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

Date	03 October 2022
Team ID	PNT2022TMID02306
Project Name	Estimate the Crop Yield Using Data Analytics
Maximum Marks	4 Marks

Technical architecture:

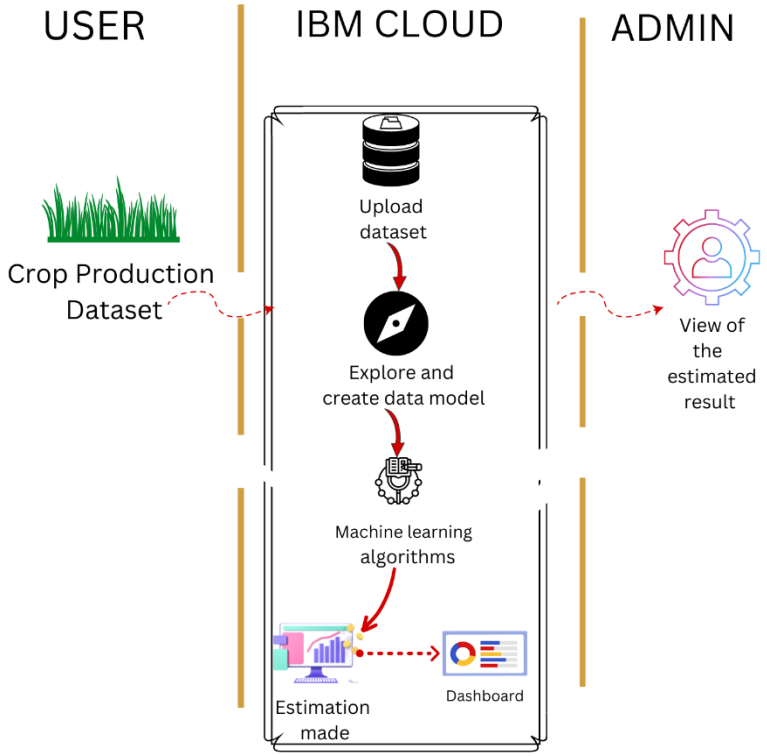

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	How user interacts with application e.g. Web UI, Mobile App, Chatbot etc.	Python, IBM Cognos
2.	Remote sensing data	The data prepared for estimate crop yield	Python
3.	Weather data	The weather data prepared for crop production	IBM Watson service
4.	Crop yield data	Data for amount of a crop harvested in sample area	IBM Watson Assistant
5.	IBM Cognos	Data analytics platform	IBM Watson service
6.	Support vector machine	To choose the right crop to the area and climatic condition	IBM Assistant, Python
7.	Constrained clustering	Semi-supervised approach to clustering data while incorporating domain	IBM Cognos, Python
8.	Multivariate spatial modelling	Multivariate spatial processes are a rapidly growing fields specified with matrix-valued cross-covariance function	IBM Cognos
9.	IBM Cloud	Storage of data	IBM DB2
10.	Crop pixels detected and clustered	Purpose of external API to detected and clustered	Object Recognition Model, Weather API.
11.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration: Cloud Server Configuration :	Local, Cloud Foundry, etc.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	List the open-source frameworks used – it empowers the farmers and to increase the productivity there is need to provide the best dissemination tool for their farming activities.	Cognos analytics
2.	Security Implementations	List all the security / access controls implemented, use of firewalls etc.	e.g. SHA-256, Encryptions
3.	Scalable Architecture	The estimate of crop yield is based on soil, meteorological, environmental, and crop parameters	Python - Machine learning
4.	Availability	Both website and mobile application interface and developed in local language and the content is available in localized language	Python- Anaconda
5.	Performance	Multiple technologies and services that will improve the usability in agricultural activities	Python and other languages is that pythonis usually interpreted