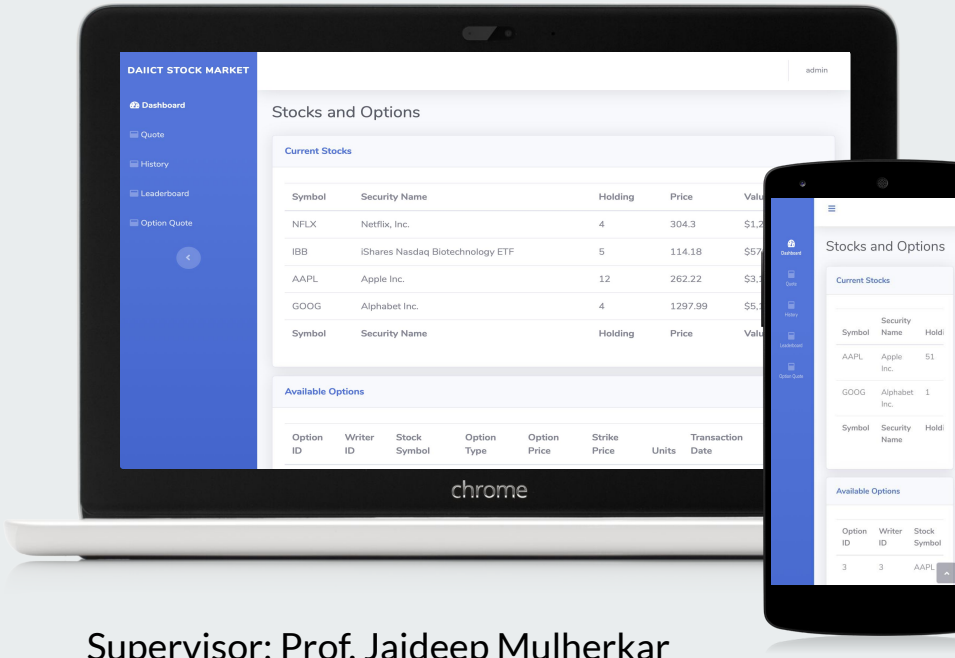
Educational Trading Terminal

An online terminal that lets you virtually trade stocks and derivatives like European Options among friends and colleagues.



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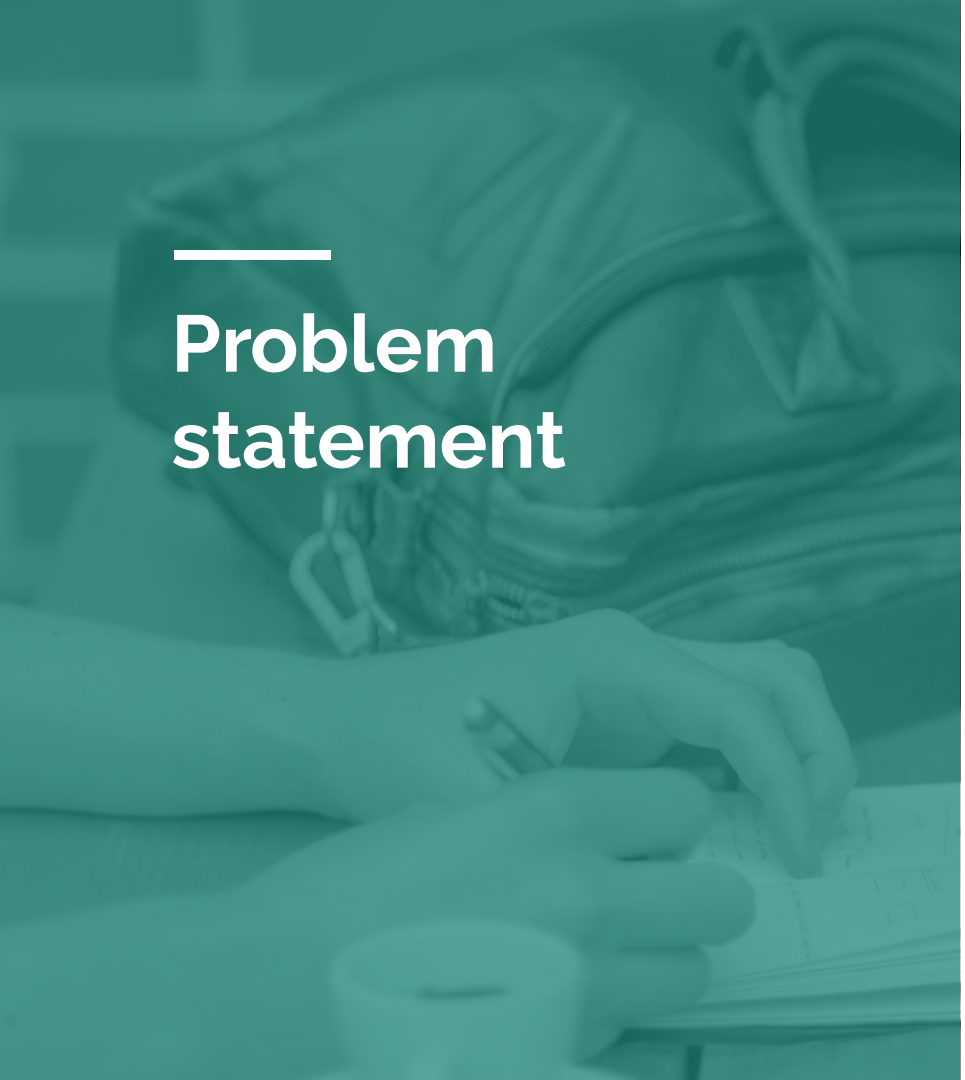


