

# **SURVEY OF VISHNUPRIYA**

## **INTRODUCTION:**

Chronic Kidney Disease (CKD) is considered as an important threat for the society with respect to the health in the present era. Chronic kidney disease can be detected with regular laboratory tests, and some treatments are present which can prevent development, slow disease progression, reduce complications of decreased Glomerular Filtration Rate(GFR) and risk of cardiovascular disease, and improve survival and quality of life. CKD can be caused due to lack of water consumption, smoking, improper diet, loss of sleep and many other factors. This disease affected 753 million people globally in 2016 in which 417 million are females and 336 million are males. Majority of the time the disease is detected in its final stage and which sometimes leads to kidney failure.

## **ABSTRACT:**

Chronic Kidney Disease also recognized as Chronic Renal Disease, is an uncharacteristic functioning of kidney or a failure of renal function expanding over a period of months or years. Habitually, chronic kidney disease is detected during the screening of people who are known to be in threat by kidney problems, such as those with high blood pressure or diabetes and those with a blood relative Chronic Kidney Disease(CKD) patients. So the early prediction is necessary in combating the disease and to provide good treatment. This study proposes the use of machine learning techniques for CKD such as Ant Colony Optimization(ACO) technique and Support Vector Machine(SVM) classifier. Final output predicts whether the person is having CKD or not by using minimum number of features.

## **CONCLUSION:**

This paper deals with the prediction of CKD in people. A wrapper method used here for feature selection is ACO. ACO is a meta-heuristic optimization algorithm. Out of the 24 attributes present 12 best attributes are taken for prediction. Prediction is done using the machine learning technique, SVM. In this classification problem SVM classifies the output into two class with

CKD and without CKD. The main objective of this study was to predict patients with CKD using less number attributes while maintaining a higher accuracy. Here we obtain an accuracy of about 96 percentage.

## **SURVEY OF PRASUN CHAKRABARTHI**

### **INTRODUCTION:**

Chronic kidney Disease (CKD) means your kidneys are damaged and not filtering your blood the way it should. The primary role of kidneys is to filter extra water and waste from your blood to produce urine and if the person has suffered from CKD, it means that wastes are collected in the body. This disease is chronic because of the damage gradually over a long period. It is flatterer a common disease worldwide. Due to CKD may have some health troubles. There are many causes for CKD like diabetes, high blood pressure, heart disease. Along with these critical diseases, CKD also depends on age and gender. If your kidney is not working, then you may notice one or more symptoms like abdominal pain, back pain, diarrhea, fever, nosebleeds, rash, vomiting. There are two main diseases of CKD: (i) diabetes and (ii) high blood pressure. So that controlling of these two diseases is the prevention of CKD. Usually, CKD does not give any sign till kidney is damaged badly. CKD is being increased rapidly as per the studies hospitalization cases increase 6.23 per cent per year but the global mortality rate remains fixed. There are few diagnostic tests to check the condition of CKD: (i) estimated Glomerular filtration rate (ii) urine test (iii) blood pressure.

### **ABSTRACT:**

Chronic Kidney Disease is one of the most critical illness nowadays and proper diagnosis is required as soon as possible. Machine learning technique has become reliable for medical treatment. With the help of a machine learning classifier algorithms, the doctor can detect the disease on time. For this perspective, Chronic Kidney Disease prediction has been discussed in this article. Chronic Kidney Disease dataset has been taken from the UCI repository. Seven classifier algorithms have been applied in this research

such as artificial neural network, C5.0, Chi-square Automatic interaction detector, logistic regression, linear support vector machine with penalty L1 & with penalty L2 and random tree. The important feature selection technique was also applied to the dataset. For each classifier, the results have been computed based on (i) full features, (ii) correlation-based feature selection, (iii) Wrapper method feature selection, (iv) Least absolute shrinkage and selection operator regression, (v) synthetic minority over-sampling technique with least absolute shrinkage and selection operator regression selected features, (vi) synthetic minority over-sampling technique with full features. From the results, it is marked that LSVM with penalty L2 is giving the highest accuracy of 98.86% in synthetic minority over-sampling technique with full features. Along with accuracy, precision, recall, F-measure, area under the curve and GINI coefficient have been computed and compared results of various algorithms have been shown in the graph. Least absolute shrinkage and selection operator regression selected features with synthetic minority over-sampling technique gave the best after synthetic minority over-sampling technique with full features. In the synthetic minority over-sampling technique with least absolute shrinkage and selection operator selected features, again linear support vector machine gave the highest accuracy of 98.46%

