Stock price prediction

PROBLEM STATEMENT:

Researchers have been studying different methods to effectively predict the stock market price. Useful prediction systems allow traders to get better insights about data such as: future trends.

Also, investors have a major benefit since the analysis give future conditions of the market.

One such method is to use machine learning algorithms for forecasting. This project's objective is to improve the quality of output of stock market predicted by using stock value. A few researchers have come up with various ways to solve this problem, mainly there are traditional methods so far, such as artificial neural network is a way to get hidden patterns and classify the data which is used in predicting stock market. This project proposes a different method for prognosing stock market prices. It does not fit the data to a specific model; rather we are identifying the latent dynamics existing in the data using machine learning architectures. In this work we use Machine learning architectures Long Short-Term Memory (LSTM), Convolutional Neural Network (CNN) and Hybrid approach of LSTM + CNN for the price forecasting of NSE listed companies and differentiating their performance. On a long-term basis, sling window approach has been applied and the performance was assessed by using root mean square error.

PROBLEM SOLVING DESIGN :

Predicting stock prices in data science involves using various techniques and models to forecast future stock price movements based on historical data and relevant features. Here's a high-level overview of the process:

1.Data Collection: Gather historical stock price data, financial reports, news sentiment data, and other relevant information. Data sources can include APIs, financial websites, and databases.

2.Data Preprocessing: Clean and prepare the data by handling missing values, normalizing data, and feature engineering. Features may include price trends, trading volumes, moving averages, and external factors like economic indicators or news sentiment.

3.Feature Selection: Choose the most relevant features for modelling. Feature selection techniques like correlation analysis or feature importance can help identify important variables.

4.Model Selection: Select a suitable machine learning or deep learning model for stock price prediction. Common choices include linear regression, time series models (e.g., ARIMA), and neural networks (e.g., LSTM or CNN).

5.Training and Testing: Split the data into training and testing sets to train the model on historical data and evaluate its performance on unseen data.

DESIGNING DIAGRAM: