Table	Number:	

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.

					BODYMEAS,XLS	
StatCru	nch Edit	Data	tat Graph	Help	Histogram x	50
Row	GENDER	AGE	WEIGHTENC	EIGHTENG SIX	FC Select column(s): DVER200 var13 var14 var15	var16
1	2	53	2 231	63.3	GENDER WEIGHTENG 1	
2	1	75	5 198	67	AGE 0	
3	2	29	155.9	68.9	WEIGHTENG	
4	1	18	177.7	71.2	HEIGHTENG 0	
5	1	51	225.3	69.3	SIXFOOT 1	
6	2	21	173.1	59.1	Where: 0	
7	2	45	149	65.2	Build 0	
8	2	73	189.4	62.6	V opened 0	
9	2	20	171.3	67.2	Group by: 0	
10	2	72	160.7	64	-optional 0	
11	2	60	190.3	72.6	0	
12	1	35	212.1	69.3	Тура	
13	2	35	i 231	63.5	Frequency	
14	1	71	173.1	70.5	0	
15	1	32	222.2	73.9	Bins:	
16	1	71	205.7	66.1	Start at:optional 1	
17	2	23	141.3	65.3	Width: optionA 0	
18	1	29	167.3	68.8	0	
19	1	50	160.1	68.3	Display options: 0	
20	2	21	151.9	64.7	Overlav distrib.: Normal	
21	1	53	242.9	68.7	1	
22	1	54	166	65.7	Mean: -optional-	
23	1	33	181.2	68.3	Std. Dev.: -optional-	
24	1	6.	144.8	65.9	Value showe har:	
25	1	30	184.3	69.4	Valle above bar, to 0	
26	2	43	98.1	59.9	Graph properties:	
27	2	48	225.8	64.3	Color schemes Default	
28	1	7.	12/.4	65	Color Screene. Desaul	
29	2	41	1/9.9	64.2	X-axis label:optional	
30	2	38	303.4	66.3	Y-axis label:	
31	2	6,	120.4	58.5		
32	2	2	99.4	67.A	ribe:optional 0	
33	2	60	135.1	67.4	Horizontal lines: M	
34	2		1/6.8	62.2		
- 36	2	65	153.2	63.3	? Cancel Compute!	
- 0	2		119.7	03.4		

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.