LITERATURE SURVEY

Date	15 October 2022
Team Id	PNT2022TMID50020
Project Name	Early Detection Of Chronic Kidney disease Using Machine Learning
Maximum Marks	2 Marks

Introduction:

Chronic Kidney Disease refers to the kidneys inability to fulfill their normal blood filtration role and other functions (CKD). The term "chronic" refers to the progressive deterioration of kidney cells over time. This is a severe renal failure in which the kidney no longer filters blood and there is a significant fluid accumulation in the body. This causes an abnormally high level of potassium and calcium salts in the body. High quantities of these salts in the body cause a variety of additional problems. The primary function of the kidneys is to filter excess water and wastes from the blood. This mechanism must work properly to balance the salts and minerals in our bodies. The proper salt balance is required to manage blood pressure, activate hormones, and create red blood cells, among other things. A high calcium concentration causes bone problems and cystic ovaries in women. CKD can also cause a sudden sickness or an allergy to specific medications. Acute is the medical term for this condition.

Literature Review:

The kidneys are positioned in the abdominal cavity, on each side of the spine. They generally weigh around 5 times their body weight yet receives only 20% of the

blood flow from the heart. The urine generated by each kidney drains into the urinary bladder, which is positioned in the pelvic area, via a distinct urethra. The kidney is the most essential organ in the human body because it manages fluid levels, electrolyte balance, and other elements that maintain the body's internal environment stable and comfortable. Kidney diseases are conditions that impact the kidney's functioning. Renal disorders can lead to kidney failure in its advanced stages. Kidney diseases are conditions that impact the kidney's functioning. Kidneys can be injured, which means they can't accomplish what they should. This is known as chronic kidney disease (CKD). Anyone can get chronic kidney disease. In medical research, nephrologists primarily employ two primary tests to identify CKD. A blood test to determine glomerular filtration rate (GFR) and a urine test to determine albumin. Genetics, hypertension, diabetes, obesity, age, and other factors can all have an impact on CKD.

Existing Solution:

Non communicable illnesses are the leading cause of early death, and CKD is the leading non communicable disease. Chronic Kidney Disease is a major concern for the global health care system. People with CKD must focus on implementing proven, cost-effective therapies to as many people as possible while taking into consideration restricted needs, human and financial resources. Chronic kidney disease (CKD) is now wreaking havoc on society and is spreading at an alarming rate. Various efforts have been undertaken to advance early therapy to prevent the condition from progressing to chronic disease. Recent research suggests that some of the negative outcomes can be avoided with early identification and treatment.

https://www.kidney.org/phi/form?version=health

The Approach to the Project:

Every year, an increasing number of patients are diagnosed with late stages of renal disease. Chronic Kidney Disease, also known as Chronic Kidney Disease, is characterized by abnormal kidney function or a breakdown of renal function that progresses over months or years. Chronic kidney disease is often found during screening of persons who are known to be at risk for kidney issues, such as those with high blood pressure or diabetes, and those with a blood family who has chronic kidney disease (CKD). As a result, early prognosis is critical in battling the disease and providing effective therapy. Only early identification and continuous monitoring can avoid serious kidney damage or kidney failure. Machine Learning plays a significant part in the healthcare system, and it may efficiently aid and help with decision support in medical institutions. The primary goals of this research are to design and suggest a machine learning method for predicting CKD. Support Vector Machine (SVR), Random Forest (LR), Artificial Neural Network (ANN), and Decision Tree are four master teaching methodologies investigated (DT). The components are built using chronic kidney disease datasets.

Conclusion:

This study developed an algorithm for predicting CKD at an early stage. The dataset contains input parameters obtained from CKD patients, and the models are trained and validated using the valid parameters. To diagnose CKD, decision tree, random forest, and support vector machine learning models are built. As an extension of this research, the comparison may also be done depending on the duration of execution and feature set selection.

Reference:

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4. **Title:** Prediction of chronic kidney diseases using deep artificial neural network technique

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5. **Title:** Three types of Machine Learning Algorithms List of Common Machine Learning Algorithms

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6. **Title:** Risk Prediction of Chronic Kidney Disease Using Machine Learning Algorithms

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10. Title: Prediction of chronic kidney disease using machine learning

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