Project Design Phase-I
Proposed Solution Template

PROJECT TITLE: EARLY DETECTION OF CHRONIC KIDNEY DISEASE USING MACHINE LEARNING

PROJECT ID: PNT2022TMID12451

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Chronic kidney disease (CKD) is a condition in which the kidneys are damaged and cannot filter blood as well as they should. Chronic diseases, which are the cause of 71% of all deaths worldwide have devastating health consequences for individuals, families, and societies, as well as creating serious financial and economic risks to the economies of developed and developing countries and threatening the sustainability of health systems. It has been found that more than 60% of some chronic patient populations, such as those with cancer, cardiovascular disease, and stroke, have catastrophic health expenditures. Chronic diseases account for approximately 80% of all years of disability around the world
2.	Solution description	Either dipstick urinalysis or urine albumin-creatinine ratio (ACR) could also be used for the early detection of CKD. Various diagnostic measurements like Blood Pressure (Bp), Albumin (Al) etc., of the patients are collected and the data is processed and given to a machine learning model that will predict if the patient has CKD or not. The main treatments are: lifestyle changes – to help you stay as healthy as possible. medicine – to control associated problems, such as high blood pressure and high cholesterol. Dialysis-treatment to replicate some of the kidney's functions, which may be necessary in advanced (stage 5) CKD.
3.	Novelty	We aim to find the best machine learning modelfor the early prediction of chronic kidney disease by analyzing the essential parameters and comparing their predictive accuracies. Then collaborate the best machine learning model to an interactive user-interface which helps in the early detection of CKD and provide cure.
4.	Customer Satisfaction	The main aim of this application is early prediction and proper treatments can possibly stop or slow the progression of this disease to the end stage. Consult a dietitian regarding useful changes in diet. Dietary changes may include limiting protein, eating foods that reduce blood cholesterol levels, and limiting sodium (salt) and potassium intake.

5.	Business Model (Revenue Model)	We can generate revenue through direct customers or can also collaborate with the health care sector and generate revenue from their customers. We can able to discuss the problem for the CKD through online or offline mode.
6.	Scalability of the Solution	We can build various models using machine learning algorithms and compare them to find the best accurate model. We can also use image data and apply Deep Learning techniques, Probabilistic Neural Networks(PNN),and Multilayer Perceptron(MLP) etc., which will provide an improved accuracy than the machine learning techniques.Early detection and appropriate treatment are important in slowing the disease process, with the goal of preventing or delaying kidney failure. You will need to keep your medical appointments, take your medications as prescribed, stick to a healthy diet and monitor your blood pressure and blood sugar.