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Health Predicting and Medicine Recognition System for Chronic Patients: Data Mining Approach

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ABSTRACT: In medical and health care areas, due to regulations and due to the availability of computers, a large amount of data is becoming available. Such a large amount of data cannot be processed by humans in a short time to make diagnosis, and treatment schedules. A major objective is to evaluate data mining techniques in clinical and health care applications to develop accurate decisions. It also gives a detailed discussion of medical data mining techniques which can improve various aspects of Clinical Predictions. The proposed system can assist chronic patients in taking multiple medications correctly and in avoiding taking the wrong medications, which may cause drug interactions, and can provide other medication-related functionalities such as reminders to take medications on time, medication information, and chronic patient information management. The proposed system can effectively reduce the problem of drug interactions caused by taking incorrect drugs, thereby reducing the cost of medical treatment and giving patients with chronic diseases a safe medication environment.

KEYWORDS: Smart Health Prediction System, Data Mining, Clinical Predictions, Drug, Chronic Patient.

I. INTRODUCTION

The world's society is aging. Among the 7.5 billion individuals on the planet, the old populace represents 600 million, incorporating 480 million individuals with ceaseless ailments. As per insights from the World Health Organization (WHO), the normal old individual experiences 1.4 interminable illnesses, and the run of the mill drug dose of an older individual is multiple times that of a more youthful individual. Older individuals are likewise multiple times bound to take an inappropriate drug as a result of declining physiological capacities. The WHO additionally demonstrates that 33% of the world's demises are caused not by illnesses themselves yet by the inaccurate utilization of medications, and the expenses related with such inappropriate medication use add up to almost 28.5 billion U.S. dollars consistently. Due to the previously mentioned issue of passings brought about by the ill-advised utilization of medications, the savvy prescription pillboxes accessible available are continually being refreshed. For instance, the PillDrill [1], [2], a shrewd prescription pillbox, can help clients helpfully store and disperse drug and has an update capacity to remind clients who neglect to take their medication. Taking an inappropriate prescription may bring about hurtful connections or balance the proposed impacts of the medications, prompting further genuine outcomes, for example, intense entanglements. To address this issue, this paper proposes a profound learning-based savvy prescription acknowledgment framework, named ST-Med-Box, that can perceive drugs and remind patients with incessant sicknesses when to take their meds. By utilizing the proposed framework, patients with ceaseless illnesses can know whether a medication is taken accurately the first run through, in this manner diminishing the likelihood of taking

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an inappropriate prescription and the expense of social therapeutic consideration. The rest of the paper is organized as follow. Section 2 described the related work.

II. RELATED WORKS

The results showed increased robustness to concealed AE cases and therapeutic words, yet because of FDA limitations, this work needed interpretability, which prompted challenges in application. With the fast improvement of contemporary medication, one of the key AE-related issues is unfriendly medication occasions. To keep away from antagonistic medication occasions, a high-precision programmed prescription acknowledgment framework is expected to help individuals in perceiving different sorts of medications. In this work, K-closest neighbor (K-NN), bolster vector machine (SVM), and Bayes-based systems were received to assess the separated features[12]. In addition, CoforDes can be executed as a piece of constant inserted applications. a strategy for medicinal work force to use in following and checking the protected utilization of medications, called the Deep Granulator, which is intended to consequently concentrate tweets identified with individual wellbeing experience from internet based life. In this work, classifiers were fabricated dependent on an assortment of AI calculations, for example, profound neural systems (DNNs), to help distinguish such information. Be that as it may, when the Deep Granulator was applied to an autonomous test set of 3,156 examples, the classifier didn't perform well as far as exactness. Section 3 discussed the proposed system.

III. THE PROPOSED SYSTEM

Sometimes the situation occurs when you need the doctor's help immediately, but they are not accessible because of some explanation. This framework enables the clients to get investigation on the manifestations they give for anticipating the ailment they are experiencing. Client will be approached to enter the manifestations, at that point framework will forms those side effects for different sickness or infection that client could be an enjoyed with. In this framework we utilize a few methods of information mining to figure the most precise maladies or sickness that could be connected with patient's side effects. On the off chance that the framework can't give arrangements, it illuminates the client about likely malady they have. In the event that the client manifestations doesn't actually coordinate with any illness in our database, shows the ailments client could likely have making a decision about the info side effects.

It likewise gives a point by point exchange of therapeutic information mining methods which can improve different parts of Clinical Predictions. It is another ground-breaking innovation which is of high enthusiasm for PC world. It is a sub field of software engineering that utilizations previously existing information in various databases to change it into new examines and results. It utilizes AI and database the executives to remove new examples from enormous informational collections and the learning related with these examples. The real undertaking is to extricate information via programmed or self-loader implies. The various parameters incorporated into information mining incorporate bunching, determining, way examination and prescient analysis.

Advantages of Proposed System

- ✓ This causes the disease to be predicted more effectively.
- ✓ Moreover, this proposed system also consists of various suggestions such as doctor details and prescriptions.
- ✓ There is specialist appointed for each disease predicted. The details of each doctor along with their location for each disease will be given.
- ✓ Doctor's consultation cost can be avoided at an initial stage prescribed medicines are displayed in detail.

Section 4 informed the existing system

IV. THE EXISTING SYSTEM

We accept that specialists are altogether therapeutic experts and that there is great research behind all their choices. That can't be the circumstance constantly. They can't in any way, shape or form center around memory all the

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learning they require for every situation, and they most likely make an effort not to have it quickly accessible. Indeed, even in case they approached the gigantic proportions of data expected to see treatment results for every one of the sicknesses they experience, they would regardless need time and capacity to break down that information and fuse it with the patient's own remedial profile. In any case, this kind of all around inquire about and quantifiable assessment is past the degree of a specialist's work.

