PROJECT - Python based Stock Analysis and Plotting

Requirement:

* **Take some indexes of stocks fetech there historical data from yahoo finance apis and**

**to plot the two things::**

**a. peaks and values {Time frame : 10 years period ,1 day - Daily time period}**

**b .Plot the support and resistance**

Technologies used for the project:

* *Django* **-** For Backend ,to create
* *Django REST Framework –**API Development*
* *Yfinance(python module)*  – *Fetches stocks/Index historical data from Yahoo Finanace API*
* *Matplotlib – Plot stock price trends,peaks,support and resistance*
* *Pandas – Helps to process the stocks data efficiently*

Project Structure and Action Plan:

*1.Project Setup & Data Fetching:*

* *TASK 1 – Setup the Django project and app.*
* *TASK 2 – Fetch Stock and Index Data from Yahoo Finanace*
* *(ACTION – Here using yfinance module, fetch 10 years of daily historical stock data for given tickers (e.g., AAPL, ^GSPC), extracting relevant columns: Date, Open, High, Low, Close, and Volume. Store the data in a structured format, such as a database or Pandas DataFrame. Implement a Django REST API endpoint that retrieves and returns this stock data as JSON, ensuring efficient querying and filtering based on user requests.)*

*2.Trend Analysis(Peaks ,Valleys ,Support and Resistance) :*

* *TASK 3 – Identify Peaks and Valleys in stock Prices.*
* *(ACTION – Here by using scipy module ,I try to detect PeaksPoints where stock price is highest and similarly for ValleysPoints where SP is lowest.Then modify the API response including these points)*
* *TASK 4 – Identify Support and Resistance*
* *(ACTION – Here analyse the historical data(price levels) using rolling maxima and minima values .And imbed in the API response with support and resistance levels)*

*3. Data Visualization(Plotting and displaying results):*

* *TASK 5 – Generate Matplotlib Charts*
* *(ACTION – Plot stock prices for marking Peaks(red dots) ,Valleys(Green dots),Support levels(blue dashed lines) ,and Resistance(orange lines).So we save these plots as images or return them via API).*

***SUMMARY OF DELEVARY::***

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| Phase |  | Task | Output |
| **Setup** |  | Create Django project & app | Running API framework |
| **Data Fetching** |  | Fetch 10 years of stock/index data | JSON API response |
| **Trend Detection** |  | Identify peaks & valleys | Trend points in JSON |
| **Trend Detection** |  | Detect support & resistance | Key price levels in JSON |
| **Visualization** |  | Plot trends with Matplotlib | Chart with peaks/valleys |

*SOURCES:*

* [*https://algotrading101.com/learn/yfinance-guide/*](https://algotrading101.com/learn/yfinance-guide/)
* [*https://pypi.org/project/yfinance/*](https://pypi.org/project/yfinance/)
* [*https://www.geeksforgeeks.org/get-financial-data-from-yahoo-finance-with-python/*](https://www.geeksforgeeks.org/get-financial-data-from-yahoo-finance-with-python/)