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Automated Health Care System Using Disease Prediction Based On Symptom

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ABSTRACT: News networks have a large amount of multimedia data. This data is stored in digital video (DV) cassettes or hard disks. Such storage devices are expensive and require physical space. Cloud computing provides a relatively cheaper alternative and can be accessed from anywhere. As it provides scalability, cloud computing can be used to archive multimedia data by news networks. Users can upload the data to the system. Data is compressed and stored securely in the cloud. This data can be retrieved when needed by searching for relevant attributes.

KEYWORDS: Diseases, Disease Prediction, Symptoms, Treatment, Support Vector Machine, Naïve Bays Classification.

I. INTRODUCTION

As we know there are numerous kinds of diseases are there in the environment. Some diseases can be easily get cured but some are there which have a bad impact on the human body and may lead to death. Diseases like Bulimia Nervosa (BN), Diabetes, Chronic Kidney Disease (CKD), Skin Cancer (SC), Leukemia, Colds-Flu-Gripe (CFG), Dengue (De), Malaria (M), Cholera (Cl), Leptospirosis (L), Chikungunya (CG), Chickenpox (CP), Diarrhoea (Di) have similar characteristics at an early stage which makes clinician job difficult in diagnosing such life-threatening disease. Similarly, in 2009, H1N1 was spreading fast around the world. It is a contagious type of disease and it spreads the same as seasonal u. Its symptoms are the same as seasonal u like cough, fever, sore throat, body ache, and headache. So at the early stages, it seems like a seasonal u to Doctors but later on, when these symptoms lead to more serious complications, including pneumonia and respiratory failure Doctors came to know this is not seasonal u and something else. Similarly consider Dengue fever. It is transmitted by the bite of an Aides mosquito infected with a dengue virus. The mosquito becomes infected when it bites a person with the dengue virus in their blood. It can't be spread directly from one person to another person. Sometimes, symptoms are mild and can be mistaken for those of u or another viral infection by the victims or patients. However serious problems develop if this cannot be treated early like damage to lymph and blood vessels, bleeding from the nose and gums. Many of these diseases are preventable if detected at early stages. It may be difficult for the clinician as well as the person who is suffering to distinguish between these prevailing diseases due to medical symptom similarity at early stages. Today's variety of diseases makes us feel the need of implementing a system that can predict the diseases as early as possible based on patient health status.

II. RELATED WORK

In this work, an Automated healthcare disease prediction system (AHDPS) is developed using a neural network for predicting the Disease based on the symptoms. The system uses basic parameters such as name, email id, mobile no., location, etc., for prediction. The AHDPS predicts the likelihood of patients getting a disease. It enables significant knowledge, relationships between medical factors related to heart disease and patterns, to be established [1].

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. The disease is a term that assigns to a large number of health care conditions related to the body. These medical conditions describe the unexpected health conditions that directly control all the body parts.

Medical data mining techniques like classification, clustering is implemented to analyse the different kinds of general body-based problems [2].

This work supports an end-user and online consultation. Here author proposes a framework that enables clients to get moment direction on their medical problems through an astute social intelligent health care system online. The framework is bolstered with different symptoms and the disease or illness associated with those systems. Also, the system allows user to share their symptoms and issues. Data Mining as a field of research has already well-proven capabilities of identifying hidden patterns, analysis, and knowledge applied on different research domains, now gaining popularity day by day among researchers and scientists towards generating novel and deep insights of these large biomedical datasets also. Uncovering new biomedical and healthcare-related knowledge to support clinical decision-making, is another dimension of data mining [3].

In this research work, authors have comprehensively compared different data classification techniques and their prediction accuracy for chronic kidney disease. Authors have compared J48, Naïve Bayes and SVM. Author proposing a system that is based on the combination of different data mining techniques such as clustering, classification, etc. that are useful to predict the patient's disease state. The patient's disease states can be finding out by formalizing the hypothesis based on test results and symptoms of the patient before recommending treatments for the prevailing diseases. The basic aim of our system is to assist doctors in diagnosing the patient by analyzing his available data and relevant information [4].

Medical data mining techniques like association rule mining, classification, clustering are implemented to analyze the different kinds of heart-based problems. Classification is an important problem in data mining. This work given a database containing a 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. Many popular classifiers construct decision trees to generate class models. The data classification is based on SVM algorithms which result from inaccuracy, the data is estimated using entropy-based cross-validations and partition techniques, and the results are compared [5].

