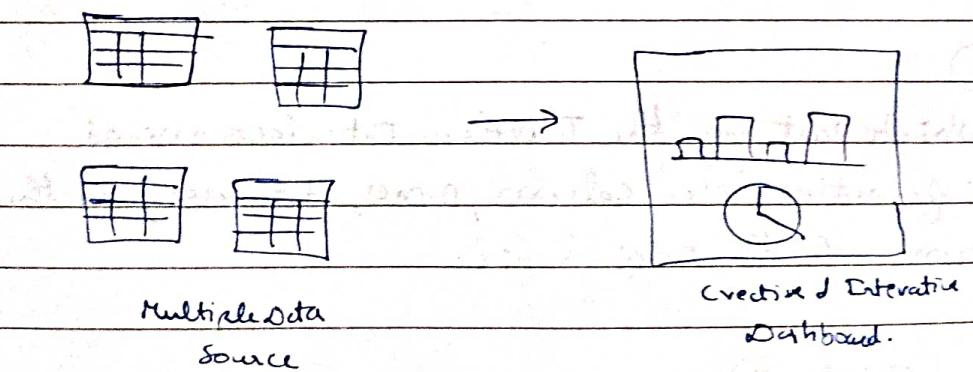
DATA-UNLOCKED

TableauTABLEAU FOR DATA VISUALIZATION

Menu Bar: File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Data Visualization Processchallenges of not using Tableau

- 1) Data in multiple files
- 2) Data is getting dynamically updated
- 3) Data in different types of files

Before worksheet:

File Data Server Window Help

After worksheet:

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Tableau prep → it's a data preparation tool  
used to clean data  
transform data  
integrate data

Tableau desktop → data visualization

tableau.com → start 14-days free trial

Tableau Software

Drag and Drop → Canvas

.CSV files

Connection

① Live    ② Extract

Live → Dynamic Data

Extract → static data

Q)

which part of the Tableau Interface shows information like column names, datatypes, and the name of the original file

- Canvas (X)
- Analytics (X)
- Data Grid (S)
- Worksheet (X)

(2)

You can connect a CSV file input to the Tableau desktop using — Connection

- Text file

(2)

Using live connection instead of Extract Connection?

→ Freshest possible data at all times

→ Real-time updates

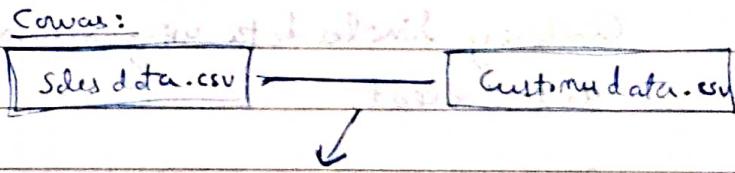
### Importing Data | Joining Tables | Export

Bugsales.csv

Customer.csv

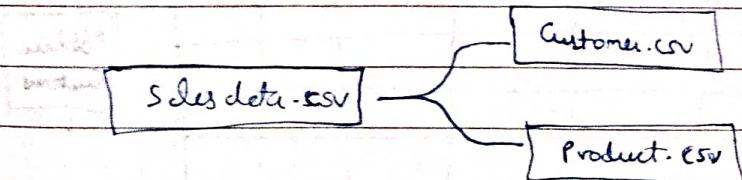
Product.csv

Sales.csv



Comparing two Excel sheet.

'Some record match' is the default setting in Tableau



## ① Joining Two Different Tables



3 ways of joining data in Tableau

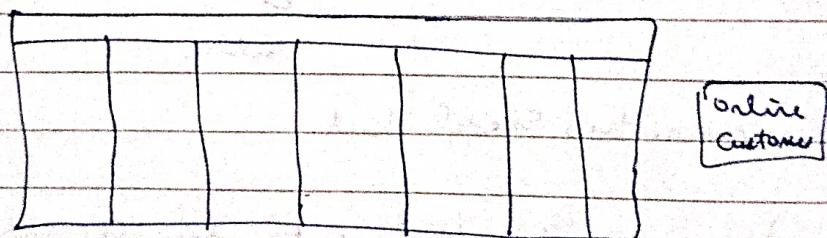
Joining

Blending

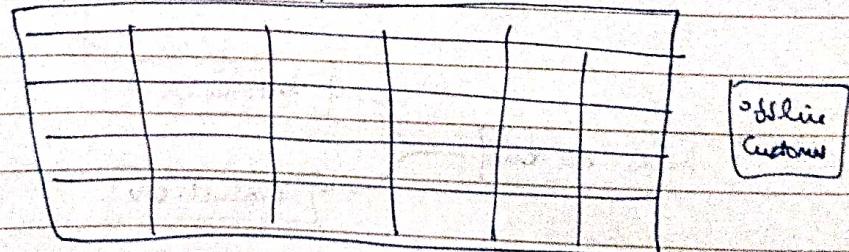
Relationship

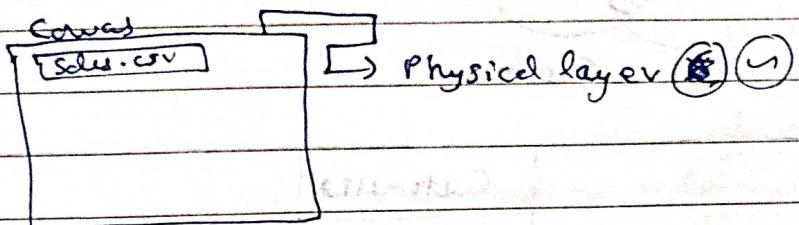
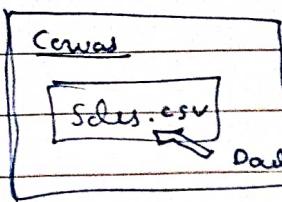
## ② Merging Similar Tables

Combining similar data using operators like Union, Intersect and Except.

