Project Design Phase
Proposed Solution Template

Date	20 February 2026
Team ID	LTVIP2026TMIDS83775
Project Name	Exploratory Analysis of Rain Fall Data in India for Agriculture
Maximum Marks	2 Marks

Proposed Solution Template:

Project team shall fill the following information in the proposed solution template.

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	predicting rainfall accurately is difficult due to changing weather conditions and complex environmental factors. Farmers, commuters, and planners often face uncertainty in decision-making because traditional weather forecasting methods may not always provide accurate or location-specific predictions. There is a need for an automated system that can analyze weather parameters and predict whether it will rain tomorrow using machine learning techniques.
2.	Idea / Solution description	The proposed solution is a Machine Learning-based Rainfall Prediction System that predicts whether it will rain tomorrow based on weather parameters. Users enter details such as temperature, rainfall, and humidity through a web interface. The system preprocesses the input data using StandardScaler and passes it to a trained Random Forest model. The model analyzes the data and predicts whether there will be rain. The result (Rain / No Rain) is displayed to the user through a Flask-based web application. Technologies used include Python, Scikit-learn, Flask, HTML, and CSS.
3.	Novelty / Uniqueness	The uniqueness of this system lies in combining machine learning with a simple web-based interface for real-time rainfall prediction. Unlike manual estimation methods, this system provides data-driven and instant predictions. The model is trained on real weather data and can be improved further with more features and larger datasets. The system is lightweight, scalable, and easy to deploy.
4.	Social Impact / Customer Satisfaction	This system helps farmers plan irrigation and harvesting effectively. It assists commuters and travelers in planning their daily activities. It reduces inconvenience caused by unexpected

		rainfall. The system improves decision-making and promotes the use of AI in weather analysis. It increases convenience and provides reliable information quickly.
5.	Business Model (Revenue Model)	The system can be deployed as a web or mobile application. Revenue can be generated through advertisements, premium features, or subscription services for advanced weather analytics. It can also be integrated with agricultural platforms, travel planning applications, and weather monitoring services.
6.	Scalability of the Solution	The system is scalable and can handle multiple users. It can be deployed on cloud platforms such as AWS, Azure, or Google Cloud. The model can be retrained with larger and updated datasets to improve accuracy. Additional weather features and predictive analytics can be added in the future.