International Journal of Early Childhood Special Education (INT-JECSE)

DOI:10.9756/INTJECSE/V14I5.98 ISSN: 1308-5581 Vol 14, Issue 05 2022

AN EFFICIENT WAY TO PREDICT THE DISEASE USING MACHINE LEARNING

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Abstract

For the management of a hospital's administrative, financial, and clinical components, a system is essential in the healthcare sector. Thanks to developments in data mining in the biomedical and healthcare fields, accurate analysis of medical data support early sickness identification, patient treatment, and community services. The accuracy of the investigation degrades when the medical data is of low quality. Additionally, various localized illnesses manifest differently in different places, which may make predicting disease outbreaks more challenging. The suggested method includes machine learning approaches for accurate sickness incidence prediction in groups that are prone to illness.

On the basis of actual hospital data, it evaluates the various estimating methods. To solve the problem of incomplete data, it employs a latent component model to rebuild missing data. It was put to the test on a chronic localized ailment called cerebral infarction. To evaluate the hospital's structured and unstructured data, it uses the Machine Learning Decision Tree approach. To predict potential illnesses and hospitals, it mines data sets. To our knowledge, neither form of data has been the focus of any previous study in the field of medical big data analytics. Our

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proposed method has a calculation exactness of 94.8 percent and a convergence time that is quicker than the Decision tree disease risk prediction algorithm when compared to different widely used estimation techniques.

Keywords: Health Dataset Analysis, Machine learning, Health care Methodology, Disease Prediction, Health Care Service

I. .INTRODUCTION

China had 991,632 medical facilities in total as of November 2016, up from November 2015, according to data from the National Health and Family Planning Commission. But access to healthcare remains a major barrier to China's ability to maintain a living standard. More than 45% of outpatients must wait more than two hours after registration, although only 85% must wait longer than 10 minutes for the doctor's inquiry, according to a survey done at Peking University First Hospital, one of Beijing's most renowned institutions.

In China's 776 Top-Class hospitals1, this is a common occurrence. This is due to the fact that many hospitals receive little publicity, making them unfamiliar to the vast majority of patients. No matter how critical the disease, people are forced to travel to those crowded, well-known hospitals since they have no way of knowing if a better, less crowded hospital is nearby. In actuality, the majority of outpatients with mild illnesses may anticipate prompt care and have little faith in the hospital's capacity to help. It's crucial to find a quick and simple way to learn about the crowd situation and the fundamental facts about the neighborhood hospitals. There are many ways to count crowds, including via video or a beacon.

However, these solutions rely on wireless networks or surveillance data, and no business or non-governmental group is able to gather this information from all hospitals in a single city.

II.LITERATURE SURVEY

Analytical accuracy worsens when the quality of the medical data is subpar. Furthermore, it might be challenging to forecast when a localized disease would spread since various localized diseases have unique features. The majority of recent research, however, concentrated on

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structured data. Unstructured and semi-structured data cannot be handled in a suitable manner. The proposed system will take into account both structured and unstructured data. By using the Machine Learning algorithm, the analysis's accuracy is increased. A machine learning-based technique for individualized and affordable Alzheimer's disease screening Particularly early in the illness's course when only mild cognitive impairment is visible, Alzheimer's disease is notoriously challenging to detect.

However, there would be huge advantages to enhancing the diagnosis procedure because therapy is most likely to be successful at this point. We describe and assess a machine learning approach for a personalized and economical diagnosis of Alzheimer's disease. It computes the most insightful or economical sequence of biomarkers to diagnose patients and locally weights learning to customize a classifier model to the patient. We separated AD patients who progressed to AD within a year from those who did not use ADNI data, as well as MCI patients who did. Similar to the patient, the approach was used.

As a consequence, it could help in clinical settings and in the tailored and efficient identification of Alzheimer's disease. Influence of Weather on Hand, Foot, and Mouth Disease Incidence in City, Northwest China

In addition to investigating the impact of different climatic circumstances on the incidence of hand, foot, and mouth illness, the major objective of this study is to establish scientific foundations for preventing and forecasting the prevalence of hand, foot, and mouth disease in northwest China. Correlation analysis, multiple linear regression, and exponential curve fitting techniques were employed to collect data on illnesses and weather from 2008 to 2010. A total of 2688 cases of HFM were recorded between 2008 and 2010, with an annual incidence of 47.62 per 100,000. The average prevalence of HFM in Li District, M County, G County, and Tibetan Autonomous County was 42.69, 38.52, 65.92, and 49.18 per 100,000, respectively.

Although it had a definite seasonal peak, this sickness was present in Wifi City all year round. Generally speaking, the incidence rose to begin in April and reached its peak in May, June, and July, respectively.