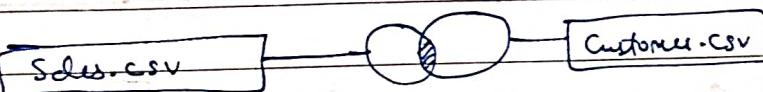


+





How to apply joints

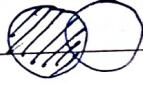


Joining fields in rows in Sales.csv & Customer

Four types of joints



Inner  
join



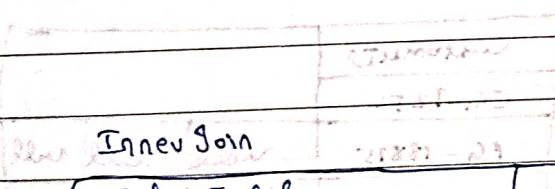
Left  
join



right  
join

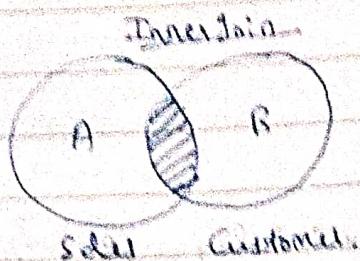


Outer  
join



Sales Table		Customer Table	
100000000	100000000		
200000000	200000000		
300000000	300000000		
400000000	400000000		

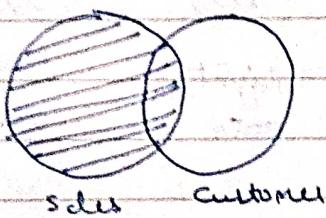
### Type of Joins



	CustomerID	
	CG-12520	
	DV-13045	
	SA-20335	

→ Customer ID which is common in both tables.

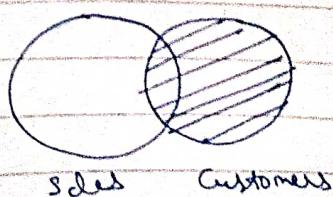
### Left Join



	CustomerID			
	CG-12520			
	DV-13045	null	null	null
	SA-20335			
	BA-11710			

→ Displaying Customer ID only on Sales Tables

### Right Join

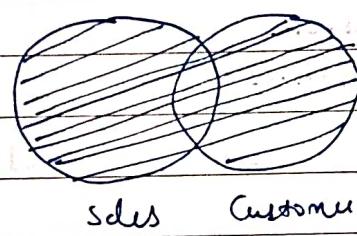


Customer	
CustomerID	
CG - 12520	Customer 1
DV - 13045	Customer 2
SQ - 20335	Customer 3
BH - 11710	Customer 4
PSN - 18225	null   null   null

→ Displaying all customerID CustomerTable

only in

Full join



Customer	
CustomerID	
CG - 12520	Customer 1
DV - 13045	Customer 2
SQ - 20335	Customer 3
BH - 11710	Customer 4

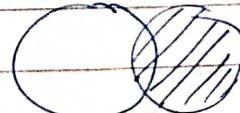
→ Combining all Customer ID in both Tables



left join



Right join



Are these two same?

- A) Yes

## Union & Tableau

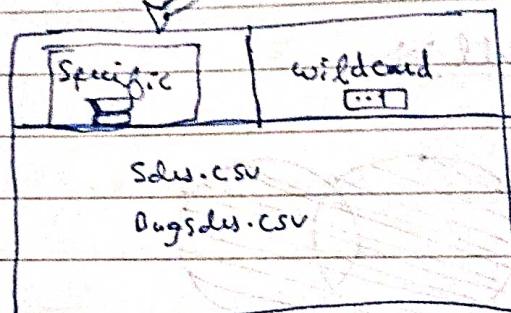
grid icon `BugsSales.csv`

grid icon `Customer.csv`

grid icon `Product.csv`

grid icon `Sales.csv`

grid icon `NewUnion`



`Sales - 1997`

`Sales - 1998`

`Sales - 1999`

`Sales - 2000`

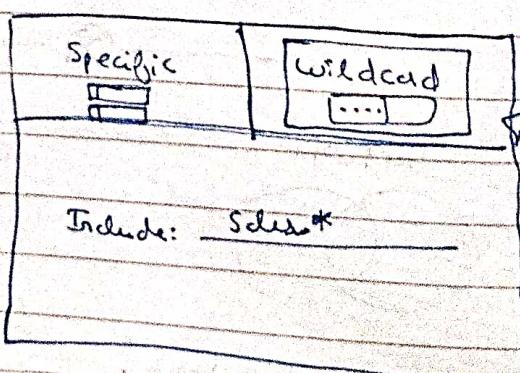
`Sales - 2001`

`Sales - 2002`

`Sales - 2003`

(\*) working with millions of files is a tedious task.

(\*) WildCard → To combine all files

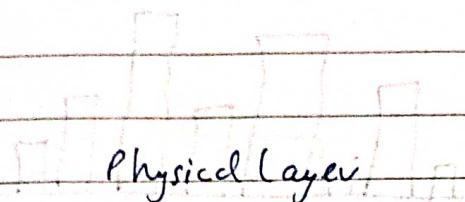


o Include all files

Union → Combining two or more Tables (or CSV files)

Carus

Doubleclick → Physical layer.

