Project Design Phase
Problem – Solution Fit Template

Date	15 February 2025
Team ID	LTVIP2026TMIDS77028
Project Name	Rising Waters – A Machine Learning Approach to Flood Prediction
Maximum Marks	2 Marks

Problem – Solution Fit Overview

Problem–Solution Fit means identifying a real and urgent problem faced by the target users and ensuring that the proposed solution effectively addresses that problem. In the context of flood prediction, the system must align with the needs, behavior, and constraints of disaster management authorities and residents in flood-prone areas.

The Rising Waters system achieves this by delivering an AI-based predictive solution that directly addresses the lack of early flood forecasting tools.

Customer Problem

Floods are one of the most destructive natural disasters, causing:

- Loss of human life
- Damage to infrastructure
- Economic instability
- Delayed emergency response

Current systems mainly rely on:

- Manual monitoring
- News-based alerts
- Basic weather forecasts
- Reactive emergency actions

These methods are not predictive and do not provide early warning based on data analytics.

Root Cause of the Problem

- Lack of automated AI-based flood prediction systems
- Limited use of historical rainfall data for predictive analysis
- Dependence on delayed weather reporting
- Inconsistent and unpredictable climate patterns

Purpose:

The proposed solution is a **Machine Learning-based Flood Prediction System** that:

- Uses historical rainfall and environmental data
- Applies classification algorithms (Random Forest, XGBoost)

- Predicts flood occurrence in advance
- Provides results through a user-friendly web interface
- Supports future integration with real-time weather APIs

Template:

References:

1. https://www.ideahackers.network/problem-solution-fit-canvas/
2. https://medium.com/@epicantus/problem-solution-fit-canvas-aa3dd59cb4fe