Shuaib Suleman

Statistical Methods for Decision Making – Final Assignment

Analysis of Stock Performance

Assignment Brief

In this assignment, 30 stocks have been listed for 242 consecutive days. You must analyze the data of any one stock and complete the tasks given below (a total of 12 tasks):

Task 1: Find the average % rate of return of the stock.

Answer: The average percent rate of return for IBM is 0,28%.

The formula is =AVERAGE(O2:O243)

Task 2: Find the geometric and harmonic means of the rate of returns of the stock and state which kind of mean you should use to measure the central tendency.

Answer: The geometric and harmonic mean cannot be calculated for IBM as a result of the multiplication by zero in the calculation of these means, further as the data is fluctuating as can be established from the wide width range therefore the best measure of central tendency will be the mean and not geometric or harmonic mean.

The formula for geometric mean is =GEOMEAN(O2:O243)

The formula for harmonic mean is =HARMEAN(O2:O243)

Task 3: Find the median and the mode rate of return of the stock.

Answer: The median is 0% percent and the mode rate of return is zero for the stock IBM.

The formula for the mean is =MEDIAN(O2:O243)

The formula for the mode is =MODE.SNGL(O2:O243)

Task 4: Find the maximum and minimum and hence find the range of the rate of returns of the stock.

Answer: The maximum is 0.35 with the minimum being -0.46 with a range of 0.81

The formula to find the maximum is =MAX(O2:O243)

The formula to find the minimum is =MIN(O2:O243)

Task 5: Find the variance and the standard deviation of the rate of returns of the stock.

Answer: The variance is 0,90% and the standard deviation is 9,50%

The formula to find the standard deviation is =STDEV.P(O2:O243)

Task 6: If you divide the rate of returns into ten classes, what is the class width?

Answer: The class width is 0.81 /10 = 0.08

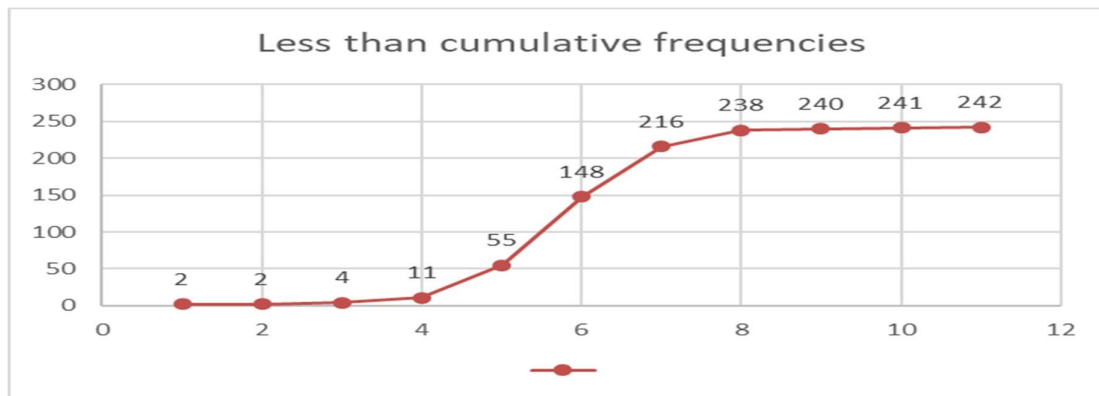**Task 7:** Find the frequencies for all ten classes and draw the histogram.

Answer:

