2. Numerical Summaries of values \( X_1, \ldots, X_n \)

a. Measures of Location or Typical Value

i. Mean \( \bar{X} \)

ii. Median

iii. Trimmed mean: Compromise that removes an equal number of observations on each extreme,
- takes the mean of the rest.
- Percent of trimming is amount removed from each end.

b. Measures of spread

i. \textit{sample interquartile range}
   - upper sample quartile is quantity with at least 1/4 of data above it and at least 3/4 below it
   - lower sample quartile has above and below reversed.
   - Sample IQR is difference between these.

ii. Variance:
   - Take average of squared differences from mean
   \[ s^2 = \frac{1}{n-1} \sum_{j=1}^{n} (X_j - \bar{X})^2 \]
   - As though we took \( X_j \) as values a discrete random variable
Lecture 21

takes on, all equally likely,

- Except that denominator is adjusted to make variance $0/0$ if $n = 1$. 