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Heart Disease Prediction using ML

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Abstract: *As per the recent study by WHO, heart related diseases are increasing. 17.9 million people die every-year due to this. With growing population, it gets further difficult to diagnose and start treatment at early stage. But due to the recent advancement in technology, Machine Learning techniques have accelerated the health sector by multiple researches. Thus, the objective of this paper is to build a ML model for heart disease prediction based on the related parameters.*

Keywords: K-Nearest Neighbour Algorithm (KNN), Logistic regression algorithm (LR), and Naive Bayes(NB), Linear support vector machine

I. INTRODUCTION

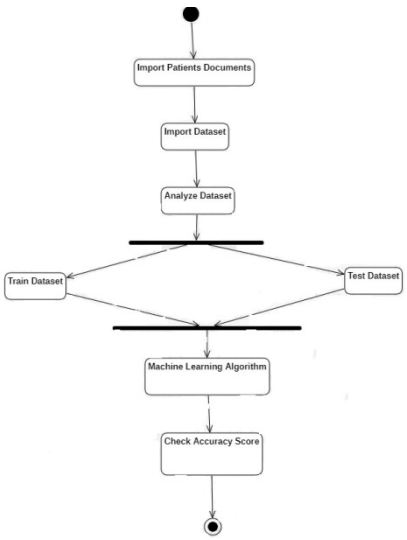
It is difficult to identify heart disease because of several contributory risk factors such as diabetes, high blood pressure, high cholesterol, abnormal pulse rate and many other factors. Among various life threatening diseases, heart disease has garnered a great deal of attention in medical research. The diagnosis of heart disease is a challenging task, which can offer automated prediction about the heart condition of patient so that further treatment can be made effective. The diagnosis of heart disease is usually based on signs, symptoms of the patient. The severity of the disease is classified based on various methods like K-Nearest Neighbour Algorithm (KNN), Logistic regression algorithm (LR), and Naive Bayes(NB),Linear support vector machine. The nature of heart disease is complex and hence, the disease must be handled carefully. Not doing so may affect the heart or cause premature death.

II. PROPOSED WORK

The proposed work predicts heart disease by exploring the above mentioned four algorithms and dose performance analysis. The objective of this study is to effectively predict if the patient suffers from heart disease. The health professional enters the input values from the patient's health report. The data is fed into model which predicts the probability of having heart diseases.

III. UML DIAGRAM

3.1 Activity Diagram



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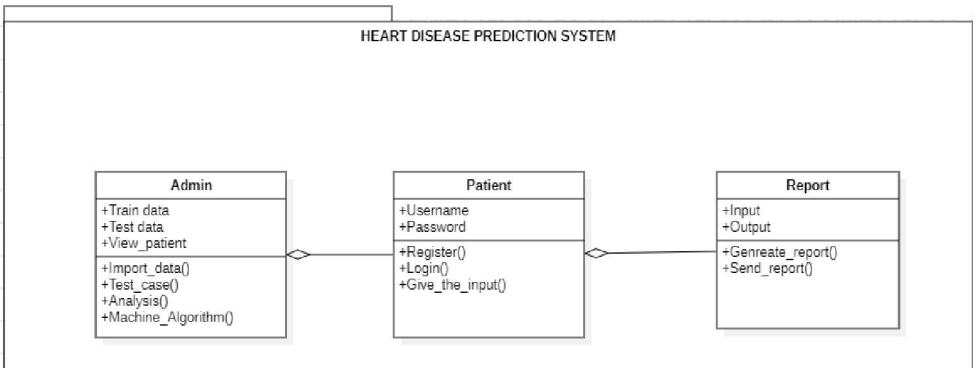
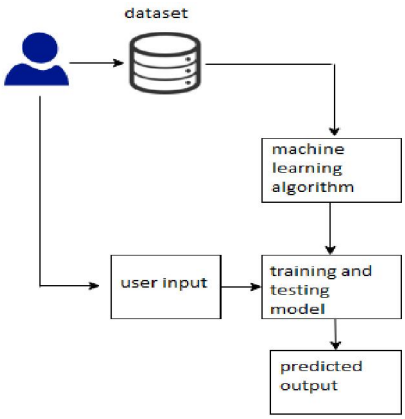
3.2 Class Diagram



3.3 Block Diagram



IV. HARDWARE AND SOFTWARE REQUIREMENTS

4.1 Hardware

- Windows and redhat linux minimum 4gb ram i5 processor

4.2 Software

- Jupyter notebook

4.3 Languages

- Python (backend)
- Html,css(frontend)

V. APPLICATIONS

5.1 Medical Institutes

To teach medical students how the heart attack been measured, or how to identify that the person is suffering from heart disease.

5.2 Hospitals

To detect that is the person having heart disease or not.

VI. FUTURE SCOPE

- In future we can be made to produce an impact in the accuracy of the Decision Tree and Bayesian Classification for additional improvement after applying genetic.

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- Algorithm in order to decrease the actual data for acquiring the optimal subset of attribute that is enough for heart disease prediction. The automation of heart disease prediction using actual real time data from health care organizations and agencies which can be built using big data. They can be fed as a streaming data and
- By using the data, investigation of the patients in real time can be prepared.

VII. 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 medical field. However, the mortality rate can be drastically controlled if the disease is detected at early stage and preventive measures are adopted as soon as possible. The proposed System is combined the characteristics of K-Nearest Neighbour Algorithm (KNN), Logistic regression algorithm (LR), and Naive Bayes(NB),Linear support vector machine. Proposed System proved to be quite accurate in the prediction of heart disease.

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