ProjectTitle : Exploratory Analysis of Rainfall Data in India For Agriculture **ProjectDesignPhase-I**-SolutionFit Template **TeamID:** PNT2022TMID36050

Define CS, fit into CC

1. CUSTOMER SEGMENT(S) CS

Ramu who cultivates crops is worried about the rainfall pattern and wants to know the intensity and precautions to be taken before hand so he can be well planned and not lose any crops to untimely rains. He is our customer

6. CUSTOMER CONSTRAINTS CC

Predicting the future rainfall with greater certainty, avoiding false predictions and determining the duration and amount of rainfall in that particular duration are necessary.

5. AVAILABLE SOLUTIONS AS

Ramu can instruct his workers to add trees and shrubs to upland areas to stop runoff.
He can also plant cover crops in bare areas and request the authorities to improve infrastructure and drainage system during rainfall

Explore AS, differentiate

Focus on J&P, tap into BE, understand RC

2. JOBS-TO-BE-DONE / PROBLEMS J&P

Heavy and irregular rainfall can have many impacts like destruction of crops and farming lands.

- Limited Food Access
- Unsustainable Agriculture Practices
- Leading to poor growth and overall health of crop

9. PROBLEM ROOT CAUSE RC

Low rainfall or drought may lead to low yields. Hail or heavy rains could damage or even wipe out crops. Outbreaks of pests or diseases could also cause major yield losses in crops and livestock. The right amount of rainfall can balance out these factors, which can lead to healthier, larger crops that can be harvested more fully.

7. BEHAVIOUR BE

Farmers like Ramu who produce rain-fed crops are likely to have good yields if the rainfall is adequate. But it is not certain whether it will rain, how much rain will fall or whether that rain will fall at the right time. These farmers are uncertain of the crop yield because of the risks of weather. If farmers plant their crop and an average amount of rainfall occurs, yields could be high and the crop could generate a satisfactory profit for the farmer.

Focus on J&P, tap into BE, understand RC

Identify strong TR & EM

3.TRIGGERS TR

Ramu, a farmer is tired of losing crops and thus hisdaily wages due to irregular and heavy rainfall.

4.EMOTIONS:BEFORE/AFTER EM

BEFORE:
Unsure of what is to be done to save his crops from dying. Insecure due to the uncertainty in whether the crops will be safe till harvest.
AFTER:
Gained enough knowledge to predict and have decent control over the situation. Better crop yield than before and hence better income.

10.YOUR SOLUTION SL

We will be using machine learning classification algorithms. We will train and test the data with these algorithms. From this the best model is selected and saved in pickle format. Once the model is saved, we integrate it with the flask application and also deploy the model in IBM.

8. CHANNELS of BEHAVIOUR CH

8.1 ONLINE
Ramu, tried to research on how much water a particular crop requires. He also researched on how much average rainfall a particular month has seen on average in the past years, i.e., he studied the past trends.

8.2 OFFLINE
Ramu, tries to attend farmer training sessions on how to cope up with irregular rainfall and learnt various precautionary actions and also learnt the action he should take in worst scenarios to protect his crops.

Identify strong TR & EM