Chronic Kidney Disease (CKD) is a gradual decrease in renal function over several months or years. Diabetes and high blood pressure are the most common causes of chronic kidney disease. The main objective of this work is to determine kidney function failure by applying the classification algorithm on the test result obtained from the patient medical report. This work aims to reduce the diagnosis time and to improve the diagnosis accuracy using classification algorithms. The proposed work deals with the classification of different stages of disease according to its severity. The experiment is performed on different algorithms like Back-Propagation Neural Network, Radial Basis Function, and Random Forest [6].

III. PROPOSED APPROACH

This proposed system is based on a combination of different locations, doctor's details, disease symptoms, and disease treatment that are useful to predict the patient's disease. The patient's disease states can be ending out by formalizing the disease based on symptoms of the patient before recommending treatments for the prevailing diseases. We have collected different disease datasets. This dataset includes multiple disease lists with multiple symptoms of each disease. Also, we have collected the doctor's location dataset which includes multiple locations and doctor's names. We used association rule with Support Vector Machine (SVM) and Naive Bays classification techniques to predict the exact disease name. As our project's main focus is providing medical assistance to people living in rural areas to provide them with free treatment for general diseases which they tend to neglect. This proposed system also recommends the treatment according to a particular disease name.

Proposed System Architecture

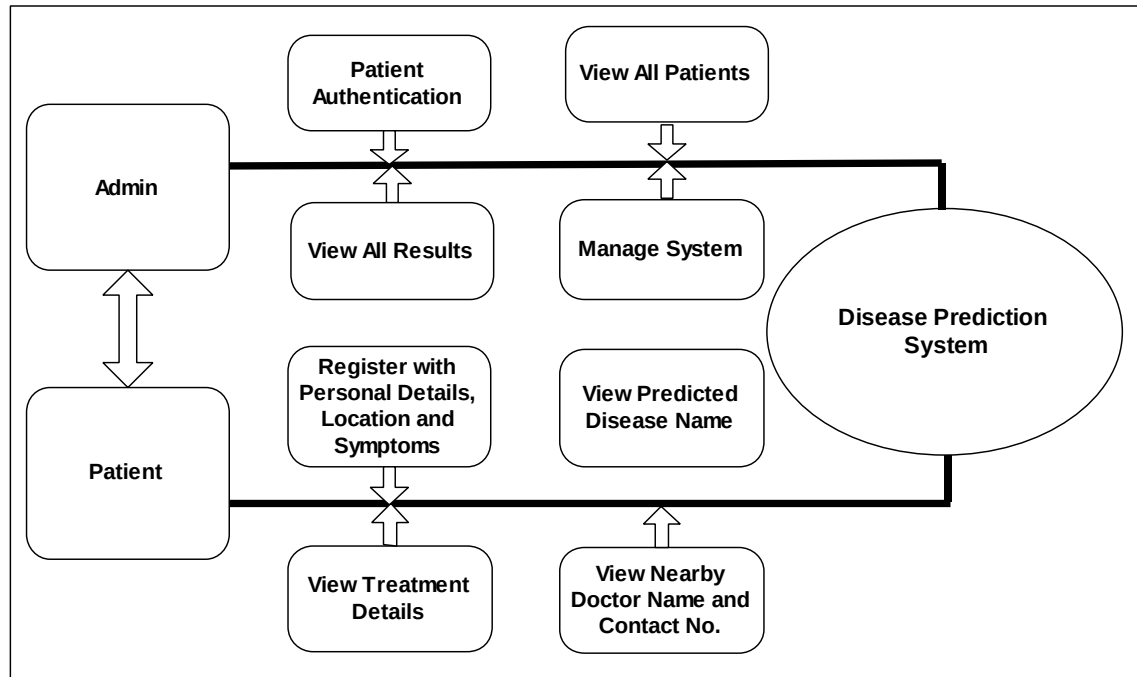


Fig: 01 Proposed System Architecture

IV. CONCLUSION

Prediction of accurate human disease based on a patient's basic symptoms is one of the essential topics in medical diagnosis. The proposed work is to classify the different diseases according to the symptoms of the patient before recommending treatments for the prevailing general diseases. This will also provide a remedy for calculated particular diseases. People can self-analyze their health state and can take precautions as per the results. It would help the practitioners / Doctors to analyze the health state of the patient and based on that the manual diagnosis of the disease can also be possible by using the disease prediction system. We used Support Vector Machine (SVM) and Naive Bays classification techniques to predict the exact disease name. As our project's main focus is providing medical assistance to people living in rural areas to provide them with free treatment for general diseases which they tend to neglect. This will provide an early diagnosis of the disease which is not possible with the help of manual diagnosis.

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