Dual Sentimental Analysis Prediction System for Rational Heart Diseases

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ABSTRACT

Heart disease is a single foremost source of demise in urbanized countries and one of the main promoters to disease burden in emerging countries. The forecast of heart disease survivability has been a thought-provoking research problem for many scholars. Hence it is essential to progress a decision support system for forecasting heart disease of a user. Rational Heart Disease Prediction System by Dual Sentimental Analysis(RHDPS-DSA) is an end user support and online consultation project. The main motivation for using Dual Sentimental Analysis is to report the polarity shift issue in sentiment classification. Here we develop a system that permits users to get instant direction on their health issues through online. It enables momentous knowledge, e.g. patterns, relationships among medical features associated with heart disease, to be established. Data Mining techniques, especially Duple Prediction and Duple Training Algorithm that analyse on Heart disease databank can help the users in detecting the heart disease status based on their clinical data. The system stands with various heart disease related symptoms which allows user to share their symptoms and issues. It then processes users symptoms to predict either the user is at risk or normal. When the user at risk, then he/she will be directed to those specialists.

Keywords: Dual sentimental analysis, Duple prediction, Duple training

I. INTRODUCTION

Data mining is a new dominant technology which is of high curiosity in computer world. It is an another field of computer science that uses previously existing data in different databases to make over it into new seeks and results. It makes use of Artificial Intelligence, machine learning and database management to extract new patterns from huge data sets and the knowledge related with these patterns. The real task is to extract data by instinctive or semi-automatic means. The different factors included in data mining comprises clustering, forecasting, path analysis and predictive analysis.

Data mining has many claims in the fields of telecommunication industry, financial data analysis biological data analysis and much more. With the growing research in the arena of health informatics, a lot of data is being produced. The analysis of such large quantity of data is very hard and requires excessive knowledge. E-healthcare smears data mining and telecommunication

techniques for health diagnosis. E-health was primarily used for patient data exploration and disease diagnosis at various levels. Since the facts of its vast use additional attention has been paid to this field from clinical data analysis to record management of users.

The system is first trained with several symptoms related to heart disease allied with each system. User bounces the knowledge of symptoms he/she is dealing with. The machine processes these symptoms and provides the results. With advancement of technology, numerous smart systems are being designed with better data mining technologies to give the most accurate results that could be related with the disease. It then processes users symptoms to predict either the user is at risk or normal. The system have information about the doctors phone number, address along with feedback and administrator control panel for system processes.The patients different parameters such as voice, images, movements and daily activities are considered as parameter and systems are generated using quantitative analysis and pattern recognition.

II. RELATED WORKS

Shusaku Tsumoto [1] projected that data mining methods will discover interesting patterns from databases as use again of stored data and be important for medical research and perform, because human beings cannot arrangement with such a huge amount of data.In this paper alert on the characteristics of clinical data and talk about how data miners deal with clinical data.

Carlos Ordonez [2] did study on estimation of heart disease with the support of Association rules. They used a meek mapping algorithm. This algorithm constantly treats elements as numerical or unconditional which is used to convert medical records to a transaction format. An enhanced algorithm is used to mine the constrained association rules. A mapping table is organized and attribute values are plotted to items. The decision tree is used for mining data because they mechanically split numerical values [2]. The split point chosen by the Decision tree are of little use only. Clustering is used to get a global understanding of data.

Sellappan Palaniappan, et.al. [3] developed Intelligent Heart Disease Prediction System (IHDPS) using data mining techniques, i.e. Decision Trees, Naïve Bayes and Neural Network. Each method possesses its own power to gain suitable results. The hidden patterns and relations among them have been used to construct this system. The IHDPS is user-friendly, web-based, accessible, reliable and inflatable.

C.Ordonez [4] uses association rules a technique in data mining to get better heart disease estimation result.The author have worked on the limitation of association rule which is nothing but mining the whole data set without validation on an independent sample.The modified algorithm with search constraints was introduced to trim down the number of association rules and validated using train and test approach. They have studied two complementary tasks: predicting

the absence and predicting the existence of heart disease.

P.Chandra, M.Jabbar [5] produced class association rules using feature subset selection to detect a heart disease. Association rule regulates relations between attributes standards and classification to predict the class in the patient dataset [5]. Feature selection measures Like genetic search determines attributes which helps in predicting heart diseases.

