

Analysis of Heart Disease Prediction Using Datamining Techniques

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ABSTRACT

Data mining is the very vast area in research field. Health care is most important organization in our world. The various data mining techniques are used to predict the heart disease. Heart disease is very dangerous disease in our human body. Heart is important part in our body. Data mining prediction tool is play on vital role in healthcare. This paper analysis the various technique to predict the heart disease.

Key Words: **Data mining, heart disease, classification algorithm**

1. Introduction

The heart is a most significant muscular organ in humans, which pumps blood through the blood vessels of the circulatory system. Life is fully depend on the heart. If the heart affect the disease, it will also affect the other organs of the human body. Datamining is the process of extracting the computer based information from large set of database. Data mining techniques and tools are used for various organization..Data mining tools are used to predict the disease in healthcare field. According to the WHO reported as 12 million peoples death occur in the heart disease. In Medical organization have manual records of heart patient deatials. Medical practitioner needs only electronic records. datamining techniques is easily convert the manual records to electronically records. There are number of factors to increase the heart disease.

- Hyper tension
- Poor diet
- Obesity
- High blood pressure
- High cholesterol
- Family history

2. Types Of Heart Disease

The disease of heart and blood vessels within it. The various types of heart disease given below. They are

- Cardiovascular disease
- Arrythametic disease
- Coronary artery disease
- Disease of Heart valves

3. Data Mining Algorithm:

3.1. Classification

Classification is based on machine learning. Classification is used to classify every item in a set of

data into one of predefined set of classes or groups. Classification technique makes use of mathematical techniques such as decision trees, linear programming, neural network and statistics.

3.2. Prediction

Prediction is a data mining technique that discovers the relationship relationship between independent variables and relationship among dependent and independent variables.

4. Research Objectives

Most hospitals maintain a hospital information system. This system contains a large amounts of patient data. This information is largely not accessed. Data mining techniques are used to convert a data into useful information. The main objective of this research is o developed a one data mining modeling technique namely as improved naïve bayes .it can extract the hidden knowledge from heart disease historical dataset.

5. Naive Bayes

Naïve bayes is based an machine learning and data mining methods. It more sophisticated classification method. it is used to create the prediction model. it shows the predictable state for probability of each attribute. this model produce a more efficient output compare with other output. The main advantage of naïve bayes require a small amount of training data to estimate the parameter for classification. it is capable of calculating the most probable output depend on the input. it is easy to add new data at runtime for a better classifier.

5.1. Steps

- Convert the dataset into frequency table.
- Create likelihood table by finding the probability.
- Naïve bayes to calculate the posterior probability of ach class.

- The class with highest priority probability is the outcome of prediction

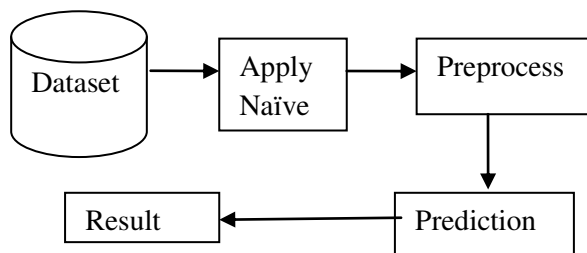


Fig1. Naïve Bayes implementation diagram

5.2. Input Attributes

The dataset are available on UCI machine repository. This dataset contains 303 records.

1. Age
2. Gender
3. CP (chest pain)
4. treetops : resting blood pressure
5. cholesterol
6. fbs: fasting blood sugar>120 ? yes=1,no = 0
7. restecg: resting electrocardiographic results 0,1,2
8. thalach : maximum heart rate achieved
9. exang : exercise induced angina (1= yes ; 0=no)
10. oldpeak = ST depression induced by exercise relative to rest
11. slope : the slope of the peak exercise ST segment
12. ca: no. of major vessels (0 to 3) colored flurosopy
13. thal :3 =normal ,6=fixed defect ,7= reversable defect
14. diagnosis of heart disease

5.3. Proposed Method

This proposed method is used to improve the naïve bayes performance. this methods takes only two values for prediction. the following steps are implemented for this method.

