Proposed Solution [Project Design Phase-I]

Date	29 September 2022
Team ID	PNT2022TMID22613
Project Name	**Exploratory Analysis of RainFall Data in India for Agriculture**
Maximum Marks	2 Marks

Proposed Solution Indexing:

S.No	Parameter	Description
1.	Problem Statement	Farmers face the daunting task of gathering their harvest and taking the produce to market after excessive rainfall harmed the crops. Accurate and timely rainfall prediction is expected into inject a new intervention phase to the affected sectors afflicted by the negative propensies of rainfall extremes. Heavy rainfall can have impacts like damage or destruction of crops, so a tool is required that can predict the rainfall more accurately so that it helps farmers efficiently utilise crop production and water resources.
2.	Idea / Solution Description	Analysing previous years' rainfall data from all over India to get the seasonal patterns with respect to the production of different sorts of crops. Building an ML-based model to predict the rainfall of places in India with a high concentration of agricultural activities while taking care of the trends and analysis done already.
3.	Novelty / Uniqueness	Regional or zonal based prediction of rainfall, which would be helpful to farmer communities of different places having varied crop cultivation. Various ML models [in-built, hybrid or ensemble methods] would be applied to the datasets and chosen to make predictions based on their accuracy, reliability, and sustainability.
4.	Social Impact / Customer Satisfaction	This application would help the users to maintain an overall balance between demand and supply of agricultural stocks while the farmers can take decisions for cropping, harvesting, and efficient use of the water resources. It would reduce the losses and prevent the farmers from attempting suicide, providing an improved quality of life.
5.	Business / Revenue Model	Correct and accurate predictions from the built model would fetch adequate profits for the respective users and user sectors. As the economy of India is largely dependent on the primary sector especially agriculture and its allied activities, the model is useful to other departments like tea plantations, tourism, metrological dept. etc. Govt. aid and open-sourcing of datasets would allow the farmers and other users to avail the product in low or no charges.
6.	Scalability of the Solution	Effective analysis and prediction will assist not only farmers and other people associated with agriculture in tracking the effect of rainfall on their crops and harvests, but also people in all sectors [government ministry, news agencies, vegetable or crop sellers, common citizens] in using our product or tool for their daily needs. Any feature or module could be easily included into the application to expand the user functionalities.