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DISEASE ANALYSIS AND GIVING REMEDIES THROUGH AN ANDROID APPLICATION

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ABSTRACT - *Day by day the usage of hierarchical documents is increased in the internet in terms of data transmission standard because it is reliable and easier to expand or upgrade to operating systems, have new applications or a new web browsers without losing data. Clustering hierarchical document has become a crucial issue in hierarchical data mining because of its tree like structure. The existing LSPX approach (Level Structure with Parent node information of XML data) and cluster core is based on level structure consume more time. This model is to cluster the data. We propose a method that overcomes the problem that presents in the cluster core and LSPX method by reducing the number of computation needed to find the similarity calculation. This HSS approach (Hierarchical Structural Similarity) uses X-Path to determine the nodes of a document for the structural similarity calculation. It will provide a high time efficiency in finding the structure similarity of multiple hierarchical documents. The main focus of this method is to improve the clustering efficiency, complexity, performance and scalability while dealing with very big datasets which will be helpful in query processing, web mining and information retrieval.*

KEYWORDS: Data mining, Decision Tee, Disease Prediction, Symptoms and Ayurvedic remedies.

I. INTRODUCTION:

Data mining is defined as a process of mining data from a very large number of database from a different source. It deals with mining information by Characterization, Classification, Clustering, Predicting, Summarizing. In this we experimented using Decision Tree. Decision Tree is a structure which as root node, branches, leaf nodes and links between the nodes. In which each internal nodes represent test on a attribute and branch denotes a outcome of a tested node. The top most node is root node. Nowadays more number of people are suffering from many disease such as lung, liver, kidney, heart, and respiratory problems, etc. These are caused due to the pollutions and changing food habits and the side effects that can be occurred on using certain things. In early stage of the disease more number of people may take medicines without consulting a doctor just by searching on Google without knowing the side effects. Many of us know that 1/20 Google searches are health related. Which may be danger in future. To the above problem we came with a solution that will be provided as an android application. In which data mining techniques are used to explore the hidden patterns in the datasets. These patterns can be utilized for clinical diagnosis. The medical data are distributed, heterogeneous in nature, and voluminous. These data need to be collected in an organized form. This collected data can be then integrated to form a decision tree. The automation of disease prediction system would be extremely advantageous. Regrettably all doctors do not possess expertise in every sub specialty and moreover there is a shortage of resource persons at certain places. Therefore, an automatic medical diagnosis system would probably be exceedingly beneficial by bringing all of them together. Appropriate computer based information and/or decision support systems can aid in achieving. So our motivation is to develop a decision tree supported disease prediction system within a hand held devices.

The next section covers literature survey to understand how the data mining for disease prediction has improved in years and to overcome difficulties faced by them.

II. LITERATURE SURVEY:

There are many methods for clustering hierarchical (XML) documents are available based on the structure. Most of the clustering algorithm uses distance and incremental methods and X-Path are studied. This Section takes into account for the literature survey that are described below.

To implement a the efficient disease prediction system needs a comparative study of previous approaches and system. Which may helps us to get more detail about the system and we can concentrate on improving the quality by overcoming the drawbacks of already available approach.

2.1. ID3-Approach:

It is a general disease prediction system. In this article[4] they had used an ID3 Decision Tree algorithm in which they had calculated the entropy value of every attributes of the symptoms by using the extracted dataset. With that they had formed the decision tree. The decision tree works in a recursive manner for subsets to get the exact result. Where the author had covers only the frequent disease. Incase if a person provides a symptoms for a rare disease it cannot predict the disease correctly or exactly. Be predicted or found.

2.2. Naive Bayes and ID3:

In this they has discussed a different data mining techniques such as naïve bayes and ID3 in aticle [5]. In addition to that they has used CART(Classification and Regression Tree), decision tree algorithms. Rule mining, classification, clustering to analyze the different kinds of heart based problems. The database used 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. But it had covered heart disease but we will provide the next level to their process by covering more number of disease with solution to the disease.

2.3. Predictions with symptoms:

This system could predict the disease such as Viral, Cold, Cough and other basic diseases included the supplementary illness similar to Acidity and Weakness in article[2]. It provides a medicine with doctor consultant. But in our system we will provide a suggestion that are herbal which has no side effects.

2.4. Naive Bayes, J48:

In this they have implemented decision tree with the help of J48 algorithm in the aricle[3]. It covers only the following disease such as Breast cancer, Heart and Diabetes. In that they have specified accuracy for the results of the system using naïve bayes and J48. Where the results of the system using naïve bayes ranges to 76 to 83 percent and the J48 algorithm has 77 to 78 for breast cancer and heart disease and it has cent percent for diabetes. But it can predict only disease. If a person has any other disease with same symptoms in that case it will provide the wrong results.

2.5. Decision Tree:

In this paper they have provided the survey for heart related disease. But in that they have not implemented any separate concepts for finding disease. It has provided the issues and challenges for decision tree algorithm which will help us to provide the efficient algorithm.

From the above literature survey we can understand the difficulties and advantages of implementing a disease prediction system using various data mining approaches and algorithm. In the above the major defect found was the number of disease prediction was not more than three. This system where the process tend to cover more diseases and to give the home made remedies for them. In the next section covers the proposed model by using a decision tree.

