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

Date	17 October 2022
Team ID	PNT2022TMID28033
Project Name	Exploratory Analysis of Rainfall Data in India for Agriculture
Maximum Marks	4 Marks

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	Website	User interacts with the prediction model through the website to predict the rainfall data	HTML, CSS, JavaScript
2.	Cloud Database	Database Service is provided from IBM Cloud	IBM cloud DB
3.	File Storage	Files are stored in the IBM cloud	IBM Block Storage in IBM cloud
4.	API	Used to extend the service to other applications	Flask Application
5.	JWT & Sessions	It is used for Handling JSON web tokens(signing, verifying,decoding)	PyJWT, Flask-Sessions
6.	Machine Learning Model	This model is developed to predict the rainfall using ML algorithms	Sklearn, Algorithms - DT & MLR
7.	Data Processing	Data is pre-processed and then used for prediction of rainfall.	Pandas, Numpy, Matplotlib, Seaborn

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Backend Framework, CSS Styling framework, Relational Database	PyJWT, Flask, IBM Cloud DB
2.	Security Implementations	Request authentication using JWT Tokens	HS-256, Encryptions, SSL Certs
3.	Scalable Architecture	Support for Multiple Sample prediction using Excel File	Pandas, Numpy
4.	Availability	Availability is increased by using Distributed Servers in Cloud VPS	IBM Cloud Hosting
5.	Performance	The application is expected to handle multiple predictions per second	Load Balancers, Distributed Servers

Technical Architecture: