ModelDevelopmentPhaseTemplate

Date	June
TeamID	LTVIP2025TMID35140
Project Title	Revolutionizing Liver Care: Predicting Liver CirrhosisUsingAdvancedMachineLearning Techniques.
Maximum Marks	6 Marks

Model Selection Report

In the forthcoming Model Selection Report, various models will be outlined, detailing their descriptions,hyperparameters,andperformancemetrics,includingAccuracyorF1Score.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	Alinearmodelforbinaryclassification, effective for datasets where classes are linearly separable.	-	79.47 %
Logistic Regression CV	Logisticregressionwithbuilt-in cross-validation, optimizes regularization parameter.	cv = 5	86.49%
Naive Bayes	Aprobabilisticclassifierbasedon Bayes' theorem, assumes feature independence.	-	35.79%

XGBoost	Gradientboostingwithtrees,optimizes predictive performance, handles complex relationships.	-	35.79%
Ridge Classifier	LinearclassifierwithL2regularization, 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	Classifierusinghyperplanestoseparate classes, effective for high-dimensional spaces.	-	35.79%
K-Nearest Neighbors (KNN)	Classifiesbasedonnearestneighbors, adapts well to data patterns, effective for local variations.	n_neighbors = <best_param>	86.32%