

A SURVEY OF NEURAL NETWORK IN HEART ATTACK AND BLOODCANCER

Dr.S.SUJATHA

HEAD OF THE DEPARTMENT, School of IT and Science, Dr.G.R.Damodaran College of Science

Ms.D.DIVYA

M.Phil (Scholar), School of IT and Science, Dr.G.R.Damodaran College of Science
divyanivethasweety@gmail.com

ABSTRACT

The healthcare industry generates large amount of data that are too difficult to analyze by traditional methods. Hence computer assisted methods are necessary to make correct decisions. Data mining is non-trivial extraction of implicit data, previously not known, and imaginably useful information from data. Data mining is an essential process where intelligent methods are applied in order to extract patterns. Data mining plays an important role for uncovering new trends in health care organization. Discovery of hidden patterns and relationships often goes unexploited. Advanced data mining techniques help in this situation. The main purpose of data mining application in this is to develop an automated tool for identifying and disseminating relevant information. This paper aims to make a detailed study report of heart attack and cancer details and to reduce the complexity in studying the details transactions. The data mining helps to identify useful patterns of information from the medical data for quality decision making. Valuable knowledge can be discovered in the applications of data mining techniques in predicting system. This research work has developed a Decision support and neural networks in Heart attack and cancer disease prediction system using data mining techniques. The result obtained from the details enables to establish significant patterns and relationships between the medical factors of heart disease and cancer.

Keywords: Data Mining, Knowledge Discovery in Databases, Neural Networks, Decision Tree

INTRODUCTION

Data mining is the process of analyzing the data from different perspectives and summarizing it into useful information. In healthcare, data mining is becoming increasingly popular, if not increasingly essential. Data mining techniques to use variety of techniques to identify information or Decision making knowledge in the database and extracting these in a way that can put to use in areas such as decision making. Data are facts, numbers or text which can process by a computer. In a large database, data mining predict patient details to detect patterns to extract hidden pieces of information. Neural networks have emerged as advanced data mining tools in cases where other techniques may not produce satisfactory predictive models.

The data mining tasks can be descriptive or predictive. Most hospitals employ some sort of hospital information systems to manage their patient information. The availability of huge amount of data from which to extract useful knowledge, researchers have been using data mining techniques to help the heart attack and blood cancer patient information details. These systems typically generate huge amounts of data which take form of numbers and text. We have to use decision making support system to fetch the information for heart attack and blood cancer details. The way of gathering input data and produce the output information is important for decision making support system. Any computer program that helps experts in making heart attack and blood cancer decision comes under the domain of decision support system.

However they can't address complex queries like "provided patient records, predict records the probability of patients likely to have a heart attacks and blood cancer. The

decisions in the hospitals made based on doctors' intuition and experience rather than on the knowledge rich data hidden in the database. In this study, we have taken this issue and compare different techniques of data mining applications for predicting the success rate.

RESEARCH OBJECTIVES

Most hospitals today hospitals employ sort of hospital information systems to manage their data for health attacks and blood cancer of patient data. There is wealth of unknown information in these data that is largely not accessed. The main objective of this research work is to develop a Decision Support system in heart attack and cancer data prediction system. We have to predict the data for decision making system and fetch the correct data using for smoothing to improve performance.

1. Data modeling for heart attack data prediction system
2. Data modeling for blood cancer data prediction system
3. Anticipating patient futures and behavior given their history
4. Discovering the data in correctly
5. Minimizing the time to wait
6. Minimizing the delay time for fetching the data
7. Public health informatics

KNOWLEDGE DISCOVERY IN DATABASES

Data mining is most important technique which is used Knowledge Discovery in Database (KDD).KDD has different types of technique for steps like Data cleaning, Data integration, Data selection, Data transformation, Data mining, Pattern Evaluation, Knowledge presentation etc., These include decision tree, neural networks, Jelinek-

mercator smoothing. Data mining provides automatic pattern recognition and attempts to uncover pattern in data that are difficult to detect with traditional statistical methods. Without data mining it is difficult to realize the full potential of data collected within heart attacks and blood cancer as data under analysis is massive, highly dimensional, distributed and uncertain

