LITERATURE SURVEY ON STATISTICAL MACHINE LEARNING APPROACHES TO LIVER DISEASE PREDICTION

Introduction

Liver diseases avert the normal function of the liver. Mainly due to the large amount of alcohol consumption liver disease arises. Early prediction of liver disease using classification algorithms is an efficacious task that can help the doctors to diagnose the disease within a short duration of time. Discovering the existence of liver disease at an early stage is a complex task for the doctors. The main objective of this project is to analyze the parameters of various classification algorithms and compare their predictive accuracies so as to find out the best classifier for determining the liver disease.

The life of humans living without liver tumors is one of the fundamental care of human livelihood. Therefore, for better care, detection of liver disease at a primitive phase is necessary. For medical experts, predicting the illness in the early stages due to subtle signs is a very difficult task. Many, when it is too late, the signs become evident. The current work aims to augment the perceive nature of liver disease by means of machine learning methods to solve this epidemic. The key purpose of the present work focused on algorithms for classification of healthy people from liver datasets. Centered on their success variables, this research also aims to compare the classification algorithms and to provide prediction accuracy results.

Existing Solutions

- A number of network models based on neural have been developed in recent research assisting the physicians of liver diagnosis in medicare field, such as diagnostic support system , the expert system, the perceptive diagnostic model, and the hybrid recommendation framework.
- Christopher N suggested a system for the diagnosis of medical diseases, taking into account six benchmarks: liver, hepatitis heart, diabetes, breast and lymph disorders. The researchers developed WSO and C4.5-based systems.
- Ramana also conducted an acritical study on the diagnosis of liver diseases.

Drawback and its Limitations

- From the Christoper's Observation,the researchers developed WSO and C4.5-based systems, with a precision of 64.60 percent with 19 liver disorder dataset rules and 62.89 percent with 43 WSO and C4.5 rules, respectively. In evaluation of identified categorization techniques.
- From Ramana's view, On the Naïve Bayes classifier, the authors gained 51.59 percent accuracy, 55.94 percent on the C4.5 algorithm, 66.66 percent with respect to BPNN, 62.6 percent with respect to Knowledge discovery and sixty two percent accurateness with respect to vector machine support algorithm.

Proposed Solutions

- SVM is a technique of supervised learning pertained for classification as well as regression. It has effective performance in generalisation. Moreover, when the algorithm requires input space with high dimension, there is no requirement to add a previous understanding. This helps make it a very effective classifier for quality. The primary purpose of the SVM classifier is to classify between groups of various classifications by choosing the best classifier function in the training data. A generalized linear method of classification is SVM. At the same time, the geometric margin is maximized and the classification error is minimized.

➤ This Project examines data from liver patients concentrating on relationships between a key list of liver enzymes, proteins, age and gender using them to try and predict the likeliness of liver disease. Here we are building a model by applying various machine learning algorithms find the best accurate model. And integrate to flask based web application. User can predict the disease by entering parameters in the web application.

Conclusion

SVM, Logistic Regression, comprises two main machine learning techniques used. Using all the models, the prediction analysis has been implemented and their performance has been assessed. The probability of liver disease prediction attained with an accuracy of 96%.In future , the present scenario can be compared with other techniques such as naïve bayes classification, Random forest etc.

References

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PROBLEM STATEMENT

    To develop a Machine Learning Model for Liver Disease Prediction in an early stage by applying various machine learning algorithms and find the best accurate model. After that integrate to flask based web application. User can predict the disease by entering parameters in the web application.