Lab Assignment #5

This lab is due at 9:35 AM on Wednesday, 2/7 and is worth 12 points. This may be done individually, but I would prefer if it is done in a group of 2 or 3 or 4 people.

You can make graphs by hand or on a spreadsheet or something (but then print them on paper.) Boxplots are probably best done by hand. But maybe not.

* PLEASE READ ALL INSTRUCTIONS BEFORE YOU BEGIN.

* Your report must be in the following form:

Introduction. What are you studying? Why is it important? What are you trying to accomplish? How?
Data Collection. Where do your numbers come from?
Results/Discussion. Please write in paragraph form, just like you would in an English paper. Include pictures as needed, and present numerical data in any form you like and believe effective (a table or sentences). The majority of the report will be in this section. Do not include original data in this section. Discuss all of your results.
Summary. Briefly summarize: what did you learn? What might you do differently if you did a similar study?
Appendix. Raw data and any scratchwork or calculations you used to get your final numbers. See below. Raw data MUST BE INCLUDED.

* Your assignment is to turn in this report. Think of this as any paper you would write for any class. Write smoothly flowing paragraphs with a focused topic for each paragraph. This report should stand alone, and make sense without referring back to these original lab instructions. Don't just answer the questions. REFER TO THE SAMPLE REPORT FROM THE FIRST DAY OF CLASS FOR AN IDEA OF AN ACCEPTABLY WRITTEN REPORT.

* Raw data go in the Appendix. Calculations (if any) also go in the Appendix, but the **results of the calculations go in the Results/Discussion section.** (Results include, but are not limited to, averages, standard deviations, 5-number summaries.)

* To use Greek letters and symbols in Microsoft Word, there are two options. One: select Insert, then Symbol, then select the appropriate symbol from the palette. Two: type the corresponding letter in our alphabet, highlight, and change the font to Symbol.

Here are SAT scores and high school GPAs for a sample of 20 first-year college students. These raw data must go in the appendix of your report.

Gender	Major	SAT	GPA	Gender	Major	SAT	GPA
Male	English	1232	3.21	Female	English	1289	3.31
Male	English	1046	2.53	Female	English	1183	3.03
Male	English	1170	2.81	Female	English	1075	2.75
Male	English	1095	2.57	Female	English	1136	3.00
Male	English	1127	2.95	Female	English	1231	3.32
Male	Biology	1468	3.58	Female	Biology	1288	3.31
Male	Biology	1289	3.29	Female	Biology	1473	3.73
Male	Biology	1078	2.89	Female	Biology	1436	3.55
Male	Biology	1284	3.21	Female	Biology	1187	3.45
Male	Biology	1103	2.55	Female	Biology	1145	3.20

Find the mean, standard deviation, and 5-number summary for SAT scores for the ten English majors. Find the mean, standard deviation, and 5-number summary for GPA for the ten English majors. Display your results in paragraph form or a table, whichever you find more effective. Also, draw a box-plot for each variable (SAT score and GPA).

Repeat for Biology majors. Put your two GPA box-plots on the same number line, and your two SAT box-plots on the same number line, so that you can more effectively present your data.

For the ten male students, find mean and standard deviation of SAT scores. For the ten male students, find mean and standard deviation of GPA. Repeat for female students. (You do not need to do the 5-number summary or box-plot for students grouped by gender.)

Briefly compare and contrast your results for Biology and English majors. Briefly compare and contrast your results for male and female students. Questions to consider: Which group had the higher mean SAT? GPA? How much higher? Which group had more variability in scores? How did the smallest and largest values compare? Are there outliers? Suggestion: one 5-6 sentence paragraph for biology vs. English, and another 5-6 sentence paragraph for male vs. female.

Don't forget to write a brief summary.