Problem statement

Computerising all the basics of trading so that features like buying and selling stocks available on the market, writing and purchasing financial derivatives can be done virtually amongst students.

One-stop solution where you can virtually trade Stocks and Options, make strategies and test them among your colleagues **without money risk.**

What does the platform do?

Currently, Students only have a theoretical idea of how a Stock market functions. This platform provides a Hands-on experience to budding future investors on trading Stocks, writing and selling Options and comparing their portfolio with other's as the market goes up or down.

Our platform takes live data from real market to calculate the worth of your portfolio so that you can experience how trading happens and can apply mathematical concepts to ensure growth.

When a New user creates an account he/she is given a credit line of $10000 using which he/she can utilise the various features supported by the Trading Terminal. These features include:

- ➔ Buy Stocks from the Live Market and amongst peers
- ➔ Sell Stocks to the Live Market and amongst peers
- ➔ Write your customised Option (Put/Call) on any equity, choosing option price, Strike price, units and expiry date which will be entered into the option book for others to purchase.
- ➔ Buy options from peers who have written them with the help of option order book.
- ➔ See the complete history of Transactions done by you in the history section.
- ➔ Compare your Portfolio value with others through the leaderboard section which shows all traders cash, assets value and net worth.

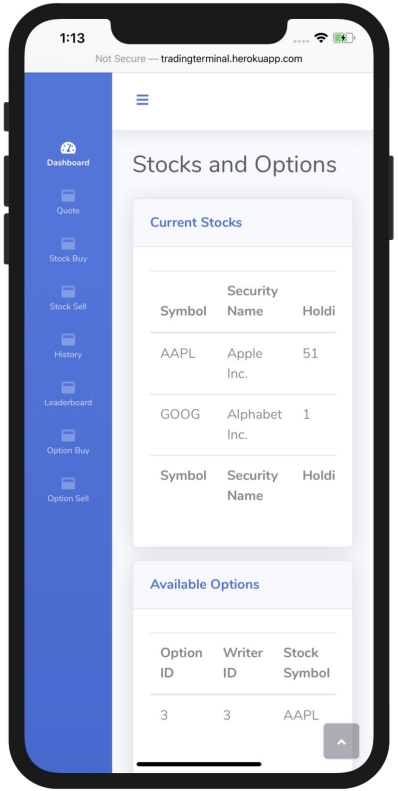
What has been used?

