Project Title: Exploratory analysis of rainfall data in India for agriculture **Project Design Phase-I - Solution Fit Template**

Team ID: PNT2022TMID40831

Define CS, fit into CC

1. CUSTOMER SEGMENT(S) CS

- Farmers
- Employees/Workers associated with Agricultural activities
- Departments of the government or news organization seeking agricultural rainfall forecasts

6. CUSTOMER CONSTRAINTS CC

- Absence of Location Specific Climate Forecasts.
- Unstable network connection
- To estimate the duration and volume of rainfall before and take decisions accordingly.
- Limited time to make use of digital devices to get the prediction information

5. AVAILABLE SOLUTIONS AS

- Machine-learning algorithms such as MLP have been used by researchers to predict rainfall.
- Current state of the atmosphere, land, and ocean and using meteorology to project how the atmosphere will change at a given place.
- Announcements from the concerned authorities and notifications from connections on upcoming rainfalls affecting the agriculture

Explore AS, differentiate

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

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

- Sudden change in weather and immediate rainfall or showers
- Get proper analysis from previous data
- Achieve correct and accurate predictions
- Damage to crops due to heavy rainfall

9. PROBLEM ROOT CAUSE RC

- Unpredictability of changes in ocean currents that are responsible for affecting global weather systems
- Drastic variability in climate change
- Biodiversity loss
- Irregular rainfall in various regions of India

7. BEHAVIOUR BE

- Take suggestions from concerned authorities, agricultural scientists and other influencers to make decisions.
- Take decisions as per previous experiences and self-analysis.

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

3. TRIGGERS TR

• Any environmental conditions that have the potential to influence consumer behavior.
• Current losses and debts.
• Yearly crop damage due to heavy rainfall.
• Evolving market competition and change in demand supply.

4. EMOTIONS: BEFORE / AFTER EM

• Before : Paying debts, incurring losses, low crop production.
• After : Increase in crop production, making effective decisions, experiencing growth and profits

10. YOUR SOLUTION SL

• Region based analysis of previous years rainfall data to get the seasonal patterns with respect to the production of different sorts of crops
• Building a low-cost or free ML-based application 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.

8. CHANNELS of BEHAVIOUR CH

8.1 ONLINE

•Receive early notifications on their digital devices, especially mobiles or smartphones, through SMS or app alerts

8.2 OFFLINE

• Provides guidelines for long range or seasonal planning and selection of crops best suited to the anticipated climatic conditions.
• Community forums, meeting where farmers and other people can share ideas, discuss and decide on crop activities.