

# HEALTH ASSISTANCE (DISEASE PREDICTION AND MEDICINE, EXERCISE AND DIET SUGGESTION) USING CNN

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**Abstract:** Now-a-days, 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. There is a need to study and make a system which will make it easy for end users to predict the chronic diseases without visiting physician or doctor for diagnosis. To detect the Various Diseases through the examining Symptoms of patient's using different techniques of Machine Learning Models.

**Keywords:** CNN (Convolutional Neural Network), Python, Disease Prediction Machine Learning.

## I. INTRODUCTION

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. This system is used to predict disease according to symptoms. As shown in figure below, database containing symptoms of different diseases is fed as input to system along with current symptoms of user and medical history of patient (when patient observed same type of symptoms before). Python based system used CNN algorithm to predict disease patient is suffering from. After predicting disease system classified disease into mild, moderate and severe conditions.

If disease is mild then it suggest some medicine, in case of moderate along with medicines system suggest user to visit doctor if symptoms doesn't fade away and when its severe case system warn user to immediately visit doctor. System also suggests diet and exercise as per the disease..

Disease Prediction system is based on predictive modeling predicts the disease of the user on the basis of the symptoms that user provides as an input to the system. The system analyzes the symptoms provided by the user as input and gives the probability of the disease as an output Disease Prediction is done by implementing the Decision tree Classifier. CNN Classifier calculates the probability of the disease. Along with disease prediction system also calculates severity of disease and as per severity of disease suggests medicine

## II. RELATED WORK

The key to get optimal performance of recommender system is modeling user's preference accurately, we regard it as the patient's health condition features in our research. In this section, we briefly review some state-of-the-art methods that related to our approach.

### A. HYBRID RECOMMENDATION

As mentioned in section I, there are several traditional base models using different data sources and structures in recommender system research. Although these methods could recommend items the advantages of them vary from fields. CF utilizes the given relations among users or items to generate the recommendation; contentbased method depends on the the network

edge domain models. These methods have advantages and short comings respectively. To achieve better performance, one feasible method is to construct a model that combines the advantages

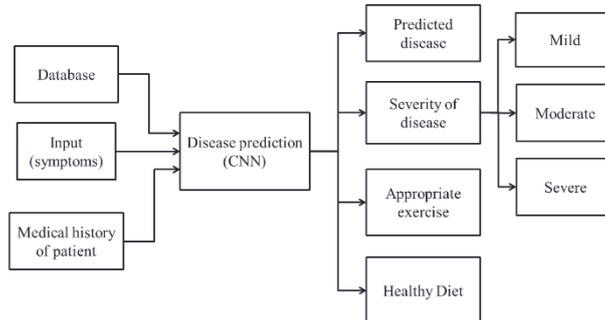
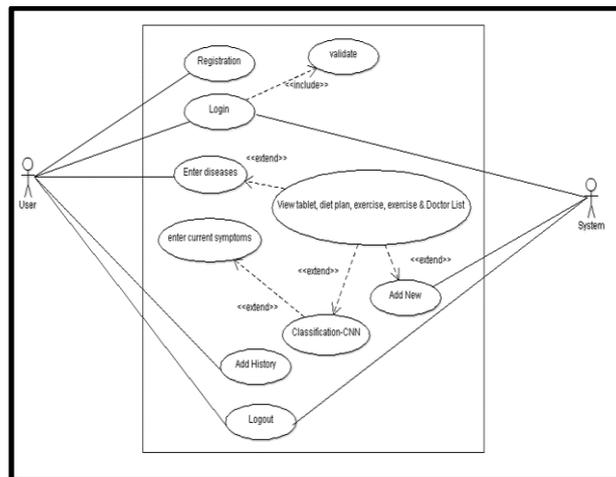


Fig.1. System Block Diagram



### III. CONCLUSION

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.

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### REFERENCES

- [1] Wenxing Hong, Ziang Xiong, Nannan Zheng, Yang Weng, "A Medical-History-Based Potential Disease Prediction Algorithm", A Medical-History-Based Potential Disease Prediction Algorithm IEEE Access VOLUME 7, 2019, doi 10.1109/ACCESS.2019.2940644
- [2] Xu, Z., Zhang, J., Zhang, Q., & Yip, P. S. F. (2019). Explainable Learning for Disease Risk Prediction Based on Comorbidity Networks. 2019 IEEE International Conference on Systems, Man and Cybernetics (SMC). doi:10.1109/smc.2019.8914644
- [3] Xu, Z., Zhang, J., Zhang, Q., & Yip, P. S. F. (2019). Explainable Learning for Disease Risk Prediction Based on Comorbidity Networks. 2019 IEEE International Conference on Systems, Man and Cybernetics (SMC). doi:10.1109/smc.2019.8914644