

Progress Report of Mini Project

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BACHELOR OF ENGINEERING
In
INFORMATION TECHNOLOGY



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1. Definition:

The prediction of a stock price direction may serve as an early prediction system for short-term investors and as an early financial distress warning system for long-term shareholders. The appropriate stock selections those are suitable for investment is a very difficult task. The key factor for each investor is to earn maximum profits on their investments.

Machine Learning Algorithm is used. ML has very specific type of learning algorithms characterized by the capacity control of the decision function, the use of the kernel functions and the scarcity of the solution. we investigate the predictability of financial movement with ML. These methods are applied on historical data retrieved from nsepy (Python module). The results will be used to analyze the stock prices and their prediction in depth in future research efforts.

2. Objectives:

In the past decades, there is an increasing interest in predicting markets among economists, policymakers, academics and market makers. The objective of the proposed work is to study and improve the supervised learning algorithms to predict the stock price.

This project will be implemented in Python. The system must be able to access a list of historical prices by nsepy python module. It must calculate the estimated price of stock based on the historical data. It must also provide an instantaneous visualization of the market index.

3. Scope of the project:

Prediction of stock's price using machine learning and deep learning will be useful for new investors as well as old investors to invest in stock market based on the various factors considered by the software. Demand and Supply of shares of a company is a major reason price change in stocks. When Demand Increase and Supply is less, price rises.

3.1.Overall Description:

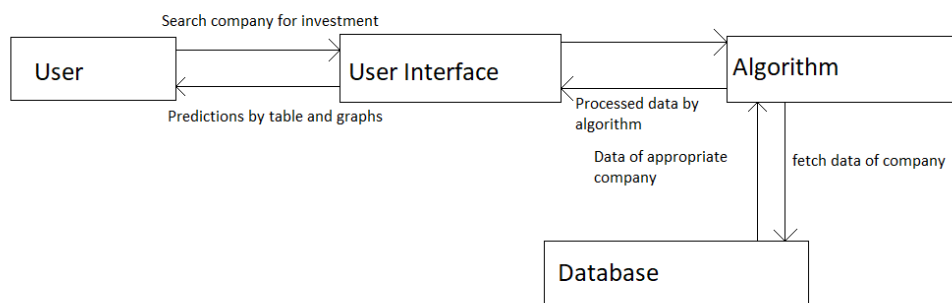


Fig. 1. Basic working of system

4. Modules:

4.1. Login:

The first page that users will encounter will be the login page. All users will be required to either login to an existing account or sign up for a new one. This page will show a simple box with two input areas where the user can enter their user name and password. Underneath this input are two buttons next to each other. The left button will be the Login button and the button next to it is the Sign-up button.

Clicking the Login button will either bring you to the home page if you entered the correct username and password or it will just refresh the login page with an error stating that you have entered your credentials wrong.

4.2. Sign Up / Registration:

On the login page, if a user is not already registered, they can sign up to create a new account by clicking on the Sign-up button. When clicked, this button will bring them to the registration page where they will be able to create a username and password. They will also be required to enter an email address and optionally enter their name.

4.3. UI design:

User interface should be easy to use and user friendly for any system. UI is main attraction of any system. In the project user interact with the system through UI. User interface through user can get desired result very quickly and easily by just one click. The purpose of this module is to provide the user interface and view functions for the system. This is the system with which the user directly interacts and get prediction data. This module is created to provide the user interface to the system.

4.4. Stock search:

Through this user can search stocks which are registered under NSE. To get information about stocks, current trend of stock and predictions about stock, user has to search about the require stock by its name through the search bar. It is easy and convenient way to search about anything for user.

4.5. Table and graph formation:

This section is where the graph of the stock's historical and prediction data will be displayed. The graph will have an indicator of the current data and which points on the graph represent the stock prediction. Underneath this section, will be a smaller section that will show the open, high, low, and current value of the stock for that given hour or however long we decide to refresh the data.

4.6. Price prediction:

Back side of system UI there should be a mechanism which find the prediction price for user. This mechanism is algorithm which will work for user to give satisfactory output about stock, so the output of algorithm guide user to invest in particular stocks. So, user can minimize the risk associated with stock market trading.

5. Project Basic Requirements:

5.1. Software Interface Requirements:

- **Python 3.8 with machine learning libraries** (e.g. scikit-learn, Keras, Tensorflow)

Python is an interpreted, high-level and general-purpose programming language. Python's design philosophy emphasizes code readability with its notable use of significant indentation. Its language constructs and object-oriented approach aim to help programmers write clear, logical code for small and large-scale projects.

Python Libraries:

- **NumPy:** NumPy is basically a module or you can say a library that is available in python for scientific computing now it contains a lot of things it contains a powerful dimensional array object then
- **Keras:** Keras is a minimalist Python library for deep learning that can run on top of Theano or TensorFlow. It was developed to make implementing deep learning models as fast and easy as possible for research and development.
- **Tensorflow:** TensorFlow is a Python library for fast numerical computing created and released by Google. It is a foundation library that can be used to create Deep Learning models directly or by using wrapper libraries that simplify the process built on top of TensorFlow.
- **Scikit-learn:** Scikit-learn provides a range of supervised and unsupervised learning algorithms via a consistent interface in Python. It is licensed under a permissive simplified BSD license and is distributed under many Linux distributions, encouraging academic and commercial use.
- **Pandas:** It is likewise a Python library for information control and examination. Specifically, it offers information structures and activities for controlling numerical table and time arrangement information.

- **Visual Studio Code / Sublime Text for programming**

Microsoft Visual Studio is an integrated development environment (IDE) from Microsoft. It is used to develop computer programs, as well as websites, web apps, web services and mobile apps. Visual Studio uses Microsoft software development platforms such as Windows API, Windows Forms, Windows Presentation Foundation, Windows Store and Microsoft Silverlight. It can produce both native code and managed code.

➤ Google Chrome for debugging web applications

Google Chrome is a cross-platform web browser developed by Google. It was first released in 2008 for Microsoft Windows, and was later ported to Linux, macOS, iOS, and Android where it is the default browser built into the OS. The browser is also the main component of Chrome OS, where it serves as the platform for web applications.

5.2. Hardware Interface requirements:

Automated Stock Price Prediction may sound too complex but requires very few hardware costs, you just need a good computer with a good editor and you're ready to go, not much requirement of extra hardware specifications.

6. Literature Review:

6.1. QuantShare: Budget Neural Network Stock Backtesting Software

Recommended for Quantitative Analysts who develop powerful automated systems and value a huge selection of shared user-generated systems and powerful technical analysis tools.

