RIT

STAT 614 Applied Statistics

Spring 2023

Homework #1

Numerical and Graphical Summaries

1. Data containing the number of seconds required for 30 offshore oil workers to escape from an oil platform is included in the file escape.csv.
   a. Provide a graphical summary of the escape times and comment on the shape of the distribution
   b. Provide a numerical summary of the escape times.
   c. Does the data include any outliers? Any extreme outliers?
   d. Provide a boxplot of the data and comment on its features

2. Oxygen consumptions (liters) was measured continuously for 30 minutes for each of 15 subjects after a weight training exercise and separately after a treadmill exercise. The data are in oxygen.csv.
   a. Provide graphical summaries of the oxygen data after the treadmill exercise and after the weight training exercise and comment on the shape of the distributions.
   b. Do you think that there is a linear relationship between oxygen consumption after the weight training exercise and the treadmill exercise? Is there a strong, moderate, weak, or null/no relationship? Provide a plot that helps you answer these questions.

3. Data containing quality ratings from 43 test parts is included in the file QualityRating.csv. Parts are rated from A-E with A as the best rating and E as the worst
   a. Provide a graphical summary of the frequency of each category. Comment on what you see.
   b. Provide a table with the counts of each category and the percentages of each category.

4. Data containing the satisfaction ratings from testers of a new candy are in candy.csv. The data contains ratings from 100 consecutive batches of candy. Are the ratings stable over time? Explain. Provide a plot that helps explain your answer.