International journal of basic and applied research

www.pragatipublication.com

ISSN 2249-3352 (P) 2278-0505 (E)

Cosmos Impact Factor-5.86

# Smart Health Prediction Using Machine Learning

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Abstract

The “Smart Health Prediction Using Machine Learning” system is based on predictive modeling and uses th e symptoms the user enters into the system to predict the disease of the patient/user. The application has thre e login methods: User/Patient Login, Doctor Login and Administrator Login. The tool evaluates the sympto ms provided by the user/patient as input and provides the results of the disease as output based on predictive algorithms. Smart health assessment is done using Naive Bay,es classifier. The Naive Bayes classifier evalu ates the probability of the disease, taking into account all subjects during the study period. Accurate interpret ation of disease data facilitates early patient/user disease prediction and provides users with a clear view of t he disease. After the prediction, the user/patient can consult the specialist using the interactive window. It us es machine learning algorithms and database management technology to extract new patterns from historical data. Using machine learning algorithms to improve prediction accuracy, users/patients will have quick and easy access to the app.

Keywords: Predictive Modeling, Naive Bayes Classifier

## 1. Introduction

Machine learning is a method that uses machine learning to track all characters and make predictions using Disease Model building methods. For example, machine learning can help. It is a branch of artificial intellig ence designed to support the concept of predictive modeling to quickly analyze data andmachines can learn f rom data, analyze and quickly reproduce results. With the help of minimal technology, the user/patient can i ntervene by typingand making a decision. Machine learning is a cognitive decisionmaking method that allo ws doctors to learn their algorithms using sample data or past specific symptoms to improve collected patien t information to improve healthcare. Naive Bayes ClassifierActually. Using technology to analyze large amo unts of dataLearning algorithms have two levels: planning and research. Accepted. Each subfield osymptom s and symptoms of the user/patient's disease is a prediction, and we also show how the symptoms can be used to predict the disease. Machine learning data storage combined with data distribution technology can provide a powerful platform to assist management, clinical, education, and healthcare in addressing dise ase prediction studies based on the concern of using patient/patient information. Our symptoms. There is a lo t of information collected

Problems that can be discussed by anticipating health. [1-5]

## 2. Project Analysis

### 2.1. objective

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There are some programs for intelligent health prediction. However, chronic diseases have been specifically researched and some risk levels have been determined. However, this method has not been widely used for d isease prediction in general diseases. Smart healthcare measures help diagnose various diseases by analyzing the patient's symptoms using an amazing machine learning algorithm.

2.2. existing method

This framework predicts diseases in a given area and population. Disease prediction is only for certain disea ses. In this way, big data and convolutional neural network algorithms are used to predict diseases. This met hod uses machine learning algorithms for shaped data such as Knearest neighbors and decision trees. The m achine is 94.8% susceptible to certain diseases. In a previous article, we simplified machine learning algorith ms to effectively predict disease spread in patients with the disease. We are testing new treatment prediction models using real hospital data from somspecific regions/regions. Using structured and unstructured patient/ user data, we present a novel convolutional neural network multimodal disease risk prediction algorithm. [6-10].

2.3.proposedmethod

If a person is diagnosed with the actual disease, they need to see a doctor, which is time consuming and expe nsive. Since it is difficult for users to reach doctors and hospitals, the disease cannot be detected. Because if the above process can be done using electronic software, saving time and resources, the patient will be in a b etter position for the process to go well. Smart Health Prediction is a web service that predicts the user's illne ss based on the symptoms the user/patient expects. Information on the Smart Health Prediction Framework i s compiled from various healthrelated websites. Customers will be able to detect potential diseases based on symptoms in the web application. The aim of the project is to create a web platform that can predict disease events based on symptoms. Users can choose from a list of symptoms and search for diseases by predicting occurrences and conditions.

Table.1 Efficiency Comparison

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| Diseases | NB | LR | K* | DT |
|---|---|---|---|---|
| Breast Cancer wise | 97.30 | 92.90 | 95.70 | 94.50 |
| Breast Cancer | 72.70 | 67.70 | 73.70 | 74.20 |
| Dermatomegaly | 97.40 | 96.80 | 94.50 | 94.10 |
| Echo Chambers | 95.70 | 94.50 | 89.30 | 96.40 |
| Liveries | 54.80 | 68.70 | 66.80 | 65.80 |
| Pimaricin Diabetes | 75.70 | 77.40 | 70.10 | 74.40 |
| Haematidroses | 75.30 | 74.40 | 73.70 | 72.10 |
| Heart-c | 83.30 | 83.70 | 75.10 | 77.10 |
| Heart-statlog | 84.80 | 84.00 | 73.80 | 75.50 |
| Heart-b | 83.90 | 84.20 | 77.80 | 80.20 |
| Hepatitis | 83.80 | 83.80 | 80.10 | 79.20 |
| Lung Cancer | 53.20 | 47.20 | 41.60 | 40.80 |
| Lymphs | 84.90 | 78.40 | 83.10 | 78.20 |
| Postooerasis | 68.10 | 61.10 | 61.60 | 69.70 |
| Tumor | 49.70 | 41.60 | 38.00 | 41.30 |
| **Success Ratio** | **8\15** | **5\15** | **0\15** | **2\15** |

