Research on Improved Apriori Algorithm Based on Data Mining in Electronic Cases

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ABSTRACT

This article makes progress of a commonly used Apriori algorithm, and proposes a new Apriori algorithm based on event ID. In this article, association rules are gained from massive medical data through the new Apriori algorithm. This article proposes and then uses the association rules in the prediction system. This article aims at making the lifestyle-related diseases prediction system provide better service for people, for families and for the whole society. The prediction system can automatically give out health-related information of the user after the person’s basic information is put in, and it would also give out some pieces of valuable advice according to the resultant data, helping people realize self-determinant health engagement.

KEYWORDS

Apriori Algorithm, Health, Lifestyle-Related Diseases, Prediction

1. INTRODUCTION

Life style related diseases are defined as various kinds of diseases caused by everyday continuous lifestyle styles which are not beneficial to health (Liu Fei,2015; Dong Guohua,2015; Li Zongxing,2015; Zhu Hua,2015; Feng Lijuan,2014). Generally, there are physical factors and external factors relating to the occurrence of such diseases and disease-related causation. Physical factors include genetic factor, gender, age, physique, etc.; external factors include pathogen, environmental pollutants, contingency, natural disaster, stress, etc., which are relevant with environment and life style (Hyolee, 2014; Su, 2013; Zhao, 2013). Those factors act upon one another to lead to the disease. Since for different persons, the way to prevent occurrence of life style related disease and promote health varies, so it’s better to take precautions of individual physiques by more relying on professional health care physicians (Li, 2013).

In recent years, with the prosperity and development of social economy, the scientific and technological progress of human society, people’s life and work play continues to accelerate. The pressure of life and work is increasing. A variety of family and social burden, so that the majority of people’s health is in a state of sub-health.

Busy, nervous, irregular lifestyles, lack of social engagement and family doctors are not timely treatment. Medical equipment is not advanced, the medical system is not perfect and so on many

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kinds of current situation, make people see a doctor is difficult, or even sick to see a doctor when the situation appears, to the people’s health has formed many adverse effects.

At the same time, with the development of science and technology and the change of people’s living environment. Various diseases continue are produced. For example, the number of patients with heart disease, hypertension, diabetes, cancer are increasing year by year and becoming younger and younger.

The formation of these diseases is not a short duration of time, which is closely related with people years of eating habits, therefore they are collectively referred to as lifestyle disease

The harm of lifestyle diseases is increasingly recognized and recognized by people. Not only do harm to people’s health, but also to the family’s economic expenditure, the country’s financial burden caused a heavy burden. People pay more and more attention to their own quality of life and health. In this environment, people are more and more urgent to solve the problem. Recent medical studies have shown that the treatment of lifestyle diseases, prevention is more important than treatment, therefore, the study focuses on the prevention of lifestyle diseases, in order to build a family health care system. Modern medicine has proved that the probability of the occurrence of many diseases is closely related to living habits and has gone beyond the influence of genetic genes on people’s health. Therefore, family health care is of great significance, is an important way to solve the problem.

There are a lot of information and electronic patient records in the hospital medical institutions, in the present, there are a large number of experiments for the study of lifestyle disease prevention system, clinical data, has a very important value for the extraction of reliable data base. The application of fuzzy reasoning in artificial intelligence technology has been used for a long time, and has played an important role. Now due to the popularization and application of medical software, there are a large number of patient information in hospital institutions. How to make good use of existing resources and better serve the family health care system is a very important and critical issue.

Due to the improvement of people’s living standards, the satisfaction of material life, the quality of their own life is also getting higher and higher. People begin to pay more and more attention to their own health. The emergence of health care drugs, a variety of fitness activities are active, people’s desire to pursue health. But these do not fully allow people to understand their physical condition and potential disease prevention. Therefore, home health prediction system was developed

With the improvement of people’s living standard and satisfaction of material life, people demand higher and higher quality of own life and have become to focus on physical health of themselves (Song Lei, 2013, pp. 44-46; Yang Nan, 2012]. The appearance of health care medicines and diversified vigorous fitness and exercises are what fiercely sought for by people. However, they can’t help people know clearly and completely about their physical conditions and be attentive to prevent potential diseases. Hence, family health prediction system emerges at the right time. Meanwhile, the 1990S is the peak of research on life style related diseases. But owing to restrictions like limited computer capacity and computing speed, the research reached a plateau. At present, with growing advancement of computer technology and extensive application in various fields, data mining technique discovers hidden and meaningful knowledge from enormous data which are short of priori information to foresee the tendency and behaviors, helping make prospective knowledge-based decisions (Shi Weiguang, 2012; Wei Chao, 2011). The application of artificial intelligent in medical domain moves from professionalization to family orientation. And the study on medical expert systems is shifting from various disease diagnosis system oriented with medical professionals to the mass public as science popularization (Yu Yan, Wang Jianhua & Fu Wei 2010, pp.23-26; Qi huibo, 2010). Hence, the family health care system with objective of preventing life style and oriented to the public needs to be studied (Dai Xiaoting, 2010, pp.159-160).

First, the knowledge must be accurate. Secondly, the discovered knowledge must be understandable to the user, so as to provide a solid foundation for users to make decisions. It is assumed that data mining is a kind of decision support system, but the decision must be made by people.
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