

# Proposed Solution [Project Design Phase-I]

Date	2 February 2026
Team ID	LTVIP2026TMIDS74755
Project Name	Rising Waters: A Machine Learning Approach To Flood Prediction
Maximum Marks	2 Marks

## Proposed Solution Indexing:

S.No.	Parameter	Description
1.	Problem Statement	Floods cause severe damage to human life, agriculture, and infrastructure every year. Sudden changes in rainfall patterns, temperature, and humidity increase the risk of flood occurrence. An accurate and timely flood prediction system is required to alert authorities and people in advance so that preventive measures can be taken to reduce losses.
2.	Idea / Solution Description	Analyzing historical environmental data such as temperature, humidity, cloud cover, and seasonal rainfall distribution to identify patterns leading to floods. Building a Machine Learning-based classification model using algorithms like Decision Tree, Random Forest, KNN, and XGBoost to predict whether a flood may occur or not.
3.	Novelty / Uniqueness	The system compares multiple ML models and selects the best-performing model (XGBoost) based on accuracy and performance metrics. It integrates the trained model with a Flask web application to provide real-time flood prediction in a simple and user-friendly interface.
4.	Social Impact / Customer Satisfaction	This application helps disaster management authorities and people in flood-prone areas to take early precautionary measures. It reduces damage to property and agriculture and improves public safety through early warning predictions.
5.	Business / Revenue Model	The prediction system can be used by government agencies, weather departments, and disaster management authorities. The solution can be integrated into existing weather monitoring systems and offered as a predictive service for public safety and risk management.
6.	Scalability of the Solution	The model can be enhanced by including more environmental parameters and larger datasets to improve accuracy. The system can be expanded to predict other natural disasters and deployed on cloud platforms for large-scale public access.