

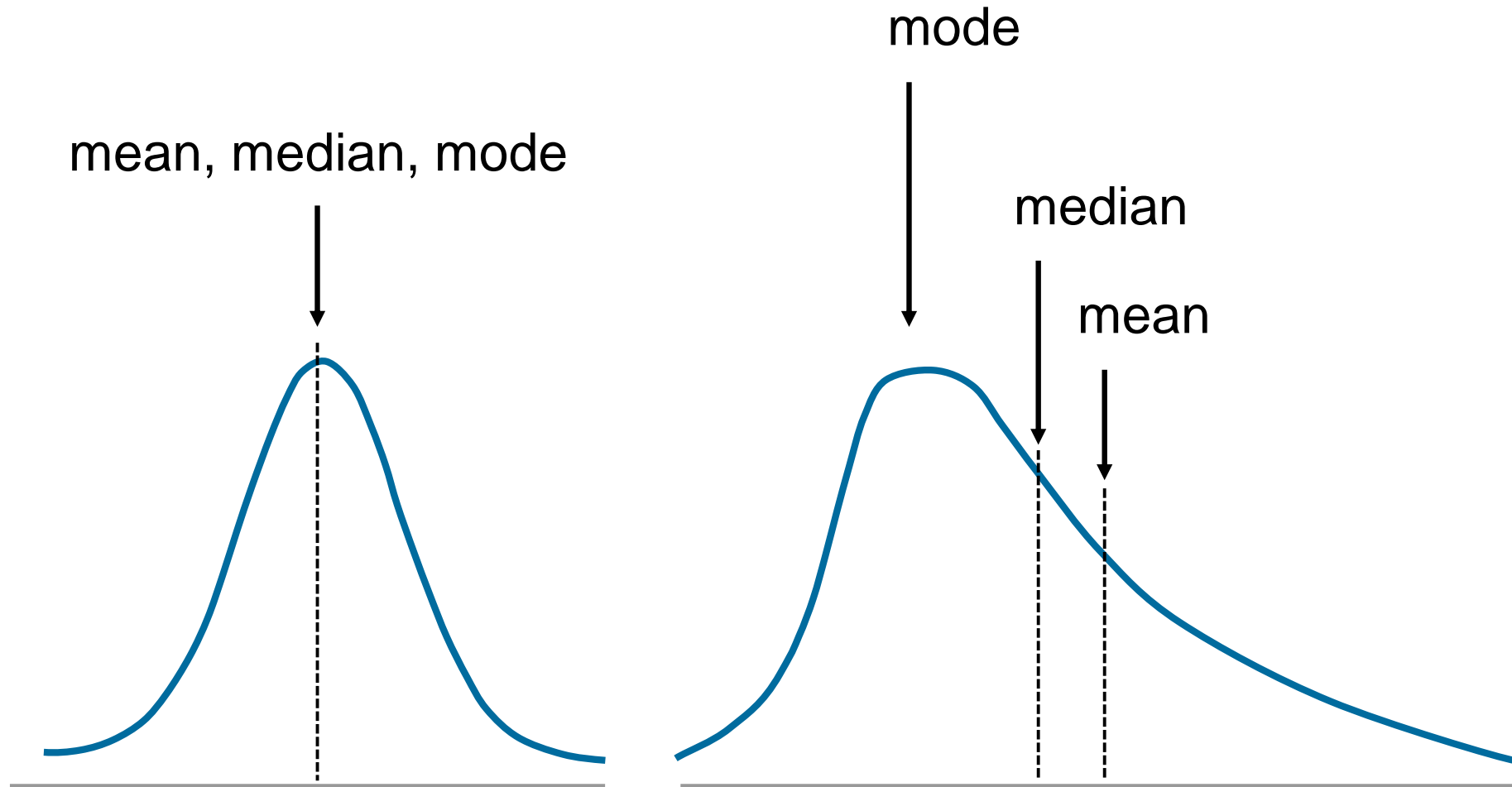


Week 2: Descriptive Statistics

Unit 4: Measures of Central Tendency

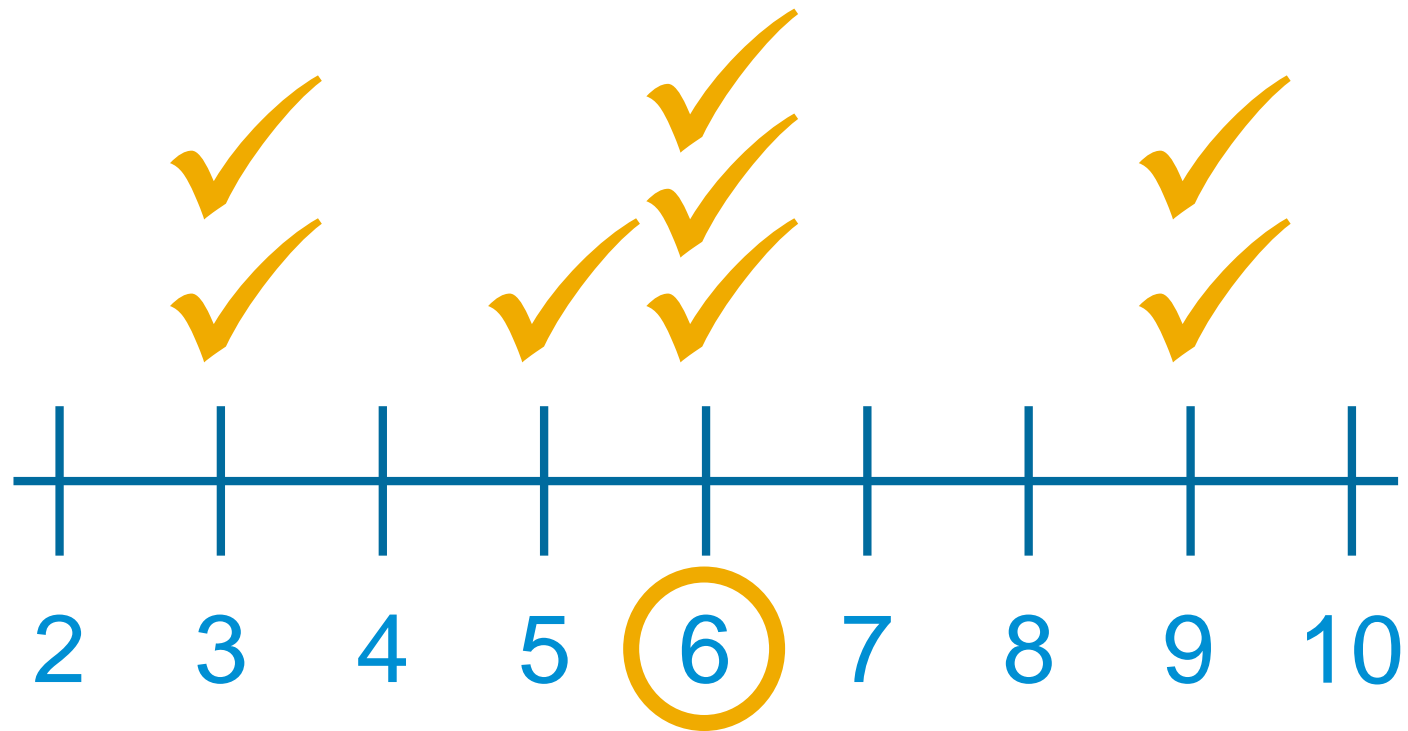
Measures of Central Tendency

Introduction

