

Data mining based Tools and Techniques in Public Health Care management:-A study

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Abstract— Data mining is an Interdisciplinary subject, which have wide area of application in almost all sectors. Raw data can be converted into very useful information by applying various techniques of data mining. Data mining provides a systematic methodology for transforming bulk data into useful information for decision making.

In Present scenario, Data Mining Systems (DMS) in the healthcare sector has led to the common belief that their use would result in an all-round improvement in health sector. Data mining has wide application area like Fraud and Anomaly Detection, Customer relation Management, Load forecasting, screening images, marketing and sales, Disease Diagnosis Climate Change Behavior analysis, health care Management etc.

In this paper, an attempt has been made to study usefulness of Machine Learning in the area of health care management. Data mining covers various aspects in Health care like prediction of patients' disease, fraud detection in Health insurance, effectiveness of treatments etc. Attempt has also been made to study the challenges in Health care system and future issues keeping in view big data management.

Keywords: Data Mining; Classification; Clustering; Association; Healthcare System.

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I INTRODUCTION

Machine Learning based Techniques are very useful for finding useful information hidden in huge datasets and it is really very important field of concern and interesting and motivating area of research with the aim of finding meaningful information from huge data sets for decision making or deciding future course of action.

Presently, Data Mining is hot topics in almost all field of study but in the field of healthcare, it has wider aspect from detection, diagnosis, resource management, finding new medicines, detecting fraud in health system etc.

It has observed that most of the data generated by various organizations in healthcare sector especially in India is highly unstructured with many redundancies, duplicate information, missing values, outliers and nature of data is complex, which

makes difficult to analyze the data for making inferences for taking decision regarding patient health, disease stage, physician prescription etc. However, we understand that this data is so vast and useful because of diversified details of different regions about the health care institution, patient records, medical claims records and treatment cost etc. Therefore, there is a urgent requirement of extracting useful information to come up with new initiatives from this vast databases using software for analysis and extraction of useful pattern from this complex data. The analysis of health data may help in improving the healthcare sector management by taking decision to improve the system of patient management related tasks, which ranges from patient treatment to other facilities associated with the same.

The paper is divided into four Sections, section I presents brief introduction about Techniques and Tools in Data Mining, Section II presents role of Data Mining in Health care and issues and challenges in its implementation. Section III presents comparative study of prominent Health care model and approaches used in Data Mining and in Last Section future scope and research issues have been discussed.

II. TECHNIQUES AND TOOLS IN DATA MINING

IT has brought great revolution in communication which has led to the production of huge amount of data leading to big databases, which were of no use as it was not easy to convert this data into useful information.

In 1990's a new interdisciplinary subject called data mining came into existence whose Techniques and tools made it easy to convert these large databases into data warehouses suitable for fetching previously unknown patterns and useful information from huge dataset [2, 3].

Data Mining deals with two areas (i) Search Algorithms, Modeling Techniques, pattern recognition, Artificial intelligence and Machine Learning (ii) Sampling, hypothesis Testing and Estimation.

