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Diabetes Prediction Using Machine Learning

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Abstract

Diabetes is a chronic disease which is characterized by the rise of sugar level in blood. There are many complications of the disease when it remains undetected and untreated. This disease, most of the time, gets identified by various symptoms. With the adverse effects of this disease on the patient's entire life, it is crucial to take the necessary actions to mitigate the results. Hence, this disease needs to be identified as soon as possible. The growth of machine learning technology helps to identify such problems. The motive behind this research paper is to build a machine learning model that can identify the probability of a person testing positive for diabetes based on the features. Thus, various machine learning algorithms are used to make a comparative study through which best ML technique has been identified. Model uses random forest, SVM, logistic classification, naive Bayes, KNN and decision tree which are implemented on Pima Indians Diabetes Dataset. Evaluation is done on three different accuracy measures which are accuracy, precision and recall. Along with classification algorithms, the use of gradient boosting and bootstrapping has been used for the improvisation of the results of the evaluation metrics and the classification process. Bootstrapping used avoids overfitting of