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OPINION MINING FOR EXTRACTION OF OPINION TARGETAND OPINION WORD

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Abstract:

A major challenge facing healthcare organizations (hospitals, medical centers) is the provision of quality services at affordable costs. Quality service implies diagnosing patients correctly and administering treatments that are effective. Poor clinical decisions can lead to disastrous consequences which are therefore unacceptable. Hospitals must also minimize the cost of clinical tests. They can achieve these results by employing appropriate computer-based information and/or decision support systems. Most hospitals today employ some sort of hospital information systems to manage their healthcare or patient data. These systems are designed to support patient billing, inventory management and generation of simple statistics. Some hospitals use decision support systems, but they are largely limited. Clinical decisions are often made based on doctors' intuition and experience rather than on the knowledge rich data hidden in the database. This practice leads to unwanted biases, errors and excessive medical costs which affects the quality of service provided to patients. The main objective of this research is to develop a Intelligent Heart Disease Prediction System using three data mining modeling technique, namely, Naïve Bayes. It is implemented as web based questionnaire application .Based on the user answers, it can discover and extract hidden knowledge (patterns and relationships) associated with heart disease from a historical heart disease database. It can answer complex queries for diagnosing heart disease and thus assist healthcare practitioners to make intelligent clinical decisions which traditional decision support systems cannot. By providing effective treatments, it also helps to reduce treatment costs.

Index Terms: Opinion Mining & Opinion Extraction

1. Introduction:

A major challenge facing healthcare organizations (hospitals, medical centers) is the provision of quality services at affordable costs. Quality service implies diagnosing patients correctly and administering treatments that are effective. Poor clinical decisions can lead to disastrous consequences which are therefore unacceptable. Hospitals must also minimize the cost of clinical tests. They can achieve these results by employing appropriate computer-based information and/or decision support systems. Most hospitals today employ some sort of hospital information systems to manage their healthcare or patient data. These systems are designed to support patient billing, inventory management and generation of simple statistics. Some hospitals use decision support systems, but they are largely limited. Clinical decisions are often made based on doctors' intuition and experience rather than on the knowledge rich data hidden in the database. This practice leads to unwanted biases, errors and excessive medical costs which affects the quality of service provided to patients

Many hospital information systems are designed to support patient billing, inventory management and generation of simple statistics. Some hospitals use decision support systems, but they are largely limited. They can answer simple queries like "What is the average age of patients who have heart disease?", "How many surgeries had resulted in hospital stays longer than 10 days?" "Identify the female patients who

are single, above 30 years old, and who have been treated for cancer." However, they cannot answer complex queries like "Identify the important preoperative predictors that increase the length of hospital stay", "Given patient records on cancer, should treatment include chemotherapy alone, radiation alone, or both chemotherapy and radiation?", and "Given patient records, predict the probability of patients getting a heart disease."

Clinical decisions are often made based on doctors' intuition and experience rather than on the knowledge-rich data hidden in the database. This practice leads to unwanted biases, errors and excessive medical costs which affects the quality of service provided to patients. Wu, et al proposed that integration of clinical decision support with computer-based patient records could reduce medical errors, enhance patient safety, decrease unwanted practice variation, and improve patient outcome [17]. This suggestion is promising as data modeling and analysis tools, e.g., data mining, have the potential to generate a knowledge-rich environment which can help to significantly improve the quality of clinical decisions.

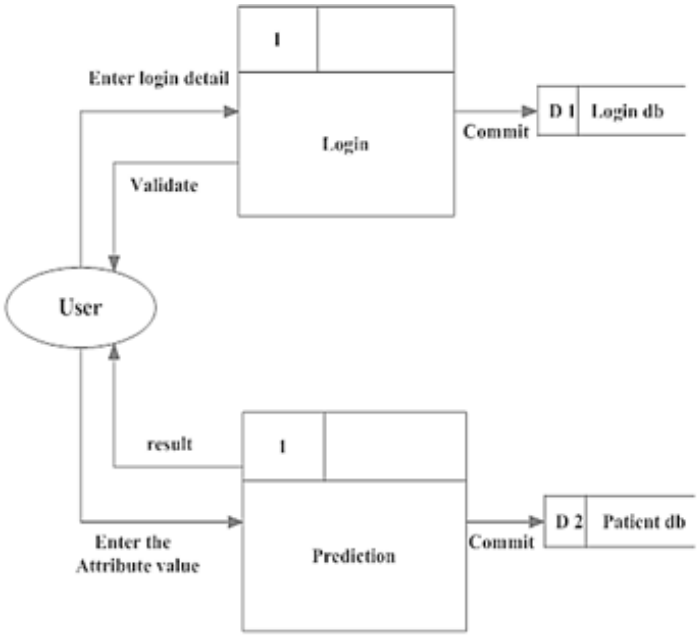

Figure 1: Data Flow Diagram

The reminder of this paper is organized as follows. Section II, describes the Related Works. Section III, describes the Proposed Work. Section IV, describes the Experimental Evaluation and Results. Section V summarizes the Conclusion and Future Enhancement.