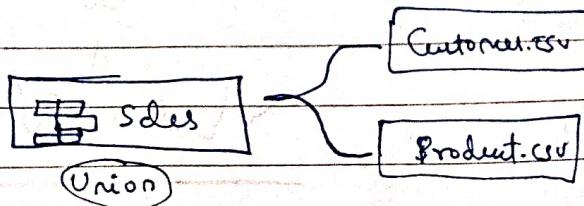
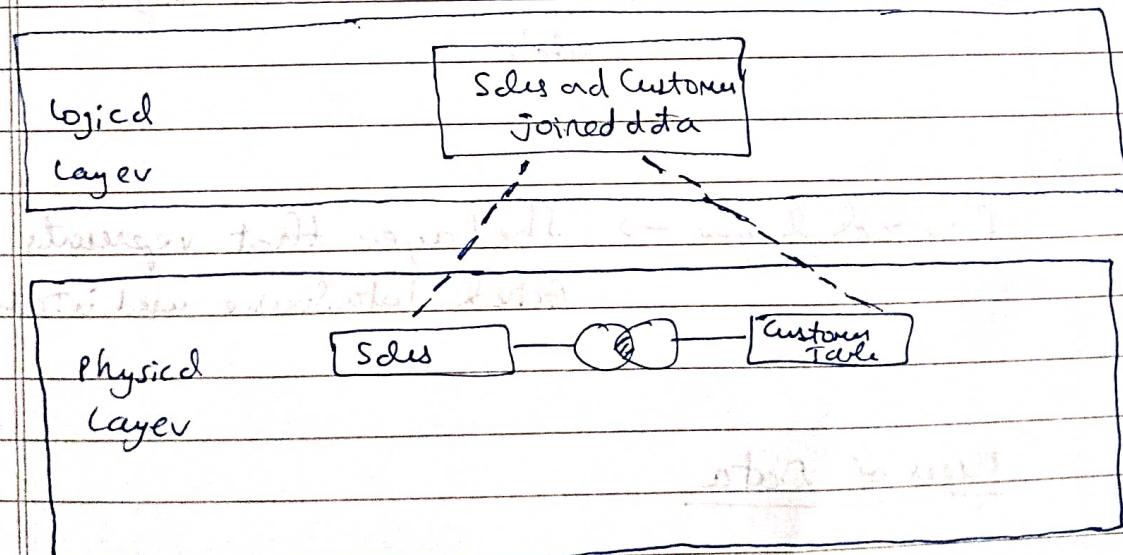


Physical Layer

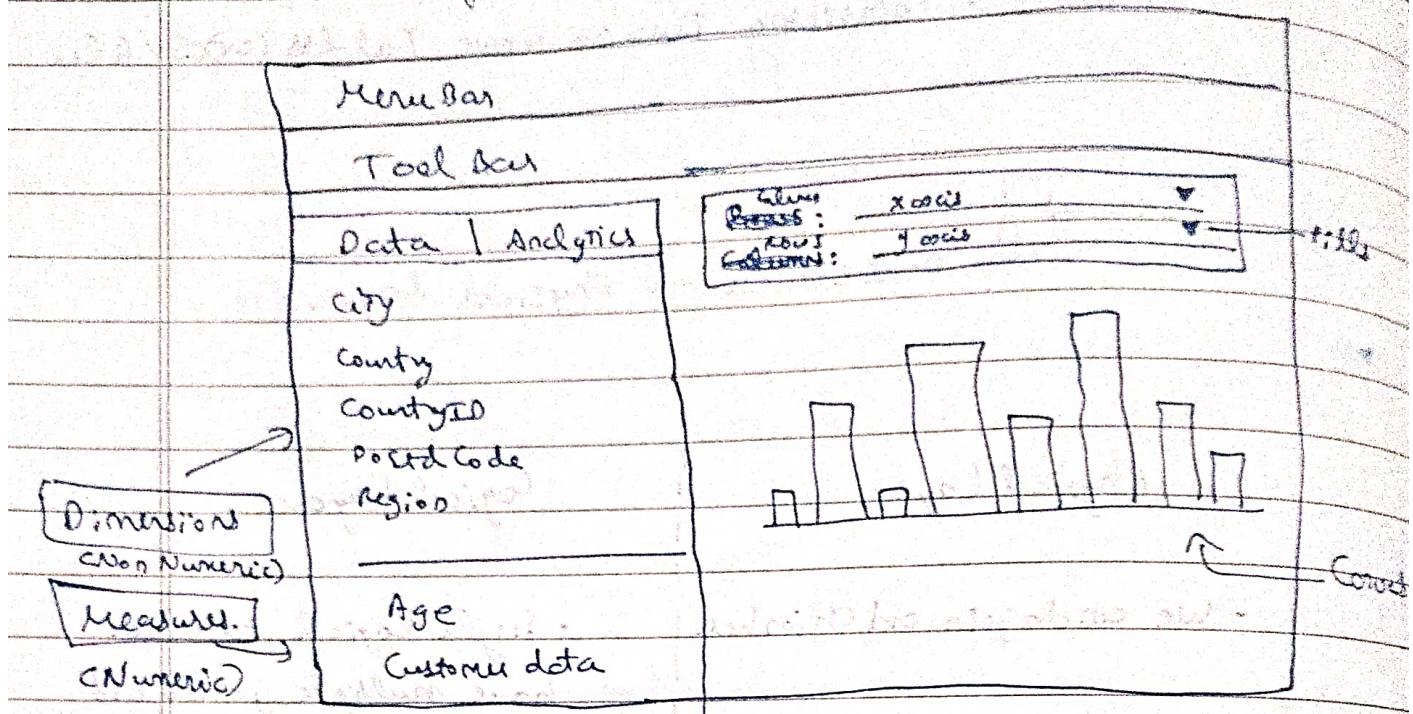
Logical Layer

- We can do join and Union here
- Single logical table can have multiple joined and Union tables

