PROJECT DESIGN PHASE-II
Technology Stack (Architecture & Stack)

Team ID	PNT2022TMD39901
Project Name	Exploratory Analysis of Rainfall Data in India for Agriculture
Team Leader	Saravana kumar K
TeamMembers	Lokesh B, Martin Thomas Y, Magesh P

Components & Technologies:

S.No	Component	Description	Technology
1.	Mobile	Downloads and installs the application, logs into it	HTML, CSS, Flask, python
2.	Registration	Enters the phone number and gets an OTP message to login	Python, Flask
3.	Rainfall Prediction	Enters the month and year	Python, Flask
4.	Database	Rainfall data set downloaded from the web	MySQL.
5.	Cloud Database	Database Service on Cloud	IBM DB2, IBM Cloudant etc.
6.	Data Pre-processing	Data is processed and missing values are omitted, so the data can be used to training the model	Pandas, NumPy, Matplotlib modules of python
7.	Machine Learning Model	Random forest algorithm is used with decision trees to improve the accuracy of prediction	Sklearn, Seaborn
8.	Result	This application shows the predicted rainfall data with the crop's suggestions	Python, Flask
9.	Crops	This shows the list of crops and its details about it	HTML, CSS, Flask

Application Characteristics:

S. No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Python, Flask	Python
2.	Security Implementations	The personal details of the farmer are secured and protected	Encryption methods
3.	Scalable Architecture	It can grow and adapt with ease. It is designed for scalability and flexibility that offers help to farmers	Python, Flask
4.	Availability	The infrastructure of the system provides recoverability and protection from system failure	Flask
5.	Performance	The application is developed in such a way to predict rainfall for multi user at a same time	Flask, Python

Technical architecture: