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Healthy Investments Automated Appreciator System

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ABSTRACT: Stock market is a place where shares of public listed companies are traded. Getting in on the right stock is like winning the lottery. Returns for some technology companies are many times their initial offering price. If you are lucky enough to get in an allocation, you are in for a windfall. Investing in a stock is investing in future. Therefore, having an application with a predictive model inside it which can predict the share value of a stock can come in handy.

Stock market is tricky and can be very unpredictable. Hence we are required to build our own trading strategy and use rigorous and high end algorithms that can perform very complex computations in very less time period. Machine learning algorithms seem to serve our purpose accurately. Our application will have an inbuilt trading strategy to forecast the stock market as well as IPO market and provide the customer with the list of stocks that are worth investing thereby increasing his chances of making a healthy investment.

KEYWORDS: Stock Market, Companies, trade, investment.

I. INTRODUCTION

Currently, so many countries are facing global recession. Lot of youths is unemployed. In such situations stock market becomes apple of eye for everyone for their bread and butter. There is a lot of variation occur in price of shares. To provide the solutions and the guidelines to new as well as experienced traders, we have proposed H-In-At-A.

Stock Market prediction and analysis is the act of trying to determine the future value of a company stock or other financial instrument traded on an exchange. Stock market is the important part of the economy of the country and plays a vital role in the growth of the industry and the commerce of the country that eventually affects the economy of the country. Both investors and industry are involved in the stock market and wants to know whether some stock will rise or have a fall over certain period of time. The stock market is the primary source for any company to raise the funds for business expansions. It is based mainly on the concept of demand and supply. If the demand for a company's stock is higher, then the company's share price value increases and if the demand for company's stock is low then the company's share price decrease.

In the existing system every trader usually tracks statistic and news related to share market. On that basis they decide which share to buy or sale. But, lot of times share price guessing of new traders fails and they lose their money. In the existing system we have several problems some of them are

- Stock market is very vast and difficult to understand.
- It is too uncertain to be predicted by a human with basic calculation due to huge fluctuations in the market.
- It is time consuming and a real bother to follow up all the news articles and the market itself.

In our proposed system, an android application that suggests the trader the stocks those are worth investing in. It provides users with calculated statistical results on which a stock's value may depend. Users need to open, enter login credentials and can stroll across the stocks that are beneficial to invest in. Provides varies ways of stock data visualization. The proposed system has some benefits like

- An application exclusively for healthy Stocks suggestion with friendly user interface.
- Calculated statistical measures of spread are provided to the user.
- Various Data visualization features such as scatter plots, histograms.

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II. RELATED WORK

Cao and Tay [1] used a Support Vector Machine (SVM) to conduct a study on financial time series forecast. A novel type of learning machine called support vector machine (SVM) has been receiving increasing interest in areas ranging from its original application in pattern recognition to other applications such as regression estimation due to its remarkable generalization performance. The feasibility of applying SVM in financial forecasting is first examined by comparing it with the multilayer back-propagation (BP) neural network and the regularized radial basis function (RBF) neural network.

M. Rafiul Hassan, Baikunth Nath and Michael Kirley [2] recommend and execute cross-platform by applying the Genetic Algorithms (GA), Hidden Markov Model (HMM), and Artificial Neural Networks (ANN) together to predict the financial market. They proposed and implemented a fusion model by combining the Hidden Markov Model (HMM), Artificial Neural Networks (ANN) and Genetic Algorithms (GA) to forecast financial market behaviour. The developed tool can be used for in depth analysis of the stock market. Using ANN, the daily stock prices are transformed to independent sets of values that become input to HMM. We draw on GA to optimize the initial parameters of HMM. The trained HMM is used to identify and locate similar patterns in the historical data. Forecasts are obtained for a number of securities in the IT sector and are compared with a conventional forecast method.

Phichhang Ou and Hengshan Wang [3] proposed ten unlike data mining techniques which are discriminant analysis (Linear and Quadratic) both, naive Bayes on the basis of kernel estimation, K-nearest neighbour classification, neural network, Tree-based classification, Support vector machine, Bayesian classification with Gaussian process, Logic model and LS-SVM. Data mining techniques have been successfully shown to generate high forecasting accuracy of stock price movement. Nowadays, instead of a single method, traders need to use various forecasting techniques to gain multiple signals and more information about the future of the markets. Specifically, SVM is better than LS-SVM for in-sample prediction but LS-SVM is, in turn; better than the SVM for the out-of-sample forecasts in term of hit rate and error rate criteria.

Tiffany Hui-Kuang and Kun-Huang Huarng in [4] employ a new model using fuzzy time series by means of a neural network to get better the forecasting. Neural networks have been popular due to their capabilities in handling nonlinear relationships. These fuzzy relationships are then used to forecast the stock index in Taiwan. With more information, the forecasting is expected to improve, too. In addition, due to the greater amount of information covered, the proposed model can be used to forecast directly regardless of whether out-of-sample observations appear in the in-sample observations.

K. S. Kannan, P. S. Sekar, M. M. Sathik, P. Arumugam [5], proposed five strategies which are Moving Average, Typical Price, Relative Strength Index, CMI, and Bollinger Bands. This technology is designed to help investors discover hidden patterns from the historic data that have probable predictive capability in their investment decisions. The prediction of stock markets is regarded as a challenging task of financial time series prediction. Five methods of analyzing stocks were combined to predict if the day's closing price would increase or decrease. These methods were Typical Price (TP), Bollinger Bands, Relative Strength Index (RSI), CMI and Moving Average (MA).

III. PROPOSED WORK

A. Conceptual Design

Conceptual designs are scalable drawings that define the basic parameters of the project. They are usually void of detail, dimensions, and technical notes so that you can review and modify the design with ease whenever needed. These designs are in preliminary stages of the development. As shown in figure 1 they are intended to explore new ideas with ease. Their primary function is to establish a starting point.

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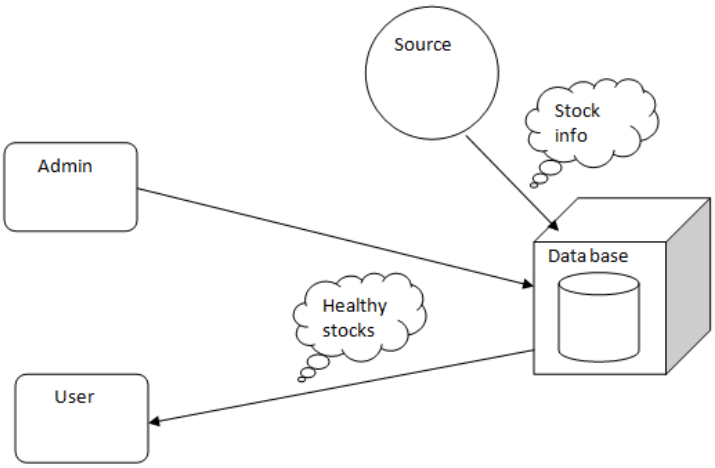

Figure 1: Conceptual design view

Despite its prevalence, Stock Market prediction remains a secretive and empirical art. Few people, if any, are willing to share what successful strategies they have. A chief goal of this project is to provide a trading strategy of stock market. The hope is that with a greater understanding of how the market moves, investors will be better equipped to prevent another financial crisis. The project will evaluate some existing strategies from a rigorous scientific perspective and provide a quantitative evaluation of new strategies.

B. Architectural Design

Architectural Design is defined as the process of defining a collection of hardware and software components and their interfaces to establish the framework for the development of a computer system. Architectural design is the identification and understanding of each component of the overall solution and how the components interact to meet the system requirements.

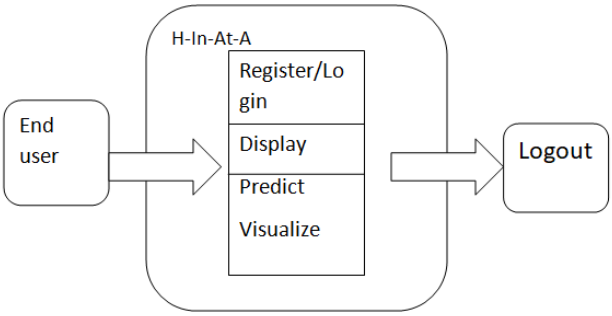

Figure 2: Architectural Design

C. Modules

a. Register
b. Login
c. Stocks
d. Analysis
e. Predict
f. Stats and views

a. Register:

- This module handles all signup tasks.
- This information will be used to give personalized experience to the user.
- Provided credentials are stored in database.

