http://tinyurl.com/2dzbea59

2 - 3:15PM

http://tinyurl.com/46czd2ex

5 - 6:15PM

https://tinyurl.com/avg-123

- Types of measurements
- Central tendency: Types of averages
- Five-figure summary

Types of measurements

- Nominal
- Ordinal
- Interval
- Ratio

Nominal scale measurement

- Discrete data
- Label variables without quantitative value
  - E.g. hair color, first names
- Mode is the proper measure of central tendency - most common category

Ordinal scale measurement

- Discrete data
- Order of values are important but the difference between each may not be consistent
  - E.g. levels of satisfaction, happiness
- Median is a valid measure of central tendency

Interval scale measurement

- Discrete and continuous data
- Order of values are important, differences between units are meaningful and has equal distance
  - E.g. temperatures in celsius and fahrenheit, time of day, test score
- Permits only addition and subtraction
  - E.g. 40F and 80F: Twice as hot doesn’t make sense when comparing temperature

Ratio scale measurement

- Discrete and continuous data
- Order of values are important, differences between units are meaningful, has equal distance, and has an absolute 0/true 0 point
  - E.g weight, height
- Allows for all mathematical operations
  - E.g. 20kg is twice as heavy as 10kg

Valid	Nominal	Ordinal	Interval	Ratio
Frequency Distributions	Yes	Yes	Yes	Yes
Median, percentile ranges	No	Yes	Yes	Yes
Addition, subtraction, mean, standard deviation	No	No	Yes	Yes
Multiplication, division, ratios, coefficient of variation	No	No	No	Yes

Central tendency: Types of averages

- Mean
- Median
- Mode

Central tendency: Types of averages

- Mean:
  - Total of observations divided by total number of observations
- Median:
  - The middle observation
- Mode:
  - The most frequent observation

Practice: Type of averages

Burial ages in Accrington (UK) in 1838

8, 20, 82, 3, 17, 0, 0, 22, 12, 22, 54, 0, 32, 41

- What kind of measurement is age?
- Mean:
- Median:
- Mode:

Practice: Types of averages

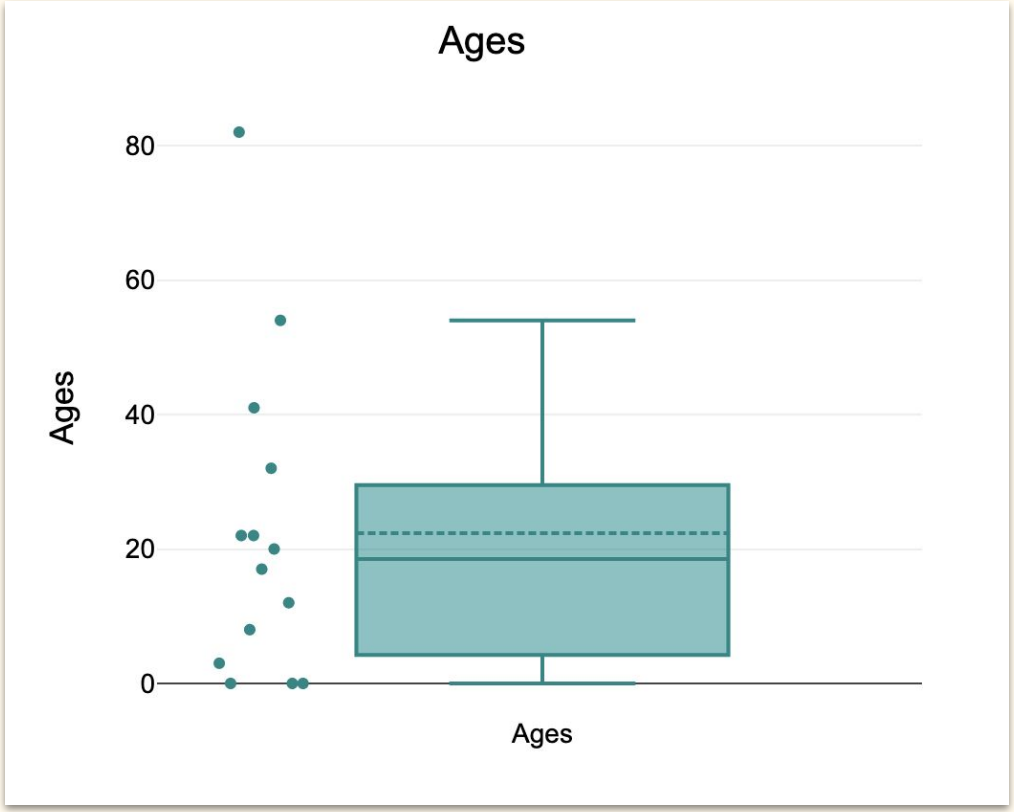
What is the most appropriate measure of central tendency for each situation?