Usha Rani [6]have proposed a system for predicting heart disease with the aid of artificial neural network which is a mixture of feed forward and back propagation algorithm. The research is carried out by considering single and multilayered neural network models. Parallelism is implemented to hurry up the learning process at each neuron in all hidden and output layer.

R.Setthukkarasi,[7] have developed a novel neuro fuzzy technique to diagnose the fact of the disease from the set of the patient report .A comprehensive database is created for decision making from the reduced attributes set which is output of genetic algorithm. A four layered fuzzy neural network for well-organized modeling and reasoning with sequential dependencies under uncertainty is used.

Chaitrali Dangare [8] has implemented system to predict heart disease three data mining classification procedures were applied that is Decision trees, Naive Bayes & Neural Networks. From results it has been seen that Neural Networks betterthan Decision trees & Naive Bayes.

M.Akhil jabbar, B.LDeekshatulu, Priti Chandra [9] propose a new algorithm which syndicates KNN with Genetic Algorithm for active classification. To deliver optimal result genetic algorithms perform global search on complex large and multimodal Dataset. From the results it is also observed that crossing GA with KNN Performs well and give excessive accuracy.

Shadab Adam Pattekari and Asma Parveen [10] developed a Decision Support in Heart Disease Prediction System using Naive Bayesian Classification technique. The system discovers the concealed knowledge from a past heart disease database. This is the most active model to forecast patients with heart disease. This model could respond to complex queries, each with its own strength with respect to ease of model interpretation, access to detailed information and accuracy.

III. PROBLEM DEFINITION

Many hospital information systems are intended to support decision support systems which is utilized only by doctors and not by patients. Users themselves are not able to analyze about the brutality of heart disease with the symptoms they experience.

IV. EXISTING SYSTEM

In existing approach they have used Naïve Bayes Algorithm which is meek and quite well-organized but the time taken to derive the expected result is large. Moreover, the accuracy is not upto the level. It can be visualized from the graph specified below Fig 1.

V. PROPOSED METHODOLOGY

To overcome this problem we offer a novel approach of Dual Sentimental Analysis. Here we use two main algorithms i.e, Duple Prediction and Duple Training Algorithm along with decision tree which predicts the results with high accuracy and low running time. It can be visualized from the graph specified below Fig 2.

DUAL SENTIMENTAL ANALLYSIS

In Dual Sentimenal Analysis(DSA) approach, we put forward a duple training (DT) algorithm and a duple prediction (DP) algorithm respectively, to make use of positive and negative samples in pairs for training a statistical classifier and make predictions. In DT, the classifier is cultured by exploiting a mixture of probabilities of the positive and negative training data set.In DP, predictions are taken by considering positive and negative samples**.**

DUPLE TRAINING

In Duple Training stage, the collected data sets will be trained to construct test sets which is going to be displayed in the survey window. The purpose of constructing test set is to train the data sets which may either be positive or negative.

DUPLE PREDICTION

In Duple Prediction, the trained sets obtained from Duple Training is brought to decision tree in which the data are processed to predict the accurate results. Duple Prediction algorithm plays the important role in the whole process.

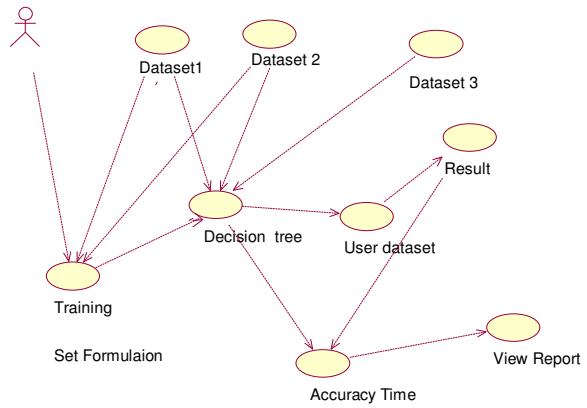
VI. SYSTEM ARCHITECTURE

System design is the method or art of outlining the architecture, components, modules, interfaces, and data for a system to gratify listed requirements. One could see it as the bid of systems theory to product development**.** There is some intersection and synergy with the restraints of systems analysis**,** systems architecture and engineering. Object methods are becoming the most broadly used methods for computer system design. The UML has turn into standard language used in Object-oriented analysis and design**.** It is broadly used for exhibiting software systems and is gradually used for hi designing non-software systems and administrations.

