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EARLY PREDICTION OF CHRONIC KIDNEY DISEASE USING SUPERVISED MACHINE LEARNING ALGORITHM

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ABSTRACT:

Chronic Kidney Disease (CKD) or chronic renal disease is one of the most common diseases nowadays in the world with a steady growth rate. Statistics shows that 26 million adults in the United States have CKD and million others are at risk. There is a need for effective methods for early prediction of CKD. Machine learning algorithms are effective in predicting CKD. This work proposes a workflow based on Machine Learning to predict CKD status. Random Forest algorithm is used for classification. Comparison with other machine learning algorithm is also carried out. Experiment result shows that Random Forest algorithm outperforms other classifier in terms of accuracy. This research also considers the practical aspects of data collection and highlights the importance of incorporating domain knowledge when using machine learning for CKD status prediction.

Keywords- Machine Learning; Prediction; CKD; Random Forest; Classification;

INTRODUCTION

Machine learning is an important field in bioinformatics research. Different statistical and machine learning algorithms are implemented in many research areas. Such as marketing, health, and medical problems, weather forecasting, the study of socioeconomic behavior, etc. We can use machine learning in those fields. Using Machine Learning algorithms, many diseases can be detected by machine or predicted. In developing countries, the increase in prevalence of chronic diseases such as chronic kidney disease has serious implications for the health and economic output. The rapid increase in common risk factors, especially among the poor, such as diabetes, hypertension, and obesity, would result in even greater and deeper burdens that developing nations are not prepared to cope with. Chronic diseases, especially chronic kidney disease, have received relatively little attention due to the global health community's focus on infectious diseases and a lack of awareness. There is an essential need to concentrate on Chronic diseases and the adoption of more inclusive, cost-effective, and preventive chronic disease strategies by developed countries.

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