

Visualizing and Predicting Heart Diseases with an Interactive Dashboard

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1. Abstract

With the rapidly rising incidence of heart disease among young people, systems need to be put in place for early detection and prevention of heart disease symptoms. Because it is impractical for ordinary people to undergo expensive tests such as electrocardiograms frequently, there is a need for a practical and reliable system for predicting possible heart disease. To overcome this, we planned to develop a visualising dashboard using machine learning algorithm that collects data from various sources and predicts the heart diseases. The dataset has details such as heart rate per minute, heart function such as blood pressure, etc. The processed data is used to predict the likelihood of heart disease. The purpose of developing the dashboard is to predict the heart diseases by identifying variations in heart rate and blood pressure.

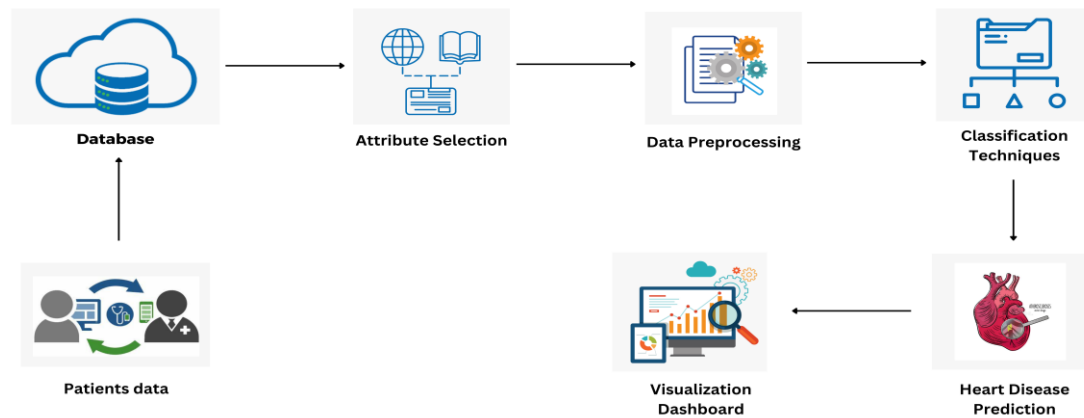
2. Introduction

Heart disease is a general term that includes many types of heart problems. Also called cardiovascular disease, it means a disease of the heart or blood vessels. Heart disease is the leading cause of death in the United States, but there are ways to prevent and treat many types of heart disease. Diagnosing heart disease is a challenging task that can enable automated prediction of a patient's heart disease to simplify further treatment. Because of this fact, the diagnosis of heart disease is of great interest to the medical community worldwide. A type of disease that affects the heart and blood vessels. Smoking, high blood pressure, high cholesterol, unhealthy diet, lack of exercise, and obesity can increase the risk of certain heart diseases. The most common heart disease is coronary artery disease (narrowed or blocked coronary arteries), which can cause chest pain, heart attack, or stroke. Other heart conditions include congestive

heart failure, arrhythmias, congenital heart disease (heart disease present at birth), and endocarditis (inflammation of the lining of the heart). Also called cardiovascular disease.

The proposed systems' main aim is to develop a machine learning model that predicts the various heart diseases which in turn visualize in the dashboard. At first the machine learning algorithm classifies the type of disease with the help of the given dataset such as heart rate per minute, heart function such as blood pressure, etc. The model analyses the data then it predicts the type of heart disease and that is visualize in the dashboard.

3. System Design:



4. Key objectives:

1. To predict the type of heart disease
2. To know the heart disease with the help of visualization dashboard
3. To apply the concepts of machine learning algorithms and data analytics

5. Literature Survey:

Year	Title	Proposed Idea	Limitations
2019	Effective Heart Disease Prediction Using Hybrid Machine Learning Techniques	Finding significant features by applying machine learning techniques resulting in improving the accuracy in the prediction of cardiovascular disease.	This study is highly desirable to direct the investigations to real-world datasets instead of just theoretical approaches and simulations.
2020	Heart Disease Prediction using Machine Learning	The proposed work predicts the chances of heart disease and classifies patient's risk level by implementing different data mining techniques	The result of this study indicates that the Random Forest algorithm is the most efficient algorithm
2016	Heart Disease Prediction Using Machine learning and Data Mining Technique	The goal of this study is to extract hidden patterns by applying data mining techniques, which are noteworthy to heart diseases and to predict the presence of heart disease.	Observed that applying reduced error pruning to J48 results in higher performance while without pruning
2018	Prediction of Heart Disease Using Machine Learning	Application which can predict the vulnerability of a heart disease given basic symptoms like age, sex, pulse rate etc.	The Big Data Technology like Hadoop can be used to store huge chunks of data of all the users worldwide
2021	Heart Disease Prediction based on Machine Learning and Deep Learning Techniques	The prediction model is projected with mixtures of various options and a number of other classification techniques.	Sample results of heart rate are to be taken at different stages of the same subjects

6. Conclusion:

Identifying the processing of raw healthcare data of heart information will help in the long-term saving of human lives and early detection of abnormalities in heart conditions. Machine learning techniques were used in this work to process raw data and provide a new and novel discernment towards heart disease. Heart disease prediction is challenging and very important

in the medical field. Our proposed solution predicts the heart diseases and shows the results as a visualization dashboard.

7. References:

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