November 26, 2024

Python Advanced Course

List 8.

One of the topics often discussed in the media is the topic of inflation or galloping prices. To assess this gallop yourself, it is worth comparing the available values of various indicators from the past.

Write a program that will download selected data and use matplotlib to display it on graphs.

Details:

(A) the program should collect data from at least two sources covering two consecutive calendar years (e.g. 2022 and 2023);

(B) data for the same year should be plotted on the same chart, with the X-axis showing subsequent months. If the data is more detailed (e.g. daily), calculate the monthly average and plot it on the chart;

(C) Propose and program some algorithm for predicting future values of analyzed indicators for the next year. Present the calculated annual forecast on the third chart. Additionally, you can compare your forecast with actual data if available (this is not mandatory).

Additional requirements:

- all charts should be in one image (as was the case during the lecture when calculating the nth Fibonacci number);
- take care of the description of the graphs and axes;
- if downloading data requires providing a secret (password, key, etc.) to SKOS, send the implementation without the secret, but if possible, attach the previously downloaded data files.

Example data sources:

- inflation data[1] provided by the Central Statistical Office: https://stat.gov.pl;
- Brent oil price on the Investing.com portal: https://investing.com;
- National Bank of Poland exchange rate tables: https://api.nbp.pl;
- cryptocurrency rates on the Blockchain portal: https://www.blockchain.com/explorer/charts/api .

You can use other data sources[2] to complete the task , not necessarily those listed above.

You can receive up to 6 points for this task.

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1This value is described as: consumer price index.

2You can e.g. look here: https://strefainwestorow.pl/artykuly/20180108/macroeconomic-data-for-free