**Model Development Phase**

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| Date | 23th June 2025 |
| Team ID | LTVIP2025TMID44055 |
| 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:**

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| **Model** | **Description** | **Hyperparameters** | **Performance Metric (e.g., Accuracy, F1 Score)** |
| SUPPORT  VECTOR  MACHINE | This type of model uses decision boundaries (Hyperplanes  ) to classify the target variable. This is useful for binary classification. | Default Parameters | Test Accuracy:  0.902834008097166  F1-score :   1. 0.82 2. 0.93 Recall: 3. 0.97 4. 0.88 |

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| Model 2 | Brief description | Hyperparameters used | Performance metric value |
| LOGISTIC  REGRESSION | This type of model uses probability / sigmoid curve to classify binary target variables.  This is done using sigmoid curves | max\_iter=1000, penalty="l1", solver="liblinear",  C=0.01 | Test Accuracy:  0.951417004048583  F1-score :   1. 0.90 2. 0.97 Recall: 3. 0.97 4. 0.95 |
| Model 3 | Brief description | Hyperparameters used | Performance metric value |
| DECISION  TREE  CLASSIFIER | Uses entropy to make decisions and provide classifications | criterion="entropy", max\_depth=3, min\_samples\_leaf=300 | Test Accuracy:  0.9757085020242915  Recall: 0.9682539682539683  F1 Score: 0.9838709677419354 |