Quantshare is a Windows-based stock analysis software package that operates primarily offline. Quantshare offers charting, 300+ Indicators, and portfolio analysis tools. Interestingly, Quantshare has AI and Neural Network learning functionality and even automated trading with IB for the hardcore quantitative analyst.

Scanning & Screening: In terms of market scanning and screening, the data you can select are essentially technical data based on stock price, volume, and plotted indicators. You will not find fundamental screening such as EPS, PE Ratio, or Cash Flow. Watch-lists can be tricky to set up—further development is required here.

News & Social: Including news and the StockTwits integration save the day here for QuantShare; the news is not real-time but certainly does add value.

There are scripts within Quantshare that allow you to scrape sites like Google News and then plot the news on a chart. This allows you to correlate the news stories and the historical impact the stories had on the price patterns. This is not real-time news, and it can only give you a historical perspective.

There is a heavy focus on the sharing aspect of systems with sharing servers, which enable people to connect and share systems, perfect for the quantitative analyst.

Stock system and back testing: QuantShare specializes, as the name suggests, in allowing Quantitative Analysts the ability to Share stock systems.

This means they have a huge systems marketplace with a lot of accessible content that you can test and use.

This is a seriously advanced software for those with the inclination to test, forecast, predict, and automate.

Ease of Use: This software package is not the easiest to use, and the interface requires serious development effort. The learning curve will take a time investment on your part.

6.2. VectorVest: Solid Scanning & Market Timing Stock Trading Software

Trading software to help simplify market timing, stock strength, and valuation. Add to that general Buy & Sell ratings on stocks, and it is worth a look.

VectorVest has 3 tiers of service. Basic \$69/m, Enhanced \$89/m, and Premium \$129/m. The basic service is missing much of the benefits of VectorVest. I would recommend the enhanced service, good for investors, or the Premium for those who want to swing or day trade. In terms of pricing, Vectorvest is neither expensive nor cheap; it sits in the middle. It does not compete with TradingView, MetaStock, or TrendSpider, who offer incredible value for money. But the competitors do not offer the level of simplicity of VectorVest.

Trade Management: VectorVest software is incredibly easy to use because it is designed to promote the Value, Safety, and Timing system. This means they have a minimal variety of stock market indicators; they provide only what is needed to trade within their VST system parameters.

VectorVest Covers the Following Stock Exchanges:

8000+ US Stocks & Indices
2,500+ Canadian Stocks
2,000+ Australian Stocks
2,000+ UK Shares
2,000+ European Stocks

VectorVest Scanning and Screening: VectorVest continually evaluates every stock on the exchanges they cover to provide their propriety ratings.

- RV Relative Value shows the estimated return versus a AAA Corporate Bond.
- RS Relative Safety measures the consistency of a company's financials.
- RT Relative Timing is a technical indicator that attempts to define the short-term trend of a stock.
- VST Value-Safety Timing indicator is an aggregation of RV, RS, and RT, essentially rolled up into one number.

News & Social: VectorVest does not have any specific features to enable social chat or community within the software. They do, however, provide a weekly market update to subscribers; these are available on youtube.

Some of their customers complain about the cost of the training courses available through VectorVest and also the constant focus of VectorVest trying to sell the courses and add-on products.

Technical Analysis: VectorVest has around 20 technical indicators and drawing tools, including:

- Trendlines, Gann & Fibonacci
- Moving Averages, Momentum, RSI and Stochastics

6.3. TrendSpider: Winner Best Automated Stock Chart Analysis Software

Best for all traders seeking cutting edge AI software that automates technical chart analysis, trendline & pattern recognition. TrendSpider has robust system backtesting, automated Fibonacci & Candlestick recognition covering Stocks, ETFs, Fx & Crypto Markets.

TrendSpider has an excellent price point starting at \$27 per month, which includes real-time data. The Elite Trader Plan is \$37.25 per month, has everything the PRO plan has, and includes after-hours and pre-market data, OTC, Forex, and Futures data. On top of that, you get 20 Dynamic Alerts.

They have also expanded to cover Forex, Crypto, ETFs, and Futures, which means you can apply the stunning Auto Trend-lines and Multi Time-Frame Analysis on many different markets.

The platform is built on HTML 5 and needs Zero installation and Zero data feed configuration. The system runs on all platforms, from smartphones to PCs.

Automated Technical Analysis: Packed full of innovative technical analysis tools means that TrendSpider is catapulted to the top of this list. If you are a serious market analyst, then TrendSpider will help you do the job quicker, with better quality, and help you not to miss an opportunity. The automated trendline detection and plotting do a better job than a human can; using algorithms, the system can detect thousands of trends-lines and flag the most important ones with the highest back tested probability of success.

“The automated trendline & candlestick detection and recognition do a better job than any human”

The multi time-frame analysis means being able to view multiple time-frame charts on a single chart with the trendlines plotted automatically. Another great feature is the advanced plotting of support and resistance lines into a subtly integrated chart heatmap.

Market Scanning: TrendSpider is developing new features at breakneck speed, but this one is big. The latest innovation from the TrendSpider team is the “Market Scanner.” This enables you not only to scan a specific stock but the entire market for shares matching your technical criteria. This is a significant step forward, combining AI trend detection and analysis with the ability to scan the whole stock market.

TrendSpider takes a different approach to backtesting. Because the platform is built from the ground up to automatically detect trendlines and Fibonacci patterns, it already has an element of backtesting built into the code.

The highest probability trendlines are automatically flagged, and you can adjust the sensitivity of the algorithm that controls the detection to show more or fewer lines.

Stock Systems & Backtesting: Integrated backtesting of automated trendlines, showing win-rate, profitability, and drawdown are new additions and warmly welcome. The team is finally propelling TrendSpider into one of the leading technical analysis packages in the industry.

Easy to Use: TrendSpider’s innovations mean you will need a little time to understand what they are telling you. For example, seeing hourly, daily, weekly trend lines plotted on the same chart might be confusing at first. Still, after applying a little effort, you might find you cannot live without them—an excellent score on usability.

6.4. TC2000: Best Stock Charting/Scanning & Broker Integration

Recommended for traders in the USA & Canada seeking rapid entire market scanning, with excellent charts & indicators. TC2000 has an integrated brokerage, meaning you can trade stocks and options directly from charts.

TC2000 is a big hitter when it comes to software and pricing. TC2000 runs on everything, your iPhone, your Tablet, your Mac, and your PC. It is also priced very reasonably, starting at Free.

