Abstract

Time Series Forecasting is a step to know a future value, where the method of time series observation made in chronological order. One of the problems associated with Time Series Forecasting is rupiah for American dollar exchange rate forecasting. The problem-solving algorithm suitable one is Genetic Programming(GP).

GP is a branch of Evolutionary Computation(EC) appropriate in solving the problem of time series forecasting because GP has a unique representation of chromosomes, which is non-linear (tree and graph) and has a wide and scalable solutions. Time Series data will be processed into a GP that has been previously desing to obtain best formula in forecasting.

GP produces prediction formula is more accurate than the existing conventional methods such as Moving Average, Center Moving Average, Linear Regression and Exponential Smoothing. Accuracy of the results which obtained by the 3 scenarios tested data reaches 90% with an error tolerance 100 rupiah. However, the results less than the maximum because the value of the Indonesian currency fluctuations cause testing data accuracy is worse than the training data.

Keyword: *Evolutionary Computation, GP, Time Series Prediction*