

**Variable**  
 - value can vary  
 - aspect that is measured  
 - characteristics of (person, thing, place)

**Qualitativ/categorical**  
 (t be measured by usual sense' can)

**Quantitative/metric**  
 (can be measured by usual sense)

**Nominal**

- Unit (no)
- Ordering (مش مهم)
- Ex. Blood group

**Ordinal**

- Unit(no)
- Ordering (مهم)
- Assessed(isn't measured)  
So ...
- 1. Isn't real number
- 2. No math's rules
- Interval property(no)
- Ex. Grading of tumor

**Continuous**

- Unit (yes)
- From measuring  
So ...
- 1. Real number
- 2. Math's rules (yes)
- Interval property(yes)
- Integers (yes +no)
- Ex. BP, Hb, B Sugar, age, heigh, weight

**Discrete**

- Unit(yes)
- From Counting  
So...
- 1. Real number
- 2. Math's rules (yes)
- Interval property (yes)
- Integers (always)
- Ex. N. Deths, N. Books

**Central values**

**.2.dispersion**

**Variance**

- Use mean
- Smaller mean distance = narrower values
- $S^2 = (\text{Sum}(X-\bar{X})^2)/(N-1)$
- ☹️ unit is squared

**Standard Deviation**

- Like variance بس الفرق إني يستخدم الجذر
- ☹️ can't compare between different units

**Coefficient variance**

- $co.v = (sd/\bar{x}) \times 100$
- ☺️ compares between values with different units
- ☺️ compares between values with larg differences

**Range**

- H-L
- From –to
- Skewness (not affected)
- ☹️ outliers(affected)
- ☹️ discard other values

**Interquartile range**

- (cut 25%of ends)
- IQR=50%
  - With median
  - Less sensitive to size شرط ما تكون العينة صغيرة
  - ☹️ cut more information
  - ☺️ skewers, outliers (not affected)

• **Percentile**  
 (Value p%of data Smaller/100-p of data larger )  
 In ordinal,interval,ratio  
 1.Order data ...2.Count number of values ..3.(n)P\*(n+1)

• **Decides (data subdivide into 10 )**  
 • **Quantiles(data subdivide into 5 group)**