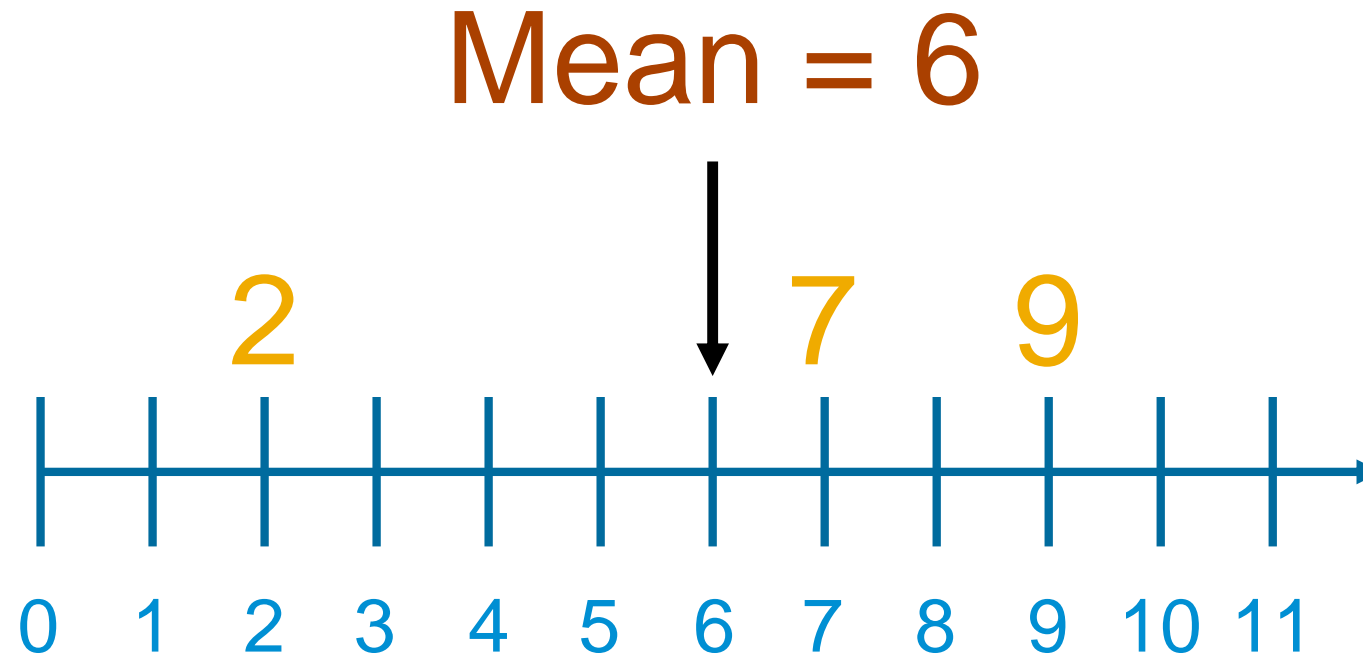


Mode

6, 3, 9, 6, 6, 5, 9, 3



Mean



$$\bar{x} = \frac{\sum_{i=1}^n x_i}{n} = (2+7+9) / 3 = 6$$

Measures of Central Tendency

