ENGI 4421 Probability & Statistics
Assignment #1
to be submitted by 2021 May 24 at 13:00
as a PDF file through Brightspace (D2L)

A maximum of 80 hours is allocated to one particular phase of a construction project.   From the contractors who complete the task within the time allocated, the times needed to complete that phase (in hours) are recorded for a random sample of 50 projects.   These 50 times are available in the file   http://www.engr.mun.ca/~ggeorge/4421/assigns/aa/CompletionTimes21.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] 55, 60, ..., 75, 80 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 50, 60, 65, 70, 75 and 80 h, with appropriate labels and title.

(e)   Use the tool tip on your histogram to find the height of the bar in the interval   [6] [75, 80) and show your calculation to determine the frequency in that interval.

(f)   Comment on the evidence that you see for positive or negative skew.   [7]

(g)   Comment on whether the outlier(s) may be genuine observation(s) or are more   [7] likely to be error(s).