

# UNIVERSAL HEALTH CARE SYSTEM

Sohail Ahmed<sup>1</sup>, Abhishek Anand<sup>2</sup>, Dishant Desai<sup>3</sup>, Shivom Kaul<sup>4</sup>

<sup>1</sup> U.G Student, Information Technology, Rajiv Gandhi Institute of Technology, Maharashtra, India

<sup>2</sup> U.G Student, Information Technology, Rajiv Gandhi Institute of Technology, Maharashtra, India

<sup>3</sup> U.G Student, Information Technology, Rajiv Gandhi Institute of Technology, Maharashtra, India

<sup>4</sup> U.G Student, Information Technology, Rajiv Gandhi Institute of Technology, Maharashtra, India

## ABSTRACT

The healthcare industry collects a large amount of data that is not properly mined and not optimally used. Discovery of these hidden patterns and relationships often goes unexploited. Information and communication technologies (ICTs) have great potential to improve health in both developed and developing countries by enhancing access to health information and making health services more efficient; they can also contribute to improving the quality of services and reducing their cost. Patient information systems, for example, have the ability to track individual health problems and treatment over time, giving insight into optimal diagnosis and treatment of the individual as well as improving the delivery of services. This is particularly useful in chronic diseases, such as diabetes and cardiovascular diseases, as well as health services for mothers and children, where a record of health and treatment is required within a given time period. Our research focuses on this aspect of Medical diagnosis by learning pattern through the collected data of diabetes and heart diseases and to develop intelligent medical decision support systems to help the doctors. Analyzing data in patient information systems can lead to a new insight and understanding of health and disease, both chronic and acute. In this paper, we propose the use of decision trees ID3 algorithm classify these diseases and compare the effectiveness, correction rate among them.

**Keyword:** - Active learning, decision support system, data mining, medical engineering, ID3 algorithm, CART algorithm, C4.5 algorithm.

## 1. INTRODUCTION

The major challenge in the healthcare industry is Poor clinical reports that are not up to the mark and can lead to disastrous results which is unacceptable. Keeping these data personalized rather than anonymous is facilitated by using electronic systems which can more easily store, access, analyze and share data easily. As in the usual way, the collection of such data is on paper and the registration book. Advanced data mining modeling techniques can help in maintain and generating online records and help us to achieve the objective of including IT facilities into medical domain. The universal health care system, which will be developed to assist clinicians in the diagnostic process, often based on static data that can be obsolete. The concept of universal health care system is very wide, because there are many different approaches and a wide range of areas in which decisions are made. Even the most technologically advanced hospitals in India do not have such software, which predicts the disease through data extraction methods. There is a huge amount of unused data, which can be converted into useful information. Medical Diagnosis, as is well known, the subjective; it depends on the doctor that makes the diagnosis. Secondly, and most importantly, the volume of data that must be analyzed in order to make a good forecast and good analysis.

## 2. LITERATURE SURVEY

A literature survey or a literature review in a project report is that section which shows the various analyses and research made in the field of your interest and the results already published, taking into account the various parameters of the project and the extent of the project. A literature review is the effective evaluation of selected documents on a research topic. A review may form an essential part of the research process or may constitute a research project in itself.

## 2.1 Disease Predicting System Using Data Mining Techniques

The successful application of data mining in very clear areas such as e-commerce, commerce and trade has led to its application in other industries. The medical environment is still information rich but knowledge weak. There is a wealth of data possible within the medical systems. However, there is a lack of powerful analysis tools to identify hidden relationships and trends in data. Heart disease is a term that assigns to a large number of health care conditions related to heart. These medical conditions describe unforeseen health conditions that directly control the heart and all its parts. Medical data mining techniques like association rule mining, classification, clustering is implemented to analyze the different kinds of heart-based problems. Classification is an important problem in data mining. Given a database contain collection of records, each with a single class label, a classifier performs a brief and clear definition for each class that can be used to classify successive records. A number of popular classifiers construct decision trees to generate class models. The data classification depends on the MAFIA algorithms that lead to accuracy, and the data are estimated using Internet-based verification processes and partitioning techniques and the results are compared. C4.5 algorithms are used as the training algorithm to show rank of heart attack with the decision tree. A database of cardiovascular diseases consists of using an algorithm for linking K-agents, which will remove the data used for heart attack from the database.

## 2.2 A Novel Approach for Heart Disease Diagnosis using Data Mining and Fuzzy Logic

Cardiovascular disease is a term used to describe a variety of heart diseases, illnesses, and events that impact the heart and circulatory system. A clinician uses several sources of data and tests to make a diagnostic impression but it is not necessary that all the tests are useful for the diagnosis of a heart disease. The goal of our work is to reduce the number of attributes used in the diagnosis of heart disease, which will automatically reduce the number of tests that the patient must take. Our work also aims at increasing the efficiency of the proposed system. The notes showed that the Decision Tree and Naive Bayes surpassed other data search techniques with soft logic. WHO report Global Atlas on cardiovascular disease prevention and control states that cardiovascular disease (CVDs) are the leading causes of death and disability in the world. Although a large part of CVD can be prevented, they continue to increase, mainly because preventive measures are inadequate.

