

LDG 660 SPSS Assignment 1

The following data represent weights in pounds of 21 pro football players (the variable called WTFT), and 19 pro basketball players (the variable called WTBK). A convenience sample was conducted.

Reference: Sports Encyclopedia of Pro Football, and Official NBA Basketball Encyclopedia

There are 5 steps (each worth 15 pts). The lab, in total, is worth 75 pts.

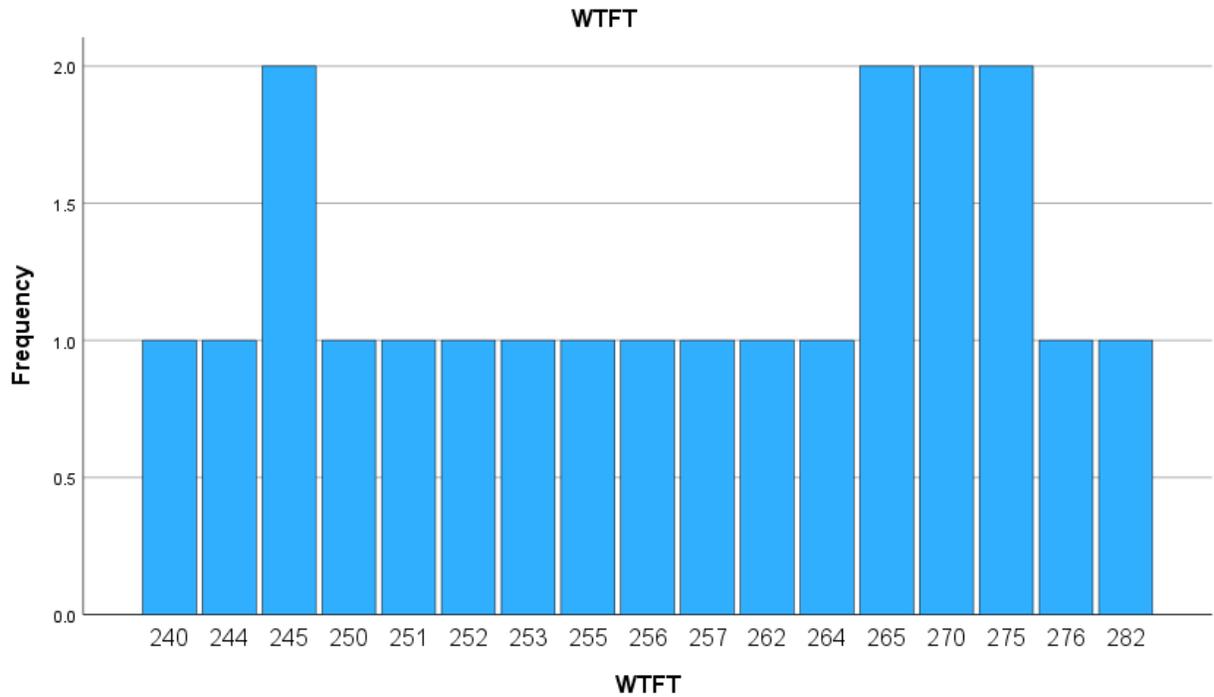
Step 1 (15 pts): Import the data into SPSS. Insert an image/screenshot below to confirm this.

	 WTFT	 WTBK
1	245	205
2	262	200
3	255	220
4	251	210
5	244	191
6	276	215
7	240	221
8	265	216
9	257	228
10	252	207
11	282	225
12	256	208
13	250	195
14	264	191
15	270	207
16	275	196
17	245	181
18	275	193
19	253	201
20	265	.
21	270	.
22		

Step 2 (15 pts): Generate any graph you would like for the weights of pro football players. Insert an image/screenshot below to confirm this.

Note: You could do this several ways:

- (1) Analyze → Descriptive Statistics → Frequencies – from here the Charts option will allow to output bar charts, pie charts, and histograms
- (2) Graphs → Chart Builder



Comment on what you see/what you can infer from the graph you generated.

I see that we have mode weight numbers of 245lbs, 265lbs, 270lbs, and 275lbs with our range being 42lbs. Our median weight was just around 259.5 lbs. with the mean being 259.6.

Step 3 (15 pts): Compute descriptive statistics for the weight of pro basketball players.

Note: Be certain to include in the output: mean, std deviation, variance range, minimum, maximum, and range (i.e. make sure these are checked).

Insert an image/screenshot below to confirm this.

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
WTBK	19	47.00	181.00	228.00	205.7895	12.89952	166.398
Valid N (listwise)	19						

What is the average weight of the 19 randomly selected basketball players?

205.79

What is the meaning of the standard deviation?

Hint: On average, each of the 19 data points varies Now, fill in the rest....

On average each of the 19 basketball players varies from the mean of 205.79lbs by about 12.9lbs.

Step 4 (15 pts): Test (at the 5% level of significance) the hypothesis that the true population mean weight of football players is equal to 250 lbs. Therefore, test the following:

Null: $\mu = 250\text{lbs}$

Alternative: $\mu \neq 250\text{lbs}$

Insert an image/screenshot below to confirm this.

One-Sample Test

Test Value = 0

	t	df	Significance		Mean Difference	95% Confidence Interval of the Difference	
			One-Sided p	Two-Sided p		Lower	Upper
WTF T	98.683	20	<.001	<.001	259.61905	254.1312	265.1069

What is the p-value?

P is less than 0.001

What is the decision rule (do we reject the null OR fail to reject the null)? (If the p value is small then you reject the null)

The decision rule is to reject the null.

What is the real-world conclusion?

The evidence supports the alternative that the true average weight of all football players is not equal to 250lbs.

Step 5 (15 pts): Do you think it is wise to use this sample data to make inferences and conclusions about the true weights for pro football and basketball players? Why or why not?

Hint: There are two things related to sampling that should likely be discussed in your answer.

No, I do not think it is wise to use this sample data to make inferences and conclusions about the true weights for pro football and basketball players. This is because we utilize a non-probability approach that does not guarantee random sampling, which makes the data fair and representative of the greater population. Also, the sample size of this data set is small so it does not cover enough of the population to make a conclusion on the masses.