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A Survey on Multiple Human Disease Detection System

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Abstract: *This project is an attempt to help one to predict the disease he/she is having through the symptoms and the correct readings of the bodily vitals needed. There are times when people keep on ignoring health issues due to high medical fees. This may lead to severe issues later and even death. If not covered by insurance, medical bills can be a menace. This website is an approach in reducing the effort of a normal person by estimating the kind of disease one has and its severity. We have designed a disease prediction system using multiple machine learning algorithms. Based on the symptoms, age, and gender of an individual, the diagnosis system gives the output giving the information about whether the user is suffering from that particular disease or not. According to the severity, some diet plans and some exercises which can minimize the effects of the disease to some extent are also provided. It provides a simple yet effective approach for predicting the disease, if the provided values of vitals are accurate. The user will experience a simple yet effective User Interface and pleasing design.*

Key Word*: Disease Prediction, Machine Learning Algorithm, Supervised Learning, Diagnosis System, User Interface.*

I.INTRODUCTION

Human life is evolving every single day, but is the health of the generation improving or declining? Life is full of uncertainty. Every now and then we come across many people suffering from fatal health issues due to late identification of diseases. The study says, one in two Indian diabetics are unaware of their condition. Nearly 463 million people in the world have diabetes. One in four deaths in India are now because of CVDs with ischemic heart disease and stroke responsible for more than 80% of this burden. The study estimates more than 50 million people in the world, considering the adult population, would be affected with chronic liver disease. But, it can be prevented by identifying the disease in its early stage. The project "Disease Prediction using Machine Learning" is developed to identify general disease in earlier stages. Now-a-days, people put health as a secondary priority, which leads to various problems. According to research, 40% of people ignore the symptoms, due to fear of facing financial issues or other generic reasons. Many cannot afford to consult a doctor or some are very busy and have a tight schedule, but ignoring the recurring symptoms for a long period of time may have severe consequences to their health. According to research 70% of people in India suffer from common diseases and the mortality rate is 25%, mostly due to ignorance in early stages. The main motive to develop this project is that a user can conveniently have a check-up of their health, if they have any of the symptoms.

Due to an increased amount of data growth in the medical and healthcare field the accurate analysis on medical data which has been benefited from early patient care. With the help of disease data, data mining finds hidden pattern information in the huge medical data of the data set. We proposed a disease prediction platform, based on the vitals of the patient. Our Disease web application predicts the occurrence of heart disease, diabetes & liver disease. We have also provided a proper diet plan according to the diseases. Along with it, we have also provided an about page which gives information about the symptoms & information about the diseases.

II.LITERATURE SURVEY

In this paper [1] "Multiple Human Disease prediction using Machine Learning over Big Data". Big data is the fastest concept in the current trend, so this concept is applied in more fields. Big data is most widely used in every field because it is very large. Big data is applied in the medical field. Both sides develop better growth in both fields, that is, big data is applied in medical fields and the medical fields at the same time increases the growth in the big data field. Big data helps to achieve better growth in the medical and health care sectors. It additionally, provides more merits gives, (i) medical data analysis with accuracy, (ii) early prediction for disease, (iii) patient-oriented data with accuracy, (iv) the medical data, is securely stored and used in many places, (v) incomplete regional data are reduced and give the accurate result. The goal of the concept is to choose the region and collect the hospital data or medical data of the particular selected region, this process is using the machine learning algorithm. The advantages of the concept is, better feature description and better accuracy, and the disadvantages of this system is, this feature is only applicable for the structured data so it is not good in disease description.

Authors in this paper [2] have proposed the concept of machine learning-based disease prediction using big data to overcome the machine learning drawbacks. The smooth progress of big data is moved in the biomedical and healthcare communities in hospitals for accurate results in any experiment result. This concept is (a) reduces the unfinished data and (b) effective disease prediction.

The paper [3] author has presented the info mining concept "Multiple Human Disease prediction using Machine Learning". The best growth of the stage is developing that technique into the healthcare basis, the data analysis is an important part of every field. Data mining predicts the information for healthcare is called rapid growth of the medical care field. The existing one is designed for the purpose of (i) analyzing, (ii) managing, (iii) predicting healthcare data, it is to describe the overall healthcare systems.

