Technology Stack[Architecture & Stack]

Date	14th October 2022
Team ID	PNT2022TMID25913
Project Name	Exploratory Analysis of RainFall Data in India for Agriculture
Maximum Marks	4 Marks

Technical Architecture:

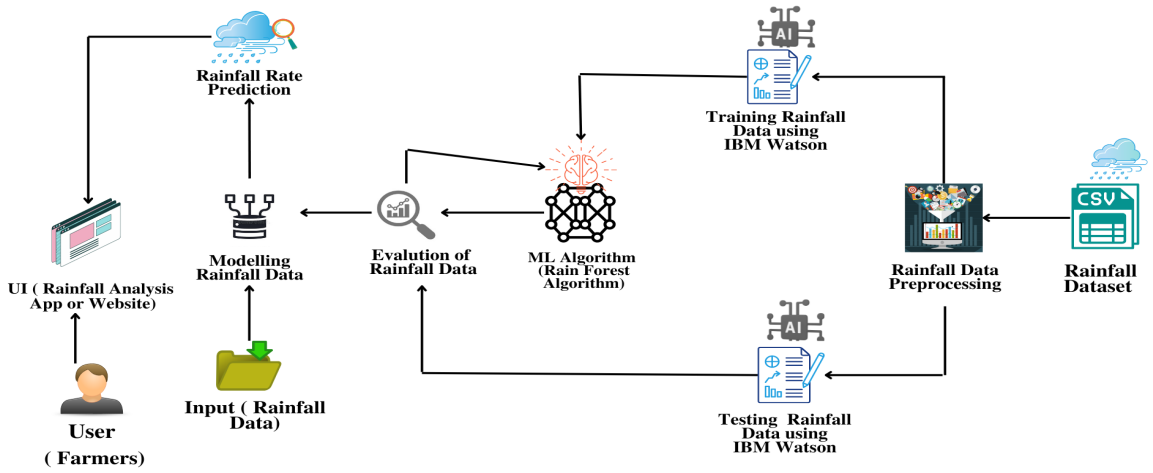

Table-1: Components & Technologies

S.No	Component	Description	Technology
1.	User Interface	How the user interacts with applications e.g., Web UI, Mobile App.	HTML, CSS, JavaScript, Bootstrap, React JS
2.	Database	Here the data can be stored and retrieved during the execution.	CSV Store, NoSQL
3.	Cloud database	It is used for integrating components while using python flask	IBM DB2, IBM Cloudant
4.	API	It is used to call the functions in order to access the execution in another framework	Python Flask , NodeJS
5.	Application Logics	The logic for every process in the application	Python, JavaScript
6.	Machine Learning Model	With the help of ML algorithms the model is developed to predict rainfall.	Sklearn Regressors, ML Algorithms, XGBoost
7.	Data Pre-processing and Analysis	The available data is formatted or converted into the format which will be suitable for the ML model	Numpy, Matplotlib, Pandas, Seaborn, Geopandas

Table-2: Application Characteristics

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Backend Framework, Non-structured Database, CSS Framework styling	Python Flask / NodeJS, MongoDB, IBM DB2, CSS
2.	Security Implementations	Email Verification and authentication, and authorisation is done by using JSON object to compare the data exists in database	SSL Certs, Direct verification using Backend Framework
3.	Scalable Architecture	Used to ensure that enough resource is allocated on the hosting platform to keep up with demand	IBM Cloud Kubernetes Service
4.	Availability	The website is made available by hosting it in cloud hosting platforms	Heroku cloud hosting (for testing) , IBM cloud hosting
5.	Performance	Multiple prediction requests are handled simultaneously without affecting the speed and accuracy of prediction	Load Balancers and Distributed servers