

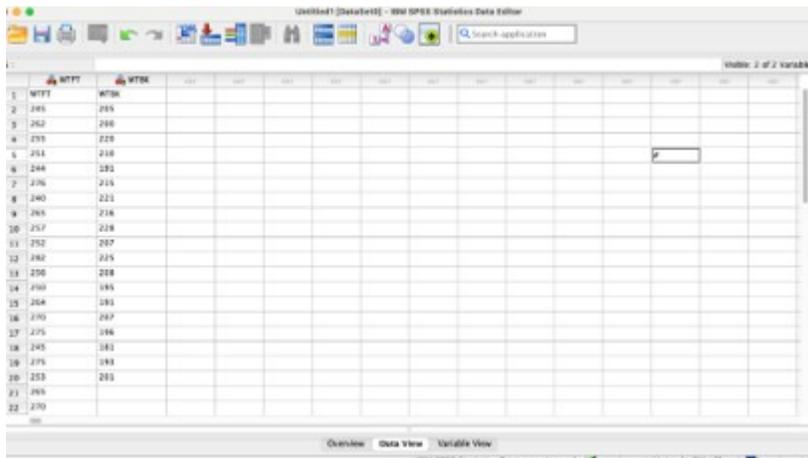
# LDG 660 SPSS Assignment 1

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.

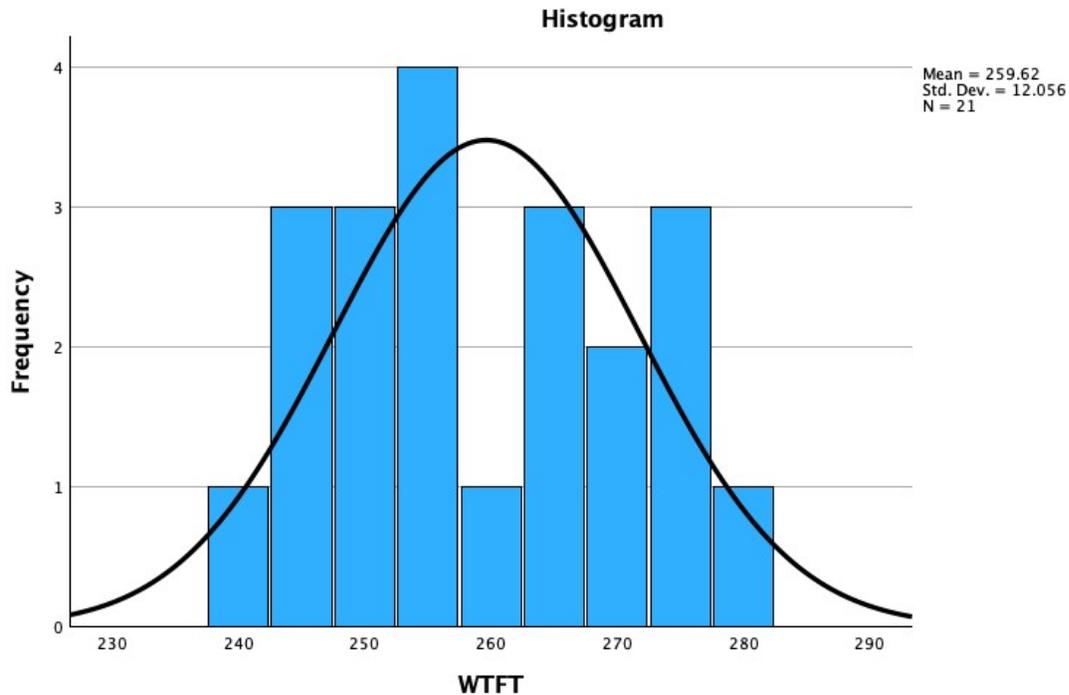


	WTFT	WTBK
1	271	206
2	285	205
3	262	200
4	275	220
5	251	218
6	244	202
7	236	215
8	240	221
9	265	218
10	257	228
11	252	207
12	260	205
13	250	208
14	260	196
15	264	203
16	270	207
17	235	196
18	245	201
19	235	199
20	253	203
21	265	
22	270	

**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.

**Based on the graph, I can infer that the mean is under 260 lbs, the standard deviation is about 12 lbs.**

**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.

Descriptive Statistics								
	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance	
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic
WTBK	19	47	181	228	205.79	2.959	12.900	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 205.79 lbs by about 12.9 lbs.

**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:  $\mu = 250$ lbs

Alternative:  $\mu \neq 250$ lbs

Insert an image/screenshot below to confirm this.

One-Sample Test		Test Value = 0		Significance		Mean Difference		95% Confidence Interval of the Difference	
		t	df	One-Sided p	Two-Sided p			Lower	Upper
WTFT		98.683	20	<.001	<.001	259.619		254.13	265.11

What is the p-value?

P is <.001

What is the decision rule (do we reject the null OR fail to reject the null)?

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

What is the real-world conclusion?

The true average weight of all football players is not equal to 250 lbs.

**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.*

Yes, you can use convenience sample. Convenience sampling is a non-probability-based approach, it does not guarantee any sort of random sampling. Random sampling is fair and representative of the entire population. The sample size is small. We would want our sample size to be 30 or greater.