## CONCLUSION:

This article objects to predict Chronic Kidney Disease based on full features and important features of CKD dataset. For feature selection three different techniques have been applied: correlation-based feature selection, Wrapper method and LASSO regression. In this perception, seven classifiers algorithm were applied viz. artificial neural network, C5.0, logistic regression, CHAID, linear support vector machine (LSVM), K-Nearest neighbors and random tree. For each classifier, the results were computed based on full features, selected features by CFS, selected features by Wrapper, selected features by LASSO regression, SMOTE with selected features by LASSO, SMOTE with full features. It was observed that LSVM achieved the highest accuracy of 98.86% in SMOTE with full features. All classifiers algorithms performed well on features selected by LASSO

regression with SMOTE and without SMOTE. SMOTE with full features gave the best result for all 5 classifiers. In this research, a total of 7 classifiers were used. However, Logistic and KNN did not give suitable results and it was why they were not used in SMOTE. As per the result, it is concluded that SMOTE is a best technique for balancing a dataset. It is noted that SMOTE gave better results with selected features by LASSO regression as compare to without SMOTE on LASSO regression model. LSVM achieved the highest accuracy in all experiments as compared to other classifiers algorithms.

## **SURVEY OF S.REVATHY**

### **INTRODUCTION:**

The disability of the kidneys to perform their regular blood filtering function and others is called Chronic Kidney Disease the kidney cells over a long period of time. This disease is a major kidney failure where the kidney sans blood filtering process and there is a heavy fluid buildup in the body. This leads to alarming increase of potassium and calcium salts in the body. Existence of high levels of these salts result in various other ailments in the body. The prime job of kidneys is to filter extra water and wastes from blood. The efficient functioning of this process is important to balance the salts and minerals present in our body. The right balance of salts are necessary to control blood pressure, activate hormones, build red blood cells, etc. A high concentration of calcium leads to various bone diseases and cystic ovaries in women. CKD also may lead to sudden illness or allergy to certain medicines. This state is called as Acute

## **ABSTRACT:**

The field of biosciences have advanced to a larger extent and have generated large amounts of information from Electronic Health Records. This have given rise to the acute need of knowledge generation from this enormous amount of data. Data mining methods and machine learning play a major role in this aspect of biosciences. Chronic Kidney Disease(CKD) is a condition in which the kidneys are damaged and cannot filter blood as they always do. A family history of kidney diseases or failure, high blood pressure, type 2 diabetes may lead to CKD. This is a lasting damage to the kidney and chances of getting worse by time is high. The very common complications that results due to a kidney failure are heart diseases, anemia, bone diseases, high potassium and calcium. The worst case situation leads to complete kidney failure and necessitates kidney transplant to live. An early detection of CKD can improve the quality of life to a greater extent. This calls for good prediction algorithm to predict CKD at an earlier stage . Literature shows a wide range of machine learning algorithms employed for the prediction of CKD. This paper uses data preprocessing ,data transformation and various classifiers to predict CKD and also proposes best Prediction framework for CKD. The results of the framework show promising results of better prediction at an early stage of CKD

## **CONCLUSION:**

This paper presented a prediction algorithm to predict CKD at an early stage. The dataset shows input parameters collected from the CKD patients and the models are trained and validated for the given input parameters. Decision tree, Random Forest and Support Vector Machine learning models are constructed to carry out the diagnosis of CKD. The performance of the models are evaluated based on the accuracy of prediction. The results of the research showed that Random Forest Classifier model better predicts CKD in comparison to Decision trees and Support Vector machines.

The comparison can also be done based on the time of execution, feature set selection as the improvisation of this research.