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NB – Naïve Bayes, LR – Linear Regression, K*- K$^{th}$ Nearest&DT – Decision Tree

We focus on machine learning algorithms and propose a method for disease prediction. We use Naive Bayes algorithm to analyze patient data because medical data grows exponentially and existing data needs to be pr ocessed to predict disease based on symptoms. Using techniques based on patient data, we can obtain accura te estimates of infection risk based on discharge, which helps us understand the prediction of disease risk. T hanks to this approach, disease and risk prediction can be made in a short time and at low cost. When the res ults of Naive Bayes and other algorithms are compared in terms of accuracy and time, the accuracy of the N aive Bayes algorithm is higher than the other algorithms mentioned in

Algorithm Figure 1.

.

3. Algorithms and Architecture

3.1. Naive Bayes Algorithm

Naive Bayes Algorithm is a simple way to build a model that lists problems for finding interaction with the object. Category posts are selected from a limited number of options. It is a set of algorithms based on princi ples rather than specific algorithms. According to this rule, the value of each function of each Naive Bayes c lassifier is independent of the importance of other features. For example, if the fruit is orange, round and 10c m15cm in diameter, we can call it orange. The Naive Bayes algorithm also takes everything into account to determine whether the fruit is orange or not.

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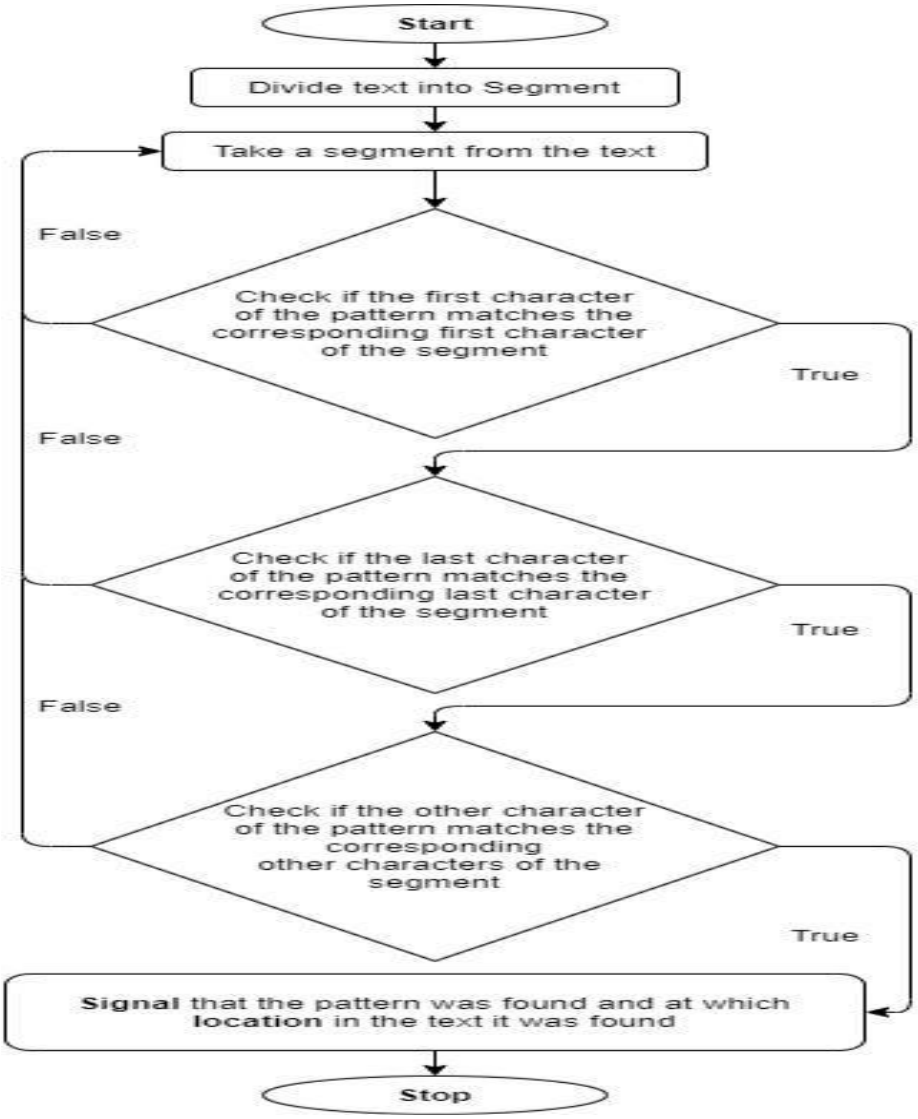

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Fig.1: Algorithm Flow Diagram

There are many suitable models, but for some of them, the Naive Bayes algorithm performs best among mai ntenance models.

