Review Of Research
Vol.2, Issue.4, Jan. 2013
ISSN:-2249-894X
Available online at www.reviewofresearch.net
ORIGINAL ARTICLE

TO INTERACTIVE AND TO PREDICT THE DIFFERENT METHODS ASSOCIATION AND DECISION MAKING PROCESS TOOLS

LALITA

Associate professor
Manav Instiiute Technology and Manangent ,JEVRA(HISAR)

Abstract:

An interactive association rule method has been proposed to improve upon the quality of the data mining results in large medical datasets. Very often association rule mining yields numerous meaningless rules. Domain expert can often guide and restrict the search procedure to contain the number of useless rules. The association rule method proposed herein is "Apriori" based that takes a target attribute from a clinician to identify the class of patients in hepatitis database. The clinical data derived from the electronic healthcare records and the biological information derived from data mining techniques could provide more imperative input to the decision making process. The aim of the experiments reported in this chapter was to demonstrate how to mine useful knowledge hidden in the form of association rules that can help the clinicians to quickly make sense out of vast clinical datasets.

KEYWORDS:

Data mining techniques are largely used in medical databases

INTRODUCTION

Identification of patient's class in health care management is of vital importance. Clinical trails provide a method for evaluating the effectiveness and safety of new treatment for different diseases on human subjects [Bethel C.L. et.al., 2006]. Valuable knowledge can be discovered from the healthcare datasets by using the data mining techniques. Data mining and interactive decision support tools can help the clinicians to process a huge amount of data available from previous cases and help in diagnostics study to suggest probable ailment based on the values of several important attributes of patient [Podgorelec V. et.al., 2005]. Very often there exist certain attributes that play vital role in the process of diagnosis. Association rule mining finds relationship between data attributes with a given support and confidence threshold. This chapter describes the interactive use of association rule mining in the prediction of the class of hepatitis patients. The basic idea is to generate implication rules to determine the attributes that derive the class of the patients. Such rules can provide the matching criteria that can find matches for new patient records.

Hepatitis is a disease in which tissues of liver are inflamed by the hepatitis virus [Leung K.S. et.al., 2009]. A viral hepatitis is a potential risk to liver cirrhosis and hepatocellular carcinoma (HCC) which is the most common type of liver cancer and the exact cause of HCC is still unknown. Study of viral hepatitis is crucial in medicine. Hepatitis impairs liver function such as removal of harmful substances, regulation of blood composition and production of bile to help digestion. A well known sign of hepatitis is jaundice, which is an accumulation of a chemical called bilirubin in the body tissues. The symptoms of hepatitis include: a) nausea, b) vomiting, c) low grade fever, d) loss of appetite, e) rash, f) fatigue, g) pain in the liver,

and h) dark brownish urine. Hepatitis can be cured if treated early, but it may cause damage if the infection persists for long.

Data mining techniques are largely used in medical databases to improve the decision making in health-care. [Ho T.B. et.al., 2007] have described a temporal abstraction approach to mining knowledge from the hepatitis database of Chiba University hospital (1982-2001) to find short-term and long-term changed tests. [Leung, K.S., et.al., 2009] have advocated the application of techniques like clustering, feature selection, classification and fuzzy measure to HBV DNA sequence database of 200 Hepatitis B patients to find new and interesting knowledge for medical practitioners. [Ho T.B. et.al., 2007] has outlined a novel approach to temporal abstraction for detection and exploitation of temporal patterns and relationships between events in viral hepatitis such as "event A occurred slightly before event B and event B ended in synchrony with event C" have been presented.

An experiment has been conducted on dataset relating to hepatitis disease that contains the results of hepatitis test and some other parameters relating to the patients. Association rule mining technique has been used to predict the class of hepatitis patients. The efforts have been made to use the technique interactively so as to extract useful knowledge to improve decision making in health care. Aim of the study was to find the causes of hepatitis so that the condition of the patient might be controlled before reaching at the chronic stage.

CLASSIFICATION USING INTERACTIVE ASSOCIATION RULE MINING – A CASE STUDY OF HEPATITIS DATASET

Attribute Name	Category	Possible Values
Class	Boolean	DIE, LIVE
Age	Discrete	10, 20, 30, 40, 50, 60, 70, 80
Sex	Discrete	Male, Female
Steroid	Boolean	No, Yes
Antiviral	Boolean	No, Yes
Fatigue	Boolean	No, Yes
Malaise	Boolean	No, Yes
Anorexia	Boolean	No, Yes
Liver Big	Boolean	No, Yes
Liver Firm	Boolean	No, Yes
Spleen Palpable	Boolean	No, Yes
Spiders	Boolean	No, Yes
Ascites	Boolean	No, Yes
Varies	Boolean	No, Yes
Bilirubin	Discrete	0.39, 0.80, 1.20, 2.00, 3.00, 4.00
Alk Phosphate	Discrete	33, 80, 120, 160, 200, 250
SGOT	Discrete	13, 100, 200, 300, 400, 500
Albumin	Discrete	2.1, 3.0, 3.8, 4.5, 5.0, 6.0
Proteome	Discrete	10, 20, 30, 40, 50, 60, 70, 80, 90
Histology	Boolean	No, Yes

Table 1.1: Structure of hepatitis dataset.
(Source: Hepatitis Dataset - http://archive.ics.uci.edu:80/ml/datasets.html

CONCLUSION

Association rule mining as a data mining technique is very useful in the process of knowledge discovery in medical field, especially in the domain where patients' lab test reports have been electronically stored. Here association rule method is interactively implemented to predict the hepatitis patient's class. Such an experiment can give medical doctors a tool to quickly get some knowledge from the past patient's database and use them for handling future case. Understanding complex relationships that occur among patient's symptoms, diagnosis and behaviour is one of the most promising areas of data mining. The problem of identifying a patient's class is a major challenge among medical practitioners. Data mining techniques provide a tool to help them quickly make sense out of vast clinical databases.

HINTS

1.Histology is the study of the microscopic anatomy of cells and tissues of plants and animals. It is performed by examining a thin slice of tissue under a light microscope or electron microscope.

REFERENCES

1 R. E. Sorace, V. S. Reinhardt, and S. A. Vaughn, "High-speed digital-to-RF converter," U.S. Patent 5 668 842, Sept. 16, 1997. (2002) The IEEE website. [Online]. Available: http://www.ieee.org/
2 M. Shell. (2002) IEEEtran homepage on CTAN. [Online]. Available: http://www.ctan.org/tex-archive/macros/latex/contrib/supported/IEEEtran/FLEXChip Signal Processor (MC68175/D), Motorola, 1996."PDCA12-70 data sheet," Opto Speed SA, Mezzovico, Switzerland.
3 A. Karnik, "Performance of TCP congestion control with rate feedback: TCP/ABR and rate adaptive TCP/IP," M. Eng. thesis, Indian Institute of Science, Bangalore, India, Jan. 1999.
4 J. Padhye, V. Firoiu, and D. Towsley, "A stochastic model of TCP Reno congestion avoidance and control," Univ. of Massachusetts, Amherst, MA, CMPSCI Tech. Rep. 99-02, 1999.
5 Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specification, IEEE Std. 802.11, 1997.