INTRODUCTION:

About Project:

Chronic Kidney Disease refers to the kidneys' inability to fulfill their normal blood filtration role and other functions (CKD). The term "chronic" refers to progressive deterioration of kidney cells over time.

A kind of artificial intelligence is machine learning (ML) (AI). Its heart is algorithmic procedures, which allow the machine to solve issues without the need for specialist computer programming.

The widespread use of ML in the medical industry promotes medical innovation, lowers medical expenses, and improves medical quality. However, further research on using ML to solve clinical problems in nephrology is needed.

Hence, the prediction and diagnosis of CKD in its early stages is quite essential, it may be able to enable patients to receive timely treatment to ameliorate the progression of the disease.

Machine learning refers to a computer program, which calculates and deduces the information related to the task and obtains the characteristics of the corresponding pattern . This technology can achieve accurate and economical diagnoses of diseases hence, it might be a promising method for diagnosing CKD.

It has become a new kind of medical tool with the development of information technology and has a broad application prospect because of the rapid development of electronic health record . In the medical field, machine learning has already been used to detect human body status , analyze the relevant factors of the disease and diagnose various diseases.

For example, the models built by machine learning algorithms were used to diagnose heart disease , diabetes and retinopathy , acute kidney injury , cancer and other diseases .

Features:

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ABSTRACT:

Chronic kidney disease (CKD) is a widespread disease worldwide. CKD is the 11th leading cause of death worldwide, with 1.2 million deaths each year, and according to the Kidney Foundation in Bangladesh, about 40,000 people with CKD experience kidney failure each year, and several thousand die in the short stage of life due to CKD.

Predictive analytics for healthcare using machine learning is a challenging task to help doctors make accurate treatment decisions to save lives.

Together, the researchers researched chronic kidney disease, with most of their work being on purely statistical models, which created numerous gaps in the development of machine learning models.

In this paper, we discussed the current methods and proposed an improved technology based on XGBoost (Extreme Gradient Boost), which combined the significant characteristics of the F-score and evaluated four pre-processing scenarios.

In addition, we provided machine training methods for predicting chronic kidney disease with clinical information. Four master learning techniques including Support Vector Regressor (SVR), Logistic Regressor (LR), AdaBoost, Gradient Boosting Tree, and Decision Tree Regressor are explored.

Components are constructed from the UCI CKD dataset and the results of these models are compared to determine the best regression model for prediction.