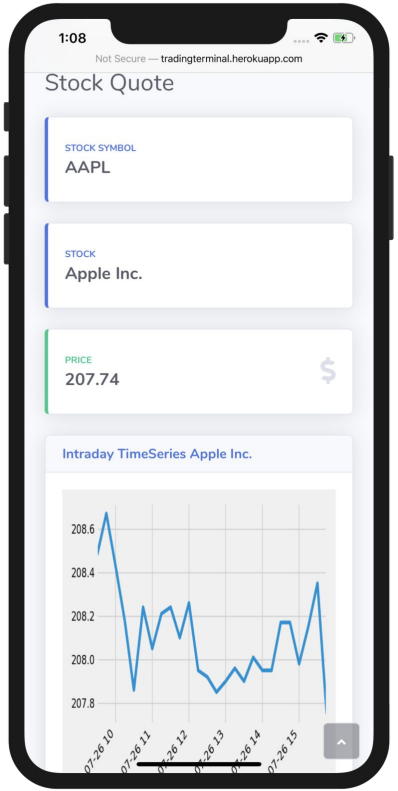
- ➔ Python: Core programming language for the application.
- ➔ Flask: Flask is a lightweight WSGI web application framework.
- ➔ PostgreSQL: Database management.
- ➔ HTML: Frontend Language.
- ➔ Bootstrap 4: CSS framework directed at responsive, mobile-first front-end web development.
- ➔ Jinja2: Designer-friendly templating language for Python.
- ➔ Passlib: Hashing passwords.
- ➔ Yfinance: Fetching up-to-date values of all stocks and historical values.
- ➔ AlphaVantage: API for realtime and historical data on stocks.
- ➔ NumPy: Library for Python adding support for large, multi-dimensional arrays and matrices
- ➔ Matplotlib: Plotting graphs of quoted stocks

Sophistications and results

- ➔ Website deployed at tradingterminal.herokuapp.com
- ➔ We use live stock trading prices on the market for a perfect emulation of the market scenario.
- ➔ We have used order book for stocks and options so users can get the feel of a terminal and comprehend how trading works visually.
- ➔ The worth of a traders portfolio is updated every 5 minutes and hence the leaderboard is updated.
- ➔ More than 60 users can use the platform simultaneously. **This software was created for making students familiar with the practical aspects of Computational Finance course at DA-IICT.**
- ➔ The website has been hosted on heroku and can be accessed from anywhere.
- ➔ It is a responsive website and supports a wide array of devices like mobile phones, tablets and laptops.
- ➔ Ability to create options which expire after a fixed number of days.

