Model Development Phase

Date	7 August2025
Skill wallet ID	SWUID20250185217
Project Title	Anemia Sense: Leveraging Machine Learning for Precise Anemia Recognition
Maximum Marks	6 Marks

Model Selection Report

The forthcoming Model Selection Report will present a structured overview of all machine learning models considered during the development phase. For each model, the report will include a brief description, key hyper parameters, and relevant performance metrics such as Accuracy**,** F1-Score**,** Precision, and Recall. Comparative analysis will highlight the strengths, limitations, and trade-offs of each model, enabling data-driven decision-making in selecting the optimal approach. This comprehensive documentation will not only justify the final model choice but also serve as a valuable reference for future iterations and improvements.

Model	Description	Hyper parameters	Performance Metric (e.g., Accuracy,F1 Score)
Random Forest	Ensemble of decision trees; robust, handles complex relationships, reduces overfitting, and provides feature importance for loan approval prediction.	-	Accuracy score= 100%
Logistic Regression	A statistical model that predicts the probability of anemia presence using a logistic function; interpretable and efficient for binary classification.	-	Accuracy score= 99%

SVM	Support Vector Machine; effective in high-dimensional spaces, constructs optimal hyperplane for anemia classification.	-	Accuracy score= 93%
Naive Bayes	Probabilistic classifier based on Bayes theorem; works well for small datasets and assumes feature independence.	-	Accuracy score= 97%
Gradient Boosting	Gradient boosting with trees; optimizes predictive performance, handles complex relationships, and is suitable for accurate loan approval predictions.	n_estimators= 50, max_depth= 3, learning_rate= 0.1	Accuracy score= 100%