

## Performance Analysis of Artificial Neural Network with Decision Tree in Prediction of Diabetes Mellitus

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**Abstract :** Human beings have the ability to make logical decisions. Although human decision - making is often optimal, it is insufficient when huge amount of data is to be classified. medical dataset is a vital ingredient used in predicting patients health condition. In other to have the best prediction, there calls for most suitable machine learning algorithms. This work compared the performance of Artificial Neural Network (ANN) and Decision Tree Algorithms (DTA) as regards to some performance metrics using diabetes data. The evaluations was done using weka software and found out that DTA performed better than ANN. Multilayer Perceptron (MLP) and Radial Basis Function (RBF) were the two algorithms used for ANN, while RegTree and LADTree algorithms were the DTA models used. The Root Mean Squared Error (RMSE) of MLP is 0.3913, that of RBF is 0.3625, that of RepTree is 0.3174 and that of LADTree is 0.3206 respectively.

**Keywords :** artificial neural network, classification, decision tree algorithms, diabetes mellitus

**Conference Title :** ICACS 2015 : International Conference on Algorithmics, Cryptology and Security

**Conference Location :** Dubai, United Arab Emirates

**Conference Dates :** September 13-15, 2015