STOCK SUGGESTOR

Minor Project Synopsis

**Bachelor of Technology (Information Technology Engineering)**

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# Introduction

The Stock Suggestor project is a machine learning-based software tool designed to help investors make informed decisions when investing in the stock market. The stock market is a complex and dynamic system that is influenced by a wide range of factors, including economic conditions, geopolitical events, and company-specific news. As a result, it can be challenging for investors to identify which stocks are likely to perform well in the future.

The Stock Suggestor project aims to address this challenge by using machine learning algorithms to analyze stock market data and predict which stocks are likely to perform well in the future. The project collects data from various sources, including financial databases, news articles, and social media platforms. The data is then processed and cleaned to remove any errors or inconsistencies.

The project uses a variety of machine learning algorithms, such as linear regression, decision trees, and neural networks, to analyze the collected data and make predictions about future stock prices. These algorithms are trained using historical data and then used to predict future prices based on current market conditions. The system also uses sentiment analysis algorithms to analyze news articles and social media posts related to the companies to identify any significant news that may impact the stocks.

The Stock Suggestor project provides users with investment recommendations based on the predictions generated by the machine learning algorithms. These recommendations are based on the user's investment goals and risk tolerance and can include suggestions for which stocks to buy, hold, or sell.

The system tracks the performance of the recommended stocks over time and provides users with feedback on the accuracy of the predictions. This feedback can be used to refine the algorithms and improve the overall performance of the system. The project also provides users with a variety of visualizations and other tools to help them better understand the data and make informed investment decisions.

The Stock Suggestor project has several benefits for investors.

Firstly, it provides users with a comprehensive analysis of the stock market, including historical data, news articles, and social media sentiment. This information is combined to generate predictions that are more accurate than those generated by traditional analysis methods. The project also uses machine learning algorithms that are capable of identifying complex patterns and correlations that may not be apparent to human analysts.

Secondly, the system provides users with investment recommendations that are tailored to their investment goals and risk tolerance. This ensures that users are investing in stocks that are aligned with their investment strategy and that they are comfortable holding over the long term. The system can also provide users with guidance on when to buy, hold, or sell stocks based on changes in market conditions.

At last, the Stock Suggestor project provides users with a user-friendly interface that is easy to use and understand. The interface includes visualizations and other tools that help users make sense of the data and make informed investment decisions. This makes the project accessible to investors of all levels, from novice investors to seasoned professionals.

In conclusion, the Stock Suggestor project is a powerful tool that can help investors make informed investment decisions. By leveraging the power of machine learning and data analysis, the project provides users with a comprehensive analysis of the stock market, investment recommendations tailored to their investment goals and risk tolerance, and a user-friendly interface that is easy to use and understand. The Stock Suggestor project has the potential to revolutionize the way investors make investment decisions and help them achieve their investment goals.

# Objectives

* To help investors make informed investment decisions in the stock market.
* To provide accurate predictions of future stock prices using machine learning algorithms.
* To use sentiment analysis algorithms to analyze news articles and social media posts related to companies and identify any significant news that may impact the stocks.
* To provide investment recommendations tailored to the user's investment goals and risk tolerance.
* To track the performance of the recommended stocks over time and provide users with feedback on the accuracy of the predictions.
* To provide users with a variety of visualizations and tools to help them better understand the data and make informed investment decisions.
* To improve the overall performance of investors' portfolios and help them achieve long-term financial success.

# Feasibility Study

1. **Technical Feasibility:** The Stock Suggestor project requires advanced machine learning algorithms and technologies to collect, process, and analyze vast amounts of data. It is essential to ensure that the required technology is available and can be implemented efficiently. The project's technical feasibility can be evaluated by assessing:

* The availability of the required hardware and software to implement the project.
* The expertise and skills required to develop, test, and maintain the system.
* The scalability and reliability of the system, as the project will require handling large volumes of data.

1. **Economic Feasibility:** The economic feasibility of the Stock Suggestor project can be assessed by evaluating the cost-benefit analysis. It is essential to evaluate whether the project's benefits will outweigh the costs associated with its development and maintenance. The economic feasibility of the project can be evaluated by assessing:

* The total cost of developing and maintaining the system.
* The potential revenue generated by the project.
* The potential return on investment (ROI) of the project.

1. **Legal Feasibility:** The legal feasibility of the Stock Suggestor project can be assessed by evaluating whether the project complies with relevant laws and regulations. It is essential to evaluate whether the project will infringe any intellectual property rights or data privacy laws. The legal feasibility of the project can be evaluated by assessing:

* The compliance of the project with relevant laws and regulations.
* The need for obtaining any necessary licenses or permits.
* The potential legal risks associated with the project.

1. **Operational Feasibility:** The operational feasibility of the Stock Suggestor project can be assessed by evaluating whether the project can be integrated into the existing operations of the organization. It is essential to evaluate whether the project aligns with the organization's goals and objectives. The operational feasibility of the project can be evaluated by assessing:

* The compatibility of the project with existing systems and processes.
* The availability of resources to implement and maintain the project.
* The impact of the project on the organization's operations**.**

# Methodology

1. **Data Collection:** The first step in the methodology is to collect the required data from various sources, including financial databases, news articles, and social media platforms. The data should include stock prices, financial statements, news articles, and social media posts related to the companies.
2. **Data Preprocessing:** The collected data needs to be preprocessed to ensure that it is clean, consistent, and in the required format. The data preprocessing step involves cleaning the data, removing any irrelevant data, and transforming the data into a usable format.
3. **Feature Extraction:** Once the data is preprocessed, the next step is to extract relevant features from the data. Feature extraction involves identifying patterns and correlations in the data and selecting the most important features that can be used to train the machine learning models.
4. **Model Training:** The next step in the methodology is to train the machine learning models using the extracted features. The models can include various algorithms, including regression models, decision trees, neural networks, and support vector machines.
5. **Web application:** In this step of methodology we will use angular,node.js,express.js

**And we will use mongoDB for handling our database .** **Angular is a platform and framework for building single-page client applications using HTML and TypeScript.** **ode. js is single-threaded, we use it primarily for non-blocking, event-driven servers.**MongoDB is built on a scale-out architecture that has become popular with developers of all kinds for developing scalable applications with evolving data schemas. As a document database, MongoDB makes it easy for developers to store structured or unstructured data.

1. **Evaluation:** The final step in the methodology is to evaluate the performance of the machine learning models. The evaluation process involves testing the models on a separate test set of data and measuring their accuracy and performance. The evaluation results can be used to refine the models and improve their accuracy.

Overall, the methodology for the Stock Suggestor project involves collecting and preprocessing data, extracting relevant features, training machine learning models, and evaluating their performance. The methodology should be iterative, allowing for the refinement and improvement of the models over time.

# Facilities required for proposed work

### Software required:

* Jupyter Notebook
* Model Training: With Machine learning Algorithm such as Linear regression, Decision Tree
* Front End: With the aid of MEAN, with a programming language and its libraries.

### Hardware required:

* 64-bit CPU (Intel / AMD architecture) (At least Dual core processor)
* 4 GB RAM
* At least 5 GB free disk space.

# References

* Ticker by Finology
* How to go from 0 to Hero in the Stock Market by the Market Expert (BY-Vijay kedia)
* A Deep Learning Approach for Stock Price Prediction
* GOOGLE