If you trade U.S. Stocks, ETF's or Mutual Funds, then this is a great solution. Worden Brothers also provide regular live training seminars across the USA, which are of very high quality.

Trade Management: Worden recently released TC2000Brokerage offering discount brokerage services at \$4.95 per trade. This integration means a tight integration for trading stocks from the chart screen and one of the best implementations of Stock Options trading visualization available.

Scanning and Screening: Make no mistake about it; if you want fundamentals screened in real-time layered with technical screens all integrated into live watch lists connected to your charts, TC2000 is a power player.

News & Social Community: While TC2000 does not have a perceivable real-time news element, it does have integrated news with connections to Google Finance, CNN, Yahoo Finance, MSN Money, Marketwatch, and StockTwits. If you want social community and integrated news, you will need to roll back to TC2000 v12.5.

TC2000 Technical Chart Analysis: TC2000 has an excellent array of technical indicators and drawing tools; all the big ones are there, from OBV, RSI, and Bollinger Bands to Fibonacci Fans and Andrews Pitchfork. With over 70 different indicators, you will have plenty to play with. They have also introduced live alerts that you can configure to email or pop up if an indicator or trend line is breached, very useful indeed.

Stock Systems and Back Testing: If you want to perform powerful backtesting, then TC2000 is not for you. You may be able to utilize the add-on product called StockFinder if you are a Platinum Member, and you specifically call support to ask for it. However, StockFinder is no longer in active development, which is a shame because I think it was a very good backtesting suite.

Ease of Use: One of the easiest to use packages available places the icing on the cake for the Worden Brothers.

6.5. MetaStock: Winner Best Stock Analysis Forecasting & Backtracking Software

Recommended for stock traders who need excellent real-time news, access to a huge stock systems marketplace, and the best technical stock chart analysis. All international exchanges are covered & backed up with excellent customer services.

MetaStock is one of the biggest fish in the sea of stock market analysis software. Backed up by the mighty Thomson Reuters, you can expect excellent fast global data coverage and broad market coverage, including equities, futures, forex, ETF's and options.

MetaStock by itself starts at \$69 per month, which unlocks the end-of-day data package. As you will see, that is an excellent combination of award-winning technical analysis and expert advisors for system backtesting, forecasting, and analysis.

MetaStock is designed only for the PC but can be run on Mac with PC emulation software. You will need to download and install MetaStock and configure your specific data feeds for the markets you want to trade. So, the software installation is not as slick and quick as competitors, but the package is potent because it enables you to configure different data providers, like your broker, for example.

Live Trading: MetaStock does provide limited broker integration, but the execution of trades from charts and live integrated profit and loss analysis of your live portfolio is limited.

Scanning & Screening: Using MetaStock Refinitiv, you can see a really in-depth analysis of company fundamentals from debt structure to top ten investors, including level II. Excellent watch lists featuring company financials and powerful scanning of the markets warrant a perfect score.

Real-time News Score: MetaStock's Refinitiv integration means you get institutional quality real-time news, analysis, research, and economic outlooks. This is the fastest global news service available on the market, including translations into all major languages.

Systems & Backtesting: Another area where MetaStock excels is what they call the expert advisors. MetaStock harnesses many inbuilt systems that will help you, as a beginner or intermediate trader, understand and profit from technical analysis patterns and well-researched systems. This is really a key area of advantage. The most significant addition to the MetaStock arsenal is the forecasting functionality, which sets it apart from the crowd.

MetaStock harnesses many inbuilt systems that will help you, as a beginner or intermediate trader, understand and profit from technical analysis patterns and well-researched systems. You can even use artificial intelligence like functionality to test a set of variables within your backtesting. For example, you could test if price moves above the moving average 10,11,12,14,16,18 or 20 in a single test to see which of the moving averages best work with that stock.

Forecaster Capability: The most significant addition to the MetaStock arsenal is the forecasting functionality, which sets it apart from the crowd. By selecting Forecaster from the power console, you can simply choose one or more stocks, ETF's or Forex pairs and click forecast.

Easy to Use: MetaStock still has the feel of a collection of separately developed applications that require user's education to make them work together. However, the vast selection of automated "expert advisors" you can deploy on the range of stocks in your purview makes MetaStock well worth the investment.

7. Feasibility Study:

Stock market cannot be accurately predicted. The future, like any complex problem, has far too many variables to be predicted. The stock market is a place where buyers and sellers converge. When there are more buyers than sellers, the price increases. When there are more sellers than buyers, the price decreases. So, there is a factor which causes people to buy and sell. It has more to do with emotion than logic. Because emotion is unpredictable, stock market movements will be unpredictable. It's futile to try to predict where markets are going. They are designed to be unpredictable.

The proposed system will not always produce accurate results since it does not account for the human behaviors. Factors like change in company's leadership, internal matters, strikes, protests, natural disasters, and change in the authority cannot be taken into account for relating it to the change in Stock market by the machine.

The objective of the system is to give an approximate idea of where the stock market might be headed. It does not give a long-term forecasting of a stock value. There are way too many reasons to acknowledge for the long-term output of a current stock. Many things and parameters may affect it on the way due to which long term prediction is just not feasible.

7.1. Operational Feasibility:

Operational feasibility is a measure of how well a proposed system solves the problems, and takes advantage of the opportunities identified during scope definition and how it satisfies the requirements identified in the requirements analysis phase of system development. Operational feasibility reviews the willingness of the organization to support the proposed system. This is probably the most difficult of the feasibilities to gauge. In order to determine this feasibility, it is important to understand the management commitment to the proposed project. If the request was initiated by management, it is likely that there is management support and the system will be accepted and used. However, it is also important that the employee base will be accepting of the change. The operational feasibility is the one that will be used effectively after it has been developed. If users have difficulty with a new system, it will not produce the expected benefits. It measures the viability of a system in terms of the **PIECES** framework. The **PIECES** framework can help in identifying operational problems to be solved, and their urgency:

1. **Performance:** Does current mode of operation provide adequate throughput and response time?

As compared to traditional methods of manually retrieving the stock data from the web and forecasting the stock prices with large number of manual

calculations, this system plays a very important role in designing an application that automates the process of data retrieval and stock movement/price prediction with the help of a user-friendly dashboard, thus making the process easier and faster.

- 2. Information:** Does current mode provide end users and managers with timely, pertinent, accurate and usefully formatted information?

