1.7 Measuring Variability (Part 2)

We can avoid the impact of extreme values on our measure of variability by focusing on the middle of the distribution. The best way to break the data up is using quartiles.

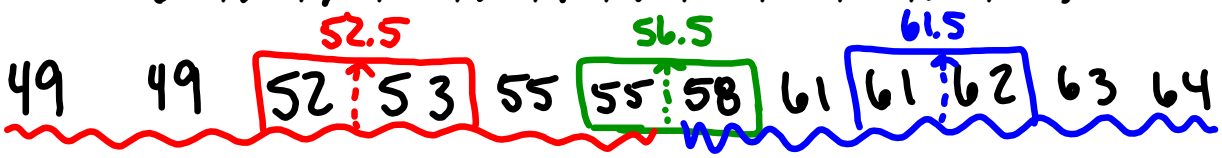
How to Find Quartiles:

1. Put the data in order from least to greatest.
2. Find the median.
3. Find the median of the data left of original median (first quartile).
4. Find the median of the data right of the original median (third quartile).

The **interquartile range (IQR) is found by subtracting the first and third quartiles.**

Example: Find the quartiles and interquartile range of the set of data.

{~~49~~, ~~52~~, ~~53~~, ~~55~~, ~~58~~, ~~61~~, ~~62~~, ~~63~~, ~~64~~, ~~61~~, ~~55~~, ~~49~~}



Median: 55+58 = 113÷2 = 56.5

UQ: 61+62 = 123÷2 = 61.5

LQ: 52+53 = 105÷2 = 52.5

IQR: UQ − LQ = 61.5 − 52.5 = **9**

Example: Find the quartiles and interquartile range of the set of data.

{~~250~~, ~~275~~, 325, ~~300~~, ~~200~~, ~~225~~, ~~175~~}

175 | 200 | 225 | 250 | 275 | 300 | 325

Median: 250

UQ: 300

LQ: 200

IQR: 300 - 200 = 100

Example: Find the quartiles and interquartile range of the set of data.

{~~48~~, ~~36~~, ~~40~~, ~~37~~, ~~29~~, ~~45~~, ~~38~~, ~~51~~, ~~47~~, ~~38~~}

29 | 36 | 37 | 38 | 38 | 40 | 45 | 47 | 48 | 51

39

Median: 38+40=78÷2=39

UQ: 47

LQ: 37

IQR: 47 - 37 = 10