PROJECT PROPOSAL & LITERATURE REVIEW

For

Predicting Stock Market Trends – Machine Learning & Deep Learning Project in Python with Web App by using Streamlit

Version 1.0

Prepared by

Group Name:

|  |  |  |
| --- | --- | --- |
| Hassan Ahmed Khan | 201907008 | hassanahmedkhan2018@gmail.com |

|  |  |
| --- | --- |
| Internal : | Engr. Kashif Jamil |
| External: | - |
| Discipline: | BS - SE |
| Date: | Thursday, June 16, 2022 |

**PROJECT PROPOSAL REGISTRATION FORM**

Date: 16/06/2022

dd/mm/yy

**Proposed Project Title:** Predicting Stock Market Trends – Machine Learning & Deep Learning Project in Python **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Project Description (Abstract):** Stock Price Prediction using machine learning is the process of predicting the future value of a stock traded on a stock\_\_

exchange for reaping profits. With multiple factors involved in predicting stock prices, it is challenging to predict stock prices with high accuracy, and this

is where machine learning plays a vital role. **\_\_\_\_\_**

**Project Group: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **(Group No. \_\_\_\_\_\_\_\_)**  **Member(s)** | **CGPA up to 5th Semester** | **Roll No.** | **Contact Numbers** | **Signature** |
| **Leader:** Hassan Ahmed Khan | 3.75 | 201907008 | Cell #: 0312-2732495  Res. #: 0321-2072875  Email: hassanahmedkhan2018@gmail.com |  |
|  |  |  | Cell #: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Res. #: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Email: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |  |
|  |  |  | Cell #: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Res. #: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Email: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |  |

Project Start Date: 01/07/2022 Project Completion Date: 31/03/2023

**LITERATURE REVIEW**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **SR. No** | **Topic of Paper\Book** | **Author(S)** | **Main Points** | **Task Required To Be Done** |
|  | Stock market prediction | Hu, Yong, Kang Liu, Xiangzhou Zhang, Lijun Su, E. W. T. Ngai, and Mei Liu. | Application of evolutionary computation for rule discovery in stock algorithmic trading | Stock algorithmic trading |
|  | The behavior of stock-market prices | Fama, E. F. | Reprinted in 1995 as Random Walks in Stock Market Prices, Financial Analysts Journal 51(1), 75–80. | Random walks in stock market prices |
|  | Deep Learning Algorithms | Sim, H.S.; Kim, H.I.; Ahn, J.J. | Is deep learning for image recognition applicable to stock market prediction? | Can deep learning models predict stock prices efficiently? |
|  | Indian stock market prediction using artificial neural networks on tick data | [Dharmaraja Selvamuthu](https://jfin-swufe.springeropen.com/articles/10.1186/s40854-019-0131-7#auth-Dharmaraja-Selvamuthu),  [VineetKumar](https://jfin-swufe.springeropen.com/articles/10.1186/s40854-019-0131-7#auth-Vineet-Kumar) & [Abhishek Mishra](https://jfin-swufe.springeropen.com/articles/10.1186/s40854-019-0131-7#auth-Abhishek-Mishra) | Levenberg-Marquardt, Scaled Conjugate Gradient and Bayesian Regularization for stock market prediction based on tick data | To predict the stock prices with high accuracy |
|  | Stock Closing Price Prediction using Machine Learning Techniques | [MeharVijha](https://www.sciencedirect.com/science/article/pii/S1877050920307924#!), [DeekshaChandolab](https://www.sciencedirect.com/science/article/pii/S1877050920307924#!), [Vinay Anand, Tikkiwal, b](https://www.sciencedirect.com/science/article/pii/S1877050920307924#!)[ArunKumarc](https://www.sciencedirect.com/science/article/pii/S1877050920307924" \l "!) | Random Forest Regression & Artificial Neural Network | Accurate prediction of stock market |
|  |  |  |  |  |
|  | Forecasting stock market movement direction with support vector machine | WeiHuang, [YoshiteruNakamoria](https://www.sciencedirect.com/science/article/abs/pii/S0305054804000681#!), [Shou-YangWang](https://www.sciencedirect.com/science/article/abs/pii/S0305054804000681#!) | SVM, we compare its performance with those of [Linear Discriminant Analysis](https://www.sciencedirect.com/topics/computer-science/linear-discriminant-analysis),Quadratic [Discriminant Analysis](https://www.sciencedirect.com/topics/mathematics/discriminant-analysis). | To implent SVM Model with perfection in order to get high a curacy |
|  | Neural network ensemble strategies for financial decision applications | [DavidWest](https://www.sciencedirect.com/science/article/abs/pii/S0305054804000693#!), [ScottDellana](https://www.sciencedirect.com/science/article/abs/pii/S0305054804000693#!), [JingxiaQian](https://www.sciencedirect.com/science/article/abs/pii/S0305054804000693#!) | [Decision support systems](https://www.sciencedirect.com/topics/social-sciences/management-information-system) in financial decision domains including credit scoring and [bankruptcy prediction](https://www.sciencedirect.com/topics/computer-science/bankruptcy-prediction). | To identify the “single best” prediction model from a collection that includes simple [parametric models](https://www.sciencedirect.com/topics/computer-science/parametric-model), [nonparametric models](https://www.sciencedirect.com/topics/mathematics/nonparametric-model) that directly estimate data densities, and nonlinear pattern recognition models such as [neural networks](https://www.sciencedirect.com/topics/social-sciences/neural-network). |
|  | Machine Learning Approaches in Stock Price Prediction | Payal Soni , Yogya Tewari and Prof. Deepa Krishnan 1 | With the emergence of Artificial Intelligence, various algorithms have been employed in order to predict the equity market movement | Prediction of stock prices |
|  | A stock price prediction method based on deep learning technology | [Xuan Ji,](https://www.emerald.com/insight/search?q=Xuan%20Ji)[Jiachen Wang,](https://www.emerald.com/insight/search?q=Jiachen%20Wang)  [Zhijun Yan](https://www.emerald.com/insight/search?q=Zhijun%20Yan) | The models are difficult to deal with non-stationary time series data. | In this paper, this study proposes a new stock price prediction model that incorporates traditional financial features and social media text features which are derived from social media based on deep learning technology. |
|  | Stock price prediction using dynamic mode decomposition | [Deepthi Praveenlal Kuttichira](https://ieeexplore.ieee.org/author/37086299098),  [Vijay Krishna Menon](https://ieeexplore.ieee.org/author/37085712748);  [K. P. Soman](https://ieeexplore.ieee.org/author/37296443000) | Stock price prediction is a challenging problem as the market is quite unpredictable. | To propose a method for price prediction using Dynamic Mode Decomposition assuming stock market as a dynamic system. |
|  | A Novel AI-Based Stock Market Prediction Using Machine Learning Algorithm | Sultan Ahmad,  Sudan Jha, Afroj Alam,   MuhammadYaseen,  and Hikmat A. M. Abdeljaber | Time series forecasting system | Proposed system predicts the stock market prices using a recurrent neural network and Holt–Winters triple exponential implementation |

