

EMPLOYING MACHINE LEARNING PROCEDURE TO CREATE AND DEVELOP AN INTELLIGENT SYSTEM FOR PREVENTING HEART DISEASE

¹Ashok M, ²Kiran Kumar Nellutla, ³Shiva Kumar B, ⁴Domalvar Priyanka

^{1,2,3}Assistant Professor, ⁴UG Student, ^{1,2,3,4}Department of Computer Science Engineering, Rishi MS Institute of Engineering and Technology for Women, Kukatpally, Hyderabad.

ABSTRACT

Heart attack is a word used to describe a wide range of heart-related medical disorders. The evaluation of vast amounts of data and comparison of information that can be used to forecast, prevent, and manage conditions like heart attacks are crucial to understanding heart (cardiovascular) disorders. This study's primary goal is to create an intelligent system employing machine learning methods including Naive Bayes, KNN, and Random Forest Decision Tree. The user responds to predetermined questions in this web-based application. The globe uses data analytics for its beneficial use in managing, regulating, and combating massive data volumes. It can be used to predict, prevent, and manage cardiovascular diseases with great effectiveness. To solve this we aims to implement the Data Analytics based on SVM and Genetic Algorithm to diagnosis of heart diseases. This result reveal, which Algorithm is best, optimized Prediction Models. It can answer complex queries for diagnosing heart disease and thus assist healthcare practitioners to make intelligent clinical decisions, which traditional decision support systems cannot. By providing effective treatments, it also helps to reduce treatment costs.

Keywords: SVM, KNN, Cardiovascular disease etc.

INTRODUCTION

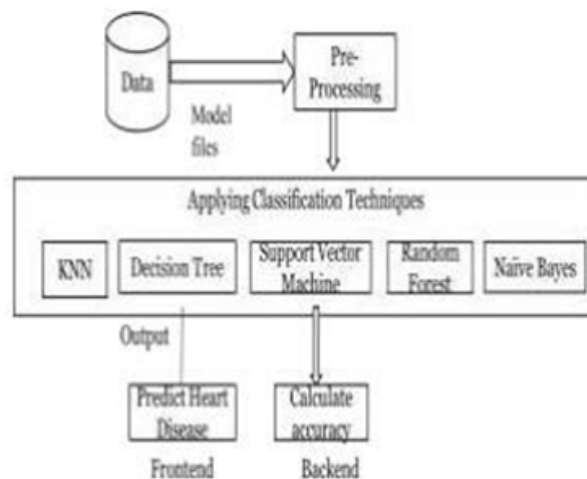
A crucial component of the human body is the heart. It supplies blood to every organ and bone in our body. If it fails to work properly, the brain and several other organs will stop working, and the person will die within a few minutes. The prevalence of numerous heart-related disorders is rising as a result of lifestyle changes, work-related stress, and poor eating habits. Around the world, heart illnesses have emerged as one of the leading causes of death. 17.7 million people worldwide die each year from heart-related disorders, or 31% of all deaths, according to the World Health Organization. Heart-related illnesses are becoming the leading cause of death in India as well. In India, heart disease claimed 1.7 million lives in 2016, according to the 2016 Global Burden of Disease Report, released on September 15, 2017. Heart related diseases increase the outlay on health care and reduce the efficiency of an individual. Estimates made by the World Health Organization (WHO), suggest that India have lost up to \$237 billion, from 2005- 2015, due to heart related or cardiovascular diseases. Thus, reasonable and accurate prediction of heart related diseases is very important. Medical organizations, all around the world, collect data on various health related issues. These data can be oppressed using various machine-learning techniques to gain useful understandings. But the data collected is very massive and, many a times, this data can be very noisy. These datasets, which are too devastating for human minds to comprehend, can be easily explored using various machine-learning techniques. Thus, these algorithms have become very useful, in recent times, to predict the presence or absence of heart related ailments accurately.

EXISTING SYSTEM

The World Health Organization (WHO) has estimated that 12million deaths occur worldwide, every year due to the Heart diseases .About 25% deaths in the age group of 25-69 year occur because of heart diseases. In urban areas, 32.8%. Deaths occur because of heart ailments, while this percentage in rural areas is 22.9.Over 80% of deaths in world are because of Heart disease. WHO estimated by 2030, almost 23.6 million. People will die due to Heart disease. The diagnosis of diseases is a significant and tedious task in medicine. Treatment of the said disease is quite high and not affordable by most of the patients particularly in India.

PROPOSED SYSTEM

In this system, we are implementing effective heart attack prediction system using Machine-learning algorithm. We can give the input as in CSV file or manual entry to the system. After taking input, the algorithms apply on that input to algorithms. After accessing data set the operation is performed and effective heart attack level is produced. The proposed system will add some more parameters significant to heart attack with their weight, age and the priority levels are by consulting expertise doctors and the medical experts. The heart attack prediction system designed to help the identify different risk levels of heart attack like normal, low or high and also giving the prescription details with related to the predicted result.



MAIN FLOW

1. Upload Training Data: The process of rule generation advances in two stages. During the first stage, the SVM model is built using training data during each fold; this model is utilized for predicting the class labels the rules are evaluated on the remaining 10% of test data for determining the accuracy, precision, recall and F-measure. In addition, rule set size and mean rule length are also calculated for each fold of cross-validation.
2. Data Pre- Processing: Heart disease data is pre-processed after collection of various records. The dataset contains a total of 303 patient records, where 6 records are with some missing values. Those 6 records have been removed from the dataset and the remaining 297 patient records are used in pre-processing. The multiclass variable and binary classification are introduced for the attributes of the given Dataset.
3. Predicting Heart Disease: The training set is different from test set. In this study, we used this method to verify the universal applicability of the methods. In k-fold cross validation method, the whole dataset is used to train and test the classifier to Heart Stoke.

IMPLEMENTATION

MODULES:

Users

Data Collection

Attribute Selection

Preprocessing of data

Users:

User add the data to the database and view the data to the view data and predict the heart disease using ml.

Data Collection:

First step for predication system is data collection and deciding about the training and testing dataset. In this project we have used 73% training dataset and 27% dataset used as testing dataset the system.

Attribute Selection:

Attribute of dataset are property of dataset which are used for system and for heart many attributes are like heart bit rate of person, gender of the person, age of the person and many more predication system.

Preprocessing of data:

Preprocessing needed for achieving prestigious result from the machine learning algorithms. For example Random forest algorithm does not support null values dataset and for this we have to manage null values from original raw data. For our project we have to convert some categorized value by dummy value means in the form of "0" and "1" by using following code

Admin:

Admin will give authority to Users. In order to activate the users. the admin can Prediction Heart Disease.

CONCLUSION

This paper explains the many machine learning techniques that were used to analyze the data set, including KNN, support vector machines, Naive Bayes, decision trees, and k- closest neighbors. It makes use of information on blood pressure, cholesterol, and diabetes before attempting to forecast who would develop coronary heart disease during the next ten years. As previously indicated, a family history of heart disease may also contribute to the development of a cardiac condition. This patient data can therefore be added to the model to further improve its accuracy. This research will be helpful in identifying potential heart disease patients over the next ten years. In order to try to avoid the possibility of heart disease for the patient, this may help in adopting preventive actions. So the doctors can closely analyze when a patient is predicted as positive for heart disease, then the medical data for the patient. An example would be - suppose the patient has diabetes that may be the cause for heart disease in future and then the patient can be given treatment to have diabetes in control, which in turn may prevent the heart disease.

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