

## Literature Survey

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Team ID	PNT2022TMID53250
Team Members	Bharanidharan S , Elakkiya S, Pooja T S , Reethika S
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### Abstract:

This document describes various methods of data mining, big data and machine learning models for predicting the heart disease. Data mining and machine learning plays an important role in building an important model for medical system to predict heart disease or cardiovascular disease. Medical experts can help the patients by detecting the cardiovascular disease before occurring. Now-a-days heart disease is one of the most significant causes of fatality. The prediction of heart disease is a critical challenge in the clinical area. But time to time, several techniques are discovered to predict the heart disease in data mining. In this survey paper, many techniques were described for predicting the heart disease.

**Key Words:** Data mining, prediction, cardiovascular disease, heart disease, machine learning

### Introduction:

Heart disease defines a range of conditions that affect human heart. The name "heart disease" is often used commonly with the name "cardiovascular disease". Heart disease is a term that allow to a large number of medical circumstances related to heart. These medical circumstances characterize the irregular health condition that directly affects the heart and all its parts. Heart disease generally allows to some conditions that involve narrowed or blocked blood vessels which can lead to a heart attack, stroke or chest pain. Other heart conditions, such as those that affect your heart's muscle, valves or rhythm, also are considered forms of heart disease .There are various types of cardiovascular disease. The most similar types are heart failure (HF) and Coronary Artery Disease (CAD). The main root cause of heart failure (HF) is occur due to the blockade or narrowing down of coronary arteries. Coronary arteries also supply blood to the heart.

“Effective Heart Disease Prediction Using Hybrid Machine Learning Techniques” proposed by Senthilkumar Mohan, Chandrasegar Thirumalai et al. (2019) was efficient technique using hybrid machine learning methodology. The hybrid approach is combination of random forest and linear method. The dataset and subsets of attributes were collected for prediction. The subset of some attributes were chosen from the pre-processed knowledge(data) set of cardiovascular disease

.After prep-processing , the hybrid techniques were applied and diagnosis the cardiovascular disease [4].

M.Satish, et al. (2015) used different Data Mining techniques like Rule based, Decision Tree, Naive Bayes, and Artificial Neural Network. An efficient approach called pruning classification association rule (PCAR) was used to generate association rules from cardiovascular disease warehouse for prediction of Heart Disease. Heart attack data warehouse was used for pre-processing for mining. All the above discussed data mining techniques were described [6].

Mamatha Alex P and Shaicy P Shaji (2019) designed "Prediction and Diagnosis of Heart Disease Patients using Data Mining Technique". This paper uses techniques of Artificial Neural Network, KNN, Random Forest and Support Vector Machine. Comparing with the above mentioned classification techniques in data mining to predict the higher accuracy for diagnosing the heart disease is Artificial Neural Network[9].

### **Literature survey:**

Aakash Chauhan et al. (2018) presented "Heart Disease Prediction using Evolutionary Rule Learning". This study eliminates the manual task that additionally helps in extracting the information (data) directly from the electronic records. To generate strong association rules, we have applied frequent pattern growth association mining on patient's dataset. This will facilitate (help) in decreasing the amount of services and shown that overwhelming majority of the rules helps within the best prediction of coronary sickness [2].

Ashir Javeed, Shijie Zhou et al. (2017) designed "An Intelligent Learning System based on Random Search Algorithm and Optimized Random Forest Model for Improved Heart Disease Detection". This paper uses random search algorithm (RSA) for feature selection and random forest model for diagnosing the cardiovascular disease. This model is principally optimized for using grid search algorithmic program.

Two forms of experiments are used for cardiovascular disease prediction. In the first form, only random forest model is developed and within the second experiment the proposed Random Search Algorithm based random forest model is developed. This methodology is efficient and less complex than conventional random forest model. Comparing to conventional random forest it produces 3.3% higher accuracy. The proposed learning system can help the physicians to improve the quality of heart failure detection [3].

### **Conclusion:**

In this paper, a literature survey of review delivers the concept of various techniques has been studied for diagnosing the cardiovascular disease. Use of big data,

machine learning along with data mining can provide promising results to bring the most effective accuracy in analysing the prediction model. The main aim of this paper diagnosing the cardiovascular disease or the heart disease and using different methods and many approaches to get prediction.

## **References:**

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