

# Levels of Measurements:

Scale of measurement of data

① Nominal Scale data

② Ordinal Scale data

③ Interval Scale data

④ Ratio Scale data

① Nominal Scale data:

→ Qualitative / categorical variable

→ Eg: Gender, colors, labels

→ order does not matter. we will be able to assign rank to specific category.

Example: Survey of favourite color [10]

R [5] 50%

B [3] 30%

Y [2] 20%

We focus more on count, percentage, distribution.

Considering a data as ordinal is dependent on problem statement

② Ordinal Scale data:

→ Ranking and order matter

→ difference cannot be measured

Example:

Qualification →

Phd 1<sup>st</sup>

BE 3<sup>rd</sup>

Masters 2<sup>nd</sup>

Bcom 5<sup>th</sup>

Bsc 4<sup>th</sup>

we can assign ranks.

Difference between

degree cannot be

measured.

Marks →

100 1<sup>st</sup>

90 2<sup>nd</sup>

65 4<sup>th</sup>

70 3<sup>rd</sup>

30 5<sup>th</sup>

we can assign ranks.

Difference between can

be measured.

But if we consider ranks, then difference between marks cannot be measured.

Running Race →

5 sec 2<sup>nd</sup>

7 sec 4<sup>th</sup>

6 sec 3<sup>rd</sup>

4 sec 1<sup>st</sup>

10 sec 5<sup>th</sup>

we can assign ranks.

Difference between

time can be measured.

But if we consider ranks,

then difference between

time cannot be measured.

### ③ Interval Scale data

- Ranking and order matters
- difference can be measured (excluding ratio)
- Does not have "0" starting value.

Example:

Temperature →

30F	1 <sup>st</sup>	we can assign rank.
60F	2 <sup>nd</sup>	Difference can be measured.
80F	3 <sup>rd</sup>	Taking ratios do not make sense.
90F	4 <sup>th</sup>	we can also have negative temperatures.

### ④ Ratio Scale data

- Ranking and order matters
- difference and ratio are measured
- It does have a "0" starting point

Example →

0	5 <sup>th</sup>	we can assign rank.
100	1 <sup>st</sup>	difference between marks can be measured.
90	2 <sup>nd</sup>	Taking ratios do not make sense.
50	4 <sup>th</sup>	least <del>most</del> marks can be 0. No negative marks.
60	3 <sup>rd</sup>	



Internal assignment:

determine which scale can be used:

(a) length of different rivers

Ratio Scale data

(b) Marital Status

Nominal Scale data

(c) IQ measurement

Ratio Scale data