

## **Project Initialization and Planning Phase**

Date	21 June 2025
Team ID	SWTID1749634408
Project Title	Early Prediction for Chronic Kidney Disease Detection: A Progressive Approach to Health Management
Maximum Marks	3 Marks

## **Project Proposal (Proposed Solution) Report**

The proposal aims to transform chronic disease management by enabling early prediction of Chronic Kidney Disease (CKD) through machine learning. It addresses diagnostic delays and gaps in early detection, promising improved patient outcomes, proactive care, and reduced healthcare burdens. Key features include a predictive model for CKD risk and data-driven health insights to support timely intervention.

<b>Project Overview</b>	
Objective	The primary objective is to enhance early detection of Chronic Kidney Disease using advanced machine learning techniques, enabling timely intervention and better patient outcomes.
Scope	The project focuses on developing a predictive healthcare model for CKD, integrating machine learning to identify risk factors early and support preventive care strategies.
<b>Problem Statement</b>	
Description	Delayed detection of CKD due to limited early warning tools impacts patient outcomes and increases long-term healthcare costs. Current systems lack efficiency in identifying high-risk individuals before the disease progresses.
Impact	Solving these challenges will lead to timely medical interventions, reduced progression of the disease, lower treatment costs, and improved quality of life for patients—strengthening healthcare delivery and patient trust.
<b>Proposed Solution</b>	
Approach	Leverage machine learning algorithms to analyze patient data and predict the risk of CKD early, supporting healthcare providers with timely and accurate insights for preventive care.
Key Features	-Development of a machine learning-based CKD risk prediction model.

	<ul style="list-style-type: none"> <li>- Early alert system for high-risk individuals to support timely diagnosis.</li> <li>- Continuous learning from patient data to refine accuracy and adaptability.</li> </ul>
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## Resource Requirements

Resource Type	Description	Specification/Allocation
<b>Hardware</b>		
Computing Resources	CPU/GPU specifications, number of cores	T4 GPU
Memory	RAM specifications	8 GB
Storage	Disk space for data, models, and logs	1 TB SSD
<b>Software</b>		
Frameworks	Python frameworks	Flask
Libraries	Additional libraries	scikit-learn, pandas, numpy, matplotlib, seaborn
Development Environment	IDE	Google Colab
<b>Data</b>		
Data	Source, size, format	Kaggle dataset, 614, csv UCI dataset, 690, csv