

DESIGN AND IMPLEMENTATION OF CARDIAC DISEASE USING NAIVE BAYES TECHNIQUE

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ABSTRACT: The analysis and ideology of this project is mainly based on cardiovascular disease recognition by focusing on previous information and verified data.

To get this prediction at its best we are taking Naive Bayesian approach as our primary algorithm to predict risk factors regarding cardiovascular disease.

The drastic improvement of technology has Led to outstanding rise in digital health technology that being one in all the online application.

The prediction is mainly dependent on some attributes which are verified and highly responsible for the person to suffer with the heart disease. The factors which we are considering are as follows: age, BP, cholesterol, sex, blood sugar etc.,

The attributes which are verified and curated acts as input for the Naive Bayes theorem for predicting cardiovascular disease. The proposed system includes some stages from which the prediction can be done very profoundly compared to the existing system. The system includes following stages: Collection of verified data (Data set collection),

User registration(Website Implementation),implementing the system using Naive Bayesian Approach, Prediction(Predicting the results w.r.t the algorithm we approached and data sets included and final result whether they are suffering with Heart disease or not.

Keywords:

Cardiovascular disease, Datasets, Naive Bayesian approach.

INTRODUCTION:

Now a days people are suffering with various kinds of diseases and the major problems people are suffering is "CARDIAC PROBLEM" or any problem related to Heart. As the problem is becoming very common in our life we thought of building a profound solution with AI and ML techniques and algorithms so that we can make it easy to find whether we are suffering from heart disease or not

partially. The main reason we are building this system is that every person cannot have a knowledge of a specialist and all are not that much skilled in this field.

So, we can create a model with machine learning algorithm and techniques which can give the precise accurate result by taking some inputs from the user.

The Healthcare sector involves a vast amount of significant data related to patients, various diagnosis of the Heart diseases. Nowadays the hospitals are adopting the culture of hospital Information management system in order to handle their patients data systematically and effectively. Huge amount of data is produced by many systems which are represented by charts , graphs etc., Talking about the Medical domain, implementation of data mining in this field can yield in discovering and deriving valuable patterns and information which can be beneficial in performing clinical diagnosis.

EXISTING SYSTEM:

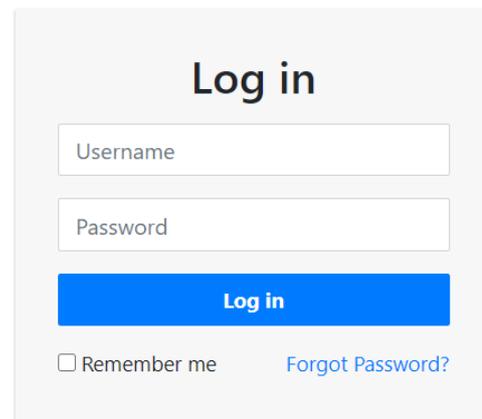
The existing system is used for predicting high risk of heart disease in patients. As the training set, pre processed data is considered. The Present system is working on Machine learning algorithms which includes Decision Tree classifier and Random Forest classifier, K Neighbors Classifier. In this Decision Tree Classification, It does the analysis by creating a decision tree based on which, it assigns the class values to each data point.

In this DTC, A small change in the data can cause a large change in the structure of the decision tree causing instability. Decision tree often involves higher time to train the model such that we need to change the existing system. In this system sometimes calculation can go far more complex compared to other algorithms. Since the existing system is using the Random forest Algorithm It requires much computational power as well as resources as it builds numerous trees to combine their outputs. Lot of decision trees leads to much time which is from Random forest Algorithm. In the Existing system we do not have an interface which is easily accessible.

PROPOSED SYSTEM:

In the Proposed System the outcome would be more analyzed with the Naive Bayesian approach. This algorithm works quickly and can save a lot of time. It is suitable for solving multi-class prediction problems. The Existing system takes more time comparatively, such that we can implement the System with Naive Bayesian Approach.

The research focuses on to build cost cutting and effective approach by the means of data mining techniques so that prediction can be enhanced more accordingly. Predicting heart disease with the help of numerous attributes/symptoms is highly elaborated. The present research utilizes Naive Bayesian technique for effectively enabling cardiac disease detection and thereby offering appropriate treatment. Supervising different medical factors and post operational period stands very crucial.



[Create an Account](#)

Fig(b):Demo Login Form

This is the demo of the Login-Form.

B) Information to Analyze the disease:

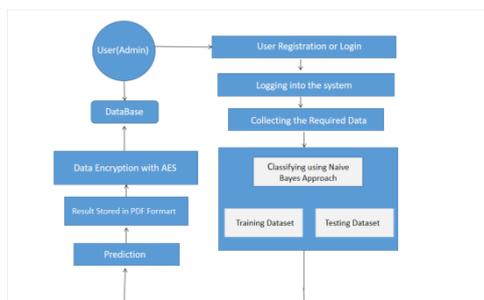
As we are developing the Heart disease prediction model we need some data to analyze whether certain person is suffering with the heart disease or he is not. So , These are the inputs we take from the Information Form.

- i. Age
- ii. Gender
- iii. Blood sugar
- iv. Cholesterol
- v. Chest Pain Type
- vi. Max Heart rate
- vii. Old peak
- viii. Slope peak exercise

By taking these data into consideration we will analyze the data using Machine learning Algorithm (Naive Bayesian) and which results whether person is suffering with Heart disease are not.

NAIVE BAYESIAN ALGORITHM:

Naive Bayes algorithm is a supervised learning algorithm, which is based on Bayes theorem and used for solving classification problems. This algorithm is mainly dependent on the probability of respective data which we are giving. It verifies and enhances the result w.r.t the true value and false value after classifying with respective data set given. It is one of the simple and most effective Classification algorithms which helps in building the fast machine learning models that can make quick predictions.



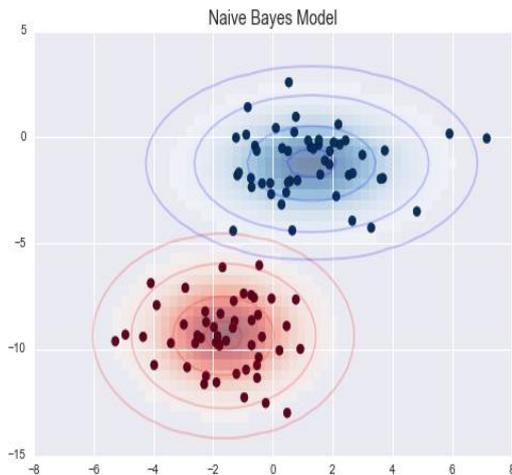
Fig(a) System Architecture

A) Designing website :

The proposed system is developed as a website such that the navigation and the reach towards the Heart disease predictor will be very flexible. The entire model consists of three parts.

- 1) Login-Form
- 2) Information-Form
- 3) Result

The design of website is entirely scripted with Hyper Text Markup Language, Cascading Style sheets, Java Script and Flask (Python Framework).



Fig(c) : Naive Bayes Approach Example Graph

RESULT:

In this model, we are predicting the heart disease with some specific verified inputs. We are using Machine learning algorithm namely Naive Bayesian Approach. The user will enter some values which the system needs and from the values which are given by the user the system will predict whether the user is suffering with the heart disease or not.

(Age, gender, chest pain type, BP, cholesterol, Fasting blood sugar etc..) From these values the model will analyse and with the Naive Bayesian approach the model will predict whether a person is suffering from heart disease or not.

CONCLUSION:

Data collection is carried out using numerous sources that are primary factors responsible for any sort of heart disease and thereby using a structure the database is constructed. The model focuses on establishing Heart Disease Prediction that takes into consideration the approach of NB (Naive Bayesian) classification and AES (Advanced Encryption Standard) algorithm for resolving the issue of heart disease prediction, it showed up that in regard to accuracy, the prevailing technique surpasses the Naive Bayes by yielding an accuracy of 89.77% in spite of reducing the attributes.

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