2. Related Works:

Clinical decisions are often made based on doctors' intuition and experience rather than on the knowledge rich data hidden in the database.Medical Misdiagnoses are a serious risk to our healthcare profession. If they continue, then people will fear going to the hospital for treatment. We can put an end to medical misdiagnosis by informing the public and filing claims and suits against the medical practitioners at fault. There are many ways that a medical misdiagnosis can present itself. Whether a doctor is at fault, or hospital staff, a misdiagnosis of a serious illness can have very extreme and harmful effects. This practice leads to unwanted biases, errors and excessive medical costs which affects the quality of service provided to patients. The National Patient Safety Foundation cites that 42% of medical patients feel they have had experienced a medical error or missed diagnosis. Patient safety is sometimes

negligently given the back seat for other concerns, such as the cost of medical tests, drugs, and operations there are many ways that a medical misdiagnosis can present itself. Whether a doctor is at fault, or hospital staff, a misdiagnosis of a serious illness can have very extreme and harmful effects. This practice leads to unwanted biases, errors and excessive medical costs which affects the quality of service provided to patients. The National Patient Safety Foundation cites that 42% of medical patients feel they have had experienced a medical error or missed diagnosis. Patient safety is sometimes negligently given the back seat for other concerns, such as the cost of medical tests, drugs, and operations.

3. Proposed Work:

This practice leads to unwanted biases, errors and excessive medical costs which affects the quality of service provided to patients. Thus we proposed that integration of clinical decision support with computer-based patient records could reduce medical errors, enhance patient safety, decrease unwanted practice variation, and improve patient outcome**.**

This suggestion is promising as data modeling and analysis tools, e.g., data mining, have the potential to generate a knowledge-rich environment which can help to significantly improve the quality of clinical decisions.

The main objective of this research is to develop a prototype Intelligent Heart Disease Prediction System (IHDPS) using three data mining modeling techniques, namely, Decision Trees, Naïve Bayes and Neural Network.

So its providing effective treatments, it also helps to reduce treatment costs. To enhance visualization and ease of interpretation. The main objective of this research is to develop an Intelligent Heart Disease Prediction System using three data mining modeling technique, namely, Naïve Bayes. It is implemented as web based questionnaire application .Based on the user answers, it can discover and extract hidden knowledge (patterns and relationships) associated with heart disease from a historical heart disease database. It can answer complex queries for diagnosing heart disease and thus assist healthcare practitioners to make intelligent clinical decisions which traditional decision support systems cannot. By providing effective treatments, it also helps to reduce treatment costs.

Advantages:

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Module:

The system is divided into

- ✓ LOGIN Module
- ✓ Doctor Details
- ✓ Patient Details
- ✓ Prediction Details
- ✓ About

Login Module: This module consists of

Add New User: In this module the admin will enter the new user details with his/her User name and password.

Update User Details: If there is a change in username or password the user should immediately inform the admin and he will update the information using update form.

Delete User Details: If a user leaves the institution his record will be completely removed by the admin using delete form.

Doctor Details: In this module the admin will enter the new doctor details including his/her name, address, phone number, etc. After Entering all the details the admin has to click the save button.

Patient Details: In this module the admin will enter the new patient details including his/her name, address, phone number, doctor name, clinic name etc.After Entering all the details the admin has to click the save button.

Prediction Details:

Import Prediction File: In this module the medical details of the Patient known as the attributes in the form of text file can be loaded into the system. By clicking the import file button the datas will be automatically uploaded into the system.

Prediction File Report:_In this module by clicking the appropriate id of the patient the predication details can be calculated by using the naive bayes algorithm and the output will be obtained in the report form. The admin can also enter the input attributes of the patient by clicking the new button.

Prediction File History: In this module the overall report of all the patients uploaded in the system can be viewed.

About: This module consists of

Company Profile: The profile consists of the name of the software company who developed this project.

Contact Us: This consists of the address phone number and contact of the particular person who developed this project.

4. Experimental Analysis and Results:

Implementation is that stage in the project where the theoretical design is turned into a Work system. The most crucial stage in achieving a new successful system and in giving confidence on the new system and effectively. The user is first displayed with a front screen, which on clicking takes the user to the Login Screen. The Main setting form is the center of functioning. The user has to select the required operations or tables he wants to manipulate. The software constantly performs validations on the data entering the system and checks for any cracks in the network and corrects the necessary errors. The more complex the system being implemented, analysis and design effort required for implementation. The implementation stage is, in its own right, a system project. It involves a careful planning, investigation of the current system and its constraints on implementation, training of the users in the changeover procedures and evaluation of change over methods.

The tasks involved in the implementation are:

- ✓ Implementation planning.
- ✓ Computer System testing.
- ✓ Tool learning.
- ✓ The different module learning and their properties.
- ✓ The using of the different options provided for a particular user.