3.2. Architecture

The aim of the project is to create a web forum for disease prediction based on differentsymptoms and event s. Users will select different symptoms and use the necessary information from the collected data to find the disease.

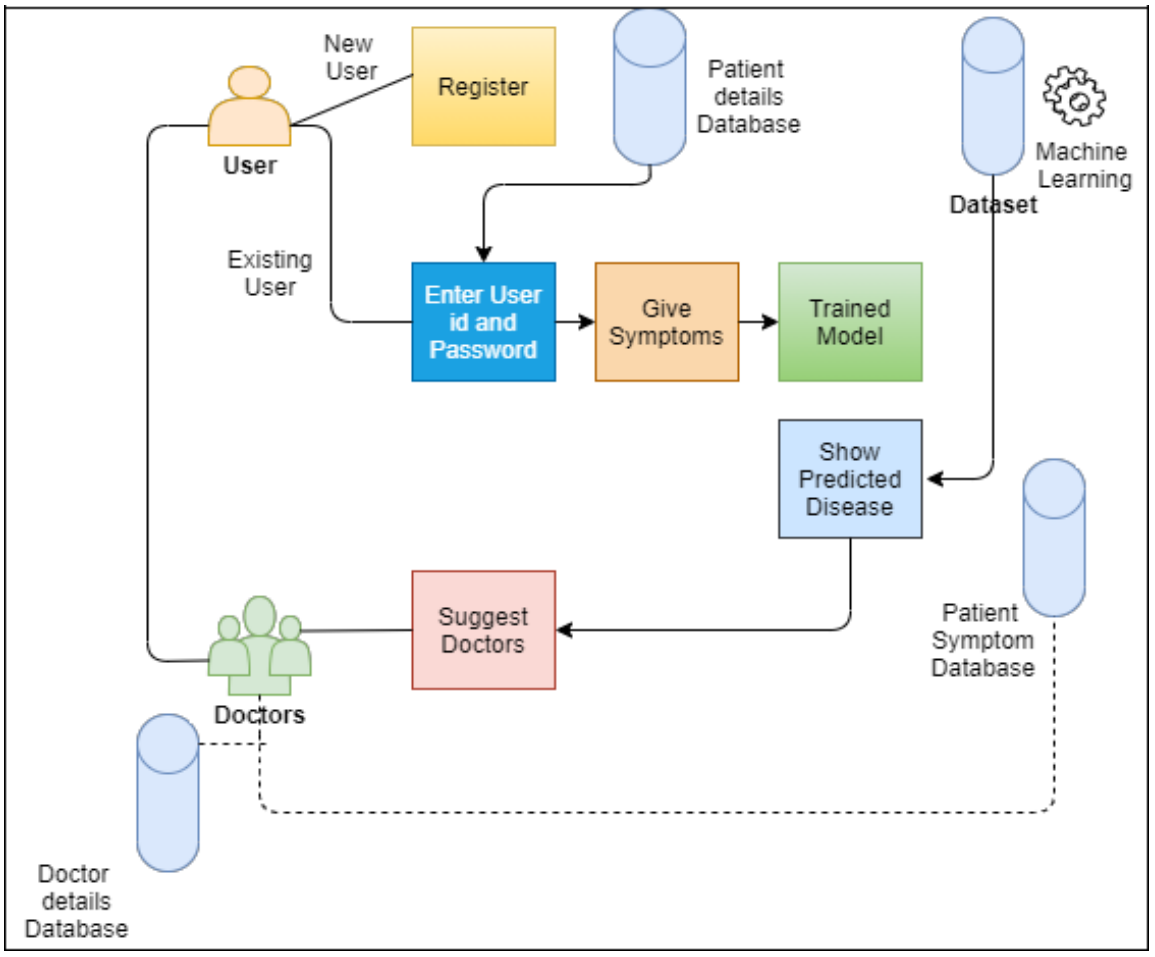


Fig.2: Application Architecture

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## Conclusion

By planning the data set using the Naive Bayes algorithm, the desired information about the relevant sy mptoms can be obtained from the historical information in the plan. Only when the system reacts in this way can health be achieved. This information is compared with the incoming query and associated with t he correct search information. Given that this new solution will be based on realtime historical data, it wi ll provide accurate and timely results, allowing patients to receive a diagnosis quickly. Web applications allow the patient to speak directly to the doctor, often removing the doctor from the meeting. So this net work system will actuallypredict and will also be able to create honest and honest people.

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