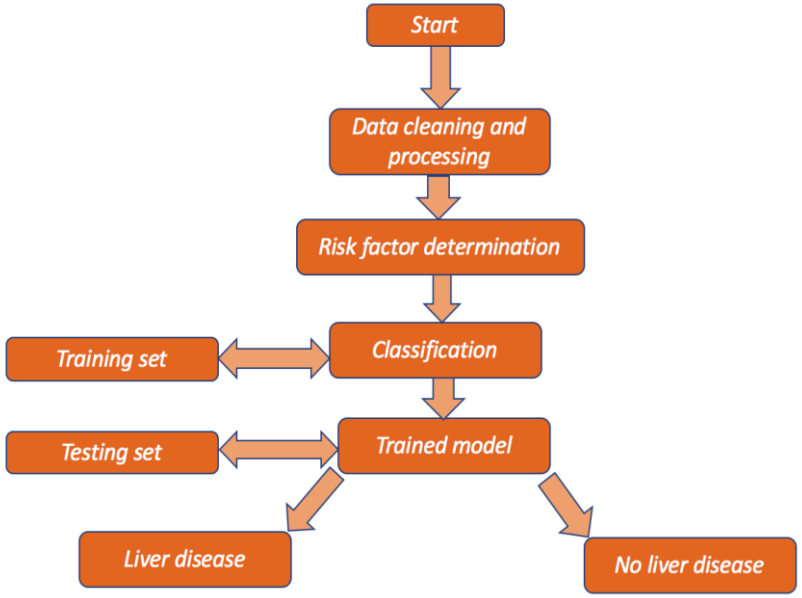
Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	19 July 2025
Team ID	LTVIP2025TMID41526
Project Name	**Revolutionizing Liver Care: Predicting Liver Cirrhosis Using Advanced Machine Learning Techniques**
Maximum Marks	4 Marks

Technical Architecture:



Example: Revolutionizing Liver Care: Predicting Liver Cirrhosis Using Advanced Machine Learning Techniques

Table-1: Components & Technologies:

S.No	Component	Description	Technology
1	User Interface	Simple UI (optional web frontend)	HTML, CSS (Flask optional if hosted)
2	Application Logic-1	Data cleaning, preprocessing, feature selection	Python (NumPy, Pandas)
3	Application Logic-2	Model training & prediction logic	Python (scikit-learn, XGBoost)
4	Application Logic-3	Evaluation metrics and visualization	Seaborn, Matplotlib
5	Database	Local dataset (Excel or CSV)	File-based (Pandas reads Excel)
6	Cloud Database	(Not used)	—
7	File Storage	Dataset stored and accessed locally	Local filesystem / Google Drive (in Colab)
8	External API-1	(Not used)	—
9	External API-2	(Not used)	—
10	Machine Learning Model	Predict liver cirrhosis outcome	KNN, Logistic Regression, SVC, XGBoost
11	Infrastructure	Executed on Google Colab	Google Cloud (Colab Environment)

Table-2: Application Characteristics:

S.No	Characteristic	Description	Technology
1	Open-Source Frameworks	Used for model building and data science	Python, scikit-learn, NumPy, Pandas
2	Security Implementations	No external security needed (offline/local analysis)	Not applicable (for local use)
3	Scalable Architecture	Can be deployed with REST API via Flask for web integration	Flask (if deployed)
4	Availability	High if deployed on cloud platforms	Google Colab, Cloud VM (optional)
5	Performance	Fast for small datasets, optimized using preloaded in-memory processing	scikit-learn, Pandas