Abstract

The paper presents an expert system for prognosis of type II diabetes using artificial intelligent techniques. Diabetes is a chronic condition that occurs when the body cannot produce enough or cannot effectively use insulin which is a hormone produced by pancreas and is needed by our body to metabolize glucose. According to International diabetes federation (IDF) in 2015 around 415 million people suffered from diabetes and it is estimated that the prevalence of this disease will increase in the years to come. The expert system presented in this work can be used as a tool for initial screening of people who suffer from this disease and as such can be an effective aid for mitigating the mortality due to this disease. In addition to this we have also performed a comparative analysis of multiple machine learning based techniques for prognosis of diabetes. We have tested this expert system using ten-fold cross validation and comparing its results with the actual diagnosis of the patients. The results obtained indicate that diabetes diagnoser is proficient tool for prognosis of diabetes type II and can be used as an effective aid in primary level screening of diabetes. Among all the algorithms implemented for the problem under consideration, the artificial neural network outperformed & expressed an efficiency of
about 96% for followed by J-48 Graft, END, and Decorate, Random forest, Bagging, Multi class classifier, Multi-boost Classifier, User Classifier, Decision Stump and Random tree with their efficiencies in the range of about 91% to 88%.

References


Index Terms

Computer Science
Biomedical

Keywords