Bin	Frequency
-0,37957	2
-0,29809	0
-0,2166	2
-0,13512	7
-0,05363	44
0,027856	93
0,109341	68
0,190827	22
0,272313	2
0,353799	1
More	1
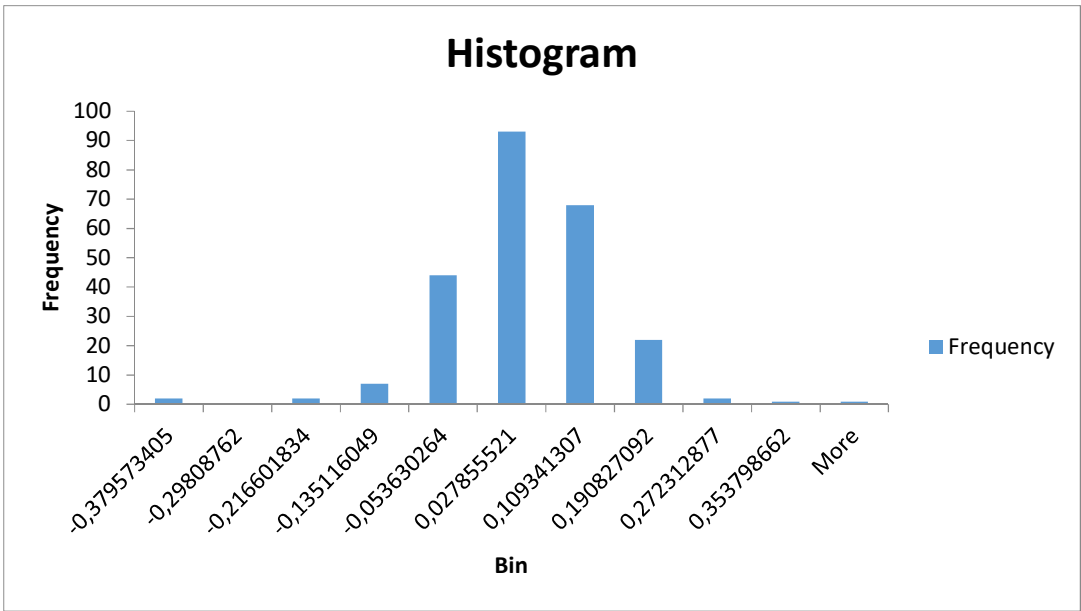
Task 8: Find the less than cumulative frequencies for all ten classes and draw the less than ogive curve.

Answer:

Task 9: Find the first and the second quartile for the rate of returns of the stock.

Answer: First quartile is – 0.05 and the second quartile is 0.00

The formula for the first quartile is =QUARTILE.EXC(A2:A243;1)
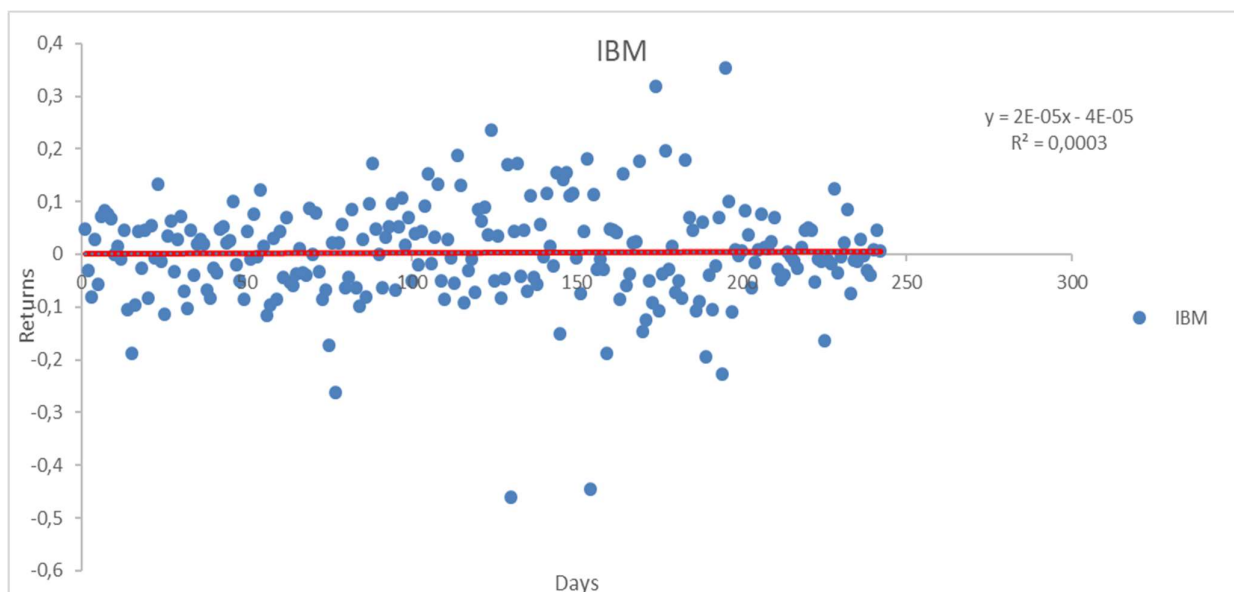
The formula for the second quartile is =QUARTILE.EXC(A2:A243;2)

Task 10: Find the quartile deviation of the rate of returns of the stock.

Answer: The quartile deviation is 0.05

Task 11: Create a scatter plot of the rate of returns and draw a linear trend line.

Answer:

Task 12: Predict the rate of return on your stock on 31-March-2021.

The trend line equation from the graph above is:

y = 0.00002x – 0.00004
R² = 0,0003

X = 243 days (242+1)

Therefore, Y = 0,0048