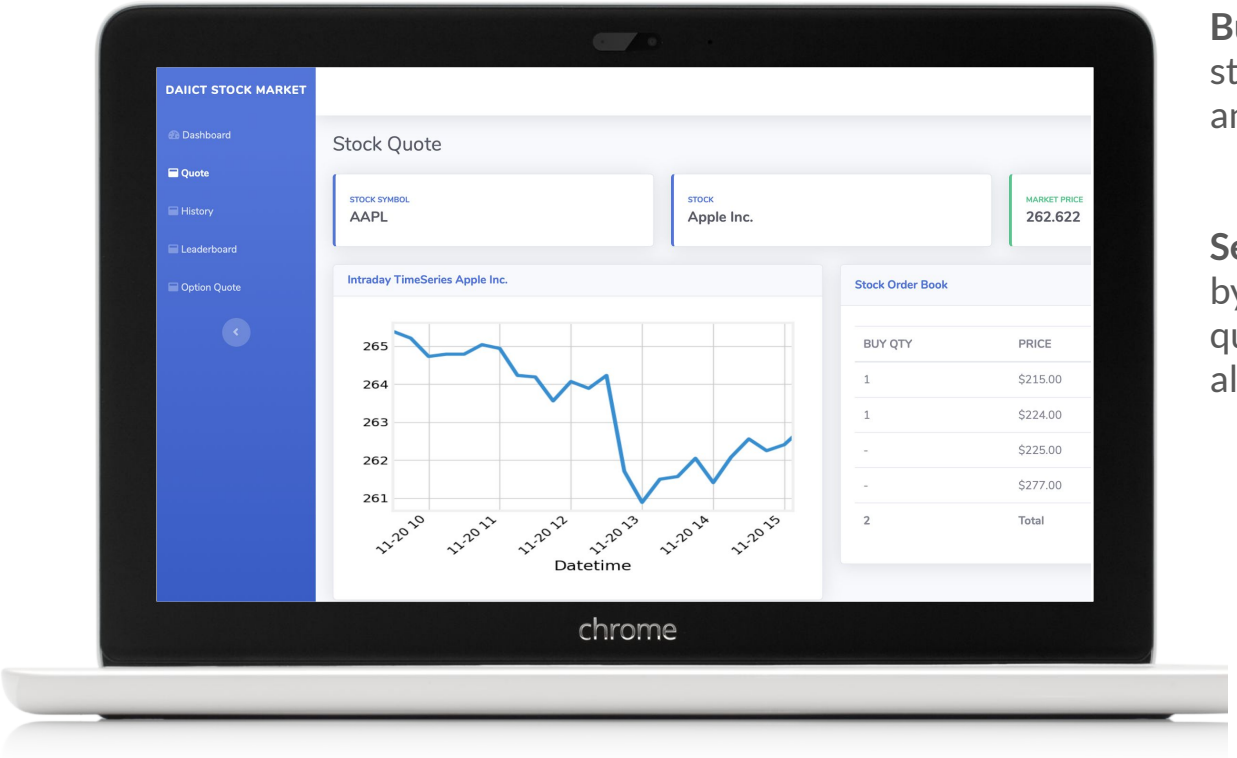
Snapshots of various features





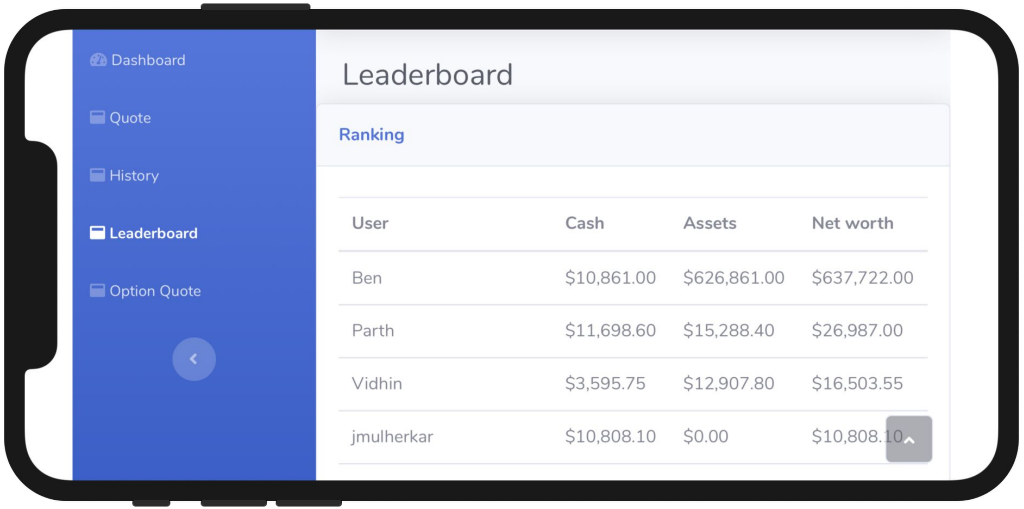
Index: Lets you view your portfolio. That is Stocks you own, options you have and options you wrote and options you sold.

Stock Quote: Lets you find live price of any equity around the world by simply entering its ticker symbol.



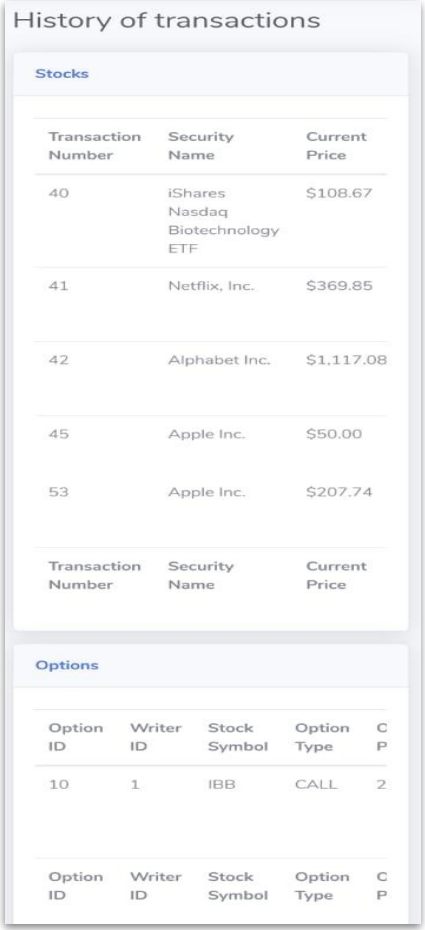
Buy Stock: Lets a user buy stock by entering its symbol and the number of units to buy.

