EXTRA Assignment

Data Analysis 3

MS in Business Analytics,
2023/2024 Winter

Goal: Goal: Your task is to forecast 20 consecutive closing prices of SPDR S&P 500 ETF Trust (SPY), starting from March 11.

You may work alone or in pairs.

Getting the data

- SPY data can be downloaded using the yfinance package. (See the attached Jupyter notebook for help and for template.)

- **You can use any additional time series** which you find helpful with your forecast.

Task

- Build a model which gives you a forecast of the daily closing prices of SPY 20 periods ahead and save your forecast as csv. (See below what to turn in.)

- Your model can be of any kind: deterministic or stochastic, an OLS-based or a tree-based model, or even a neural network! You can also combine the forecasts of multiple models if you find it useful.

- You don't need to document anything, but a clean and tidy notebook helps the modelling process.

Documents to submit on ceulearning

- Your **Jupyter notebook**, for curiosity only. Your notebook will not be graded, I am only interested in your workflow.

- **A csv file** with your predictions

    - Save the file as *firstname_lastname.csv*, where firstname and lastname are your first and last names. (If you are working in pairs, use only 1 student's name but indicate in your Jupyter whom you worked with.)
    - You need to have two columns:
        * date: the date of your prediction from March 11 till April 5.
        * firstname_lastname: your SPY closing forecasts. (Pls use your name for your closing forecast column so when I merge all csv-s I can identify whom the forecasts belong to.)

Scoring weights

Forecasts are compared using MSE against the actual closing prices.

- The best forecast earns 5 extra points.

- The second earns 3 extra points.

- The third earns 1 extra point.

If you are trading your forecast, you can keep your profit for yourself!

Submission deadline: 10th of March, 2024, 23.59 CET.

Good luck!