

Stock Exchange Management Software for Trading

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Abstract— The stock exchange represents the key institution for the development of capital market of any country. Thus, the information system of every stock exchange must satisfy very strict international standards. The development of these systems is particularly difficult in countries in transition, due to intense economic and legal changes, lack of technical and financial resources, lack of experience and knowledge in the area of the capital market business, etc. Therefore, the special software project methodology for their realization must be clearly defined. It has to be defined such that the user can understand quickly as possible. Therefore, the system must provide data statistics in terms of graph representation. In order to make all the problems more comprehensive, only the continuous trading method is described, being the most frequently used trading method in the world.

Index Terms— Big data analysis, Finance management, Forex trading, plot graph,

1 INTRODUCTION

In olden days people used to exchange goods for goods in trading and they made it as their business for fulfilling their needs. But it is very hard to find the merchants who will be satisfied with exchanging goods without a medium of money. As years passed by they use money as the medium to sell goods and buy products for their requirements. Has the technology grown, person started using e-money instead of money for their business. This led to the great change in transfer of money through internet. Because of this invention led people not only get profit from selling-buying, but they can get income from investing e-money in shares.

There are many ways to gain profit using the economy. Investing on company is one of the ways. User must know how to operate the software along with the basic knowledge of the stock trading method in order to get efficient output. It is user's responsibility to choose a right investment platform of their interest. So, this software tool will help them to overcome the overhead of choosing the right company at right time to invest the money.

It is necessary to provide right representation for the user to understand data. Optimization, filtering, computations are the basic procedures included in this operation for the better representation. Fetching historical data, optimizing it and providing it to the users in a sophisticated manner is the main goal of this project.

2 LITERATURE SURVEY

Goal of Monica Tirea and Viorel Negru [1] was to develop a system able to coordinate a trader in optimizing a stock

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market portfolio in order to improve the profitability of a short

or medium time period investment and system is able to classify the risk and quantifies its effect on an investment based on the traders confidence level and by measuring the potential loss over a certain period of time. But our paper does not depend on trader's confidence as it is used to know the past history of the company in its business tracings before investing on it.

Yin Song and Long bing Cao [2] indicated that a novel graph based framework for detecting abnormal coupled behaviours and proposed framework represents the coupled behaviours in a graph view without aggregating the behavioural data and is flexible to capture richer coupling information of the behaviours set in stock markets show that the proposed framework outperforms the based one in both technical and business measures and we developed the project which will provide a recallable medium from which it is easier to choose right company for the right investment value and its scope will be restricted to business platform.

Monica Tirea and Viorel Negru [3] paper determines the Stock Market Forecast and implies the use of a series of techniques that helps in determining the stock price evolution. The paper describes a multi-agent system that uses numerical, financial and economic data in order to evaluate the company's position on the market, profitability, performance, future expectations in the company's evolution.

In this paper [4] Clark methodology to estimate the macro-economic financial risk premium and test whether and to what extent it affects their stock markets performance. We find that the macro economic financial risk premium is a significant explanatory variable with the right sign for five of the countries that accounts for about 12% of annual variations in the stock market indices and here we get just information about how the stock market price work all over the world and how it affects the growth of the country

Qiwei yin and Ruixen Zhang [5] in this paper model is not based on single stock instead of that we study a class of stock with similar historical study movements and the stock trend forecast but in our current system user will request to API and data is entered, it gives the specification about the source code.

3 CURRENT SYSTEM

Stock price or value will raise or fall, so there is no guaranty

that invested stocks will always give profit. It will not predict the future but it shows the past history of the company's business. It provides a platform to analyse stock trading. So, it can be used for reference. The scope of this project is to provide a recallable medium from which it is easier to choose right company for the right investment value. Its scope will be restricted to business platform.

This project is used to know the past history of the company in its business tracings before the investment on it. So, this tool will provide 80% accuracy in choosing a convenient investment platform for investor to choose the right company. It also monitors current exchange rate so that the user can buy and sell shares. Its main goal is to provide maximum profit.

