

## Project Initialization and Planning Phase

Date	09 July 2024
Team ID	SWTID1720023141
Project Title	Prediction and Analysis of Liver Patient Data Using Machine Learning
Maximum Marks	3 Marks

### Project Proposal (Proposed Solution) template

This proposal aims to enhance liver disease diagnosis and treatment planning using advanced machine learning. By integrating comprehensive liver patient datasets and applying sophisticated predictive models, the project will enable early detection and personalized treatment plans. Key components include data pre processing, feature engineering, model development, and deployment in a user-friendly application. This approach improves clinical decision-making, ensures data security, and complies with healthcare regulations, ultimately enhancing patient outcomes and healthcare efficiency.

Project Overview	
Objective	The primary objective of this project is to leverage machine learning algorithms to enhance the accuracy and efficiency of liver disease diagnosis, prognosis, and treatment planning by analyzing diverse liver patient datasets.
Scope	The project comprehensively addresses and enhances the diagnosis and treatment process for liver diseases, incorporating machine learning to create a more robust and efficient system.
Problem Statement	
Description	Current methods of diagnosing and managing liver disease are often reactive, time-consuming, and prone to errors due to the reliance on human expertise and traditional diagnostic tools. There is a critical need for a more proactive, accurate, and efficient approach.
Impact	<ul style="list-style-type: none"> <li>- Earlier and more accurate diagnosis of liver disease.</li> <li>- Improved patient outcomes through personalized treatment plans.</li> <li>- Reduced time and effort in data analysis for healthcare professionals.</li> <li>- Overall improvement in healthcare quality and efficiency.</li> </ul>

<b>Proposed Solution</b>	
Approach	Employing machine learning techniques to analyze and predict liver disease outcomes, creating a dynamic and adaptable diagnostic and treatment planning system.
Key Features	<ul style="list-style-type: none"> <li>- Implementation of a machine learning-based liver disease prediction model.</li> <li>- Real-time data analysis for quicker diagnosis and treatment planning.</li> <li>- Continuous learning to adapt to evolving medical knowledge and patient data.</li> </ul>

### Resource Requirements

Resource Type	Description	Specification/Allocation
<b>Hardware</b>		
Computing Resources	CPU/GPU specifications, number of cores	12th Gen Intel(R) Core(TM) i5-12450H ,8 Cores,T4 GPU
Memory	RAM specifications	16 GB
Storage	Disk space for data, models, and logs	512 GB SSD
<b>Software</b>		
Frameworks	Python frameworks	Flask
Libraries	Additional libraries	Numpy , Scikit-learn, Pandas, Matplotlib and Seaborn, Pickle
Development Environment	IDE, version control	Jupyter Notebook(7.0.8), Google Collab , Spyder(Python 3.11)
<b>Data</b>		
Data	Source, size, format	Kaggle dataset, 583 rows and 11 columns, Text