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Stock Market Prediction using Artificial Intelligence

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Abstract - **This research focuses on predicting stock closingprices for one day or the future in specific economic conditions.Today, Sri Lanka faces a financial crisis due to the COVID-19 pandemic. Therefore, lots of investors are bankrupt due tounpredictable stock prices. This work mainly focuses on predicting stock prices in banking sector shares such as Commercial Bank (COMB.N), Hatton National Bank (HNB.N),Seylan Bank (SEYB.N), and Sampath Bank (SAMP.N) on Colombo Stock Exchange (CSE) in Sri Lanka. According to thehypothesis, All Share Price Index (ASPI) and Banking Sector indices have been taken as a numerical sentiment parameter other than the historical prices from each bank. Since ASPI shows overall market performance and Banking sector indices show banking sector capitalization changed over time. There can be a positive and negative sentiment when the ASPI and Sector Indices increase and decrease, respectively. Finally, a dataset is divided into 70% for training and 30% for testing. This study has used Recurrent Neural Networks (RNNs) such asLong short-term memory (LSTM) and Gated Recurrent Unit (GRU) using 25, 50, 100, 150, and 200 epochs. LSTM model hasgiven the lowest Mean Squared Error (MSE) and Root Mean Square Error (RMSE). According to the LSTM model,COMB.N, HNB.N, and SAMP.N were given the lowest MSE, and RMSE for 100 epochs, and SEYB.N was given the lowest MSE and RMSE value for the 150 epochs.**

Keywords - **Gated Recurrent Unit (GRU), Long Short-TermMemory (LSTM), Machine Learning, stock market prediction, Streamlit API**