

Math 155: Minitab Assignment #1
Due Wednesday, September 21, 2016

Follow all instructions. Certain steps call for written responses (the word “write” is underlined at these steps). These responses should be easy to read and well organized, and they should be on a separate sheet of paper (NOT on this instruction sheet). Also, certain steps call for a diagram or window to be printed out (the word “print”) is underlined at these steps).

Turn in all written responses, and all requested printouts, at the beginning of class on Wednesday, September 21.

(Note: “written” responses may be handwritten or typed; I have no preference, as long as I can easily read your answers!)

(Advice: Set a goal of finishing this assignment by *Friday*, or *Monday* at the latest. This will give you the opportunity to seek help, if you need it, and still complete the assignment on time. If you wait too long to get started, you will lose this opportunity!)

Part One:

1. Load the “Cars” worksheet into a Minitab worksheet. You can load this from the class web page (under “Class Notes,”) from the campus network (K:\MATH\Math 155\Ludwick\CARS.MTW) as shown in class, or from the CD-ROM included with the print textbook. Select “Open Worksheet” from the “File” menu to open CARS.MTW in Minitab. If you have difficulty accessing the file, please ask for help as soon as possible.

NOTE: From the Minitab “File” menu, make sure to select “Open Worksheet, ” rather than “Open Project.”

For this assignment, we’ll be working with the “size” and “highway” columns. The “size” column simply categorizes each car as small, medium, or large. “Highway” measures each car’s mileage in miles per gallon for highway driving.

2. Create a histogram for the HIGHWAY scores. (Graph>Histogram; select “Simple” and then “HIGHWAY”). Print the resulting diagram (File>Print Graph).
3. Write your answers to each of the following questions.
 - a. How many class intervals does Minitab use to make the histogram you found for #2? What is the width of each class interval?
 - b. Does the histogram from #2 appear to be symmetric, skewed left, or skewed right? Briefly explain your answer.
 - c. Based on the shape of the histogram from #2, approximately where does the “center” of the data set appear to be? Briefly explain your answer. (Note – you can only get a rough approximation of this from a histogram, so don’t worry too much about accuracy; I’m more interested in the reasoning that goes into your answer than in how close it is to being exactly correct.)
4. Create a new histogram for the HIGHWAY scores. This time, though, before creating the histogram, click on the “Multiple Graphs” button, and then select the “By Variables” tab. In the box under “By variables with groups in separate panels”, enter SIZE. Click “OK”, then “OK” again. Print the resulting diagram.
5. Write your answers to each of the following questions:
 - a) What information does this diagram from #4 provide that was not provided by in the diagram from #2?
 - b) Based on the diagram from #4, does it appear to you that car size has an effect on highway mileage? Explain your conclusion.
 - c) Based on the diagram from #4, for which class of cars (small, medium, or large) would you say there is the greatest variation among results for highway MPG? Which class appears to have the least variation in these results? Explain your conclusion.

Part Two:

1. Select Stat>Basic Statistics>Display Descriptive Statistics. Select HIGHWAY and click “OK.”
2. Select Stat>Basic Statistics>Display Descriptive Statistics, and select HIGHWAY, just as in #1. However, before clicking “OK” this time, *first* click in the “By Variables” box and select SIZE.
3. **Print** the Session Window (File>Print Session Window). This is the window containing your descriptive statistics output from #1 and #2 above. (There will be some other stuff in this printout also, but that’s fine, as long as your output from #1 and #2 is in there somewhere.)
4. **Write** your answers to the following questions:
 - a. From #1, what are the values of the mean, median, and standard deviation of the set of highway mileage measurements?
 - b. What additional information does the output from #2 give us that is not provided in the output from #1?
 - c. Does the information provided here support your conclusions in #5b and #5c from Part One of this assignment? Explain.