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Smart Health Card Using Machine Learning

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Abstract :

People face various diseases due to the environmental condition and their living habits. So the prediction of disease at earlier stage becomes important task. But the accurate prediction on the basis of symptoms becomes too difficult for doctor. The correct prediction of disease is the most challenging task. To overcome this problem data mining plays an important role to predict the disease. Medical science has large amount of data growth per year. Due to increase amount of data growth in medical and healthcare field the accurate analysis on medical data which has been benefits from early patient care. With the help of disease data, data mining finds hidden pattern information in the huge amount of medical data. We proposed general disease prediction based on symptoms of the patient. For the disease prediction, we use K-Nearest Neighbor (KNN) and Convolutional neural network (CNN) machine learning algorithm for accurate prediction of disease.

Key Words: - CNN, KNN, Machine learning, Disease Prediction.

1.INTRODUCTION

Today machine learning is present everywhere so that without knowing it, one can possibly use it many times a day. CNN uses both the structured and unstructured data of a hospital to do classification. While other machine learning algorithms only work on structured data and time required for computation is high also they are lazy because they store entire data as a training dataset and uses complex method for calculation. It is critical to comprehend the accurate diagnosis of patients by clinical examination and evaluation. For compelling determination decision support systems that depend on computer may assume an indispensable job. Health care field creates enormous information about clinical evaluation, report in regards to patient, cure, subsequent meet-ups, medicine and so forth. It is intricate to orchestrate appropriately. Quality of the data association has been influenced due to improper management of the information. Upgrade in the measure of data needs some legitimate way to concentrate and process information viably and efficiently. One of the many machinelearning applications is utilized to construct such classifier that can separate the data based on their characteristics. Data set is partitioned into two or more than two classes. Such classifiers are utilized for medical data investigation and disease prediction.

2.Literature Survey

Electronic health records have become more available due to the guidelines of the Health Information Technology for Economic and Clinical Health (HITECH) Act, which offers incentives to healthcare providers to adopt EHR to advance clinical processes and improve outcomes. Meanwhile, health insurance providers and non-profits such as the Health Care Cost Institute have committed to providing health insurance claims data with the goal of reducing costs while improving the quality and availability of coverage. Such sources provide detailed, time-stamped, and Highly multivariate data for a large patient population, enabling the use of AI techniques to connect care practices and outcomes. M. Chen proposed [1] a new CNN based multimodal disease risk prediction algorithm by using structured and unstructured data of hospital.

3.Proposed System

As per today's advanced and hi-tech living style, majority of the people are contracting heart disease which gives a sudden jolt to an individual that at times one lacks time to get treated immediately. Hence its very much essential that timely and early diagnosis is performed which being quiet challenging concern for the medical association. Poor and incorrect analysis carried out by the hospital can being down its reputation and working.
Initially we take disease dataset from UCI machine learning website and that is in the form of disease list with its symptoms. After that pre-processing is performed on that dataset for cleaning that is removing comma, punctuations and white places. And that is used as training dataset. After that feature extracted and selected. Then we classify that data using classification techniques such as KNN and CNN. Based on machine learning we can predict accurate disease.

4.System Architecture

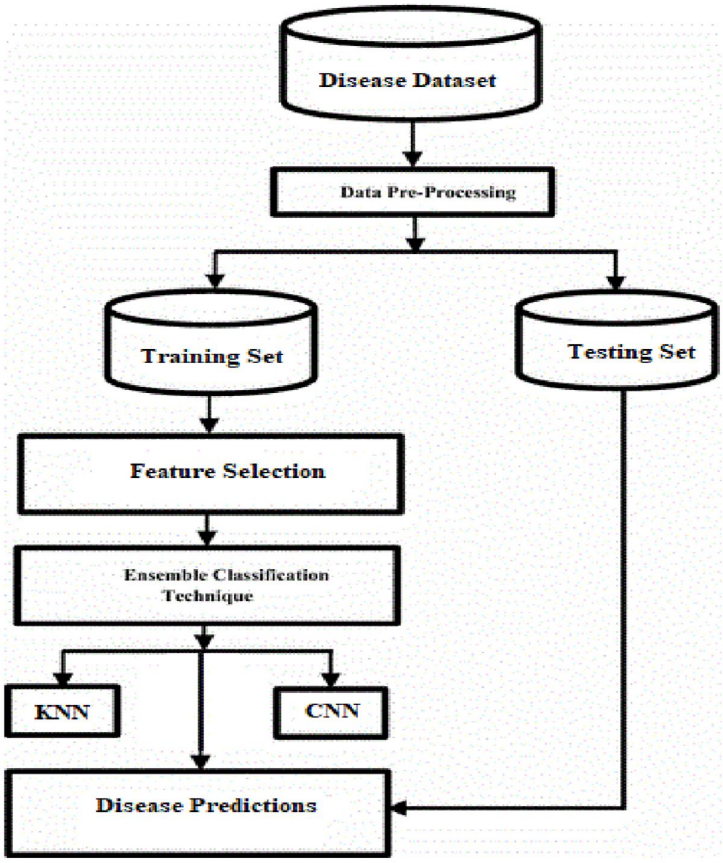

Fig-2: - System Architecture

5.CONCLUSIONS

We proposed general disease prediction system based on machine learning algorithm. We utilized KNN and CNN algorithms to classify patient data because today medical data growing very vastly and that needs to process existed data for predicting exact disease based on symptoms. We got accurate general disease risk prediction as output, by giving the input as patients record which help us to understand the level of disease risk prediction.

Because of this system may leads in low time consumption and minimal cost possible for disease prediction and risk prediction. We compare the results between KNN and CNN algorithm in terms of accuracy and time and the accuracy of CNN algorithm which is more than KNN algorithm and time required for classification for CNN is less than KNN. So we can say CNN is better than KNN in terms of accuracy and time.

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