**Early Detection of Chronic Kidney Disease**

**Using Machine learning**

**Introduction:**

Chronic Kidney Disease (CKD) is a major medical problem and can be cured if treated in the early stages. Usually, people are not aware that medical tests we take for different purposes could contain valuable information concerning kidney diseases. Consequently, attributes of various medical tests are investigated to distinguish which attributes may contain helpful information about the disease. The information says that it helps us to measure the severity of the problem and we make use of such information to build a machine learning model that predicts Chronic Kidney Disease.

**Literature Survey:**

1.[Mohammed Elhoseny, 2019] described a system for CKD in which it uses Density based feature selection with ACO. The system uses wrapper methods for feature selection. [Baisakhi Chakraborty, 2019] proposed development of CKD prediction system using machine learning techniques such as K-Nearest Neighbor, Logistic Regression, Decision Tree, Random Forest, Naive Bayes, Support Vector Machine and Multi-Layer Perceptron Algorithm. These are applied and their performance are compared to the accuracy, precision, and recall results. Finally, Random forest is chosen to implement this system.

2.[Arif-Ul-Islam, 2019] proposed a system in which prediction of disease is done using Boosting Classifiers, Ant-Miner and J48 Decision Tree. The aim of this paper is two fold that is, analyzing the performance of boosting algorithms for detecting CKD and deriving rules illustrating relationships among the attributes of CKD. Experimental results prove that the performance of AdaBoost was less that of LogitBoost by a fraction.

**3.** [Guneet Kaur, 2017] proposed a system for predicting the CKD using Data Mining Algorithms in Hadoop. They use two data mining classifiers like KNN and SVM. Here the predictive analysis is performed based upon the manually selected data columns. SVM classifier gives the best accuracy than KNN in this system.

**4**. M. P. N. M. Wickramasinghe.et al presents a methodology to control the disease using a suitable diet plan. In this research classifiers are constructed using different algorithms like Multiclass Decision Jungle, Multiclass Decision Forest, Multiclass Neural Network and

Multiclass Logistic Regression. An allowable potassium zone is predicted depending on the blood potassium levels of the patient. The classification algorithms recommend a diet place based on the predicted potasium zone.

**5.** Behind Charleonnan et. al. using clinical evidence, projected chronic kidney disease. Along with KNN, SVM, LR, and DT classifiers for predicted CKD, four machine learning techniques were explored. The overall precision was five times that of the four classifiers. It can be seen from the experimental outcomes that the SVM classifier has the best accuracy than the others with 98.3% though Logistic, Tree of Decision and KNN can achieve average correctness of 96.55%, 94.8%, and 98.1% respectively.

**6**. Sinha et. al. Chronic Kidney Disease was predicted using the Support Vector (SVM) and K-Nearest Neighbor (KNN) classifiers. The experimental results showed that the efficiency of the KNN classifier is higher than that of the SVM. Help vector machine (SVM) accuracy was 73.75% and K-Nearest Neighbor (KNN) accuracy was 73.75% was 78.75%.

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