USE CASE DIAGRAM

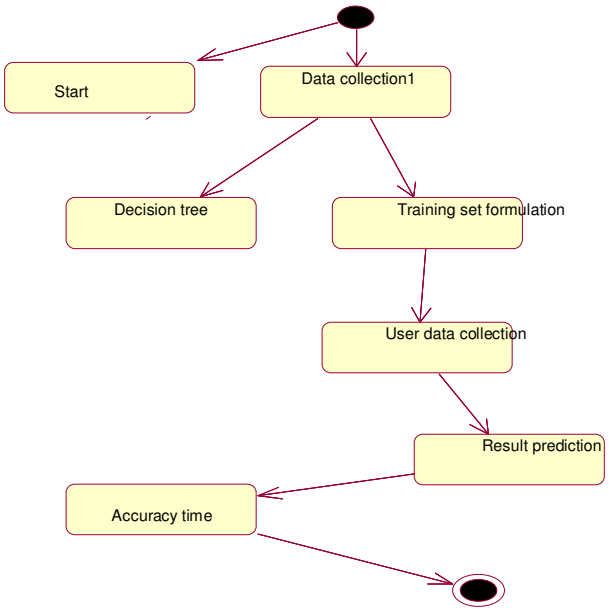
A use case diagram is an explicit representation of the connections among the

rudiments of a system. A use case is a approach used in system enquiry to detect, clarify, and organize system requirements. The actors, usually folks involved with the system defined according to their roles



ACTIVITY DIAGRAM

Activity diagrams are graphical illustrations of workflows of stepwise events and actions with provision for choice repetition and concurrency. In the Unified Modeling Language, activity diagrams are envisioned to model both computational and organizational processes(i.e.workflows)



VII. EXPERIMENT RESULT

The following tabular column represents the results that we have obtained from the alogithms,

		Accuracy	Time
1	Result1	6.6	2.4
2	Result2	7	4.4
3	Result3	6.2	3.8
4	Result4	6.8	2.8

Tab 7.1 Values obtained from Naïve Byes Algorithm

		Accuracy	Time
1	Result1	9.5	0.4
2	Result2	8.8	0.433
3	Result3	9	0.8
4	Result4	9.2	2.8

Tab 7.1 Values obtained from Dual Sentimental Analysis

From the values of table, the graphical representation is as follows

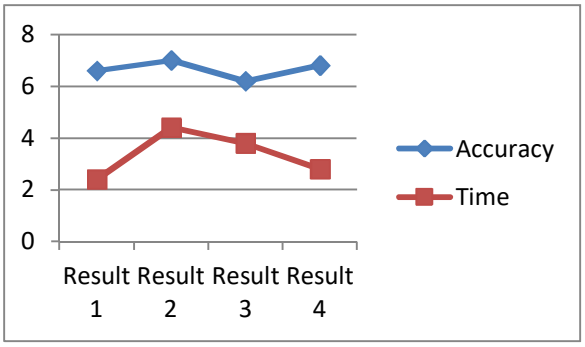


Fig 1.Comparison of data processing values using Naïve Byes Algorithm

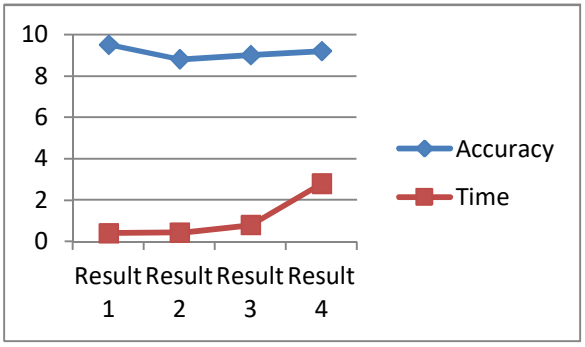


Fig 2.Comparison of data processing values using Dual Sentimental Analysis

VIII CONCLUSION

Decision Support in Heart Disease Prediction System is developed using Dual Sentimental Analysis technique. The system excerpts hidden knowledge from an ancient heart disease database. Dual Sentiment Analysis is more effective to forecast patients with heart disease. This model could answer simple queries, each with its own strength with ease of model interpretation and an relaxed access to detailed information and accuracy. The system is inflatable in the sense that more number of records or attributes can be combined and new noteworthy rules can be generated using underlying Data Mining technique. Presently the system has been using 15 attributes of medical diagnosis. It can also incorporate other data mining techniques and additional attributes for prediction.

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