

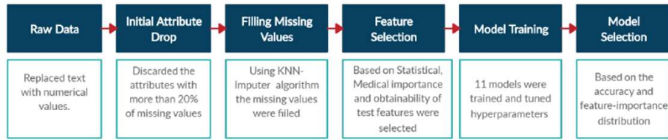
Project Design Phase-I Proposed Solution Template

Date	19 September 2022
Team ID	PNT2022TMID02261
Project Name	Project - Early Detection of Chronic Kidney Disease using Machine Learning
Maximum Marks	2 Marks

Proposed Solution Template:

Project team shall fill the following information in proposed solution template.

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Noncommunicable illnesses are the leading cause of early death, and CKD is the leading noncommunicable disease. Chronic Kidney Disease is a major concern for the global health care system. People with CKD must focus on implementing proven, cost-effective therapies to as many people as possible while taking into consideration restricted needs, human and financial resources. Chronic kidney disease (CKD) is now wreaking havoc on society and is spreading at an alarming rate. Various efforts have been undertaken to advance early therapy to prevent the condition from progressing to chronic disease. Recent research suggests that some of the negative outcomes can be avoided with early identification and treatment. Potential complications include: Fluid retention, which could lead to swelling in your arms and legs, high blood pressure, or fluid in your lungs (pulmonary edema) A sudden rise in potassium levels in your blood (hyperkalemia), which could impair your heart's function and can be life-threatening. When your kidneys are damaged, waste products and fluid can build up in your body. That can cause swelling in your ankles, nausea, weakness, poor sleep, and shortness of breath. Without treatment, the damage can get worse and your kidneys may eventually stop working. That's serious, and it can be life-threatening
2.	Idea / Solution description	Over 2 million people worldwide currently receive treatment with dialysis or a kidney transplant to stay alive, yet this number may only represent 10% of people who need treatment to live. Chronic kidney disease causes more deaths than breast cancer or prostate cancer. The stages of CKD are mainly based on the measured or estimated glomerular filtration rate (eGFR) which is based on creatinine level, gender, race and age. There are five stages of kidney functionality. The function is normal in stage 1 and minimally reduced in stage 2 but the majority of cases are at stage 3. To predict positive CKD status and the stages of CKD machine learning can be used. Machine Learning grabs major part of artificial intelligence when it comes to doing predictions from previous data using classification and regression methods. Application of machine learning methods to predict CKD has been explored based on multiple data sets. Among them, the dataset from UCI repository (referred to as UCI dataset hereafter) is identified as a benchmark dataset. Similar to most of the related work, this work considers the mentioned benchmark dataset.

3.	Novelty / Uniqueness	We are going to increase the accuracy of detecting kidney disease in a person
4.	Social Impact / Customer Satisfaction	It is used to detect how many members in our society have kidney disease
5.	Business Model (Revenue Model)	 <pre> graph LR A[Raw Data] --> B[Initial Attribute Drop] B --> C[Filling Missing Values] C --> D[Feature Selection] D --> E[Model Training] E --> F[Model Selection] </pre> <p>The flowchart illustrates the machine learning process for kidney disease detection. It starts with 'Raw Data', followed by 'Initial Attribute Drop', 'Filling Missing Values', 'Feature Selection', 'Model Training', and finally 'Model Selection'. Each step is accompanied by a detailed description of the actions taken during that phase.</p>
6.	Scalability of the Solution	With more amount of data set we can increase the accuracy of prediction