System provides end users with timely, pertinent, accurate and usefully formatted information. Since all the stock related information is being pulled from Yahoo Finance against a unique NSE Stock Symbol, it will provide for meaningful and accurate data to the investor. The investing decisions are made by the traditional investors manually. This results in loss of validity of data due to human error. The information handling and the investing decision in the proposed system will be driven by computerized and automatically updated prediction and validation of stock data. The human errors will be minimal. The data will be automatically updated from time to time and will be validated before the data is processed into the system.

- 3. Economy:** Does current mode of operation provide cost-effective information services to the business? Could there be a reduction in costs and/or an increase in benefits?

Determines whether the system offers adequate service level and capacity to reduce the cost of the business or increase the profit of the business. The deployment of the proposed system, manual work will be reduced and will be replaced by an IT savvy approach. Moreover, it has also been shown in the economic feasibility report that the recommended solution is definitely going to benefit economically in the long run. The system is built on Excel, R and JavaScript. Excel and Javascript do not need any additional installation; they are in-built in every system. R needs installation but it is free software. So, overall, the application is very economically feasible.

- 4. Control:** Does current mode of operation offer effective controls to protect against fraud and to guarantee accuracy and security of data and information?

As all the data is pulled from Yahoo Finance, which is a public stock data provider, it does not contain any confidential information which can be misused, so on that contrast there should be no use of any security corner for this system.

- 5. Efficiency:** Does current mode of operation makes maximum use of available resources, including people, time, and flow of forms?

Efficiency work is to ensure a proper workflow structure to store patient data; we can ensure the proper utilization of all the resources. It determines whether the system makes maximum use of available resources including time, people, flow of forms, minimum processing delay. In the current

system a lot of time is wasted as the investing decisions are made by the traditional investors manually. The proposed system will be a lot efficient as it will be driven by computerized and automatically updated prediction and validation of stock data. The data will be automatically updated from time to time and will be validated before the data is processed into the system.

6. Services: Does current mode of operation provide reliable service? Is it flexible and expandable?

The system is desirable and reliable services to those who need it and also whether the system is flexible and expandable or not. The proposed system is very much flexible for better efficiency and performance of the organization. The scalability of the proposed system will be inexhaustible as the storage capacity of the system can be increased as per requirement. This will provide a strong base for expansion. The new system will provide a high level of flexibility.

7.2 Technical Feasibility:

A large part of determining resources has to do with assessing technical feasibility. It considers the technical requirements of the proposed project. The technical requirements are then compared to the technical capability of the organization. The systems project is considered technically feasible if the internal technical capability is sufficient to support the project requirements.

The developer must find out whether current technical resources can be upgraded or added to in a manner that fulfils the request under consideration. This is where the expertise of system analysts is beneficial, since using their own experience and their contact with vendors they will be able to answer the question of technical feasibility. The essential questions that help in testing the technical feasibility of a system include the following:

1. Is the project feasible within the limits of current technology?
2. Does the technology exist at all?
3. Is it available within given resource constraints?
4. Is it a practical proposition?
5. Manpower- programmers, testers & debuggers
6. Software and hardware
7. Are the current technical resources sufficient for the new system?
8. Can they be upgraded to provide to provide the level of technology necessary for the new system?
9. Do we possess the necessary technical expertise, and is the schedule reasonable?
10. Can the technology be easily applied to current problems?
11. Does the technology have the capacity to handle the solution?
12. Do we currently possess the necessary technology?

Automated Stock Prediction system deals with the modern technology system that needs the well efficient technical system to run this project. All the resource

constraints must be in the favor of the better influence of the system. Keeping all this fact in mind we had selected the favorable hardware and software utilities to make it more feasible.

8. Project Requirement Gathering:

8.1. Requirement Gathering Techniques:

Interface analysis

Interfaces for a software product can be human or machine. Integration with external systems and devices is just another interface. User centric design approaches are very effective at making sure that we create usable software. Interface analysis – reviewing the touch points with other external systems is important to make sure we don't overlook requirements that aren't immediately visible to users.

Focus Group

A focus group is a gathering of people who are representative of the users or customers of a product to get feedback. The feedback can be gathered about needs/opportunities/problems to identify requirements, or can be gathered to validate and refine already elicited requirements. This form of market research is distinct from brainstorming in that it is a managed process with specific participants

Document Analysis

Reviewing the documentation of an existing system can help when creating AS-IS process document, as well as driving gap analysis for scoping of migration projects. In an ideal world, we would even be reviewing the requirements that drove creation of the existing system – a starting point for documenting current requirements. Nuggets of information are often buried in existing documents that help us ask questions as part of validating requirement completeness.

Observation

By observing users, an analyst can identify a process flow, steps, pain points and opportunities for improvement. Observations can be passive or active (asking questions while observing). Passive observation is better for getting feedback on a prototype (to refine requirements), where active observation is more effective at getting an understanding of an existing business process. Either approach can be used.

Brainstorming

Brainstorming is used in requirement gathering to get as many ideas as possible from group of people. Generally used to identify possible solutions to problems, and clarify details of opportunities.

8.2. Comparison with Existing Application:

8.2.1. QuantShare: Budget Neural Network Stock Backtesting Software:

Pros:

- Automate Trading
- Sharing Servers for System Sharing
- Active Community

Cons:

- **Price: \$245 One Time**
- Programming Knowledge Required
- Interface
- No User-Friendly UI

8.2.2. VectorVest: Solid Scanning & Market Timing Stock Trading Software:

Pros :

- Market Timing Signals
- Specific Buy & Sell Signals
- Simple to Follow System

Cons:

- **Price: \$69-\$129**
- Expensive, Especially with Add-ons
- Provides Signals with No Proven Track Record
- Limited Number of Chart Indicators
- No Easy to use

8.2.3. TrendSpider: Winner Best Automated Stock Chart Analysis Software

Pros:

- Automated Trendline & Fibonacci Detection
- Real-time Data Included
- Automatic Multi-Timeframe Analysis

Cons:

- **Price: \$27 -\$69**
- No Auto Trading (Yet)
- No Social
- Complex UI

9. Project Timeline chart:

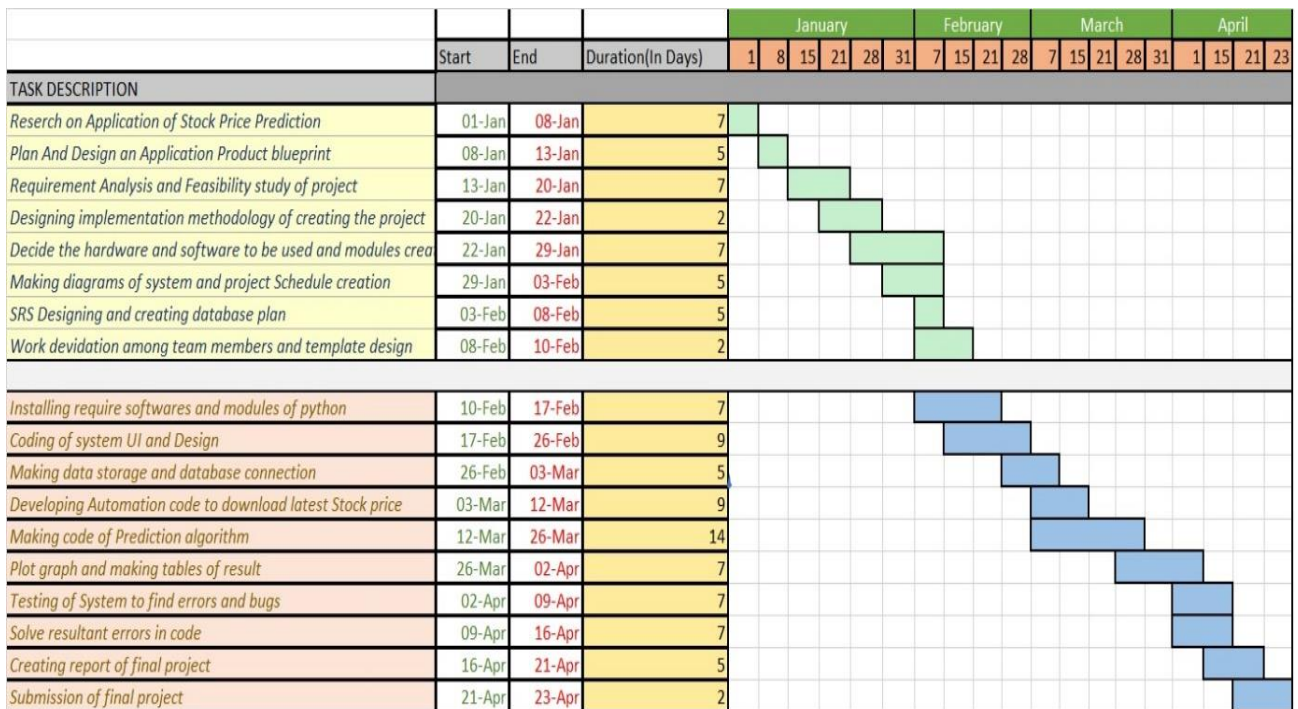


Fig.2. Time line chart of system

10.Project SRS:

10.1. Designing:

10.1.1. DFD diagram:

Level-0:

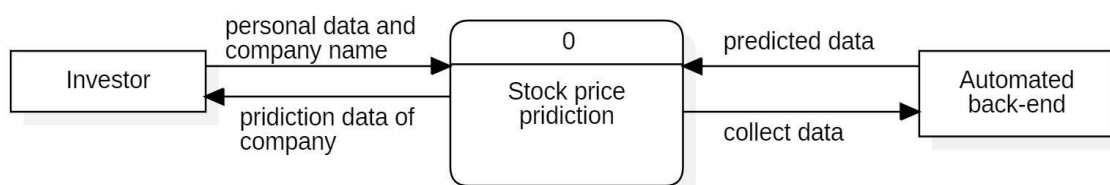


Fig.3. Data Flow Diagram (Level-0)

Level-1:

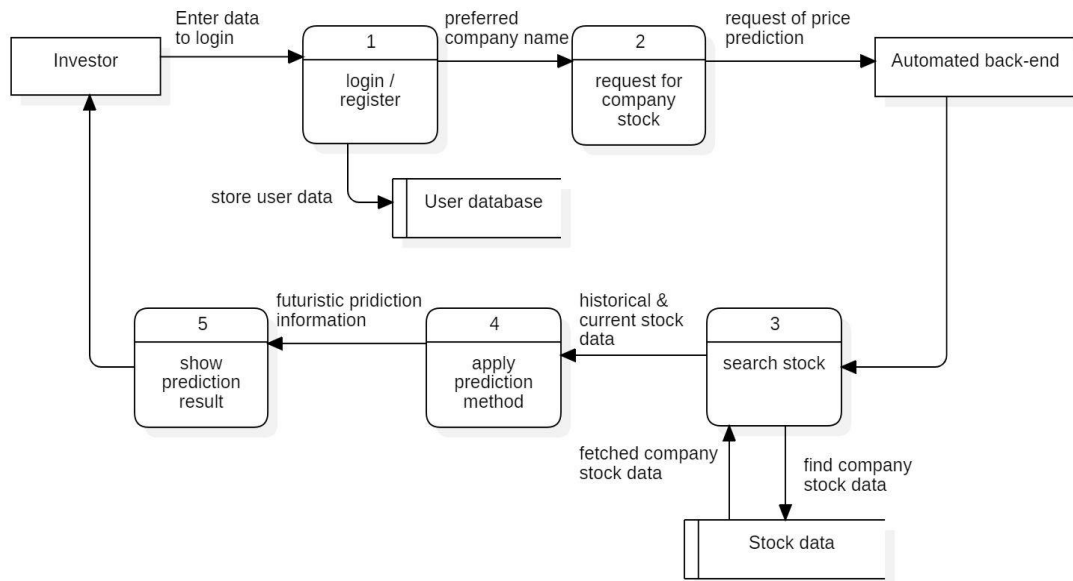


Fig.4. Data Flow Diagram (Level-1)