- Result of joining and union is a single table
- Relationship can be defined - 'Noodles'



## Tableau Software



(1M)

Relationships → Linking tables together  
based on common fields (without merging)

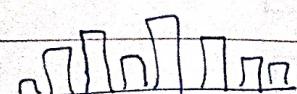
Joints → Join two table into one single table

(1M)

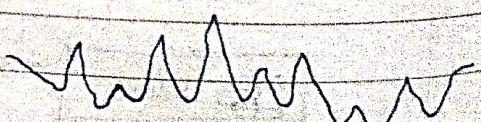
Physical layer → The layer that represents actual data source used in Tableau.

## Types of Data

Sum, Average, Min, Max → aggregate functions



discrete



continuous

## Data type in Tableau

Dimensions → Non Numeric (Discrete)

Measures → Numeric (Continuous)

Age



→ Convert To Dimension (or) Convert To Measure  
→ Convert To Discrete (or) Convert To Continuous  
[ Only for Numeric Data ]

Non Numeric

RM

Discrete → (Whole Number)

Time  Not a Whole Number.  
Temp   
height   
(cm)

Right Click → Convert Dimension To Measure

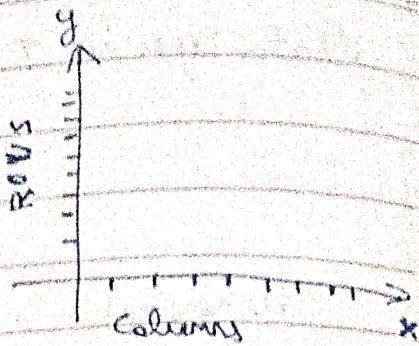
Right Click → Convert To Measure.

Most used charts

Bar Charts - Line charts - Scatter plots

Rows → y axis

Columns → x axis



### Easy Understanding

(X) Columns : X axis

(Y) Rows : y axis

Vertical Bar chart → Column chart

Horizontal Bar chart → Row chart.

→ To change Vertical to Horizontal and Horizontal to Vertical



Swap Shortcut is there in  
Tool Bar.

→ To Change Ascending To Decending and Decading To  
Ascending



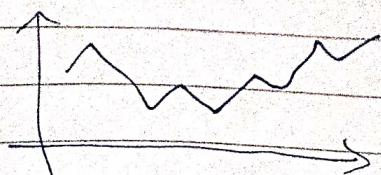
Shortcut is there in Tool  
Bar.

~(X)~

Line chart

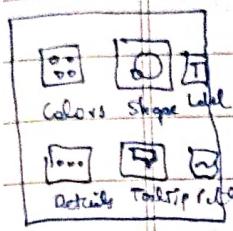
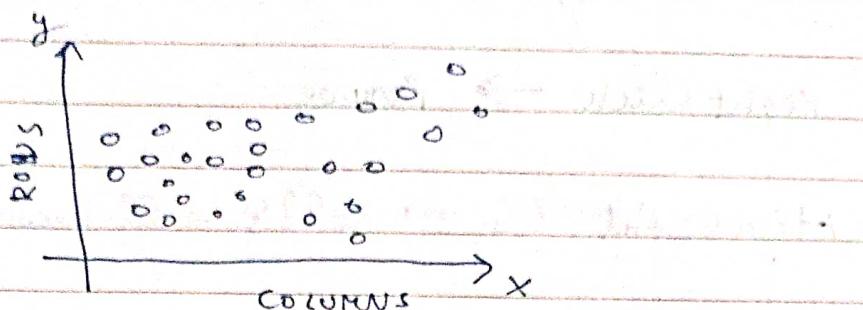
Line chart → Value changes over time

(Year, Date, Month, Timeline)



~(X)~

Scatterplot → Relationship or Co Relationship  
(Numeric Data)



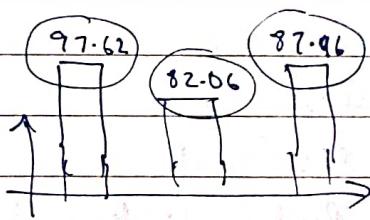
Colors shape size Colours → More Colours

Opacity (Transparent)

↳ Opacity (Transparent) → 100%

Size → thickness of Bars

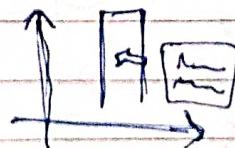
Label →



Label → highlighted (Selected Bar)

Details →

Tooltip → Giving details about the bar



Path →



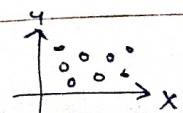
(Only on line graph)

Shape →



change shapes

(only in Scatterplot)



To Remove anything

right click → remove.

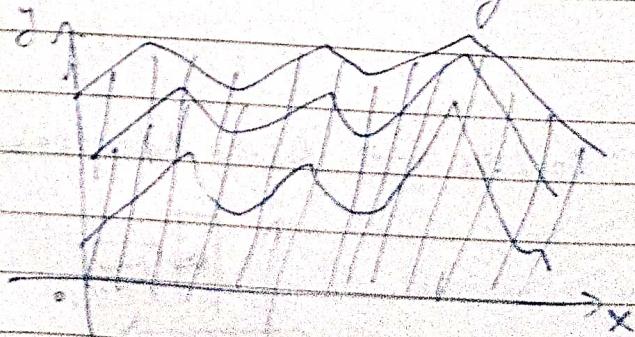
Highlight Table → cells will become Colours.

