

Project Design Phase-I
Proposed Solution Template

Date	24 September 2022
Team ID	PNT2022TMID02252
Project Name	Project – Exploratory Analysis of Rainfall Data in India for Agriculture
Maximum Marks	2 Marks

Proposed Solution Template:

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

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Rainfall has been a major concern these days. Weather conditions have been changing for time being. Rainfall forecasting is important otherwise, it may lead to many disasters. Irregular heavy rainfall may lead to the destruction of crops, heavy floods that can cause harm to human life. It is important to exactly determine the rainfall for effective use of water resources, crop productivity, and pre-planning of water structures.
2.	Idea / Solution description	We will be using classification algorithms such as Decision tree, Random forest, KNN, and xgboost. We will train and test the data with these algorithms. From this best model is selected and saved in pkl format. Once the model is saved, we integrate it with flask application and also deploy the model in IBM.
3.	Novelty / Uniqueness	The novelty of the present study is that the model is not concentrated on one or more states or overall India rather the present study considers predicting and forecasting rainfall for thirty-four meteorological sub-divisions of India. Therefore, the study will be highly beneficial as it worked on the whole India at a micro level. Also, its importance has a direct impact on the agriculture of the regions and how it could affect the other facets as well.
4.	Social Impact / Customer Satisfaction	India is an agricultural country and secondary agro based market will be steady with a good monsoon. The economic growth of each year depends on the amount of duration of monsoon rain, bad monsoon can lead to

		destruction of some crops, which may result in scarcity of some agricultural products which in turn can cause food inflation, insecurity and public unrest. In our analysis we are trying to understand the behaviour of rainfall in India over the years, by months and different subdivisions and use the predictions to help enhance the productivity.
5.	Business Model (Revenue Model)	This parametric modelling with components for seasonal variation is used to represent the data. It detects changes in the rainfall process. The user will get to see the properties of trends and changes over time. Also, special information like occurrence of wet days, expected amount of rain, spell lengths and extreme events are delivered to the users based on a subscription basis.
6.	Scalability of the Solution	<p>The analysed rainfall data is one of the climatological data which is widely analysed for a long time. It has a wide range of applications which also put a light on sowing date, facilitating policy decisions regarding the cropping pattern, construction of roads and providing drinking water to urban and rural areas.</p> <p>This analysis given could also be extended in the form of an application that shows plots and graphical data visualised to the user.</p>