Test Bank for Principles and Methods of Statistical Analysis 1st Miller

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Chapter 2: Examining Our Data

Test Bank

Multiple Choice

1. A distribution has a mean of 32 and a median of 45. This distribution is _____.

a. negatively skewed

b. positively skewed

c. symmetrical

d. leptokurtic

Ans: B

Answer Location: Descriptive Statistics

Cognitive Domain: Application

Difficulty Level: Medium

2. _____ is the search for clues and evidence in our data while _____ assesses the strength of that evidence.

a. Inferential statistics, descriptive statistics

b. Descriptive statistics, inferential statistics

c. Confirmatory data analysis, exploratory data analysis

d. Exploratory data analysis, confirmatory data analysis

Ans: D

Answer Location: Exploratory Data Analysis

Cognitive Domain: Comprehension

Difficulty Level: Medium

3. _____ are the basis for the boxplot graphical technique.

a. Letter value displays

b. Means

c. Stem-and-leaf displays

d. Normal quantile plots

Ans: A

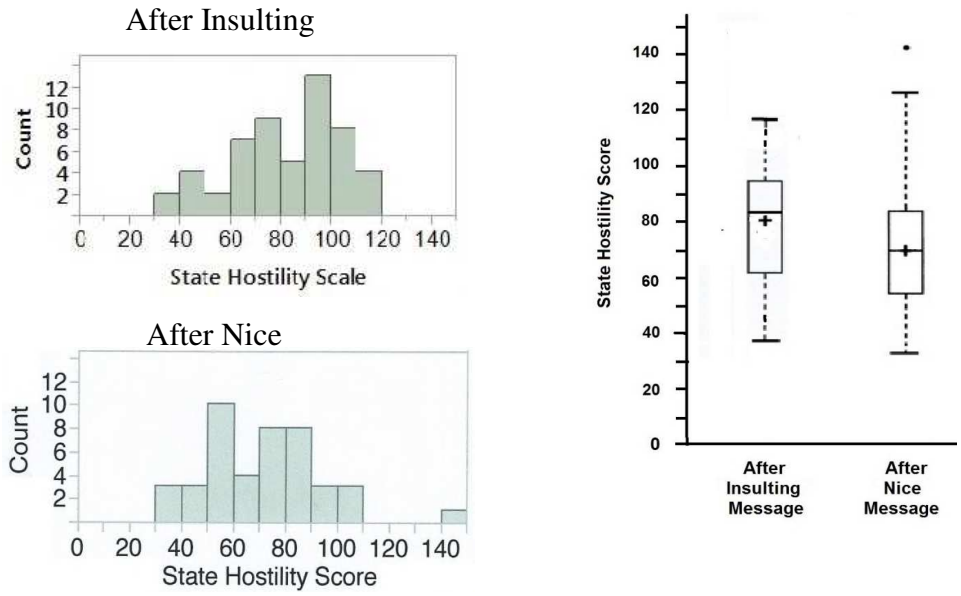
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Answer Location: Letter Value Display

Cognitive Domain: Comprehension

Difficulty Level: Medium

For questions 4 and 5, use the following graphs to answer.



4. From these graphs, which type allows you to determine the mode of a condition?

a. histogram

b. stem-and-leaf

c. boxplot

d. quantile plots

Ans: A

Answer Location: Descriptive Statistics

Cognitive Domain: Application

Difficulty Level: Easy

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5. Which of the graphs shows the range of scores containing 50% of the data?

a. histogram

b. stem-and-leaf

c. boxplot

d. quantile plots

Ans: C

Answer Location: Boxplots

Cognitive Domain: Application

Difficulty Level: Easy

6. You can display a five-number summary graphically as a:

a. quantile plots.

b. bar graph.

c. boxplot.

d. histogram.

Ans: C

Answer Location: Boxplots

Cognitive Domain: Knowledge

Difficulty Level: Easy

7. In a stem-and-leaf plot of scores ranging from 24 to 95, a score of 42 would be located at a stem value of _____.

a. 4

b. 2

c. 40

d. 02

Ans: A

Answer Location: Stem-and-Leaf Displays

Cognitive Domain: Application

Difficulty Level: Medium

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8. Scores that lie far from the others in a distribution are called:

a. deviants.

b. outlanders.

c. outlaws.

d. outliers.

Ans: D

Answer Location: Descriptive Statistics

Cognitive Domain: Knowledge

Difficulty Level: Easy

9. The median is derived by:

a. finding the most frequent score in a distribution.

b. finding the middle score in an ordered distribution.

c. summing the scores in the distribution and dividing by the number of scores.

d. averaging the middle pair of scores in an ordered distribution.

Ans: B

Answer Location: Descriptive Statistics

Cognitive Domain: Knowledge

Difficulty Level: Easy

10. For a boxplot, the point inside the box indicates the location of the _____.

a. mean

b. median

c. mode

d. outlier

Ans: A

Answer Location: Boxplots

Cognitive Domain: Knowledge

Difficulty Level: Easy

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11. One advantage of using a stem-and-leaf plot rather than a histogram is that the stem-and-leaf plot:

a. shows the shape of the distribution more easily than the histogram.

b. changes easily from frequency to relative frequency.

c. shows all of the data on the graph.

d. presents the percentage distribution of the data.

Ans: C

Answer Location: Stem-and-Leaf Displays

Cognitive Domain: Analysis

Difficulty Level: Medium

12. Which of the following is not a method recommended by the text to test to see if data come from normal distribution?

a. stem-and-leaf displays

b. Shapiro-Wilk W test

c. Kolmogorov-Smirnov-Lilliefors goodness of fit

d. normal quantile plots

Ans: A

Answer Location: Did My Data Come From a Normal Distribution?

