Data Analysis und Digital Reporting mit Python

Final Project WS 2021/2022

Individually, build a well structured **dash application** which includes the following pieces.

For each company of the dow jones (selectable one by one):

1. An short info of the company (employees, headquarter, etc.) with its logo.
2. In a suitable (interactive) plot, for each case present:
   earnings history of the last four quarters where you provide the historic estimates and actual realisations. Present the mean squared error of the difference.
   earnings estimate for the current and next quarter, current year and next year. Include the respective lowest and highest estimates in your plot. Provide the number of analyst estimates as hover information in your plot.
3. a) In a line plot, provide the stock's daily close price from the beginning of last year until the current date.
   b) Offer the possibility to view either the dow jones index or the sector mean in the plot of the stock price, but with their own y axis.
   c) Using a check box, include an ordinary least squares trend line for the single stock, which is based on the data up to one month before the date of (each respective) execution, but extends to the current date.
4. Present a chart for the relative strength index with the option for horizontal lines, showing when the stock was overbought/oversold.

Take care of appropriate axes labeling and titles and/or descriptions of your different sections/plots.

Describe each part of your code using markdown cells. Explain for example why you would use a function (or why not). The volume of your explanations should be no more than 3 A4 pages.

Hand in your final jupyter notebook file (.ipynb file) containing the code and markdown description until **Tuesday, March 15., 12:00 p.m.**.
Attach your notebook to an e-mail and send it to [redacted] and [redacted]

Some remarks:

Please use the StudIP forum for questions.

Approach this project the same way you would write a seminar paper: think of a sensible structure when writing, arranging and explaining your code.

Efficiency/redundancy of the code will be taken into account for grading. Try to use functions if the same code has to be run for varying inputs. Your code is supposed to run without errors.

In your notebook, list all packages you used that are not known from the course and explain why you deem them necessary.

All data has to be downloaded automatically, when running the code. You can not rely on handing in datasets in additional files. Also, make sure to load all data before starting the app and to work with copies inside the server functions to minimize potential for errors and loading times.

To acquire the data, you can check financialmodelingprep and yahoo finance but are not limited to these two.

For each data source you choose, if for a single comany or very few (five or less) the data is missing, use the source nonetheless and handle missing values inside your code and find a suitable output option.