Model Development Phase Template

Date	24 June 2025
Team ID	SWTID1749708868
Project Title	Revolutionizing Liver Care : Predicting Liver Cirrhosis Using Advanced Machine Learning Techniques
Maximum Marks	6 Marks

Model Selection Report

In the forthcoming Model Selection Report, various models will be outlined, detailing their descriptions, hyperparameters, and performance metrics, including Accuracy or F1 Score. 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	Simple and interpretable model for multi-class classification; suitable for linearly separable data.	max_iter=1000, random_state=42	Accuracy: 0.9090909090909091 F1 Score: 0.8963731363866203
SVM (RBF)	Effective in high-dimensional spaces; captures	gamma='auto', probability=True, random_state=42	Accuracy: 0.9411764705882353 F1 Score: 0.9126760563380283

	non-linear relationships in medical data.		
K-Nearest Neighbors	Instance-based learner; works well with clear local patterns in patient health metrics.	n_neighbors=5	Accuracy: 0.9411764705882353 F1 Score: 0.9126760563380283
Decision Tree	Captures feature interactions; easy to visualize clinical decision paths.	max_depth=5, random_state=42	Accuracy: 0.9518716577540107 F1 Score: 0.9507954960640382
Random Forest	Reduces overfitting by averaging multiple trees; handles complex, noisy medical data effectively.	n_estimators=100, random_state=42	Accuracy: 0.9251336898395722 F1 Score: 0.9045940690325717