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Heart Disease Prediction Using Machine Learning

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Abstract: In this modern times, Heart Disease prediction is one of the most critical tasks in the world. In recent times, a lot of people have died due to heart disease. Machine learning plays a very important role in training and testing the huge amount of data in the medical field. Heart disease prediction is a crucial task to create and evaluate the prediction process to avoid heart disease and alert the patient before he/she suffers from disease. This research predicts the chances of Heart Disease and says whether the patient has heart disease or not by implementing different machine learning techniques such as Decision Tree, Logistic Regression. Finally, this study shows a result of heart disease and Results are obtained and comparative experiments have shown that the proposed approach can be utilized to give the prediction to the patient.
Keywords: Machine Learning, Heart Disease, Logistic Regression, Heart Risk, Classification Algorithm.

I. INTRODUCTION

The work proposed in this model focuses mainly on various methods that are employed in heart disease prediction. In the human body the heart is the main role and it regulates the blood to the whole body. Basically if the heart can't regulate proper blood it causes a huge problem to the body. Any misleading things can affect the heart disease and also the chance of getting a heart stroke. In today's modern era, heart disease is one of the primary reasons for common deaths in this generation due to their luxury and unhealthy lifestyle like huge alcohol, fast food fat food and smoking and stress.*(1)*

World Health Organization said that in every year lakhs of people are suffering from this heart disease and they are losing their lives A good and healthy measures can safe from the heart disease earlier .The main effective is need to improve to create prediction system and help the poor to save from the lives. Heart diseases are found as the prime source of death in the world due to modern era luxury and unhealthy food. This proposed work makes an attempt to evaluate heart diseases at an early starting stage to avoid huge losses. In the medical field, machine learning algorithms and techniques can be used to predict various heart diseases. The main goal of this model is to provide a tool for doctors to detect heart disease at an early stage.This model will help to prevent and detect the patients earlier from the heart disease. *(1)*

II. LITERATURE REVIEW

Bo Jin, Chao Che (2018) Introduced a "Predicting the Risk of Heart Disease With EHR" model designed by applying Artificial neural networks. This paper used the electronic health record data from real-world datasets related to patients' heart disease to perform the analysis and predict the heart disease. We implemented a one-hot encryption model that diagnoses events and heart risk failure events victimization, the essential principles of an expanded memory in the neural network model. By analyzing the results, we predicted to reveal the importance of respecting the results of nature in the records *(2)*

Fahd Saleh has designed and introduced a ML model comparing five types of different algorithms. A Rapid Miner tool was used which resulted in higher accuracy compared to Matlab software and Weka tools for data mining. In this research the results of Decision Tree, Logistic Regression, Random forest, Naive Bayes and SVM classification algorithms were used. Decision tree algorithm comes with the highest accuracy*(3)*

Anjan Nikhil Repaka, ea tl., proposed a system that uses NB (Naïve Bayesian) techniques for classification of dataset and AES (Advanced Encryption Standard) algorithm for secure data transfer for prediction of disease.*(4)*

K.Prasanna Lakshmi, Dr. C.R.K.Reddy (2015) created and implemented the model called fast rule based heart disease prediction with associative technique the author used chi-square test to predict the disease with some associative techniques from the model.*(5)*

M.Satish, et al. created and done with naïve bayes and decision tree models to predict the heart disease model and he named this model called pure classifier association rule. He used a heart disease data warehousing dataset for this model.*(6)*

Aakash Chauhan (2018) introduced "Heart Disease Prediction using Evolutionary Rule Learning". This study reduces the manual task that additionally helps in extracting the information (data) directly from the electronic records. To extract this type of rule, we have to apply some frequency of pattern growth with the data mining on the patient's dataset. This will evaluate and try to reduce the cost of services and shown that majority of the rules helps within the best prediction of heart disease *(7)*

Ashir Javeed (2017) introduced "A Effective Learning System based on Random Search Algorithm To Detect Heart Disease". This project uses a random search algorithm to detect the disease from factor selection and random forest model for diagnosing cardiovascular and heart stroke disease by using the different algorithms called Random Search Algorithm by using the patient's dataset.This model is principally optimized for using grid search algorithmic programs.

Two type forms of experiments are used in this cardiovascular disease prediction. In the first form, a random forest model is developed and used to predict the model and in the second form the proposed Random Search Algorithm based random forest model is developed. This methodology is efficient and less complex than conventional random forest models. Compared to conventional random forest it produces 3.3% higher accuracy than the random search algorithm. The proposed learning system can help the doctors to improve the quality of heart failure detection

In this Project, a literature survey of review delivers the concept of machine learning techniques has been studied for heart disease from the above listed papers. Using some of the machine learning algorithms it can provide promising results to bring the most effective accuracy in analyzing the prediction model.

The main aim of this project/paper is predicting the heart disease/heart stroke of the patient by using machine learning algorithms like logistic regression to find the prediction in the form of 0 and 1's. In this project the user can get to know the output from these 14 types of input attributes. Then 14 attributes are going to test and train data for the accurate and efficient results to predict the disease.

III.   CONCLUSION

This component will help in predicting the severity of the heart stroke/cardiovascular disease. After the successful model user will input data, the weights will be cross checked with the given inputs. The prediction of this heart disease system will consist of 13 attribute values that will be input to the system. The target value is zero or one The predicted will be generated in the form of a 'yes' or 'no' format considering all the risk factors whether they lie in the criteria as per the model is trained

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