**Research on Financial Data Prediction Algorithm Based on Deep Learning**

In view of the fact that the cyclic neural network RNN prediction method is easy to produce gradient explosion and disappearance in the deep network reverse conduction, we study a short-term memory (LSTM) cyclic neural network stock

price prediction method based on variable length Batch strategy. First of all, taking the stock historical time series data as the research object, the time series with different days are constructed as the input of the network, and then the Early stopping technology is added in the training process to prevent the learning from over-fitting. Finally, the variable length Batch is used to predict the future stock closing price on the test set by the way of state parameter transfer. By comparing the performance of the traditional machine learning regression model, we verify that the LSTM prediction model and parameter optimization strategy based on variable length Batch have better generalization ability and lower prediction error in stock price analysis.

**EXISTING SYSTEM:**

Stock is a kind of dynamic and high-noise time series data. As an economic barometer, stocks reflect the development trend of the national economy to a certain extent. Stock forecasting is a difficult and challenging task, which has been

concerned by researchers in the fields of finance, statistics, computer The stock market is full of uncertainties, which make investing in securities a risky proposition. It is a complex system, influenced by economic, policy, and market factors.In existing system we are used linear regression algorithm for stock price prediction.

**DISADVANTAGES OF EXISTING SYSTEM:**

1. Using linear regression algorithm we cannot predict exact stock price values.
2. It involves very lengthy and complicated procedure of calculations and analysis..

**Algorithm: Linear regression**

**PROPOSED SYSTEM:**

In this paper, we use neural networks to develop a mathematical model of stock prices and use that model to predict the fluctuation of stock prices. By comparing the results with actual data, we find that they are pretty accurate. The stock market is a complex system, which is subject to economic, policy, and market influences. For such a dynamic nonlinear system, researchers have used neural networks to estimate stock prices.In proposed system use Linear regression is the most basic machine learning algorithm, which builds a model based on data to reflect the relationship between input characteristics (independent variables) and targets (dependent variables), and then uses unused data to predict.

**ADVANTAGES OF PROPOSED SYSTEM:**

* Recurrent Neural Networks may provide better predictions than the neural networks used in this study, e.g., LSTM (Long Short-Term Memory).
* The LSTM model has a good performance in the training, prediction effect and running time of voice, signal, financial time series data.

**Algorithm:** Artificial Neural Network,LSTM.

**SYSTEM REQUIREMENTS:**

**HARDWARE REQUIREMENTS:**

* System : Intel Core i5.
* Hard Disk : 500GB.
* Monitor : 15’’ LED
* Input Devices : Keyboard, Mouse
* Ram : 16GB.

**SOFTWARE REQUIREMENTS:**

* Operating system : Windows 10.
* Coding Language : Python
* Tool : PyCharm, Visual Studio Code
* Database : SQLite

**REFERENCE:**

Wei Cao School of Economics & Management Nanchang University Nanchang, Jiangxi, 330000, IEEE)" **Research on Financial Data Prediction Algorithm Based on Deep Learning**" 2021 Asia-Pacific Conference on Communications Technology and Computer Science (ACCTCS) AccessionNumber: 20570611

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