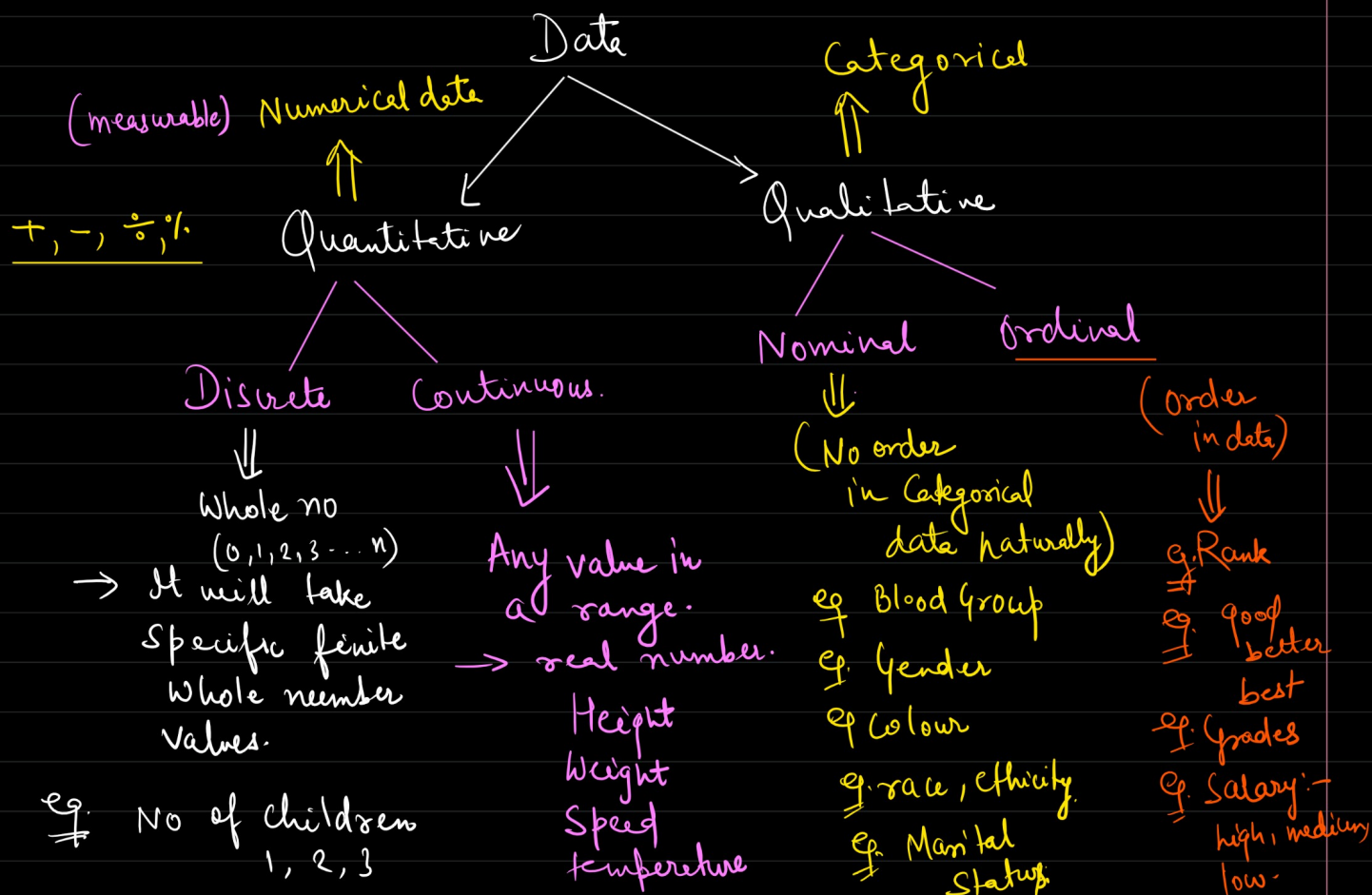


# Types of data

Address	Rooms	Gender	Price	Method	SellerG	Distance	Postcode	Bedroom2	Bathroom	Car
85 Turner St		2 male	1480000	S	Biggin	2.5	3067	2	1	1
25 Bloomberg St		2 male	1035000	S	Biggin	2.5	3067	2	1	0
5 Charles St		3 female	1465000	SP	Biggin	2.5	3067	3	2	0
40 Federation La		3 female	850000	PI	Biggin	2.5	3067	3	2	1
55a Park St		4 male	1600000	VB	Nelson	2.5	3067	3	1	2
129 Charles St		2 male	941000	S	Jellis	2.5	3067	2	1	0
124 Yarra St		3 male	1876000	S	Nelson	2.5	3067	4	2	0
98 Charles St		2 female	1636000	S	Nelson	2.5	3067	2	1	2
6/241 Nicholson		1 female	300000	S	Biggin	2.5	3067	1	1	1
10 Valiant St		2 male	1097000	S	Biggin	2.5	3067	3	1	2
411/8 Grosvenor		2 male	700000	VB	Jellis	2.5	3067	2	2	1
40 Nicholson St		3 male	1350000	VB	Nelson	2.5	3067	3	2	2
123/56 Nicholso		2 female	750000	S	Biggin	2.5	3067	2	2	1
45 William St		2 female	1172500	S	Biggin	2.5	3067	2	1	1
7/20 Abbotsford		1 male	441000	SP	Greg	2.5	3067	1	1	1
16 William St		2 male	1310000	S	Jellis	2.5	3067	2	1	2
42 Henry St		3 male	1200000	S	Jellis	2.5	3067	3	2	1
78 Yarra St		3 female	1176500	S	LITTLE	2.5	3067	2	1	1