Disadvantages of Existing System

Disadvantage of an existing system would be that the patients have to visit the doctor in person and still does not get proper treatment, as the doctors are unable to predict the exact disease. Human error can be avoided with the help of computer assisted quality decision-making. It is poor when there are huge amounts of data to be classified. In addition, efficiency and accuracy of decisions will decrease when humans are put into stress and immense work. Imagine a doctor who has to examine five patient records; he or she will go through them with ease. However, if the number of records increases with a time constraint, it is almost certain that the accuracy with which the doctor delivers the results will not be as high as the ones obtained when he had only five records to be analyzed. Section 5 focused the system architectures.

V. SYSTEM ARCHITECTURES

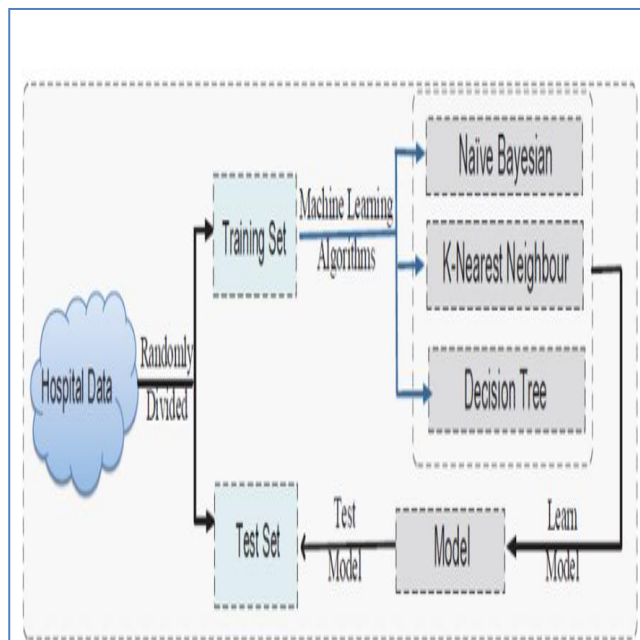


Figure 1 Show the System Architecture

The architecture described to process the patient data. The patient data is retrieved form database and process the two steps, the first step is Training Set another step is Test Set. Then used to Machine Learning Algorithm, the algorithms have three processing steps and give the output. Figure 1 shows the complete system architecture of the proposed work. Section 6 derived the research methodologies.

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VI. RESEARCH METHODOLOGIES

Preprocessing Module

Preprocessing is needed to get two types of information: 1) a list of all drugs $D(d_1; d_2; \dots; d_m)$ in the database and the support count for each drug; 2) a list of all symptoms $(s_1; s_2; \dots; s_n)$ in the database and the support count for each symptom. The lists of drugs and symptoms are needed to form all possible drug-symptom pairs whose causal strengths will be assessed. Since a patient database normally only contains a subset of all drugs on the market and a subset of all symptoms, it is necessary to search the Patient Drug Table and the Patient Symptom Table to get the drugs and symptoms covered by the database.

Data Set and transformation

After the first step the data is transformed into xls file so as to form a standard database. This xls file is extracted or read using file handling concept and stored in a database using MYSQL . From the xls file only those information are read which are associated with the basic objective of our intended application. For example various stops words, verbs and adjective irrelevant to the application are kept behind and only the key meanings are read from the xls file so that it becomes easier for the application to implement the algorithms i.e Apriori and FP Growth over the disease-symptom database.

Prediction of the disease

The patient will show the side effects caused as a result of his ailment. The system will make certain request with respect to his ailment and after that anticipate the disease depending on the indications determined by patient and the framework will likewise propose specialists dependent on the illness. Patient will specify the symptoms caused due to his illness. The system will ask certain questions regarding his illness and then predict the disease based on the symptoms specified by patient and the system will also suggest doctors based on the disease.

Naive Bayesian Algorithm

A naive Bayes classifier is an algorithm that uses Bayes' theorem to classify objects. Naive Bayes classifiers assume strong, or naive, independence between attributes of data points.

For example, a naive algorithm for sorting numbers scans all numbers to find the smallest one, puts it aside, and so on. It will sort the numbers alright but there are more efficient algorithms for this.

K Nearest Neighbor Algorithm

K nearest neighbor algorithm is very simple. It works based on minimum distance from the query instance to the training samples to determine the K-nearest neighbors. The data for KNN algorithm consist of several multivariate attributes name that will be used to classify.

1. Determine parameter K = number of nearest neighbors.
2. Calculate the distance between the query-instance and all the training samples.
3. Sort the distance and determine nearest neighbors based on the K -th minimum distance.
4. Gather the category of the nearest neighbors.

Section 7 focused the conclusions.

VII. CONCLUSIONS

In this work system was developed for health predicting and medicine recognition for chronic patients using data mining concept. The proposed will helped the chronic patients to take multiple medicines directly. The proposed system is also reduced the problem of drug interaction by taking incorrect drug and reduce cost of medical treatment. Section 8 described the future enhancements.

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VIII. FUTURE ENHANCEMENTS

The further enhancements can be done by integrating this web application in an Android app. This will be available to users on mobile basis and its use can be further increased. Also feature like getting the doctor online on chat so the patients can directly talk to the concerned doctors. The modules doing cancer analysis can be integrated to find how close the person associated with cancer. This will make the web application predictable in true sense.

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