

PREDICTION OF CHRONIC KIDNEY DISEASE

Team Details

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Introduction

Chronic Kidney Disease is one of the most critical illness nowadays and proper diagnosis is required as soon as possible. Chronic kidney disease (CKD) is defined by persistent urine abnormalities, structural abnormalities or impaired excretory renal function suggestive of a loss of functional nephrons. The majority of patients with CKD are at risk of accelerated cardiovascular disease and death. Machine learning technique has become reliable for medical treatment. The massive quantities of data are analyzed using machine learning. It delivers faster and more accurate results in order to identify the risks. With the help of a machine learning classifier algorithms using features like age, blood pressure, urine specific gravity, albumin & sugar range, blood urea & glucose, hemoglobin, diabetes mellitus..etc the doctor can detect the disease on time.

Literature

Author(s)	Method	Advantages	Disadvantages
Amirgaliyev, Y., Shamiluulu, S., & Serek(2018)	Support Vector Machine	Objective Diagnosis Reduced Risk	Data Reliance Generalization
Sujata Drall, Gurdeep Singh Drall, Sugandha Singh(2018)	K-Nearest Neighbour, feature selection	Inclusion of Risk Factors Diverse Causative Factors Large Dataset	Data source quality Interpretability

Literature

Author(s)	Method	Advantages	Disadvantages
Saurabh Pal(2021)	Machine Learning algorithms: logistic regression, decision tree	Detection of CKD Symptomless Diagnosis Data Source	External Validation Clinical Application

Problem Statement

Developing machine learning-based prediction models for early Chronic Kidney Disease (CKD) detection, using a naïve bayes classifiers and feature selection methods, to enable timely diagnosis and improve patient outcomes.

The main goal is to help doctors find out about CKD sooner, so they can treat it early and make patients feel better. By doing this, we want to make sure patients have a better chance of getting well.

OBJECTIVES

Developing the system which will make it easy for an end users to predict the diseases without visiting physician or doctor for diagnosis. The Predictions Accuracy will Increase using Machine Learning..

Considering various evaluation metrics such as accuracy precision ,recall,F measure

Proposed Method

1.Data Collection:

Gather a dataset of patient records that includes relevant features such as age, gender, blood pressure, serum creatinine levels, blood glucose levels, family history of CKD, and other relevant medical information.

2.Data Preprocessing:

Clean and preprocess the data by handling missing values, normalizing numerical features, and encoding categorical variables. This step ensures that the data is in a suitable format for training the machine learning model.

3.Feature Selection :

Select specific columns (features) for analysis and drop some columns ('ba', 'sod', 'pot', 'appet', 'id', 'ane') that you don't want to use in your model.
Fill missing values in numerical columns with the mean.

Proposed Method

4.Data Splitting and Model Training :

Split the dataset into training and testing sets.

Train a machine learning model using Navie Bayes algorithm using the training data

5.Model Evaluation:

Evaluate the performance of the Naive Bayes model using the testing dataset.

calculate accuracy and generate a classification report which includes metrics such as precision, recall, and F1-score .

Project status

S.N O	List of Functions	Status
1	Algorithm Building	Completed
2	Data collection	Completed
3	Data Preprocessing	In Progress
4	Splitting train and test data	Not Yet Started
5	Training Using Naïve Bayes	Not Yet Started
6	Testing and Prediction	Not Yet Started

References

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