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Chronic Kidney Disease Prediction using various Machine Learning Algorithms.

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What is the Research question and Objective

- Predicting the status of an individual whether he/she would be having chronic kidney disease or not based on certain medical features.
- Handling Imbalance in the medical dataset is one of the objective.
- Comparative analysis of the various machine learning algorithms (ANN, SVM, Naïve Bayes etc.)
- Focus on the Hyper-parameter Optimization of the machine learning models for an accurate prediction.
- Exploration of other techniques in the data-preparation phase.

Why I have chosen this Research Problem ?

Context of the Research Question – The Motivation

- Once the patient is predicted with the Chronic Kidney disease it will facilitate the timely diagnosis and prevent
  - Kidney Failures
  - Situation of the patient getting worse
- Real time machine learning system could be deployed in the hospitals as a handy tool for doctors
- Will save the time and costs associated with the various tests for detection of kidney disease.
- Previous work don’t handle the problem of imbalance and optimization in the chronic kidney disease dataset.

How will I proceed towards the objective?

Will follow the Exhaustive Machine Learning Lifecycle

- **Exploratory Data Analysis**
- **Data Pre-processing** (handling the imbalance with the sampling techniques such as SMOTE)
- **Model Building** - Various ML models such as ANN, KNN, SVM and others.
- Will explore the impact of **Ensemble techniques** (Random Forest, Gradient Boosting and Ada Boost) on the classification accuracy.
- **Hyper-parameter Optimization**

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Thank you

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