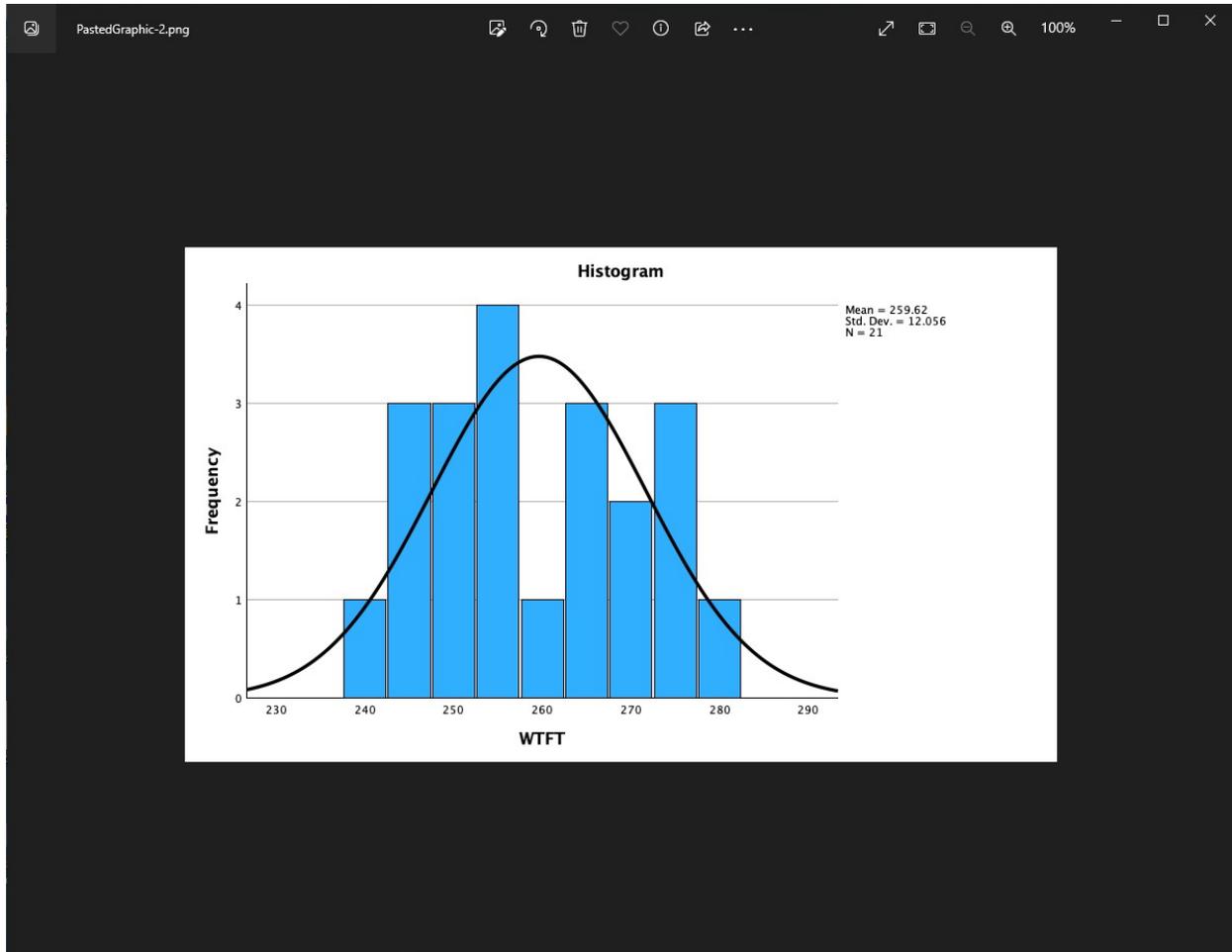




**Step 2 (15 pts):** Generate any graph you would like for the weights of pro football players. Insert an image/screenshot below to confirm this.

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.

-Generally this is not normal, mean is just 260lbs, 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							

$$12.9 * 12.9 = 166.398$$

What is the average weight of the 19 randomly selected basketball players? 205.79lbs

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 means of 205.79lbs and 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		Significance		Mean Difference	95% Confidence Interval of the Difference	Lower	Upper
	t	df	One-Sided p	Two-Sided p				
			WTFT	98.683	20	<.001	<.001	259.619

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, you reject the null. If the p-value is less than or equal to the level of significance (.05), then reject the null.

0.001 compare 0.05- decision rule is to reject the null. The evidence supports the alternative that the true average weight of all football players is not equal to 250lbs

What is the real-world conclusion? 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.*

1. *We used a convenience sample.  
Non-probability approach, therefore, it does not guarantee any type of random sampling.  
Fair and representative of the entire population.*
2. *Small sample size.  $N=30$  or greater.*