Prediction the best predictor for urea reading among diabetic patients using artificial neural networks (ANNS) models

ABSTRACT

This study aims to develop the Artificial Neural Network (ANN) through Multilayer Perceptron Neural Network (MLP) by considering the bootstrapping methodology. Applying the bootstrapping approach in MLP methodology improves the precision of the related urea level determination factor. This model developed to determine urea reading among diabetic patients. Three blood parameter Fasting Blood Glucose (X1), HbA1c (X2), and Sodium Reading (X3) were selected according to their clinical importance. All these parameters will be used as input for urea determination. Using The ANNMLP Model the performance of analysis will be determined through the Predicted Mean Square Error (PMSE) obtained from (MSE-forecasts the Network). In this research paper, all possible combinations of input will be evaluated one by one. The performance of MLP was evaluated through the PMSE of the neural network for the (MSE-forecasts the Network) and special attention will be given for the smallest value of PMSE reading while running the analysis. In this study, PMSE is used as a measurement for the goodness of fit test of the obtained model. It can be used as a tool to measure how far the prediction value from the actual value. The smallest PMSE will indicate the excellent performance of the model. In conclusion, a combination of these three variables which were Fasting Blood Glucose (X1), HbA1c (X2), and Sodium Reading (X3) contributed significantly to the area level through the developed methodology.