ABSTRACT

DESIGN OF AN ARTIFICIAL NEURAL NETWORK

BACKPROPAGATION MODEL FOR BTC-USD PRICE PREDICTION

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Digital currency or commonly referred to as cryptocurrency has become increasingly popular and has become an investment asset for the community. Cryptocurrency is a digital currency that can be traded using online trading, unlike conventional currencies that are familiar. Cryptocurrency has no physical form, and is not issued by a particular country or the central bank of a particular country. Bitcoin is one of the most successful and widely known cryptocurrencies around the world. Bitcoin experiences daily price fluctuations that change every day. Therefore, we need a system that can be used to predict the price of Bitcoin as a material consideration in the process of buying and selling Bitcoin in order to maximize profits and minimize the risk of loss in investing. Various studies on predictions have been carried out previously using Artificial Neural Network (ANN) Backpropagation with different case studies and obtained good results based on the error values obtained. This study uses an Artificial Neural Network (ANN) Backpropagation algorithm to predict the price of Bitcoin against the US Dollar (BTC-USD) based on daily data on Bitcoin prices. The dataset used is 3178 with a percentage of 80% training data and 20% testing data. Training was carried out using 13 network architectures using a learning rate of 0.001 and a target error of 0.001. The best network architecture model is the prediction model with 4-13-1 architecture, the number of input layer units is 4 units, the number of hidden layer units is 13 units, and the number of output layer units is 1 unit with the MSE result obtained is 0.00243.

Keywords: Cryptocurrency, Bitcoin, Artificial Neural Network Backpropagation.