Chapter 14
Indian Healthcare Service Management Through Data Mining:
Datamining for Healthcare Services

Manaswini Pradhan
Fakir Mohan University, India

ABSTRACT

The main intention of our method is to provide better Healthcare services over the rural areas in terms of prediction of the chief hospitals with required basic facilities around that particular area. Accordingly, a Questionnaire survey is made for collecting the relevant hospital data around the Odisha region. Then, the concept of data mining is utilized in order to extract the data from the Questionnaire. Further, Incremental Spanning algorithm is introduced here for the mining of data from the Questionnaire. In the Questionnaire, appropriate score values were assigned for each category based on the requirement. Moreover, the hospital satisfying all the required components within the Questionnaire have to be determined for predicting the better hospitals. The Genetic Algorithm is introduced so as to determine the maximum of the score values obtaining for the input hospital data. Finally, the ranking of first five supreme hospitals is determined around the Odisha region.

1. INTRODUCTION

Health care services in India have undergone a vast change over the last few decades and encompass the entire nation. India's health care system was carefully structured so that it can provide primary, preventative, and curative health care within a reasonable distance of the population even in remote, rural areas. Delivering affordable health care to India's billion plus people presents enormous challenges and opportunities for the medical community (Aliman & Mohamad, 2016; Silas & Rajsingh, 2016).

The World Health Organization (1997) defined healthcare sector reform as a sustained process of fundamental change in policy and institutional arrangements of the healthcare sector, usually guided by the government. It is designed to identify the functioning and performance of the healthcare service provided by each hospital to the people. In spite of the fact that the Indian healthcare industry is rapidly expanding, healthcare infrastructure in India is very poor (Kaushik & Raman, 2015; Sharma & Reimer-Kirkhamb, 2015). A noticeable percentage of India suffers from poor standard of healthcare services. Most of the healthcare facilities of India provided by the various healthcare services are limited and of low standard. In order to understand the current status of the healthcare services in India, it is important to know about the healthcare services found in the country (Yeha et al., 2011; Sung et al., 2015).

Healthcare industry today generates large amounts of complex data about doctor qualification, hospitals resources, disease diagnosis, electronic patient records, medical devices etc. These large amounts of data are a key resource to be processed and analyzed for knowledge extraction that enables support for cost savings and decision making. Data mining is a technology that is used to transform the mounds of data into useful information and helps in decision making that benefits in providing healthcare services to patients (Ngai et al., 2011; Chen et al., 2016).

Gathering the information from hospitals allows us to put academic effort and practical usage side by side and conclude on actual DM usage, and to understand if there is a gap between data analysis experts' community and healthcare practitioners and scientists. Data Mining is one of the most vital and motivating area of research with the objective of finding meaningful information from huge data sets (Chen et al., 2016; Lin et al., 2015). In present era, Data Mining is becoming popular in healthcare field because there is a need of efficient analytical methodology for detecting unknown and valuable information in health data. In this paper, an efficient algorithm, called IncSpan, is developed, for incremental mining over multiple database increments. In order to reduce the using time in mining incremental sequences, the algorithm used semi frequent patterns for incremental mining (Deshmukh, 2016).

The GA is applied over the problem domain where the outcome is very unpredictable and the process of outcome contains complex inter related modules. Also GA is very apt for such class of problem where problem specification is very difficult to formulate. During the last few decades, computer science has seen huge advancements in demands and its implementation. As per now heavy cross demands are in fire and hence implementation and analytics is becoming more and more chaos. The situation is very apt for applying genetics and getting optimal results (Bessant, 2014; Yin, 2016).

2. RELATED WORKS

Yuehong Yin et al. (2016) have explained a method for healthcare systems. Extensive research had been dedicated to the exploration of various technologies such as information technologies (IT) in complementing and strengthening existing healthcare services. In particular, the Internet of Things (IoT) had been widely applied to interconnect available medical resources and provide reliable, effective and smart healthcare service to the elderly and patients with a chronic illness. The aim was to summarize the applications of IoT in the health care industry and identify the intelligentization trend and directions of future research in this field. The advancement of IoT in healthcare systems had been examined from the perspectives of enabling technologies and methodologies, IoT-based smart devices and systems, and diverse applications of IoT in the healthcare industries.

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