Project Initialization and Planning Phase

Date	15 March 2024
Team ID	739952
Project Title	Prediction And Analysis of Liver Patient Data Using Machine Learning
Maximum Marks	3 Marks

Project Proposal (Proposed Solution) template

This project proposal outlines a solution to address the problem of early liver disease detection through machine learning. With a clear objective to develop a predictive model for assessing disease risk based on symptoms, lifestyle factors, and health data, the proposal defines the scope of the project, including data collection, model development, and deployment. The proposed solution details the approach to be used, key features of the model, and specifies the resource requirements including hardware, software, and personnel. By creating an accurate and user friendly tool, the project aims to enable proactive health management and improve early liver disease detection.

Project Overview	
Objective	The primary objective is to develop a machine learning model that accurately predicts the likelihood of a patient developing a liver disease based on their medical history, symptoms, and other relevant data, enabling early intervention and improved health outcomes
Scope	Develop a machine learning model to predict the likelihood of a liver disease based on patient data. The scope includes data collection, basic preprocessing, model development, and initial evaluation for accuracy. The model will be deployed in a simple application for healthcare use. Ongoing maintenance and updates are not included
Problem Statement	
Description	Early detection of liver disease is crucial for effective treatment and improved patient outcomes. However, identifying diseases at an early stage can be challenging due to limited resources and complex medical data. This project aims to develop a machine learning model that predicts the likelihood of a disease based on patient data, enabling healthcare professionals to identify at-risk individuals earlier and take preventive measures.

Impact	Early liver disease detection improves patient outcomes and supports preventive care. It also enables efficient resource allocation, reducing healthcare costs. Additionally, it provides a tool for better decision making and can be adapted for broader use.
Proposed Solution	
Approach	Collect patient data and preprocess it for analysis. Develop a predictive model using algorithms like logistic regression or decision trees, then evaluate its performance with metrics such as accuracy and precision. Finally, deploy the model in a simple application for initial use
Key Features	* Uses patient data to forecast liver disease risk with high accuracy. * Implements straightforward machine learning techniques for reliable predictions. * Aims to identify potential health issues before they become severe. * Can be adapted for liver disease and integrated into various healthcare systems..

Resource Requirements

Resource Type	Description	Specification/Allocation
Hardware		
Computing Resources	CPU/GPU specifications, number of cores	T4 GPU
Memory	RAM specifications	8 GB
Storage	Disk space for data, models, and logs	1 TB SSD
Software		
Frameworks	Python frameworks	Flask
Libraries	Additional libraries	scikit-learn, pandas, NumPy, matplotlib, seaborn
Development Environment	IDE, version control	Jupyter Notebook, vscode
Data		

Data	Source, size, format	Kaggle dataset, 1348 kb,csv