

STOCK MARKET DAY END PREDICTION WITH STOCK INDEX FORECASTING

Purushoth Anantharasa

A dissertation submitted partial fulfillment of the requirement for
Bachelor of Engineering (Honours) degree in Software Engineering

**Department of Computing
Informatics Institute of Technology, Sri Lanka
in collaboration with
University of Westminster, UK**

2021

Abstract

Stock market is a crucial factor which contributes to the development of a country. The reason for considering this statement is because of the transactions that happen in the trading time brings out huge capital gain from investors and traders via trading companies. Therefore the transactions of investors and stock traders are very important to keep the market alive. Considering the stock traders in the short-term market analyzes the performance of a company by the past values of those company index. However analyzing those values especially closing price for the trading is not sufficient for them get a good trade. There are many existing systems which forecast the prices for a long time in future but due to high volatile nature those values cannot be always accurate. Therefore limitation of analyzing both past transactions and impacting features to predict the close price of a day brings out the main research problem to be addressed in this project.

This proposed solution uses ensembles method of machine learning models such as Random Forest, XGBoost, SVM, Decision trees and Lasso to predict the next two days of the closing price. Also an additional supportive feature analyses news sentiment which affects the pattern of stock price and prompts suggestion for traders. The evaluated system's accuracy was measure with RMSE, MDA, MSE and the overall accuracy of news sentiment model gave 54% where the whole system was efficient and satisfactory when benchmarking with existing systems. Furthermore the system was evaluated by domain, industry experts and end users with well-designed evaluation criteria.

Keywords: Stock Market Prediction, Machine Learning, Random Forest Regression, Sentiment Analysis.