Project Development Phase
Model Performance Test

Date	28 June 2025
Team ID	LTVIP2025TMID35624
Project Name	Revolutionizing Liver Care: Predicting Liver Cirrhosis Using Advanced Machine Learning Techniques
Maximum Marks	10 Marks

Model Performance Testing:

Project team shall fill the following information in model performance testing template.

S.No.	Parameter	Values	Screenshot

1.	Metrics	**Random Forest Model:** MAE - , MSE - , RMSE - , R2 score -
		
		 Classification Model: Confusion Matrix - , Accuray Score- & Classification Report -
			Initial Train score: 0.9934123847167325
			 Initial Test score: 0.8526315789473684
			 Confusion Matrix (Random Forest):
			 [[51 17]
			 [7 115]]
			 Classification Report (Random Forest):
			         precision recall f1-score support
			   0 0.88 0.75 0.81 68
			   1 0.87 0.94 0.91 122
			   accuracy 0.87 190
			   macro avg 0.88 0.85 0.86 190
			 weighted avg 0.87 0.87 0.87 190
			 Optimal hyperparameters for Random Forest: {'n_estimators': 300, 'min_samples_split': 10, 'min_samples_leaf': 4, 'max_depth': None, 'bootstrap': True)
			 Accuracy on test set: 0.873684210526158

2.	Tune the Model	Hyperparameter Tuning - Validation Method -	Optimal hyperparameters for Random Forest: {'n_estimators': 100, 'min_samples_split': 10, 'min_samples_leaf': 4, 'max_depth': 20, 'bootstrap': True) Best Cross-Validated Score: 0.9157 Validation Method: 5-Fold Cross-Validation Accuracy on test set: 0.873684210526158