10.1.2. ER Diagram:

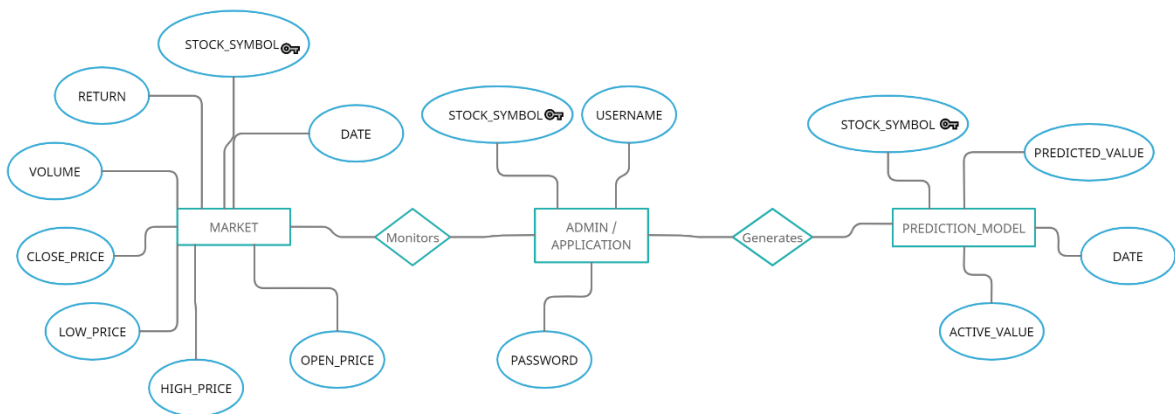


Fig.5. ER Diagram

10.1.3. Use Case diagram:

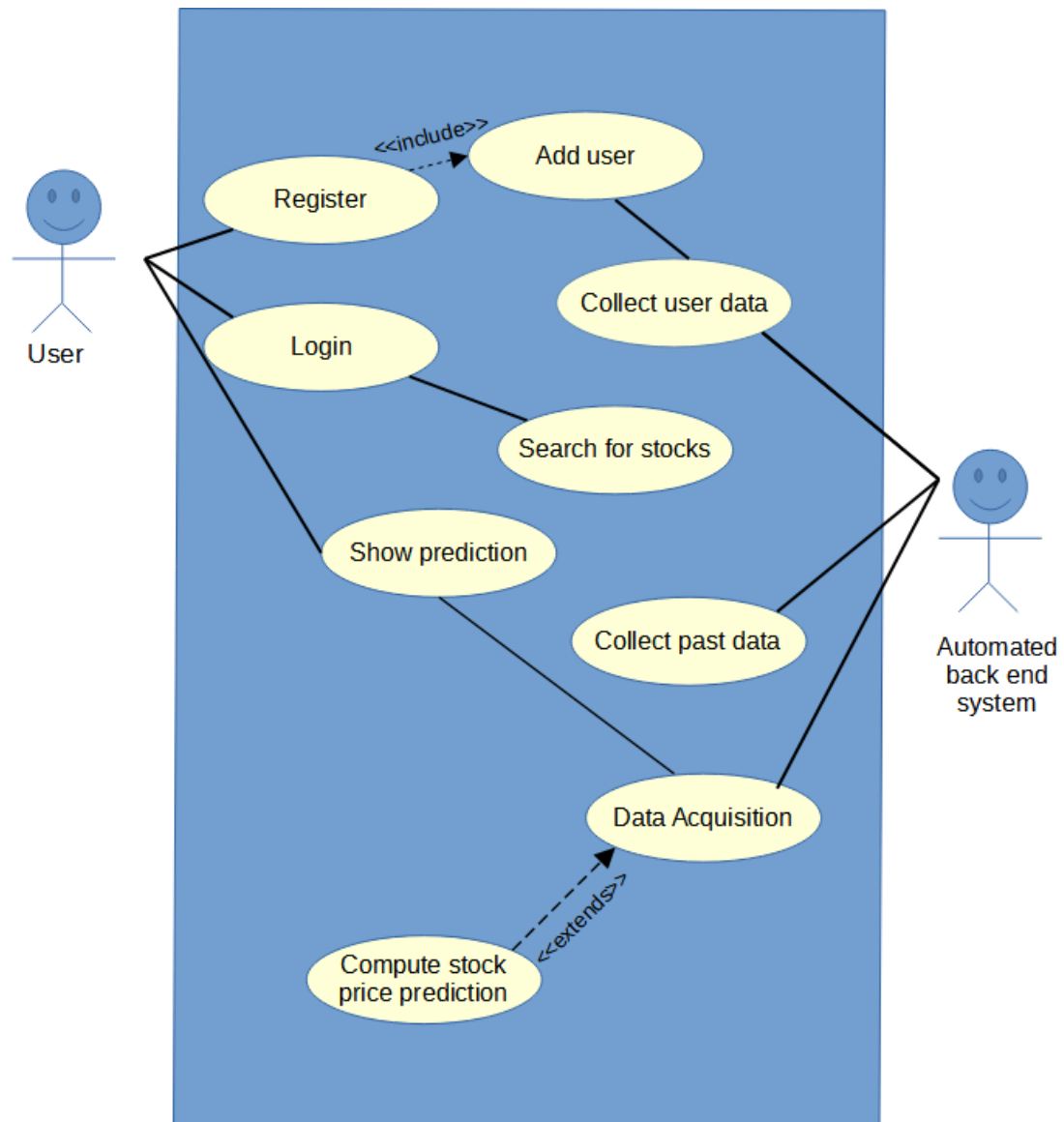
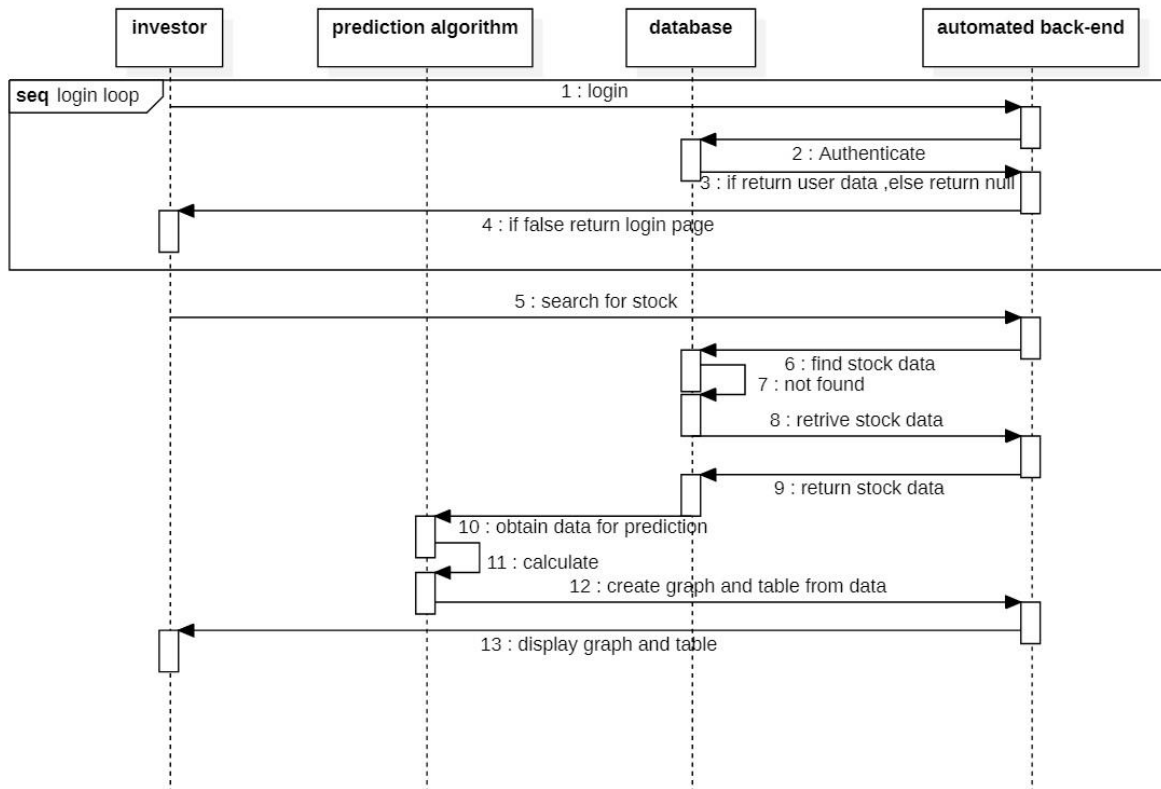


