**Project Design Phase**

**Problem – Solution Fit**

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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 | 2 Marks |

**Problem – Solution Fit**

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**Definition:**  
The Problem-Solution Fit refers to the alignment between a clearly identified clinical challenge—early and accurate detection of liver cirrhosis—and a machine learning-based solution that effectively addresses this issue. This ensures that the tool delivers real value to healthcare providers, patients, and researchers.

**Purpose:**

✅ **Solve a critical medical challenge in a way that fits the needs of healthcare professionals and patients.**  
Liver cirrhosis often goes undiagnosed until it reaches an advanced stage. Our machine learning solution enables earlier detection based on existing lab and clinical data, fitting seamlessly into current medical workflows.

✅ **Accelerate clinical adoption and improve patient outcomes by using real-world data and decision support tools.**  
By leveraging commonly collected diagnostic data (e.g., bilirubin, albumin, platelet count), the model integrates naturally into existing clinical systems, improving acceptance and usability among healthcare professionals.

✅ **Sharpen diagnosis support and health communication with clear, data-driven insights.**  
The system provides interpretable predictions and confidence scores, helping clinicians communicate risk more effectively to patients and make timely decisions regarding treatment and referrals.

✅ **Increase trust and engagement by solving urgent and high-impact clinical problems.**  
By focusing on early-stage detection—a frequent gap in liver disease diagnosis—the tool builds credibility with medical practitioners and adds value through actionable insights that can prevent costly complications and hospitalizations.