# Early detection of Chronic Kidney Disease using Machine Learning

# Abstract

. Chronic kidney disease (CKD) is one of the most critical health problems due to its increasing prevalence. In this paper, we aim to test the ability of machine learning algorithms for the prediction of chronic kidney disease using the smallest subset of features. Several statistical tests have been done to remove redundant features such as the ANOVA test, the Pearson's correlation, and the Cramer's V test . Logistic regression, support vector machines, random forest, and gradient boosting algorithms have been trained and tested using 10-fold cross-validation. We achieve an accuracy of 99.1 according to F1-measure from Gradient Boosting classifier. Also, we found that hemoglobin has higher importance for both random forest and Gradient boosting in detecting CKD. Finally, our results are among the highest compared to previous studies but with less number of features reached so far . Hence, we can detect CKD at only $26.65 by performing three simple testS

# GOALS AND FACTORS

GOALS:

- To reduce the proportion in adults for chronic kidney disease-CKD-01
- To detect CKD at only Rs.2600 by performing three simple test

FACTORS:

- Over drinking Alcohol
- Genetic Disorder

## PROPOSED SYSTEM:

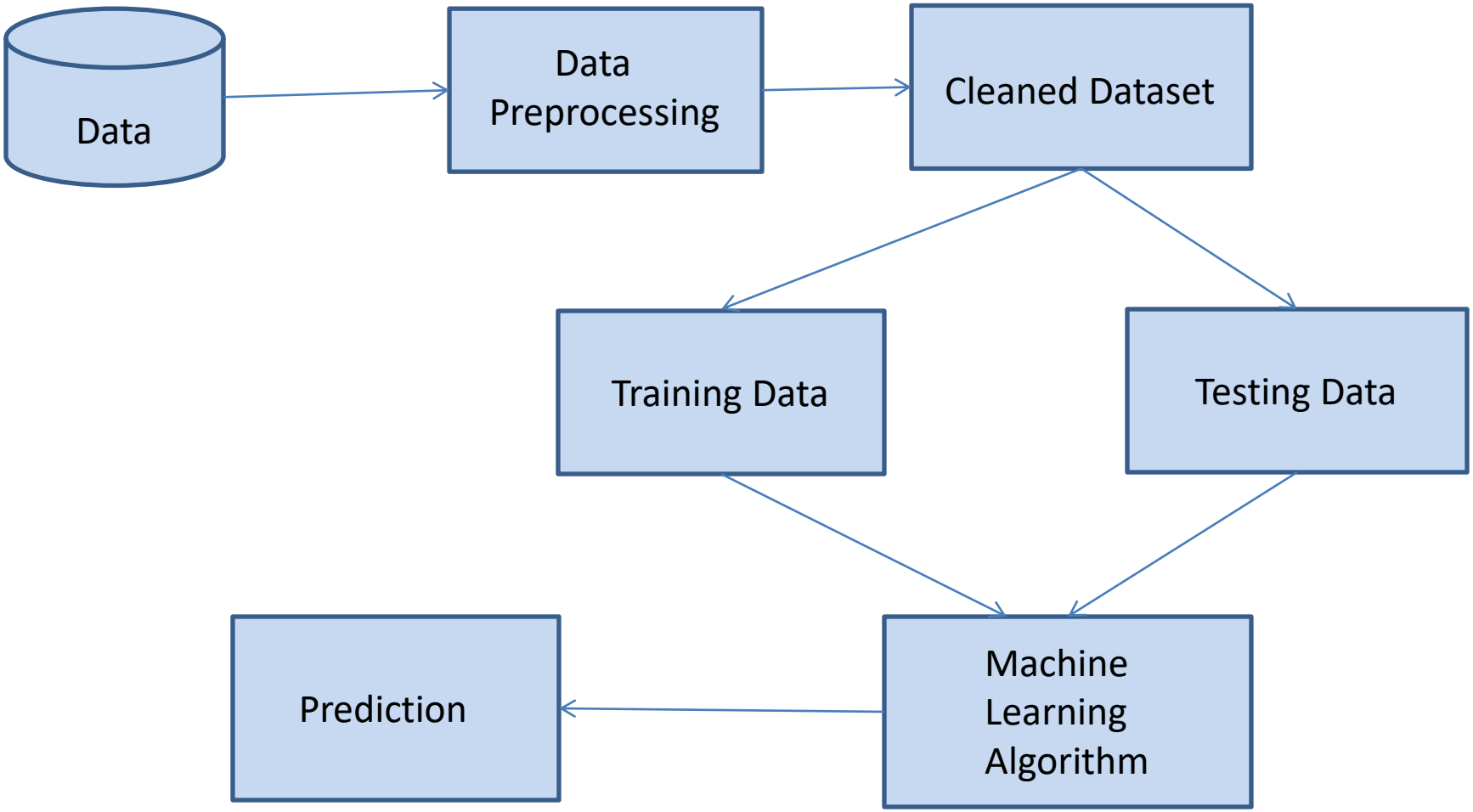
**To overcome the following issues:**

- Required less training time
- Easy to understand learned function
- Cost effective

**Additional features:**

98% of accuracy in detecting kidney disease

# ARCHITECTURE DIAGRAM



# REFFERENCE


- Gunarathne W.H.S.D,Perera K.D.M, Kahandawaarachchi K.A.D.C.P, “Performance Evaluation on Machine Learning Classification Techniques for Disease Classification and Forecasting through Data Analytics for Chronic Kidney Disease (CKD)”,2017 IEEE 17th International Conference on Bioinformatics and Bioengineering.
- S.Ramya, Dr. N.Radha, "Diagnosis of Chronic Kidney Disease Using Machine Learning Algorithms," Proc. International Journal of Innovative Research in Computer and Communication Engineering,Vol. 4, Issue 1, January 2016.
- S.Dilli Arasu and Dr. R.Thirumalaiselvi, “Review of Chronic Kidney Disease based on Data Mining Techniques”,International Journal of Applied Engineering Research ISSN 0973-4562 Volume 12, Number 23 (2017) pp. 13498-13505
- L. Rubini, “Early stage of chronic kidney disease UCI machine learning repository,”2015. [Online].Available:http://archive.ics.uci.edu/ml/datasets/Chronic Kidney Disease.
- S. A. Shinde and P. R. Rajeswari, “Intelligent health risk prediction systems using machine learning : a review,” IJET, vol. 7, no. 3, pp. 1019–1023, 2018.