Fig.6. Use Case Diagram

10.1.4. Event Trace Diagram:**Fig.7. Event Trace Diagram**

10.1.5. Class Diagram:

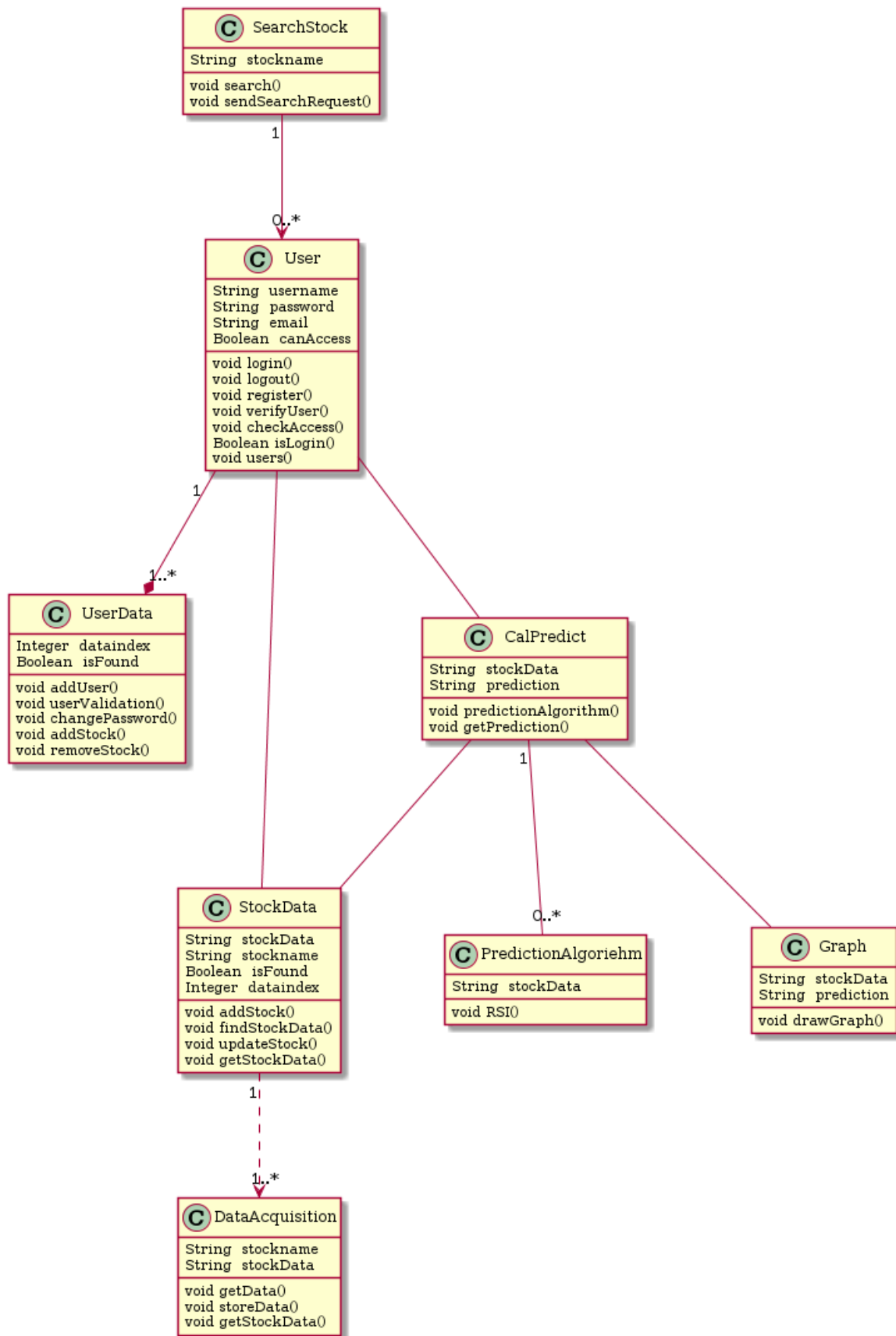


Fig.8. Class Diagram

10.2. Database Design and Normalization:**10.2.1. Table Name: Stock_Market****Primary Key: Stock_Symbol****Description: To store data of stocks**

Sr. No.	Name	Datatype	Constraint	Description
1	Stock_Symbol	Varchar	Primary key	To store stock symbol
2	Date	Date	Not null	To store date
3	Series	Varchar	Not null	To store series
4	Prev_Close	Float	Not null	To store previous closed price of stock
5	Open	Float	Not null	To store open price of stock
6	High	Float	Not null	To store Highest price of stock
7	Low	Float	Not null	To store Lowest price
8	Last	Float	Not null	To store Last price
9	Close	Float	Not null	To store close price
10	Volume	Float	Not null	To store Volume of trades
11	Trades	Int	Not null	To store trades
12	Deliverable_Volume	Int	Not null	To store Deliverable Volume
13	%Deliverable	Float	Not null	To store percentage of Deliverable

