

Stock Price Prediction –

Phase 2: Innovation

Introduction

In the second phase of the Stock Price Prediction project, we will explore advanced techniques to enhance the accuracy of predicting stock prices. We aim to innovate our approach by considering more sophisticated methods, particularly focusing on deep learning techniques. This document outlines our innovation strategy, including the exploration of Convolutional Neural Network - Long Short-Term Memory (CNN-LSTM) models and attention mechanisms.

Innovation Strategy

1. Convolutional Neural Network - Long Short-Term Memory (CNN-LSTM) Model

Objective: To capture complex temporal patterns and spatial relationships in stock price data.

Method:

Combine Convolutional Neural Networks (CNNs) and Long Short-Term Memory (LSTM) networks.

Utilize 1D convolution layers to extract relevant features from historical stock price sequences.

Feed the extracted features into LSTM layers to capture temporal dependencies.

Benefits:

CNN-LSTM models are effective at capturing patterns in sequential data.

They can identify spatial and temporal relationships that may be challenging for traditional models.

2. Attention Mechanisms

Objective: To focus on critical time steps and features in the stock price data.

Method:

Implement attention mechanisms, such as Bahdanau or Transformer attention, within the LSTM layers.

Allow the model to dynamically weight input sequences, emphasizing relevant time steps and features.

Benefits:

Attention mechanisms help the model focus on the most informative data points.

They can adaptively weight historical data, reducing the impact of noise and irrelevant information.

Conclusion

In the innovation phase of the Stock Price Prediction project, we aim to enhance our predictive model's accuracy by incorporating advanced techniques such as CNN-LSTM models and attention mechanisms. These methods will allow us to capture complex temporal patterns and focus on critical data points, ultimately improving the reliability of stock price predictions.

