Predictiong future STOCK PRICES using Deep Learning Recurrent Neural Network(RNN) with Long Short-Term Memory (LSTM)

April 19, 2022

Abstract

The future is unknown and uncertain, but there are ways to predict future events and reap the rewards safely. One such opportunity is the application of machine learning and data science for stock market prediction. Therefore, through this medium of skill project we intend to prognosticate the next state of future prices through a **Long Short Term Memory** (LSTM) method.

Predicting stock market prices is a complex task that traditionally involves extensive human-computer interaction. Due to the correlated nature of stock prices, conventional batch processing methods cannot be utilized efficiently for stock market analysis. We propose an online learning algorithm that utilizes a kind of **Recurrent Neural Network** (RNN) called **Long Short Term Memory** (LSTM), where the weights are adjusted for individual data points using **stochastic gradient descent**. This will provide more accurate results when compared to existing stock price prediction algorithms. The network is trained and evaluated for accuracy with various sizes of data, and the results are tabulated. A comparison with respect to accuracy is then performed against an Artificial Neural Network.

KEY WORDS : stock prediction, Long Short Term Memory(LSTM), Recurrent Neural Network(RNN), online learning, stochastic gradient descent.

Name of Students:	**Registration No.**
Alok Kumar Sahoo	1901105170
Binay Prasad	1901105413
Kumari Nirupa Lenka	1901105565
Priyansu Priyadarshan Bhoi	1901105450
Saswat Kumar Sabaro	1901105207

Recommended by Supervisor:

Dr. Srinivas Sethi