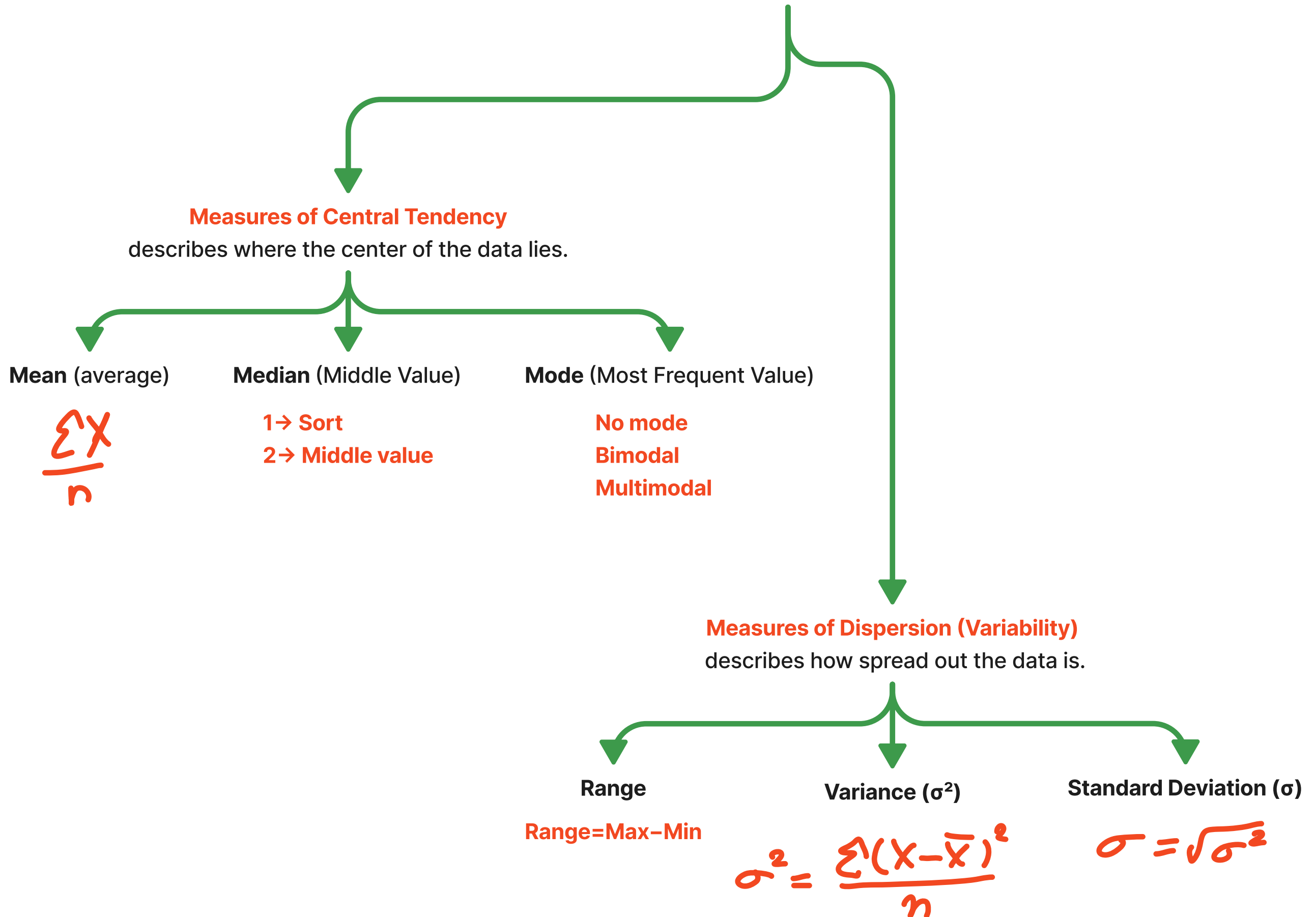# Descriptive statistics

summarizes and describes the main features of a dataset.
They help in understanding the overall distribution and
characteristics of the data.

Measures of Central Tendency

describes where the center of the data lies.

Mean (average)

$$\frac{\Sigma X}{n}$$

Median (Middle Value)

1→ Sort
2→ Middle value

Mode (Most Frequent Value)

No mode
Bimodal
Multimodal

Measures of Dispersion (Variability)

describes how spread out the data is.

Range

Range=Max−Min

Variance (σ²)

$$\sigma^2 = \frac{\Sigma(X - \bar{X})^2}{n}$$

Standard Deviation (σ)

$$\sigma = \sqrt{\sigma^2}$$

Quartiles: divides a dataset into four equal parts:
1. Q1 (First Quartile) $\rightarrow$ 25% of data is below this value.
2. Q2 (Second Quartile = Median) $\rightarrow$ 50% of data is below this.
3. Q3 (Third Quartile) $\rightarrow$ 75% of data is below this.
4. Interquartile Range (IQR) $\rightarrow$ Spread between Q1 and Q3.