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.

Info

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!".

Do now

1. Load Data Set 1 (Body Data) into StatCrunch.

2. We'll only be interested in the pulse and gender columns, so you may delete all the other columns. Specifically, based on the sample, we want to investigate whether there is a significant difference between the pulses of the male and the female population. You can delete all other columns, using the "Edit" item of the menu bar.

3. Calculate 90% and 95% confidence intervals for the population mean of the pulses of the male and female population, using the appropriate method. To focus on pulse rates of the male population, e.g, you can use the "where" text field in the "One Sample T" menu: you select the pulse column, but put *where "Gender (1=M)"=1.* Similarly, you focus on those entries where the sex is 0 when analyzing the pulses of the female population. Don't add the results to the table.

4. In the window displaying the results, click "Options" and save them to your computer.

5. Include the four confidence intervals in a document, and interpret them. State whether you conclude that there is a significant difference between the pulse rates of the male vs. the female population, and why.

Finish

Follow the instructions given in the *Do now* section, and upload a pdf document named "Lab7-Firstname-Lastname.pdf" containing the four confidence intervals, your conclusion, and your reasoning, explained in your own words.