AS1(Assignment 1, Unit 5) Independent Measures t-test
Please write your responses in red ☺

A pharmaceutical company wishes to test the effects of a herbal supplement on anxiety levels. The researcher randomly selects a sample of n=16 adults from Essex County. The sample is randomly assigned to either the herbal supplement, Group B or a placebo, Group A.

Here are the data:

GROUP "A"	GROUP " B "
12, 16, 18, 21,	13, 18, 20, 16
17, l8, l8, 19	19, 21, 19, 22

l. What is the researcher's hypothesis? The herbal supplement WILL have an effect on anxiety levels.

2. What is the null hypothesis? The herbal supplement will NOT have an effect on anxiety levels.

3. What is the independent variable? Herbal supplement

4. What is the dependent variable? Anxiety levels

5. What is the name of the _research design_ in this study? Between-subjects research design

6. What is the appropriate _hypothesis test_ to analyze the data from this study? Independent-measures t-test

7. What are the two mean "differences" you are analyzing in these data? Ddd The differences between the Independent variable: the herbal supplement & the difference of the standard error.

8. What is the definition of a random assignment? It means that everyone in the random sample have equal chance of being put into a control group and the experimental group.

9. Why is using a random sample important in this study? Using a random sample is important because the point of studying a sample is to be able to generalize and infer the results of the study back to the population. The random sample allows the researchers to assume that the sample represents the population.

10. If a researcher failed to use random assignment, how would this affect the research conclusion? It would affect the conclusion because they would not be able to determine if the significance from the results had to do with the IV or with another factor.

11. If a researcher failed to use a random sample, how would this affect the research results? It would not be an accurate representation of the population and results cannot translate well back to the population. It would not be an accurate generalization.

12. Run the appropriate SPSS analysis on the data and cut and paste your SPSS results here:

Group Statistics

	VAR00002	N	Mean	Std. Deviation	Std. Error Mean
VAR00001	1.00	8	17.3750	2.61520	.92461
	2.00	8	18.5000	2.87849	1.01770

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance		Mean	Std. Error	95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Difference	Difference	Lower	Upper
VAR00001	Equal variances assumed	.149	.705	-.818	14	.213	.427	-1.12500	1.37500	-4.07408	1.82408
	Equal variances not assumed			-.818	13.873	.214	.427	-1.12500	1.37500	-4.07661	1.82661

13. Based on your SPSS results, please answer the following questions:

(a) What is the appropriate decision, reject the null or fail to reject the null?

(b) Write the "statistical statement" of your SPSS analysis: t(14)= -.818, p>0.5

(c) Please write your results as they might be written in a research study (refer to the "In the Literature" section of chapter lo of your textbook).

 The mean for the group that did not receive the herbal supplement was M=17.375 with a SD= 2.615. The mean for the group that did receive the herbal supplement was M= 18.5 with a SD= 2.878. The data failed to reach significance. t(14)= -.818, p>0.5

(d) Is there a probability of Type I error? No

(e) Is there a probability of Type II error? Yes