- Enter the patient dataset
- We have to classify the data as two classes.
0-Ahsent
1-Present
- Find the probability of each attribute of both class.
- Calculate the probability of attribute.
- Proposed algorithm is used for identify where values ranges from 0 to 1.
- This value is used for better performance.

- Calculate the maximum probability for both classes.
- Decide the class for patient record.

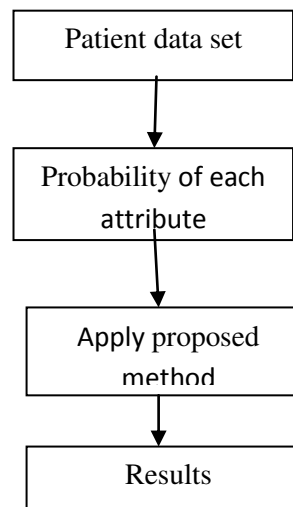


Fig 2. Proposed method diagram

6. Result Analysis

The following table provides the proposed algorithm result

Table 1. Result analysis of various algorithms

Techniques	Accuracy
Proposed method	97%
Naïve Bayes	89 %

From the table that the proposed new algorithm gave an highest accuracy value of 97%.Naive bayes algorithm accuracy value as 89%.In this above two algorithm result ,the newly one achieve a highest accuracy.

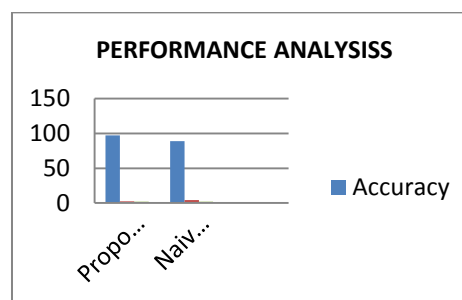


Fig 3. Performance Analysis of various algorithm

7. Conclusion

Heart disease is one of the leading causes of deaths worldwide and the early prediction of heart disease is very important. In this study prove that the

proposed new algorithm achieve a highest accuracy compare with other algorithm.

References:

- [1]J.Vijayashree and N.Ch.SrimanNarayanaIyengar
Heart Disease Prediction System Using Data Mining and Hybrid Intelligent Techniques: A Review International Journal of Bio-Science and Bio- Technology Vol.8, No.4 (2016),
- [2]S. Kiruthika Devi , S. Krishnapriya and Dristipona Kalita Prediction of Heart Disease using Data Mining Techniques Indian Journal of Science and Technology, Vol 9(39), DOI: 10.17485/ijst/2016/v9i39/102078, October 2016
- [3]Mr.K.AravinthanA Novel Cluster and Rank Based Method for Prediction of Heart Diseases International Journal of Advanced Information Science and Technology (IJAIST)
- [4]V. Krishnaiah Heart Disease Prediction System using Data Mining Techniques and Intelligent Fuzzy Approach: A Review International Journal of Computer Applications (0975 – 8887) Volume 136 – No.2, February 2016
- [5]Syed Immamul Ansarullah
Heart Disease Prediction System using Data Mining Techniques: A study international Research Journal of Engineering and Technology (IRJET)
Volume: 03 Issue: 08 | Aug-2016
- [6]Sonam Nikhar “PREDICTION OF HEART DISEASE USING DATA MINING TECHNIQUES” - A Review International Research Journal of Engineering and Technology (IRJET)
Volume: 03 Issue: 08 | Aug-2016.
- [7]S.B.Bhalerao1, Dr. B.L.Gunjal2 “Survey Of Heart Disease Prediction Based On Data Mining Algorithms”, *ijariievol-2 Issue-2*, 2016.
- [8]Umair safiq “Data mining in healthcare for heartdisease” International Journal of Innovation and Applied Studies, 10 March 2014.
- [9]Ms.Shide Swati B “Decision support system on heartdisease using data mining techniques “International journal of engineering research and general science volume 3 March-April 2015.
- [10]Jyoti Soni”Predictive Data Mining for Medical Diagnosis: An Overview of Heart Disease Prediction” International Journal Computer Applications, 17, 8, March 2011.