

## Project Development Phase Model Performance Test

Date	JUNE 2025
Team ID	<b>LTVIP2025TMID40719</b>
Project Name	Project – <i>Revolutionizing Liver Care: Predicting Liver Cirrhosis using Advanced Machine Learning Techniques</i>
Maximum Marks	10 Marks

### Model Performance Testing:

S.No.	Parameter	Values	Screenshot
1.	Metrics	<b>Classification Model:</b> <b>• Confusion Matrix:</b> [[20, 15], [4, 81]] <b>• Accuracy Score:</b> 0.85 <b>• Classification Report:</b> Macro Avg Precision: 0.86, Recall: 0.77, F1-score: 0.80 Weighted Avg Precision: 0.85, Recall: 0.85, F1-score: 0.84	<pre># Logistic Regression lr = LogisticRegression(max_iter=1000) lr.fit(X_train, y_train) evaluate_model(lr, X_test, y_test, "Logistic Regression")  # XGBoost xgb = XGBClassifier(use_label_encoder=False, eval_metric='logloss') xgb.fit(X_train, y_train) evaluate_model(xgb, X_test, y_test, "XGBoost")</pre>
2.	Tune the Model	<b>Hyperparameter Tuning:</b> Used <b>GridSearchCV</b> on Random Forest Classifier Tuned Parameters: n_estimators, max_depth, min_samples_split, min_samples_leaf. <b>• Validation Method:</b> 5-Fold <b>Cross Validation</b> used within GridSearch	<pre>min_samples_split': [2, 5],     })  grid_search = GridSearchCV(RandomForestClassifier(), param_grid, cv=5, scoring='accuracy') grid_search.fit(X_train, y_train)  best_rf = grid_search.best_estimator_ evaluate_model(best_rf, X_test, y_test, "Random Forest (Tuned)")</pre>