Predicting Stock Prices Using Deep Learning Sequential Models

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1 Background

This research aims to compare the effectiveness of Transformer models to traditional RNNs and their extensions like LSTMs in stock market forecasting. Specifically, we will investigate whether the ability of Transformers to consider a larger context window of stock price history offers an advantage in predicting future prices. We will be training our models on a Kaggle dataset that tracks the NASDAQ Composite.

2 Dataset

Kaggle stock price dataset from Yahoo Finance(yfinance, NASDAQ)
`https://www.kaggle.com/datasets/jacksoncrow/stock-market-dataset`

3 Algorithms

- RNN
- LSTM
- Transformers

4 Experiments/Analysis

Accuracy in predicting future stock price and compare the results to determine whether transformers out-perform traditional RNNs

5 Expected Outcome for Midterm Report

Implementation of data pre-processing, cleaning, etc.
Implementation of baseline RNN for analysis