Fig. 1 describes the construction of the trading system, how it going to interact and act as the mediator between the data repository and the client end. It is very easy to understand the steps involved in this process. They are as follows.

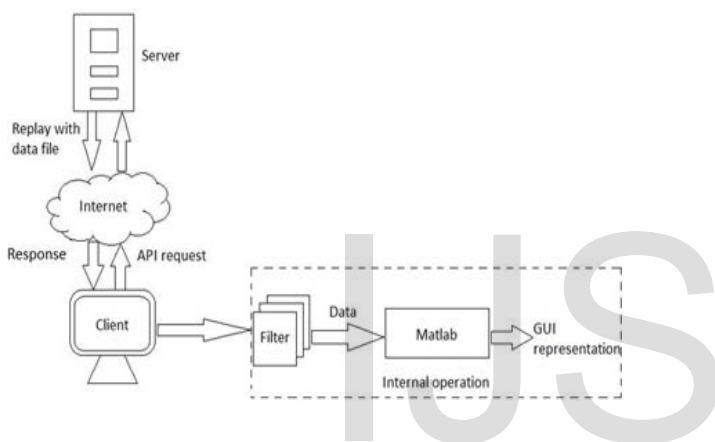


Fig. 1. Block diagram of trading system.

A. Request to server

The request is generated at the client end by clicking and selecting the options. It is converted into API and sent it to server. Server will evaluate the API for validity. It will accept if it is valid else it will reject.

B. Response from server

For the valid request from the client the server will fetch the required data from the repository and generate a file. Then it will send the data file to the client.

C. Process in backend

If required the data is stored in the system. Then it is filtered based on the operation of the user in the client end. Then it will be optimized, removed any noise and stored in variable for future work.

D. Representation in frontend

Optimization, filtering of the data is not in half for the operation. Project is not complete if the representation of the data

not handled in right manner. Here the graphs are used to display the data in the GUI end.

4 IMPLEMENTATION

A. Modules

1. Python GUI - Tkinter Module

The Tk interface is located in a binary module named tkinter. This module contains the low-level interface to Tk, which is used in c and base for all GUI interface. It cannot be used directly by application programmers. It is usually a shared library (or DLL), but might in some cases be statically linked with the python interpreter. In addition to the Tk interface module. Tkinter includes a number of Python modules. The two most important modules are the Tkinter module itself, and a module called Tkconstants. It can be referred for the creation of the GUI elements like menu, window, button, label etc. they can be packed, organized for good appearance.

2. Graphical Representation - Matplotlib Module

MATLAB provides a great variety of functions and techniques for graphical display of data. Its applications are plotting of graphs, creation of 3D objects and generation of blue prints. MATLAB is used in this project for the purpose of plotting of graphs. Graphs are shown in a figure. Several windows can be displayed simultaneously, but only one is active. All graphing commands are applied to the active figure. It also supports appending of manipulated values to the graph, representing the graph in terms of line graph, bar graph, candidate graph.

3. Data Featch - Pandas_datareader Module

Pandas_datareader is a package available for python for the operation of delivering data to the user. The main application of this package is that It is used for the fetching of historical finance data which is required for the analysis of big data. It has got many API's for requesting data from server data repositories like google, yahoo etc. They fetch information and present it in terms of .csv or in JSON format it will act like a mediator between client servers. They provide the historical data of particular company in a certain time interval.

B. Method

As mentioned in introduction this stock exchange management system has got four stages of operations which is initiated at the client software end. Then it transferred to the yahoo server from there it is again transferred to user. Here the process of data manipulation will take place. Flow chart of control is as shown in Fig. 2.

1. Login Page

When the software is opened it will go for login page were it

contains two options for user.

- (1) Login for existing user.
- (2) Signup for new user.

For the login, it will check for the authorized user by providing valid username and password as input. If it will valid the control will go for home page.

For the signup it will provide entry box for username and password. Each user has got their own directory to store accessed data. At the phase of signup, it will create a separate directory for each user.

