Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	6 June 2025
Team ID	LTVIP2025TMID38618
Project Name	Revolutionizing Liver Care : Predicting Liver Cirrhosis using Advanced Machine Learning Techniques
Maximum Marks	4 Marks

Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the Components & Technologies & Application Characteristics

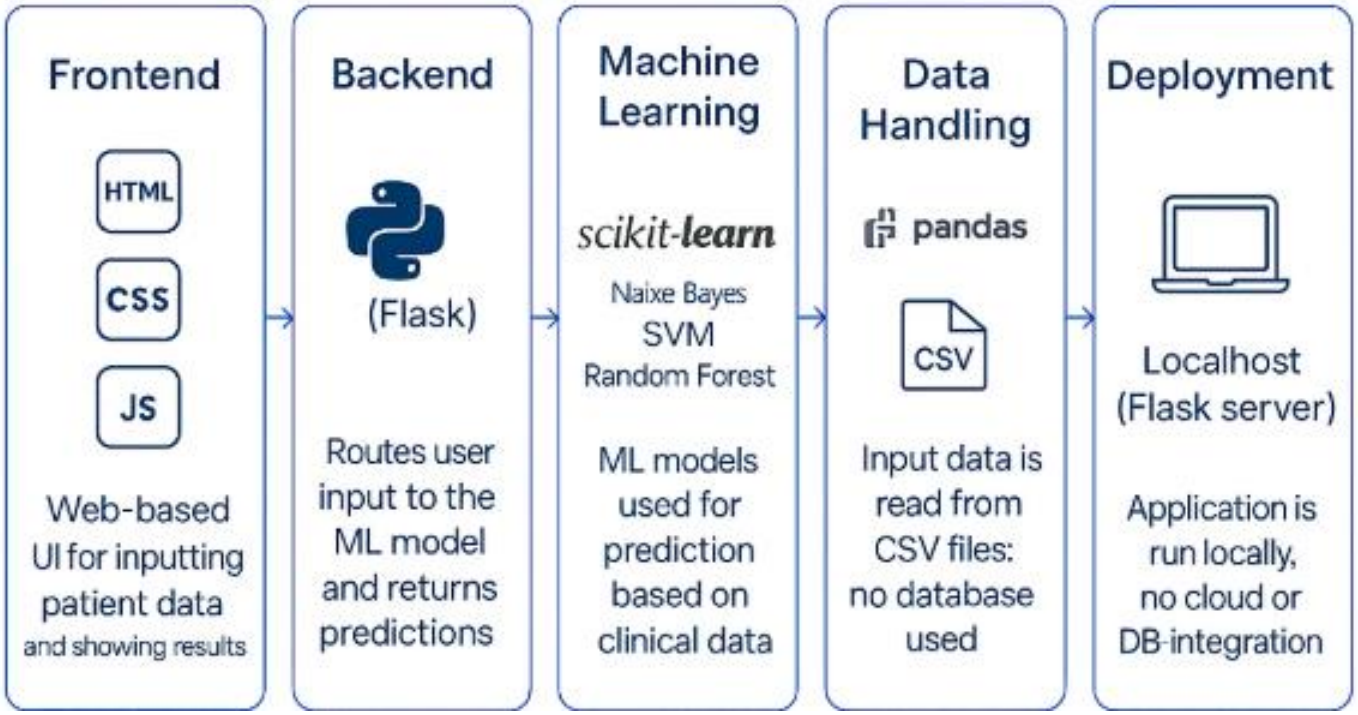

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Web interface for clinicians to input data and view predictions	HTML, CSS, JavaScript
2.	Application Logic-1	Data preprocessing and handling missing/categorical values	Python (pandas, NumPy)

3.	Application Logic-2	Model training, prediction, and evaluation	Python (scikit-learn)
4.	Application Logic-3	Flask-based integration to link frontend and backend	Python (Flask)
5.	File Storage	Store model files and datasets locally or in GitHub repo	Local Filesystem
6.	Machine Learning Model	Predicts whether a patient has liver cirrhosis	Naive Bayes, SVM, Random Forest,Logistic regression,
7.	Infrastructure (Server / Cloud)	Application runs locally using Flask; can be extended to cloud	Local (Flask server)

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Frameworks and libraries used for development	Flask, scikit-learn, pandas
2.	Security Implementations	Application is local; data privacy ensured through offline processing	Local-only use; no cloud auth
3.	Scalable Architecture	Can be scaled using microservices or hosted on cloud in future	Flask + Modular Python files
4.	Performance	Optimized with preprocessed data and saved models for fast predictions	Flask,pandas