III. EXISITING SYSTEM

In this they has discussed a different data mining techniques such as naïve bayes and ID3. In the base paper they utilised the naïve bayes algorithm were the efficiency was not that good, and they only covers the heart disease and the other disease are not been covered on the project.

In addition to that they has used CART (Classification and Regression Tree), decision tree algorithms. Rule mining, classification, clustering to the symptoms and analyze the various and different kinds of heart based problems.

The database used 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 .But it had covered heart disease but we will provide the next level to there process by covering more number of disease with solution to the disease.

Added with they were not given a remedies for the disease for which they been analysed. The existing system which is not interactive and not ease to the patients. They have not given the precautions and home made remedies, without any side effects on the disease, they will be cured and tend to be healthy.

This system which get lagged to produce the multiple disease prediction, it was the major defect of the system. Where the number of diseases were listed un appropriately, so the patients are only known with some diseases, whereas not with others.

So it made us to prepare for many disease with a precaution and home made remedies for their diseases and to give them in the android application which will be user friendly for the patients and the users.

IV PROPOSED MODEL

In the proposed model we provide a dataset consists of symptoms and associated disease. In this we collect a user symptoms from the user from that we analyse what kind of disease it may be using decision tree. Which identifies hidden relationship among the symptoms and disease.

Patient will specify the symptoms caused due to his illness. System will ask certain question regarding his illness and system predict the disease based on the symptoms specified by the patient and by using efficient data mining algorithm (decision tree algorithm) which perform prediction on the basis of probability on a large datasets.

The output will be a detailed description about the disease, treatment and medicine which are ayurvedic also provided in the application.

Decision Tree Algorithm:

Algorithm : DecisionTree Generation.
Input: Symptoms
Output: Disease, Treatment Remedies

```
DiseasePrediction (symptoms, dataset)
{
Select list of Symptoms
Tree=DecisionTree(symptoms)
Disease= Select the highest probability of disease for
symptom(Tree)
Scan Database for remedies
Find the matching remedies for the disease
Print disease and remedies.
}
```

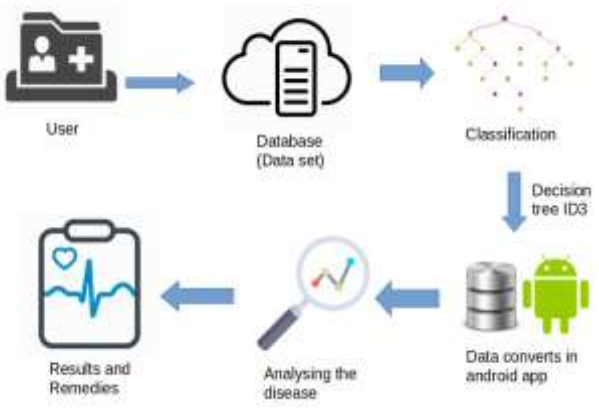

Figure 4.1 : Architecture Diagram

The above architecture in figure 4.1 shows how the system process is carried out. Where the user choose the symptoms using the developed mobile application. Then the symptoms will be passed to the decision tree after predicting the disease then it will scan the database to find the corresponding remedy to the disease. Then it will be shown in the user interface of mobile application.

V. EXPERIMENTATION

In this approach we have developed an Android Application for Disease Analysis and providing home made remedies, with precautions for the corresponding diseases using an Android Studio 4.4 gradle version.

Firebase is been used for the storing the data sets (symptoms) into the database for defaults records and the unknown symptoms which will be mentioned by the patients through the application which had been developed as user friendly.

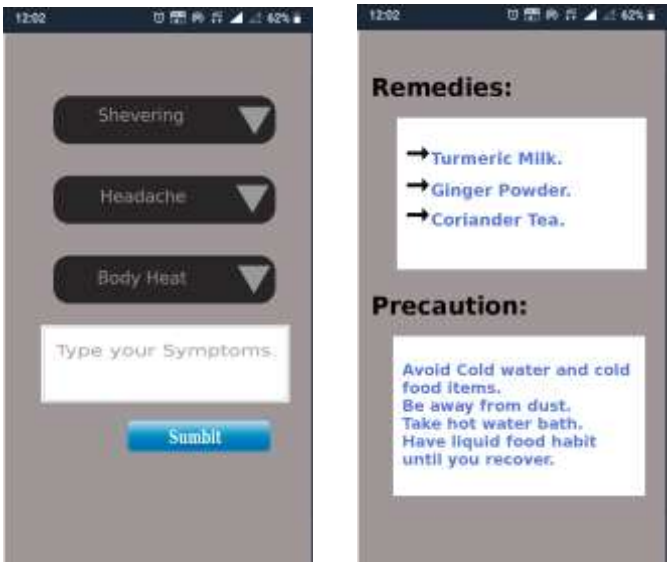

Figure 5.1- Screenshots of Implementation

VI. CONCLUSION

In this we have specified how we are going to predict the disease with decision tree and integrating the data mining techniques with an android application. By developing the android application for disease prediction based on the symptoms gathered from the user and we will provide a solution to the user by suggesting ayurvedic medicine.

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