Cognitive Domain: Comprehension

Difficulty Level: Hard

13. When using normal quantile plots when all of the data are inside the confidence bands, then there is:

a. little variability.

b. much variability.

c. no evidence that the data did not come from a normal distribution.

d. evidence that the data did not come from a normal distribution.

Ans: C

Answer Location: Normal Quantile Plots

Cognitive Domain: Knowledge

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Difficulty Level: Medium

14. The _____ test was developed to compare how well a theoretical model fits a set of data.

a. Kolmogorov-Smirnov-Lilliefors goodness of fit

b. confirmatory analysis

c. kurtosis

d. stem-and-leaf

Ans: A

Answer Location: Kolmogorov-Smirnov-Lilliefors Goodness of Fit

Cognitive Domain: Knowledge

Difficulty Level: Easy

15. Shapiro-Wilk W test is used to measure:

a. skewness.

b. kurtosis.

c. normal distributions.

d. variance.

Ans: C

Answer Location: Shapiro-Wilk W Test

Cognitive Domain: Knowledge

Difficulty Level: Easy

True/False

1. Using the mean, median, and mode provide the complete information about your distribution.

Ans: F

Answer Location: Descriptive Statistics

Cognitive Domain: Comprehension

Difficulty Level: Medium

2. Kurtosis is an index of how much the distribution of scores are either to left or right of the mean.

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Ans: F

Answer Location: Descriptive Statistics

Cognitive Domain: Knowledge

Difficulty Level: Easy

3. Exploratory data analysis looks for patterns and evidence in data.

Ans: T

Answer Location: Exploratory Data Analysis

Cognitive Domain: Knowledge

Difficulty Level: Easy

4. When a distribution is negatively skewed the mean will be greater than the median.

Ans: F

Answer Location: Descriptive Statistics

Cognitive Domain: Knowledge

Difficulty Level: Easy

5. Quantiles show the number of scores that are below a value and the standard deviation.

Ans: F

Answer Location: Quantile Plots

Cognitive Domain: Knowledge

Difficulty Level: Medium

6. A shallow slope on a quantile plot indicates successive data points are relatively close together.

Ans: T

Answer Location: How to Interpret a Quantile Plot

Cognitive Domain: Comprehension

Difficulty Level: Hard

7. Stem-and-leaf displays are especially useful for large data-sets.

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Ans: F

Answer Location: Stem-and-Leaf Displays

Cognitive Domain: Application

Difficulty Level: Medium

8. On a stem-and-leaf display outliers are indicated on the stems.

Ans: F

Answer Location: Stem-and-Leaf Displays

Cognitive Domain: Knowledge

Difficulty Level: Easy

9. The simplest letter value display is the seven-letter value display.

Ans: T

Answer Location: Letter Value Display

Cognitive Domain: Knowledge

Difficulty Level: Easy

10. It has been shown that a normal distribution of data does not significantly impact the interpretation of results.

Ans: F

Answer Location: Why Should We Care About Looking at our Data?

Cognitive Domain: Comprehension

Difficulty Level: Medium

11. The addition of whiskers is the difference between a boxplot and a skeletal box plot.

Ans: T

Answer Location: Boxplots

Cognitive Domain: Comprehension

Difficulty Level: Easy

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12. The confidence bands of a normal quantile plot can be used to determine if a distribution is not normal.

Ans: T

Answer Location: Normal Quantile Plot

Cognitive Domain: Knowledge

Difficulty Level: Easy

13. When the Kolmogorov-Smirnov-Lilliefors goodness-of-fit test is significant, it means that the data is not normally distributed.

Ans: T

Answer Location: Kolmogorov-Smirnov-Lilliefors Goodness of Fit

Cognitive Domain: Application

Difficulty Level: Easy

14. A value of 1 for the Shapiro-Wilk W test indicates the distribution is perfectly normal.

Ans: T

Answer Location: Shapiro-Wilk W Test

Cognitive Domain: Application

Difficulty Level: Easy

15. Shapiro-Wilk W test measures the average level of variance.

Ans: F

Answer Location: Shapiro-Wilk W Test

Cognitive Domain: Knowledge

Difficulty Level: Easy

Essay

1. What is a problem with using histograms?

Ans: The essential problem lies in the fact that the picture you get depends on the width of the intervals you choose for your histogram.

Answer Location: Descriptive Statistics

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Cognitive Domain: Comprehension
Difficulty Level: Medium

2. How do you interpret quantile plots?
Ans: When the bulk of the data are above the line, the skew in the data is negative (skewed left), and when the bulk of the data are below the line, the skew in the data is positive (skewed right).
Answer Location: Quantile Plots
Cognitive Domain: Comprehension
Difficulty Level: Hard

3. Why is it important to look at ones data?
Ans: The author discusses how studies can be misinterpreted when researchers do not investigate the distribution of the scores.
Answer Location: Why Should We Care About Looking at our Data?
Cognitive Domain: Application
Difficulty Level: medium

4. Name and briefly describe each of the three tests used to determine if a data set is normally distributed.
Ans: The normal quantile plot is a graphical display of normal distribution whereas the Kolmogorov-Smirnov-Lilliefors goodness-of-fit test and Shapiro-Wilk W test are statistical tests. If the results of the normal quantile plot differ from the other two, the normal quantile plot should be discarded.
Answer Location: Did My Data Come From a Normal Distribution?
Cognitive Domain: Analysis
Difficulty Level: Hard

5. What is the difference between histograms and stem-and-leaf displays?
Ans: The fundamental difference between the two is that the histogram combines a range of scores together, and you “lose” some of the data compared to a stem-and-leaf that shows all the data.

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Answer Location: Descriptive Statistics and Stem-and-Leaf Displays

Cognitive Domain: Analysis

Difficulty Level: Medium

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