Fill → Add Total Contribution → Percentage

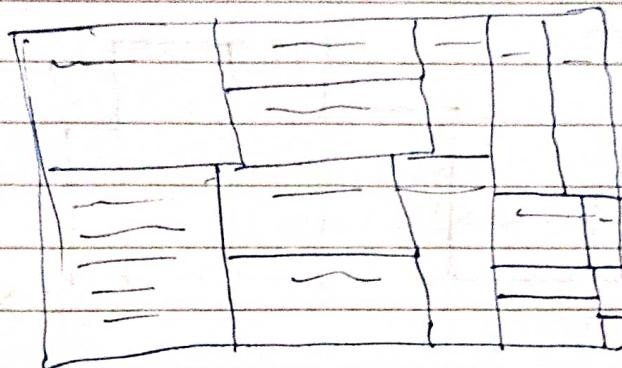
Types of charts:

- 1) Line chart
- 2) Bar chart
- 3) Scatter plot
- 4) Area chart
- 5) Tree map
- 6) Heat map
- 7) Pie chart
- 8) Bud Contribution chart
- 9) Histogram
- 10) Map chart.

Area Chart → Not clear and clumsy

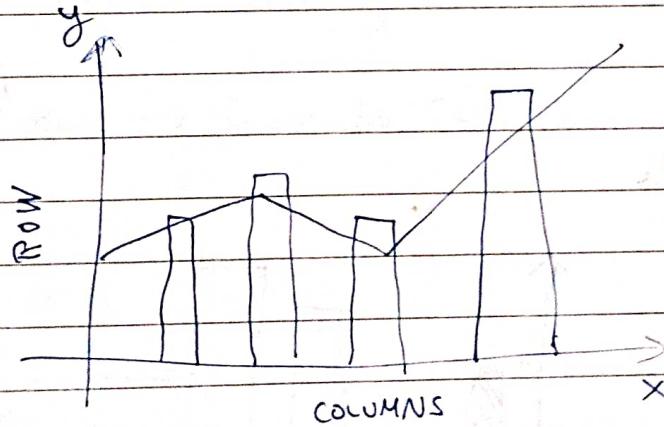


### Tree Map

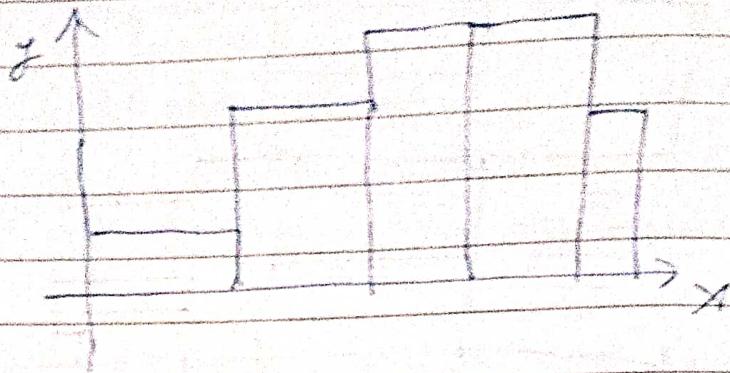


- o Looks like Rectangles
- o Rectangle which is bigger has bigger area.
- o Rectangle which is smaller has smaller area.

### Dud Combo chart



Line chart + Bar chart.

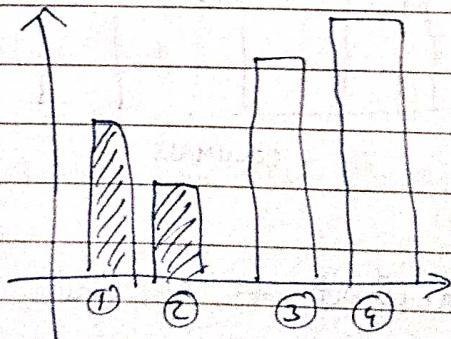
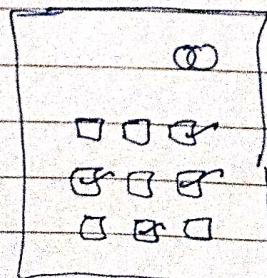
Histogram

BIN → ~~Histogram~~ Bucket → Histogram

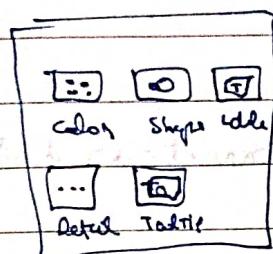
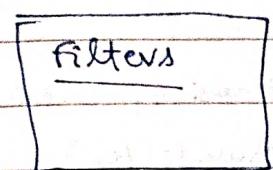
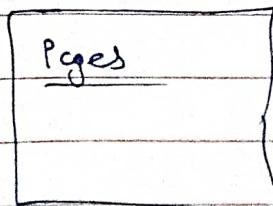
Pie chart

Drop Measure in the Level Total → Quick Table  
Calculation

$\downarrow$   
percentage of total

Grouping dataFiltering data

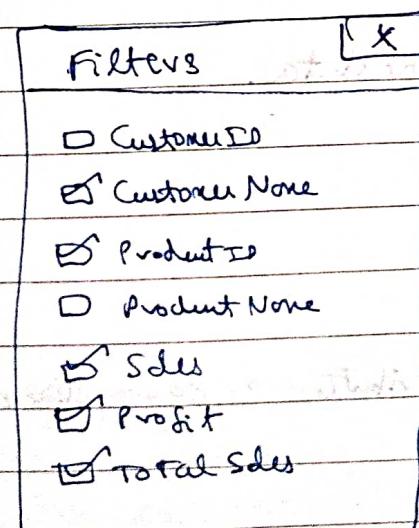
→ Show only wanted information  
hiding unwanted information



→ We can untick  particular row and Column to get removed wing filter.

wildcard → Combining all data start  $\ominus$  from A to Z

Condition → formula Tail



CustomerID and ProductName removed in rows or Columns.

