Project Initialization and Planning Phase

Date	10th July 2024
Team ID	SWTID1721205662
Project Title	Early Prediction of Chronic Kidney Disease Using Machine Learning
Maximum Marks	3 Marks

Project Proposal (Proposed Solution) template

The primary objective of this project is to develop a robust machine learning model that can accurately detect chronic kidney disease (CKD) using patient data.

Project Overview	
Objective	Develop a robust machine learning model to accurately detect chronic kidney disease (CKD) using patient data.
Scope	- Data preprocessing and cleaning. - Feature selection and engineering. - Training and evaluating multiple machine learning models. - Selection of the best-performing model. - Deployment in a user-friendly interface.
Problem Statement	
Description	Chronic kidney disease is a significant health issue requiring early detection to prevent severe complications. Current diagnostic methods are time-consuming and require extensive medical expertise.
Impact	- Enable early detection and treatment of CKD. - Reduce the burden on healthcare professionals. - Improve patient outcomes with timely interventions.
Proposed Solution	
Approach	- **Data Preprocessing:** Handle missing values, normalize data, encode categorical variables. - **Feature Selection and Engineering:** Identify relevant features, create new features if necessary. - **Model Training and Evaluation:** Train multiple models, evaluate using metrics like accuracy, precision, recall, F1-score.

	- **Model Selection:** Select and fine-tune the best-performing model. - **Deployment:** Develop and deploy a user-friendly interface
Key Features	- **Accuracy:** High accuracy in detecting CKD. - **Efficiency:** Quick and automated detection. - **User-Friendly Interface:** Easy for healthcare providers to use. - **Scalability:** Can handle large data volumes.

Resource Requirements

Resource Type	Description	Specification/Allocation
Hardware		
Computing Resources	CPU/GPU specifications, number of cores	e.g., 2 x NVIDIA V100 GPUs
Memory	RAM specifications	e.g., 8 GB
Storage	Disk space for data, models, and logs	e.g., 1 TB SSD
Software		
Frameworks	Python frameworks	e.g., Flask
Libraries	Additional libraries	e.g., scikit-learn, pandas, numpy
Development Environment	IDE, version control	e.g., Jupyter Notebook, Git
Data		
Data	44KB	e.g., Kaggle dataset