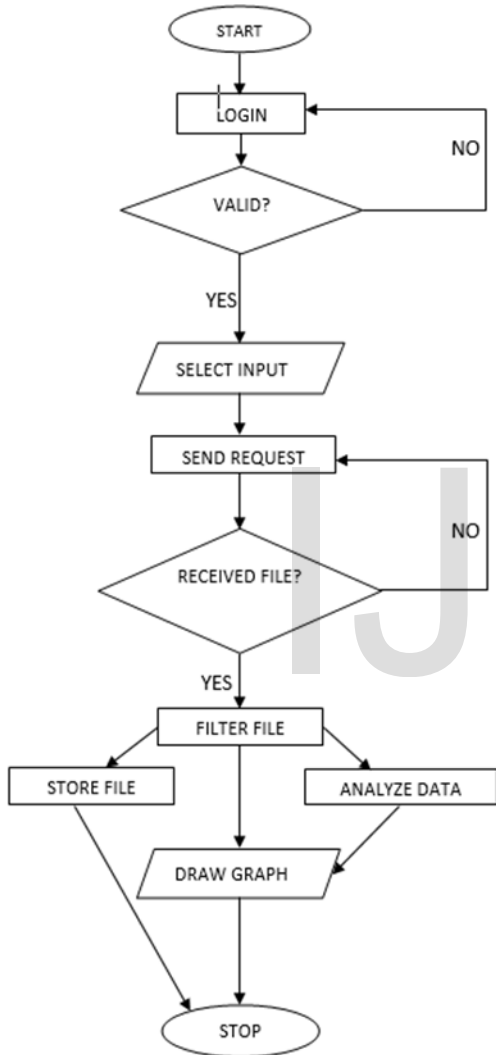


Fig. 2 control flow of trading system

2. Home Page

This is the window where the user can provide information of the company on which they are interested in. customization contains draw graph, updating data of company, adding new company to the list, help for user, compaction of two company shares.

Request for the data follows:

- (1) Selection of company name from list.
- (2) Providing start and end date.
- (3) Choosing method of graph representation.

Data from (1) and (2) is converted to API using pan-

das_datareader package. It then sent to server for process. User will receive data from the server for the request. It can be stored and used for future analysis.

This data file contains data of attributes like date, open value, close value, adjacent close value, high, low, volume of transaction on that date which is shown in Fig. 3.

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Date,Open,High,Low,Close,Adj Close,Volume
1988-02-16,13.625,13.625,13.46875,13.5625,3.543133,345600
1988-02-17,13.5,13.625,13.5,13.5625,3.543133,558400
1988-02-18,13.53125,13.59375,13.40625,13.5,3.5268050000000004,480000
1988-02-19,13.25,13.34375,13.1875,13.34375,3.485987,770000
1988-02-22,13.46875,13.59375,13.46875,13.5625,3.543133,371200
1988-02-23,13.65625,13.71875,13.65625,13.71875,3.5839510000000003,59564
1988-02-24,13.65625,13.65625,13.5,13.5,3.5268050000000004,612000
1988-02-25,13.59375,13.75,13.59375,13.65625,3.567627,3383600
1988-02-26,13.59375,13.625,13.53125,13.59375,3.5512989999999998,815600
1988-02-29,13.09375,13.34375,13.09375,13.28125,3.598304,1234400
1988-03-01,13.3125,13.34375,13.28125,13.28125,3.598304,1186400
1988-03-02,13.25,13.5,13.21875,13.5,3.657572,1178400
1988-03-03,13.4375,13.4375,13.34375,13.375,3.623703,722400
1988-03-04,13.375,13.5,13.375,13.4375,3.6406379999999996,668000
1988-03-07,13.5,13.96875,13.5,13.90625,3.767637,1033600
1988-03-08,14.15625,14.3125,14.15625,14.21875,3.852304,1372800
1988-03-09,14.34375,14.40625,14.25,14.25,3.8607699999999996,999200
1988-03-10,14.75,15.3125,14.75,15.15625,4.106299,2458400
1988-03-11,15.125,15.21875,15.03125,15.21875,4.123234,945200
1988-03-14,15.0,15.03125,14.8125,14.875,4.0301019999999999,378400
1988-03-15,14.90625,15.125,14.84375,14.875,4.0301019999999999,970400
1988-03-16,14.84375,14.875,14.75,14.875,4.0301019999999999,330400
1988-03-17,14.875,14.875,14.75,14.78125,4.004701,258800
1988-03-18,15.0625,15.3125,15.03125,15.25,4.131702,689200
1988-03-21,15.21875,15.25,15.15625,15.21875,4.123234,183200
1988-03-22,15.0625,15.09375,14.9375,14.96875,4.0555010000000005,203600
1988-03-23,14.96875,15.09375,14.9375,15.0625,4.0809,328000
1988-03-24,14.8125,14.84375,14.71875,14.8125,4.013166,211600
1988-03-25,14.59375,14.59375,14.40625,14.5,3.928503,662800
1988-03-28,14.5,14.6875,14.5,14.6875,3.9793019999999997,294800
1988-03-29,14.6875,14.875,14.65625,14.875,4.0301019999999999,841200
    
