Goal: The goal of this lab assignment is to give you more experience analyzing data in Minitab. The emphasis in this assignment is on confidence intervals.

Problem: You are an analyst for a large real estate firm in Venice, Florida. You have been asked to examine data from a sample of 105 homes sold in the Venice, Florida area. Of particular interest are the selling prices of the homes and the distances of homes to the center of the city.

Data: The data are given in Data Set 1 in Appendix J of your textbook. Read the variable descriptions on page 718 of your textbook. To avoid typing in the data, you can read it off of your Student CD Rom that accompanies the textbook, access it via the ST204 web page, or find it on the g: drive in Weber 205/206. To open the data file: within Minitab, select File, Open Worksheet, and then select this data file (data1.mtw).

Report: Analyze the data as described below and write a report, answering each question in turn. Start by opening a word processing document. Type your name, lab section #, TA’s name, and Lab Assignment 2 at the top of your document. Number each question and use complete sentences for any descriptions requested below.

1. Obtain summary measures and graphs of the data using Stat, Basic Statistics, Display Descriptive Statistics. Enter Price (C1) and Distance (C5) in the Variables box. Select Graphs, and then check the box next to Histogram of data, with normal curve. Copy and paste the Descriptive Statistics from the Session window to a word processing document. (2 points).
2. Copy and paste the histogram for Price to your document. Below or beside the graph, comment on the shape of the distribution (skewness, symmetry, normality, etc.). You may want to format the object (graph) wrapping to square, to be able to type beside the graph. (4 points)
3. Copy and paste the histogram for Distance to your document. Below or beside the graph, comment on the shape of the distribution (skewness, symmetry, normality, etc.). (4 points)
4. Investigate the possible normality of the variable Price by obtaining a normal probability plot for the data. Select Graph, Probability Plot. Select Price in the Variables box. Leave the Frequency columns blank. Leave the distribution as Normal, and select OK to obtain the plot. Copy and paste the normal probability plot for Price to your document. Change the wrapping as needed, and comment below or beside the graph as to whether or not you believe that this sample could have come from an normal population. Give a reason for your opinion. (4 points)
5. Repeat the directions given in #4 for the variable Distance, giving an opinion regarding whether the sample could have come from a normal population, and a reason for your opinion. (4 points)
6. Using the mean and standard deviation given in the Descriptive Statistics for Price, use a calculator to compute a 95% confidence interval estimate for the mean selling price of all homes for the population from which the sample was obtained. Show enough of your work that your TA can verify your calculations. (4 points)
7. Now obtain a confidence interval for the population mean using Minitab. Select Stat, Basic Statistics, 1-Sample Z. Select Price in the Variables box. Leave the confidence level at 95%. [Note: If you are using the professional version of Minitab, you will need to select Options to be able to set the confidence level.] For Sigma, enter the value obtained in the Descriptive Statistics
for the standard deviation of Price. Select OK to obtain the confidence interval. Copy and paste the results from the Session window to your document. (2 points)

8. Did the Minitab results give the same values for the confidence interval as the values you obtained in #6? (2 points)

9. Give an interpretation of the confidence interval for Price. Interpret the confidence interval in terms of the problem (this means: use “English” words in place of statistical words wherever possible). (2 points)

10. Repeat #7, changing the confidence level to 99%. Copy and paste the results from the Session window to your document. Did the confidence interval get wider, narrower, or stay the same? (4 points)

11. Using the mean and standard deviation given in the Descriptive Statistics for Distance, compute a 97% confidence interval estimate for the mean selling price of all homes for the population from which the sample was obtained. Write or type this information in your document. Show enough of your work that your TA can verify your calculations. (4 points)

12. Use the instructions in #7 to obtain a 97% confidence interval for the population mean distance to the center of the city. You will need to change the confidence level and the value of Sigma to the appropriate values. Copy and paste the results to your document. Do your results in #11 agree with your results from Minitab? (4 points)