


Chapter 11

Comparison of Performance of Various Machine Learning Classification Techniques With Ensemble Classifiers for Prediction of Chronic Kidney Disease

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ABSTRACT

Chronic kidney disease has become a very prevalent problem worldwide and almost 10% of the population is suffering and millions of people are dying every year because of chronic kidney disease. Numerous machine learning and data mining techniques are applied by many researchers round the world to diagnose the presence of chronic kidney disease, so that the patients of chronic kidney disease may get benefitted in terms of getting proper healthcare follow-up. In this chapter, Experiment 1 is conducted by implementing five different classifiers on the original chronic kidney disease dataset. In Experiment 2, two different ensemble classifiers are implemented combining all five individual classifiers. The Results of both the Experiments 1 and 2 are compared, and it is observed that the accuracy of ensemble classifiers is far better than the accuracy of individual classifiers. It may be concluded that the two experiments conducted in the chapter show the performance of ensemble classifiers is better than the individual classifiers.

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INTRODUCTION

Incessant kidney infection, additionally called interminable kidney disappointment, depicts the continuous loss of kidney work. Your kidneys channel squanders and overabundance liquids from your blood, which are then discharged in your pee. At the point when ceaseless kidney infection arrives at a propelled stage, risky degrees of liquid, electrolytes and squanders can develop in your body (Singh et al., 2020; Singh, Mondal & Das, 2020; Sharma & Das, 2020; Das, 2020).

In the beginning phases of ceaseless kidney illness, you may have not many signs or side effects. Constant kidney sickness may not get evident until your kidney work is fundamentally disabled. Treatment for constant kidney sickness centers around easing back the movement of the kidney harm, for the most part by controlling the hidden reason. Constant kidney ailment can advance to end-stage kidney disappointment, which is deadly without counterfeit sifting (dialysis) or a kidney relocate (Mondal, 2020; Nadanyiova & Das, 2020; Mondal & Sahoo, 2020; Das & Nayyar, 2020; Das, Nayyar & Singh, 2019).

Signs and indications of constant kidney infection create after some time if kidney harm advances gradually. Signs and manifestations of kidney ailment may include:

- Nausea
- Vomiting
- Loss of hunger
- Fatigue and shortcoming
- Sleep issues
- Changes in the amount you pee
- Decreased mental sharpness
- Muscle jerks and spasms
- Swelling of feet and lower legs
- Persistent tingling
- Chest torment, if liquid develops around the coating of the heart
- Shortness of breath, if liquid develops in the lungs
- High pulse (hypertension) that is hard to control

Signs and side effects of kidney infection are frequently vague, which means they can likewise be brought about by different sicknesses. Since your kidneys are exceptionally versatile and ready to make up for lost capacity, signs and manifestations may not show up until irreversible harm has happened (Das & Nayyar, 2019; Singh et al., 2019; Mohanty et al., 2019; Singh et al., 2019; Gupta et al., 2019). Constant kidney sickness happens when an infection or condition hinders kidney work, causing

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