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The second peak always happened in September or October. The disease pandemic was affected differently in four locations by several climatic factors, including average temperature, relative humidity, air pressure, rainfall, and evaporation capacity. Creating a System for Detecting and Classifying Disease Stages The degrees of disease severity in different plants have frequently been assessed using spectral data. The plant's disease phases have not been determined using this data, nevertheless. This study's objective was to develop a spectral disease index that would be able to identify the phases of wheat leaf rust disease at various DS levels. In order to meet the objectives of the study, the reflectance spectra of diseased leaves with varying symptom percentages and DS levels were measured using a spectroradiometer.

The pure spectra of various disease symptoms were then examined at the leaf scale, and a novel function was developed to identify the wavelengths most sensitive to disease symptom fraction. The reflectance spectra obtained at 675 and 775 nm were the most sensitive. Finally, a new SDI was developed to differentiate between three stages of illness at the canopy level utilizing the normalized difference between DS and the ratio 675/775. In terms of enhancing disease detection stages for precise plant protection, the suggested SDI shows potential. The development of machine learning models for heart disease diagnostics and an HDPM have been covered in a variety of literary genres.

III.PROPOSED SYSTEM

Any hospital can use the hospital recommendation system to replace their present manual, paper-based approach. To deliver these services efficiently and cut down on the time and resources now needed for the activity, the new system will control the following information: patient information. We have to advise individuals around any hospitals with a success rate to conduct an internet search.

IV.IMPLEMENTATION AND RESULTS

A machine-learning algorithm uses decision trees for classification. Using supervised machine learning techniques called decision trees, the data is continuously divided based on a parameter (you explain what the input is and what the related output is in the training data). The

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tree may be explained using two components: decision nodes and leaves. The leaves stand-in for the choices or results. Additionally, the decision nodes segregate the data.

The K-nearest tree approach, sometimes referred to as lazy learning, is a type of instance-based learning in which the function is only locally approximated and full computation is deferred until after classification. One of the most fundamental machine learning algorithms is the k-NN approach. When using k-NN classification or regression, the neighbors are selected from a set of objects whose class or property value is known.

A: Login Module

When you initially access the website, this is what happens. A legitimate phone number and a password that the user establishes during registration are required to use the app. The user is successfully logged into the app if their information matches that in the database table; else, a message of login failure is displayed, and they must provide precise information. A link to the registered activity is also supplied during the registration of new users.

Fig 1: Login

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B: Registration Module

Before signing in, a new user must register on the website in order to utilize it. By selecting the register button during the login step, the registered activity is opened. The entire name, password, and phone number of a new user are required to establish an account. The user must reenter the password in the confirm password textbox to validate it. The user is sent to the login action after filling out all of the text boxes and clicking the register button, which sends the data to the database. A registered user must log in before they may access the app. To ensure that the software runs well, all textboxes are validated.

No textbox, including those for name, contact, password, or confirm password, will be left empty during registration since all of the information in them is necessary. The program will display a message noting that information is needed in each register if any of the textboxes are left blank.

