North East University Bangladesh (NEUB)

Telihaor, Sheikhghat, Sylhet-3100

Department of Computer Science & Engineering (CSE)

Project Proposal Spring 2025

Course Code: CSE-460

Course Title: Deep Learning Lab

Submitted By-

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Project Name : **Apple Stock Price Prediction Using LSTM**

Introduction:

Stock price prediction is a crucial task in financial markets for investors, traders, and researchers. Traditional methods struggle with the complex, non-linear, and sequential nature of stock price data. This project proposes using LSTM, a type of Recurrent Neural Network (RNN), well-suited for time series prediction, to forecast Apple's (AAPL) stock price based on historical data.

Objective:

-To collect and analyze historical stock price data of Apple Inc.
-To design and train an LSTM-based deep learning model for stock price prediction.

-To evaluate the model's performance using metrics like RMSE, MAE, and visual trend comparison.
- To compare LSTM performance with traditional models like Linear Regression (optional).

Tools/Software:

- **Programming Language: Python**
- **Libraries: TensorFlow/Keras, Pandas, NumPy, Matplotlib, Scikit-learn**
- **Platform: Jupyter Notebook/Google Colab**

Expected Outcomes:

- **An LSTM model capable of predicting future Apple stock prices with reasonable accuracy**
- **Visual comparison between actual and predicted prices.**
- **Understanding the effectiveness of deep learning for time series forecasting.**

Conclusion: This project leverages the power of LSTM networks to address the challenges of stock price prediction. If successful, it demonstrates the potential of deep learning in financial forecasting and decision-making.