

ENGI 4421 Probability & Statistics
Assignment #1
to be submitted via Brightspace
no later than 13:00 on
2022 May 23

The diameters (in mm) are measured for a random sample of 145 cables produced for power and communications connections to a large structure. These 145 diameters are available in the file <http://www.engr.mun.ca/~ggeorge/4421/assigns/aa/diameters22.txt> .

- (a) Use Minitab's "Display Descriptive Statistics" feature to generate the values of [4]
sample size, arithmetic mean, standard deviation, least value, lower quartile, median, upper quartile and greatest value for this sample and also generate the default "histogram" (bar chart) with the appropriate normal curve superimposed.
- (b) Generate a box plot, oriented vertically, with clearly visible gridlines at the values [4]
43.0, 44.0, 45.0, 46.0 and a change of colour and/or hatching within the box of the box plot. Ensure that there is a line to mark the location of the median and symbols for the mean and the outlier(s).
- (c) Show your calculations to determine whether the outlier(s) is/are mild or extreme. [6]
- (d) Generate a histogram with clearly visible horizontal gridlines and with [6]
intervals whose boundaries are at 42.00, 44.00, 44.50, 44.75, 45.00, 45.25, 45.50 and 46.00 mm, with appropriate labels and title. Also display horizontal axes labels for integer values of diameter only (42, 43, 44, 45 and 46).
- (e) Use the tool tip on your histogram to find the height of the bar in the interval [6]
[44.50, 44.75) and show your calculation to determine the frequency in that interval.
- (f) Comment on the evidence that you see for positive, negative or no skew. [7]
- (g) Comment on whether the outlier(s) may be genuine observation(s) or are more [7]
likely to be error(s).

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