Authors, presents the survey paper [4] for "Multiple Human Disease prediction using Machine Learning over Big Data". Can develop the medical specialty basis this concept is applied to produce the medical data into mass medical data, which means the data which is enlarged. The goal of this concept is targeted: the simplest data is stored into the space of medical massive data analysis, called "medical data analysis in massive collection". It produces the accuracy and it reaches the 4.8% speed faster than the CNN-UDRP. It only focuses on these three data, (a) structured data, (b) text data, (c) structured and text data. In this proposed system it improves the medical data oriented term.

In this paper [5] the author has presented, "personalized disease prediction care from harm using big data", for healthcare analysis. This concept describes the medical field as a rich data industry because it holds healthcare records, also. The daily treatment records are increased every day, that is it includes the number of transactions, and the patient information is stored and retrieved from the database. The medical treatment records are updated every day because every day improves the patient's health improvements based on treatment. It gives the right solutions for various sorts of diseases.

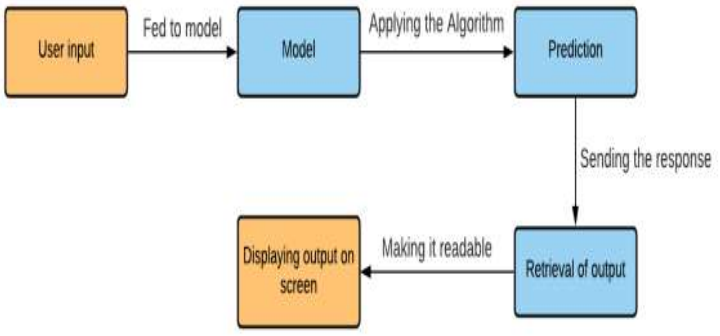
III.METHODOLOGY

The purpose of this project is to provide knowledge of key aspects of neural networks and machine learning techniques in a practical, easy way. The sub - projects included are:

- Detecting Parkinson's Disease
- Prediction of Chronic Kidney Disease
- Prediction of Liver Disease using PyCaret
- Prediction of Heart Disease
- Prediction of Diabetes

In this project, we have made it easy for the user to predict whether he/she has a particular disease or not. In the homepage, the brief overview of our website is shown, which will help the users to figure out the contents inside the website. There are five dropdown menus, for, parkinson disease, chronic kidney, liver, heart and diabetes, each containing the "Predict", "About the disease", and "Exercise to follow" sections. In the "About the disease" section, information of the disease is given, and in the "Exercise to follow" section, the methods to prevent that particular disease is given. The "Predict" section contains the main highlight of our website. When the user enters this section, he/she is prompted to fill a series of input fields, based on which, our models intelligently predict whether that person has a particular disease or not. This is done by using the Machine Learning algorithms for Classification. We have used Gradient Boosting Classifiers for prediction of Diabetes and Random Forest Classifiers for prediction of Liver Disease and Heart Disease. These models are trained to have very high accuracy on the given dataset, which enables them to predict the outcome correctly for most part.

When the user enters the data, it is fed as an input to the respective model that we are using for that disease. Based on that input, the output is calculated, which is a binary number (0 or 1, where 0 indicates that the person is healthy and 1 indicates that the patient is suffering from the disease). This output is retrieved from the model, and is transferred into a statement of the patient being healthy or not, and is rendered on the screen. Along with the outcome, the graph is also displayed, which shows the trend of occurrence of the respective disease with respect to age group. Here is a brief outline of how our model works:



IV.FUTURE SCOPE

There are many possible improvements that could be explore to diversify the research by discovering and considering extra features. Due to time boundation, the following work required to be performed in future. There is plan to use more classification techniques methods, different discretization techniques, multiple classifier voting methods. Would like to use

different rules such as association rule and various algorithms like logistic regression and clustering algorithms. In future, willing to make use of filter based feature selection methods in order to achieve more appropriate as well as functional result.

V.CONCLUSION

The use of different ML algorithms enabled the early detection of many maladies such as heart, kidney, liver, Parkinson, diabetes diseases. Throughout the literature, widely used at prediction, while accuracy was the most used performance metric.The CNN model proved to be the most adequate at predicting common diseases. Furthermore, SVM model showed superiority in ac-curacy at most times for kidney diseases and PD because of its reliability in handling high-dimensional, semi-structured and unstructured data. Finally, the LR algorithm proved to be the most reliable in predicting heart diseases.

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