

Comparative Analysis of Machine Learning Classification Techniques for Neonatal Postprandial Hypoglycemia Symptoms Screening.

Neonatal postprandial hypoglycaemia occurs when blood sugar level (BSL) is too low to cause symptoms of impaired brain function among newborn babies. This is generally accepted as a BSL $<2.6\text{mmol/L}$. When this condition is not detected early and treated, it can result to long term neurological damage, seizures, unconsciousness, and possibly permanent brain damage or death.

Machine learning algorithms are widely used for detection and classification process of the disease. Many researchers are conducting experiments for diagnosing the diseases using various classification algorithms of machine learning approaches like J48, SVM, Naive Bayes, Decision Tree, Decision Table etc. as researches have proved that machine-learning algorithms [1],[2],[3] works better in diagnosing different diseases. The Objective of this study is to compare the performance of three machine learning classification algorithms namely Decision Tree, SVM and Naive Bayes to detect diabetes at an early stage.

The Kenya Medical Research Institute (KEMRI), Kenya Paediatric Association and Kenya Ministry of health have created a database on diabetic cases, diagnosis and treatment. This database is developed to support researchers to develop smart systems, policies and frameworks to support patients and clinicians in controlling and treatment of the disease. Experiments shall be performed using this data.

The performances of all the three algorithms are evaluated on various measures such as accuracy, Recall, Precision and F-Measure. Classified instances are used to measure Accuracy. The results show that Naive Bayes outperforms with the highest accuracy of 86.40% comparatively other algorithms. This work forms basis for our next step which is utilizing Naïve Bayes Algorithm and Artificial Neural Network (ANN) for Type 1 Diabetes disease treatment.

Primary author: Ms MUTUA, Elizabeth (Dedan Kimathi University)

Co-author: Ms NYAKANGO, Louise (Kenya Medical Training College)

Presenters: Ms MUTUA, Elizabeth (Dedan Kimathi University); Ms NYAKANGO, Louise (Kenya Medical Training College)

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