Project Design Phase
Proposed Solution

Date	JUNE 2025
Team ID	**LTVIP2025TMID40719**
Project Name	Revolutionizing Liver Care: Predicting Liver Cirrhosis using Advanced Machine Learning Techniques
Maximum Marks	2 Marks

Proposed Solution :

S.No.	Parameter	Description
1.	Problem Statement	**Liver cirrhosis** is often diagnosed at a late stage due to the lack of early screening tools. There is a need for **a cost-effective**, non-invasive, and early prediction model to identify potential cirrhosis cases using routine health data.
2.	Idea description	Our solution **leverages machine learning algorithms** to predict liver cirrhosis using clinical and biochemical features such as bilirubin, blood pressure, and lifestyle data. The model is trained, validated, and deployed via a Flask web application, making it user-friendly and accessible.
3.	Novelty / Uniqueness	Unlike traditional invasive tests, this model uses a minimal set of blood parameters and lifestyle indicators to **predict cirrhosis** with **high accuracy**. It includes automatic outlier handling, feature normalization, hyperparameter tuning, and deployment in a lightweight application.
4.	Social Impact / Customer Satisfaction	This model can help in **early detection and treatment** planning, especially in rural or under-resourced areas. It empowers both doctors and patients with quick risk assessments, potentially reducing liver-related mortality.
5.	Business Model (Revenue Model)	The tool can be offered as a **Software-as-a-Service (SaaS)** model for hospitals, diagnostic labs, or public health portals. It can be integrated into Electronic Health Record (EHR) systems or licensed for commercial health startups.
6.	Scalability of the Solution	The system can be scaled across healthcare platforms nationwide. The model can be updated with larger datasets, adapted to other liver conditions, or deployed as a mobile health tool with remote diagnostics.