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 [ijircce@gmail.com](mailto:ijircce@gmail.com)

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# Heart Disease Prediction Using Hybrid Machine Learning Model

K. Thrilochana Devi<sup>1</sup>, K.Siva Nagaraju<sup>2</sup>, CH.Sri Hari<sup>3</sup>, A.Vijay Raj Kumar<sup>4</sup>

Assistant Professor, Dept. of Information Technology, Vasireddy Venkatadri Institute of Technology, Guntur,  
Andhra Pradesh, India<sup>1</sup>

B.Tech Student, Dept. of Information Technology, Vasireddy Venkatadri Institute of Technology, Guntur,  
Andhra Pradesh, India<sup>2,3,4</sup>

**ABSTRACT:** In today's era deaths due to heart disease has become a major issue approximately one person dies per minute due to heart disease. This is considering both male and female category and this ratio may vary according to the region also this ratio is considered for the people of age group. This does not indicate that the people with other age group will not be affected by heart disease.

This problem may start in early age group also and predict the cause and disease is a major challenge nowadays. Here in this project, we have discussed hybrid Model of Naïve Bayes and K-Nearest Neighbour and tools used for prediction of heart diseases.

**KEYWORDS:** Hybrid Model, Naive Bayes, K-Nearest Neighbour, Prediction.

## I. INTRODUCTION

Heart Disease Prediction Using Hybrid Machine Model can be used to predict the heart disease of a patient with details of his/her age, sex, weight, blood pressure, chestpain, smoking etc.. This model can be developed using the Machine Learning Models of Naive Bayes and K-Nearest Neighbour Algorithms. By using this Hybrid Model we can also improve the Accuracy.

To use this application user has to Login to the application using their Username and Password and the new users need to add by Admin. after the successful login an application is showed where user need to enter their details and check the heart disease.

## II. PROPOSED METHODOLOGY OF HYBRID MODELING

In the proposed system of Hybrid Machine Learning Model we use both the Naive Bayes and K-NN algorithms to process the data and predict the heart disease. To develop these two algorithms we use the Java for front-end and for back-end we use MySql. and these application is executed in the NetBeans platform. Also we have 6 Modules in the application.

### 1. Login Module:

This is the first activity that opens the website. User needs to provide a correct credentials, which user enters while registering, in order to login into the website. If information provided by the user matches with the data in the database table then user successfully login into the website else message of login failed is displayed and user need to re enter correct information.

### 2. Admin Module:

In this module, Admin can add new patient details and also the new user can be added by the admin, also admin can manage database details.

### 3. Quick Test Module:

In this module we can predict the disease with already registered patient details.

#### 4. Add Patient Module:

In this module we can add the new patient details and also predict the disease.

#### 5. Test Report Module:

In this module we can get the test result by entering the patient id.

#### 6. All Details Module:

We can find all patient details in this module.

### III. HYBRID MACHINE LEARNING MODEL MODELING

In this paper, we propose a hybrid machine learning model scheme that uses both Naive Bayes and K-NN for modeling to understand the both the algorithms we can define them below[1][2].

#### 1. Naive Bayes:

It is a classification technique based on Bayes' Theorem with an assumption of Independence among predictors. In simple terms, a Naïve Bayes classifier assumes that The presence of a particular feature in a class is unrelated to the presence of any other Feature.

For example, a fruit may be considered to be an apple if it is red, round, and about 3 inches in diameter. Even if these features depend on each other or upon the existence of the other features, all of these properties independently contribute to the probability that This fruit is an apple and that is why it is known as 'Naïve'. Naïve Bayes model is easy to build and particularly useful for very large data sets. Along with simplicity, Naïve Bayes is known to outperform even highly sophisticated .

#### 2. K-NN:

K-NN is a type of instance-based learning, or lazy learning, where the function is only approximated locally and all computation is deferred until classification. The k-NN algorithm is among the simplest of all machine learning algorithms. The neighbors are taken from a set of objects for which the class(for k-NN classification) or the object property value (for k-NN regression) is known.