**Conclusion of Review:**

|  |  |
| --- | --- |
| **Problem Identification** | Predicting how the stock market will perform is a hard task to do. There are other factors involved in the prediction, such as physicaland psychological factors, rational and irrational behavior, and so on. All these factors combine to make share prices dynamic and volatile. This makes it very difficult to predict stock prices with high accuracy. |
| **Main Idea Of Your Proposal** | The entire idea of predicting stock prices is to gain significant profits. By using machine learning algorithm and deep learning algorithms I will predict the future value of a stock traded on a stock exchange for reaping profits. |
| **Objectives** | My objective is to build a state-of-art prediction model for price trend prediction, which focuses on short-term price trend prediction. The stock price data represents a financial time series data which becomes more difficult to predict due to its characteristics and dynamic nature. |
| **Goals** | The prediction will increase the gains of the customer successfully. There will be less chance of human error. The data ranges from the years so the model trained is very reliable. Since 6 different methods will be used to predict the same kind of output, the algorithm can be chosen with the highest accuracy and lowest error rate. The user finds it easy to use. It has a faster process completion rate. There is better handling of data and it is better in making decisions. It increases the productivity of the user |
| **Scope** | Upon reviewing all of the articles or references related to Stocks Price Prediction or Stocks Price closing project there is no any dashboard for analyzing the stocks, my project will differ from all of these existing projects in the market and scope of the project will be much better. Process of placing orders and making trades can be automated which work according to suggestions given by AI and ML algorithms, which can remove human errors and factors such as fear and greed of human being which can result in faster and more profitable trading. |
| **Perspective** | In contrast to the other current review articles that concentrate on discussing many methods used for forecasting the stock market, this study aims to compare many machine learning (ML) and deep learning (DL) methods used for stock price prediction to find which method could be more effective in prediction and for which types and amount of data. |
| **Existing Project** | **-------** |
| **List of Required Hardware** |  |
| **List of Required Software** | Jupyter Notebook and Visual Studio |
| **List of Technologies** | Machine Learning & Deep Learning Models such as, Decision tree, Random Forest, Linear Regression, Logistics Regression, Adaptive Boosting(Adaboost), eXtreme Gradient Boosting (XGBoost), Convolutional Neural Network (CNN) and Long short-term memory (LSTM) and Streamlit (for Web App.) |
| **Block/ State Diagram** | Attach separate sheets of UML diagrams showing different stages, states and phases of your project with this document. |
| **Estimated Time** | At least 8 or 9 months is required to be done. |
| **Cost Estimation** | Five to Six Thousand(5000 to 6000) |
| **Any other Observation (if any)** | **---------** |

**Internal Advisor:**  **Group Members:** Hassan Ahmed Khan

Name: Engr. Kashif Jamil

Designation/ Deptt. : Assistant Professor

Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_