196 Nicholson St		3 female	955000	S	Collins	2.5	3067	3	1	0
42 Valiant St		2 male	890000	S	Biggin	2.5	3067	2	1	1
3/72 Charles St		4 male	1330000	PI	Kay	2.5	3067	4	2	2
13/11 Nicholson		3 male	900000	S	Beller	2.5	3067	3	2	2
138/56 Nicholso		3 female	1090000	S	Jellis	2.5	3067	3	2	2
6/219 Nicholson		2 female	500000	S	Collins	2.5	3067	2	1	1
52a William St		2 male	1100000	PI	Biggin	2.5	3067	2	2	1
49 Park St		2 male	1315000	S	Marshall	2.5	3067	2	1	0
5/20 Abbotsford		1 male	426000	SP	Greg	2.5	3067	1	1	1
48 Abbotsford St		3 female	1447500	PI	Nelson	2.5	3067	3	3	1
116/56 Nicholso		1 female	457000	S	Jellis	2.5	3067	1	1	1
159 Park St		2 male	1135000	S	Nelson	2.5	3067	2	2	2
31 Turner St		4 male	1542000	S	Collins	2.5	3067	4	3	1
166 Gipps St		3 male	1290000	S	Biggin	2.5	3067	3	2	2
60 Stafford St		3 female	1290000	S	Biggin	2.5	3067	3	1	1



eg No of mobile phones.  
 eg No of bank account  
 eg Total no of employees  
 in team.

eg Movie duration  
 length.  
 Distance  
 Salary  
 Price

eg Bathroom, Bedroom, Car number.

\* Use case :- To do analysis or preparing the data for modelling, knowing the data type is very important.

