Ideation Phase

Define the Problem Statements

Date	29-06-2025
Team ID	LTVIP2025TMID39531
-Project Name	Revolutionizing Liver Care: Predicting Liver Cirrhosis using Advanced Machine Learning Techniques
Maximum Marks	2 Marks

Customer Problem Statement Template:

The project is focused on creating an advanced machine learning-based predictive model to identify the onset or progression of liver cirrhosis in patients. Liver cirrhosis, a severe condition marked by liver tissue scarring due to prolonged damage, requires early detection and intervention to improve patient outcomes and avoid complications. By examining diverse patient data, including medical history, lab results, imaging scans, and lifestyle factors, the model aims to predict the likelihood of liver cirrhosis. This will assist healthcare professionals in making well-informed decisions regarding patient care.

Problem Statement (PS)	I am (Customer)	I'm trying to	But	Because	Which makes me feel
Predicting Liver Cirrhosis Using Advanced Machine Learning Techniques	A Healthcare Provider	Assess the risk of patients developing liver cirrhosis	I need assistance in treatment planning	I have resource constraints-limited availability of diagnostic equipment and specialists	Challenged in delivering comprehensive treatment plans

The problem statements for revolutionizing liver care through predicting liver cirrhosis using advanced machine learning techniques involve identifying key risk factors, improving diagnostic accuracy, and enhancing patient management strategies. These techniques aim to leverage data-driven insights to facilitate early detection and personalized treatment plans for liver cirrhosis.

Key Problem Statements

- **Improving Diagnostic Accuracy**
  - Developing machine learning models that can accurately predict the stage of liver cirrhosis based on clinical data.
  - Utilizing advanced algorithms to reduce false positives and negatives in liver disease diagnosis.
- **Enhancing Patient Management Strategies**
  - Creating predictive tools that assist healthcare practitioners in making informed decisions regarding treatment options.
  - Implementing personalized care plans based on predicted outcomes to improve patient quality of life.
- **Data Utilization and Integration**
  - Leveraging large datasets from clinical trials and patient records to train machine learning models effectively.
  - Ensuring the integration of diverse data types, including numerical and categorical features, for comprehensive analysis.
- **Addressing Limitations of Current Methods**
  - Identifying gaps in existing diagnostic techniques and exploring how machine learning can fill these voids.
  - Evaluating the scalability and applicability of machine learning solutions in various healthcare settings.