Stock Analysis Dashboard

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Technical Task

- Problems:

- Script was static and not interactive.
- Hard-coded indicator parameters.
- No dynamic UI, no visualization.

- Solution:

- Needed to refactor code into modular library and build a "Vanilla" Front-End application

Approach

- Refactored logic into modular OOP backend.
- Created FastAPI REST API for dynamic data.
- Built Vanilla JS frontend with Chart.js.
- Real-time parameter adjustment.

Pipeline

- Load CSV stock data
- Apply selected indicators via classes
- Send results through API
- Frontend fetches & updates chart live

Features

- Fully interactive dashboard
- Adjustable MA, RSI, EMA, MACD, ATR, BB
- Multiple choice of indicators
- Real-time updating chart without page reload
- Real-time updating processed table
- Downloading CSV of processed data
- Clean scalable backend structure

Application Overview

Stock Analysis Dashboard

Select Stock:

Palantir | Load Data

Select All Indicators | Deselect All Indicators

Show indicators on chart

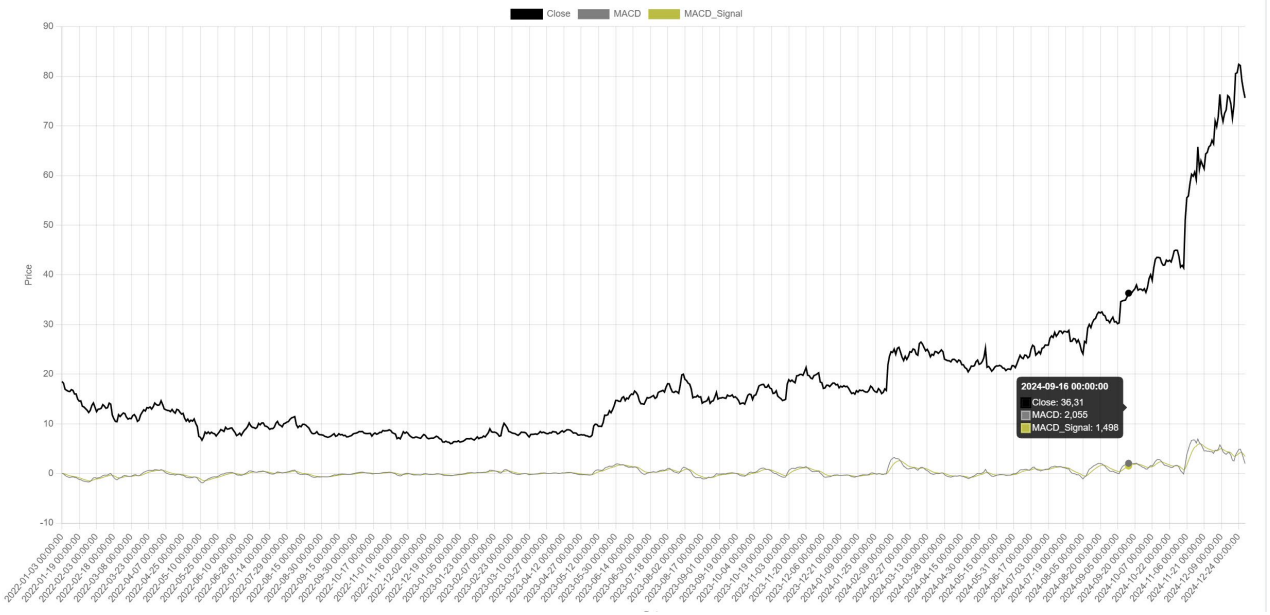
Indicators

- Moving Average — Disabled
- EMA — Disabled
- RSI — Disabled
- MACD
  - Short Span: 12
  - Long Span: 26
  - Signal Span: 9

Data Preview

Date	Close	High	Low	Open	Volume	MACD_EMA_12	MACD_EMA_26	MACD
2022-01-03 00:00:00	18.530000686645508	18.569000244140625	17.860000610351562	18.360000610351156	34283600	18.530000686645508	18.530000686645508	0
2022-01-04 00:00:00	18.170000076293945	18.84000015258789	17.790000915527344	18.610000610351156	39643200	18.474615977360653	18.503333974767614	-0.028717997406960905
2022-01-05 00:00:00	16.959999084472656	18.56800079345703	16.8700008392334	18.030000686645508	58445900	18.241579793839424	18.389012871782803	-0.1474148779433797
2022-01-06 00:00:00	16.739999771118164	17.180000305175781	16.055000305175781	16.8700008392334	49737100	18.010582882651537	18.266863753215056	-0.25628087056351845
2022-01-07 00:00:00	16.559999465942383	17.329999923706055	16.475000381469727	16.700000762939453	37989300	17.78741620315782	18.140429361565523	-0.3530131584074707
2022-01-10 00:00:00	16.5	16.569999694824219	15.350000381469728	16.190000534057617	77649400	17.58935217190277	18.01891607552336	-0.4295639036205898
2022-01-11 00:00:00	16.889999389648438	17.25	16.319999694824222	16.399999618530273	47442600	17.481759436171338	17.935292617310402	-0.4535331811390648
2022-01-12 00:00:00	16.719999313354492	17.459999084472656	16.399999618530273	17.159999847412109	39784200	17.36456557112259	17.845270891091445	-0.4807053199688555

Download CSV



Challenges

- Handling NaN/Infinity values
- Mapping UI selections to API params
- Ensuring that, there are no fetching errors
- Enabling real-time chart updating

Conclusion

- Converted static script into application to visualize the data.
- Scalable, modular Python architecture
- Clean UI with real-time interaction

Thank You!

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