Table Number:_____ Group Name: _____

Group Members:_____ _____ _____

What is Normal?

Part I: Making Predictions

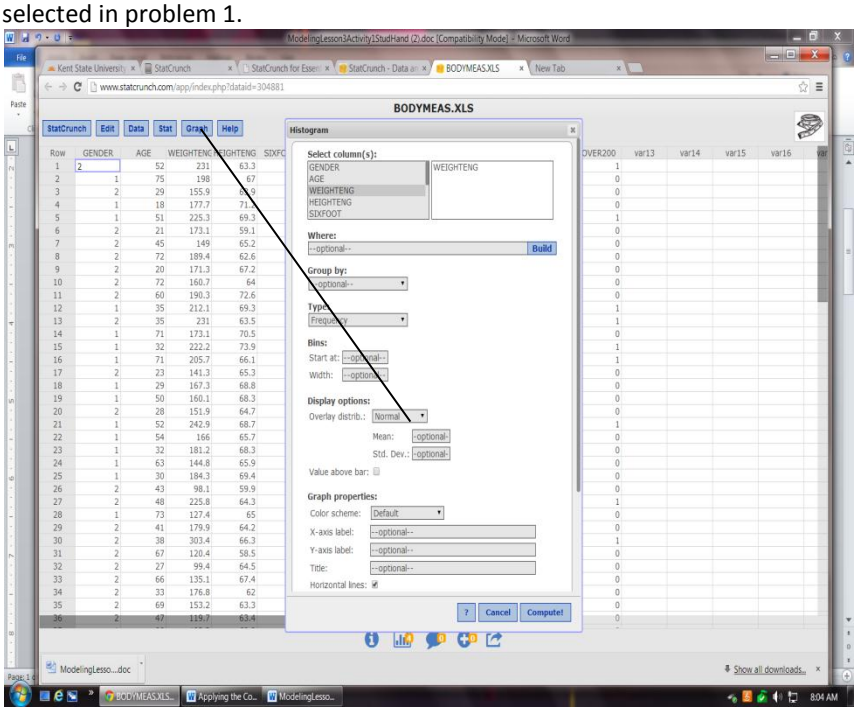
Consider the body measurements in the data set BODYMEAS on Stat Crunch

- ***Height***
- ***Weight***
- ***Leg length***
- ***Waist circumference***
- ***Thigh circumference***

1. Which variables do you expect to have a normal distribution? Why did you pick these?

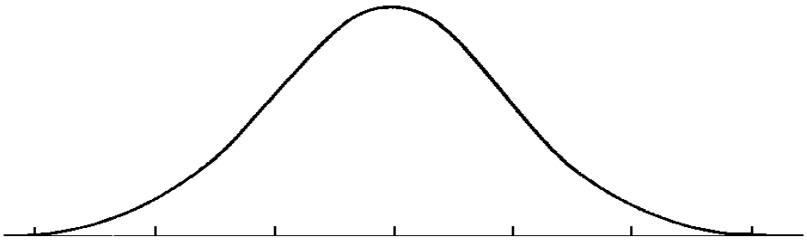
Part II: Using *StatCrunch* Examine Normal Distributions

Launch *StatCrunch* and access the *BODYMEAS* data set and **generate graphs and summary statistics** for the variables you selected in problem 1.



2. Which of those variables appear to be normally distributed? Explain.

3. Pick one distribution that appears to be normally distributed.
    - Draw a picture of the graph for this variable.
    - Label the mean.
    - Mark two standard deviations in each direction from the mean.



4. What is your measurement for this variable? (e.g., what is your own height?)

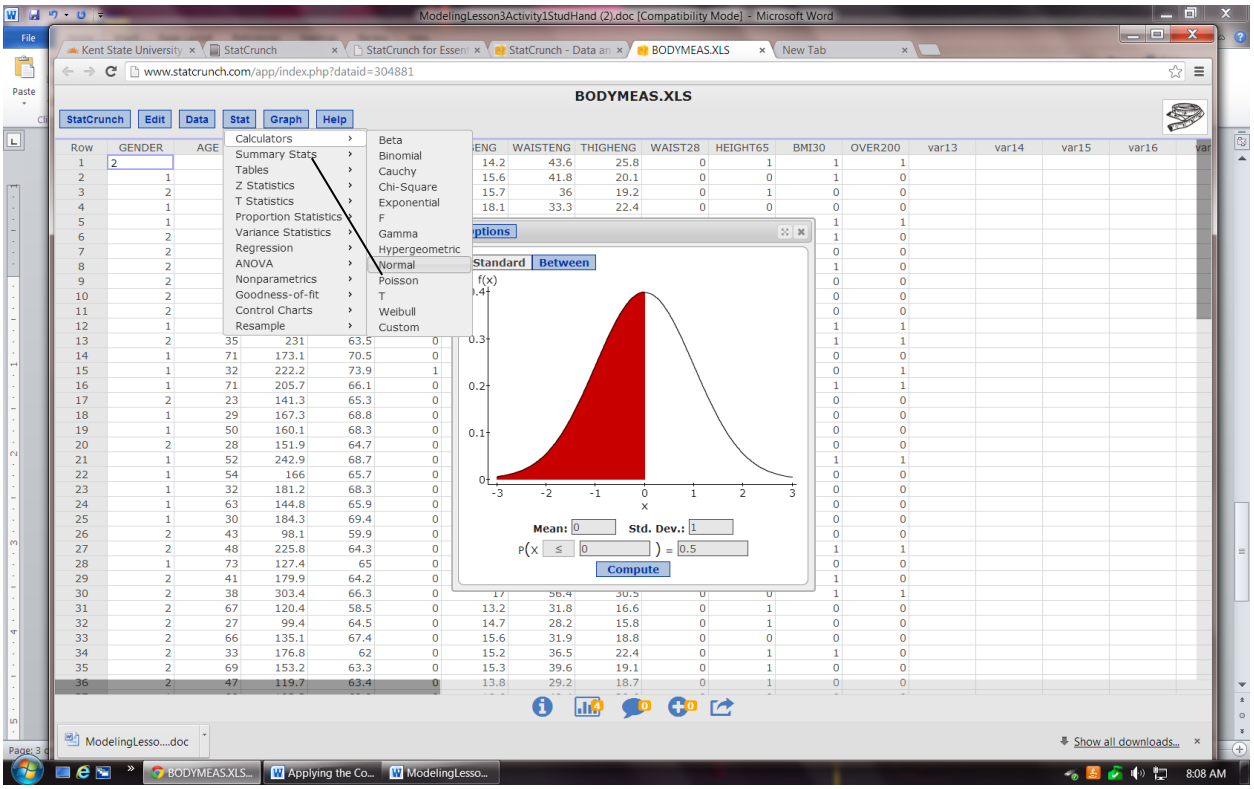
5. Mark your score on the graph. Are you close to center? In the tails? An outlier?

6. Find the *z*-score for your body measurement for that variable.

7. What does this *z*-score tell you about the location of your body measurement relative to the mean?

Part III: Using a Web Applet to Examine Normal Distributions

- Open the web applet in StatCrunch
- Click on calculators, normal



Using the variable you selected in problem 5, enter the mean and standard deviation of that variable found using *StatCrunch* into the proper boxes on the applet.

8. Use the applet to find the proportion of the distribution that is *greater than* your measurement.

9. Does this proportion make sense given the area that is shaded in the applet? Explain.

10. Use the applet to find the proportion of the distribution that is *less than* your measurement.

Reference:

Garfield, J., Zieffler, A., & Lane-Getaz, S. (2005). EPSY 3264 Course Packet,University of Minnesota, Minneapolis, MN.