

Project Initialization and Planning Phase

Date	16 JUNE 2025
Team ID	SWTID1749621188
Project Title	Anemia Sense Leveraging-Machine Learning-For-Precise Anemia Recognition
Maximum Marks	3 Marks

Project Proposal (Proposed Solution) template

The proposal aims to improve anemia detection using machine learning by analyzing hematological parameters. The system enhances diagnostic efficiency, reduces manual errors, and provides timely health assessments. Key features include a data-driven classification model based on features like Hemoglobin, MCH, MCHC, and MCV.

Project Overview	
Objective	The primary objective is to develop an intelligent system that can predict anemia using blood parameters through machine learning, enabling early detection and improved medical support.
Scope	The project covers the preprocessing of medical data, exploratory data analysis, model training, and validation. It focuses on building an accurate classifier to identify anemic individuals based on input features.
Problem Statement	
Description	Anemia is a widespread health condition that often goes undiagnosed due to limited access to diagnostic tools and delayed clinical evaluations. Current methods for anemia detection can be invasive, costly, and inaccessible in remote or underserved regions. <i>Anemia Sense: Leveraging Machine Learning for Precise Anemia Recognitions</i> aims to develop a non-invasive, intelligent diagnostic system utilizing machine learning algorithms to accurately identify and classify anemia. This solution seeks to enhance early detection, reduce diagnostic costs, and provide scalable, real-time support for healthcare providers and patients worldwide.
Impact	Automating anemia detection can accelerate diagnosis, improve patient outcomes, reduce hospital workload, and aid rural or resource-limited areas with quick and reliable screening tools.
Proposed Solution	

Approach	Applying supervised machine learning techniques on hematological data to classify patients as anemic or non-anemic, using key blood features and statistical patterns.
Key Features	<p>Implementation of a machine learning-based anemia detection model.</p> <ul style="list-style-type: none"> Data preprocessing, feature scaling, and model validation Use of classification metrics to assess performance.

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	8 GB
Software		
Framework	Python framework	Flask
Libraries	Additional	Numpy,pandas, matplotlib, sklearn,
Development Environment	IDE	Vs Code
Data		
Dataset	Source, Size, Format	CSV file

Software		
Frameworks	Python frameworks	e.g., scikit-learn
Libraries	Additional libraries	<i>e.g., pandas, numpy, seaborn, matplotlib</i>
Development Environment	IDE, version control	e.g., VS Code, Colab, Jupyter Notebook, Git
Data		
Data	Source, size, format	e.g., Kaggle dataset, CSV file (~1,400 rows × 6 columns), manually collected or from public UCI dataset sources.