**Project Design Phase**

**Problem – Solution Fit**

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| Date | 30 June 2025 |
| Team ID | LTVIP2025TMID35420 |
| Project Name | Revolutionizing Liver Care : Predicting Liver Cirrhosis Using Advanced Machine Learning Techniques |
| Maximum Marks | 2 Marks |

**Problem – Solution Fit:**

Liver cirrhosis often goes undetected in its early stages due to the absence of symptoms and lack of accessible diagnostic tools. This delay in diagnosis leads to poor patient outcomes and increased healthcare costs. Current detection methods are invasive, expensive, and not scalable for rural or underserved areas. To address this, machine learning can be used to analyze routine medical data and predict cirrhosis risk early. Our solution aims to create an AI-powered, non-invasive, and affordable tool for early detection and better liver care.

• **Problem**: Early detection of liver cirrhosis remains a major challenge, especially in rural and semi-urban settings, due to lack of advanced diagnostic tools and awareness.

• **Solution**: Use of machine learning algorithms (e.g., Random Forest, XGBoost) trained on clinical and biochemical data to predict the likelihood of liver cirrhosis, enabling earlier intervention and improved patient outcomes.

• **Why It Fits**: The solution aligns with current healthcare trends (digital health, telemedicine), is accessible and scalable, and reduces patient dependency on high-cost diagnostics.

