Assignment 1

Due: Friday January 22, 2021 11:59 PM (Atlantic Standard Time)

Assignment description

You may use R, or Minitab, or another statistical package of your choice in this course. In addition to your answers to the questions, please include the relevant output in the box for each question.

Submit your assignment

Help

After you have completed the assignment, please save, scan, or take photos of your work and upload your files to the questions below. Crowdmark accepts PDF, JPG, and PNG file formats.

Q1 (2 points)

Use a concrete example of your choice to describe the population and a sample.

Q2 (2 points)

Exercise 26 on page 24. Note the graph is more commonly called a bar graph/chart/plot instead of a histogram.

Q3 (12 points)

One of the advantages that concrete structures have over steel structures is fire resistance (which is to say, steel becomes weak when heated). The time, T, that it takes a steel girder to reach certain temperature (where its strength becomes too low to support its load) in a fire is, however, random. Suppose that for design code development, the following data has been gathered on the time T in hours:

$$\begin{array}{cccccccc} 0.736 & 0.863 & 0.865 & 0.913 & 0.915 & 0.937 & 0.983 & 1.007 \\ 1.011 & 1.064 & 1.109 & 1.132 & 1.140 & 1.153 & 1.253 & 1.394 \end{array}$$

(a) Calculate the values of the following statistics: sample mean, sample median, sample standard deviation, sample range, the five-number summary and the interquartile range.

(b) Are there any outliers? Why?

(c) Construct a histogram, a stem-and-leaf diagram and a boxplot for these data.

(d) Based on the graphs in (c), what is the shape of the distribution: it is symmetric, skewed to the left or skewed to the right?

Q4 (5 points)

Exercise 52 acd, on page 43.

Q5 (2 points)

Exercise 56 c on page 43.