LITERATURE SURVEY OF PREVIOUS PAPERS ON PREDICTION OF CHRONIC KIDNEY DISEASE USING - MACHINE LEARNING IN APPLIED DATA SCIENCE

ABSTRACT:

Chronic kidney disease is also called as chronic kidney failure.it involves the gradual loss of kidney function. kidneys filter wastes and excess fluids from our blood. which are then removed from our urine. Advanced chronic kidney disease can cause dangerous levels of fluid. Electrolytes and wastes to build up in your body. In early stages of chronic kidney disease, we might have few signs or symptoms. We might not realize that you have kidney disease until the condition is advanced. The machine learning models (or) that we are going to use in our project are **KNN CLASSIFIERS, LOGISTIC REGRESSION.** These machine learning will provide an efficient prediction and prevention of chronic kidney disease by enabling early-stage diagnosis.

INRODUCTION:

The chronic kidney disease popularly called as (CKD). The main causes of CKD are blood pressure, blood sugar and glucose level, strain on small blood vessels, excess sedimentation of salts on the kidney and also due to age factors. The end stage pf CKD leads to kidney failure that makes kidney unable to remove wastes from the body. And also fails to control the fluid levels in the body. It shows no symptoms at the earlier stages and results in high risks. Using, some machine learning models we can predict the CKD as early as possible. Data science using Machine learning is the most efficient to predict the CKD and prevent the patients from the risks.

LITERATURE SURVEY:

Shanila Yunus Yashfi, Md Ashikul Islam, Pritilata, Nazmus Sakib, Tanzila Islam, Mohammad Shahbaaz, Sadaf Salman Pantho [1] - "They have used UCI dataset and real time dataset and processed them. handled missing data, trained it and made a Random Forest and ANN model. Also implemented these two algorithms in python language. The gain using Random Forest algorithm is 97.12% and ANN is 94.5% respectively which is relatively very good"

 Siddheshwar Tekale , Pranjal Shingavi , Sukanya Wandhekar, Ankit Chatorikar[2] - " have analyzed 14 different attributes related to CKD patients and predicted accuracy for different machine learning algorithms like Decision tree and Support Vector Machine. From the results analysis, it is observed that the decision tree algorithms give the accuracy of 91.75% and SVM gives accuracy of 96.75%."

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Saurabh Pal[4]-" Have used chronic kidney disease dataset collected from UCI machine leaning repository developed a chronic kidney disease prediction model using three machine learning classifiers Logistic Regression, Decision Tree and Support Vector Machine to measure the performance of the prediction model. After applying the base classifiers, we find decision tree classifier obtained better

results in terms of Accuracy, Precision, Recall, F-score as 95.92%, 0.99, 0.98, and 0.98, respectively. The highest accuracy of 97.23% in case of decision tree.

Schena, F.P., Anelli, V.W., Abbrescia, *J Nephrol* [5]- " Have concluded The application of MLAs in kidney diseases may enhance the ability of clinicians to predict CKD and RF, thus improving diagnostic assistance and providing suitable therapeutic decisions. However, it is necessary to improve the development process of MLA tools.

REFERENCE:

[1] S. Y. Yashfi *et al.*, "Risk Prediction of Chronic Kidney Disease Using Machine Learning Algorithms," *2020 11th International Conference on Computing, Communication and Networking Technologies (ICCCNT)*, 2020, pp. 1-5, Doi: 10.1109/ICCCNT49239.2020.9225548.

[2] International Journal of Advanced Research in Computer and Communication Engineering Vol. 7, Issue 10, October 2018 Copyright to IJARCCE DOI 10.17148/IJARCCE.2018.71021 92 "Prediction of Chronic Kidney Disease Using Machine Learning Algorithm" Siddheshwar Tekale1, Pranjal Shingavi2, Sukanya Wandhekar3, Ankit Chatorikar4 Vidya Pratishthan's Kamalnayan Bajaj Institute of Engineering and Technology, Baramati.

[3] P. Chittora *et al.*, "Prediction of Chronic Kidney Disease - A Machine Learning Perspective," in *IEEE Access*, vol. 9, pp. 17312-17334, 2021, Doi: 10.1109/ACCESS.2021.3053763.

[4] Pal, S. Chronic Kidney Disease Prediction Using Machine Learning Techniques. *Biomedical Materials & Devices* (2022). https://doi.org/10.1007/s44174-022-00027-y

[5] Schena, F.P., Anelli, V.W., Abbrescia, D.I. *et al.* Prediction of chronic kidney disease and its progression by artificial intelligence algorithms. *J Nephrol* (2022). https://doi.org/10.1007/s40620-022-01302-3