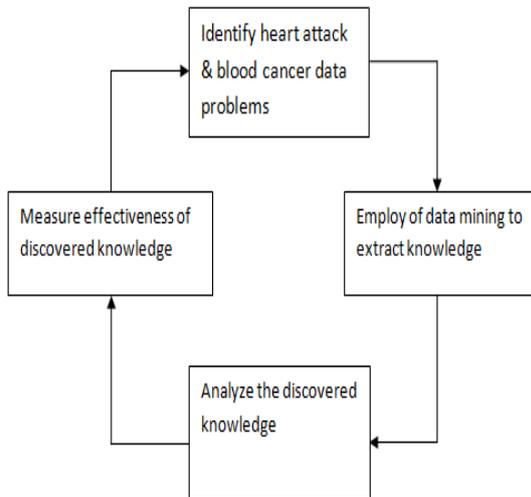


Fig :1 Knowledge discovery in databases

KDD can be effective at working with large volume of data to determine meaningful pattern and to develop strategic solutions. Heart attack analyst and blood test analyst and policy makers can learn lessons from the use of KDD in other industries and apply KDD in other industries and apply KDD to problems of heart attacks and blood cancer of health industries.

Massive heart attacks and blood cancer data needs to change information and knowledge which can help control cost and maintains. Online analytical processing provides one way for data to be analyzed in multi-dimensional capacity. With the adoption of data warehousing and data analysis/OLAP tools, an organization can make strides in leveraging data for better decision making. Many organizations struggle with the utilization of data collected through an organization online transaction processing (OLTP) system that is not integrated for decision making and pattern analysis. A data mart is a subset of data warehouse. It focuses on selected subjects. Online analytical processing solution provides a multi-dimensional view of the data found in relational databases. The traditional manual data analysis has become insufficient and methods for efficient assisted analysis indispensable. A Data Warehouse is a semantically consistent heart attack and blood cancer data store that serves as a physical implementation of a decision support data model and stores the information on which enterprise needs to make strategic decision.

NEURAL NETWORKS

Neural network is a set of connected input/output units and each connection has a weight present with it. Neural networks have the remarkable ability to derive meaning from complicated or imprecise data and can be used to extract patterns and detect trends that are too complex to be

notified by either humans or other computer techniques. A Multi-layer perception neural networks is used. It maps a set of input data onto a set of appropriate output data. It consists of 3 layers. Input layer, hidden layer, output layer. This is connection between each layer & weights are assigned to each connection. The primary function of neurons of input layer is to divide input x_i into neurons in hidden layer. Neuron of hidden layer adds input signal x_i with weights w_{ji} of respective connections from input layer. The output Y_j is function of $Y_j=f(\sum w_{ji} x_i)$ Where f is a simple threshold function such as sigmoid or hyperbolic tangent function.

DECISION TREE

It is most the most frequently used techniques of data analysis. It is used to classify records to a proper of data analysis. It is used to classify records to proper class and is applicable in both regression and association's tasks. In heart attack and blood cancer field decision trees specify the sequence of attributes. Such a tree is built of nodes which specify conditional attributes.

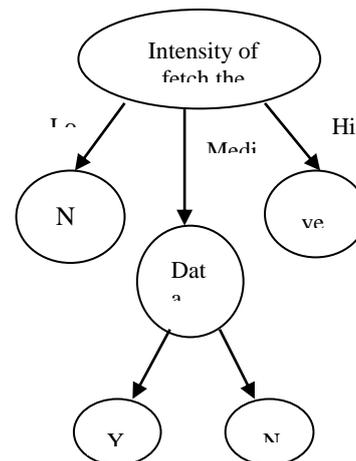


Fig 2:Decision Tree

Distributed Client/Server: The data mining solution supports both the "data server" model of client/server computing, in which data located on a machine can be accessed, and the "compute server" model, which allows data located on a remote machine can be accessed, and then forwarded to a client. This particularly well suited to analytical tasks involving large volumes of data that require superior processing.

CLASSIFICATION TECHNIQUES IN HEART ATTACK AND BLOOD CANCER

Information technology and electronic patient records have enabled the creation of electronic patient records obtained from monitoring to the patient visits. The information includes patient demographics, records on the treatment progress, details of examination, prescribed drugs, previous medical history, lab results etc., Information system simplifies and automates the workflow of heart attack and blood cancer intuitions. Privacy of documentation and ethical use of information about patients

is a major obstacle for data mining. In order for data mining to be more extract, it is necessary to make a considerable amount of documentation. Heart attack and blood cancer records are private information, yet the use of these private documents may help in treating deadly to require. Before data mining process can begin, heart attacks and blood cancer organizations must formulate a clear policy concerning privacy and security of patient records. Data mining is using a technique predictive modeling to determine the heart attacks and blood cancer and conditions of data are the leading trends.

We present a case study of application of data mining and analyze data of heart attacks and blood cancer with Immunization details. The concept of classification method has been applied in the study of heart attacks and blood cancer.

1. Classification of dataset 1

The first dataset is a small heart stacks and blood cancer Micro-array Expression data used in study. The data set contains 9 attributes apart from the class attribute with 286 instances.

2. Classification of dataset 2

The second data set is a small medium sized data set with Micro array. The data set has a total of 4026 attributes and 45 instances.

3. Classification of dataset 3

The large dataset 3 is a Micro array of data with 7,129 attributes and 34 instances.

CONCLUSION

Data mining requires appropriate technology and analytical techniques, as well as systems for reporting and tracking which can be enable measuring of results. Data mining once started represents continuous cycle of knowledge discovery. Today there have been many efforts with the goal of the successful application of data mining in heart attacks and blood cancer. Primary potential of this technique lies in the possibility for research of hidden patterns in datasets. These data must be collected and stored in data warehouses in organized forms, and they can be integrated in heart attacks and blood cancer data management system. Data mining technology used for the customer oriented approach towards new and hidden patterns in data, from which the knowledge is being generated. The knowledge that can help in providing for doctors and patients. The possibility to predict future requests, needs, desires, and conditions of the patients .With the future development of information communication technologies ,data mining will achieve its full potential in the discovery of knowledge hidden in the heart attack and blood cancer data.

FUTURE ENHANCEMENT

Through the use of data mining algorithms it was possible to verify the improvement of quality. In this study, no information about prevalence of disease was available. It would be beneficial to compare immunization uptake by district to disease levels in those heart attack and blood cancer areas. Developing efficient data mining tools for an application could reduce the cost and time constraint in

terms of human resources and expertise. Exploring knowledge from the data is such a risk task as the data found are noisy, irrelevant and massive too. In this scenario, data mining tools come in handy of exploring of knowledge of the heart attack and blood cancer data and it is quite interesting. It is observed from this study that a combination of more than one data mining techniques than a single technique for predicting the data could more promising results. Future work includes the collecting data about levels of heart attacks and blood cancer.

This methodology can be applied to many other types of diseases to use predict the data and we believe that this will lead to more informed data prediction decisions resulting. The system can be further and expended. Another challenge would be integrate text mining.

REFERENCES

- [1.] SellappanPalaniappan, RafiahAwang, "Intelligent Heart Disease Prediction System Using Data Mining Techniques", IJCSNS International Journal of Computer Science and Network Security, Vol.8 No.8, August 2008
- [2.] Niti Guru, Anil Dahiya, NavinRajpal, "Decision Support System for Heart Disease Diagnosis Using Neural Network", Delhi Business Review, Vol. 8, No. 1 (January - June 2007).
- [3.] HeonGyu Lee, Ki Yong Noh, KeunHoRyu, "Mining Biosignal Data: Coronary Artery Disease Diagnosis using Linear and Nonlinear Features of HRV," LNAI 4819: Emerging Technologies in Knowledge Discovery and Data Mining, pp. 56-66, May 2007.
- [4.] Kiyong Noh, HeonGyu Lee, Ho-Sun Shon, Bum Ju Lee, and KeunHoRyu, "Associative Classification Approach for Diagnosing Cardiovascular Disease", Springer, Vol:345, pp: 721- 727, 2006.
- [5.] Franck Le Duff, CristianMunteanb, Marc Cuggiaa, Philippe Mabob, "Predicting Survival Causes After Out of Hospital Cardiac Arrest using Data Mining Method", Studies in health technology and informatics, Vol. 107, No. Pt 2, pp. 1256-9, 2004.
- [6.] LathaParthiban and R.Subramanian, "Intelligent Heart Disease Prediction System using CANFIS and Genetic Algorithm", International Journal of Biological, Biomedical and Medical Sciences, Vol. 3, No. 3, 2008.
- [7.]Venkatadari M.,Dr.Lokanataha C.Ready,-A Review on Data Mining From Past to Futurell,International Journal of Computer Applications,pp.19-22,vol.15,No.7,Feb 2011
- [8.]Kargupta, Han, Yu, Motwani, Vipin Kumar, —Next Generation of Data Miningl, Chapman & Hall /CRC Data Mining and Knowledge Discovery Series, Taylor and Francis Group LLC, 2008.
- [9.] M. Hay,G. Miklau, D. Jensen, P. Weis, and S. Srivastava. Anonymizing social networks. Technical Report, University of Massachusetts,Amherst,MA, 2007.
- [10.]P. Samarati and L. Sweeney. Generalizing data to provide anonymity when disclosing information. In Proceedings of the 17th ACM SIGACT-SIGMODSIGART "Symposium on Principles of Database Systems (PODS'98) , p. 188, Seattle, WA, 1998.