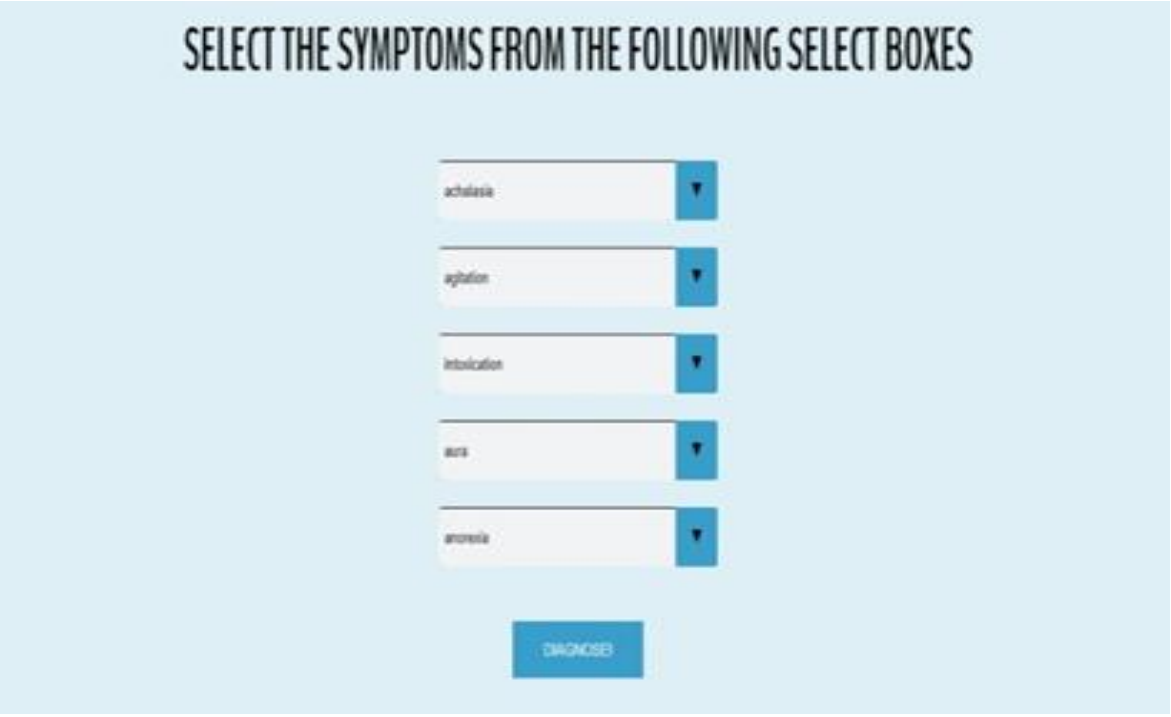

Fig 2: Registration

C: Disease prediction

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The patient will outline the symptoms that his disease is causing him to experience. The technology will quiz him about his illness, identify the condition from the patient's symptoms, and suggest doctors based on the findings.

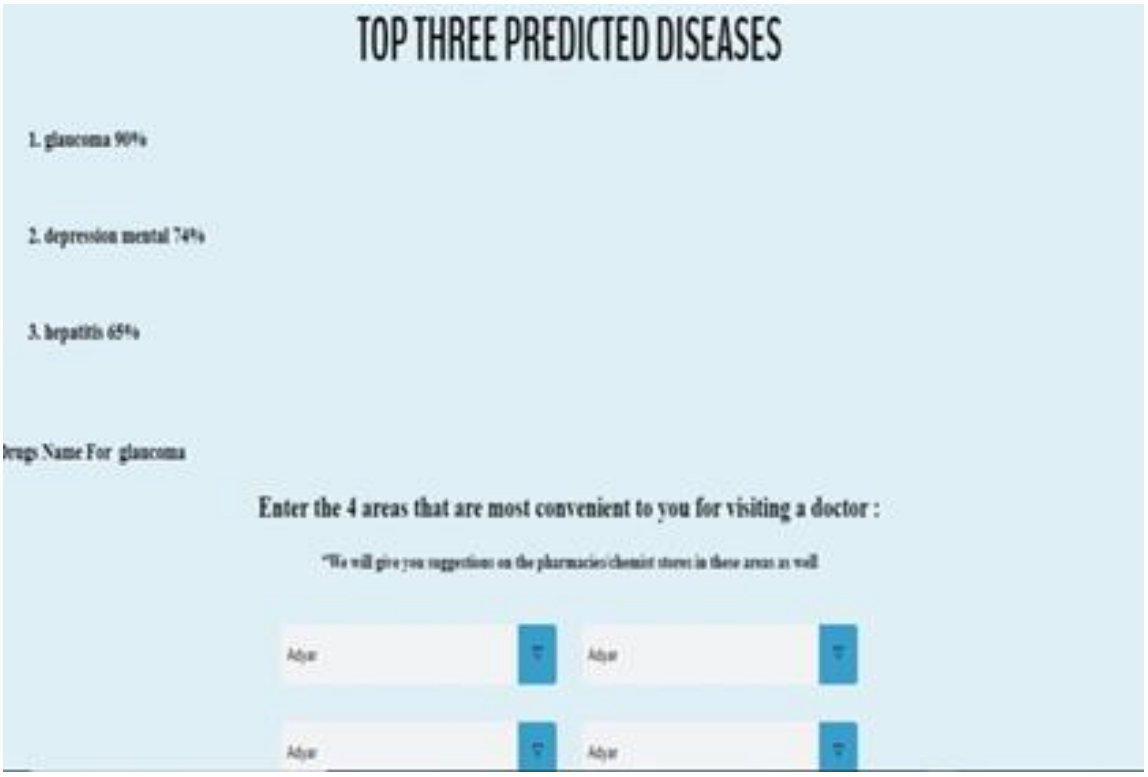

Fig 3: Disease prediction

D: Side Effect Intimation

This lesson will teach us how to create and use pharmaceutical side effects, depending on how to use comments to analyze a condition.

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Fig 4: Side Effect Intimation

V.CONCLUSION

In this study, we propose a system for answering drug-related questions to help with medication prescriptions. The major concern is how to get and evaluate replies based on inadequate data while still enabling customization to accept both accurate and close matches when queries deal with incomplete and noisy data responses. To help customers understand ranking results and maybe hone their queries, we all present information in a user-friendly manner.

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