

Lead 702, week 2 – Statistic assignement  
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Dear Sir,  
Here is the end of the day report:

Chart No 1 – Mean, median and mode. Median Column (Frequency) Median Column (Value)

Item name	Freq	Value	Total Sale			Median Column	
Huge burger	20	2,95	59	Yummy burger	17	Baby burger	26,82
Baby burger	18	1,49	26,82	Baby burger	18	Yummy burger	33,83
Chicken littles	25	3,5	87,5	Porker burger	19	Coney dog	39,8
Porker burger	19	2,95	56,05	Coney dog	20	Huge burger	59
Yummy burger	17	1,99	33,83	Huge burger	20	Porker burger	56,05
Coney dog	20	1,99	39,8	Chicken littles	25	Chiken littles	87,5
Total specials sold	119		303				
Mean X=S/T	19,83		50,5				
Median	20		69,3				
Mode	Huge burger	Coney dog	20 per item				

Salking 2017 Pg

Chart No 2 –income (frequency x value)

Median Column	
Baby burger	26,82
Yummy burger	33,83
Coney dog	39,8
Huge burger	59
Porker burger	56,05
Chiken littles	87,5
Mode	87.5
Median	49.4

Chart No 3 –Items by frequency

Median Column	
Yummy burger	17
Baby burger	18
Porker burger	19
Coney dog	20
Huge burger	20
Chicken littles	25
Median	20

I would like to start with the first index called average mean, out of the concept of “measure of central tendency”. To show you a clear picture of today’s movement, I applied the average mean formula hereafter:

$\bar{X} = \Sigma X / n$ , (Salkind, 2017, pg 22), where  $\bar{X}$  is the average mean, X represents the number of items sold or frequency,  $\Sigma$  is the symbol of sum, and n is the number of items sold or sample. Therefore, it is going to be represented this way:

$$\bar{X} = \Sigma X / n \Rightarrow \bar{X} = 20+18+25+19+17+20/6 \Rightarrow \bar{X} = 119/6 \Rightarrow \bar{X} = 19.83$$

The conclusion is that the average mean frequency of sale per item is 19.83

However, I noticed the mode in sale among the items, according to Chart no 3 is 20. As you see the mode and the mean are very close. The mode is number of items with the same frequency and the median is the middle value, when the frequency is listed from the lower to the higher (Salkind, 2017, pg. 26 and 29).

Also, the median for the frequency coincides with the mode, which is 20. It important to notice that there is an even number of items, whereas the mid two items carries the same value that leads to have a mode and median with the same value.

Summarizing, we have:

Average mean = 19.83

Average median = 49

Average mode = 20

It becomes yet more interesting if we consider the measures of central tendency (Average mean, median and mode) (Salkind, 2017, pg. 22, using the value of sale income, applying data of Chart no 2.

$$\bar{X} = \Sigma X / n \Rightarrow \bar{X} = 26.82+33.83+39.8+59+56.05+87.50/6 \Rightarrow \bar{X} = 303/6 \Rightarrow \bar{X} = 50.50$$

To calculate the median of an even numbers, which in this case is 6, we have to add the two middle values and divide by 2.

$$\text{Median} = 39.8+59/2 = \mathbf{49.40}$$

Summarizing, we have:

Average mean = 50.50

Average median = 49.40

Average mode = 20

It is important to notice that Chicken lites is the higher income, and in this distribution becomes an extreme score. When a distribution shows an extreme score, the mean may not better represent the measure of central tendency and it would be preferable to use the median as the more representative value. In the actual case, we see that the average mean and the average median are very close. Therefore, there is no need to adopt the average median instead. (Salking, 2017, pgs 28 and 29).

## Conclusion

We had a great sale result of our specials. Out of our six items, the “Average Mean” frequency of sandwiches was 19.83. The “Average Mean” in terms of income value was \$ 50.50. On the other hand, the “Average Median” of frequency was 20. In the case of income, it was 49.40. The two items, Huge burger and Coney dog, were today’s mode.

## Reference:

Salkind, N. J. (2017). *Statistics for people who (think they) hate statistics*. Los Angeles, CA: Sage. 6ed.