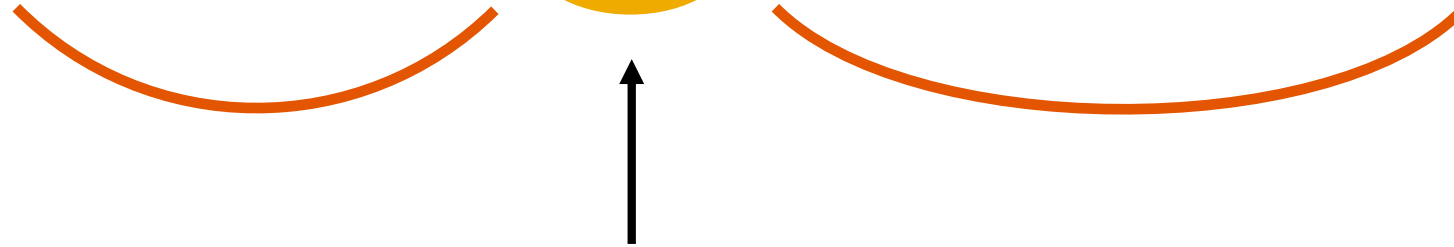
Median

4, 3, 7, 8, 4, 5, 12, 4, 5, 3, 2, and 3



put in increasing order

2, 3, 3, 3, 4, 4, 4, 5, 5, 7, 8, and 12



Median is the average of the two middle numbers!

