

Heart Disease Prediction

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ABSTRACT

One of the major cause of death is heart attack disease, anywhere across the globe. In healthcare system, data mining play a vital role to qualify health systems to properly use the data and analytics to identify impotence that improves care with reduce costs and in less services. Classification is one of data mining technique as supervised technique employed to accurately predict the disease type in each case in the heart attacks. Heart attacks classification involves identifying healthy and sick personalities. Naive Bayes (NB) works as linear classifier that relatively stable regarding small variation or changes in training data at the function level. In order to collect relevant features, an efficient evolutionary computation technique like Particle Swarm Optimization (PSO) employed and contributes more to the result which diminishes the computation cost and increases the precision and efficiency. The numerical result shows that the PSO increases the classification accuracy with the help of NB classifier as fitness function to accurately classify disease.

Keywords

Data Mining, Classification, Optimization, Machine Learning

1. INTRODUCTION

According to the World Health Organization (WHO), over the last 10 decades, heart disease is the foremost death cause in the globe. European Public Health Alliance conveyed that heart attacks, strokes and other blood diseases account for 41% of all deaths by the European Public Health Alliance 2010. To diagnose quicker, better and fast, numerous different symptoms are associated with heart disease, which kinds it hard. Compared to real-life application, heart disease patient's databases can be worked. According to doctor's knowledge to allocate the weight to each feature. In other word, more load is assigned to the feature having great impact on disease classification. Therefore, it appears reasonable to attempt utilising the information, time and skill of several experts collected in databases towards supporting the diagnosis task. It also affords healthcare professionals a spare source of acquaintance for making decisions athwart the civilization.

2. OBJECTIVE AND SCOPE

The main aim of this paper is to form a model that can predict the heart disease rate based on a combination of features (risk factors) unfolding the disease. Dissimilar learning classification

techniques can be executed and equated upon standard performance metric like accuracy.

3. METHODOLOGY

To conduct experiments and practical's, we have converted unformatted data in to the correct format

- Over the experiments, we make a good analysis of data and observe variation.
- By using machine learning techniques, we tried to predict person has heart diseases or not.
- Finally, we used innumerable statistical and machine learning techniques to predict of make analysis over various approaches to minimize the inaccuracy.

4. RESULTS & DISCUSSION

Table 1: Accuracy result

	accuracy
KNN	0.868132
Decision Trees	0.791209
Logistic Regression	0.857143
Naive Bayes	0.868132
SVM	0.879121
Random Forests	0.890110

5. CONCLUSION

One of the major cause of death is heart attack disease anywhere across the globe. In healthcare system, machine learning has absolutely bright tools in medical and non-medical field to qualify health systems to properly use the data and analytics. It is also used to identify impotence that improves care with reduce costs and in less services. To accurately predict the disease type in each case in the heart attacks, in the previous report several classification as supervised technique employed. In order to collect relevant features, an efficient evolutionary computation technique like Particle Swarm Optimization (PSO) is used in this paper. Naive Bayes (NB)

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used as fitness function that relatively stable regarding small variation or changes in training data at the function level. The numerical result shown that the PSO increases the classification accuracy with the help of NB classifier to accurately classify disease. NB has shown better performance compared to SVM and Random Forests in terms of accuracy.

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