The main measssures of central tendencies

We're learning about mode, median and mean.

Mean (simple average)

Notation:

- Population: μ
- Sample: $\bar{x}$

Formula

$$\frac{1}{N} \sum_{i=1}^{N} x_i,$$

Downside of mean

It is easily affected by the outliers.

Mean is not enough to make definite conclusions.

Median

Median is a middle number is an ordered dataset.

Formula

If N is odd number:

$$\frac{N+1}{2}$$

If there are n even numbers, the median is the average of the two middle values:

$$\frac{x_{\frac{N}{2}} + x_{\frac{N}{2}+1}}{2}$$

Mode

The mode is the value that occurs most often.

We can have multiple modes.

Usually two or three modes are tolerable, but more than that would defeat the purpose of finding a mode, so we say there's no mode.

Which measure is best?

There's no best but using only one is the worst.

Meaning all measures must be used together.