Measures of Central Tendency

Central tendency

Use the **MODE** when:

- The data type is numerical or categorical and the measurement scale is nominal, ordinal, interval, or ratio.
- You want a quick and easy measure to report the most common value of a distribution.

Use the **MEDIAN** when:

- The data is ordinal, interval, or ratio.
- The data is skewed with an extreme value.
- You want to report the central value of a distribution.

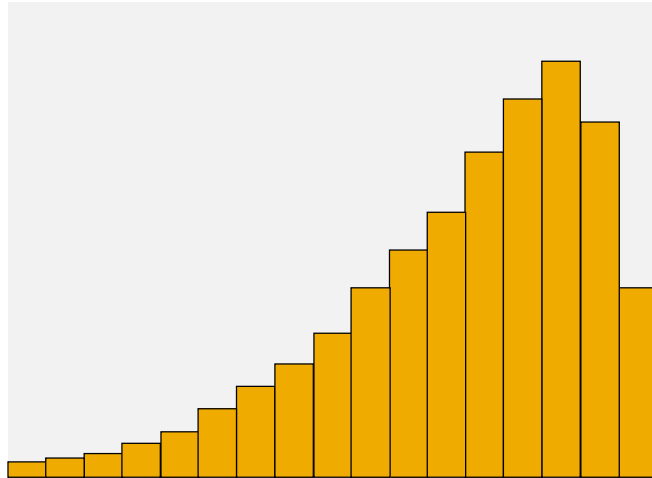
Use the **MEAN** when:

- The data type is numerical and the measurement scale is interval or ratio.
- The data has no extreme data.
- You want to report the typical value of a distribution.

