Project Design Phase

Solution Architecture

Date	29-06-2025
Team ID	LTVIP2025TMID39531
Project Name	Revolutionizing Liver Care: Predicting Liver Cirrhosis using Advanced Machine Learning Techniques
Maximum Marks	4 Marks

Solution Architecture:

Solution Architecture for Liver Cirrhosis Prediction System

1. Frontend (User Interface)

- Simple HTML/CSS form to collect patient data
- Hosted in Flask's **templates** folder
- Example fields: Age, Gender, Blood Test Results, Symptoms

2. Backend (Flask Server)

- **app.py** handles all web requests
- Receives form data → processes it → sends to ML model
- Displays prediction results back to the UI

3. Machine Learning Model

- Pre-trained cirrhosis prediction model (.pkl file)
- Loaded when Flask starts
- Makes predictions based on input data

How It Works - Simple Steps:

1. **User** fills out web form
2. **Form** sends data to Flask server
3. **Flask** prepares data for ML model
4. **ML Model** predicts cirrhosis risk
5. **Results** show back in the browser

```
liver_cirrhosis_prediction/
│
├── app.py                # Main Flask application
├── model/                # Directory for model files
│   └── cirrhosis_model.pkl  # Trained machine learning model
│
├── templates/            # Directory for HTML templates
│   └── index.html        # HTML form for user input
│
├── static/               # Directory for static files (CSS, JS)
│   └── style.css         # CSS file for styling (optional)
│
└── requirements.txt      # List of dependencies
```

Summary of Workflow

1. **User Interface**: User fills out the form in **index.html**.
2. **Flask Server**: **app.py** receives the data and processes it.
3. **Model Prediction**: The model in **model/cirrhosis_model.pkl** predicts the risk.
4. **Display Results**: Results are shown back in the browser.