Project Initialization and Planning Phase

Date	22 July 2025
Team ID/ Skill Wallet ID	**SWUID20250195143**
Project Title	AnemiaSense: Leveraging Machine Learning for Precise Anemia Recognition
Maximum Marks	3 Marks

Project Proposal (Proposed Solution) report

This proposal outlines the development of **AnemiaSense**, a machine learning-powered system designed to enable early detection, personalized treatment planning, and remote monitoring of anemia patients. By leveraging patient health data, the system aims to improve diagnostic accuracy, provide tailored treatment recommendations, and enhance accessibility to healthcare, especially for underserved areas.

Key features include advanced machine learning models for anemia detection, integration with remote health monitoring tools, and user-friendly interfaces for both patients and healthcare providers.

Project Overview	
Objective	The primary objective is to improve anemia diagnosis and management using advanced machine learning techniques, enabling faster detection, personalized care, and remote patient monitoring.
Scope	The project covers data collection, preprocessing, model development, evaluation, and deployment through a web-based interface. The solution integrates predictive analytics with healthcare workflows, benefiting patients, doctors, and caregivers.
Problem Statement	
Description	Anemia often remains undiagnosed until it becomes severe, leading to delayed treatment and poor health outcomes. Limited access to diagnostic facilities, lack of personalized treatment recommendations, and inadequate follow-up care further worsen the problem.
Impact	Solving these challenges will lead to earlier diagnosis, more effective treatments, and improved patient health outcomes, while reducing the burden on healthcare facilities.
Proposed Solution	
Approach	Use machine learning models trained on medical datasets (including hemoglobin levels, red blood cell counts, and other blood parameters) to predict anemia risk and provide treatment insights. Integrate the solution into a web-based platform for easy access and include

	support for remote monitoring.
Key Features	**Machine learning-based anemia detection model** trained on diverse patient datasets.

Resource Requirements

Resource Type	**Description**	**Specification/Allocation**
Hardware		
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
Software		
Frameworks	Python frameworks	Flask
Libraries	Additional libraries	TensorFlow, scikit-learn, pandas, numpy, matplotlib, seaborn
Development Environment	IDE	Jupyter Notebook, pycharm
Data		
Data	Source, size, format	Kaggle dataset