



LSTM BASED PREDICTION APPROACH FOR EXCHANGE RATE – A CASE STUDY ON LKR, YEN, AND YUAN

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Abstract

The exchange rate is a value of one country's currency concerning another country's currency. In the economic state, the currency exchange rate of every country is varying from time to time. Therefore, the exchange rate affects the country's economic system. Usually, most of the countries are using the United States Dollar (USD) as a reference exchange rate. Therefore, it is an important requirement for everyone to predict the exchange rate in advance corresponding to their country. In this research study, Long Short-Term Memory (LSTM) has been used to predict the exchange rate of three currencies namely Sri Lankan rupees, Japanese yen, and Chinese yuan concerning the USD. The LSTM model has implemented with two hidden layers to predict exchange rate. Ten years of past exchange data have been incorporated in this regard. The dataset consists of four variables namely high, low, open and closed values of exchange rate. From the dataset, the closed value of exchange rate is considered as an important factor to cover up the entire data. Therefore, the closed price of the exchange rate has been taken as an input for the neural network. To find the prediction accuracy of the model the Mean Squared Error (MSE) value has been considered. The proposed model has achieved an accuracy of 83%, 74%, and 64% for predicting the rupees, yen, and yuan in USD respectively. Further, this research can be expanded by combining an unsupervised technique along with the aforementioned methodology and making it as a hybrid one.

Keywords: Exchange Rate, Economic System, ANN, LSTM