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

Date	31 January 2026
Team ID	LTVIP2026TMIDS56565
Project Name	Rising Waters: A Machine Learning Approach to Flood Prediction
Maximum Marks	4 Marks

Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2

Example: Rising Waters: A Machine Learning Approach to Flood Prediction

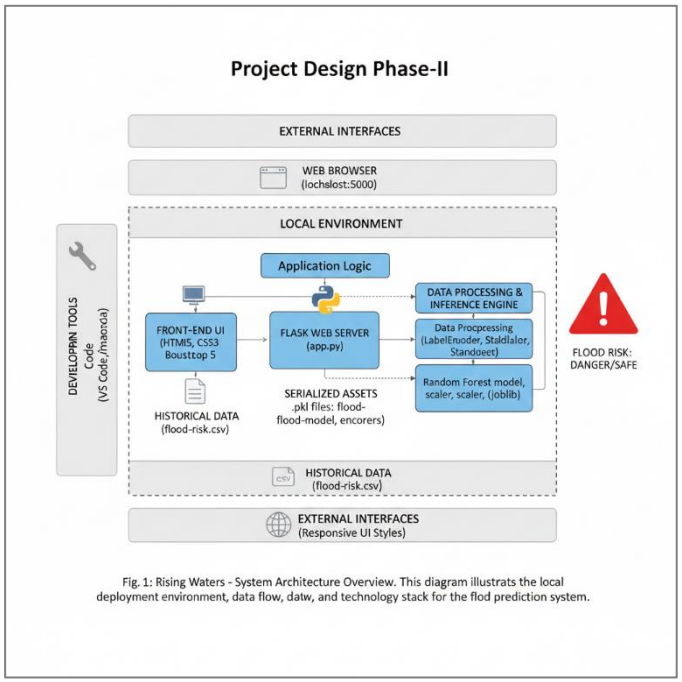

Fig. 1: Rising Waters - System Architecture Overview. This diagram illustrats the local deployment environment, data flow, datw, and technology stack for the flod prediction system.

Table-1: Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Web-based dashboard for environmental data entry and prediction display	HTML5, CSS3, Bootstrap 5
2.	Application Logic-1	Server-side scripting for routing and model integration	Python, Flask Framework
3.	Application Logic-2	Data pre-processing and feature scaling logic	NumPy, Pandas, Scikit-learn
4.	Database	Storage for historical flood records and training data	CSV (flood_risk.csv)
5.	Machine Learning Model	Ensemble model for flood risk classification	Random Forest Classifier
6.	Infrastructure (Server / Cloud)	Local deployment environment for development and testing	Localhost (VS Code, Anaconda)

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	core web and ML libraries used for development	Flask, Scikit-learn, XGBoost
2.	Scalable Architecture	3-tier architecture (Client, Server, Model)	Flask Web Server
3.	Performance	Rapid serialization and deserialization of model assets	Joblib