ST597B: Homework 1. Due: Thursday 9/12/02.

- All homework must be handed in on time.
- As in life, neatness counts.
- You are encouraged to work together. That said, the following is obvious: if you simply copy and do not learn the material, you will neither learn the material nor do well in this class.
- Where you are asked to run a program, you should include a print out that has both the SAS program file and the output. Save paper: edit the output to eliminate dead space.
- In the interest of making the grader (aka John) more generous, please do not just say “see output” or “see attached”. Label items you have printed out and refer to them by the labels.

1. Read chapter 12 in Cody and Smith.
2. Do 12-1 in Cody and Smith.
   (a) Answers are in the back of the text. Please try on your own first. Also, please add comments to the programs to convince me that you understand what you are doing. No comments = no credit!
   (b) As a review, (by hand) perform an appropriate t-test to determine if there is a statistically significant difference in the mean score between the two groups. The estimated means for Groups P and D are 75.4 and 85.8 respectively. Estimates of the variances are 5.8 and 15.2 respectively. (We’ll see how to do this in SAS using PROC TTEST soon. Feel free to explore.)
3. Go to the course web site and download the “Brain Data.” A description of the dataset is in “Brain Story.” After downloading, run a SAS program to do the following:
   (a) Read the data. You can use different variable names if you like, but stay close to the original ones.
   (b) Sort the data by gender and descending MRLcount. Print out the subset of the data that includes the first five females and the first five males according to this sorting.
   (c) Plot the fsiq by the brain size with fsiq on the x-axis and brain size on the y-axis. Use MRLcount as a measure of brain size. Create a separate plot for each gender.
   (d) Convert the MRLcount variable to units of hundreds of thousands of pixels. Then use the if-then command to create a new variable that categorizes brain size as follows: 1 if the MRLcount is less than 8 hundred thousand pixels, 2 if the MRLcount is between 8 and 9 hundred thousand pixels (inclusive), add 3 if the MRLcount is greater than 9 hundred thousand pixels.
   (e) Save a permanent SAS data set that has the original data plus the new categorized brain size.