B.Sc. Engg. Machine Learning Project Proposal

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Chronic Kidney Disease Prediction

Abstract

MILLIONS of people in worldwide have chronic kidney disease (CKD) and are at increased risk for cardiovascular events and progression to kidney failure. Similar estimates of burden of disease have been reported around the world. Currently, there are no widely accepted predictive instruments for CKD progression; therefore, physicians must make ad hoc decisions about which patients to treat, risking delays in treatment in those who ultimately progress to kidney failure, or unnecessary treatment in those who do not progress. The severity of CKD has been recommended to guide treatment-related.

1. Introduction

1.1. Background

A Chronic kidney disease (CKD) is common. Patients with chronic kidney disease (CKD) are at increased risk for kidney failure, cardiovascular events, and all-cause mortality. Accurate models are needed to predict the individual risk for these outcomes.

1.2. Motivation

Different studies that examined adults with any stage of CKD who were not receiving dialysis and had not had a transplant; had at least 1 year of follow-up; and reported on a model that predicted the risk for kidney failure, cardiovascular events, or all-cause mortality

1.3. Aims and Objectives

To develop and validate predictive models for progression of CKD

1.4. Contributions/Significance of this project

This machine learning approaches are trying to predict the chronic kidney disease as early possible of CDK patients.

2. Related Works

Kidney disease is a significant worldwide public health problem. Acute kidney injury (AKI) and chronic kidney disease (CKD) are linked to high health care costs, poor quality of life, and serious adverse health outcomes. Despite this burden, kidney disease is often not included in major chronic disease control strategies, presenting an obstacle when engaging with governments to address kidney diseases. In an attempt to better define the current worldwide state of kidney care for AKI and CKD, and provide policy recommendations for improvements, the ISN launched a global survey project in 2016, the ISN Global Kidney Health Atlas (GKHA), to collect information on the current state of readiness, capacity, and competence for kidney health care delivery in each country and region.

3. Methodology/Proposed Research Plan

3.1. Data Description

The proposed system uses the dataset taken from the UCI Machine Learning Repository named Chronic Kidney Disease has 25 attributes, 11 numeric and 14 nominal. Total 400 instances of the dataset is used for the training to prediction algorithms. The attributes in the dataset are age, bp, sg, al, su, bc, pc, pcc, ba, bgr, bu, sc, sod, pot, hemo, pcr, wc, rc, htn, dm, cad, appet, pe, ane, classification.The dataset is divided into two groups, one for training and another for testing. The ratio of training and testing data is 70% and 30% respectively..

3.2. Proposed Model

The proposed system deals with the prediction of chronic disease from the clinical data. The healthcare generates large data, so it is necessary to collect this data and effectively use it for analysis, prediction, and treatment. A classification model draws some conclusion from observed values

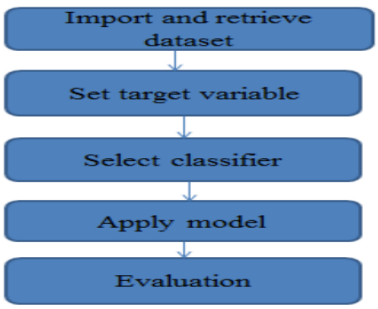

Fig: The process model to predict chronic kidney disease.

3.3. Timeline

(How will you divide your available time between the steps required to complete this project?)

4. Expected Outcomes/Results

The machine learning methods described are trained to predict the chronic kidney disease. Different classifier methods are used in this project which provides the best result that take for the result considerations.

5. Conclusion

The prediction of chronic kidney disease is very important and now-a-days it is the leading cause of death. The performance of Decision tree method was found to be 99.25% accurate compared to naive Bayes method. Classification algorithm on chronic kidney disease dataset the performance was obtained as 99.33% Specificity and 99.20% Sensitivity. We are also further working on enhancing the performance of prediction system accuracy in neural network and deep learning algorithm.

6. References

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