

Stock market prediction using machine learning algorithms

Perera W.G.M.V.C.* and Peter P.L.S.

Department of Industrial Management, University of Kelaniya, Kelaniya, Sri Lanka

The study will consider how machine learning models can be used to predict Sri Lankan stock market prices. Artificial intelligence is an emerging trend for most of the things. So why not for stock market prediction. Researchers point out that these models can provide more than 70% accuracy rate. When it comes to Sri Lankan context we need to specify most appropriate data set that we can use with machine learning models. Then feed these data to machine learning models such as artificial neural network (ANN), Support vector machine (SVM) and Decision trees (DT). ANN is one of the main tools used in machine learning, which is a brain-inspired system that intended to replicate the way that humans learn. Since there are several types of ANNs, Multilayer Perceptron (MLP) model is used in this research. Decision tree algorithm can be used as a tool for data mining and trading. It performs a set of recursive actions before it output the result. SVM is a relatively new learning algorithm that can used to calculate price volatility and momentum for individual stocks. This study uses daily open, high, low, close prices, trade volume, share volume, turnover and beta value as input variables for all the models. Prediction results are compared with the actual values. To evaluate the performance of three models three commonly used evaluation criteria are applied in this study. Evaluation criteria consists of root mean square error (RMSE), mean absolute error (MAE), and mean absolute percentage error (MAPE).

Keywords: Stock Market, Artificial Neural Network, Support Vector Machine, Decision Trees

*Corresponding Author: vikumchathuranga92@gmail.com