STEP 1: BEGIN

STEP 2: Input:  $D = \{(x_1, c_1), \dots, (x_N, c_N)\}$

STEP 3:  $x = (x_1, \dots, x_n)$  new instance to be classified

STEP 4: FOR each labelled instance  $(x_i, c_i)$  calculate  $d(x_i, x)$

STEP 5: Order  $d(x_i, x)$  from lowest to highest,  $(i = 1, \dots, N)$

STEP 6: Select the K nearest instances to  $x$ :  $D_{kx}$

STEP 7: Assign to  $x$  the most frequent class in  $D_{kx}$  STEP 8: END

#### 3. Database:

The Database creation and manage the patient details can be done by the Admin And he can aslo add new users to the database.and also remove the existing patient details from database. for doing all of these Admin need to login into Mysql database first.

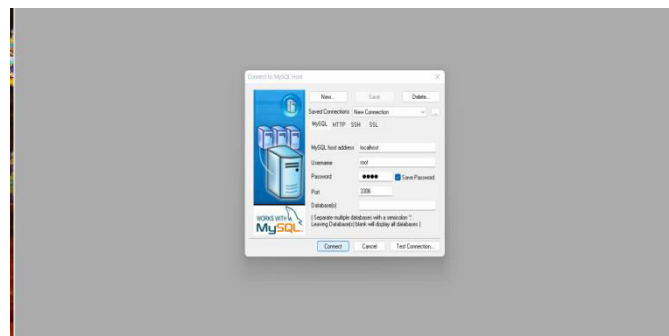


Fig1 :- Database login

After all the requirements done in the database then user can login to the application using correct credentials.

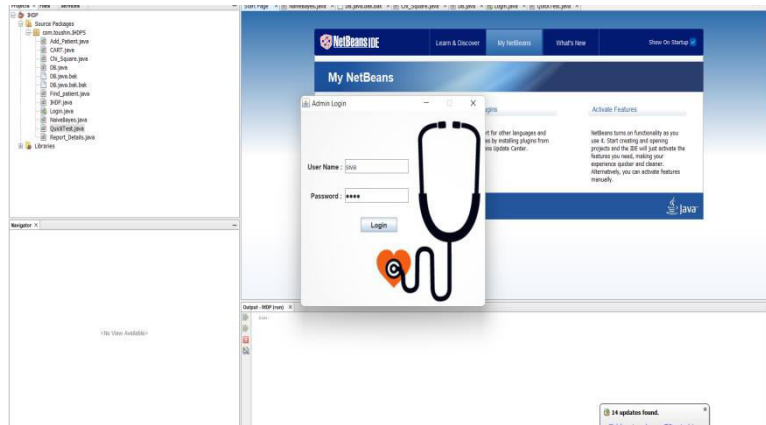


Fig2 :- Login Page

After the successful login then user need to check the heart disease by enter their details through GUI in the quick test module. and new patient can be add through add patient module.

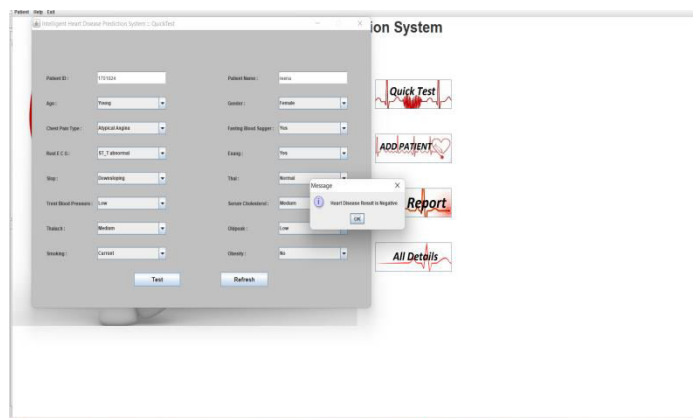


Fig 3:- Quick Test

The patient details can retrieve by entering their patient id in the Test Report module.

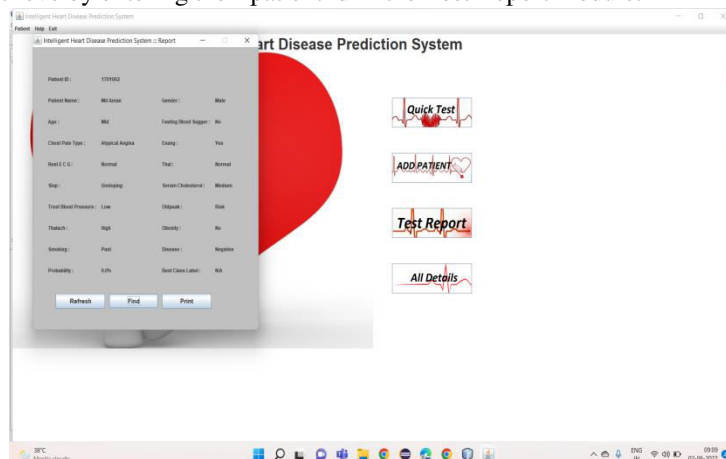


Fig4: Test Report

The all the patient details can be viewed in the All Details module.

