Project Design Phase-II
Technology Stack (Architecture & Stack)

| Date	15 October 2022
Team ID	PNT2022TMID08185
Project Name	Exploratory Analysis of Rainfall Data in India for Agriculture
Maximum Marks	4 Marks

Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2

Example: MOBILE APP(Rain detector)

Reference:
https://www.researchgate.net/publication/319402316_Trend_Analysis_in_Rainfall_Reference_Evapotranspiration_and_Aridity_Index_in_Southern_Senegal_Adaptation_to_the_Vulnerability_of_Rainfed_Rice_Cultivation_to_Climate_Change
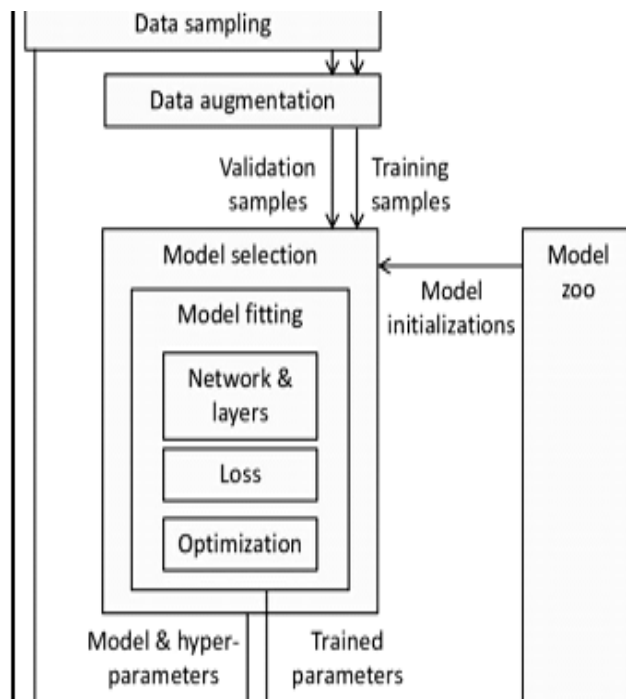
Guidelines:

1)Rain detector is an application used to detect rainfall
2)It prioritize the information before the rain fall which helps farmers to protect the crop.
3)For analyzing thee rainfall dataset machine learning model is used (python)

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Mobile app is used for analysing rainfall data	Python\Machine learning
2.	Application Logic-1	With the help of time series analysis	Python
3.	Application Logic-2	By using non linear model	IBM Watson STT service
4.	Application Logic-3	analysis of linear regression model	IBM Watson Assistant
5.	Database	Rainfall data set	MySQL, NoSQL, etc.
6.	Cloud Database	Database Service on Cloud	IBM Cloudant etc.
7.	File Storage	File storage requirements	IBM Block Storage or Other Storage Service or Local Filesystem
8.	External API-1	Analysing the weather condition before in meteorological stations	IBM Weather API, etc.
9.	External API-2	Analysing the rainfall conditions in heterological stations which helps the farmers to protect the crop yield and increase in growth of crop .	Aadhar API, etc.
10.	Machine Learning Model	Purpose of Machine Learning Model	Object Recognition Model, etc.
11.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Cloud Server Configuration :	Local, Cloud Foundry, Kubernetes, etc.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Crop 2ML generate model components considering crop simulation platform	Geographic information system
2.	Security Implementations	Ordinary security camera could keep on eye on rainfall	e.g. SHA-256, Encryptions, IAM Controls, OWASP etc.
3.	Scalable Architecture	The architecture that refl	Datasets using python
4.	Availability	Justify the availability of application (e.g. yahoo weather,skyme,mausam app)	Data sets using python
5.	Performance	Design consideration for the performance of the application (analysing the rainfall and weather condition in India) etc.	Datasets using python

References:

https://c4model.com/

https://developer.ibm.com/patterns/online-order-processing-system-during-pandemic/

https://www.ibm.com/cloud/architecture

https://aws.amazon.com/architecture

https://medium.com/the-internal-startup/how-to-draw-useful-technical-architecture-diagrams-2d20c9fda90d