— You need to convert Categorical data to numbers.

eg Car No of cars.  
 0  
 1  
 2

Asked	Quality of Car	discrete Numerical data
	good	1
	good	1
	better	2
	best	3

## Scales of Measurement



Quantitative measure  
 (measurement is  
 numeric)

→ Qualitative measure  
 (It classifies  
 into non-numeric  
 categories)

## ① Nominal Scale data

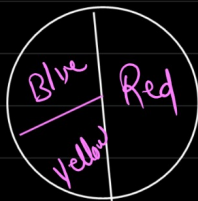
Example

- Qualitative or Categorical data
- No order in the data
- Gender, ethnicity, colour, location

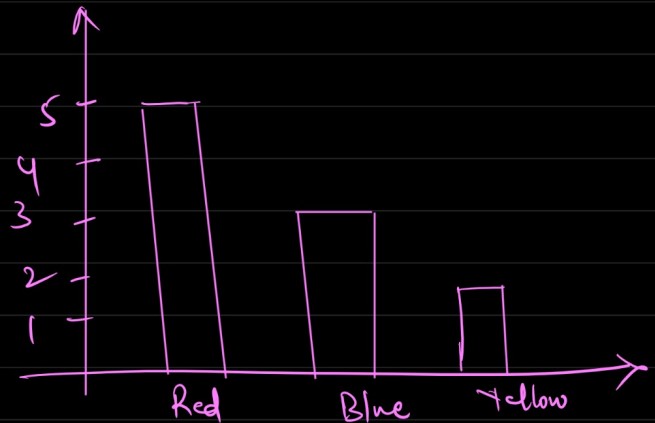
eg.  $\nabla$  Red - 5 — 50%  
Blue - 3 — 30%  
Yellow - 2 — 20%

M - 5  
F - 2

M  
F  
M  
F  
M  
M  
M



→ Pie chart & barplot



## ② Ordinal Scaled data

- Order & rank has a meaning/matter
- Difference cannot be measured.
- Pie chart, Bar-plot

eg. Performance of Student

eg. Salary  
(high, medium, low)

eg. Educational Qualification  
(12<sup>th</sup>, UG, PG, PhD)

1st  
2nd  
3rd  
4<sup>th</sup>  
5<sup>th</sup>

Rank

1st	90	} → 10
2nd	80	
3rd	72	
4th		} → 8

1st - 2nd.

## ③ Interval Scale data

- The rank and order has a meaning
- Difference can be measured (exception: excluding ratio)
- It doesn't have compulsorily 0 starting value.

ex: Score  $\begin{cases} 90 \rightarrow \text{rank/order matters} \\ 85 \rightarrow 5 \rightarrow \text{difference has a meaning.} \\ 70 \\ 50 \end{cases}$

eg: Length,

eg: weight

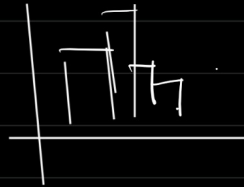
eg: height

eg: Revenue of a company

eg: temperature.

$-100, 100 \rightarrow$  It doesn't have 0 starting value Compulsorily.

eg: Histogram, Scatterplot, line chart.



#### ④ Ratio Scaled data

$\rightarrow$  Order and rank has a meaning.

$\rightarrow$  Differences and ratio are measurable.

$\rightarrow$  It does have a 0 starting point compulsorily.

eg: A  $\rightarrow$  80kg  
B  $\rightarrow$  40kg

Person A is twice the weight of B.

$$\frac{80}{40} = 2:1$$



0 as true starting point





eg height  
weight  
time  
Age

Temperature  
inside 30°C  
outside 60°C

~~$\frac{30^\circ\text{C}}{60^\circ\text{C}} = \frac{1}{2}$~~   
 I am feeling half  
 cold inside as  
 compared outside

Why wrong?

→ It doesn't have 0 starting value

→ Multiple factors:

inside — due to AC → whose  
 starting value is  
 18°C

outside → - temp.  
 (-10°C)

## Scale of Measurement

Data	Nominal	ordinal	Interval	Ratio
Labelled	✓	✓	✓	✓
Meaningful order.	X	✓	✓	✓
Measurable difference	X	X	✓	✓
True zero starting point	X	X	X	✓
Example	Gender Religion Location Post office code	Satisfaction Rating Grade Rank Qualification	IQ temp Score ht Wt length	Ht Weight time Age