CHAPTER 1: EXPLORING DATA

Key Vocabulary:

- individuals
- variable
- categorical variable
- quantitative variable
- two way table
- marginal distributions
- conditional distribution
- association
- distribution
- range
- spread
- frequency
- outlier
- center

- shape
- skewed left
- skewed right
- symmetric
- dot plot
- histogram
- stemplot
- split stems
- back-to-back stemplot
- time plot
- mean
- S
- $\bar{x}$
- nonresistant

- median
- resistant
- quartiles
- Q_1, Q_3
- IQR
- five-number summary
- minimum
- maximum
- boxplot
- modified boxplot
- standard deviation
- variance

1.1 Displaying Distributions with Graphs

1. What is the difference between a frequency table and a relative frequency table?

2. What type of data are pie charts and bar graphs used for??

3. Pie Charts can only be used when?

4. How is a two-way table setup?

5. Which is more informative when comparing groups counts or percents? Why?

6. Explain the four step process to organizing a statistical problem.

7. What of you need to be cautious of when variables seem to have a strong association?

CHAPTER 1: EXPLORING DATA

1.2   Describing Distributions with Numbers

8. How do you make a dot plot?

9. When examining a distribution, you can describe the overall pattern by its

    S_____   O_____   C_____   S_____

10. If a distribution is symmetric, what does its dot plot look like?

11. If a distribution is skewed right, what does its dot plot look like?

12. If a distribution is skewed left, what does its dot plot look like?

13. What is the difference between unimodal, bimodal, and multimodal data?

14. How do you make a stemplot?

15. When is it advantageous to split stems on a stemplot?

16. When is a back-to-back stemplot useful?

17. How is the stemplot of a distribution related to its histogram?

18. What is a histogram?

19. When is it better to use a histogram rather than a stemplot or dotplot?

20. What is meant by frequency in a histogram?

21. What is the difference between a bar-graph and a histogram?

22. Define an outlier.

CHAPTER 1: EXPLORING DATA

1.3   Describing Quantitative Data with Numbers

1. In statistics, what are the most common measures of center?

2. Explain how to calculate the mean, $\bar{x}$.

3. Explain how to calculate the median, M.

4. Explain why the median is resistant to extreme observations, but the mean is nonresistant.

5. In a symmetric distribution where are the mean and median in relation to each other? What about in a distribution that is skewed?

6. What is the difference between "average" value and "typical" value?

7. Explain how to calculate Q_1 and Q_3 and IQR.

8. When does an observation become an outlier?

9. What is the five-number summary?

10. How much of the data falls between each quartile?

11. How much of the data falls between Q1 and Q3?

12. Describe a boxplot.

13. What does standard deviation measure?

14. What is the relationship between variance and standard deviation?

CHAPTER 1: EXPLORING DATA

15. When does standard deviation equal zero?

16. Is standard deviation resistant or nonresistant to extreme observations? Explain.

17. Use a five number summary when…   Use $\bar{x}$ and s when…