

Project Design Phase
Problem – Solution Fit

Date	16 February 2026
Team ID	LTVIP2026TMIDS74755
Project Name	Rising Waters: A Machine Learning Approach To Flood Prediction
Maximum Marks	2 Marks

Problem – Solution Fit:

The Problem-Solution Fit simply means that you have found a problem with your customer and that the solution you have realized for it actually solves the customer's problem. It helps entrepreneurs, marketers and corporate innovators identify behavioral patterns and recognize what would work and why.

Purpose:

- Solve complex problems in a way that fits the state of your customers.
- Succeed faster and increase your solution adoption by tapping into existing mediums and channels of behavior.
- Sharpen your communication and marketing strategy with the right triggers and messaging.
- Increase touch-points with your company by finding the right problem-behavior fit and building trust by solving frequent annoyances, or urgent or costly problems.
- Understand the existing situation in order to improve it for your target group.

1. Customer Problem

Floods cause significant damage to human life, agriculture, and infrastructure. Due to unpredictable climate changes and irregular rainfall patterns, it is difficult for authorities and people in flood-prone areas to take preventive measures in advance.

2. Target Customers

- Disaster management authorities
- Government agencies
- People living in flood-prone regions
- Environmental monitoring departments

3. Existing Situation

Flood prediction is often based on delayed reports or manual observation. Lack of early warning systems leads to property damage and safety risks.

4. Proposed Solution

A Machine Learning-based flood prediction system that analyzes environmental parameters such as temperature, humidity, cloud cover, and rainfall distribution to predict flood occurrence accurately.

5. Problem–Solution Fit

The system directly addresses the need for early flood prediction by using historical data and trained ML models (XGBoost) to generate fast and reliable predictions. This enables timely decision-making and reduces potential losses.

6. Value Proposition

- Early warning system
- Quick and accurate prediction
- Simple web-based interface
- Scalable for future enhancements