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

Date	17 October 2022
Team ID	PNT2022TMID30627
Project Name	EXPLORATORY ANALYSIS OF RAINFALL DATA IN INDIA FOR AGRICULTURE.
Mark	4 Marks

Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2 Technology architecture associates application components from application architecture with technology components representing software and hardware components. Its components are generally acquired in the marketplace and can be assembled and configured to constitute the enterprise's technological infrastructure

Table-1 : Components & Technologies:

S.NO	COMPONENTS	DESCRIPTION	TECHNOLOGY
1.	User interface	To anticipate the data for rainfall, the user engages with the prediction model via a website.	HTML, CSS, JavaScript
2.	Cloud Database	The model receives information from an IBM cloud database.	IBM Cloud DB, ibm_db(python package)
3.	APL	used to expand service to additional applications	Flask Application
4.	JWT&Sessions	Is employed to extend service to more applications	PyJWT, Flask Application
5.	Machine Learning Model	This model was created to forecast rainfall using machine learning	Sklearn, Algorithms - DT & MLR
6.	Data processing	preprocessing of the data is followed by prediction	Pandas, Numpy, Matplotlib

Table-2: Application Characteristics:

S.NO	CHARCTERITICS	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	File Pandas, Numpy
4.	Availability	Availability is increased by 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: