

Project Development Phase Model Performance Test

Date	27 June 2025
Team ID	LTVIP2025TMID38326
Project Name	Revolutionizing Liver Care: Predicting Liver Cirrhosis Using Advanced Machine Learning Techniques.
Maximum Marks	10 Marks

Model Performance Testing:

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S.No.	Parameter	Values	Screenshot																														
1.	Metrics	Classification Model: Confusion Matrix: [[51 17], [7 115]] Accuracy Score: 87.36% Classification Report: Class 0 → Precision: 88%, Recall: 75%, F1: 81% Class 1 → Precision: 87%, Recall: 94%, F1: 91% Overall Accuracy: 87.36%	<div>Train score with tuned model: 0.8985507246376812</div> <div>Test score with tuned model: 0.8421052631578947</div> <div>Optimal hyperparameters for KNN: {'n_neighbors': np.int64(12)}</div> <div>Accuracy on test set: 0.84</div> <div>Confusion Matrix (KNN):</div> <div>[[51 17]</div> <div>[13 109]]</div> <div>Classification Report (KNN):</div> <table><thead><tr><th></th><th>precision</th><th>recall</th><th>f1-score</th><th>support</th></tr></thead><tbody><tr><td>0</td><td>0.80</td><td>0.75</td><td>0.77</td><td>68</td></tr><tr><td>1</td><td>0.87</td><td>0.89</td><td>0.88</td><td>122</td></tr><tr><td>accuracy</td><td></td><td></td><td>0.84</td><td>190</td></tr><tr><td>macro avg</td><td>0.83</td><td>0.82</td><td>0.83</td><td>190</td></tr><tr><td>weighted avg</td><td>0.84</td><td>0.84</td><td>0.84</td><td>190</td></tr></tbody></table>		precision	recall	f1-score	support	0	0.80	0.75	0.77	68	1	0.87	0.89	0.88	122	accuracy			0.84	190	macro avg	0.83	0.82	0.83	190	weighted avg	0.84	0.84	0.84	190
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2.	Tune the Model	Hyperparameter Tuning: Done using RandomizedSearchCV for KNN Best parameter: n_neighbors = 6 Validation Method: 5-Fold Cross Validation	<div>Train score with tuned model: 0.8985507246376812</div> <div>Test score with tuned model: 0.8421052631578947</div> <div>Optimal hyperparameters for KNN: {'n_neighbors': np.int64(12)}</div> <div>Accuracy on test set: 0.84</div> <div>Confusion Matrix (KNN):</div> <div>[[51 17]</div> <div>[13 109]]</div> <div>Classification Report (KNN):</div> <table><thead><tr><th></th><th>precision</th><th>recall</th><th>f1-score</th><th>support</th></tr></thead><tbody><tr><td>0</td><td>0.80</td><td>0.75</td><td>0.77</td><td>68</td></tr><tr><td>1</td><td>0.87</td><td>0.89</td><td>0.88</td><td>122</td></tr><tr><td>accuracy</td><td></td><td></td><td>0.84</td><td>190</td></tr><tr><td>macro avg</td><td>0.83</td><td>0.82</td><td>0.83</td><td>190</td></tr><tr><td>weighted avg</td><td>0.84</td><td>0.84</td><td>0.84</td><td>190</td></tr></tbody></table>		precision	recall	f1-score	support	0	0.80	0.75	0.77	68	1	0.87	0.89	0.88	122	accuracy			0.84	190	macro avg	0.83	0.82	0.83	190	weighted avg	0.84	0.84	0.84	190
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