Model Development Phase Template

Date	25th June 2025
Team ID	LTVIP2025TMID36224
Project Title	Revolutionizing Liver Care: Predicting Liver Cirrhosis Using Advanced Machine Learning Techniques.
Maximum Marks	6 Marks

Model Selection Report

In the forthcoming Model Selection Report, various models will be outlined, detailing their descriptions, hyperparameters, and performance metrics, including Accuracy or F1 Score. This comprehensive report will provide insights into the chosen models and their effectiveness.

Model Selection Report:

Model	Description	Hyperparameters	Performance Metric (e.g., Accuracy, F1 Score)
Logistic Regression	A linear model for binary classification, effective for datasets where classes are linearly separable.	-	79.47 %
Logistic Regression CV	Logistic regression with built-in cross-validation, optimizes regularization parameter.	cv = 5	86.49%
Naive Bayes	A probabilistic classifier based on Bayes' theorem, assumes feature independence.	-	35.79%

XGBoost	Gradient boosting with trees, optimizes predictive performance, handles complex relationships.	-	35.79%
Ridge Classifier	Linear classifier with L2 regularization, helps to prevent overfitting.	-	84.21%
Random Forest	Ensemble of decision trees, robust, handles complex relationships, reduces overfitting, provides feature importance.	-	38.21%
Support Vector Classifier	Classifier using hyperplanes to separate classes, effective for high-dimensional spaces.	-	35.79%
K-Nearest Neighbors (KNN)	Classifies based on nearest neighbors, adapts well to data patterns, effective for local variations.	n_neighbors = <best_param>	86.32%