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b. Login:

- This module handles the sign in tasks.
- Here the credentials provided are cross checked with ones in database.
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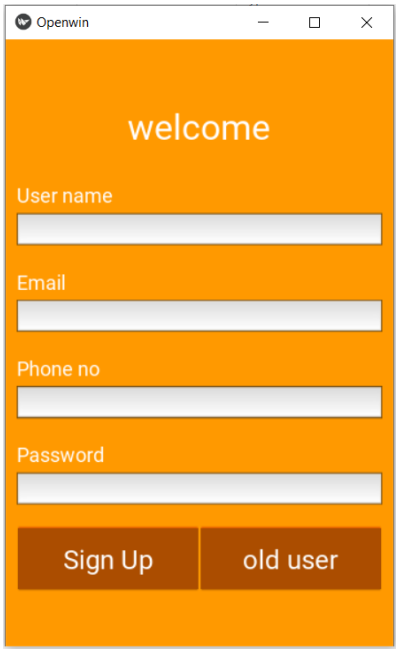
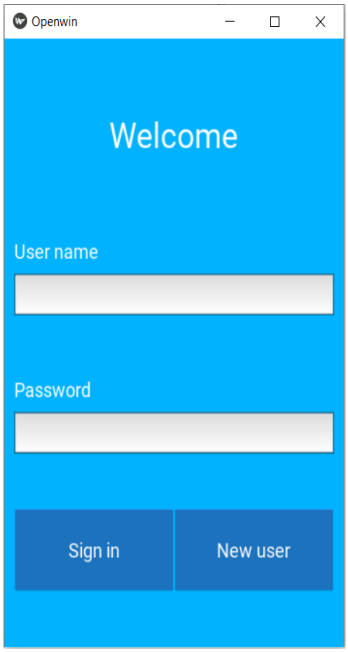


Registration Screen



Login Screen

c. Stocks:

- Stocks available are displayed as a list here.
- User can get data of any stock in an period of time that he chooses.

d. Analysis:

- This module handles the presentation of stock data.
- User is provided with many analysis techniques in the modules that helps user understand the stock condition.

e. Predict:

- Provides user with predicted stock value depending on the period of time it is trained upon.
- User will get predicted values of previous days to understand the accuracy of prediction.

f. Stats and views:

- Provides user with different measures of spread.
- Views provide options for user to see his/her own datasets or web scraped datasets in various graphical formats.

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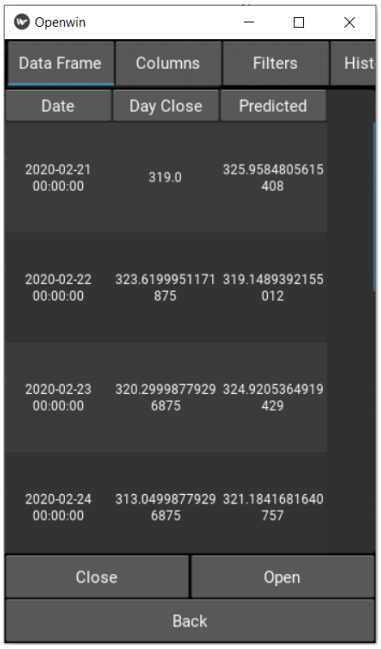
Stats Screen



Predict Screen

D. **IMPLEMENTATION**

Steps for H-IN-At-A:

1. Coding of KIVY and PYTHON is used for designing user interface.
2. Executing the code while connecting the devices and verifying the output on an android mobile.
3. Developed predict module for letting users invest in healthy stocks.
4. Database is simultaneously updated.
5. Code is run for every module, which helped in easy testing.

Procedures:

Implementation is the process that turns strategies and plans into actions in order to accomplish strategic objectives and goals. Implementing your strategic plan is as important, or even more important, than your strategy. Using KIVY, an open source library for Android application development It is based on python, a python integrated development environment for software, and incorporates its code editing and developer tools To support application development within the Android operating system, Kivy is fast when it comes to application development and execution speeds. The front end of the project is implemented using PYTHON and KIVY. The backend of our project is developed using PYTHON.

IV. CONCLUSION

Anyone who wishes to invest in stocks of a company while observing all the data of the stocks and keeping track of important aspects of stock market and get the clear picture of ups and downs of a stock can meet their needs by installing our app. We are reducing all the stress one needs to go through to keep up with the stock market trend. While developing the system a conscious effort has been made to create and develop software where the functionalities can be further extended. There is a wide range of scope for improvement.

V. FUTURE ENHANCEMENTS

With the system we proposed, we are trying to provide user with healthy stocks. The scope of the project can further be improved so that the prediction accuracy is increased, making the risk of investing in a stock much less. We can make this app a financial AI assistant in future.

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