**ABSTRACT:**

In a rapidly innovating environment, the evolution of technology has become fast- paced and more complex. One of these innovations is the artificial intelligence (AI), which enables machines to think and act like humans. The machine learning (ML) algorithms are one group of AI that trains machines to learn certain processes and use this knowledge to deliver output. Because of their innovative state, ML methods are beginning to be used and tested in financial markets. With the growing interest in AI, this research uses ML methods, the Artificial Neural Networks (ANN) and Support Vector Machines (SVM), to predict ASEAN stock indices with with the aid of their correlated indices. These ML approaches are compared with the traditional forecasting methods - ARIMA and linear regression. Following several accuracy tests, results show that generally, ML algorithms generate better forecasts than the traditional methods. Moreover, among the ML methods, the forecasts of the SVM are the most favorable.

**EXISTING SYSTEM:**

The use of ML algorithms has developed rapidly since it first began in the US equity market in the 1990s (Boehmer, Fong and Wu, 2012); and the presence of algorithms in the way financial markets function is thought to be responsible for the coincident dramatic improvement in market quality during the mid-1990s. Moreover, many financial researchers have long contributed studies and relevant theories on several avenues to beat the market by predicting stock prices (Shen et. al., 2012). These avenues range from utilizing simple historical or technical trend analysis to today’s modern use of computers or algorithms. The expanding literature in the academe supported the growing interest on the impact of algorithms on market quality and has initiated the authors of this research to obtain answers from the following the research problems:

• Can the use of ML algorithms aid ASEAN investors in stock market prediction?

• Which global indices are correlated with the different stock market indices of the ASEAN countries?

• Which among Autoregressive Integrated Moving Average (ARIMA), Linear Regression, Artificial Neural Networks (ANN) and Support Vector Machine (SVM) is the most effective model in predicting the different stock market indices in the ASEAN countries

**OBJECTIVE:**

In order to contribute in the growing literature of ML algorithms and stock market prediction, this research aims to address the following objectives:

• To predict future values of the different ASEAN stock indices based on their individual correlation with other global indices

• To determine the stock market indices that are correlated with the different ASEAN stock market indices

• To identify which among the Autoregressive Integrated Moving Average (ARIMA), Linear Regression, Artificial Neural Networks (ANN) and Support Vector Machine (SVM) is the most effective forecasting tool for ASEAN stock market prediction

**PROPOSED SYSTEM:**

In this report we analyse existing and new methods of stock market prediction. We take three diﬀerent approaches at the problem: Fundamental analysis, Technical Analysis, and the application of Machine Learning. We ﬁnd evidence in support of the weak form of the Eﬃcient Market Hypothesis, that the historic price does not contain useful information but out of sample data may be predictive. We show that Fundamental Analysis and Machine Learning could be used to guide an investor’s decisions. We demonstrate a common ﬂaw in Technical Analysis methodology and show that it produces limited useful information. Based on our ﬁndings, algorithmic trading programs are developed and simulated using Quantopian

**CONCLUSION:**

Stock market prediction is a complex and challenging task of financial time series. Throughout the years, the interest in beating the market has been given of great importance by many research institutions. However, recognizing patterns, overcoming accuracy and ensuring timely transactions were deemed difficult due to the stock market’s nature of being non-linear and volatile. Thus, employing traditional methods and models do not necessarily guarantee successful forecasts. Moreover, as the use of technology advances rapidly, this requires modern finance to handle and summarize big data that are useful for predictions through artificial intelligence (AI) methods using machine learning (ML) algorithms. ML’s effectiveness in recognizing patterns and addressing the complex and integrated financial markets made its application a substantial driver of technological innovation in stock market prediction. In this research, traditional methods are compared against ML methods. The traditional methods are the ARIMA and linear regression, while the ML methods are the ANN and SVM. There were several correlated indices with the ASEAN indices, and these were included in the process for linear regression, ANN and SVM. Generally, the ARIMA produced good results based on the accuracy tests done on its forecasts. However, the results of the ARIMA model are conditionally heteroscedastic, indicating that there is a great amount of volatility which causes observations to be scattered any time. Following the setbacks of the ARIMA, the linear regression, ANN and SVM results were compared using accuracy tests. Generally, the results produced by the ML algorithms were the most ideal, having the best results in the accuracy tests. In addition, there is also a significant difference between the outputs of linear regression and machine learning methods.