
Homework for Lecture 2: Data Detectives

The following homework assignment should be completed on paper, scanned, and then submitted to Canvas. You may discuss the assignment with your classmates, but your write-up and work should be done independently of your classmates. The use of AI is considered a violation of academic policy for this assignment. When in doubt, ask me what is and is not allowed.

Answer the following questions:

1. A business recorded the number of items sold during 12 different hours. The results are as follows:

10, 14, 12, 17, 14, 15, 34, 15, 13, 18, 19, 11

- (a) Explain what the mean is, what it tells us, and then calculate the mean.
- (b) Explain what the median is, what it tells us, and then calculate the median.
- (c) Explain what the mode is, what it tells us, and then calculate the mode.
- (d) Explain what the standard deviation is, what it tells us, and then calculate the sample standard deviation.
- (e) What is the z-score for an hour in which the business sells 7 items? What does this result tell us?
- (f) One hour looks different from the rest of the data. Identify the possible outlier.
- (g) Recalculate the mean without the possible outlier. How much did the mean change?
- (h) Which measure of center, the mean or the median, gives a better description of a typical hour for this business? Explain your reasoning.
- (i) Sketch a rough visualization of the dataset. You may use a dotplot, histogram, or another reasonable graph.
- (j) Write 2–3 sentences telling the story of this dataset. What should the business understand from these numbers?