Filters are executed in order

- 1) Extract filters
- 2) Data source filters
- 3) Context filters
- 4) Filters on Dimensions (Dimension filter)
- 5) Filters on Measures (Measure filter)

Data Source → Place where we connect our Data Source.

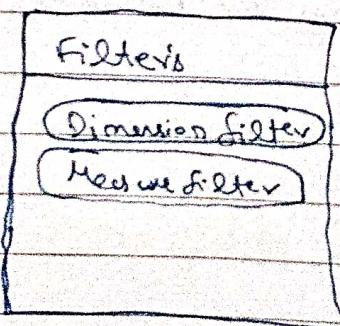
Sorting → Ascending To Descending and Descending To Ascending

To Remove Sorts

worksheet → Clear → Sorts

(TM)

Filters → To limit the data.



Attributes → Aggregating on Dimensions

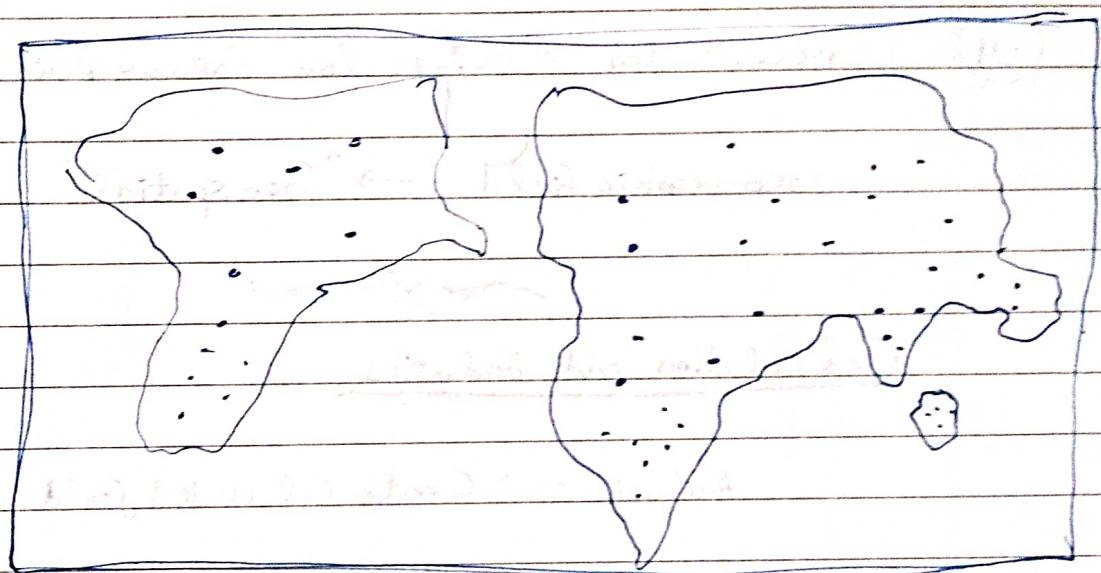
(TM)

worksheet filter (X) is not a type of filter in Tableau

## Mapchart

- 1) City
- 2) State District
- 3) State
- 4) Country
- 5) World Map

Geographic Data → State / Country.

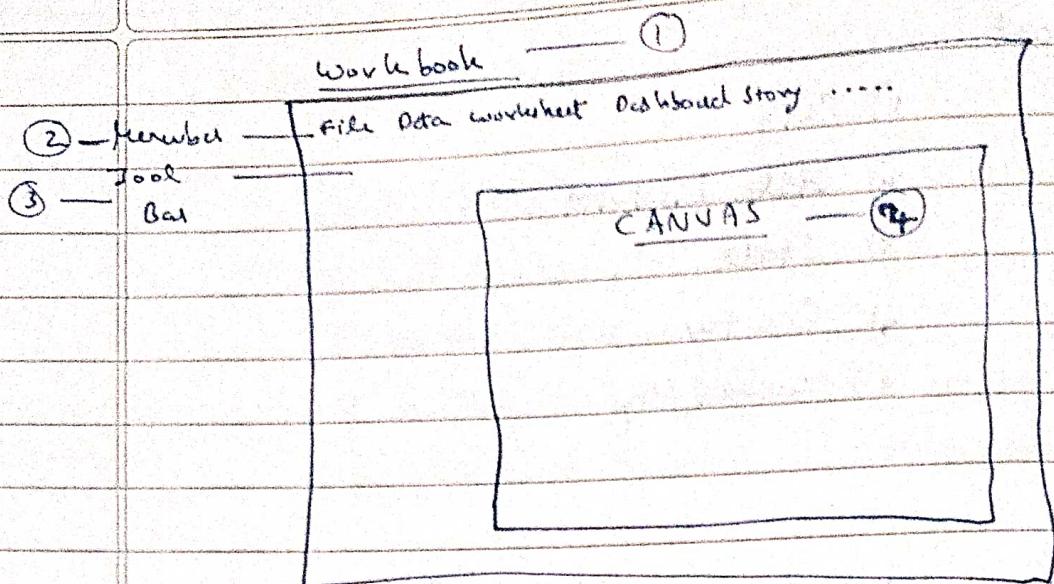


Visual Tool Bar → Maps Particular Geographical Location

Custom BG → Google Maps, Real Estate, Construction business

How To Add?

