Project Design Phase
Proposed Solution Template

Date	11 June 2025
Team ID	LTVIP2025TMID33932
Project Name	Revolutionizing Liver Care : Predicting Liver Cirrhosis using Advanced Machine Learning Techniques
Maximum Marks	2 Marks

Proposed Solution Template:

Project team shall fill the following information in the proposed solution template.

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Liver diseases often go undetected until they reach advanced stages due to lack of early symptoms, expensive diagnostics, and poor awareness. There is no accessible and reliable tool for early-stage liver disease prediction, especially in rural and semi-urban areas.
2.	Idea / Solution description	Our project is an AI-based liver disease prediction system using the XGBoost machine learning algorithm. By analyzing medical attributes like age, gender, liver function test results, and symptoms, the model predicts whether a person is likely to have a liver disease. The solution can be integrated into hospitals, clinics, and health apps to assist doctors and patients in early diagnosis and preventive care. It reduces dependency on expensive or delayed medical tests by offering quick results.
3.	Novelty / Uniqueness	The uniqueness of our solution lies in its speed, accessibility, and minimal input requirements. Unlike traditional diagnostics, our model works in real-time and can be deployed through a simple web or mobile interface. It brings together healthcare and AI, targeting underserved populations who don't have access to full medical checkups. It also allows continuous improvement through model training on new patient data.
4.	Social Impact / Customer Satisfaction	Our solution can significantly improve public health outcomes by promoting early detection and intervention. It empowers users with actionable insights, reducing hospital admissions and treatment costs. Healthcare professionals can offer better, faster care. Users feel more aware, responsible, and confident about managing their liver health. It

		can also help rural healthcare workers in screening programs.
5.	Business Model (Revenue Model)	The tool can be provided for free to individuals with basic features, while hospitals, diagnostic labs, and healthcare startups can access advanced analytics and integration via a subscription or licensing model. Additional revenue can come from APIs for health apps, customized enterprise versions, or partnerships with insurance companies.
6.	Scalability of the Solution	This solution is scalable across geographies, languages, and healthcare levels. It can be extended to predict other chronic diseases like diabetes, kidney disease, or heart conditions. It can also be integrated into telemedicine platforms, wearable health devices, and public health dashboards. Cloud-based deployment allows easy updates and broad reach.