- Ideal temperature for Spring
- Fruit for the class
- Confidence in cooking

Five-figure summary

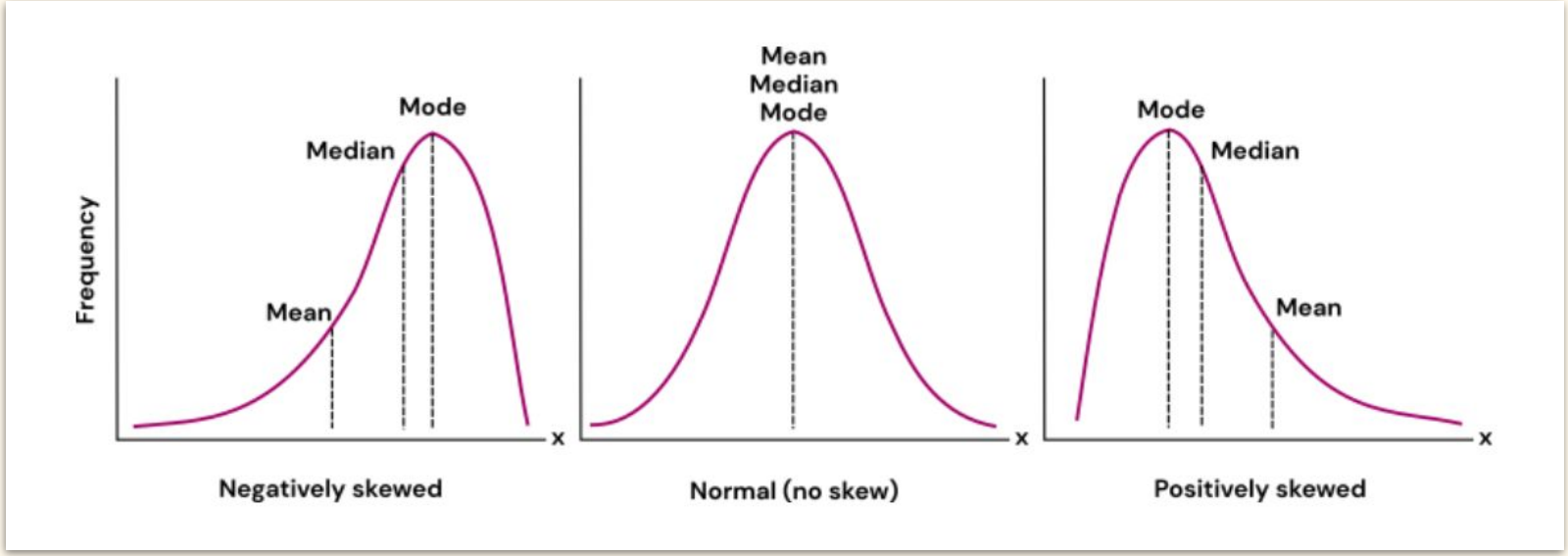
- Median
- Upper quartile
  - Marks the value that represents 75% of the data
- Lower quartile
  - Marks the value that represents 25% of the data
- Minimum observation
- Maximum observation

Presenting the five figure summary



Practice: Five figure summary

Let’s plot our class’ ideal temperature for spring


Frequency
Mode
Median
Mean
x
Negatively skewed
Mean
Median
Mode
x
Normal (no skew)
Mode
Median
Mean
x
Positively skewed