Clinical problem solving or diagnostic thinking is the skill that doctors use to understand patient complaints, and then to identify a short, preferred list of possible diagnosis that can address these complaints. This differential diagnosis then promotes the selection of diagnostic tests and possible treatments. Despite the surprising advances in information technology, clinical problem solving has not yet been effectively replicated by computers, so it is essential that physicians develop expertise with this very important knowledge. Hence, more adequate systems for diagnosis of cardiovascular disease need to be developed. Data mining is the process of analyzing data from different perspectives and summarizing it into useful information. In today's era, data mining has its successful application in various fields including health-care. On the other hand, soft logic provides an easy way to achieve a definitive conclusion based on vague, ambiguous, inaccurate, noisy or missing inputs. Our work attempts to incorporate both the above-mentioned techniques for the development of the proposed system and to increase its efficiency.

## 2.3 The State-of-the-Art of Electronic Medical Document Management

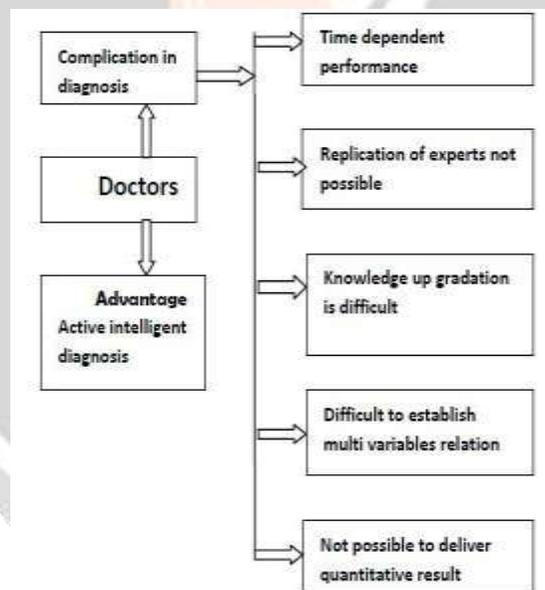
Medical electronic documents management is not only an important direction of development of digital hospitals, but also a necessary access to health information development. Taking the connotation, structure, function, application and management of the electronic document management and system construction of medical documents as the breakthrough point, in order to exert the effect of legal documents of medical documents. This paper describes the background, status of the development, analyze the existing problems, and propose specific solutions to make an empirical study on the relevant theories of medical documents and electronic documents, and to provide reference for better management and application of medical documents. This paper can provide reference resources for health authorities to promote the management of medical documents and electronic documents and provides decision support for the development and innovation of electronic file management system at the same time. With the deepening development of hospital information technology, medical electronic documents are used more widely in medical units at all levels. EHR has become the core of digital hospital. From the aspect of improving management efficiency and reducing costs, medical electronic documents is the inevitable road to health information

development. Regional health information and risen in recent years, the data exchange and sharing between various medical institutions also further promote the use of medical electronic data. But problems such as legality, quality management, lack of supervision and other issues in the course, must be resolved. Medical electronic documents are the true record in the treatment process, and an important basis for both the diagnosis, treatment and prevention, etc., as well as summarizing the clinical experience, medical research, and the justice forensics material. Quality of medical electronic documents reflects the comprehensive quality of the professional level of doctors, clinical experience, and work attitude. Writing quality of medical electronic documents is an important part of medical quality management, which is the main indicator to measure the quality management level of hospitals, valuable information on clinical research, and important basis for the determination of liability to medical disputes.

### 3. PROPOSED SYSTEM

We proposed a centralized storage of healthcare reports for individual users. This system will be useful for accessing and managing general user reports in order to monitor general health issues. Users can access the login system on the web server through which the user can manage their profiles.

They can also add and manage report details. The user will be able to search for previous records and access the analysis. The analysis is performed on report parameters based on previous reports uploaded by users. The new system will take care of the long processes and work involved in tracking and retrieving the patient's record in the old system in the walnut shell, which will improve the effectiveness of day-to-day management as it can provide the necessary time records.



**Fig -1:** Traditional ways of making decisions

### 4. CONCLUSION

Intelligent data analysis techniques and methods used in medical data has led to innovation, standards and decision support systems, significant progress in improving the health of patients and quality of medical services. The results of research and accompanying literature provide a convincing example of the wide acceptance of patient information systems in developed and developing countries. Implementation of this crucial technology is not just reliant on available resources; national health system priorities and institutional will also play key roles in the successful implementation of patient information systems, which contribute to improved patient health, more thorough understanding of disease.

## 6. REFERENCES

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