**Project Design Phase**

**Proposed Solution Template**

|  |  |
| --- | --- |
| Date | 10 June 2025 |
| Team ID | LTVIP2025TMID38618 |
| Project Name | Revolutionizing Liver Care : Predicting Liver Cirrhosis using Advanced Machine Learning Techniques |
| Maximum Marks | 2 Marks |

**Proposed Solution Template:**

|  |  |  |
| --- | --- | --- |
| **S.No.** | **Parameter** | **Description** |
|  | Problem Statement (Problem to be solved) | Early diagnosis of liver cirrhosis is difficult due to vague symptoms and dependency on invasive methods. Delays in detection reduce chances of effective treatment. |
|  | Idea / Solution description | Our ML-based solution predicts the presence of liver cirrhosis using clinical parameters like hemoglobin, platelet count, SGOT/AST, bilirubin, and alcohol consumption. It enables early detection through a web-based tool accessible to both doctors and patients. |
|  | Novelty / Uniqueness | Uses non-invasive clinical data and multiple machine learning algorithms (Naive Bayes, SVM, KNN, Logistic Regression, Random Forest) to deliver accurate predictions. Custom-tuned models ensure high precision and recall. |
|  | Social Impact / Customer Satisfaction | Helps in saving lives by promoting early detection and timely intervention. Reduces cost and time compared to traditional diagnosis. Improves confidence and satisfaction for both patients and healthcare providers. |
|  | Business Model (Revenue Model) | Freemium model for individuals, subscription model for hospitals/clinics. Potential integration with diagnostic labs and EMR systems. |
|  | Scalability of the Solution | Can be expanded to include predictions for other liver conditions, deployed as a cloud-based API, integrated into hospital portals or mobile apps for wider access. |