Exercises series N°1

Exercise 1: Basic Statistics

Consider the following quarterly GDP growth rates for a country over the past five years (in percentage):

Time period	GDP Growth
2018- Q1	2.5
2018- Q2	3.2
2018- Q3	1.8
2018- Q4	4.5
2019- Q1	2.1
2019- Q2	0.5
2019- Q3	3.8
2019- Q4	1.2
2020- Q1	2.3
2020- Q2	2.9
2020- Q3	2.5
2020- Q4	3.2
2021- Q1	1.8
2021- Q2	4.5
2021- Q3	3.6
2021- Q4	3.2
2022- Q1	2.8
2022- Q2	3.1
2022- Q3	4.2
2022- Q4	3.9

-Use statistical software like Excel to perform these calculations.

1- Calculate the mean.

2 - Calculate the variance.

3 - Find the mode.

4 - Calculate the standard deviation.

Use the same quarterly GDP growth rates data:

5 - Calculate the skewness of the data.

6 - Calculate the kurtosis of the data.

-Draw a graph representing this data, and provide an interpretation of the calculated values?

Exercise 2: Imagine daily closing stock prices for a company over a month:

Stock-prices = [50.2, 51.5, 49.8, 52.3, 50.1, 48.7, 50.5, 51.8, 52.2, 49.9, 50.3, 51.0]

Calculate:

- Mean

- Variance

- Mode

- Standard Deviation

- Kurtosis

- Skewness

Exercise 3: Inflation Rates Consider monthly inflation rates for a set of products over the past year:

inflation_rates = [0.3, 0.5, 0.2, 0.1, 0.4, -0.1, 0.6, 0.3, 0.2, -0.2, 0.4, 0.7]

Calculate the same statistical measures as in Exercise 2.