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Fig. 3 Content of the received information.

3 Plotted Graph Page

Here the data indices are converted in to simple graph, bar graph, candlestick graph based on the user wish. Simultaneously backend process will be going to take place on this data

By making use of this graph the user can able to choose right company for his investment and compare one company with other.

5 RESULT

Output representation of Stock exchange management system has to be accurate to the give input. Here the input is a piece of data from the server repository fetched by the API. It will provide 100% accurate output to the given input. Using this output the user can able to predict the future of shares up to 80% for some time extend. In order to get much more efficiency in the prediction the user must have the information about stock terminology and its working.

It is a tool for analysing the historical data. For the user's better understandability, they can represent the data into simple

graph, candlestick graph, and bar graph. They will provide flexibility in representation based on user preference.



Fig. 4 Line graph representation.

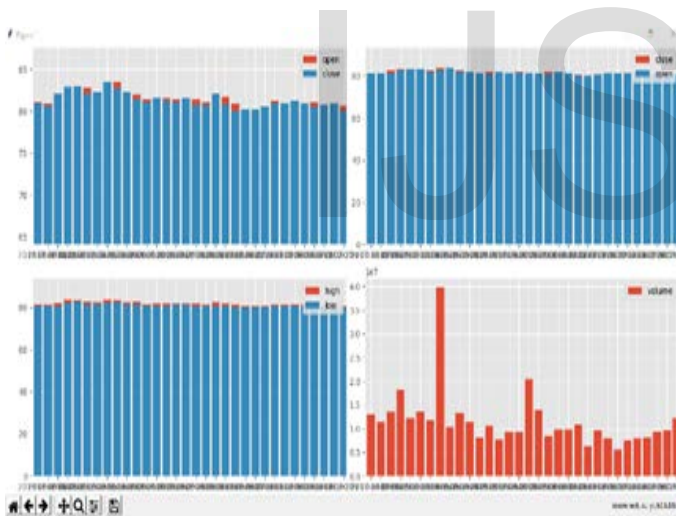


Fig. 5 Bar graph representation.



Fig. 6 Candlestick graph representation.

Fig. 4 follows the represents of line graph. It is better for client who prefers day interval transaction than intraday transaction. They can analyse the trading of a company in overall. Fig. 5 is the bar graph representation. It is better for intraday trading users. They provide better analysis of data on individual date. Provides data based analysis over period. Fig.6 candlestick representation which is better for the representation of profit and loss displayed in green and red respectively.

CONCLUSION AND FUTURE WORK

Stock Exchange Management Software for Trading is a tool which will help the user to analyse the data. It gets data, analyse it and produce the output of user requirement. Using this tool does not cost money.

User can only refer it for analysing data. They cannot make use of this tool as a medium for the exchange of stocks. User cannot able to get finance data of a company of frequency less than 1 min. Software takes time to draw bar graph as the increase of input data.

Finally, user can able to get services from this tool for the requirement of their need. They can customize the company name, get security for their data, each user will get their records will be stored in drive for future use.

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