Python Trading analysis - Group Paper

University of St. Gallen

Skills: Programming - Introduction Level, Mario Silic

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Introduction and Code

This is a platform for traders, which allows them to analyse past and future data through two popular methods. The two methods selected were:

- The Green Line Value
- Data Sentiment Analysis (machine learning).

The Green Line value looks at a stocks monthly chart and draws a green line when the stock has hit an all-time high and then rested for three months. This is seen as a sign of strong buying interest by traders. The Sentiment Analysis uses past data of how a stock has reacted to news about the stock. It then predicts the future movement and predictability of the stock. The program allows the user to select whether it would like the past or future analysis and then takes the user through the necessary inputs. The output will be a graph showing sentiment and stock movement over the past year and a table containing figures for future predictions. The analysis is completed through machine learning using quandl as a database. The Green Line Values for the selected stock are between 1.1.2000 and the current date. Please do not forget to download the relevant databases and programs to run the code, which are:

- yfinance
- datetime
- pandas
- pandas_datareader
- quandl
- numpy
- matplotlib.pyplot

To find the code, please refer to the link:
https://github.com/je-jpg/EJ-Trading-Platform

Example Run

The following is an example run for the Stock Google (Ticker: GOOGL). The first output is the Green Line value output, and afterwards, the Sentiment Analysis. The Green Line Values are given, and the last one is given together with the date. The sentiment analysis will provide a graphical analysis for the current year (1.1.2021-1.1.2022) and a future prediction in terms of numbers based on the period: 2018-01-01 to 2023-01-01.

Past Analysis

Program:

> "Welcome traders, to the EJ Trading Data Platform. Here you can find past and future data for different publicly listed companies
> Past data will be presented in the form of Green Line Values
> Future data will be predicted using past sentiment data in the form of news relevant to a stock
> Please select whether you would like to receive past (by entering P) or future data (by entering F):"

User:

> "P"

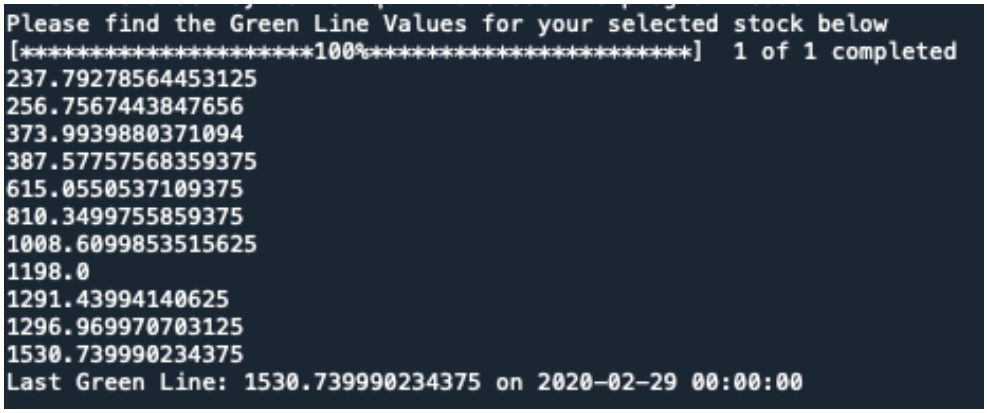
Program:

> **"**Enter the stock symbol or quit to close the program:"

User:

> "GOOGL"

Program:



"Enter the stock symbol or quit to close the program"

User:

"quit"

Program:

"Program has been closed"

Future Analysis

Program:

"Welcome traders, to the EJ Trading Data Platform. Here you can find past and future data for different publicly listed companies

Past data will be presented in the form of Green Line Values

Future data will be predicted using past sentiment data in the form of news, relevant to a stock

Please select whether you would like to receive past (by entering P) or future data (by entering F):"

User:

"F"

Program:

"Please enter a starting date in the format YYYY-MM-DD

(latest possible date 2018-06-30): "

User:

"2017-01-01"

Program:

"Please enter an ending date in the format YYYY-MM-DD: 2023-01-01"

User:

“2022-01-01”

Program:

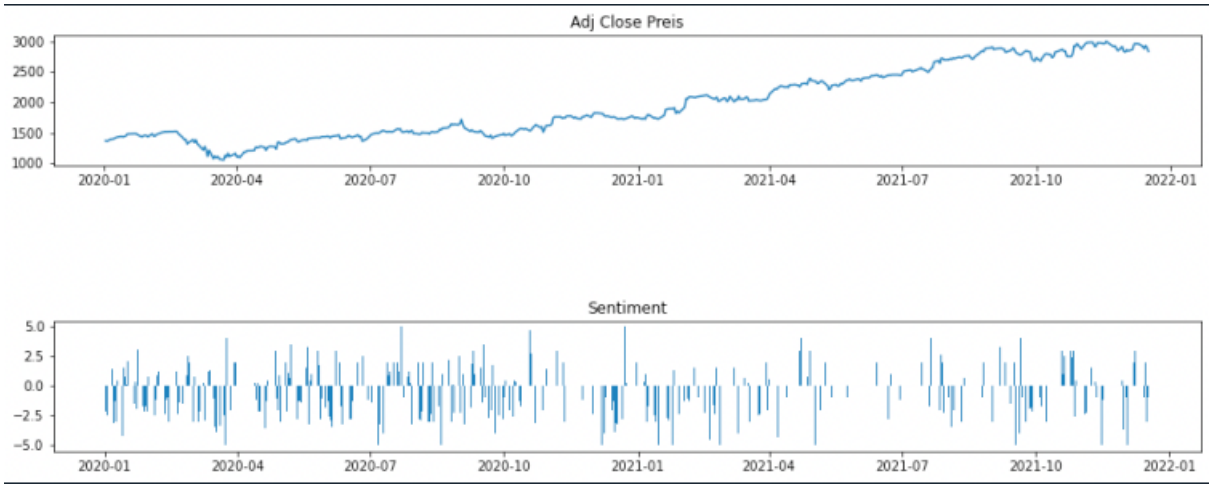
“Enter the stock symbol:”

User:

“GOOGL”

Program:

Analysis for current year



Prediction figures

	precision	recall	f1-score	support
0	0.75	0.80	0.78	41
1	0.86	0.81	0.83	59
accuracy			0.81	100
macro avg	0.80	0.81	0.81	100
weighted avg	0.81	0.81	0.81	100

Precision: quantifies the number of positive class predictions
Recall: quantifies the number of positive class predictions made out of all positive examples in the dataset
F1 score: balances precision and recall into one score

- This is the end of our paper -