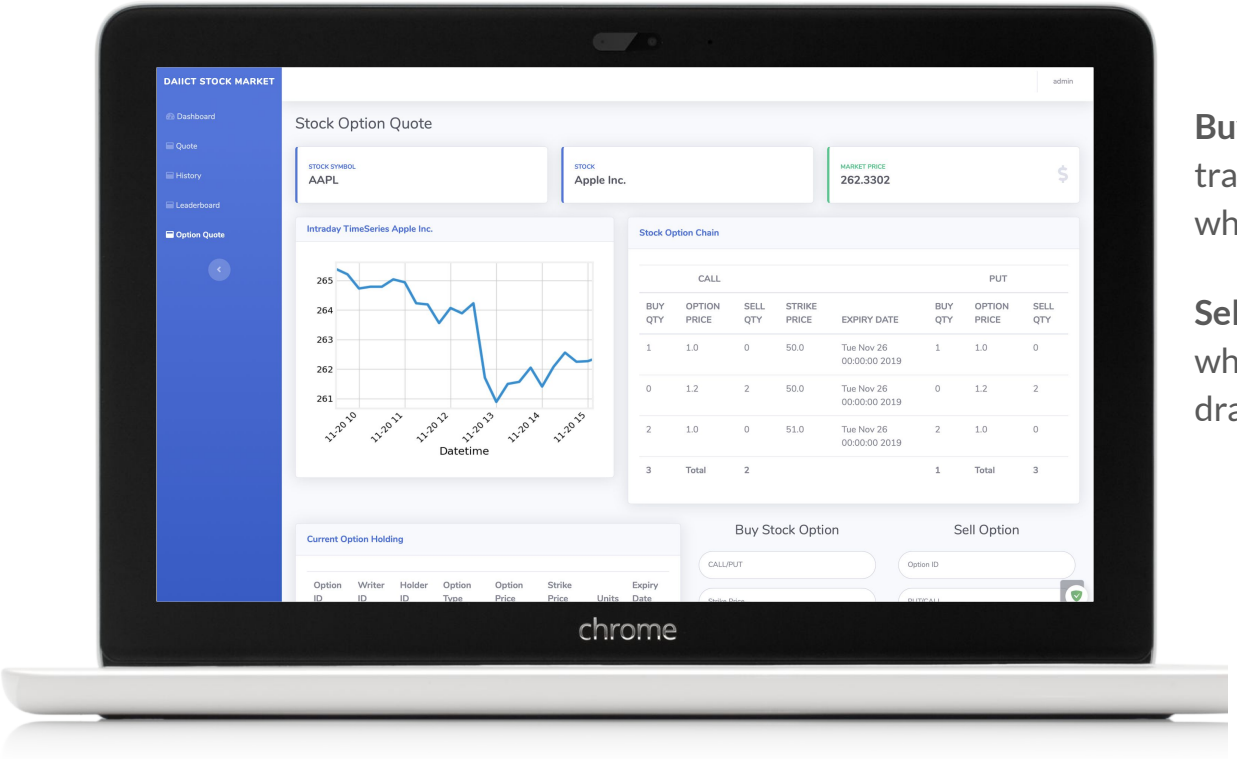
Sell Stock: Lets a user sell stock by entering its symbol and quantity to sell, which he/she already owns.



Leaderboard: Shows portfolio value of all participants with their cash and assets sorted by their net worth.

History: Shows the transactions performed in a chronological order.





Buy option: It displays Options that other traders have posted, and the user can select which Option he/she want to buy from them.

Sell Option:This feature lets you sell options which you bought at a different price, or draft a new option and post it for selling.

Skills learned

- Collaborating using Version Control using (Github).
- Deploying a python Flask application on the internet.
- Using Heroku CLI.
- Managing Database on the web.
- Building a responsive website.
- Choosing web deployment server for optimum latency.
- DNS management for web page
- Requirement elicitation and Compliance.
- Optimizing code for speed and minimum database/web access.
- Learning the intricacies involved in stock and option trading and applying it to match our case

Questions?

References

Jinja2 documentation

NSE

Heroku postgreSQL tutorial

Yfinance Github Documentation

Strategy tool for trading- CBOE