Measures of Central Tendency

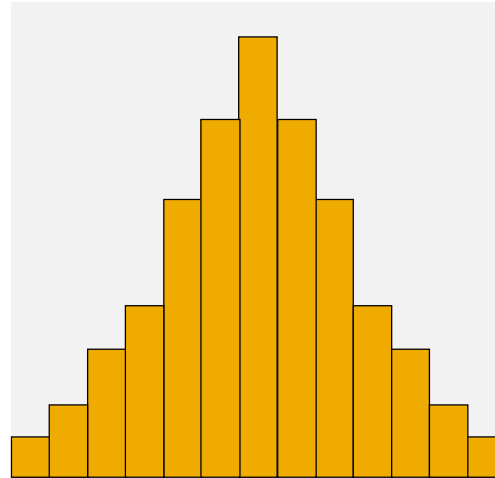
Skewness

Skewed Left



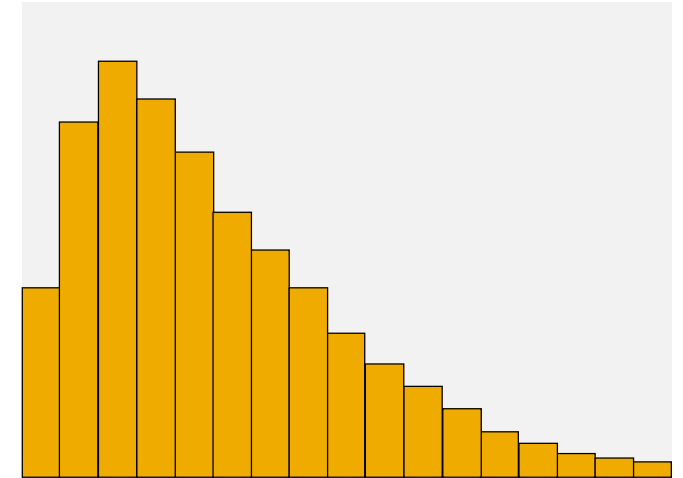
One Mode
Negative Skewed

Symetric



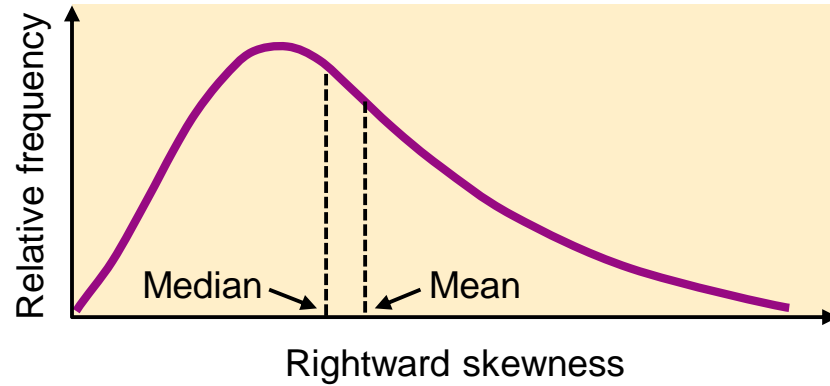
Bell-Shaped
Zero Skewed

Skewed Right

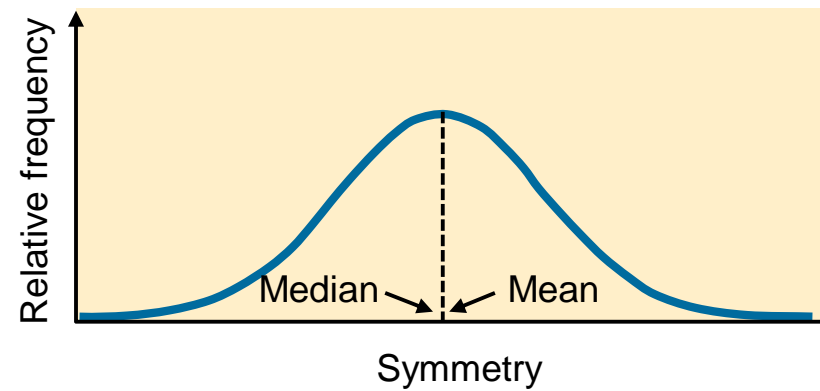


One Mode
Positive Skewed

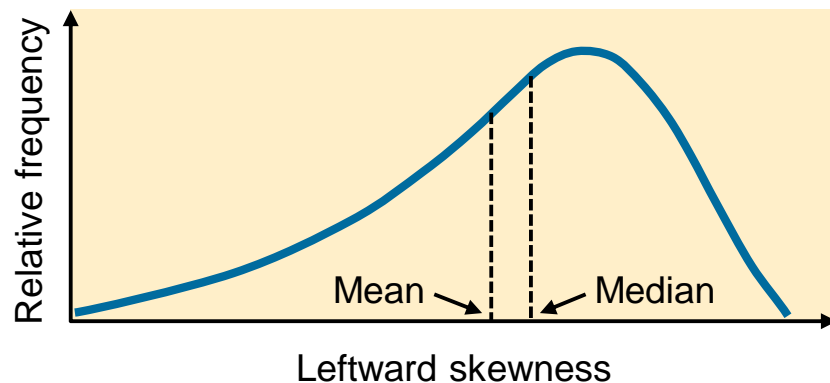
Detecting skewness by comparing the mean and the median



If the data is skewed to the right, then the median is less than the mean.



If the data is symmetric, then the mean equals the median.



If the data is skewed to the left, then the mean is less than the median.

Measures of Central Tendency

Summary

- You learned that measures of central tendency refer to techniques that inform you about the center value of a distribution.
- Mean, median, and mode are the most commonly used measures of central tendency.
- These methods are used to summarize an entire distribution into a single number.



Thank you.

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