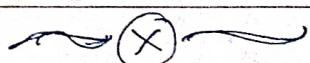
Map → Background image → Sales



(M)

Recommended datatype for Geographic field

Geographic field → "Geo spatial"



Calculation and Analytics

Analysis → Create Calculated field

Heading	→ New Column (Created)
Formula	
<input type="button" value="Apply"/> <input type="button" value="Cancel"/>	

Types of functions:

- 1) Number functions
- 2) Date functions (DATEADD, DATETIME, YEAR, MONTH)
- 3) Text functions
- 4) Logical functions
- 5) Aggregate functions

Formula:

①  $[sdes] * 80$

② DATEIFF (date-part, start-date, end-date, [start-which-needed])  
↓  
(Optional Parameters)

③ if ([Days to process]<2) then "Fast"  
ELSEIF ([Days to process]<5) then "Normal"  
ELSE "Slow"  
END.

## Table Calculation

	Marketing	Finance	HR	Total
Salaries	200	300	100	600
Agency Payment	500	100	500	1100
Other expenses	300	100	200	600
Total	1000	500	800	2300

	Marketing	Finance	HR
Salaries	4/-	13/-	4/-
Agency payments	22/-	4/-	22/-
Other expense	13/-	4/-	9/-

Table Calculation → -/-

How to Do?

Difference from

Measure → Add Table (Addition) → Table (Across)

Measure → Add Table Calculation → Percent Diff From

" " → " " → → Percent from

" " → " " → → Percent of total

" " → " " → → Rank

" " → " " → → Percentile

" " → " " → → Running total

" " → " " → → Moving calculation

[LOD → Level of Detail]

There are three LOD keywords

- 1) FIXED
- 2) INCLUDE
- 3) EXCLUDE

Syntax - { LOD keyword Dimensions(s) : Aggregate (calculation) }

Example : { FIXED [segment] : SUM([Profit]) }

Handson :

{ FIXED [student] : SUM ([Math Score]) }

Student	Exam Subject	Grade	Marks Scored
Student 1	Math	A	92
Student 1	Science	A	73
Student 1	English	A	86
Student 2	Math	A	66
Student 2	Science	A	52
Student 2	English	B	100
Student 3	Math	B	86
Student 3	Science	B	57
Student 3	English	B	99
Student 4	Math	B	67
Student 4	Science	B	81
Student 4	English	B	54

Student	Sum of Marks Scored
Student 1	251
Student 2	218
Student 3	235
Student 4	202

(Student wise \*)

Horizon:

{INCLUDE [Student]: SUM ([Marks Scored])}

Student 1	Math	92
Student 2	Science	73
Student 3	English	86
Student 4	Math	62
Student 2	Sci	682
Student 2	English	100
Student 3	Math	86
Student 3	Science	51
Student 3	English	99
Student 4	Math	67
Student 4	Science	80
Student 4	English	84

Math	Std 1	Std 2	Std 3	Std 4	Std 1	Std 2	Std 3	Std 4	311
Science	Std 1	Std 2	Std 3	Std 4	Std 1	Std 2	Std 3	Std 4	207
English	Std 1	Std 2	Std 3	Std 4	Std 1	Std 2	Std 3	Std 4	339

(Subject wise\*)

Horizon:

{Exclude [Student]: SUM ([Marks Scored])}

Std 1	Math	92
Std 1	Science	73
Std 1	English	86
Std 2	Math	66
Std 2	Science	52
Std 2	English	100
Std 3	Math	86
Std 3	Science	51
Std 3	English	99
Std 4	Math	67
Std 4	Science	81
Std 4	English	84

Student 1	907
Student 2	907
Student 3	907
Student 4	907

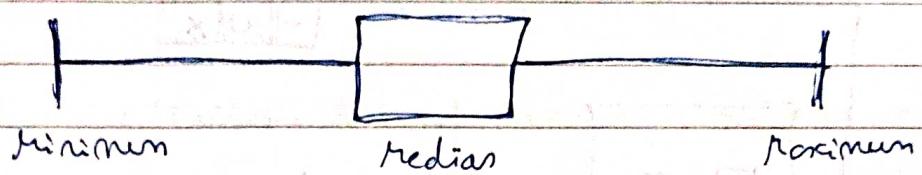
(Student and subject wise\*)  
[Everything]

Total : 907

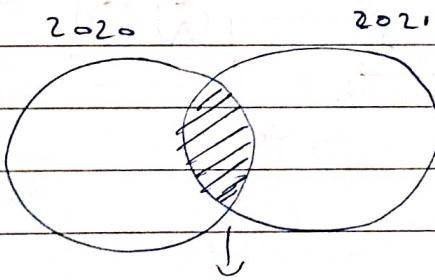
(1M)

which is Not an LOD Expression in tableau?

