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# Machine Learning-based Stock Market Forecasting using Recurrent Neural Network

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##### Abstract:

In today's world where trading became very common. Observing the trends and stock market predictions has become more and more popular. Forecasting the future value of a company's stock in the stock market is known as making a prediction. Stock market investment strategies are very complex and need lots of data and is a system of equities, in which you can purchase and sell stocks. There are two primary types of financial markets: primary and secondary markets. Simple machine learning algorithms have low accuracy which can't be used to predict stocks. The models being used in this study are: LSTM (Long Short-Term Memory) and RNN (Recurrent Neural Network). The model is trained and evaluated with various input data sizes, and the graphical outcomes. Results of both the models are compared and found that RNN performed the best with lower RMSE, MAE and MSE values of 0.95, 1.34 and 2.4 respectively. RNN differs from most previous work in that it learns a much richer modeling structure, allowing it to recognize patterns more accurately in a sequence of data than simpler models.

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### I. Introduction

Stock prices are highly volatile and complex nonlinear dynamic systems. It is very complex to find out information from patterns. Predicting the stock market is rife with difficulties and presents many obstacles, and creating a model for stock market prediction is fraught with challenges. As of now, there is no enduring theory or reliable technique that has been proven effective [1]. The machine learning approach is based on recognizing patterns and similarities between historical data. This helps in generating more accurate predictions as well as improving the accuracy of overfitting responses.

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