Project Initialization and Planning Phase

Date	09 July 2024
Team ID	SWTID1720013031
Project Title	Prediction and Analysis of Liver Patient Data Using Machine Learning
Maximum Marks	3 Marks

Project Proposal (Proposed Solution) report:

The proposal report aims to leverage advanced machine learning techniques to improve the accuracy and efficiency of liver disease diagnosis and treatment planning. By integrating diverse liver patient datasets and applying sophisticated predictive models, this project seeks to enable early detection, personalized treatment plans, and real-time data analysis. The proposed solution includes data preprocessing, feature engineering, model development, and deployment within a user-friendly application. This approach not only enhances clinical decision-making but also ensures data security and compliance with healthcare regulations, ultimately improving 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 data.
Scope	The project comprehensively addresses and enhances the diagnosis and treatment process for liver diseases, incorporating machine learning for a more robust and efficient system.
Problem Statement	
Description	The 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

	to analyzing liver patient data to improve patient outcomes and optimize treatment plans.
Impact	Earlier and more accurate diagnosis of liver disease. Improved patient outcomes through personalized treatment plans. Reduced time and effort in data analysis for healthcare professionals. Overall improvement in healthcare quality and efficiency.
Proposed Solution	
Approach	Employing machine learning techniques to analyze and predict liver disease outcomes, creating a dynamic and adaptable diagnostic and treatment planning system.
Key Features	- Implementation of a machine learning-based liver disease prediction model. - Real-time data analysis for quicker diagnosis and treatment planning. - Continuous learning to adapt to evolving medical knowledge and patient data.

Resource Requirements

Resource Type	**Description**	**Specification/Allocation**
Hardware		
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
Software		
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)

Data		
Data	Source, size, format	Kaggle dataset, 583 rows and 11 columns, Text