VISUALIZING AND PREDICTING HEART DISEASES WITH AN INTERACTIVE DASH BOARD

ABSTRACT:

The leading cause of death in the developed world is heart disease. Therefore, there needs to be work done to help prevent the risks of having a heart attack or stroke. In this project, numerous data mining techniques and machinelearning models are described for visualizing and predicting heart disease. Building an important model for the medical system to forecast heart diseaseor cardiovascular illness requires the use of data mining and machine learning. Medical professionals can assist patients by identifying cardiovascular illness before it manifests. Data analytics is considered as a cost-effective technology in the recent past and it plays an essential role in healthcare which includes new research findings, emergency situations and outbreaks of disease. The use of analytics in healthcare improves care by facilitating preventive care and EDA is a vital step while analyzing data. The use of analytics in healthcare improves care by facilitating preventive care and EDA is a vital step while analyzing data. An important clinical challenge is the ability to forecast heart disease. But occasionally, a number of methods to forecast heart disease in data mining are found. Numerous methods for visualizing and predicting heart disease were discussed in this survey.

INTRODUCTION:

Several disorders that affect the human heart are referred to as heart disease. Heart disease is a general phrase that coversa wide range of heart-related medical conditions. The irregular health state that directly affects the heart and all of its components is characterized by these medical conditions. A heart attack, stroke, or chest pain can all be caused by illnesses that are generally made possible by restricted or obstructed blood arteries due to heart disease. Heart diseases are also characterized by other illnesses that affect the muscle, valves, or rhythm of the heart. Heart disease comes in many different forms. Heart failure (HF) and coronary artery disease are the two most comparable forms (CAD). Heart failure (HF) is mostly brought on by a blockage or

narrowing of the coronary arteries. Blood for the heart is also delivered throughcoronary arteries. Data mining is a complicated process that uses intricate algorithms to extract implicit, previously undiscovered possibly useful information known as knowledge from medical data. Data Mining accomplish the job, which centers on gathering a sizable amount of data, managing them, and creating reports on the data by taking out the knowledgeable information.

LITERATURE SURVEY:

Bo Jin, Chao Che, and colleagues (2018) suggested a neuralnetwork-based model for "Predicting the Risk of Heart Failure with EHR Sequential Data Modeling." This study conducted an attempt to foretell congestive heart disease using electronic health record (EHR) data from real-world datasets connected to the condition. To represent the diagnostic eventsand predicted coronary failure events using the fundamental tenets of an extended memory network model, we typically use one-hot encryption and word vectors. By examining the outcomes, we often highlight how crucial itis to respect the sequential character of clinical records.

"Heart Disease Prediction via Evolutionary Rule Learning," by Aakash Chauhan et al. (2018). In addition to assisting in directly extracting information (data) from electronic records, this study eliminates the manual task. We used frequent pattern growth association mining on the patient dataset to produce strong association rules. This will facilitate (assist) in reducing the number of services and demonstrate how the vast majority of regulations contribute to the most accurate prognosis of cardiovascularillness.

For the prediction of cardiovascular disease, two types of experimentsare employed. In the first form, merely a random forest model is created, while

in the second experiment, a random forest model based on the suggested Random Search Algorithm is created. In comparison to the traditional random forest model, this methodology is effective and simpler. It produces 3.3% greater accuracy when compared to traditional random forests. The suggested learning approach can aid medical professionals in better heart failure identification.

Senthil Kumar Mohan, Chandrasekar Thirumalai, "Effective's Heart Disease Prediction Using Hybrid Machine Learning Techniques" (2019) was an effective technique utilizing hybrid machine learning methodology. The hybrid method combines the random forest and linear approaches. For prediction, the dataset and attribute subsets were gathered. The pre-processed cardiovascular disease knowledge (data) set was used to choose a subset of specific attributes. Hybrid approaches were used to diagnose cardiovascular illness after prep-processing.

The 2019 paper "Prediction and Diagnosis of Heart Disease Patients Using Data Mining Technique" was written by Mamatha Alex P and ShaicyP Shaji. The Artificial Neural Network, KNN, Random Forest, and SupportVector Machine techniques are used in this article. Artificial Neural Networks have superior accuracy when compared to the previously described categorization algorithms in data mining to predict heart disease.