Computer Lab Project No. 7

Confidence Intervals, continued

In today's project, you'll learn how to use software in order to calculate confidence intervals for the mean, using the normal distribution and the t-distribution. Here is how it works:

1. Start StatCrunch.
2. If you want to calculate the confidence interval of a sample, then load it into StatCrunch.
3. Click on "Stat" in the menu bar.
4. If you want to use the t-distribution for the calculation of the confidence interval, then choose "T statistics" in the submenu, and if you want to use the normal distribution, then choose "Z statistics".
5. In the next submenu, choose "One sample".
6. In the following submenu, choose either "with data" or "with summary". Note that the confidence interval for the mean of a sample at a fixed confidence level depends only on the sample mean, the sample size and the standard deviation (either of the sample or of the population). If you choose "with summary", you'll have to enter these values, instead of providing the entire sample.
7. If you chose "with data", then you'll have to select the column that contains the data in the next popup window. You can ignore the other text fields and click "Next>".

   If you chose "with summary", then you'll have to enter the measurements of the sample mentioned above in the next popup window.
8. If you wish, you can check the box "Store output in data table".
9. Choose "Confidence Interval", and enter the desired confidence level.
10. Click "Compute!".

Here is what you should do today:

1. Load the data set titled *Body Data* into StatCrunch.
2. We'll only be interested in the pulse, but we will want to be able to analyze the data by gender. So you can delete all columns except for *Gender (1=Male)* and *Pulse*. This data set assumes gender is binary, which no doubt is outdated and inaccurate.
3. Calculate 90% and 95% confidence intervals for the population mean of the male population, using the appropriate method. To focus only on the male population, after choosing the variable "Pulse", use the text field labeled "Where:". Click "Build", and put together the condition "GENDER = 1". Don't add the results to the table.
4. In the window displaying the results, click "Options" and save them to your computer.
5. Proceed as above, but this time, the "where" condition is that the gender is 0, corresponding to "female."
6. Calculate and save a 90% and 95% confidence interval for the population mean again. Compare the confidence intervals you calculated for the pulses of males and females.