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

Date	14 October 2022
Team ID	PNT2022TMID47681
Project Name	Project –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

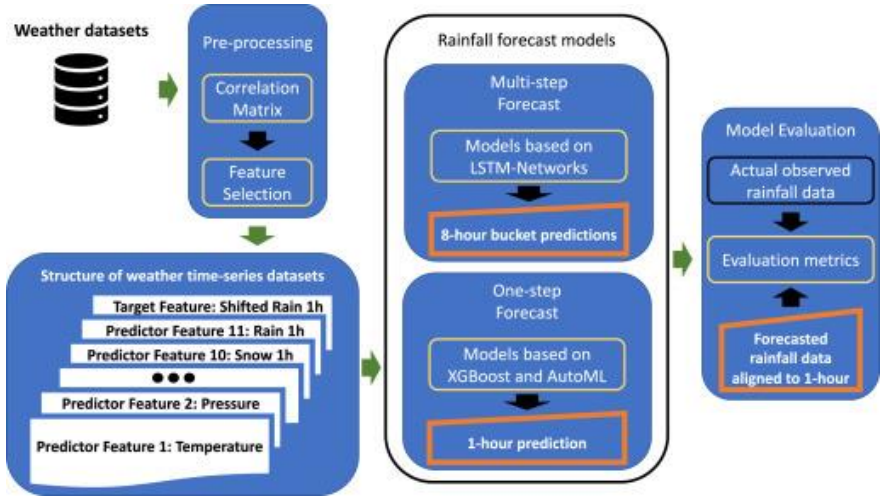

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Web GUI	HTML, CSS, JavaScript / Angular Js / React Js.
2.	Application Logic-1	HYDRO-LOGICAL MODELLINNG	Python toolkit.
3.	Application Logic-2	RUN OFFMODELLING	ArcGIS analyst tool.
4.	Database	Gauge data set , merge data set, satellite only data sets(GPCP,CMAP,CRU TS).	MySQL, NoSQL.
5.	Cloud Database	Database Service on Cloud provides data security by design.	IBM DB2, NoSQL.
6.	File Storage	Cloud stores the meteorological information.	AWS(Automatic weather station), CWS(Conventional weather station).
7.	External API-1	Weather stack	REST API.
8.	External API-2	Visual crossing API	IBM cloud API.
9.	Machine Learning Model	Machine Learning Model such as MLP is the most popular neural network for predict rainfall.	Object Recognition Model.
10.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration: 4GB Ram,I5 core Cloud Server Configuration :memory, space,Speed configuration	Local, Cloud Foundry, Kubernetes, etc.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Software tools are used to processing the hydrological data.	Standard Microsoft windows, openmeteo.org framework
2.	Security Implementations	Security protocols and schemes for ensuring the availability ,integrity and the confidentiality of the system and data.	SHA-256, Encryptions, IAM Controls, OWASP.

S.No	Characteristics	Description	Technology
3.	Scalable Architecture	The micro services that not only handle a large no of tasks or requests at the same time.	REST, Micro services Framework python.
4.	Availability	Agrible pocket rain gauge.	Digital database forecasting, PWS.
5.	Performance	Provides the categorical statics, descriptive statics, and bias decomposition on the basis of rainfall intensity classification. This classification makes possible to measure rainfall data.	TRMM, GPM IMERG.

REFERENCE:

https://developer.ibm.com/tutorials/watson-studio-using-jupyter-notebook/