- 1) Fixed LOD
- 2) Custom LOD
- 3) Include LOD
- 4) Exclude LOD



Sets and Parameters



How To Do:

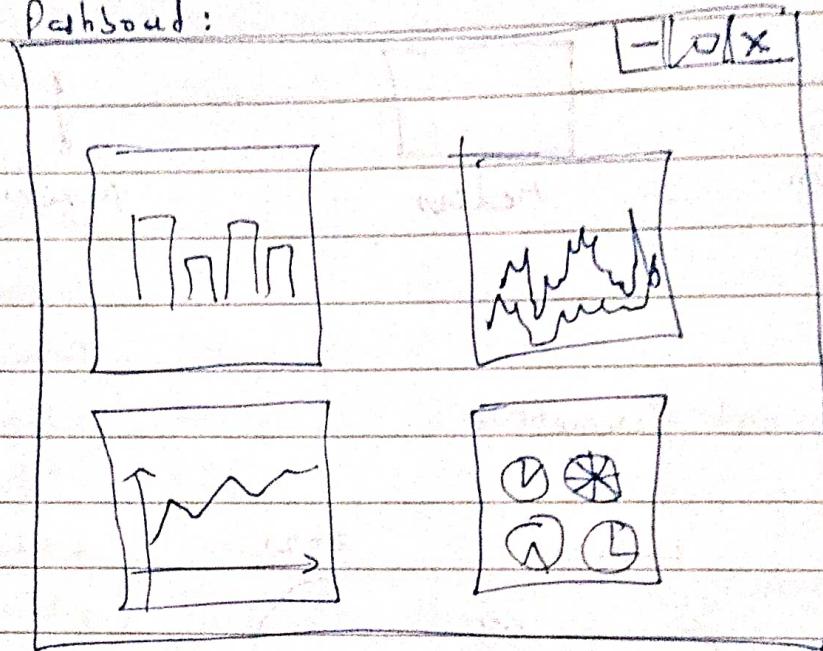
Start set A  ] - Right Click → Create Combine Set.  
Start set B

Top N → Rank transformation

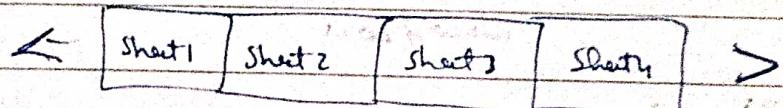
## Dashboards and Story

Dashboard → Shows multiple visualization in a single screen.  
 Story → Shows multiple pages in a single screen  
 (to convey a story)

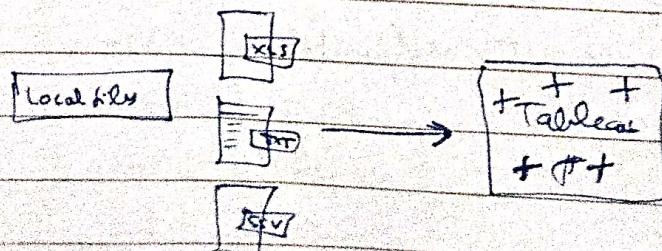
### Dashboard:



### Story:



## Saving and Sharing Workbook



option: only Save Workbook (File → Save)

→ When you share a file If someone opens they won't see the visualization because they don't have excel files or TXT files in their system.

→ So we have to send the excel file and then we have to share Tableau workbooks.

option:2 Tableau Packaged Workbook (File → Export as Packaged Workbook)

→ It is a packaged workbook where excel files will also get's shared.

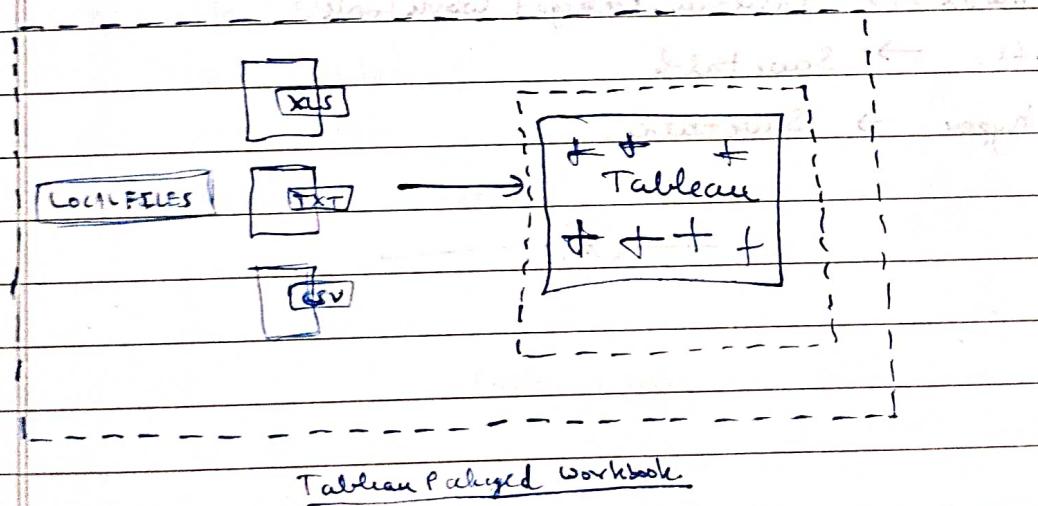
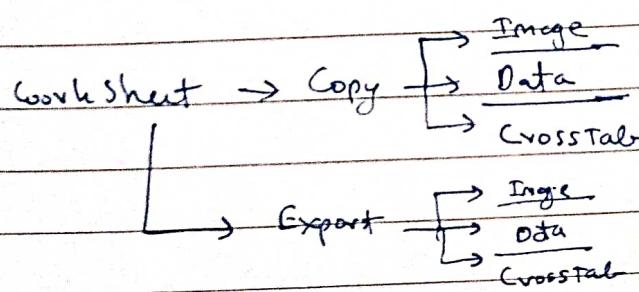


Tableau Packaged Workbook

→ we don't want to share excel files separately.



How to copy the Analysis which we created

worksheet → Copy → Image

How to connect to SQL

DataSource → More → MySQL

Tableau extensions:

.tdsx → Tableau Packaged dataSource

.twb → Tableau workbook

.twbx → Tableau Packaged workbook

.tde → Savetable

hyper → Savetable.