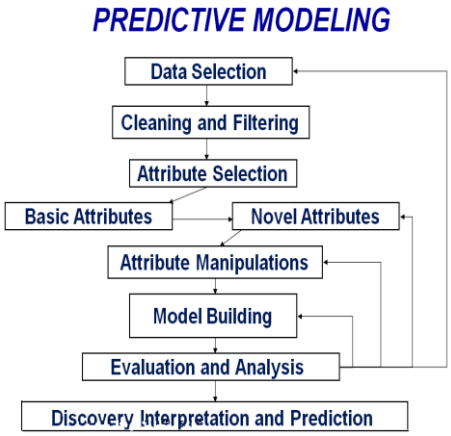
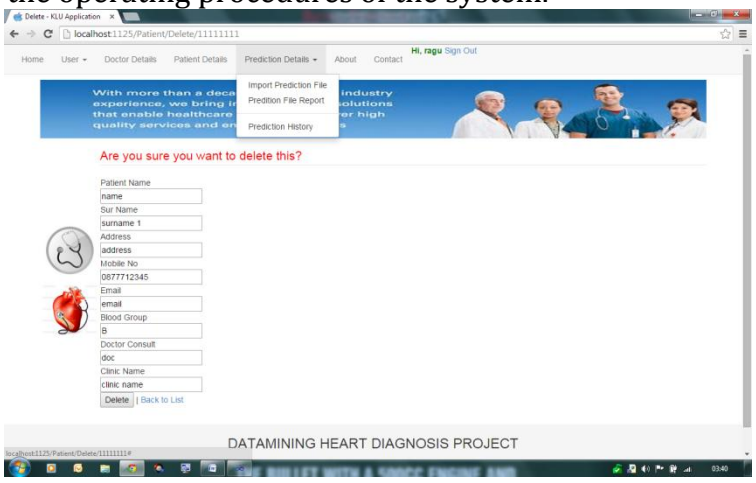
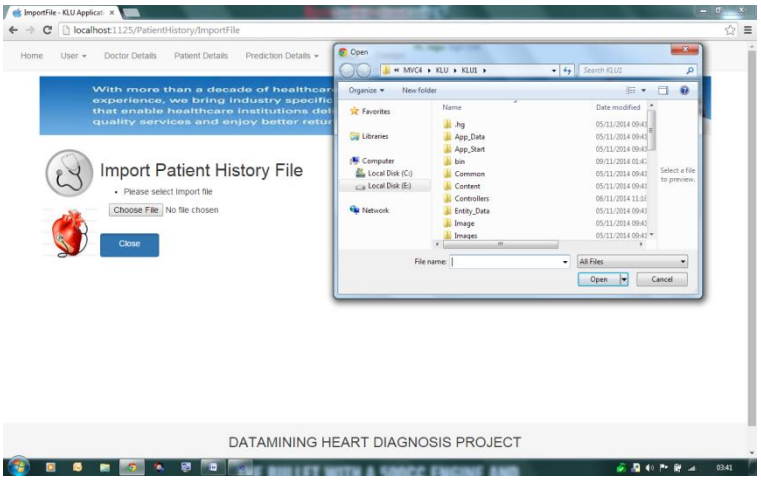


Figure 2: Predictive import

Each program is tested individually at the time of development using the data and has verified that this program linked together in the way specified in the programs specification, the computer system and its environment is tested to the satisfaction of the user.

The system that has been developed is accepted and proved to be satisfactory for the user and so the system is going to be implemented very soon. A simple operating procedure is included so that the user can understand the different functions clearly and quickly. The final stage is to document the entire system which provides components and the operating procedures of the system.





5. Conclusion:

A prototype heart disease prediction system is developed using three data mining classification modeling techniques. The system extracts hidden knowledge from a historical heart disease database. DMX query language and functions are used to build and access the models. The models are trained and validated against a test dataset. Lift Chart and Classification Matrix methods are used to evaluate the effectiveness of the models. All three models are able to extract patterns in response to the predictable state. The most effective model to predict patients with heart disease appears to be Naïve Bayes followed by Neural Network and Decision Trees.

Five mining goals are defined based on business intelligence and data exploration. The goals are evaluated against the trained models. All three models could answer complex queries, each with its own strength with respect to ease of model interpretation, access to detailed information and accuracy. Naïve Bayes could answer four out of the five goals; Decision Trees, three; and Neural Network, two. Although not the most effective model, Decision Trees results are easier to read and interpret. The drill through feature to access detailed patients' profiles is only available in Decision Trees. Naïve Bayes fared better than Decision Trees as it could identify all the significant medical predictors. The relationship between attributes produced by Neural Network is more difficult to understand. IHDPS can be further enhanced and expanded. For example, it can incorporate other medical attributes besides the 15 listed in Figure 1. It can also incorporate other data mining techniques, e.g., Time Series, Clustering and Association Rules. Continuous data can also be used instead of just categorical data. Another area is to use Text Mining to mine the vast amount of unstructured data available in healthcare databases. Another challenge would be to integrate data mining and text mining.

6. Future Enhancement:

The experiments main objective of this research is to develop a Intelligent Heart Disease Prediction System using three data mining modeling technique, namely, Naïve Bayes. It is implemented as web based questionnaire application

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