Project Development Phase

Model Performance Test

Date	27-06-2025
Team ID	LTVIP2025TMID34698
-Project Name	Revolutionizing Liver Care: Predicting Liver Cirrhosis using Advanced Machine Learning Techniques
Maximum Marks	10 Marks

Model Performance Testing:

df.describe( ):

	Age	Durationofalcoholconsumptionyears	Quantityofalcoholconsumptionquartersday	Hemoglobingdl	PCV	MCVfemtoliterscell	TotalCount	Polymo
count	950.000000	950.000000	950.000000	950.000000	950.000000	950.000000	950.000000	950.00
mean	50.632632	20.606316	5.158947	10.263979	33.847579	87.645263	8120.625263	66.91
std	8.808272	7.980664	22.908785	1.942300	5.663780	13.778523	2252.695906	6.35
min	32.000000	4.000000	1.000000	4.000000	12.000000	60.000000	1200.000000	45.00
25%	44.000000	15.000000	2.000000	9.000000	31.000000	78.000000	7000.000000	61.00
50%	50.000000	20.000000	2.000000	10.000000	35.000000	87.000000	7500.000000	65.00
75%	57.000000	26.000000	3.000000	11.500000	38.000000	94.000000	9575.000000	72.00
max	80.000000	45.000000	180.000000	15.900000	48.000000	126.000000	13000.000000	81.00

```
df.describe()
```

Polymorphs	Lymphocytes	Monocytes	...	PlateletCountlakhsmm	Directmgdl	Indirectmgdl	TotalProteingdl	Albumingdl	Globulingdl	ALPhosphataseUL	SGOTASTUL
950.000000	950.000000	950.000000	...	950.000000	950.000000	950.000000	950.000000	950.000000	950.000000	950.000000	950.000000
66.911579	26.027368	3.813053	...	475.130042	4.040737	2.448421	5.616632	2.794316	3.240632	132.497895	81.794737
6.352465	7.227777	3.132033	...	6515.406159	2.757443	1.062163	1.275330	2.188737	1.320772	27.318700	31.106923
45.000000	8.000000	0.000000	...	0.520000	0.800000	0.200000	2.500000	0.900000	1.000000	56.000000	32.000000
61.000000	22.000000	2.000000	...	1.200000	2.700000	2.000000	5.000000	2.000000	2.500000	110.000000	59.000000
65.000000	27.000000	3.000000	...	1.420000	3.700000	2.300000	6.000000	2.500000	3.100000	130.000000	74.000000
72.000000	32.000000	5.000000	...	1.700000	4.200000	3.000000	6.400000	3.000000	4.000000	150.000000	96.000000
81.000000	44.000000	14.000000	...	90000.000000	25.000000	6.600000	8.300000	22.000000	30.000000	206.000000	204.000000

SGPTALTUL	PredictedValueOutComePatientsufferingfromlivercirrosisornot
950.000000	950.000000
61.565263	0.021053
31.306928	0.143635
23.000000	0.000000
41.000000	0.000000
49.000000	0.000000
76.000000	0.000000
216.000000	1.000000

```python
# Predictions
Y_pred = model.predict(X_test)

# Evaluation
print("✅ Model Evaluation:\n")
print("Accuracy       :", round(accuracy_score(Y_test, Y_pred) * 100, 2), "%")
print("Precision      :", round(precision_score(Y_test, Y_pred) * 100, 2), "%")
print("Recall         :", round(recall_score(Y_test, Y_pred) * 100, 2), "%")
print("F1 Score       :", round(f1_score(Y_test, Y_pred) * 100, 2), "%")

print("\nConfusion Matrix:\n", confusion_matrix(Y_test, Y_pred))
print("\nClassification Report:\n", classification_report(Y_test, Y_pred))
```

```
✅ Model Evaluation:

Accuracy       : 100.0 %
Precision      : 100.0 %
Recall         : 100.0 %
F1 Score       : 100.0 %

Confusion Matrix:
 [[187   0]
 [  0   3]]

Classification Report:
              precision    recall  f1-score   support

           0       1.00      1.00      1.00       187
           1       1.00      1.00      1.00         3

    accuracy                           1.00       190
   macro avg       1.00      1.00      1.00       190
weighted avg       1.00      1.00      1.00       190
```