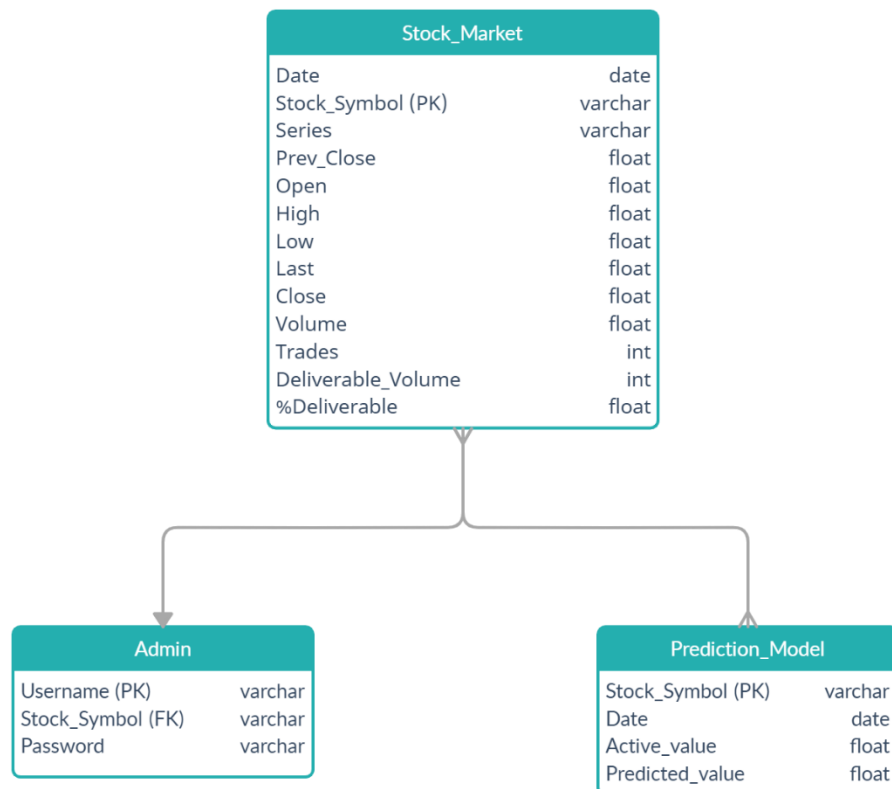
Table 1. Details of stock**10.2.2. Table Name: Admin****Primary Key: Username****Foreign Key: Stock_symbol****Description: To store the admin Details**

Sr. No.	Name	Datatype	Constraint	Description
1	Username	Varchar	Primary key	To store the user name
2	Stock_symbol	Varchar	Foreign Key	To store stock symbol
3	Password	Varchar	Not null	To store password

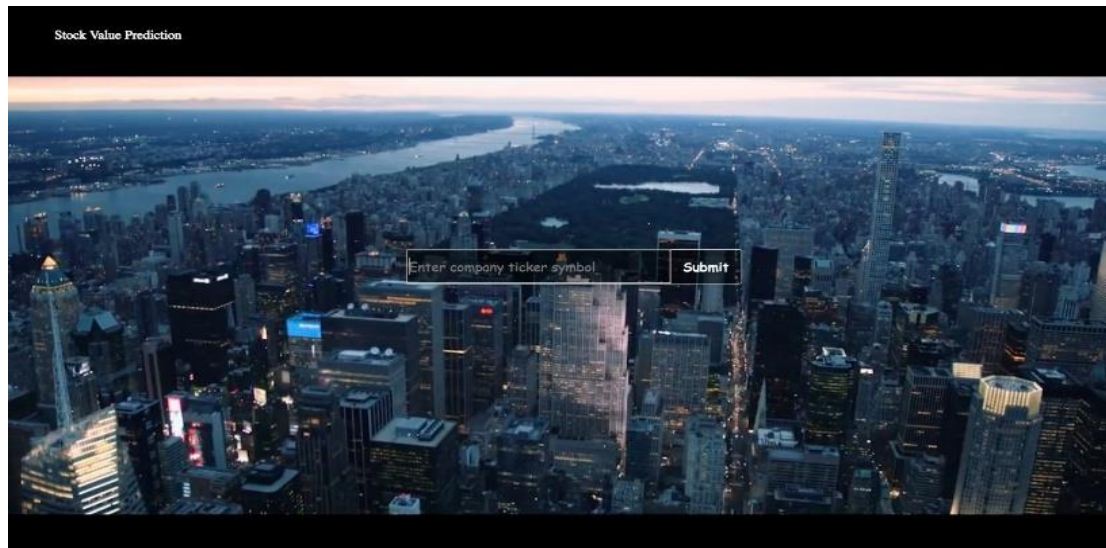
Table 2. Admin Details

10.2.3. Table Name: Prediction_model**Primary Key: Stock_Symbol****Description: To store predictions of stocks**

Sr. No.	Name	Datatype	Constraint	Description
1	Stock_Symbol	Varchar	Primary key	To store symbol of stock
2	Date	Date	Not null	To store date
3	Active_value	Float	Not null	To store active value
4	Predicted_value	Float	Not null	To store predicted value

Table 3. Prediction Data**10.3. Database Relation Diagram:****Fig.9. Database Relationship Diagram**

10.4. Template Design:



```
2021-02-04 00:00:00
Symbol Series Prev Close ... Trades Deliverable Volume %Deliverb
le
Date ...
```

2020-09-28	RELIANCE	EQ	2201.70	...	213955	1610375	0.17
74							
2020-09-29	RELIANCE	EQ	2216.25	...	269649	2301443	0.19
30							
2020-09-30	RELIANCE	EQ	2245.05	...	232560	2777751	0.24
60							
2020-10-01	RELIANCE	EQ	2234.35	...	237645	2356434	0.24
57							
2020-10-05	RELIANCE	EQ	2225.25	...	237138	1671283	0.19
14							
...
2021-01-28	RELIANCE	EQ	1895.00	...	446576	4697008	0.29
87							
2021-01-29	RELIANCE	EQ	1876.55	...	472678	9106845	0.45
14							
2021-02-01	RELIANCE	EQ	1841.95	...	370120	7864911	0.49
86							
2021-02-02	RELIANCE	EQ	1895.30	...	561567	7369471	0.38
2021-02-02	RELIANCE	EQ	1895.30	...	561567	7369471	0.3851
2021-02-03	RELIANCE	EQ	1925.80	...	345625	4832689	0.3456

[89 rows x 14 columns]
0.2946465015411377

11. Project work distribution among team members:

Prediction and database management:

- 18IT401 – Smit Ghelani
- 18IT427 – Jigar Shekhat

UI Design:

- 18IT410 - Parth Panchani

******The End******