**Project Development Phase**

**Model Performance Test**

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| Date | 30 june 2025 |
| Team ID | LTVIP2025TMID60863 |
| Project Name | Revolutionizing liver care; Predicting liver cirrhosis using advanced machine learning techniques |
| Maximum Marks |  |

**Model Performance Testing:**

**Model Performance Testing Template – Liver Cirrhosis Prediction Using Advanced ML Techniques**

| **S.No.** | **Parameter** | **Screenshot / Values** |
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| 1. | **Data Rendered** | Dataset: Indian Liver Patient Dataset (ILPD), UCI Liver Disorders Dataset, or Custom Clinical Dataset Total Records: \_\_\_\_\_\_\_ Features: Age, Gender, Total Bilirubin, Direct Bilirubin, Alkaline Phosphatase, SGPT, SGOT, Total Proteins, Albumin, A/G Ratio, etc. |
| 2. | **Data Preprocessing** | - Null value handling (imputation strategies) - Outlier removal (IQR/Z-score) - Feature scaling (StandardScaler/MinMax) - Label encoding for categorical variables - Train-test split (e.g., 80:20) |
| 3. | **Utilization of Filters** | - Feature selection using Mutual Information / ANOVA F-test - Correlation filtering to remove multicollinearity - Domain-specific thresholds applied to lab test results |
| 4. | **Calculation Fields Used** | - Synthetic features (e.g., Bilirubin Ratio = Total/Direct) - Feature importance scores from model (e.g., SHAP values) - Risk score computation (model probability outputs) - Liver Function Index (custom field from combined lab values) |
| 5. | **Dashboard Design** | No. of Visualizations / Graphs - \_\_\_ - ROC-AUC Curve - Confusion Matrix - Feature Importance Plot - Patient-wise Risk Prediction Visualization - Model Accuracy, Precision, Recall, F1 Score trends |
| 6. | **Story Design** | No. of Visualizations / Graphs - \_\_\_ - Step-by-step walk-through from data acquisition to prediction - Timeline of model performance improvements Clinical interpretability and decisio- n support system integration - Impact analysis on patient outcomes |