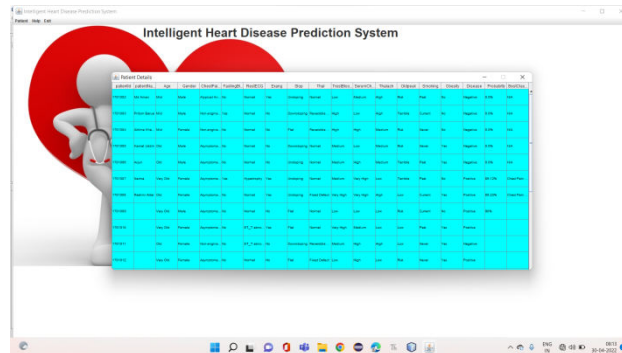


Fig5: All Details

#### IV. SYSTEM OVERVIEW

The phase of the project structure was designed to enable the research team to build iteratively of findings from each stage and to use this to guide subsequent stages of the research. Iterative working requires flexibility and, thus, despite the apparently linear structure, there was a degree of overlap between the stages. A brief overview of the stages is described below.

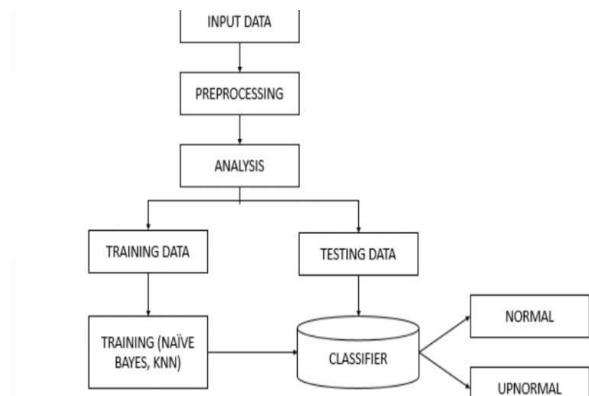


Fig6: System design

#### V. CONCLUSION

In this project, we propose an approach for answering patient queries to support knowing whether he has heart disease or not. Our focus is on how to obtain and rank answers based on incomplete information and provide personalization. To cope with incomplete and noisy data, we allow both exact and close matches when answering queries. We also present an intuitive approach to display answers to users, which aims to help users to understand the ranked results and possibly refine their queries. The purpose of doing project is to give accurate results to patients. We explored two algorithms naïve bayes and k-nearest-neighbour algorithm. Hybrid of these naïve bayes and KNN can give the results fastly

#### VI. FUTURE SCOPE

This project heart disease prediction using hybrid machine learning model has been developed in such a manner, that the future requirements of the hospital services are met. The project is flexible to adapt the changes efficiently without affecting the present system. In future, there can be a provision of reading the previous patients details in data base. We are also planning to implement the web page directly reads the result and displays Appropriate medicine and Available Doctor Details This is the future scope of our project.



#### REFERENCES

1. A Machine Learning Approach to Classifying Self-Reported Health Status in a cohort of Patients with Heart Disease using Activity Tracker Data.,YiwenMeng, William Speier, Member, ChrisandraShufelt, Sandy Joung, Jennifer E
2. Human Heart Disease Prediction System using Data Mining Techniques., Theresa Princy. R, J. Thomas
3. Predicting heart failure class using a sequence prediction algorithm., CarineBouRjeily , Georges Badr , Amir Hajjam Al Hassani , Emmanuel Andrea
4. Changes in Daily Measures of Blood Pressure and Heart Rate Improve Weight-based Detection of Heart Failure Deterioration in Patients on Telemonitoring., Rohan Joshi and Illapha Cuba Gyllensten
5. Heart Disease Prediction using Evolutionary Rule Learning., Aakash Chauhan, Aditya Jain, Purushottam Sharma, Vikas Deep
6. Sparse Support Vector Machine for Intrapartum Fetal Heart Rate Classification., Jordan Frecon , Roberto Leonarduzzi , Nelly Pustelnik, Patrice Abry , Muriel Doret



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